European Energy and Transport

TRENDS TO 2030 - UPDATE 2007

Directorate-General for Energy and Transport

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DIRECTORATE-GENERAL FOR ENERGY AND TRANSPORT

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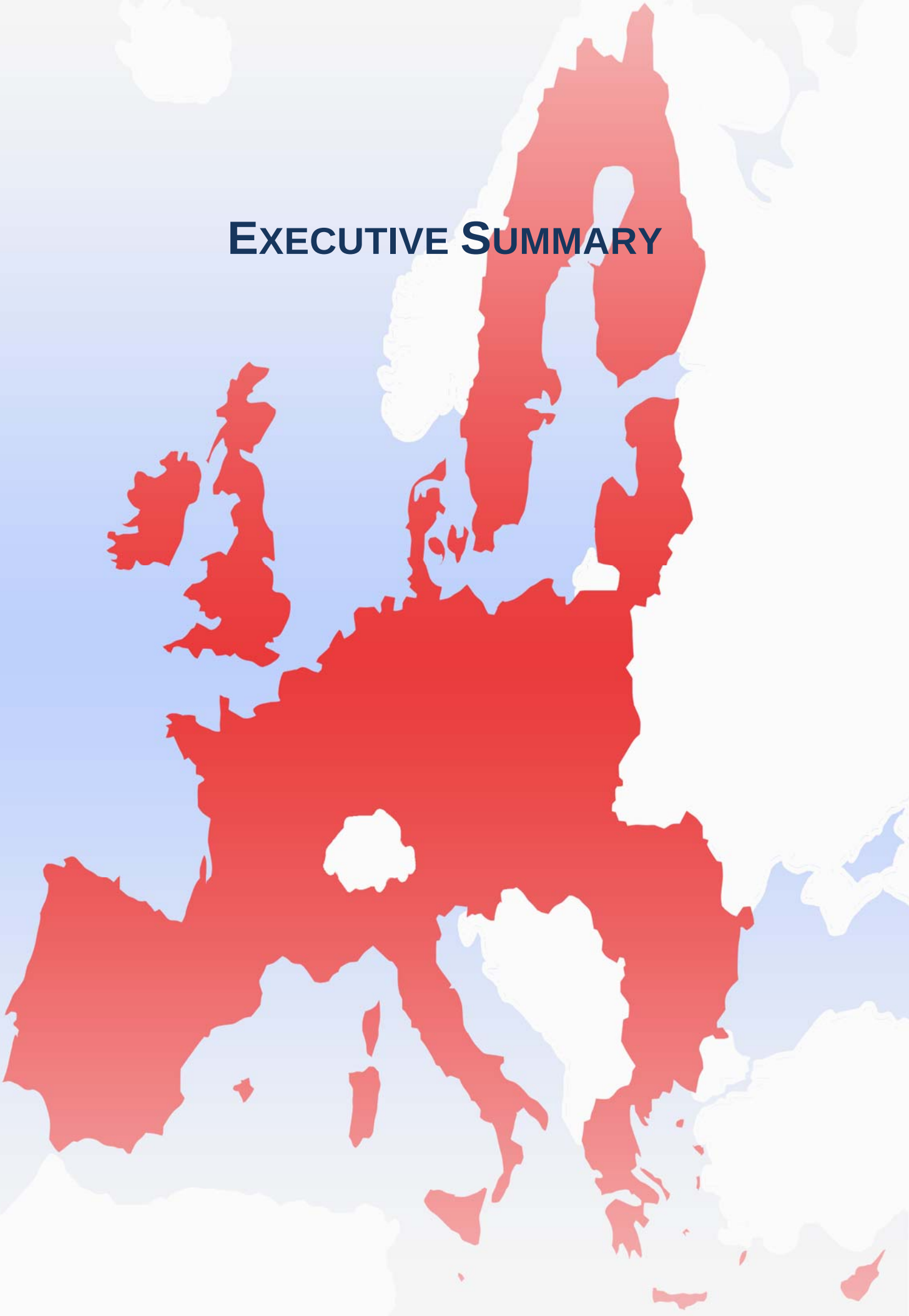
ABBREVIATIONS & UNITS

ACEA, JAMA, KAMA	Automobile Manufacturers Associations
CIS	Commonwealth of Independent States
DG	Directorate-General
DG ECFIN	Directorate General for Economic and Financial Affairs
DG TREN	Directorate General for Energy and Transport
EU	European Union
EU ETS	Emission Trading Scheme
EU-15	15 "old" Member States of European Union
EU-27	27 Member States of European Union
EUROSTAT	Statistical Office of the European Communities
IEA	International Energy Agency
IPPC	Integrated Pollution Prevention Control
NM-12	12 New Member States of European Union
OECD	Organization for Economic Cooperation and Development
UN	United Nations
UNFCC	United Nations Framework Convention on Climate Change
CDM/JI	Clean Development Mechanism - Joint Implementation
CCGT	Combined Cycle Gas Turbine
CCS	Carbon capture and storage
CHP	Combined heat and power
COP	Coefficient of Performance
GDP	Gross Domestic Product
GIC	Gross Inland Consumption
RES	Renewable Energy Sources
R&D	Research and Development

bbl	Oil barrel
bcm	Billion of cubic meters
boe	Barrel of oil equivalent
Gbl	Giga-barrels, or 10^9 barrels
km	Kilometre
Mb/d	Million barrels per day
Mbl	Million barrels
MEuro	Million Euro
Mt	Million metric tonnes
Mtoe	Million toe
MW	Mega Watt, or 10^6 watt
MWh	Mega Watt Hours, or 10^6 watt hours
GW	Giga Watt, or 10^9 watt
pa	per annum
pkm	Passenger-Kilometre (one passenger transported a distance of one km)
t	Metric tonne, or 1000 kilogrammes
tkm	Tonne-Kilometre (one tonne of freight transported a distance of one km)
toe	Tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)
tons	Metric tonne, or 1000 kilogrammes
TWh	Terra Watt-hour, or 10^{12} watt hours
CNG	Compressed Natural Gas
CO_2	Carbon Dioxide
GTL	Gas to Liquids
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
PV	Solar photovoltaic
SUV	Sport-utility vehicle

EXECUTIVE SUMMARY



Introduction

The Baseline scenario finalised in November 2007 gives an update of the previous trend scenarios, such as the "Trends to 2030" published in 2003 and its 2005 update.

The new Baseline scenario takes into account the high energy import price environment of recent years, sustained economic growth and new policies and measures implemented in the Member-States.

The results were derived with the PRIMES model by a consortium led by the National Technical University of Athens (E3MLab), supported by some more specialised models. The Baseline scenario for the EU and each of its 27 Member-States simulates current trends and policies as implemented in the Member-States by the end of 2006. While informing about the development of policy relevant indicators, such as the renewables shares, the Baseline scenario does not assume that targets, as set out in Directives, will be necessarily met. The numerical values for these indicators are outcomes of the modelling; they reflect implemented policies rather than targets. This also applies for CO_2 emissions that are not constrained by Kyoto targets in the Baseline scenario.

Policy scenarios that will be constructed with reference to the Baseline scenario examine – among other things – the achievement of energy policy targets on e.g. renewables or CO_2. The Baseline scenarios is a reference development for scenarios on alternative policy approaches or framework conditions (e.g. higher energy import prices), in addition to its role as a trend projection.

All numbers included in this report, except otherwise stated, refer to European Union of 27 Member-States.

Assumptions

The 2007 update of the energy Baseline scenario starts from projections on economic growth (2.2% on average up to 2030), in line with DG ECFIN short and long term expectations, as well as slightly increasing population up to 2020 with no further increase thereafter.

The energy projections are based on a high oil price environment with oil prices of 55 $/bbl in 2005 rising to 63 $/bbl in 2030 (prices are in 2005 money; in nominal terms this could be over 100 $/bbl in 2030 if it is assumed that the inflation target of the ECB of 2% pa would be achieved). The baseline price assumptions for the EU are the result of world energy modelling that derives price trajectories for oil, gas and coal under a conventional wisdom view of the development of the world energy system. Fossil fuel prices in the Baseline scenario develop as follows:

TABLE 1: BASELINE PRICES OF FOSSIL FUELS

$'2005/boe[1,2]	2005	2010	2015	2020	2025	2030
Oil	54.5	54.5	57.9	61.1	62.3	62.8
Gas	34.6	41.5	43.4	46	47.2	47.6
Coal	14.8	13.7	14.3	14.7	14.8	14.9

Tax rates are kept constant in real terms at their 2006 levels unless there is better knowledge. This concerns transition periods for some Member-States to adapt to EU minimum tax rates from current lower levels, with the EU minimum rates being applied at the end of the respective transition periods.

The CO_2 prices in the ETS sectors increase from 20 €(2005)/t CO_2 in 2010 to 22 €/t CO_2 in 2020 and 24 €/t CO_2 in 2030 reflecting current levels and preserving the baseline approach of assuming a continuation of current policies – but taking into account that CDM/JI credits may become more expensive over time.

The 2007 Baseline scenario includes policies and measures implemented in the Member-States up to the end of 2006. This concerns in particular ongoing policies on:

- Completion of the internal energy market by 2010 taking into account derogations for electricity and gas market opening;
- Energy efficiency (e.g. implementation of the building, CHP, labelling Directives, etc; national policies on e.g. education, information, public procurement, CHP, etc); the assumption that the CO_2 agreement with the car industry (essentially fuel efficiency) for 2008/09 would be honoured had to be dropped but there is still considerable improvement assumed;
- Renewables (e.g. implementation of measures under the electricity and biofuels Directives, ongoing national policies supporting RES deployment);
- Nuclear (nuclear phase-out as agreed in certain Member-States, closure of existing plants in recently acceded Member-States according to agreed schedules; nuclear investment is possible in countries that have not ruled out nuclear or see such investment as unlikely for the medium term);
- Promotion of clean and efficient technology including carbon capture and storage (CCS) – which is a possible option in the Baseline scenario[3];
- Climate change (continuation of the EU ETS over the projection period without extension to new sectors).

[1] The dollar exchange rate is assumed to equal 1.25 €.

[2] boe: barrel of oil equivalent (roughly 7.2 boe = 1 toe)

[3] The final Baseline scenario outcome does not include CCS as an economic option given its high costs and a CO_2 price below 25 €/ t CO_2 in 2030.

Overall results

Total EU-27 energy requirements continue to increase up to 2030. In 2030 primary energy consumption is 11% higher than in 2005. The energy growth rates become smaller over time with consumption almost stabilising post 2020 reflecting lower economic growth and stagnating population in the last decade of the projection period.

The 11% increase in the primary energy consumption by 2030 is much lower than the GDP growth over the same period (71%). Thus, energy intensity (i.e. ratio between primary energy consumption and GDP) improves by 1.7 % per year up to 2030 after having seen an improvement of 1.4% per year during 1990 – 2005, including a period of rapid improvements in the 1990s (1.8% per year). There has been a slowing down of energy intensity improvements in the earlier years of this decade, following sluggish economic growth with lower capital turn-over towards energy efficient equipment. Energy intensity improvements are driven by structural change towards services and lighter industries as well as by efficiency improvements in all sectors.

The primary energy consumption increase of some 200 Mtoe between 2005 and 2030 will be overwhelmingly met by renewables and natural gas, which are the only energy sources that increase their market shares. Oil remains the most important fuel, although its consumption in 2030 exceeds the current level by only 6%.

Renewables increase most, growing by over 90% from today to 2030. In absolute terms they increase by 115 Mtoe from 2005 to 2030 accounting for nearly 60% of the increase of energy demand. RES use increases most in power generation, followed by transport and heating and cooling.

Natural gas demand is expected to expand considerably by 71 Mtoe up to 2030, after the substantial increase already seen up to now. Solid fuels are projected to exceed their current level by 5% in 2030, following high oil and gas prices and the nuclear phase-out in certain Member-States.

As a result of political decisions on nuclear phase-out in certain old Member-States and the closure of plants with safety concerns in some new Member-States, nuclear energy is 20% smaller in 2030 than it was in 2005. Although nuclear generation has been rising in recent years, after 2010 the agreed policies on nuclear and the replacement cycles for older plants lead to more nuclear plant closure than there will be new investment in nuclear.

Carbon intensity (ratio of CO_2 emission to energy consumption) continues to improve up to 2010. However, this improvement comes to a halt after 2010 as nuclear plants are progressively retired and largely replaced by coal without renewables making sufficient progress.

FIGURE 1: PRIMARY ENERGY REQUIREMENTS BY FUEL

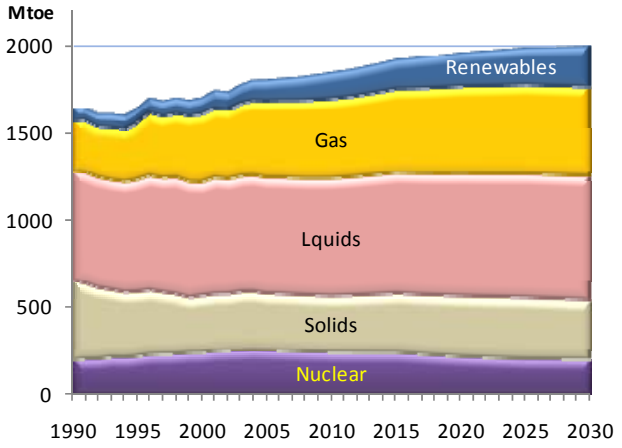


FIGURE 2: ENERGY AND CARBON INTENSITY INDICATORS

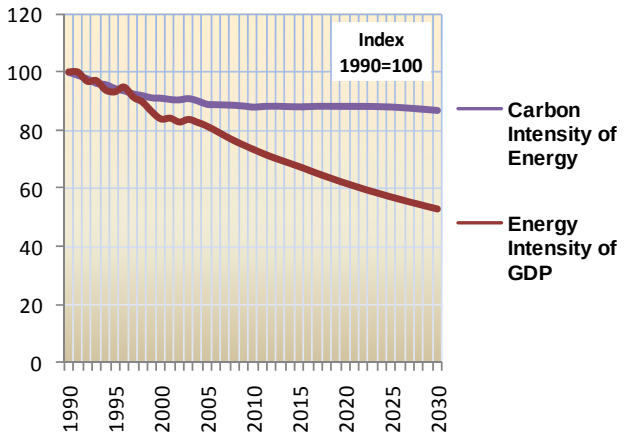


TABLE 2: SHARE OF ENERGY SOURCES IN TOTAL PRIMARY ENERGY

%	1990	2000	2005	2010	2020	2030
Solid fuels	27.3	18.8	17.7	17.2	17.4	16.7
Oil	37.9	38.0	36.7	36.4	35.7	35.3
Gas	17.9	23.0	24.6	24.9	25.7	25.7
Nuclear	12.3	14.2	14.2	13.2	11.3	10.3
Renewables	4.5	5.9	6.8	8.2	10.0	11.8

The share of fossil fuels in total energy consumption falls only marginally by 2030, reaching 78% (compared with 79% in 2005). Solid fuels and oil lose roughly 1 percentage point each, while the gas share increases by 1 percentage point.

The renewables share in primary energy consumption rises throughout the projection period from less than 7% in 2005 to 8% in 2010, 10% in 2020 and 12% in 2030. Nevertheless, under baseline conditions the EU target on renewables for 2010 will not be achieved. The renewables share in final energy demand rises by 4 percentage points between 2005 and 2020 reaching 12.7% in 2020. Achieving the 20% renewables target for 2020 will require a substan-

tial additional effort compared with baseline developments, which includes only those measures implemented in the Member-States by the end of 2006.

The share of nuclear in total energy consumption drops slightly, from 14% in 2005 to 13% in 2010 and to only 10% by 2030. In total the share of indigenous and carbon free energy sources rises marginally, from 21% in 2005 to 22% in 2030.

Import dependence continues growing to reach 67% in 2030, which is up 14 percentage points from today's level[4]. Import dependence for oil continues to be the highest, reaching 95% in 2030. Gas import dependence rises substantially, from 58% at present to 84% in 2030. Similarly, solid fuel supply will be increasingly based on imports, reaching 63% in 2030 (up from just under 40% today).

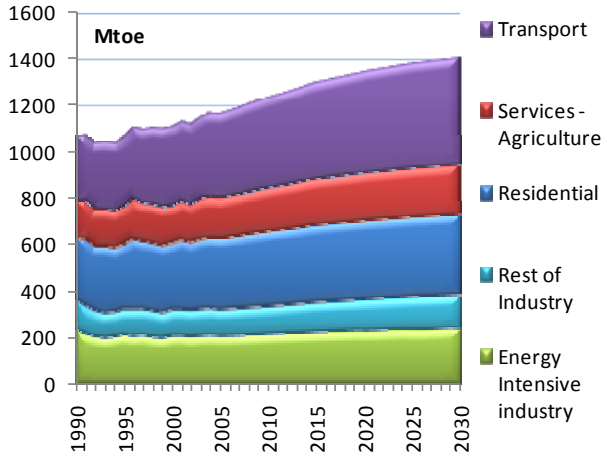
Energy related CO_2 emissions (including international air transport) sank in the 1990s and in this decade started increasing again. EU-27 energy related CO_2 emissions are expected to remain below the 1990 level up to 2010, by 1.2%, thanks to the developments in the new Member-States (in particular related to economic restructuring in the 1990s) and climate policies (such as the EU ETS). However, in the medium and long term, CO_2 emissions are projected to increase significantly, exceeding the 1990 level by 5.1% in 2020 and by 5.4% in 2030. In the long term, the moderate CO_2 increase reflects the low energy consumption growth and the rather strong role of renewables.

Final energy demand

Final energy consumption for transport and stationary purposes (e.g. in industry and households) increases by 20.5% from 2005 to 2030. This is 10 percentage points more than the growth of primary energy demand (which, in addition to final energy, includes losses in electricity generation and other transformation processes as well as energy use for non energy purposes, such as chemical feedstock). The lower percentage increase of total primary energy consumption compared with final energy demand means that there are significant improvements in the transformation efficiency of the EU energy system over the next decades. The replacement of old power stations with more efficient ones is driving this development.

Final energy demand grows most in transport, followed by the services sector with robust growth also in industry (especially lighter non-energy intensive industries). By comparison, demand growth is rather low for households and agriculture.

FIGURE 3: FINAL ENERGY DEMAND BY SECTOR



Transport energy demand in 2030 is projected to be 28% higher than in 2005. After having seen very high growth rates in the 1990s, the increase of energy use for transportation decelerates. In the projection period, transport energy demand growth rates decline over time. This reflects the decreasing growth rates over time of both passenger and freight transport activity. In addition, there are fuel efficiency improvements in particular in passenger transport (e.g. private cars). Therefore, energy demand in transport grows less than transport activity (in passenger- and tonne-km). However, the assumption that the car industry would deliver on the CO_2 targets for new cars by 2008/09 had to be dropped and therefore fuel efficiency improves somewhat less than expected a few years ago.

Contrary to the past, the projection period displays some significant fuel switching in the transport sector as a result of the implementation of the biofuels Directive. Under baseline conditions the biofuels share in 2010 rises strongly to almost 4% - however, falling somewhat short of the indicative target of 5.75%. Nevertheless, this target would be met in 2015 and the share continues increasing up to 2030 to reach 9.5%. As a consequence, CO_2 emissions from transport are expected to grow less than energy use (20% versus 28% from 2005 to 2030).

Energy demand in industry is 20% higher in 2030 compared with 2005. Heavy industries (such as iron and steel) grow slower than lighter less energy intensive ones (e.g. engineering). Energy intensity in industry (energy consumption in industry related to value added) improves therefore by 1.4% per year up to 2030. This shift in the production structure also entails much higher use of electricity in industry (+ 37%). With strong penetration of electricity in in-

[4] Import dependence could be even higher to the extent that renewables, especially biofuels, would be imported from outside the EU; such imports may not yet be fully represented in the PRIMES model.

dustry there is much lower growth of CO_2 (+6%) compared with growth of industrial energy consumption (+20%)[5].

Energy demand for services is projected to be 26% higher in 2030 than in 2005, reflecting the increasing share of services in modern economies. This development is driven by increasing demand for electricity (e.g. office equipment). With this strong penetration of electricity in the service sector, there is a stabilisation of CO_2 emissions from services compared with the 26% increase of energy demand.

On the contrary, energy demand in agriculture increases least, growing nevertheless by 8% between 2005 and 2030.

Household energy demand is expected to rise by 12% between 2005 and 2030. The increasing number of households (+14% up to 2030), following demographic and lifestyle changes towards smaller household size, is an important factor for this development. On the other hand, there are some saturation effects concerning heating energy demand. The increasing use of electric appliances and air conditioning entail rising electricity demand (+34%). Given this shift towards electricity use by households, CO_2 emissions from households remain stable up to 2030 at the present level (compared with a 12% increase in energy demand).

Overall, electricity shows the most important increase in final energy demand (+38% up to 2030). There is also strong growth of heat from CHP and district heating (+17%). Oil demand increases by 12% due to growing transportation fuel demand and despite some replacement by gas and electricity in stationary uses. Natural gas continues to make inroads for heating purposes (+14%).

Solid fuels continue to decline strongly so that their use becomes more and more concentrated in some heavy industries. Final demand of renewables almost double, encompassing both traditional uses, such as wood combustion, but also biofuels in transport and solar water heating. Higher deployment of biofuels is the major driving force for greater renewables penetration in final demand (as distinct from renewables used for power generation, where hydro and wind are established sources with a great potential for further wind penetration).

Power generation

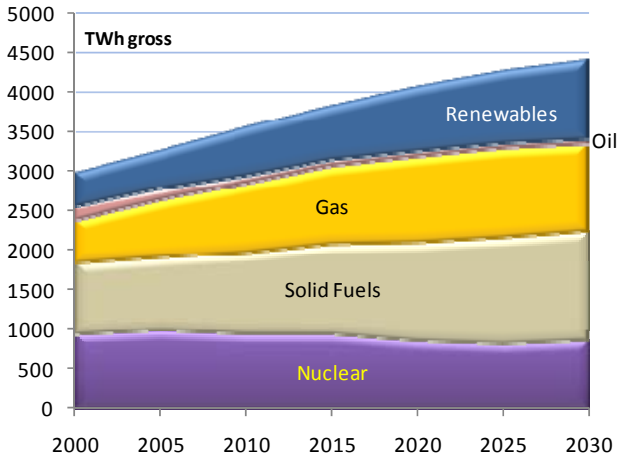
Following soaring electricity demand, power generation is expected to grow considerably given the limited potential for higher electricity imports from outside the EU. Electricity generation is expected to increase by 35% between 2005 and 2030. An increasing share of electricity will be produced in form of combined heat and power (up 8 percentage points to reach a 21 % CHP share in 2030).

The structure of power generation changes significantly in favour of renewables, natural gas and solid fuels, whereas nuclear and oil lose market shares.

The renewables share in gross power generation[6] rises to 17.4% in 2010 – which falls however short of the indicative target of the renewables electricity directive – indicating that the measures implemented in the Member-States by the end of 2006 are not yet sufficient[7]. In any case, the Baseline scenario shows a dynamic development in renewables penetration in electricity, as the renewables share in gross generation rises further to 20% in 2020 and 23% in 2030.

This development is clearly driven by the high growth rates of wind energy – especially in this decade; but growth rates are still impressing in coming decades. In total, wind energy in 2030 provides over 15 times as much electricity as was available from this source in 2000. In 2030, wind power is expected to produce almost as much electricity as hydro.

FIGURE 4: GROSS ELECTRICITY GENERATION BY SOURCE



Biomass use for power generation also rises considerably; solar PV displays high growth rates from a small basis, while the additional contribution from hydro power is small as a result of limited additional potential and environmental restrictions.

Nuclear declines due to political decisions. The nuclear share falls from over 30% today to only 20% in 2030 despite considerable investment in new nuclear plants in

[5] It should be noted that CO_2 emissions are accounted for in the sectors where they arise (e.g. power generation) and not in the sectors that ultimately cause them, such as industry, services or households using more and more electricity.

[6] The renewables share in net electricity generation amounts to 17.9% in 2010; net electricity generation corresponds to gross electricity generation minus the consumption of the auxiliary services of the power station.

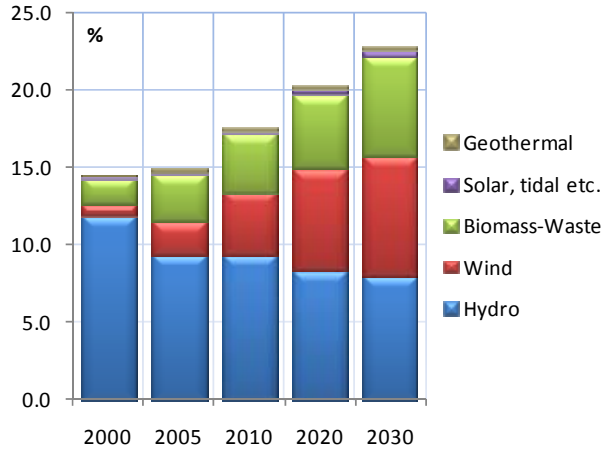
[7] The comments received from the Member States experts on the draft baseline suggested a downward revision of wind and hydro production especially for the short and medium term in several Member States.

countries without restrictions on nuclear. Overall, the share of indigenous and carbon free sources (renewables plus nuclear) decreases somewhat, from currently 45% it reaches 43% at the end of the projection period.

Solid fuels increase their share in power generation as a result of prevailing high gas prices and in their function as replacement for nuclear. Nevertheless, gas continues to gain market share due to its advantages as clean, efficient and low carbon fuel. The role of oil diminishes further in power generation. Overall, the share of fossil fuels increases somewhat in power generation reaching 57% in 2030, up from 55% in 2005.

As a result of these changes towards fuels with zero or low carbon content (renewables and gas), CO_2 emissions from power generation (+6% by 2030) grow considerably slower than electricity production (+35%). Consequently, the carbon intensity of power generation declines.

FIGURE 5: RENEWABLES SHARE IN ELECTRICITY GENERATION (GROSS)



However, post 2010 the decrease of carbon intensity decelerates on account of the nuclear phase-out becoming effective and the ensuing replacement of nuclear with coal, which is not sufficiently compensated by the further penetration of renewables. In addition, high oil and gas prices discourage further penetration of natural gas, leaving much scope for solid fuels in the Baseline scenario that does not assume CO_2 targets to be necessarily met.

The increasing electricity demand and to some extent the higher penetration of intermittent renewables require substantially higher power generation capacities.

The net capacity increase up to 2030 amounts to 227 GW, which corresponds to 31% of the present generation capacity. In addition, the power plants that will be closed over the next decades need to be replaced. The net increase of generation capacity concerns exclusively renewables and natural gas. Coal and lignite plants due for closure will be replaced with much more efficient ones strongly increasing solid fuel fired power generation. On the other hand, not all nuclear plants will be replaced with power stations of the same type at the end of their techno-economic or "political" lifetime[8]. This applies also for oil plants on economic grounds.

CO_2 emissions

Energy related CO_2 emissions remain below the 1990 level up to 2010 (by 1.2%) but continue to increase through 2030 as they have already done in this decade. CO_2 emissions exceed the 1990 level by 5.1% in 2020 and by 5.4% in 2030. These results reflect ongoing climate change policies but also the accession of new Member-States.

The CO_2 results for EU-15 (which has a Kyoto target of minus 8% for greenhouse gases) are much more alarming. EU-15 CO_2 in 2010 (mid-year of the first Kyoto budget period) are projected to be 5.6% higher than they were in 1990 and these emission in EU-15 are expected to increase further by 2030 to 11% above the 1990 level.

Seen from the Baseline perspective, the greenhouse gas target for 2020 of at least 20% reduction below 1990 for EU-27 is challenging – even taking into account the contribution of other greenhouse gases or Kyoto flexibility mechanisms.

The Baseline CO_2 emission increase of 206 million tons CO_2 between 1990 and 2020 is mainly due to transport (+403 million tons) and power generation (+84 million tons). CO_2 from industry plummeted in the 1990s (-164 million tons) and are expected to stay at this low level up to 2030. Emissions are forecast to remain below the 1990 level in the other sectors (e.g. services, households) due to fuel switching to gas and especially electricity, for which the CO_2 emissions are accounted under power generation.

The transport emission increase reflects strong growth in transport demand for both passenger and freight, a further change of the modal split towards less efficient modes such as aviation and road as well as limited improvements in fuel efficiency especially for cars and trucks.

In power generation, CO_2 emissions rise as a result of strong electricity demand growth accompanied by limited improvements in carbon intensity (CO_2 emissions per TWh electricity production). Power plant carbon intensity is improving moderately, as a result of better energy efficiency through new power plants as well as renewables and natural gas penetration. However, improvements are limited through the declining share of nuclear, which is compensated by more coal.

[8] Power plant investments are endogenously determined in the PRIMES model, unless there are restrictions on e.g. the construction of nuclear plants (e.g. countries having excluded nuclear) or phase-out decisions.

FIGURE 6: CHANGE OF ENERGY-RELATED CO_2 EMISSIONS SINCE 1990

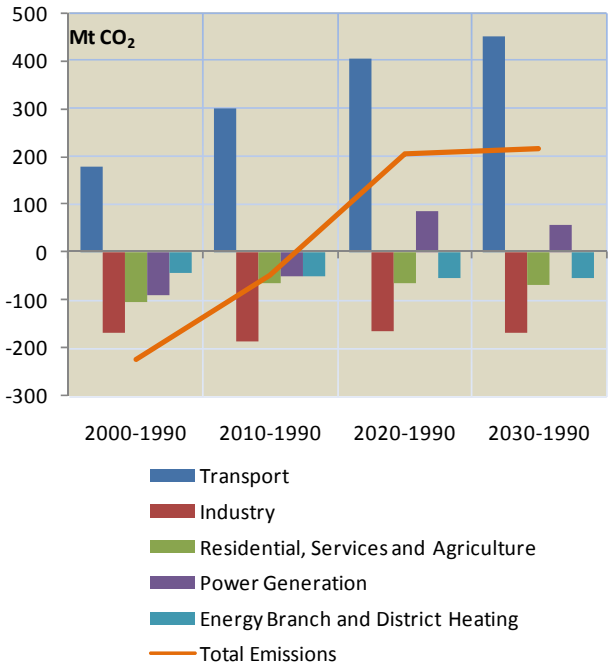
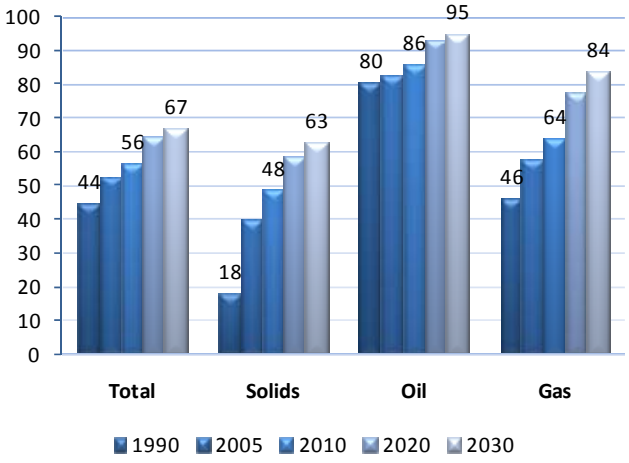


FIGURE 7: IMPORT DEPENDENCE OF THE EU



Conclusions

The 2007 Baseline shows several challenges ahead for energy policy; hence stepping up policies in various fields is needed.

This concerns in particular energy efficiency to curtail energy demand growth as well as action on renewables to achieve agreed targets, to further diversify energy supply and reduce CO_2 emissions.

Better energy efficiency should contribute to improving European competitiveness and will be important for managing external dependence in the context of high energy import prices and a difficult geopolitical environment.

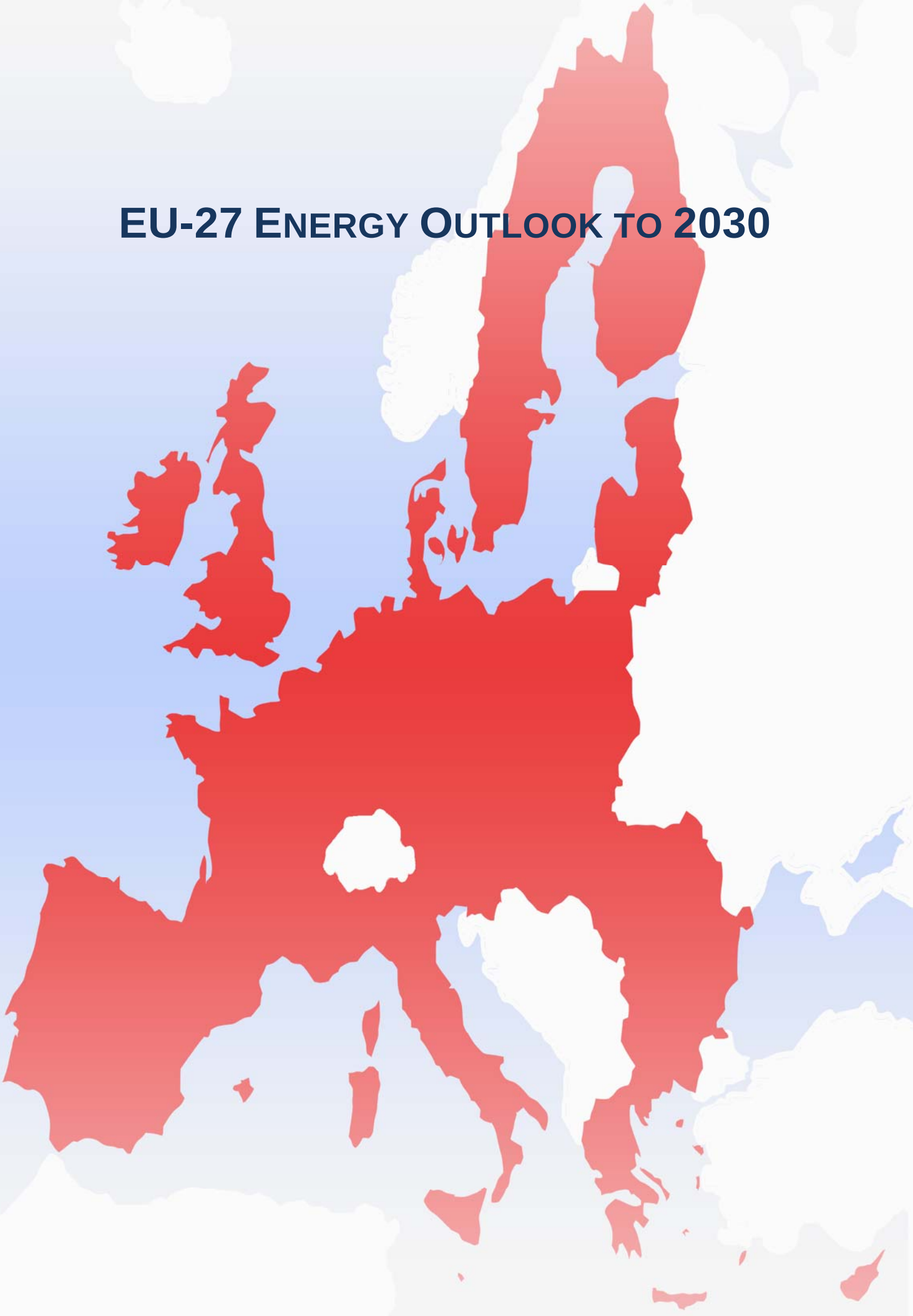
The increased use of indigenous and CO_2 free energy sources, (renewables and nuclear) will help in living up to the EU's commitments on greenhouse gas emission through reducing energy related CO_2 emissions, while at the same time improving energy security.

In any case, considering the indicative targets set out in agreed Directives (biofuels, renewables in the internal electricity market), Member-States need to do more compared with the 2007 Baseline that reflects policy implementation up to the end of 2006.

This holds even more for the follow up of the ambitious targets for 2020 agreed at the spring European Council of March 2007 (at least 20% greenhouse gas reduction, mandatory target of 20% for renewables).

Rapid implementation of adopted legislation by Member-States (e.g. energy services and eco-design Directives), adoption of the Directives contained in the energy and climate package of January 2008 and the further development of EU legislation (e.g. from Action Plan for Energy Efficiency), should allow for a more favourable view to the future.

EU-27 ENERGY OUTLOOK TO 2030



1 Introduction

The definition of the Baseline scenario is important because it constitutes the basis for further policy analysis in addition to its function as a projection on the basis of current trends and policies. The Baseline shows the energy and CO_2 development on the basis of assumptions about economic growth, population, world energy prices, technology and public policy. Assuming a continuation of current trends and policies, the Baseline includes no new policy initiatives to change underlying energy trends, besides policies in place or in the process of being implemented in the Member-States by the end of 2006.

The Baseline scenario is used as the reference for building alternative, policy relevant, scenarios, which address issues such as renewables, nuclear, energy efficiency, energy import prices, alternative GDP growth, and climate change mitigation targets. Policy relevant conclusions may be drawn by comparing the results of alternative scenarios against the Baseline scenario.

The Baseline scenario published in this report is based on statistical information that was available up to June 2007. The main source of data is Eurostat and in particular the detailed energy balances[9] per EU Member-State from the year 1990 up to the year 2005 inclusive.

The statistics on energy prices, as well as all data on macroeconomic and sectoral activities are also based on Eurostat and concern the same time period. The statistics on world energy prices are based on various sources (IEA, Eurostat, BP and others) and include data up to the year 2006.

The information on existing energy supply capacities, including the inventory of power generation plants (provided by ESAP SA), was continuously updated up to mid-2007, especially regarding new constructions and decommissioning.

The data on potential of resources, such as the renewable energy resources, were based on the Admire-Rebus database of ECN complemented with information from several other sources, including technical reports of DG Research and the European Environment Agency (EEA).

Information on technical-economic characteristics of existing and future energy supply technologies was taken from the TechPol database developed within a series of DG Research projects, of which the most recent one is Cascade-Mints. Regarding thermal power technologies, the data have also been cross-checked with data from the Zero-Emission Technology Platform and the database of VGB.

Finally, the policy measures, such as energy taxes and subsidies, as well as the legislative measures that were implemented up to year 2006 have been included in the outlook presented hereinafter.

The draft Baseline scenario projections were discussed with Member-States experts from the Energy Economic Analysts Group from April to November 2007. Many comments and pieces of information communicated by the Member-States have been accommodated in revising the draft Baseline scenario, while preserving a harmonised approach to EU energy modelling. This concerns in particular assumptions about energy import prices and economic growth as well as the consistency of energy imports and exports between Member-States.

It is thereby unambiguously stated that the projections shown in this report reflect the point-of-view of the analysts who also retain the responsibility for all errors and omissions.

1.1 The Nature of the Baseline Scenario

The Baseline scenario is a projection of the future evolution of the European energy demand and supply system reflecting business-as-usual trends. The scenario does not project a frozen system: dynamic trends and changes are reflected in this scenario. The evolution is considered as an outcome of market forces without taking into account external or societal costs, as for example the environmental impacts and the eventual threats with respect to security of energy supply.

In building the Baseline scenario, it has been assumed that future changes are only influenced by policies and measures adopted in the past: no additional policies and measures are assumed for this scenario.

The Baseline scenario is not a forecast, but a simulation of how the EU energy system would evolve on the basis of a continuation of past trends without consideration of market failures. The Baseline scenario is essentially a market-driven least cost projection of future energy system developments without taking into consideration environmental costs and impacts (except for respecting existing legislation such as the Large Combustion Plant Directive). Effects related to global warming or the geopolitical risks affecting security of energy supply are assumed to be neglected by economic agents in the Baseline.

In particular, the Baseline scenario does not include policies to reduce greenhouse gases in view of the Kyoto and possible post-Kyoto commitments. No attempt has been made, in this scenario, to forecast how Europe may act for climate change mitigation. In addition, the Baseline sce-

[9] Energy Balances of Eurostat can be found at : http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-EN-07-001

nario ignores the implications from increasing the volume of geopolitically sensitive imports, namely imports of oil and natural gas.

2 Main Assumptions for Baseline Scenario

2.1 Introduction

The PRIMES model, run by the E3MLab of National Technical University of Athens (NTUA), has been used to quantify the Baseline scenario for all the EU-27 Member-States up to the year 2030. PRIMES is a partial equilibrium model of the EU energy system providing projections for the medium and long term starting from 2010 and running up to 2030 with results for every fifth year. The PRIMES model was complemented by a series of specialised models and databases, including the POLES world energy model and the GEM-E3 macroeconomic model.

The PRIMES model includes many details on a large number of technologies in the demand and supply sides of the energy system and ensures that energy demand and supply behaviour, energy prices and investment are determined endogenously. Cost and technical parameter change over time reflecting technical progress which further influences long run marginal costs. These also depend on expected fuel prices, discount rates and demand for energy. Load issues (i.e. base-load needs, peak load applications) and synchronisation with heat demand are accommodated in the modelling process. The investment in new equipment or plants is entering a dynamic capital accumulation mechanism with explicit accounting of capital vintages. The projections depend on the existing stock of capital, in all energy sectors, for which the model uses detailed inventory data.

Power plant investment decisions are driven by economics unless there is different evidence for the short term (plants already firmly planned or under construction) or diverging national energy policies for the medium to long term (e.g. on nuclear). Utilisation of existing plants is a result of the model that stems from the interaction of electricity and other fuel demand, prices, available capacities as well as synchronisation with heat demand in CHP plants. Information received on e.g. plant closure or indigenous production trajectories was included in the construction of the scenario.

The projections take into account the different potentials and possibilities of the Member-States in terms of renewables, indigenous resources, imports and investment in new infrastructure and in developing new sites for power generation. The model considers these potential resources, the exploitation of which follows increasing marginal costs.

The assumptions of the Baseline scenario (see Table 3) for the PRIMES model are presented below.

TABLE 3: MAIN ASSUMPTIONS FOR THE PRIMES MODEL

Technical-economic parameters
Policy assumptions
CO_2 prices
Degree days
Discount rates
Population and household size
GDP and sectoral production
Energy import prices
Tax rates

2.2 Energy Technology Progress

The Baseline scenario takes into account energy efficiency gains, the penetration of new technologies and renewables, as well as changes in the energy mix driven by relative prices and costs. Policies implemented in the past on promoting energy efficiency, renewables and new technologies, as well as market trends bring about energy intensity improvements and energy technology changes.

Energy efficiency gains in the Baseline scenario are driven by the aim of minimizing costs and maximizing economic benefits without any reference to possible further benefits from environmental improvement.

Similarly, renewables and CHP development are driven by private economic considerations taking into account supportive policies which are assumed to continue in the Baseline and gradually peter out in the longer term. Therefore market forces and least cost considerations drive the development of renewables and cogeneration of heat and power taking into account a continuation of support schemes.

The technical-economic characteristics of existing and new energy technologies used in the demand and the supply sectors of the energy system evolve over time and improve according to exogenously specified trends. According to the Baseline logic, consumers and suppliers are generally hesitant to adopt new technologies before they become sufficiently mature. They behave as if they perceive a high cost (or a high subjective discount rate) when deciding upon adoption of new technologies.

Public policies, through campaigns, industrial policy, R&D support and other means, aim at pushing more rapid adoption of new technologies by removing uncertainties associated with their use. In this way, the technologies themselves reach maturity more rapidly as a result of “learning-by-doing” effects and economies of scale. No additional policies promoting new technologies, apart from support

schemes to renewables following past trends, are assumed in the Baseline scenario.

Nevertheless, agents do adopt new technologies just because they aim at reducing the costs of energy services. This process is also supported by the EU and national energy technology research programmes and other policies of the Member-States promoting new and cleaner technologies. GDP growth is therefore associated with continuous improvement of energy intensity, in addition to the effects from structural change in the economy.

2.3 Technology Policy Assumptions

Policies supporting or regulating energy technologies are extrapolated from past trends without assuming any new initiatives. Generally the technology policies are defined and deployed differently by individual Member-States of the EU. They mainly concern renewable energies, cogeneration and nuclear power.

The Baseline excludes explicitly nuclear power in eleven Member-States and in three others a gradual phase out of nuclear power is under way following political decisions. Some new Member-States have agreed to decommission certain old nuclear plants with safety concerns as part of their EU adhesion agreement. The extension of the lifetime of old plants is an issue under consideration in several Member-States but the Baseline does not include the extension of lifetime of nuclear plants beyond the dates specified in current licenses. For the case of Sweden, extension of lifetime is assumed since a firm decision has already been taken.

Only a few new nuclear plants are under construction in the European Union. The Baseline scenario assumes that these will be completed as planned. Finally in some Member-States there exist plans for new nuclear power plants which are presently uncertain and so they were considered as mere candidates in the model-based projections, i.e. their construction according to the model-based analysis only depends on their cost-effectiveness.

Member-States have adopted a variety of policies and mechanisms for supporting renewable energy. The feed-in tariffs are applied in twenty Member-States consisting in obliging the power system to absorb electricity from renewables at a given price or premium. Ten Member-States have implemented a quota system or a purchase obligation system (sometimes coexisting with some form of feed-in tariffs), which consists in obliging electricity suppliers to include renewable energy within their supply portfolio. Many Member-States also use investment subsidies, tax rebates or other incentives to support renewables. The detailed inventory of these policy instruments for the purpose of the model-based analysis was provided by Observ'ER.

Independently of their exact form, all supportive mechanisms for renewables imply a reduction in the cost of capital which provides incentives to investors in renewable energy.

TABLE 4: ASSUMPTIONS ON NUCLEAR ENERGY

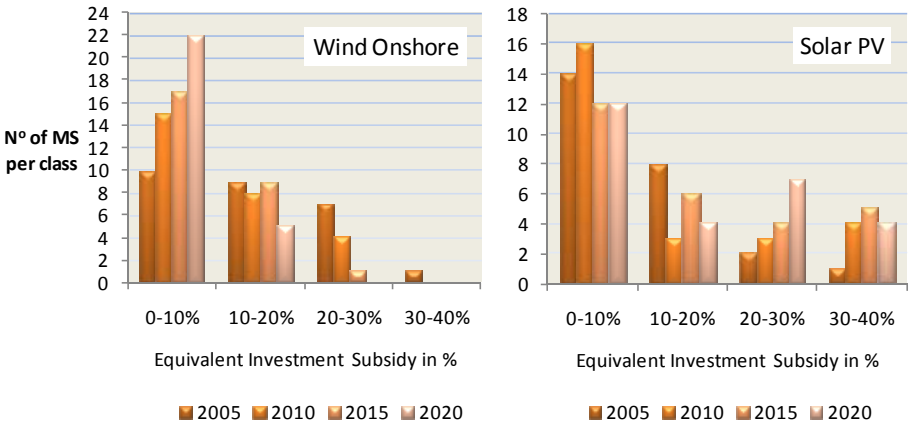
Nuclear Phase-out:
Belgium, Germany, Sweden but only after already decided extension of lifetime
No Nuclear Power:
Austria, Cyprus, Denmark, Estonia, Greece, Italy, Ireland Latvia, Luxembourg, Malta, Portugal
Possible Nuclear Investment but no extension of lifetime of old plants:
Bulgaria, Czech Republic, France, Finland, Hungary, Lithuania, Poland, Romania, Slovakia, Slovenia, Spain, UK
Early Decommissioning of Nuclear plants in new MS before 2010:
Bulgaria (1760 MW), Lithuania (2600 MW), Slovakia (880 MW)
Firm Decisions about Commissioning new Nuclear plants:
Bulgaria (2000 MW, 2020-2025), Finland (1600 MW, 2015), France (1600 MW, 2015), Lithuania (1600 MW, 2020), Romania (706 MW, 2010)

For example the pure feed-in tariff system entails a significant reduction in market-related and financial risks of investment which implies a reduction in risk premium rates and lending interest rates associated with capital investment. The guarantee on the purchase price ensures that revenues are constant even in time segments with low marginal system or wholesale prices. In addition, the obligation to purchase electricity from renewables implies that the investor in renewables is not facing load balancing costs and reserve costs, which is important for intermittent renewable sources. The quota system, if well managed, also implies assurance of revenue streams to investors in renewables, being also considered as equivalent to a reduction in the cost of capital.

Prior to the use of the model, the policy instruments which are in place in the Member-States have been quantified in a uniform way so as to determine an equivalent investment incentive for each renewable technology form and for each country. This incentive was expressed as a reduction of capital cost of renewable technologies. The equivalent investment incentive was then extrapolated over time by assuming a declining trend per unit of renewables production.

However, given the trend towards higher renewables deployment in the future, total support budget for renewables increases smoothly over time. It is assumed that the incentives per unit of renewables get close to zero by 2025, except for technologies such as solar photovoltaic and tidal, for which continuation of support is important to obtain significant "learning-by-doing" progress.

FIGURE 8: HISTOGRAM OF EQUIVALENT INVESTMENT INCENTIVES ON RES



Due to technology progresses the unit investment cost of renewable energy progressively decreases so that decreasing incentives over time do not impede further investment.

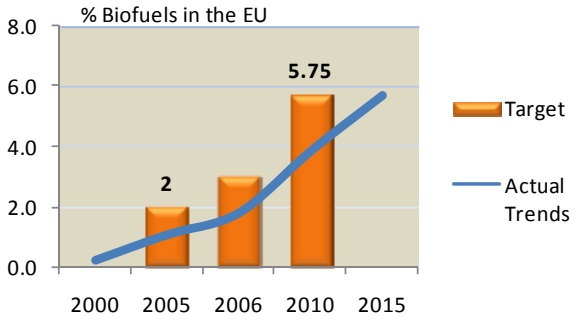
Figure 8 summarises the assumptions about the equivalent investment incentives for two selected technologies, namely wind onshore and solar photovoltaic. The figure shows that in 2020 most of the Member-States are assumed to apply an equivalent incentive less than 10%, whereas only 10 of them were in that low incentive class in 2005. The figure shows that there is higher discrepancy among the Member-States regarding support to solar PV and also that for the future it is assumed that more Member-States apply higher incentives on solar PV.

Policies supporting cogeneration of electricity and heat also differ across the Member-States. The data on cogeneration are based on two detailed surveys by Eurostat, which were used to calibrate the model to the base years, namely 2000 and 2005, concerning the specific CHP technologies and the fuels used, as they differ by country. The cogeneration directive facilitates prioritizing the CHP plants in the overall dispatching given that a CHP plant has a higher overall thermal efficiency but a lower electric efficiency than a pure electricity plant. The specific market arrangements about CHP plants dispatching differ by country. As far as the model is concerned, the consideration of overall thermal efficiency as a driver for CHP development, subject to operational and infrastructure constraints, acts in a similar way as encouragement provided for in the Cogeneration Directive.

The framework conditions in the Baseline do not provide for the deployment of new energy carriers, such as hydrogen and methanol, taking into account that the time horizon is too short for these options to make significant inroads. The Carbon Capture and Storage (CCS) technologies are among the candidate power technologies but their deployment depends heavily on the development of CO_2 transport and storage infrastructure which, in the absence of a strengthening of climate change mitigation policies is not justified in the context of the Baseline Scenario.

The Baseline scenario shows that the market for biomass and biofuels is likely to develop substantially. The Baseline conditions presuppose investment and infrastructure development in sectors such as agriculture, forest, waste management and in sectors performing pre-treatment, transport and processing of biomass and waste resources. The feasibility in terms of land and resource availability and the related costs have been cross-checked through biomass chain calculations.

FIGURE 9: BIOFUELS TARGETS AND PROJECTED TRENDS



The Biofuels Directive sets an indicative target of 5.75% by 2010, for the share of biofuels in petrol and diesel for transportation purposes. This Directive has been taken into account in the Baseline Scenario but the effective development of biofuels was simulated by using the model. The latest statistics about development of biofuels by Member-State indicate a slow pace, lagging behind actual targets set by the Member-States, both for 2005 and 2010. In 2005 the share of biofuels was 1% and this share increased to 1.8% in 2006, against a target of 2% in 2005 and 5.75% in 2010.

The development of supporting infrastructure and changes in agriculture seem slower than initially expected. In addition, the distribution of developments by country is also unequal, reflecting differences in biomass potential and actual supportive policies. As it is the case with other targets (e.g. renewables targets for electricity generation in 2010), the model-based projection takes into account the policies implemented for achieving such targets, but it does not impose these targets as a result of the model.

The projections show that the overall EU target is likely to be achieved around 2015. It was also assumed that support schemes to biofuels are applied in all MS and are determined so as to render them competitive, vis-à-vis the competing fuels. For the period beyond 2015, it was assumed that subsidies gradually decrease, but that both economies of scale and maturity of infrastructure allow for further penetration of biofuels in transportation.

2.4 Legislation up to the end of 2006

The Baseline scenario considers that legislation that was in place up to year 2006 is effectively implemented but it does not anticipate new legislation, including legislation already adopted by e.g. the Council and Parliament but not yet implemented in the Member-States (e.g. Directive on end-use energy efficiency and energy services).

Part of the EU legislation has a strong subsidiarity component as regards its actual implementation (e.g. building codes following the Energy Performance of Buildings Directive). Some legislation does not stipulate strong enforcing mechanisms and therefore its implementation pace is somewhat uncertain.

Policy instruments such as voluntary agreements, labelling of appliances, standards and even some weak financial incentives, were considered as a background policy that at least partly explain and support the trends displayed in the Baseline scenario. This is the case, for example, of efficiency gains in electric appliances, of energy savings in buildings and of improvement of energy performance of new cars, as projected in the Baseline scenario.

The Baseline does not ensure compliance with Kyoto commitments as CO_2 developments are one of the main outcomes of the modelling informing about the effects of implemented policies. Neither does it impose the post-Kyoto targets as set at the 2007 European Spring Council.

However, it is assumed in the Baseline scenario that the current ETS system operates and clears at a Carbon Price of 20 €'2005 /tCO_2 in 2010 mainly based on free allocation of allowances. For the post Kyoto period it is assumed that the Carbon Prices increases smoothly to 24 €'2005/tCO_2 in 2030 and that it continues to apply on the current ETS sectors. For the purpose of the Baseline it is assumed that costs increases induced by the Carbon Prices through changes in investment and dispatching are reflected on consumer prices, while there is no passing through of opportunity costs as such.

Tax rates[10] are kept constant in real terms as they were in 2006 unless otherwise provided for in the Energy Taxation Directive. This concerns transition periods for some Member-States to adapt to EU minimum tax rates from current lower levels over time, with the minimum rates being applied at the end of the respective transition period.

By 2010, the first year after 2005 with model-based results, all EU-15 Member-States are assumed to comply with the energy taxation Directive, whereas the compliance period for the new Member-States (NM-12) is prolonged according to the amendments of 29.4.2004 of the taxation Directive.

The Baseline scenario takes into account differences between Member-States in implementing particular energy policies.

Table 5 shows how the most relevant Directives/policy instruments have been taken into account in the Baseline scenario.

2.5 Discount Rates

The PRIMES model used for building the Baseline scenario is based on individual decision making of agents demanding or supplying energy and on price-driven interactions in markets. The modelling approach is not taking the perspective of a social planner and does not follow an overall least cost optimization of the energy system. Therefore, social discount rates play no role in determining model solutions though they can be used for ex post cost evaluations.

On the other hand discount rates pertaining to individual agents play an important role in their decision behaviour. Agents' economic decisions are usually based on the concept of cost of capital, which depending on the sector has been termed weighted average cost of capital (for firms) or subjective discount rate (for individuals). In both cases, the rate used to discount future costs and revenues involves a risk premium which reflects business practices, various risk factors or even the perceived cost of lending. The discount rate for individuals also reflects an element of risk averseness.

The discount factors vary across sectors and may differ substantially from social discount rates (such as 4-5%) which are used in social long-term planning. For the Baseline scenario, the discount factors assumed range from 8% (in real terms) applicable to large utilities up to 20% applicable to individuals. Additional risk premium rates are applied for some new technologies at their early stages of development.

More specifically, for large power and steam generation companies the cost of capital increases from 8.2% in 2005 to 9.0% for 2015-2030. For small companies the cost of

[10] The current level of taxation in the Member States can be downloaded through the following link: http://ec.europa.eu/taxation_customs/taxation/excise_duties/energy_products/rates/index_en.htm

TABLE 5: SUMMARY OF EU LEGISLATION UP TO 2006

EU Policy	National policy measures	Consideration for the Baseline Scenario
Biofuels Directive	Tax exemptions, obligations to mix	Measures lead to projection close to targets
RES-E Directive	Feed-in tariffs, quota systems, cost incentives	Equivalent investment incentive
Large Combustion Plants Directives	Standards	Incorporated in techno-economic data
CHP Directive	Possibility for financial incentives, obligations	Dispatching facilitation
Buildings Directive	Standards, other measures	National implementation
ACEA agreements on cars	Voluntary agreements	Partly included in techno-economic data however recognizing its failure
Series of Labelling Directives	Market transparency	Background support
IPPC Directive	Best Available Technologies	Incorporated in techno-economic data
Directives on energy efficiency for boilers, refrigerators and ballasts for fluorescent lighting	Standards	Incorporated in techno-economic data
Directive to limit CO_2 emissions by improving energy efficiency (SAVE)	Drawing up and implementation of Member-State programmes	Background support
Energy Star Programme	Voluntary labelling programmes	Effects included in techno-economic data
National Emission Ceilings Directive	Emission limitation	Effects from compliance partly taken into account. Full compliance may require additional measures in individual Member-States compared to the Baseline scenario.
ETS Directive	Emission limitation	Taken into account with a 20 €/t CO_2 price assumption for the Kyoto period with slightly rising CO_2 prices thereafter
Energy Taxation Directive	Harmonization of minimum excise tax rates on energy products	Incorporated in assumptions about taxation

capital is 9.5% in 2005 and 10.5% in 2015 – 2030. In industry, services and agriculture the discount rate amounts to 12% for the whole projection period. Households have an even higher discount rate of 17.5%. For transport, the discount rate depends on the type of operator. Private passenger transport investments (e.g. for cars) are based on a discount rate of 17.5%, while for trucks and inland navigation the rate is 12%. Public transport energy investment is simulated with an assumed discount rate of 8% reflecting the acceptance of longer pay-back periods than those required in industry or private households. All these rates are in real terms, i.e. after deducting inflation.

2.6 Other Assumptions

The degree days, reflecting climate conditions, are kept constant at the 2000 level, which is higher than the long term average without assuming any trend towards further warming. The degree days in 2000 were fairly similar to the ones in 2005. This allows comparison of recent statistics with the projection figures, without entailing the need for climate correction.

All monetary values are expressed in constant terms of 2005 (without inflation). The dollar exchange rate is assumed at 1.25 $/€.

3 Outlook on World Energy and Prices

A world energy outlook was carried out to support the energy import prices assumptions of the Baseline, which constitute a major input to the EU energy outlook. The analysis also aimed at putting the Baseline scenario for the EU in the global context. For this purpose, a global energy scenario was quantified by using the POLES[11] model and the Prometheus[12] model.

The model-based analysis provides projections for about 50 countries or groups of countries. The results presented below are summarised and are aggregated in few world regions. To illustrate some of the projections, a grouping of countries in three categories is used: "Europe/OECD" (Europe, North America, Japan and Pacific OECD), "emerging economies" (Asia, Latin America and Asia excluding CIS[13] countries), and "CIS & Middle East", the latter being shown as one group because they constitute the main oil and gas producers. The global Baseline scenario developed with the world energy models takes a business-as-usual perspective of energy trends and assumes no disruptions or adverse effects on energy demand and supply following past trends.

The World Baseline scenario projects changes in the structure of the energy mix, the distribution of energy demand and supply by world region and in the energy intensity of economic growth. These changes are driven by demographic and economic growth assumptions that differ by world region, reflecting current growth dynamics.

3.1 Demographic and Economic Growth Assumptions

World population is expected to expand by 0.9% pa on average over the next 25 years. There are significant regional differences. The population in Europe and in the OECD is projected to grow at rates significantly lower than world average. High growth of population is assumed to occur mainly in Africa (+2.1% pa) and in the Middle East (+1.6% pa) whereas in Latin America (+1.1% pa) and Asia (+0.9% pa) growth rates are assumed to be close to the world average.

The increase in world population occurs almost exclusively in developing economies. It affects the magnitude and the structure of energy demand trends. World economic growth and especially the differentiated growth rates by region are the major drivers of change in the global energy system.

Currently the world economy grows at a rather high rate close to 5% per year; growth is clearly driven by developing countries and mainly China and India.

The Baseline scenario assumes that the pace of global economic growth will continue in the short/medium term and that in the longer term growth will slow-down reaching an average growth rate of 3.3% per year over the period 2010-2030.

Growth in the emerging economies is assumed to be high (7% per year) during the first decade and then slowdown to about 4.5% per year on average in the period 2010-2030.

3.2 World Energy Baseline Scenario

The projections, based on the POLES and Prometheus models, take into account world energy resources and the formation of world energy prices as a result of interactions between energy demand and energy supply reflecting resource availability and technological progress.

The world energy Baseline scenario projects global energy intensity of GDP to decrease steadily at an average rate of 1.7% per year in the period 2010 to 2030. This improvement is in line with past trends and reflects the changing structure of the economy which benefits from progress of energy technology in all sectors. Nevertheless, the projection shows that the world is likely to require 70% more primary energy in 2030 than in 2001. Compared to 2010, total primary energy consumption in 2030 is projected to be 40% higher.

The changing regional structure of the global economy drives a substantial increase in the relative share of emerging economies in global energy needs. Energy demand in Asia, mainly driven by economic growth in China and India, is projected to increase at a rate which is four times higher than that of OECD. In other words, emerging economies contribute 75% of the increase of global primary energy demand from 2001 to 2030.

It was found (see Figure 10) that the year 2011 is likely to be a turning point when emerging economies, of which China and India will represent 50% in terms of total primary energy consumption, will start consuming higher volumes of energy than the OECD. Total energy needs of emerging economies will become 45% larger than OECD's demand by 2030.

The predominant role of fossil fuels in total energy consumption is projected to remain. Oil demand is projected to increase by 1.5% per year and attain a share of 32% in total primary energy needs, slightly down from 36% in 2001.

[11] Model developed and used by IEPE (Institut d'Economie et de Politique de l'Energie/CNRS-LEPII Grenoble)

[12] The Prometheus world energy model developed by N. Kouvaritakis and V. Panos at E3MLab/NTUA is stochastic and allowed the estimation of probability distributions of future world energy prices.

[13] CIS: Community of Independent States

TABLE 6: WORLD TOTAL ENERGY REQUIREMENTS

Gross Inland Consumption	Mtoe				Shares in %			Annual % change		
	2001	2010	2020	2030	2001	2010	2030	2001-10	2010-20	2020-30
Europe-OECD	5093	5528	5998	6184	51.2	44.2	36.1	*0.92*	*0.82*	*0.30*
Europe	1925	2130	2421	2584	19.4	17.0	15.1	*1.13*	*1.29*	*0.65*
North America	2521	2717	2872	2910	25.3	21.7	17.0	*0.84*	*0.56*	*0.13*
Japan & Pacific	647	681	705	690	6.5	5.4	4.0	*0.56*	*0.35*	*-0.21*
Emerging Economies	3548	5475	7494	9053	35.7	43.8	52.9	*4.94*	*3.19*	*1.91*
Asia (excl. CIS)	2433	3981	5440	6323	24.5	31.8	36.9	*5.62*	*3.17*	*1.51*
Latin America	611	790	1090	1452	6.1	6.3	8.5	*2.90*	*3.27*	*2.91*
Africa	504	703	963	1278	5.1	5.6	7.5	*3.77*	*3.19*	*2.87*
CIS and Middle East	1302	1501	1663	1885	13.1	12.0	11.0	*1.59*	*1.03*	*1.27*
C.I.S.	895	925	939	997	9.0	7.4	5.8	*0.37*	*0.15*	*0.61*
Middle East	408	576	724	888	4.1	4.6	5.2	*3.91*	*2.32*	*2.06*
World (incl. bunkers)	10121	12708	15401	17397				*2.56*	*1.94*	*1.23*

FIGURE 10: WORLD ENERGY CONSUMPTION AND PRODUCTION BY AGGREGATE REGIONS

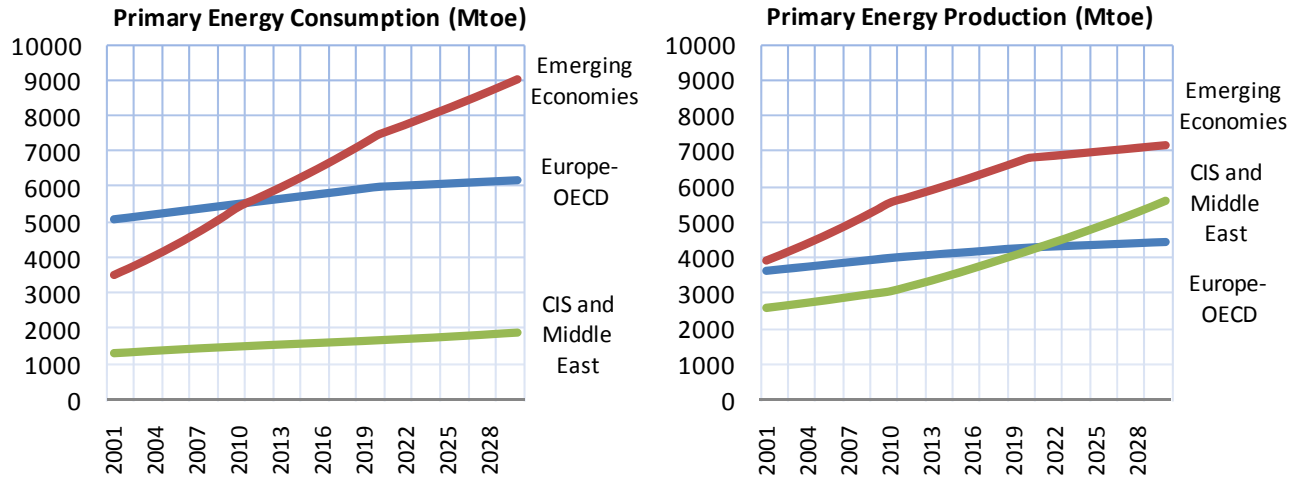
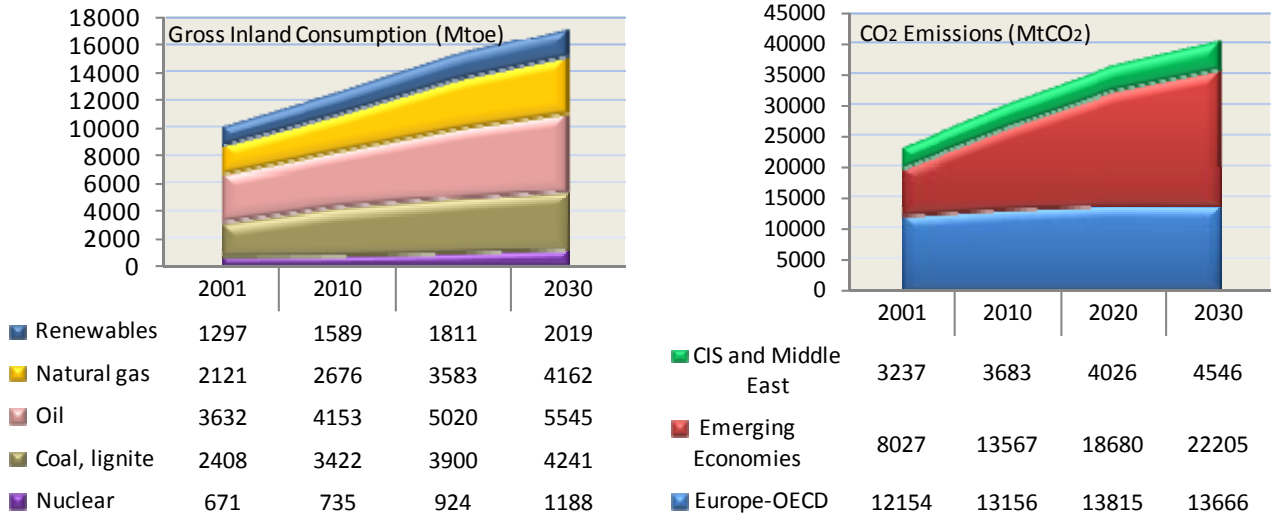


FIGURE 11: GLOBAL ENERGY MIX AND CO_2 EMISSIONS



Coal and gas display the largest increases, 80 – 90% up in 2030 from 2001, driven mainly by power generation. Electricity demand is projected to increase at an average rate of 3% per year, reflecting a general trend favouring electrification of final demand, except transportation.

Within the power generation mix, coal accounts of 36% of power generation throughout the projection period and gas reaches a share of 38% up from 29% in 2001. Nuclear energy and renewables are projected to increase in the world Baseline scenario at rates that keep their shares in total primary energy needs constant. Their growth rates are lower than that of gas for power generation.

Global CO_2 emissions from energy combustion are projected to increase by 2.9% per year in 2001-2010 and by 1.4% per year in 2010-2030. The annual emissions in 2030 are 72.5% higher than in 2001. Carbon intensity of primary energy consumption is projected to increase by 0.4% per year in 2001-2010 and decline by 0.1% per year in 2010-2030.

The differential rates of growth of energy consumption among world regions imply that CO_2 emissions in emerging economies increase much more than emissions in emerging economies. The Baseline scenario shows that emerging economies are responsible for 84% of additional CO_2 emissions in 2030 as compared with 2001.

3.3 World Energy Markets and Prices

The projections show that total oil demand in 2030 will be around 2000 Mtoe higher than it was in 2001; 93% of incremental oil needs is due to the growth of emerging economies. Due to lack of resources, the emerging economies will have to import 90% of their incremental oil needs mainly from Middle East and secondarily the CIS countries. Total oil production is projected to reach 110 Mb/d (million barrels per day), up from 72.6 Mb/d in 2001.

The world oil outlook is based on resource data supporting the view that oil supply can meet a smoothly growing demand at affordable prices over the next twenty five years. Although about 900 Gbl (billion of barrels) of oil have been produced today, identified reserves correspond to 1,100 Gbl and yet undiscovered conventional resources may add 600 Gbl; thus total recoverable oil amounts to about 2,600 Gbl, including cumulative production. The projection includes a dynamic treatment of the oil discovery process and assumes technological progress allowing the quantities of oil that can be recovered from the different resources and the emergence of non conventional oil in the long term. It must be noted, that of the 1,700 Gbl of oil that remains to be produced 800 Gbl come from the Gulf region and more than 200 Gbl from the rest of OPEC countries.

FIGURE 12: STRUCTURE OF OIL SUPPLY

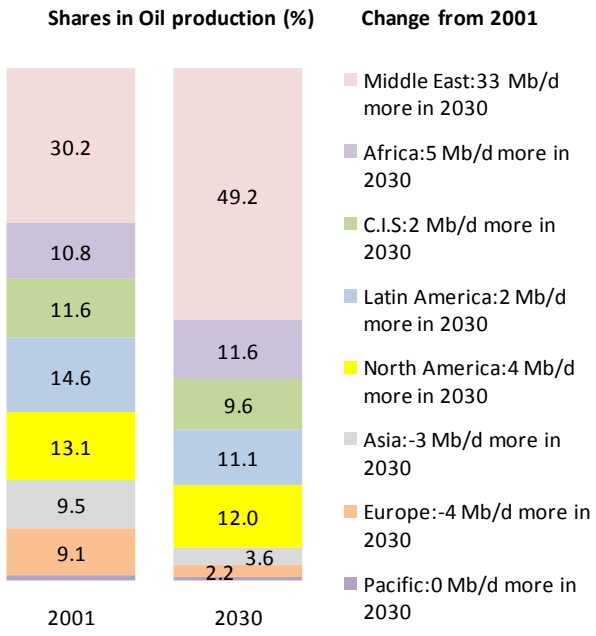
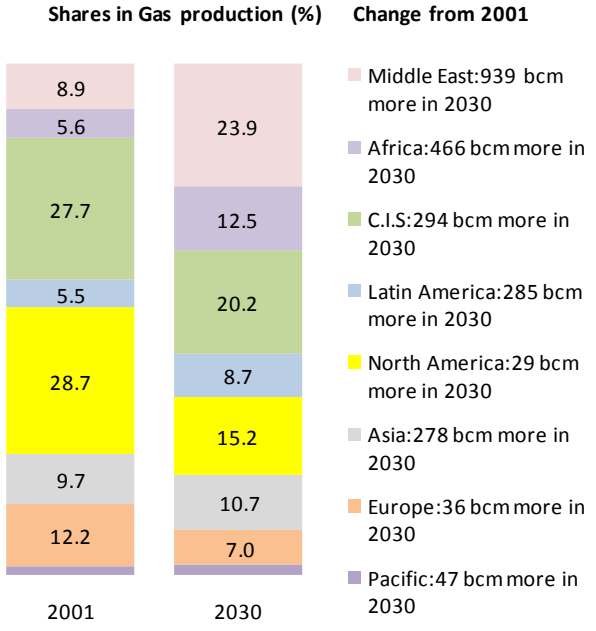


FIGURE 13: STRUCTURE OF GAS SUPPLY



The total volume of natural gas produced annually is projected to double from 2001 to 2030. The increase is more than 2000 Mtoe and is mainly due to emerging economies (60%) and secondarily to Europe-OECD (25%). The latter lacking additional gas resources will import in 2030 about 40% of their gas needs, up from 18% in 2001. Emerging economies, being net exporters in 2001, will have to import almost 20% of their gas needs in 2030. Middle East and CIS countries are projected to take a dominant position in

the world gas market, exporting in 2030 50% of their gas production, up from 17% in 2001.

TABLE 7: FOSSIL FUELS - DEMAND AND SUPPLY

Changes in 2030 from 2001 (Mtoe)		
Oil	**Consumption**	**Production**
Europe-OECD	-45	-17
% change from 2001	*-2.2*	*-2.0*
Emerging Economies	1868	192
% change from 2001	*166.6*	*15.2*
CIS and Middle East	141	1738
% change from 2001	*36.2*	*114.3*
World	2062	1913
% change from 2001	*55.4*	
Natural Gas	**Consumption**	**Production**
Europe-OECD	524	96
% change from 2001	*47.6*	*10.6*
Emerging Economies	1274	885
% change from 2001	*377.4*	*200.5*
CIS and Middle East	290	1061
% change from 2001	*44.9*	*136.7*
World	2087	2041
% change from 2001	*100.3*	
Coal and Lignite	**Consumption**	**Production**
Europe-OECD	238	307
% change from 2001	*21.9*	*29.9*
Emerging Economies	1572	1390
% change from 2001	*145.5*	*117.8*
CIS and Middle East	79	136
% change from 2001	*42.6*	*68.4*
World	1889	1833
% change from 2001	*80.3*	

The world gas outlook is based on resource data indicating that today the ratio of cumulative production to total recoverable resources is still low. Although in the case of gas the gains in recoverable resources due to technological progress are limited, gas resources are sufficient to meet growing demand: cumulative production of gas is projected to reach 50% of total recoverable resources only after 2030.

However, the gas resources needed to cover incremental demand are concentrated in a small number of countries, namely in Middle East and in CIS, and secondarily in Africa.

The projection shows a gradual development of an LNG market at world scale, which however starts attaining a significant market share only towards the end of the time horizon. Therefore, access of developing and emerging economies to gas resources is projected to take place mainly through pipeline routes, new and existing. Both for oil and gas supply the role of the Middle East is critical for meeting demand in the longer term.

It is worth mentioning that the world energy Baseline scenario projects a growing regional concentration of oil and gas production. The share of CIS and Middle-East countries in global production of oil and gas reaches 52.5% in 2030, up from 40% in 2001. This result reflects the resource data on which projections are based. Highly growing consumption in emerging economies will mainly require the additional quantities of oil and gas. At a lesser degree, additional production will replace the declining indigenous resources of the developing countries in which demand for oil and gas increases far less than in emerging economies.

Summarising, the world energy scenario involves significant changes in the regional structure and the total volume of demand and supply of oil and gas. However, the resources of oil and gas are sufficient for ensuring a smooth evolution of oil and gas prices.

For the purpose of scenario construction it is assumed that demand for oil and gas is well anticipated by investors who by taking timely supply actions ensure a smooth evolution of prices. So price spikes are excluded in this scenario. However, given that the current market situation is characterized by rather tight supply margins, the Baseline scenario projects that oil and gas prices will remain at a rather high level, compared with their level in the period 1990 to 2002.

The world oil price is projected to increase from 54.5 $/boe (barrel of oil equivalent) in 2005 to 61.1 $/boe (in real terms, i.e. money of 2005) in 2020 and 62.8 $/boe in 2030.

Natural gas prices are projected as linked with oil prices. This view is taken not only because existing long term gas procurement contracts index gas prices to oil, but also because market dynamics justify persistence of this linkage in the long term. As natural gas is potentially a substitute to oil, for example through gas to liquids (GTL) technology, the demand for gas is expected to rise worldwide and its cost-supply relationship reflects highly increasing marginal costs.

TABLE 8: BASELINE PRICES OF FOSSIL FUELS

$'2005/boe[14]	2005	2010	2015	2020	2025	2030
Oil	54.5	54.5	57.9	61.1	62.3	62.8
Gas	34.6	41.5	43.4	46	47.2	47.6
Coal	14.8	13.7	14.3	14.7	14.8	14.9

Coal prices are projected to rise at far lower rates than oil and gas as a result of high coal resources and more favourable geopolitical conditions. The total quantity of coal demand is projected to rise significantly, mainly driven by increasing demand of emerging countries. However, the

[14] Assumed dollar exchange rate equal to 1.25 €.

distribution of coal resources is such that emerging countries can produce a substantial part of their incremental demand for coal.

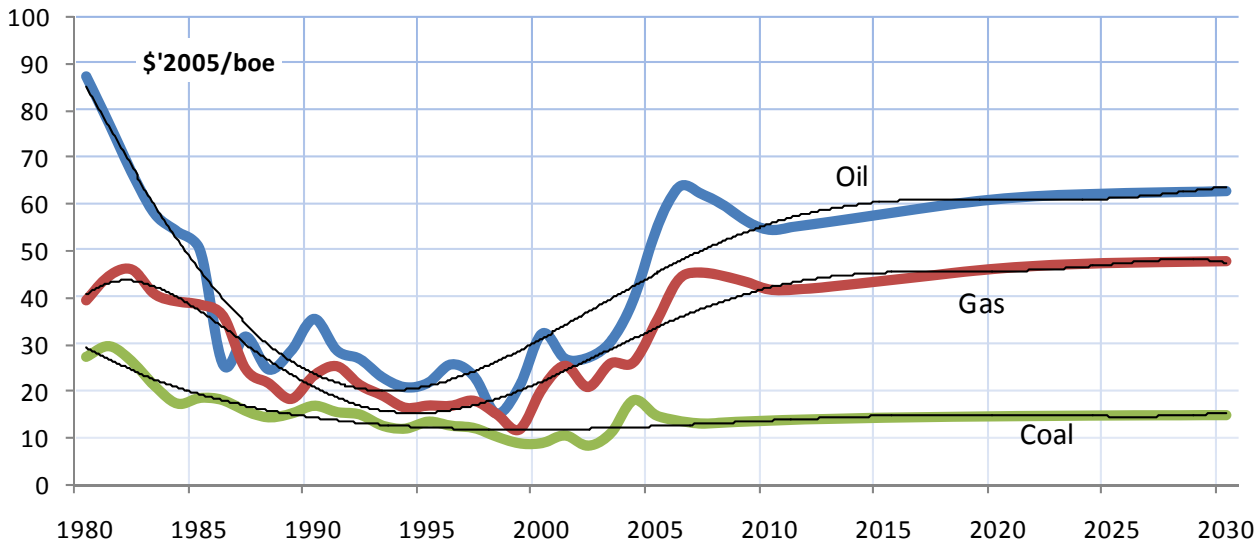
The relationships between world energy demand, fossil fuel resources and world energy prices have also been analysed by using the Prometheus stochastic world energy model, which produces probability distributions of future world energy prices up to 2050. The model ensures consistency of world energy demand and supply with the resulting probability distributions of energy prices.

The price scenario used for the Baseline scenario reflects the *median* case of the Prometheus stochastic analysis of world energy markets which produces results showing probability distributions of future world energy prices.

The price trajectory shown in Figure 14 implies that the competitiveness of gas vis-à-vis coal deteriorates steadily: the gas to coal price ratio, increases from 1.5 in the 90s and 2.5 in 2006, to reach 3 before 2030.

Figure 14 shows the projection of average prices of fossil fuels imported into Europe and compares it with statistics up to 2006. This graph shows the continuous decline of competitiveness of gas vis-à-vis coal, a trend which is expected to influence future investment choices for power generation. The gas to oil price ratio is projected to be stable up to 2030.

FIGURE 14: IMPORT PRICES OF HYDROCARBONS TO EUROPE



4 Outlook on EU Economic Activity

4.1 Demographic Outlook

EU-27 population is projected to remain rather stable, peaking in 2020 at 496.4 million. However, the population in new Member-States (NM-12) is projected to decline by 7.5 million people or 7.2% between 2005 and 2030. The NM-12 accounts by 2030 for 19.4% of the EU-27 population, down from 21.2% in 2005[15].

A key demographic factor driving energy demand in households is the household size, i.e. the number of persons per household.

Following UN projections[16] and information from Member-States, the average household size in the EU-27 is expected to decline from 2.4 persons in 2005 to 2.1 persons in 2030.

Rising life expectancy, combined with declining birth rates and changes in societal and economic conditions, explain the reduction of average household size both in the EU-15 and in NM-12. This trend implies a significant increase in the number of households, adding 28.9 million households between 2005 and 2030 in the EU-27, despite stability of total population. Given the increasing number of homes to heat and the fact that appliances are frequently owned by households and not individuals, the rising number of households drives the increase in energy demand in the residential sector.

4.2 Macroeconomic Outlook

The EU economic growth scenario underlying the Baseline scenario can be considered as optimistic. The EU economy is projected to steadily grow at an average rate of 2.2% per year until 2030.

The longer-term global economic prospects are assumed to remain generally positive. EU-27 is projected to benefit from the Lisbon economic reform process, from the completion of the Internal Market and from a continued increase in world trade reflecting globalisation and the removal of trade barriers.

This global context drives a sustained rate of growth of GDP but at the same time brings about structural changes in terms of sectoral composition of EU GDP. The long term economic growth projection does not focus on short-term business cycle phenomena and possible short-term pressures, such as those through inflation or exchange rate fluctuations.

The economic growth projections provide the details by sector and by Member-State necessary to ensure consistency between energy and the economy. The projected economic and sectoral variables are the main explanatory factors for the formation of energy demand in all sectors, including transportation, industrial production and the living or working conditions in houses and buildings. Of course there is uncertainty about the macroeconomic projections: higher economic growth might materialise if the Lisbon economic reform agenda is more successfully implemented and also lower economic growth may be experienced as a result of more abrupt changes in the global economic context.

The GDP projections for EU-27 Member-States are based on the Economic and Financial Affairs DG forecasts of spring 2007, for the short term (2006-2008)[17] and on pertinent long term studies of this DG for the period up to 2030[18].

Furthermore, additional inputs were taken into account from Member-States' stability programmes and other national long-term projections. In order to ensure consistency, the general equilibrium model GEM-E3[19] was also used to quantify in detail the sectoral figures that feed into the PRIMES model for energy system projections.

The macroeconomic scenario reflects a changing structure of the EU economy, both as regards the sectors of activity and the differential growth rates of the Member-States. A basic assumption is that the level of economic prosperity of the Member-States will tend to converge, but this will not be completed before the end of the projection period. Evidently, the integration of the new Member-States into the European Union is assumed to generate accelerated growth in these economies.

The Baseline economic outlook of EU-27 is dominated by the evolution of the EU-15 economy. This is because the contribution of new Member-States, despite their much faster growth over the projection period (+4.1% pa in 2005-2030 compared to +2.0% per year in EU-15), remains rather limited in terms of overall EU-27 GDP. By 2030, NM-

[15] Eurostat online database (Population projections - Baseline scenario) - see http://epp.eurostat.ec.europa.eu/portal/

[16] United Nations: Global Urban Observatory and Statistics Unit of UN-HABITAT (UN Centre for Human Settlements): Human Settlement Statistical Database version 4. Also available at: http://ww2.unhabitat.org/programmes/guo/statistics.asp

[17] European Commission: Economic Forecasts, Spring 2007 (EUROPEAN ECONOMY 2/2007. Office for Official Publications of the EC). Also available at: http://ec.europa.eu/economy_finance/publications/publication_summary7056_en.htm.

[18] European Commission, DG ECFIN "Long Run Labour Productivity and Potential Growth Rate Projections for the EU25 countries up to 2050 (information note for Members of the EPC's working group an ageing populations)", ECFIN/50485/04-EN.

[19] The GEM-E3 model has been constructed under the coordination of NTUA within collaborative projects supported by DG Research involving CES-KULeuven and ZEW.

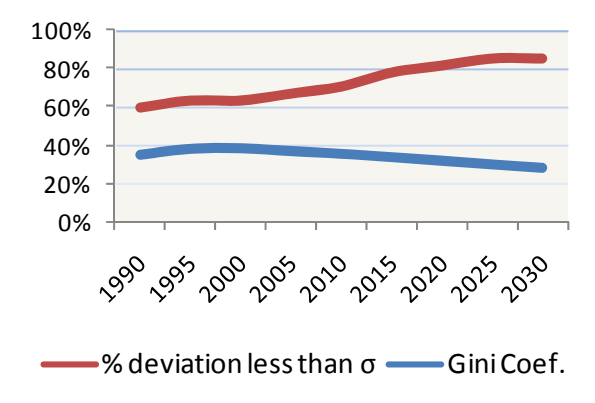
TABLE 9: MACROECONOMIC AND OTHER DRIVERS FOR EU-27 ENERGY DEMAND, 1990-2030

	1990	1995	2000	2005	2010	2015	2020	2025	2030	Annual Growth 1990-2000	2000-2010	201(-203
GDP of EU-27 (in 000 M€ '05)	8109	8712	10046	10949	12430	14059	15687	17266	18687	2.17	2.15	2.06
Value Added at Factor Prices (in 000 M€ '05)												
Energy Intensive Industry	353	375	416	448	503	566	628	685	734	1.67	1.91	1.91
Non Energy Intensive Industry	1227	1232	1426	1500	1692	1911	2133	2345	2527	1.52	1.72	2.03
Services Sector	4806	5274	6176	6857	7844	8925	10003	11050	12001	2.54	2.42	2.15
Agriculture Sector	241	245	269	272	289	311	332	350	367	1.08	0.72	1.21
Consumer Expenditure (€/capita)	10057	10634	12208	13230	14748	16452	18202	19955	21622	1.96	1.91	1.93
Population (million)	470	476	481	489	493	495	496	496	495	0.21	0.26	0.02
Passenger transport activity (Gpkm)	4785	5222	5820	6245	6784	7350	7897	8413	8861	1.98	1.54	1.34
Freight transport activity (Gtkm)	1879	1929	2175	2464	2770	3061	3321	3546	3717	1.47	2.45	1.48

12 GDP reaches 9.6% of EU-27 economic activity compared to 6.0% in 2005 and, consequently, overall economic growth of EU-27 (+2.2% pa) follows closely that of the EU-15.

The European economy progressively changes its structure as sectors with higher value added develop more rapidly than sectors that are energy and material intensive, reflecting the long established trend of structural changes in developed economies, away from the primary and secondary sectors and towards services and high value-added products. However the pace of change is expected to decelerate in the long run.

FIGURE 15: INDEX OF CONVERGENCE OF GDP/CAPITA



The indices shown in the graphic indicate gradual convergence of GDP/capita of the EU Member-States. The Gini coefficient (blue line) is a measure of inequality of income distribution; a low Gini coefficient indicates more equal distribution. The percentage of Member-States that deviate less than one standard deviation distance from the EU-27 average (red line) is increasing substantially in the macroeconomic Baseline scenario, getting close to 85% in 2030, up from 63% in 2000.

As far as the energy implications are concerned, the Baseline scenario does not involve any spectacular change of the structure of the economy: the bulk of energy-intensive industrial processing is assumed to remain in the European Union. The share of energy intensive industry in GDP of 5% in 2005 is projected to decline and reach 4.7% in 2030. The volume index of annual production of metals, building materials and paper is projected to increase by around 50% in 2030 compared to 2000. The metal and non metal industries of the EU are becoming more competitive relying on innovation, high productivity and the quality of products. This trend is accompanied with significant restructuring of material processing which is projected to rely increasingly on recycled material and the reduction of energy and material input per unit of output.

The share of industry in total value added slightly decreases from 19.6% in 2005 to 19.3% in 2030. Also, energy-intensive industry is projected to grow at rates slightly below average. Agriculture is projected to grow at rates well below average (+1.2% per year in the period 2005-2030). The sustained growth of the EU industrial output, as projected for the Baseline scenario, rely on global demand for manufactured goods which are projected to grow driven by economic development in the emerging economies. This view is supported by current trends which show that China's demand for metal and non metal materials grow fast, driving growth of industrial production of developed economies.

Value added produced by the services sectors increase over the projection period at rates above average, implying a slow but steady increase in the share of services in total economic activity (71.0% in 2030 up from 69.1% in 2005).

The increasing activity in the services sector is accompanied by significant improvement of working conditions in services buildings which has considerable implications for

energy demand, concerning both the heating and cooling needs of buildings and electricity used by appliances.

The macroeconomic scenario projects consumer expenditure per capita to increase steadily by 2% per year. This growth allows for increasing comfort conditions in houses.

FIGURE 16: STRUCTURE OF GDP BY SECTOR

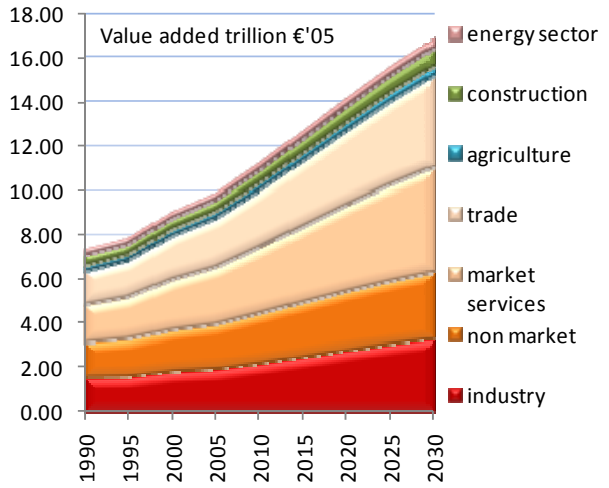
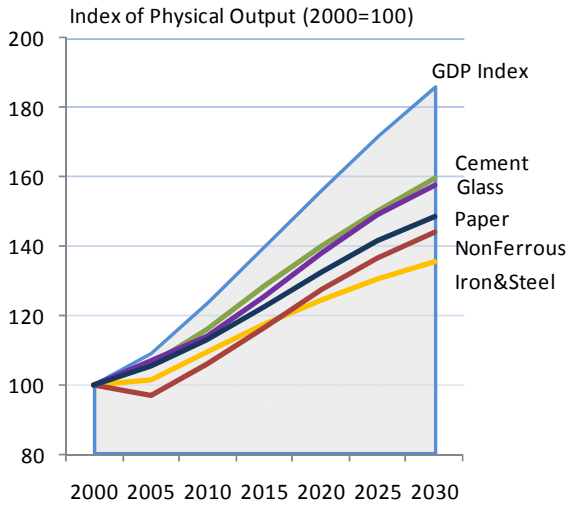


FIGURE 17: ACTIVITY OF ENERGY-INTENSIVE INDUSTRY



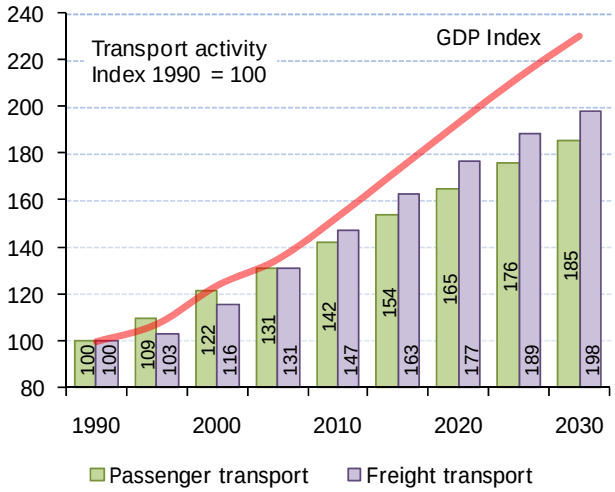
4.3 Transport Activity Outlook

The energy projections, which are measured in passenger-kilometres and tons-kilometres, are based on projections of future transportation activity by Member-State. Transportation activity is driven by economic growth, by societal trends and by bilateral transportation flows among the Member-States, which further depend on the completion of the Internal Market.

The projections of transportation activities were handled by the model SCENES which is specialised in transport planning[20]. The model is designed to produce European level transportation activity forecasts by considering a wide range of explanatory factors, such as demographic, economic, societal and transport infrastructure trends. The model produces spatial details of transportation flows, as well as assignment of flows to main transport modes. Country and sector specific results are taken from SCENES and transformed into inputs to PRIMES for further processing and calibration. The SCENES model produces projections of activity for all transport and travel categories, including very short distance trips and slow modes. [21]

The demographic and macroeconomic assumptions of the PRIMES-based Baseline scenario have been used as inputs to the SCENES model ensuring consistency in the projection of transportation activity figures. For this purpose, the SCENES-based projection takes into account transport policy measures which are in place or are likely to be implemented before 2010.

FIGURE 18: TRANSPORT ACTIVITY GROWTH, 1990-2030



The Baseline scenario of transportation activity, which includes details about flows of transportation between and within the EU Member-States, shows a gradual decoupling of transportation activity from GDP growth. This trend, which is more accentuated in the long term, is a combined

[20] The SCENES model, developed by WSP Policy and Research UK, is a European-wide multi-modal integrated passenger and freight transport model. It was developed through the European Commission's Fourth Framework Research Programme and has since been extensively used in research and policy studies of DG TREN and other Commission services.

[21] The definition of the transportation activity Baseline scenario is in line with that of the "Partial implementation scenario (P-scenario) developed with the use of the SCENES model under the ASSESS study of DG TREN (2005) for the mid-term review of the Transport White Paper. More information on the ASSESS study can be found at:
http://ec.europa.eu/transport/white_paper/mid_term_revision/assess_en.htm.

FIGURE 19: PASSENGER TRANSPORT BY MODE, 1990-2030

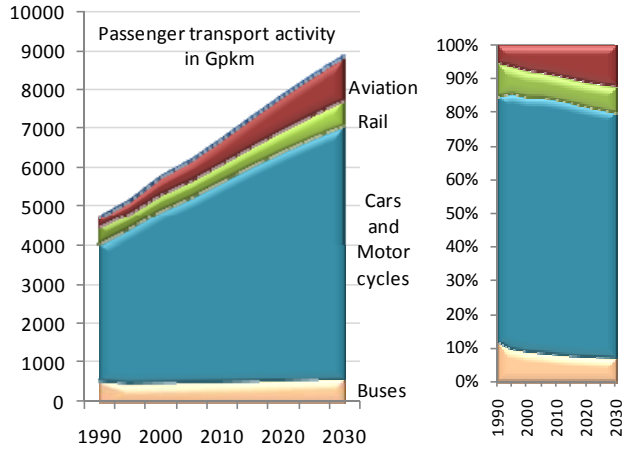
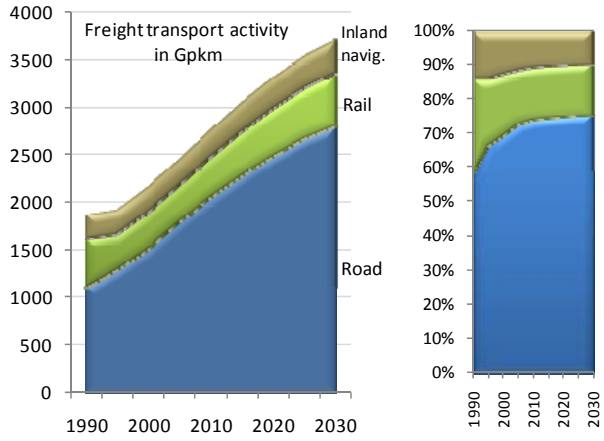


FIGURE 20: FREIGHT TRANSPORT ACTIVITY, 1990-2030



result of productivity gains in transportation and certain saturation effects.

The volume of transportation of passengers is projected to increase at a rate of 1.4% per year, between 2005 and 2030, whereas the volume of freight transport is projected to increase by 1.7% per year during the same period of time. In comparison to past trends, the scenario includes a slowdown in the rate of increase of activity, both for passenger and for freight transport.

As regards passenger transport the slowdown is related to the stability of EU-27 population and to a longer-term trend which involves lowering the long-term income-elasticity of transportation reflecting saturation. More specifically, energy related transport activity per capita is projected to reach 17908 km per annum in 2030 up from 12769 km per annum in 2005. This considerable increase of transportation of passengers (42% higher in 25 years) is accompanied by changes in transport modes towards using faster means, such as fast trains and aviation, a trend which keeps the average time spent by person on transportation in this scenario within a realistic range.

Transportation of goods is closely associated with economic activity and the completion of the Internal Market, as increasing specialisation induces larger flows of goods. Historically, transportation of goods has grown at least as fast as GDP. However, the Baseline scenario conditions with a changing structure of the EU economy towards services combined with productivity gains in transportation bring about a gradual decoupling of freight transport from GDP growth.

The projection shows freight activity per unit of GDP declining from 0.225 tonne-km per €'05 of GDP in 2005 to 0.199 tonne-km per €'05 of GDP.

The structure of passenger transport activity by transport mode[22] is shown in Figure 19. The projection shows domination of transportation by cars and motorcycles and also shows a noticeable growth of air transport.

Aviation for passenger transport has been the fastest growing mode of transport in the recent past, driven by rising real incomes, the increased willingness to pay for leisure, the globalisation process and the liberalisation of air transport market. Aviation activity is projected to grow at a rate of 3.1% per year in 2005-2030.

The need for more long distance travel facilitated by high speed of air travel is expected to drive this rapid growth, despite the increase in air transport prices due to high oil prices. By 2030 the market share of aviation in passenger transport activity is projected to reach 12.2% in 2030, up from 8.1% in 2005.

Rail transport activity, which exhibited a decline between 1990 and 2005, is projected to display acceleration of growth from 2015 onwards (+1.6% pa in 2005-2030) as a result of new and upgraded infrastructure projects facilitating networks of high train speeds.

In 2030 passenger rail activity is projected to account for 7.5% of total activity (+0.4 percentage points up from its level in 2005, +0.6 percentage points up from 2015 level).

On the contrary the shares of the other modes, such as public road transport (+0.6% per year growth in 2005-2030), private cars and motorcycles (+1.3% pa) and inland

[22] The PRIMES model follows energy statistics, which have for transport related activities somewhat different definitions compared with transport statistics, which have been developed for different purposes. Therefore the breakdown by mode shown here is somewhat different from the modal split depicted in transport statistics.

navigation[23] (+0.4% pa), are projected to slightly decline over the projection period. By 2030 road transport activity is projected to account for 79.7% of total activity down from 84.0% in 2005.

Road transport[24] (see Figure 20) is also dominating freight transport activity and this is projected to continue in the Baseline scenario. Transport of goods by trucks seems to offer a significant degree of flexibility which compensates for the higher cost of road transport as compared with rail. The share of rail freight transport is projected to rise only in the long term, as a result of improvement of infrastructure.

While the share of road transportation of passengers is projected to decline, road freight transport activity (+1.8% pa in 2005-2030) is projected to increase and attain a share in total freight transport of 75.4% by 2030, 2.8 percentage points up from 2005 levels.

This increase occurs to the detriment of both rail and inland navigation activity, which are projected to grow by +1.4% per year and +1.0% per year respectively in the period 2005-2030. By 2030 rail freight is projected to account for 15% of total activity (16% in 2005) and inland navigation for 9.6% of total activity (11.4% in 2005).

It should be noted, however, that as regards rail freight transport the Baseline scenario projects a reversal of recent trends, since the past trends show for the EU-27 that rail freight activity declined at a rate of -1.9% per year in the period 1990-2005 following among other things economic restructuring in central and eastern European countries.

The recovery of rail freight transport is attributed to congestion on roads, the expected increase in road transportation costs and the proliferation of driving restrictions on heavy goods vehicles on designated roads. This change of modes for freight transport is facilitated by development of adequate infrastructure allowing for inter-modal transport and productivity gains. The projected growth of inland navigation is based on a continuation of past trends that this mode mainly concerns the transportation of lower value, bulk goods[25].

4.4 Indigenous Fossil Fuel Production

The EU energy outlook based on the PRIMES model uses data about the potential of further exploiting indigenous fossil fuels, namely coal, lignite, gas and oil. Detailed data and projections by Member-State have been collected from various sources in order to support the projections of the model for the Baseline scenario, regarding indigenous production of fossil fuels. The assumptions have been cross-checked with national projections and with the results of the POLES model for the EU Member-States.

[23] It should be noted that inland navigation for passenger transport includes only waterborne transport on rivers, canals and lakes as well as domestic sea shipping. However, international short sea shipping is not included in the above category as, according to EUROSTAT energy balances, energy needs for international shipping are allocated to bunkers.

[24] In addition to the comment made about passenger transport numbers (see above), it should be noted that energy statistics on primary energy consumption do not include bunkers. Hence short sea shipping is not included in the breakdown above, which is another element for deviations between the above graphs and modal split numbers on freight transport from transport statistics.

[25] Due to the lack of air freight transport statistics the sector is not modelled in SCENES. However, it can be considered that, implicitly, the development of air freight transport is reflected in the corresponding development of air passenger transport

5 EU Energy Demand Outlook[26,27]

5.1 Introduction

Final energy demand is driven by economic activity of non-energy firms as well as the living and working conditions of individuals. The corresponding end-use consumers, such as industry, services, residential and transport, purchase final energy products, such as fuels, electricity and distributed steam or heat, and transform them through appliances and equipment into useful energy forms, that is the services provided by energy at end-user level. The final consumers combine energy and non energy inputs to achieve production or get utility. The mix depends on relative prices, the technical possibilities and the consumer's budget. Energy savings correspond to various combinations of actions such as: substituting non energy inputs for energy (e.g. insulation); optimizing the use of energy products in their transformation into energy services (e.g. choosing technological advanced appliances); rationalizing the use of energy services per unit of activity or revenue (e.g. less driving private cars or not letting appliances at stand-by mode).

The above mentioned mechanism is formulated by the PRIMES model by sector as a multi-stage decision process which covers decisions involving energy and non energy goods and services and distinguishes between behavioural changes, involving rational use of energy, and changes related to end-use equipment.

Energy intensity is defined as the ratio of energy consumption of a consumer or a sector divided by a volume index of the relevant driver, i.e. industrial output, transportation activity, income or GDP. Energy efficiency gain corresponds to a reduction of the energy intensity indicator.

Some sectors use energy products as materials, without applying any combustion process. This is the case of petrochemical industry using hydrocarbons as inputs to chemical transformation and the construction industry using oil in the form of asphalt. In the statistics these consumptions are reported separately as non energy uses of energy commodities.

The energy producing industry also uses final energy products. For example a refinery uses electricity for lighting. Electricity is also used in power generation plants to run auxiliary equipment. The corresponding consumption of final energy products is accounted for as energy consumption of the energy branch and is reported separately from final energy demand.

5.2 Statistical Explanation about CHP

Eurostat energy balances do not take into account non-marketed steam, i.e. steam generated in CHP plants and used on-site by industrial consumers and by the energy branch (mainly refineries). Steam/heat consumption in industry and refineries, as shown by Eurostat in the energy balances, includes only steam/heat from CHP by a third person (not the consumer) and distributed to the consumer.

The PRIMES model represents the entire production from CHP plants, including both on-site steam consumption and distributed steam. For this reason, using statistical information provided by Eurostat on CHP, the non-marketed steam generated in CHP units as well as the corresponding fuel input have been estimated and included in the model's database. The model formulates competitive behaviour between CHP and industrial boilers and also incorporates interactions with the power generation and distribution sector.

The PRIMES model reports two views of final demand for steam and for fuels used for on-site CHP:

- *Model-compatible view*: Steam consumed (independently of CHP origin) is attributed to the demand side and the fuel input to the supply side. This approach ensures better understanding of the structure of fuel mix in industry and refineries, but the figures for industrial consumption, refineries and total final demand differ from published Eurostat energy balances.
- *Eurostat-compatible view*: Steam consumption includes only distributed CHP steam, whereas input fuels to on-site CHP are attributed to final demand. This approach ensures full comparability of historical figures with the projections.

The present report provides figures based on the Eurostat-compatible view of industrial CHP and therefore final energy demand figures are compatible with statistics. Fuels input to CHP (on-site) are shown separately within the industrial sector. Note that there is no such an issue for CHP heat consumed in the services, the agriculture and the residential sectors because historically on-site CHP was negligible.

5.3 Energy Demand in Industry

Industry has been greatly influenced by the increasing globalisation and integration of the world economy after 1990 as well as the enlargement of the EU economy. Industrial firms address their product to a broader market which is subject to more intense competition but at the

[26] For the purposes of an in depth analysis of energy use and its driving forces, an allocation of energy consumption to specific energy uses, sub-sectors and processes has been undertaken on the basis of various surveys and qualitative information. The corresponding data have been used to calibrate the PRIMES model database for the years 2000 and 2005 so as to match more aggregate published statistics. Consequently, many of the detailed numbers presented in this section should be considered as indicative of actual trends and structure rather than as precise statistical data.

[27] The figures presented in this section are based on the PRIMES model's database and the model-based projections.

same time offers opportunity for increasing return to scale. In this context the industrial firms restructure, seeking higher productivity of production inputs and improvement in product quality.

Energy is an input to industrial production and seeking productivity gains has always been among the basic goals of industrial firms. The Baseline scenario involves significant and steady growth of industrial activity in the EU which brings about investment embedding technology progress. Therefore, energy is progressively converted and used by means of more advanced equipment which leads to a steadily decreasing energy intensity of industrial activity.

The Baseline scenario takes the view that energy-intensive industrial activity will remain in the EU, albeit growing at rates below GDP growth. This is however accompanied by important restructuring regarding the quality of the output produced. The energy-intensive industries are mainly dependent on quality and cost of production inputs, such as materials, intermediate industrial goods, services and energy. Dependency on the quality of these inputs increases when these firms seek to improve competitiveness. In this context, the EU energy-intensive industries are projected to undergo significant changes in terms of the structure of their processes which has implications on energy mix and intensity.

The PRIMES model formulates a multi-stage decision procedure to simulate the changes in the structure of industry and the formation of energy demand. The formulation includes an explicit production function per sector, a scheme of present and future processing stages and the possibility of using recycled materials. Therefore the economic optimisation by industrial sector takes into account the technical possibilities for restructuring in terms of processing and energy uses.

Both the PRIMES database and the scenario projections are carried out by sector and sub-sector of industry.

Energy consumption in industry, taken as a whole and excluding use of energy products as feedstock in petrochemicals, accounted for 27.8% of total final energy demand in 2005, down from 34.3% in 1990. Industry restructuring that took place in the '90s, especially in Central and Eastern European countries, has driven a considerable reduction of energy intensity of industrial value added: 2.74 per year during 1990-2000, followed by 1.13% per year during 2000-2005. The fuel mix has changed significantly in industry, between 1990 and 2005. The share of solid fuels in industrial energy consumption declined from 21.5% in 1990 to 13.1% in 2005, while gas and electricity attained shares of 34.5% and 29.9% in 2005, up from 30.5% and 22.9% in 1990, respectively.

The Baseline scenario projects a continuation of the decrease in energy intensity of industrial value added, by 1.4% per year on average during 2005-2030. This is driven by the use of more efficient technologies and by increased electrification of processes. It is also explained by projected changes in the composition of aggregate industrial value added reflecting a shift in favour of less energy intensive products. The projected changes in the fuel mix in industry continue past trends. The shares of coal and oil decline, albeit at a slower pace than in the past. Gas penetration slows down as a result of high gas prices. The electrification trend, however, is projected to continue in the future. , During 2005-2030 the growth of electricity demand is almost twice as high as the growth of total energy consumption in industry. . By 2030, electricity is projected to attain 34.3% of total energy consumption in industry.

FIGURE 21: ENERGY CONSUMPTION IN INDUSTRY

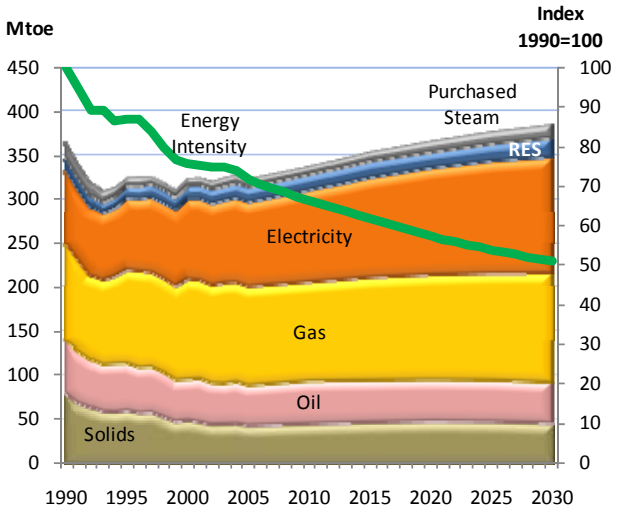
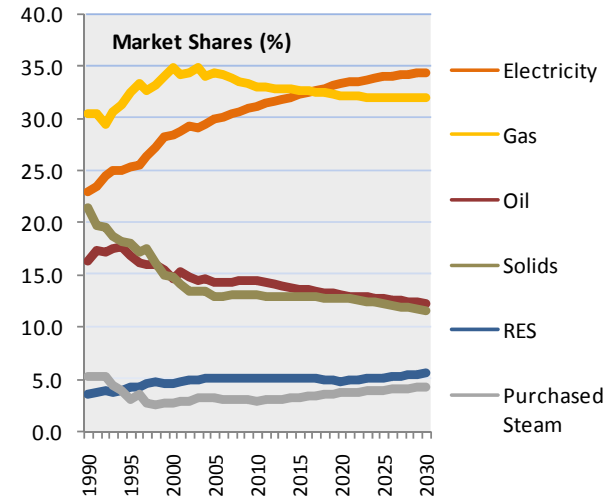


FIGURE 22: FUEL MIX IN INDUSTRY (SHARES)



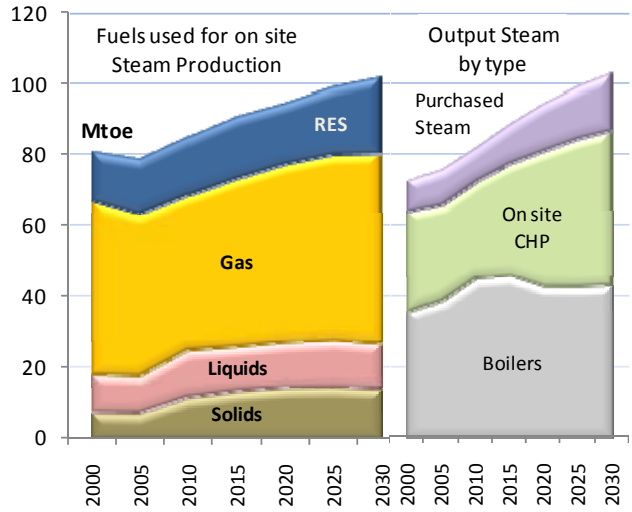
5.3.1 Steam generation in industry

The energy balances and the projections as shown in this report include the fuels used to generate steam from on site CHP in final energy. Fuels input to boilers are also included in final energy demand. Steam[28] is an important energy form in industrial applications and its use is projected to increase at 1.22% per year between 2005 and 2030. A small part of this steam is purchased from third parties, which generate steam from CHP plants. This part does not exceed 15% throughout the projection period.

The fuel mix of steam generation in industry, considering on-site CHP and boilers, is increasingly based on natural gas, despite its relatively high price, due to the high efficiency of gas-driven CHP and because of environmental regulation. Gas is clearly the predominant fuel in on-site CHP and industrial boilers. The scenario shows some re-emergence of coal but its share remains low. Biomass and waste are shown to penetrate this market at a fast pace especially in the longer term.

The part of industrial steam produced by on-site CHP is getting a larger share in the Baseline scenario compared to the past. On-site CHP is almost exclusively based on gas and biomass firing plants.

FIGURE 23: STEAM PRODUCTION IN INDUSTRY



Steam generation from industrial boilers is projected to remain significant. Solid and liquid fuels used for steam generation in industry are projected to be mainly used in industrial boilers rather than in on-site CHP.

[28] It should be noted that the steam numbers presented under the title "steam generation in industry" are based on the "Model compatible view" including both on site generated and purchased heat from CHP. In this special presentation of industrial steam/heat issues, the numbers differ therefore from those shown in the annex, which is based on the "Eurostat compatible view".

5.3.2 Iron and Steel Industry

The steel industry in the EU is increasingly confronted with challenges posed in the global context. Changing market conditions drive production of innovative high quality products in combination with a high service component. Concerns for the environment, but also cost reduction requirements, drive further optimisation in the processing of materials. Considerable achievements have been obtained regarding the quality of products and the economic and technological performance of the EU iron and steel industry.

FIGURE 24: IRON AND STEEL SECTOR PRODUCTION (M TONS)

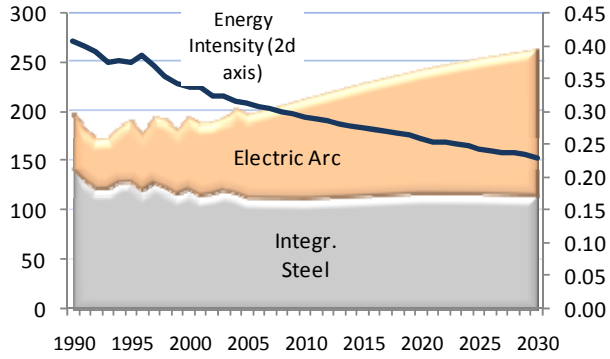
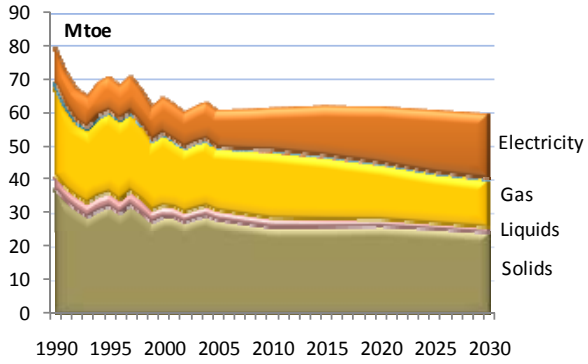


FIGURE 25: ENERGY CONSUMPTION IN IRON AND STEEL



Steel is produced either by integrated steelworks or electric arc furnaces. The former produces steel of high quality from iron ore and coal or coke. The latter uses scrap and allows for greater operational flexibility. Driven by new technological developments, electric arc has started to be used also for flat steel production.

The period 1990-2000 was marked by a decline of total production of the sector and the penetration of electric arc processing. Output has recovered in the last few years and the prospects of growth are positive, driven by exports to emerging economies. The Baseline scenario projects growth of iron and steel production by 1.18% per year in 2005-2030 and stable production of integrated steelworks. Consequently, electric arc processing reaches a share of 56% in 2030, up from 42% in 2005 and 28% in 1990.

Energy consumption in iron and steel accounted for 5.2% of total final energy consumption in 2005, down from 7.5%

in 1990. By contrast, in 2005 the iron and steel industry produced only 0.5% of total value added. The Baseline scenario, assuming that in the future the iron and steel activity will remain in the EU, shows that in the period 2005-2030 energy consumption in the sector will remain rather stable. While energy consumption in the sector has decreased by 1.8% per year in the period 1990-2005, recent statistics show that in the period 2000-2005 energy consumption stabilised.

Energy intensity of iron and steel has decreased by 1.7% per year in the period 1990-2005 reflecting the higher use of electric arc processing, which requires half the final energy per ton of output than it is needed in integrated steelworks. The Baseline scenario projects a slowdown of energy intensity gains, which on average amount to -1.4% per year in 2005-2030. This is related to a deceleration of the penetration of electric arc processing. The scenario includes, however, significant energy intensity improvement of integrated steelworks which require in 2030 15% less energy per unit of output than in 2005. A similar improvement is projected to take place also in electric arc processing.

Iron and steel consumes two third of solid fuels consumption in industry and this continues until 2030 in the Baseline scenario. Electricity used in electric arc processing is important, since it accounts for 14% of total electricity consumption in industry. The sector also consumes gaseous fuels which represents around one fourth of energy consumption in iron and steel. Coke-oven and blast-furnace gases, which are derived as by-products of solid fuel processing in integrated steelworks, represent 45% of total gas consumption in the sector in 2005; this share is kept almost constant over the projection period. The gaseous fuels are primarily used directly in production processes and secondarily (10% of total gas in the sector) for steam or CHP generation on site.

Less than 15% of steam needs are purchased from third parties. Iron and steel does not involve steam-intensive processing and so steam production account for less than 5% of energy consumed in the sector.

The Baseline scenario projects a rather stable structure of energy consumption in the iron and steel sector. Changes are mainly driven by the increased share of electric arc processing which entails higher use of electricity but also significant reduction of energy consumption. Energy efficiency is progressing (by almost 30% over the projection period), reflecting the fact that significant progress has already taken place in the recent past. As the sector's activity is not growing very fast with limited expansion investment, additional energy efficiency progress is mainly the result of retrofitting of equipment. Advanced processing technologies make little inroads in the Baseline scenario.

The cost of energy in integrated steelworks represented 23% of total production cost in 2005, whereas in electric arc processing energy costs accounted for 13.5% of total cost. The Baseline scenario shows a moderate increase in energy cost shares, which reach 25.5% in integrated steelworks and 17.5% in electric arc processing by 2030.

5.3.3 Non Ferrous metals industry

The non ferrous sector is highly concentrated in the EU because production of primary metals is exposed to fierce global competition and depends heavily on metal ores which are mostly imported into the EU. The sector produces only 0.2% of total value added but consumes around 1% of total final energy.

Production of primary aluminium, through electrolysis of alumina, is by far the most energy intensive process in this sector. Secondary aluminium uses thermal processing, which is much less energy intensive, to recycle scrap aluminium. The production of other non ferrous metals, such as zinc, copper, lead and others, uses specific processes, both thermal and electrolytic. Recycling of waste material is widely used allowing for higher overall energy efficiency. The Baseline scenario assumes that primary aluminium following past trends will grow slowly far below the average growth of the sector which is dominated by the treatment of recycled materials, e.g. secondary aluminium or zinc.

FIGURE 26: NON FERROUS METALS - PRODUCTION (M TONS)

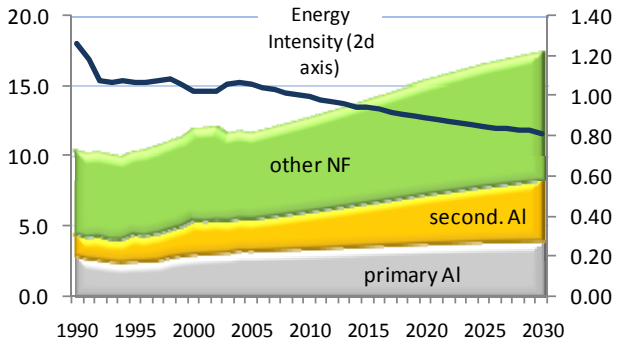
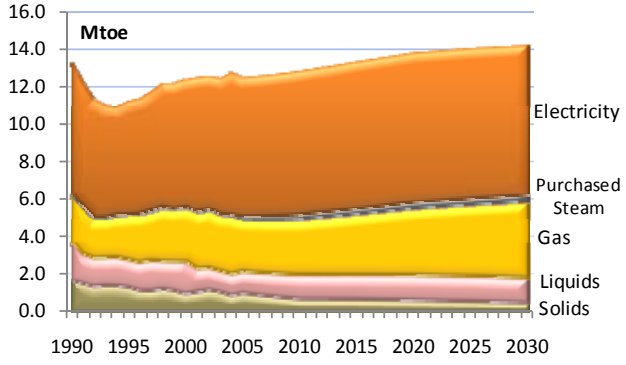


FIGURE 27: ENERGY CONSUMPTION IN NON FERROUS



The changes in the structure of activity explain the significant and steady rate of efficiency gains, which are projected to be above 1% per year, continuing past trends at a slower pace.

From 1990 to 2005, energy consumption in the non ferrous sector decreased although product output measured in tons increased. This is mainly due to the growing use of recycled materials and the low growth of primary aluminium production. The Baseline projects that around 60% of the EU non ferrous metal output will come in 2030 from recycling, up from around 40% in 2000. Consequently, energy consumption in the sector is projected to increase between 2005 and 2030 at a rate which is one third of the annual growth of the sector's output.

Energy per unit of physical output of the sector is projected to be 25% lower in 2030 than it was in 2005. Apart the structural changes mentioned above, technology progress in specific thermal processing is driving improvement of energy efficiency.

Electricity in non ferrous industry accounts for 7.6% of total electricity consumption in industry, in 2005. It is used almost entirely in specific electrical processes which represent more than 50% of total energy needs in the sector, the rest corresponding to energy used in thermal processing. Use of steam is small and thermal processing is projected to rely increasingly more on natural gas, shifting away from solid fuels and oil which have dominated the fuel mix in the early '90s.

Consumption of gas is 44% higher in 2030 than in 2005, while electricity consumption increases by only 8% during the same period.

The cost structure of primary aluminium shows great dependence on electricity prices. The rest of non ferrous metal production is more dependent on the cost of input materials. On average, the Baseline projection shows energy costs reaching a share of 19.5% in total production cost in 2030, up from 17% in 2000, but similar to the situation in 2005 (20%).

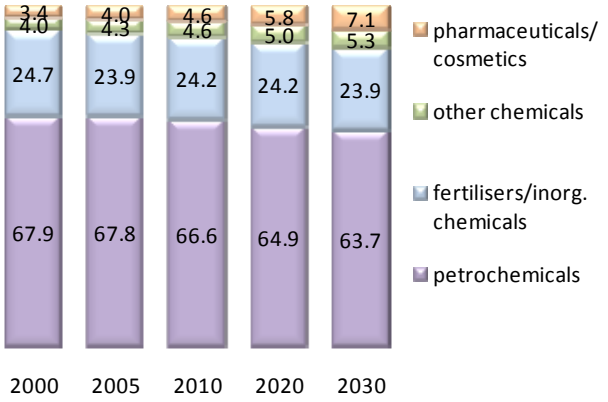
5.3.4 Chemical Industry

The chemical sector is characterised by great variety of products and production processes. From an energy point of view, the sector's variety ranges from highly energy intensive raw materials, such as basic petrochemicals up to low energy intensive but high value added consumer-oriented commodities (e.g. pharmaceutical, cosmetics).

The PRIMES model database aggregates the chemical industry activities in four main categories, namely fertilisers/inorganic chemicals, petrochemicals, other chemical products and pharmaceuticals/cosmetics. Production of petrochemicals is energy intensive and also involves the use of energy products as input materials, which is not included in final energy demand, according to Eurostat definitions.

The chemical industry is the largest energy intensive sector in the EU, contributing 12% to total industrial value added. The low energy intensive activities represent more than half of sector's value added and account for only 10% of sectors' energy consumption.

FIGURE 28: SHARES BY SUB-SECTOR OF TOTAL ENERGY PRODUCTS USED IN THE CHEMICAL INDUSTRY



During the period 1990-2000, the energy intensive activities of chemical industry grew at a slow pace and underwent significant restructuring seeking economies of scale, higher productivity and compliance with a series of new environmental regulations. During the same period the energy intensive activities experienced a high degree of pressure from global competition explaining the slowdown of their growth. However, the latest statistics for the period after 2000 show recovery of growth in these sectors, enabled by the growing global demand in which the EU chemical industry preserves a significant market share due to the high quality of products. The projected rates of growth of energy intensive chemicals attain significant levels in the order of 1.5% per year, which are however lower than the growth rate of total value added. Conversely, the Baseline scenario projections include high growth rates for the non energy intensive products of the chemical industry.

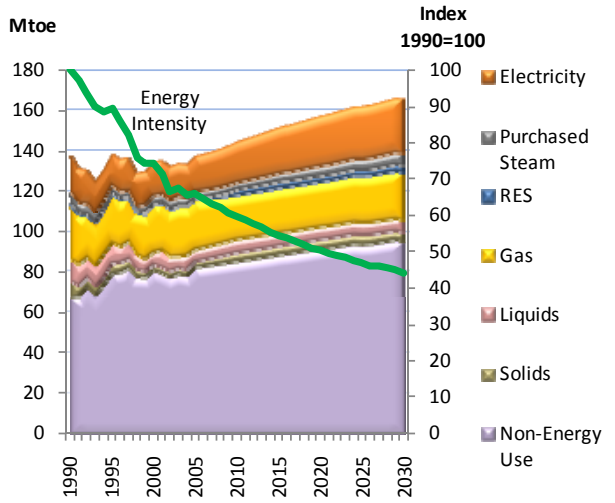
By considering total use of energy products (both for energy and non energy purposes) by the chemicals industry, petrochemicals account for almost 68% of the total and fertilisers and inorganic chemicals for 24%, in 2005.

The projection shows that energy intensity of the sector, including energy and non energy uses of energy products, improves by 33.3% over the projection period. This is mainly due to structural changes shifting sectoral production towards high value added and low energy intensive products (60%) and partly (40%) to specific energy efficiency gains. The petrochemical industry optimises the use of energy products used as materials following recent

trends, especially after 2000, and achieves 14% energy efficiency gains over the projection period. The fertilisers and inorganic chemicals are also projected to improve over time in terms of energy intensity, which decreases by 0.91% per year.

The petrochemical industry uses mainly oil products, which account for 80% of total consumption in non energy uses. The rest of non energy uses is covered by natural gas. The projection shows a continuation of this product mix. The petrochemicals industry consumes about 10% of total sales of oil products.

FIGURE 29: ENERGY PRODUCTS USED IN CHEMICAL INDUSTRY



The energy in the chemical industry is mainly used in thermal processes. Thermal use concerns mainly steam, which account for 45% of total energy consumed for energy purposes in the sector. Specific thermal processes account for 25%, the rest being covered by electricity.

Demand for steam grows by 1.6% per year in 2005-2030 and represents between 45 and 50% of total energy uses. Steam is an important carrier in the sector; it is consumed by specific processes. Steam is generated within processes and is used to drive main turbines. Thermal processing is projected to decrease over time; its share in total energy uses passes from 25% in 2005 to 14% in 2005, showing a decline by 1.1% per year in 2005-2030. This reflects gradual replacement by electric processing. Natural gas accounts for 70% of inputs to thermal processes, the rest being oil products, which are projected to decrease over time.

Electricity in the chemicals sector is the most rapidly growing energy form: 1.78% per year in 2005-2030. This is mainly due to the penetration of electric processes and the emergence of specific electricity uses. Electricity consumption increases also through the wider use of electric compressors, pumps and motors. Technological progress in the chemical industry concerns increasingly electrochemistry, for example for specific reactions, separations and electrolytic processes. In addition, recent statistics show a declining trend in the production of fertilisers and other products for which the direct use of fossil fuels in their processing is indispensable. These trends drive electrification and lead electricity to reach a share of 38.1% in total final energy used in the chemical industry in 2030, up from 31% in 2005.

Steam supply to chemicals industry is split between industrial boilers, covering around 45% of total needs, on site CHP (38%) and purchased steam from CHP generators. On-site CHP generation uses mainly natural gas which accounts for 72% of fuels inputs to on-site CHP. The rest is covered by coal (16%) and biomass, which reaches 12% of fuel inputs in 2030, up from 9% in 2005. The projection shows that this fuel mix remains roughly stable over the projection period. The boilers mainly use natural gas, but its share in total inputs to boilers is projected to decrease over time and reach 44% in 2030, down from around 60% in 2005. Heavy fuel oil and solids keep their shares and slightly increase over time. These changes are driven by relative fuel prices and also reflect the fact that natural gas is technically and economically more beneficial when used in CHP applications.

The importance of energy in the cost structure varies across the sub-sectors of the chemicals industry. Energy accounts for 2% to 3% in total cost of the low energy intensive sub-sectors, such as the pharmaceuticals and cosmetics; this range is 15-18% in energy intensive chemical subsectors and is 25-28% in fertilisers and inorganic chemicals. The cost of feedstock and energy used in petrochemicals represent between 50-60% of total cost.

5.3.5 Non Metallic Minerals Industry

The non-metallic minerals industry is composed of several sub-sectors which produce mainly building materials, including cement, lime, glass, ceramics, bricks and gypsum. This manufacturing sector accounts for a relatively small share of total value added (1%) and of the value added produced by industry (5%). However, it plays an important role as a supplier to construction and other sectors. The production in this sector is clearly energy intensive. Energy consumed by this sector accounts for 3.7% of total final energy consumption and 13.3% of energy consumption in industry, in 2005.

Value added of non metallic minerals is projected to grow by 1.73% per year in 2005-2030 which is higher than the average growth rate experienced over the last ten years (1.31% per year in 1995-2005) but in line with the projected growth rate of construction activity.

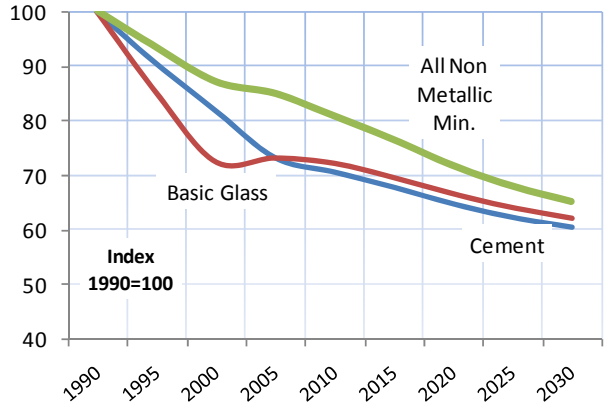
The cement industry uses energy mainly in a high temperature thermal processing of raw materials, namely rotary

kilns, and also uses electricity for raw material preparation (e.g. mills and fans).

The industry has boosted efficiency by concentrating in plants of high capacity (a typical kiln has twice the capacity that it had twenty years ago) and by massively adopting the dry process of cement manufacture which replaced the wet process kilns. Currently the large majority of cement production (close to 90% in the EU) is using the dry process technology.

The best available technology based on dry kiln system consumes 0.065 toe/t of cement. Currently the average heat balance value of clinker in the EU is about 0.080 toe/t, which is more than 30% lower than in 1990.

FIGURE 30: ENERGY EFFICIENCY IN NON METALLIC MINERALS



Considerable efficiency gains took place in cement production over the last fifteen years: 2.1% per year. Given that there exist today in the EU somewhat less than 15% of cement production based on wet or semi-wet processes, there is scope for further energy efficiency gains. The Baseline scenario projects specific energy consumption of cement manufacturing to decrease by 0.8% per year in 2005-2030 and to reach by 2030 a level that is close to energy performance of the currently best available technology. This progress takes place at different pace in the Member-States depending on the status of technology prevailing at present. Process control optimisation and other techniques may also contribute to further improving energy efficiency in cement manufacturing. The Baseline scenario assumes that some progress takes place in that respect.

Traditionally, the fuel used in cement kilns was coal and petroleum coke. As a result of the establishment of the EU ETS, the industry is increasingly using waste material (mainly treated municipal waste) so as to reduce CO_2 emissions. By 2005, the share of biomass-waste fuels in total inputs to kilns was roughly 7% and is projected to rise to 13% in 2030. The use of waste is limited because of concerns about environmental hazard and the requirements about efficiency of combustion at high temperature.

Fuels in solid forms cover the rest of energy requirements by cement production, of which petroleum coke is the predominant fuel. Natural gas kilns are rare, because of fuel cost. Substitutions between fossil fuels, especially among the fuels in solid form, are driven by relative prices and have often taken place in the past. The projection shows that solid fuels maintain a rather constant share over the projection period, contrary to the use of petroleum coke which declines.

Total energy consumption of cement production (of which 71% is consumed by cement kilns) account for 48.5% of total energy consumption in the non metallic minerals industry in 2005 and this share remains rather constant in the Baseline scenario.

Energy costs account for about 40% of variable costs of cement production. Electricity covers around 20% of cement energy needs and therefore is an important cost factor.

Production of lime is also energy intensive and uses kilns for processing raw material and electricity in milling. The various technologies differ in terms of specific energy consumption of lime production and there exist a significant potential for energy efficiency gains. The Baseline scenario shows significant improvement of specific energy consumption as a result of increasingly adopting best available technologies for lime kilns. Lime industries often use gas in kilns in order to avoid sulphur and other impurities in products.

The glass industry in the EU has grown steadily over the last ten years at rates between 1 and 2% per year. Higher quality glasses and special glasses get growing shares in the sector. Container glass is the main product representing 60% of total glass production in 2005, followed by flat glass (28%).

The Baseline scenario assumes that production of glass will increase at an average rate of 1.6% per year in 2005-2030, due to the increase in the consumer and construction industry demand. Recycled gas has increasingly been used within this sector, which is projected to further increase in the future. This leads to diminishing needs for basic glass production which is projected to increase only by 0.5% per year in 2005-2030.

Basic glass production is a high temperature energy intensive process; melted gas is produced in furnaces usually burning fossil fuels above raw material. Fining and conditioning of glass is basically thermal but at lower temperature. The glass industry in the EU carried out important restructuring during the last fifteen years towards higher scale of production and higher efficiency. Specific energy consumption of glass melting has dropped by 60% during

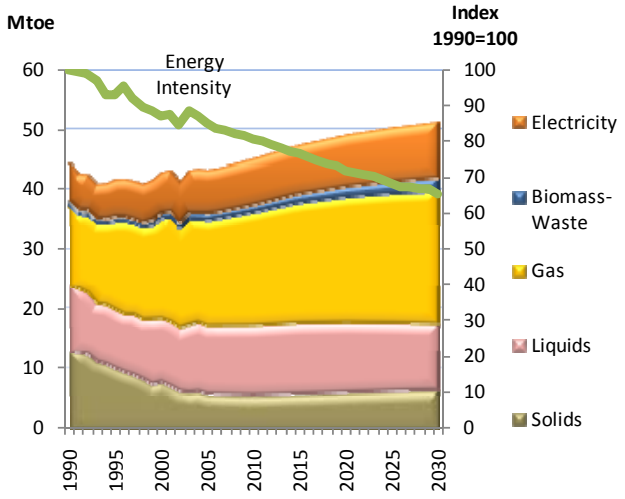
that period. Further energy efficiency gains are possible in the future but the potential is smaller.

The Baseline projection includes lower reduction of specific energy consumption of glass melting in the period 2005-2030, leading to energy efficiency gains of 0.65% per year, down from 2.1% per year during 1990-2005. However, energy efficiency gains at the level of the glass sector are projected to be 1% per year in 2005-2030 as a result of the increasing share of glass recycling, which is projected to exceed 50% at the level of the whole glass sector by 2030.

The main energy sources for glass melting are natural gas, fuel oil and electricity. Natural gas is increasingly used in order to preserve purity of final products. Electricity is used either as a single source of energy, in resisting heating processes, or in combination with fossil fuels. The growing production of glass of higher quality and special glasses drives the application of new processes, which are generally more energy efficient. Examples include oxygen fuel burning and electric melting. Energy efficiency is ensured by using heat recovery techniques, process control and recovery-recycling of waste glass. There techniques have been already widely used.

The rest of activities included in the non metallic minerals sector concerns manufacturing of bricks, tiles and other building materials. There production is also based on thermal processing in furnaces and the use of electricity both in processing and in specific electricity uses.

FIGURE 31: ENERGY CONSUMPTION IN NON METALLIC MINERALS



The degree at which the Member-States' industrial plants in the non metallic minerals sector are employing advanced technologies vary. The Baseline projection assumes that convergence of industrial performance will drive faster adoption of best available technologies in Member-States with older or less efficient plants.

As a result, the Baseline scenario shows gradual convergence of specific energy consumption of produced materials by this sector among the Member-States. In addition, the Baseline scenario involves growing use of recycled materials in the sector, allowing for a low increase in basic material production, which is significantly more energy intensive. As a result of these changes, the Baseline scenario projects that energy efficiency improves by 1% per year over the projection period.

The fuel mix in the non metallic minerals industry is projected as rather stable over time. Natural gas use is increasingly driven by demand for higher quality products. Electricity is also getting a slightly higher share as a result of the growing use of electro-thermal processing. The use of waste as input fuel is projected to increase but its share remains rather small.

Thermal processing is projected to remain the dominant energy use accounting for about 80% of energy use in the sector. Electricity uses increase in share reaching 17.8% in 2030, up from 16.5% in 2005.

5.3.6 Pulp and Paper Industry

Pulp and papermaking is an important sector in the EU economy and consists of several process stages and different products. The Baseline scenario projects growth of sector' production by 1.3% per year in 2005-2030.

Pulp production is the basic process and is concentrated in the EU in areas linked with resources used as raw material. The sector's value added is mainly generated by secondary processing of paper materials, special papermaking activities and printing, rather than by pulp production. In terms of production measured in tons, pulp production accounts for around 30% of total quantity of paper produced in the EU, but in terms of energy it accounts for 44% of total energy consumed in the sector. The part of pulp production is projected to decline to 26% in 2030.

Currently, pulp production is mainly based on kraft (sulphate) process which is highly energy intensive both in steam and electricity. The major part of heat energy is consumed in chemical processes, heating fluids and in evaporation. Electricity is mainly used for preparation and handling of raw material and the operation of large-scale pumps and motor-based machines. Drying and secondary treatments consume lower enthalpy heat and electricity.

Production from recovered and recycled paper is less energy intensive (less than half of that of pulp production) and is more dependent on low enthalpy heat and electricity. Recycling of paper recovered has been growing steadily in the EU and, in volume terms, covers 70% of total paper production.

FIGURE 32: ENERGY CONSUMPTION IN PULP AND PAPER

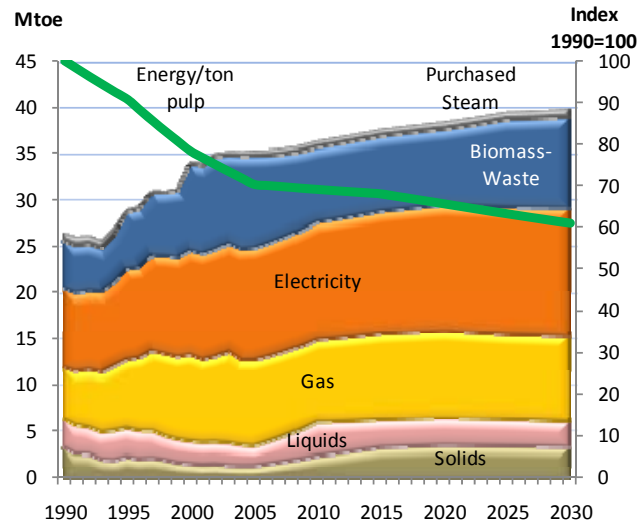
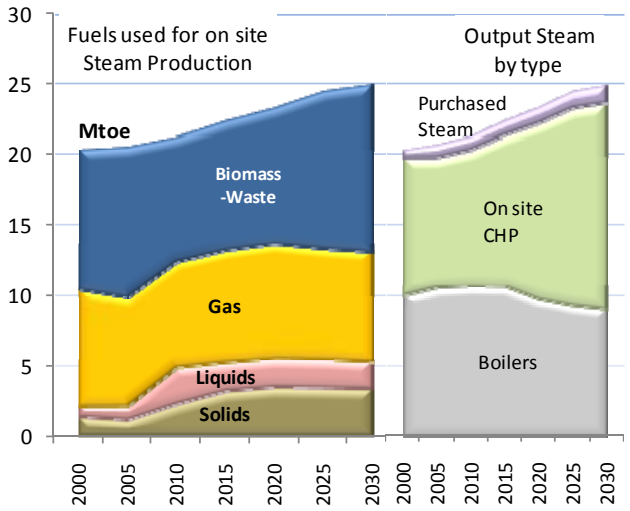


FIGURE 33: STEAM PRODUCTION IN PULP AND PAPER



The Baseline scenario takes the view that paper recovery has a small additional potential and projects recovery to increase only up to 74% in 2030. The scenario projects pulp production to increase in volume terms by roughly 1% per year in 2005-2030.

As a heavy steam and electricity user, pulp production is an ideal area to develop advanced CHP technologies and apply complex heat recovery techniques, as well as process control optimisation. These are among the standard techniques already under development in the industry leading to important energy efficiency improvements. Looking back to 1990, the pulp industry has experienced considerable change in the process technologies and in the deployment of energy efficiency techniques: specific energy consumption of pulp was in 2005 30% lower than in 1990 which corresponds to energy efficiency gains of more than 2% per year.

The Baseline scenario shows continuation of this trend at a slower pace, showing further reduction of specific consumption of ten additional percent points, which corresponds to energy efficiency gains of 0.6% per year on average in the period 2005-2030. Further improvements are possible but are related to the introduction of new process technologies which are capital intensive and require shorter capital rotation cycles than the industry experiences.

The rest of papermaking activities have also possibilities to improve energy efficiency. The Baseline scenario shows energy intensity gains of 0.8% per year between 2005 and 2030. Low enthalpy heat uses can be optimised seeking lower specific energy consumption by employing primary energy saving measures but most important through wider use of advanced heat pumps. This justifies the trend shown in the Baseline scenario towards diminishing shares of low enthalpy heat and increasing electrification of papermaking processing.

As mentioned above, the basic trend in the pulp and paper industry as projected in the Baseline scenario is the increasing use of steam produced from on site CHP, which increases by 1.7% per year and gradually replaces industrial boilers, the latter getting a share of 36% in steam generation by 2030, down from 51% in 2005. This trend allows for lowering the cost of electricity supply produced partly on site, facilitating therefore more intense use of electricity also in heat uses. Purchased steam account for less than 5% in total steam use.

The production of steam by the industry benefits from access to biomass and waste which is also used as raw material in the industry. It is shown that biomass-waste covers 50% of input fuels to steam generation, the rest being covered by natural gas, which follows a slightly declining trend getting a share of 32% in 2030 down from 38% in 2005. This reflects relative input prices, which drive a small increase in the share of solid fuels (13% in 2030, up from 5% in 2005).

Although energy related costs constitute an important component of the cost structure of pulp production, in the whole papermaking and pulp activity energy represents around 15% of total value of production.

5.3.7 Other Industrial sectors

The rest of industrial sectors are not energy intensive and energy has a part of less than 2% in their overall cost structure. These sectors produce more than 75% of industrial value added and consume 35% of industrial energy consumption (not including feedstock to chemical industry).

Various sectors are included in this group producing a variety of products which are very important for the EU econ-

FIGURE 34: ENERGY CONSUMPTION IN OTHER INDUSTRIES

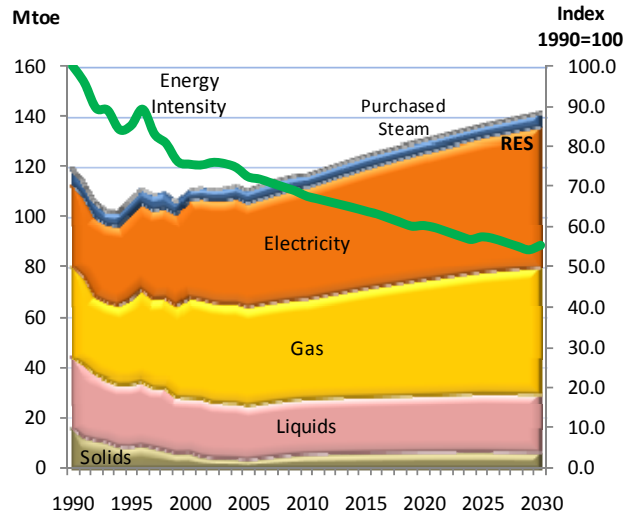
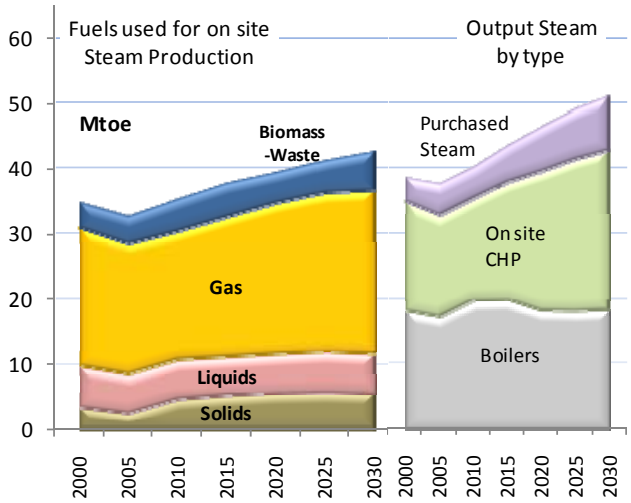


FIGURE 35: STEAM PRODUCTION IN OTHER INDUSTRIES



omy and its development. The engineering sector accounts for almost 58% of the value added of non-energy intensive industries. The sector has a growing importance in the EU economy as it produces equipment goods of various kinds. The Baseline scenario projects growth of this sector by 2.2% per year, in 2005-2030, a rate which is slightly above GDP growth.

The food and beverages sector has a share of 16% in non energy intensive industries and is also projected to grow at a significant rate (2.3% per year). The textiles sector is projected to remain at a rather stable level of production after a strong decline experienced in the past. The rest of the other industries sector produces a variety of consumer and intermediate goods, such as manufacture of wood products, rubber and plastic products, fabricated metal products, print and publishing, etc. It has a weight of 20% in the other industries category and is projected to grow at a rate similar to GDP.

The engineering sub-sector uses energy in thermal processes, as production of equipment goods involves treatment of metals in foundries and materials in furnaces. Electricity is an important energy carrier for this sub-sector ensuring the operation of complex specific electricity processes which take an increasing importance, as the sector of equipment goods is basing technological progress on electronics, electric motor drives and electric machines.

The food and beverages sub-sector, as well as part of the rest of sub-sectors within other industries, uses steam and heat energy as the main carrier and can benefit from wider use of CHP applications. Lower enthalpy heat uses are also important in these activities and the wider use of electric heat pumps is emerging. Electricity covers specific uses, such as motors, pumps, electronics, cooling and compression, and is gradually penetrating also in heating uses substituting for fossil fuels. However, the Baseline scenario shows a rather slow process of electrification, because fuel prices relative to electricity prices are projected to be rather stable.

Process optimisation, wider use of CHP and heat pumps contribute to improving energy efficiency in this group of non energy intensive industries. During the '90s the other industries sector underwent considerable concentration and modernisation of production. Investment in this sector brought about considerable energy efficiency gains displaying a steady decrease of energy intensity by 2.2% per year in the period 1990-2005. The Baseline scenario shows a deceleration of this trend: energy intensity reduces by 1% from 2005 to 2030.

The share of electricity in total energy consumption of the sector remains at 37% in the projection, a few percent points up from recent statistics. Natural gas plays an important role in the sector, preserving a share of 33% despite its price increase. It is used half in thermal processes and half in on site generation of steam. Liquid fuels are gradually substituted by other fuels and electricity and reach a share of 16% in 2030, down from 20% in 2000.

Steam uses keep a constant share of 34% and are increasingly generated by CHP, 57% in 2030 up from 48% in 2005, replacing industrial boilers. Steam purchased from third CHP producers represents only 31% of CHP steam used by the sector.

On-site CHP and industrial boilers rely mainly on natural gas which covers 60% of steam generation. The scenario shows a slowly declining trend of the use of gas in steam generation and an increase in the use of biomass (16% in 2030) and solid fuels (12% in 2030).

Energy related changes are taking place at a slow pace in this sector; similarly energy intensity progresses slowly. This is largely due to the non energy intensive character of the sector, for which energy costs represent only a small fraction of total production costs. In that sense the sector shows strong inertia and adjusts slowly to energy related technological improvements.

5.4 The Services Sector

The services sector accounts for 12% of total final energy demand and produces 70% of total value added in the EU economy. During the last fifteen years services were the fastest growing activity in the EU economy, growing at a rate above GDP. Within the services sector market services and trade have increased at a rate between 2.6 to 2.8% per year over the period 1990-2005, far above the growth rate of non-market services (1.7% per year).

Industrial specialisation of the EU towards knowledge-based and technology-based industries, which takes place increasingly in the context of a broad EU and global market have boosted the development of services, such as engineering, finance and trade. New services have emerged, enabled by high income elasticity of consumers, such as leisure services, information technology and telecommunications, driving further the development of the services sector. These trends are likely to prevail also in the future growth pattern of the EU economy and are assumed to continue in the Baseline scenario.

Increasing activity and the growing value added per unit of output in the services sector have driven increase in employment, both in terms of number of persons employed and in terms of average level of education.

The working conditions, as for example the office space per employee, the degree of comfort enjoyed in the office (including heating and cooling) and the access to electricity-based office facilities, have improved considerably over the last fifteen years. The construction of new office buildings offering high quality working conditions is among the fastest growing sectors in the EU economy. This trend has consequences for energy consumption, both regarding the level of energy needs per employee and the structure of energy uses and the fuel mix.

Similar trends are experienced in other market services and trade supporting services: their infrastructure became larger and more energy demanding, new energy uses have emerged which were generally facilitated by proliferation of electricity applications.

The Baseline scenario takes the view that these trends towards higher comfort and growing needs for energy services are not yet saturated and will continue in the future.

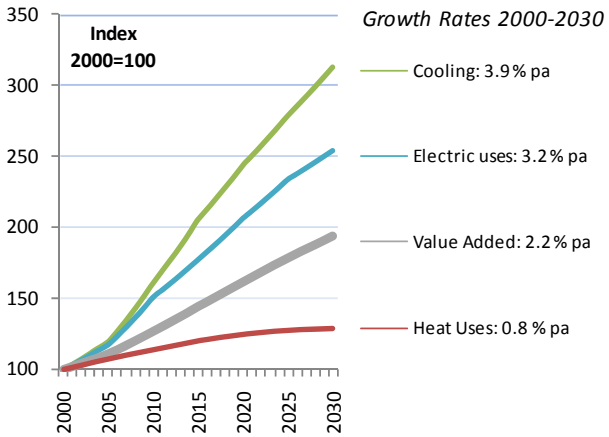
Although the part of fuel purchases is small in the cost structure of the sector (about 1%), the services provided by fuels and electricity are important for productivity and working conditions. There is increasing quality in the use of energy with progress being embedded in investment in new office buildings and office infrastructure. As a consequence, energy efficiency is continuously improving in the services sector; nevertheless there is an increase in the volume of energy consumed.

Detailed statistics about useful energy uses and the energy-related characteristics of services infrastructure are not available. However, on the basis of aggregate statistics it has been possible to estimate a few indicators about useful energy demand in the services sector, which illustrate the trends presented above.

During the period 1990 to 2005, average growth of services output was 2.4% per year. The number of employees increased by only 1.3% per year, as the sector experienced a steady growth of labour productivity. Office space per employee was growing by 0.5% per year, more slowly than output. Useful energy consumption per employee was growing at 0.4% per year. The output elasticity of useful energy was in the same period equal to 0.7 which clearly shows that the role of energy services in the services sector is important, despite the low fraction in cost terms. As a result, useful energy needs grew at a rate 1.7% per year during the period 1990 to 2005.

The structure of final energy consumption by type of use, as estimate for the calibration of the PRIMES model for the period 2000 to 2005, shows dominance of space heating (50.5%). Other heat uses (cooking and water heating) have a significant share: 22.5%. Electricity used by electric appliances represented around 16.5% in total final energy needs, lighting accounted for 4% and cooling accounted for 6.5%.

FIGURE 36: USEFUL ENERGY IN SERVICES SECTOR

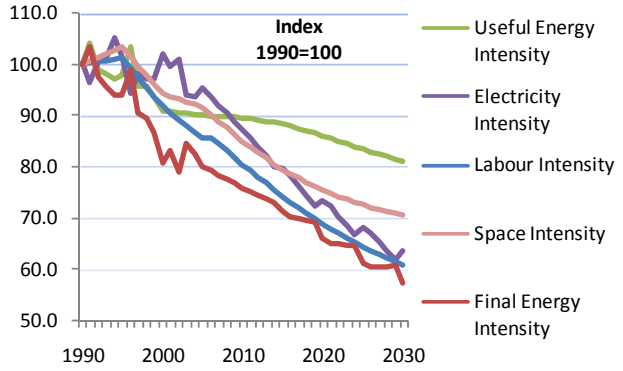


The structure of useful energy in the services sector as projected for the Baseline scenario changes over time, following the trends mentioned above which imply growth of electricity and cooling uses while traditional heat uses are rather saturated. Specific electricity uses grow by 3.1% per year up to 2030, cooling grows by 3.9%, and heat uses are growing by 0.7% per year, between 2005 and 2030.

This structure of useful energy indicates that energy efficiency progress heavily depends on the characteristics of the services buildings (i.e. thermal integrity of buildings) and the possible active or passive systems that may optimise the use of energy for heating and cooling purposes.

The fast turnover of capital in offices buildings during the period 1990 to 2005, marked by the massive construction of modern structures, enabled significant progress of energy efficiency in the services sector. As a matter of fact, the ratio of final energy per unit of useful energy, which is an indicator of energy conversion efficiency, decreased between 1990 and 2005 by 15% in total, which corresponds to a decrease rate of 1% per year. Energy per unit of value added also decreased over time as a result of total factor productivity improvement.

FIGURE 37: ENERGY INTENSITY INDICATORS (RELATED TO VALUE ADDED)



The combined effect has resulted into a steady decrease of energy intensity (final energy per unit of value added) by 1.47% per year in the period 1990 to 2005. Final energy per employee and final energy per square meter of office space were both decreasing in the period 1990 to 2005, at 0.44% and 0.90% per year, respectively, despite the increase in comfort and useful energy per worker or per square meter.

This remarkable trend, which is confirmed by the statistics, shows the importance of modernisation investment on energy efficiency progress that took place in the services sector of the EU.

The Baseline scenario projects a continuation of these trends. The projection as based on the PRIMES model is performed through a combined bottom up and top down approach at a high level of detail. Indicators calculated as ex-post results of the model confirm continuation of past modernisation trends but also show some new structural developments.

In the projection period to 2030, useful energy follows the evolution of services output at an output elasticity of 0.8 given the importance of energy for quality and productivity in the services sector. The ratio of final energy per unit of useful energy is found to decrease at an average yearly rate of 0.88%. The combined result of these two effects is a decrease of energy intensity in the services sector by 1.32% per year over the period 2005 to 2030.

Final energy demand is projected to grow at an annual rate of 0.9% in the period 2005-2030, which corresponds to the growth rate observed in the period 1990-2005 (0.9% annually). Useful energy is projected to increase at a yearly rate of 1.8%, up from the average 1.7% per year observed in the last fifteen years.

Energy efficiency improvement in space heating is projected to continue in the Baseline scenario, at an annual rate of 0.5%, which is slightly lower than observed during 1990-2005, reflecting a slowdown of capital turnover in construction of new office buildings given their fast pace in the past. Similarly other heat uses are projected to be more efficient at an annual rate of 0.6%.

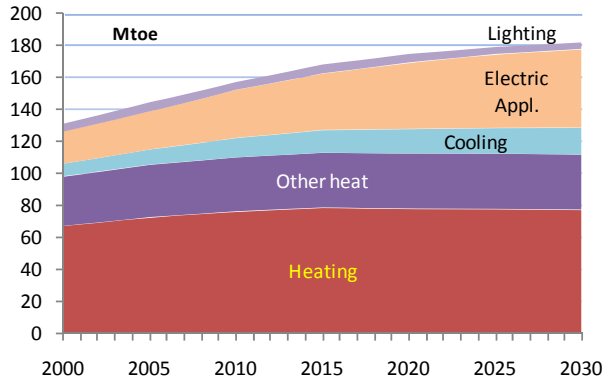
Energy efficiency of cooling displays considerable improvement in the Baseline scenario, amounting to 1.5% gains per year, as a result of the wider use of advanced heat pumps which can attain high values of their coefficient of performance (COP), defined as the ratio of heat (or cooling) output per unit of electricity inputs. This is considered as an important technological progress included in the Baseline scenario.

Lighting has also a great potential of higher energy efficiency and effectively the Baseline scenario includes progress by 5.5% per year reflecting the fact that efficient lighting is very profitable in terms of pay-back period. Moreover, technology is improving fast in that domain, especially as regards the particular conditions for lighting in services buildings.

Regarding energy efficiency of specific electric appliances, the Baseline scenario takes a conservative view showing an annual rate of energy efficiency gain of only 0.1%, which includes the effect from more intense use of appliances.

Final energy demand of services is dominated by space heating and other heat uses, which taken together account for 73% of energy consumption in 2005. This share is projected to decrease to 62% in 2030.

FIGURE 38: FINAL ENERGY CONSUMPTION IN SERVICES BY TYPE OF USE



Cooling has a small share in final energy consumption, which attains 9.3% in 2030, up from 6% in 2000. It should be noted that the energy balance statistics do not account for the waste (ambient) energy, which is used as input by heat pumps.

Lighting represents a small share in total final energy consumption in the sector, which is projected to further decrease as a result of widespread penetration of efficient lighting. Specific electricity appliances are projected to represent the fastest growing share of energy consumption attaining 27% in 2030 up from 15.5% in 2000.

Electricity is a carrier of growing importance in the services sector, enabling specific uses and cooling but also because it substitutes for fossil fuels in heat uses. Electricity demand has grown by 2.6% per year in the period 1990 to 2005, which illustrates the changing structure and technology in this sector.

The Baseline scenario shows that this trend is likely to continue in the future and later decelerate in the longer term, as a consequence of saturation effects and also because of energy efficiency gains. Nevertheless, electricity demand is projected to remain at a significant growing pace: 1.5% per year in 2005-2030, which represents an average growth rate of 1.9% per year in 2005-2020 and of 0.8% per year in 2020-2030.

Electricity is projected to cover almost 50% of total energy consumption of the services sector in 2030, up from 42% in 2005 and 31% in 1990.

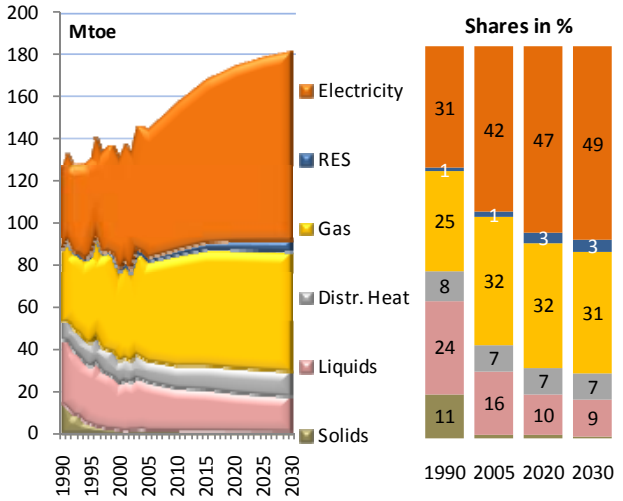
The services sector experienced considerable restructuring of the fuel mix during the '90s, by reducing drastically the use of solid fuels and at a lesser degree the use of liquid fuels. Solid fuels are projected to become an obsolete energy form in the services sector. Oil products also decline; their remaining use is mostly due to natural gas network infrastructure constraints.

Natural gas was the fastest growing fossil fuel during the '90s. This restructuring reflected the need for cleaner heating in the sector, partly driven by regulation. Natural gas is projected to remain an important part of the fuel mix keeping a share above 30% throughout the projection period. Solid fuels are projected to vanish from the fuel mix and oil products account for less than 10% by 2030, down from 15.5% in 2005.

Distributed heat from district heating or CHP supply around 7% of total energy needs of the sector and this share is projected to remain rather constant in the Baseline scenario. The development of distributed heat depends on the pre-existence of infrastructure in cities which has been developing unequally across the Member-States. New technologies for on-site CHP, such as micro-turbines and fuel cells, are not shown to make significant inroads under the assumptions of the Baseline scenario.

Renewable energies are emerging in the sector, displaying an average growth rate of 4.4%. However, their volume remains small attaining a share of just above 5% of energy consumed for heating purposes in the sector. Half of the RES is biomass and waste used in heating applications and half is thermal solar used mainly for water heating.

FIGURE 39: ENERGY CONSUMPTION IN THE SERVICES SECTOR



Geothermal heat as accounted for in the energy balances includes only the use of geothermal heat in a direct way. There exist specific areas in the EU which have exploitable potential of using low or medium enthalpy geothermal heat to feed into distributed heat applications. The Baseline scenario takes a conservative view about their development and shows little progress in the context of the assumptions of this scenario. There is great potential of using geothermal energy in a passive way via heat pump technology (for both heating and cooling) combined with small-scale heat storage in the ground. However, due to the lack of detailed statistics on geothermal heat pump use, the contribution from passive geothermal applications is currently measured by the model as energy conservation and does not directly

appear in energy balances. This discussion about geothermal energy in building applications applies also to the residential sector.

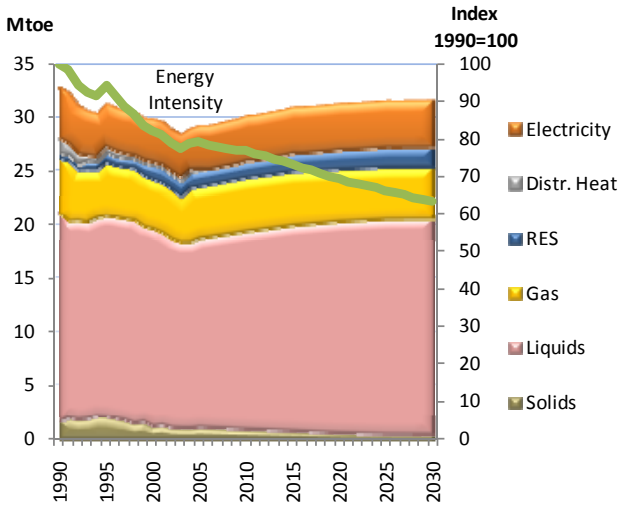
In summary, the Baseline scenario involves considerable modernisation of the fuel mix and the infrastructure in services leading to a higher efficiency in using energy. Electricity and gas are the main carriers. They are likely to be consumed with more advanced technologies in the future, as the sector is seeking quality improvement and productivity gains, which enable improved working conditions with more intense use of electrical equipments.

5.5 The agriculture sector

Agriculture has a relatively small weight in economic activity (2.7% of value added in 2005). It has grown at nearly half the rate of GDP growth. The Baseline scenario includes a continuation of this trend, albeit with a small acceleration of value added growth in agriculture.

Agriculture in the EU uses substantial amount of energy to produce heat in greenhouses and other heat applications (e.g. drying). This accounts for 73% of total energy consumption of agriculture. Energy is also used for pumping and agricultural machines (23% of total). The rest of energy consumption in agriculture corresponds to specific electrical equipment and electric motor drives. Liquid fuels used in vehicles by farmers are accounted for the transport sector, according to Eurostat definitions.

FIGURE 40: ENERGY CONSUMPTION IN AGRICULTURE



The fuel mix in heat production is dominated by liquid fuels (more than 60%), whereas natural gas accounts for 20% of the fuel inputs for heat. This reflects lack of gas distribution infrastructure in rural areas. Use of biomass and recycling of agricultural waste in heat production accounts for a rather small but growing share, which was still less than 7% in 2005.

The Baseline scenario projects a continuation of this structure of energy used in agriculture and of the fuel mix in heat production. The scenario includes a slight increase in the share of renewable energies, such as use of waste, geothermal energy and solar energy, reflecting new applications that start to emerge in the agriculture sector.

Energy intensity of agriculture has decreased substantially between 1990 and 2005 (1.5% per year), as a result of a restructuring of activities towards higher value added products and an increasing trend towards industrialisation of production, which involves optimisation of inputs to production at a larger scale. The Baseline scenario takes the view that further energy efficiency progress is possible in the future but at lower rates than in the past. Energy intensity is shown to decrease on average by 0.9% per year in the period 2005 to 2030, and energy consumption in agriculture is projected to grow by 0.3% per year, in contrast with the decrease of 0.7% per year experienced in the period 1990-2005. The important role of the oil products in agriculture is projected to remain unchanged in the future.

5.6 The Residential Sector

Energy is used in the residential sector for space conditioning (heating and cooling), cooking, water heating, lighting and for electric appliances. The appliances are usually classified in "white" appliances such as refrigerators, washing machines, dishwashers and freezers, and other appliances that serve for entertainment, telecommunications, education, etc.

Economic theory suggests that household's purchasing power (i.e. revenue) is the main driver of energy consumption as households seek to maximise utility but are constrained by available revenue. Energy consumption brings utility by enabling important services, such as those mentioned above. The structure of utility, hence the willingness to pay for services, changes over time reflecting change in habits and lifestyles. New habits are emerging which need energy consumption, for example mobile phones and battery driven devices which are charged at home.

Energy consumption in households is shaped by the characteristics of energy using equipment as well as the thermal integrity characteristics of houses. The dynamic change of equipment and housing stock is driven by the investment behaviour of households. Houses present a low capital turnover rate, whereas other appliances are replaced more frequently, even before the end of their technical lifetime. Technological progress concerning energy efficiency is embedded in new vintages of equipment and houses. Retrofitting of houses for energy purposes, often as part of other modernisation work, also impacts on energy consumption.

The use of equipment for attaining a certain comfort level depends on revenue, but also on energy prices. High prices may induce for example lowering the temperature set for the thermostat, switching off lights in empty rooms and avoiding keeping appliances in stand-by mode.

Energy savings may lead to reduced energy bills, which might entail higher energy consumption given additional disposable income, just because households increase utility by using more energy services made possible by the relaxed revenue constraint. This is called "rebound" effect.

The PRIMES model follows a complex formulation to capture the above mentioned effects. The model combines a top down formulation of utility formation of households with a detailed bottom up representation of how energy is used and consumed through equipment, keeping track of technology vintages.

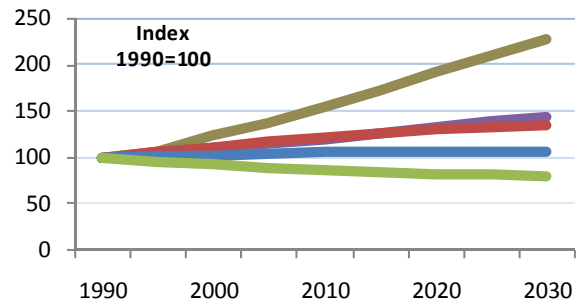
For this purpose, the model categorises the household types in several classes which are defined so as to correspond to distinguishable patterns of energy behaviour. The classes are defined according to the primary type of energy carrier used for heating (e.g. direct gas heating, central heating, district heating, and electricity heating). A class corresponding to partial heating of the houses is also included.

The primary data are obtained from national statistical surveys and the model applies a calibration procedure to reproduce more aggregate energy consumption statistics as published by Eurostat. However, the availability of detailed and consistent data on the house classes and the services from energy is rather limited and differ by Member-State.

The table and the graphic below show both that the number of households and the space per dwelling increase significantly albeit at an average rate below that of disposable income.

TABLE 10: DEMOGRAPHIC AND HOUSING DATA

Annual rate of change (%)	1990-2005	2005-2030
Income	2.11	2.03
Space per dwelling	0.88	0.90
Number of households	1.06	0.53
Population	0.26	0.05
Persons per Household	-0.79	-0.48



While population grows very slowly in the EU, the number of households increases faster because the number of persons per household decreases steadily. The average floor space per households also increases in the EU as a result of improving living conditions and growing real income. These are important developments for energy consumption driving higher energy needs per household.

The residential sector consumed 26% of total final energy consumption in the EU in 2005. This is slightly up from 25% in 1990 and is projected to attain 24% by 2030. The Baseline scenario projects an increase in energy consumption in the residential sector by 0.4% per year, down from a rate of 1.0% per year experienced in the period 1990-2005.

As a result of rising income, dwellings are becoming larger with greater comfort levels for heating. Ownership of appliances increases and new energy uses such as cooling or more advanced communication equipment emerge. It is likely that these trends offset part of the considerable energy efficiency gains that have been observed concerning both the thermal integrity of houses and the specific energy consumption of appliances and equipment.

Statistical information shows that average energy consumption per dwelling remained stable or even slightly declined in the period 1990 to 2005. In 2005 final energy consumption per dwelling was 0.8% lower than it was in 1990. During the same period, all indicators on comfort and ownership of appliances have increased considerably.

The index of useful energy per dwelling as estimated for the purposes of the PRIMES model displays an average increase of 1% in the period 1990-2005 despite considerable energy efficiency improvements.

The energy efficiency improvements were brought about by more efficient new buildings and appliances. The thermal integrity standards are regularly reinforced in all countries and so new buildings are considerably more efficient than older ones (e.g. through stricter insulation and glazing standards for new constructions). However, the impact on total consumption is gradual since capital turnover in the housing sector is low.

The effects of this progress on energy consumption are partly offset by the increase of the average floor space per dwelling. In addition, the number of houses with partial heating has dramatically decreased and is projected to decline further in the future.

Electricity consumption per dwelling has increased in the period 1990-2005 at an average rate of 1.1% per year. During this time period, the ownership of appliances has grown considerably.

The ownership of refrigerators and TVs approaches 100% and a significant percentage of households own multiple

appliances of the same kind. The ownership of washing machines exceeds 80%. The penetration of small appliances is also important.

The new appliances are increasingly complying with high energy efficiency standards: for example in 2004 the sales of certain A class white appliances accounted for more than 70% of total sales.

In the modelling context, it has been estimated that useful energy (utility) from the increasing use of electric appliances has increased twice as much as electricity consumption for appliances. The effects on electricity consumption are partly offset by the increasing number of new varieties of appliances used and by the larger size of the average appliance.

As a result of the above mentioned effects, energy intensity in the residential sector, measured as the ratio of final energy consumption over disposable income[29], decreased by 1.1% per year in the period 1990-2005. Considerable decoupling of energy demand from growth of households' income has already taken place in the EU.

The Baseline scenario projects a continuation of this decoupling and shows a decrease of energy intensity in the residential sector by 1.6% per year between 2005 and 2030. Final energy per dwelling is projected to decrease by 0.1% per year and useful energy per dwelling is projected to increase by 1% during the same period. The accelerated energy intensity progress is brought about by the combined effects of further technological progress in specific energy consumption of appliances, the improvement of thermal integrity of buildings as well as saturation effects in basic energy needs such as heating, cooking and water heating.

Final energy consumed for space conditioning (heating and cooling) accounts for 66% of total energy used in the sector. Saturation in space heating needs combined with better insulated houses justify the projection of the Baseline scenario showing very slow increase of energy for heating in the medium term followed by a decline in the longer term.

Cooling accounts for a small fraction (less than 1%) of energy needs of households but is projected to grow at a fast pace and to attain a share of almost 2% in 2030. Useful energy from cooling is projected to grow much faster than electricity used for cooling. This is due to technological progress embedded in the new generation of air conditioning equipment (heat pump technology) which are projected to become 75% more efficient in 2030 than they are today.[30]

Energy consumed for other heat uses (water heating and cooking) account for 22% of total energy consumption in the sector. The projection for the Baseline scenario shows an increase in energy consumed for water heating and cooking at an average annual rate of 0.2% in the period 2005 to 2030.

FIGURE 41: ENERGY CONSUMPTION INDICATORS FOR THE RESIDENTIAL SECTOR

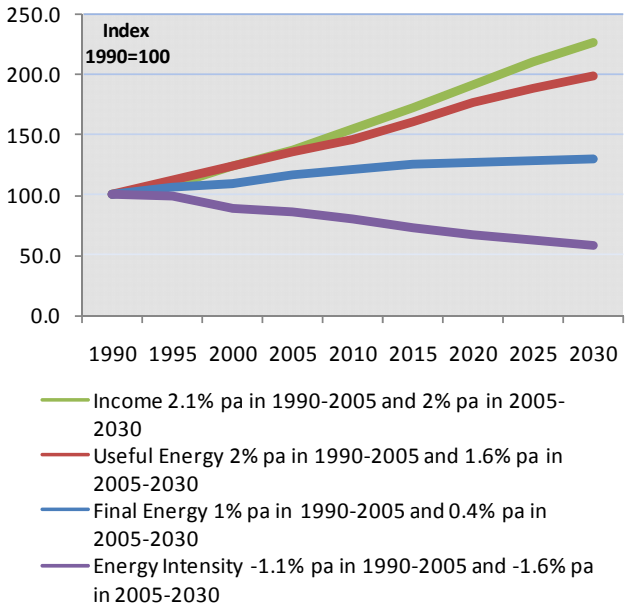
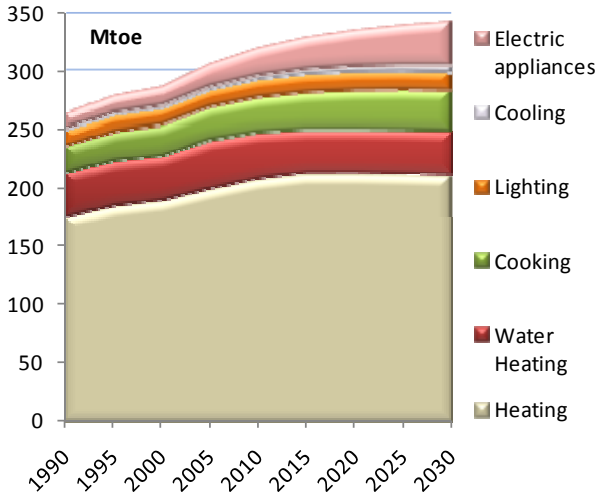


FIGURE 42: ENERGY CONSUMED BY USE IN RESIDENTIAL SECTOR



Electricity consumption in specific electric uses is projected to increase almost as fast as disposable income. Income elasticity of electricity consumption by appliances is higher than one (calculated ex post on the model's results) due to fast growing ownership of appliances by households and the emergence of new electric appliances and uses. This represents an acceleration of past trends reflecting the growing importance of electricity in providing utility in the context of evolving lifestyles. Although the scenario assumes significant technology progress of appliances in

[29] Private consumption expenditure in real terms as published by Eurostat in the National Accounts is used as a proxy of disposable income

[30] This is partly a statistical effect as ambient energy used as input by air conditioning heat pumps is not measured in this modelling context following the current Eurostat approach.

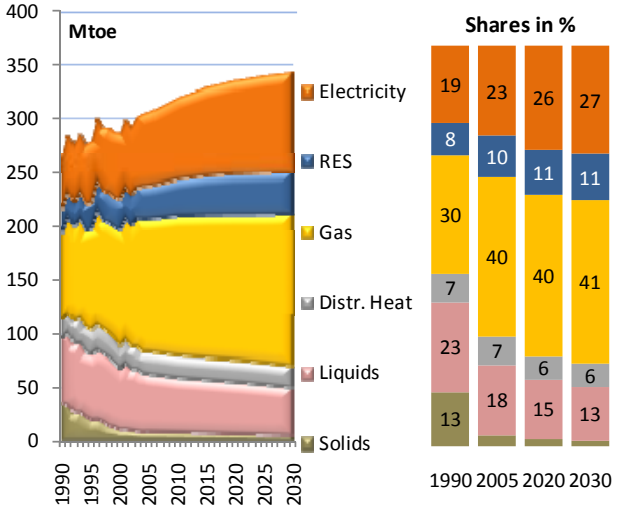
terms of their specific electricity consumption, their number per household, including ownership of multiple similar appliances per household, as well as their increasing size lead to growth of electricity demand for appliances of 2.6% per year in the period 2005 to 2030. Electricity for appliances attains a share of 11% in 2030, up from 6.5% in 2005. The overall energy efficiency gain of electric appliances, taken as a whole, is projected to be about 44% up to 2030.

Electricity for lighting accounts for 5% in total energy consumption in households and is projected to increase at a low rate until 2020 and to decline thereafter. The introduction of efficient lighting has been very slow in the residential sector, contrary to the services sector. Efficient lighting is economically beneficial, but households have acted as if they perceived high costs and disutility for its use. Empirical calculations show that current behaviour of households regarding the adoption of efficient lighting is equivalent to applying a very high subjective discount rate in the calculation of the pay-back period. The Baseline scenario takes the view that this inertia will be gradually overcome through the improvement of the lighting technology, the removal of barriers and ongoing promotion policies. This leads to a decline of electricity consumption for lighting in the longer term in the Baseline projections. The overall energy efficiency gain in lighting is projected to be about 25% from 2005 to 2030.

Natural gas is the predominant energy source for households accounting for 40 % of total energy consumption, up from 30% in 1990. Gas ranks first both in space heating and in other heat uses, which includes water heating and cooking, accounting for more than 40% of energy consumption in each of these energy uses. The projection shows a further increase in the share of gas for heating purposes, attaining 48% in 2030. Gas sales to households are projected to increase by 0.5% per year in the period 2005 to 2030, down from 3.1% per year in the period 1990-2005, which was marked by widespread of gas distribution infrastructure in all Member-States.

Electricity ranks second in the EU structure of residential energy consumption and has a share of 23% in total energy consumption in 2005. Driven by proliferation of new electricity uses in houses and the penetration of electricity for heat and cooling energy applications, electricity demand by households is projected to increase at a rate of 1.2% per year in the period 2005-2030. This is a deceleration of past trends given that in the period 1990 to 2005 electricity sales to households have increased by 2.2% per year. The Baseline scenario shows that by 2030 electricity attains a share of 27% in total household energy consumption.

FIGURE 43: ENERGY CONSUMPTION IN THE RESIDENTIAL SECTOR



The use of coal and lignite in heat applications by households has declined considerably already in the beginning of the 90s: its share was 3% in 2005 down from 13% in 1990. There exist some specific cases of households in areas of some Member-States having access to cheap solid fuels. The Baseline scenario shows further decrease of use of solid fuels by households.

Consumption of oil products by households have also declined in the 90s, starting from a share of 23% and attaining a share of 18% in 2005. Liquid fuels have been replaced mainly by gas. This trend is assumed to continue in the Baseline scenario leading oil products to hold a rather small share (13%) in total energy consumption. Sales of oil products to households are projected to decrease by 0.7% per year, in the period 2005 to 2030.

Biomass had a stable market share of about 10% in the past few years; it is important for households living in areas with access to biomass (or waste recycled for energy purposes). The use of biomass is projected to increase by 0.5% per year in the period 2005 to 2030 and increase its share in space heating attaining 15% in 2030, up from 14% in 2005.

Distributed heat depends on infrastructure in cities which has been developed largely in central and eastern European Member-States. The Baseline scenario projects a stabilisation of the volume of distributed heat sold to households.

Solar heating of water is projected to grow significantly accounting for 11% of water heating, up from 1% in 2005. Passive solar applications are not dealt with explicitly in the energy balances. Geothermal heat has a small contribution. In total, renewables are shown to penetrate in the residential sector and increase by 0.9% per year in the period 2005 to 2030.

In summary, the residential sector undergoes considerable progress in energy efficiency. Energy demand is mainly driven by the increase in the number of households, the growing degree of comfort and the important proliferation of appliances and services enabled by electricity. Natural gas and electricity dominate the fuel mix.

5.7 Transport Sector

The transport sector is one of the most important sectors for the development of energy consumption and environmental emissions. The nearly complete dependence of the sector on oil products generates two sorts of concerns: security of oil supply with rising needs for transportation; and worries about climate change combined with longer standing problems of congestion, noise and urban pollution.

The analysis of transportation activity by transport mode and the projections for the Baseline scenario were presented in section 4.3. The projected structure by transport mode is characterised by the persisting dominance of road transport, the rapid growth of aviation and the moderate recovery of rail transport. In the period 1990 to 2005, the GDP elasticity[31] of transportation activity was estimated at 0.90 for both passenger and freight transport. This is a remarkably high value indicating great dependence of economic and social activity on transportation.

A closer look at the period 2000 to 2005 shows that the GDP elasticity of passenger transport remained constant at a level just below one, but for freight transportation it became as high as 1.45. This reflects the considerable increase in commodity trading following the EU enlargement and the market integration. The high value of GDP elasticity reflects a transitory phenomenon and it is likely that in the future freight transportation will grow at most as fast as GDP.

The projections for the Baseline scenario correspond to values of the GDP elasticity of transportation activity that remain stable over time as far as passenger transport is concerned and decreases over time for freight transport reflecting saturation and productivity gains.

For passenger transport, the GDP elasticity is equal to 0.65 on average for the period 2005 to 2030. For freight transport, the GDP elasticity of activity is projected to decrease gradually, first down to 0.92 in 2005-2010, and then further down to 0.72 between 2010 and 2030.

As the values of GDP elasticity of transportation activity are lower than one, the Baseline scenario displays a gradual decoupling of transportation from GDP growth, which implies decoupling of energy consumption in the transport sector from GDP growth.

Energy consumption in the transport sector accounted for 31% of total final energy consumption in 2005, up from 26% in 1990. The increasing share of transport in total energy consumption is projected to persist in the Baseline scenario.

The transport sector is the largest consumer of oil products in the EU energy system, consuming almost 60% of total oil product deliveries to final consumers, including feedstock to petrochemicals. This share was 52.7% in 1990 and is projected to attain 64.4% in 2030. Dependence on transportation on oil is moderated by the penetration of biofuels in road transport. The share of biofuels in liquid fuels consumed for road transportation accounted for only 0.2% in 2000 , but increased to 1.1% in 2005 and is projected to attain 9.5% in 2030 (7.4% in 2020).

FIGURE 44: ENERGY EFFICIENCY INDICATORS FOR ROAD TRANSPORTATION

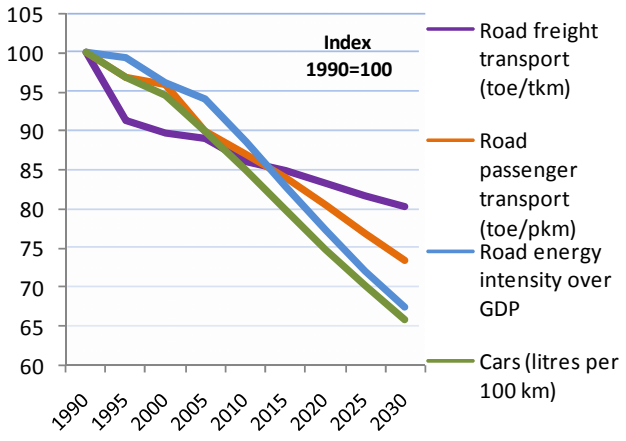


FIGURE 45: ENERGY CONSUMPTION PER UNIT OF ACTIVITY

Road transport is the dominant transport mode and consumed 82% of total energy in the transport sector in 2005, down from 83.7% in 1990. Aviation displays the fastest growth consuming 13.8% of total energy for transportation in 2005, up from 10.4% in 1990. The Baseline scenario

[31] The values of the GDP elasticity of transportation activity for the projection horizon do not constitute ad hoc assumptions but are calculated ex-post on the basis of the results of the PRIMES model.

projects aviation transport to account for 18.6% in total sector's energy consumption in 2030. The railway part in transport energy consumption was 2.7% in 2005, down from 3.4% in 1990. The projection shows a further decrease to 1.7% in 2030, which is linked to increasing electrification. Inland navigation accounted for 1.5% of total energy consumption by the sector in 2005 and this part remains rather stable in the future.

Private cars represent the dominant transport mean in road transport, accounting for 55.9% of total energy consumed in road transport in 2005. This share was 60.6% in 1990 and it was rather stable during the decade 1990-2000. In the period 2000-2005 transport by trucks grew very fast, as a result of the increasing freight transport in the enlarged EU. Therefore, energy used by trucks accounted for 39.4% of total energy consumed in road transport in 2005, up from 34.5% in 1990. Energy consumption by buses accounted for 1.5% of total energy in road transport in 2005 and motorcycles accounted for 3.3%.

FIGURE 46: ENERGY CONSUMPTION IN ROAD TRANSPORT BY VEHICLE TYPE

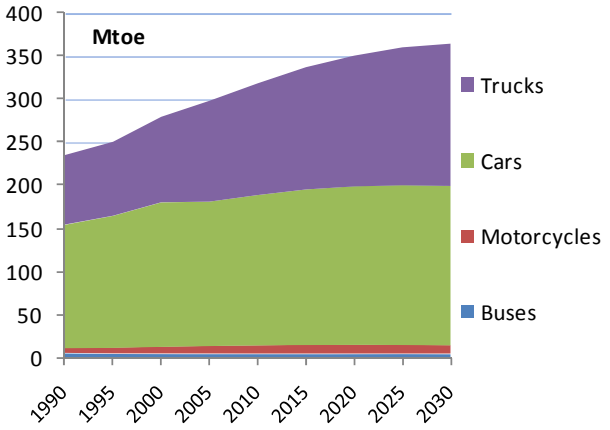
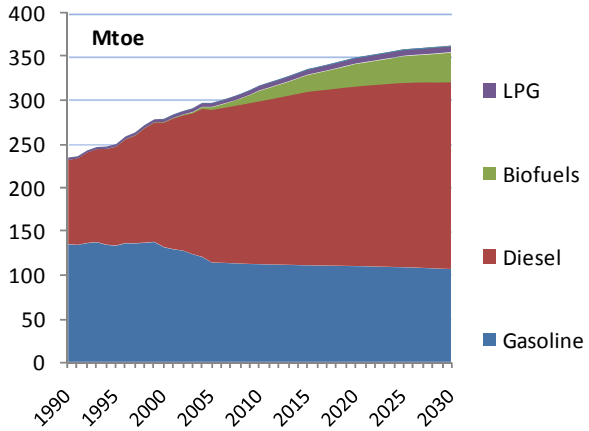


FIGURE 47: ENERGY CONSUMPTION IN ROAD TRANSPORTATION



The vehicles serving road transportation are based on internal combustion engines and are mainly using gasoline and diesel oil. Other fuels, such as LPG and CNG have small shares of total energy for road transportation in 2005, namely 1.5% and 0.2%, respectively. The share of gasoline in road transport has continuously decreased during the period 1990 to 2005: 38.5% in 2005 down from 57.9% in 1990. This trend is due to relative prices and car's specific energy consumption which have both favoured the penetration of diesel cars.

Energy efficiency of cars improved at a slow pace during the decade 1990 to 2000. The trends in the car market were dominated by sales of larger, more powerful and more comfortable cars (as for example with the widespread use of air conditioning), which use more energy per unit of activity, offsetting the effects from improved engines in terms of energy efficiency.

The period 2000 to 2005 showed a significant improvement in terms of cars energy efficiency: specific energy consumption of cars measured in litres/100 km was 10.3 in 2005, down from 11 litres/100 km in 2000. During 1990-2000 the car specific consumption was rather stable. This corresponds to energy efficiency gains of 1% per year in the period 2000-2005, contrasting to a decrease by a mere 0.35% per year in the period 1990 to 2000.

The improvement is a combined effect of increasing fuel prices, motivating prudent behaviour in car driving and use, and the design of more energy efficient engines (also following voluntary agreements with ACEA, JAMA and KAMA associations). The penetration of cars with higher energy requirements, such as the SUV car types, did not offset the downward trend of car's specific energy consumption.

The Baseline scenario shows significant progress towards lowering the specific energy consumption of cars, although it does not assume that the agreement on specific CO_2 emissions for new cars from 2008 onwards, which is essentially an agreement on fuel efficiency, can still be honoured.

The projection shows further decrease of specific energy consumption at a rate of 1.25% per year in the period 2005 to 2030, which implies that average consumption of cars will be 7.5 litres/100 km by 2030.

Specific energy consumption has been negatively affected by a decreasing trend of the average occupancy rate of private cars. Average occupancy is projected to attain 2.17 passengers per car in 2030 down from 2.41 in 2005. The projection includes a significant expansion of car sales in the EU, which leads to ownership of 710 cars per 1000 persons in 2030, up from 460 in 2005 (54% increase) and 350 in 1990. The average cars mileage is shown to decrease steadily at an average rate of 0.1% per year, continuing past trends. The combined effects of the above trends result in a decrease in the energy intensity of car transportation. It is projected to be equal to 0.84% on average per year in the period 2005 to 2030.

The Baseline scenario takes the view that the important increase in freight transport by trucks, experienced in the recent past, will slow down in the future. Energy consumed by trucks is projected to account for 45.5% of total energy consumed in road transport by 2030. Consequently, the part of private cars in energy consumption by road transport will be 50.4% in 2030. Energy efficiency progress of truck engines is projected to evolve at a faster pace in the future.

The Baseline scenario projects energy efficiency gains of freight transportation by trucks at 0.4% per year in the period 2005 to 2030. The proliferation of truck-based freight transportation, to the detriment of rail and inland navigation, resulted in a deterioration of the average energy intensity (toe per ton-km) of freight transportation especially in the period 1990 to 2005. However, the Baseline scenario shows positive energy efficiency gains throughout the projection period displaying an increasing trend in the longer term. Energy consumption per unit of transportation activity is projected to decline substantially for buses and motorcycles but their effect on total consumption is small due to the relatively small share of these means in total road transportation.

TABLE 11: TRENDS OF ENERGY CONSUMPTION IN ROAD TRANSPORT

% change per year	1990-2000	2000-2005	2005-2010	2010-2020	2020-2030
Gasoline	-0.3	-2.8	-0.4	-0.2	-0.3
Diesel	4.0	4.2	1.4	1.0	0.4
LPG	3.0	4.5	4.6	1.9	0.8
Biofuels		38.7	30.9	7.7	2.8
Gas	5.3	7.1	5.0	3.2	2.0
Electricity				12.8	5.1
Total Road	1.8	1.3	1.3	1.0	0.4
shares in %	1990	2005	2010	2020	2030
Gasoline	57.7	38.4	35.2	31.4	29.3
Diesel	41.1	58.8	58.9	58.9	58.9
LPG	1.2	1.5	1.8	2.0	2.1
Biofuels	0.0	1.1	3.9	7.4	9.4
Gas	0.1	0.2	0.2	0.3	0.3
Electricity	0.0	0.0	0.0	0.0	0.0

Energy consumption by road transport is projected to increase by 0.8% per year in the period 2005 to 2030, which is substantially lower than the rate of 1.76% per year experienced in the period 1990 to 2000. A smaller rate of increase in energy consumption in road transport was observed already in the period 2000 to 2005 (1.3%). Energy intensity of road transportation is projected to decrease by 0.8% per year for passenger transport and by 0.38% per year for freight transport, in the period 2005 to 2030.

The penetration of diesel cars is projected to continue in the future. Gasoline used for road transportation attains a share of 29.3% of total energy used in road transport in 2030 and diesel oil raises its market share to 60.5% by the same date. As mentioned above biofuels penetrate up to 9.4% of the market. Biodiesel accounts for 75% of total energy from biofuels.

The market share of other fuels and energy carriers make little inroads under the assumptions of the Baseline scenario. The hybrid and the plug-in hybrid cars are represented in the model as possible choices, but their penetration in the market is small (close to 3% of car fleet in 2030). This share concerns mainly the hybrid cars, whereas the share of plug-in hybrid cars is even smaller. The Baseline scenario assumptions do not include policies that would drive penetration of electric cars.

LPG's contribution remains stable over the projection period attaining 2% of the road transport market by 2030, because it is not favoured by relative fuel prices. CNG has a small share and is limited to specific applications (for example urban buses).

As previously mentioned the Baseline scenario assumes a recovery of transportation by rail manifested by a significant increase in rail activity. This is considered to be a consequence of infrastructure development, low relative cost of transportation and increasing congestion in road transport. The statistics show that these trends take place already in the period 2000 to 2005, showing a reversal of past trends of declining rail activity.

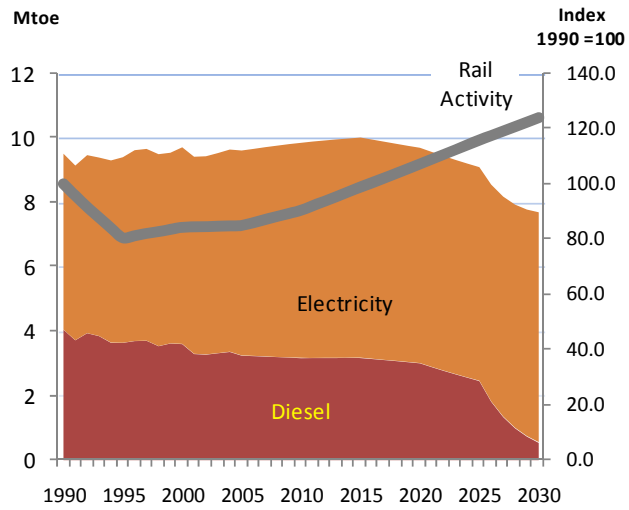
However, the projection shows still declining market shares for both passenger and freight transportation by rail, as the activity of other modes, such as road and aviation, increase faster than rail. The recovery in terms of growth of rail activity is more pronounced for passenger transport. The increasing trends are projected to accentuate in the longer term. Regarding freight transportation by rail, the delay of its recovery is due to the long lead times needed to develop specific new infrastructure which is necessary to meet the current requirements of freight transport.

Diesel oil has still an important market share in rail transport within the EU, accounting for one third of total energy inputs to rail. The rest is covered by electricity. Electrification of rail transport is assumed to further proliferate in the Baseline scenario, diesel train remaining the only mean of rail transport in remote areas with less frequent travelling.

According to Eurostat energy balance definitions, final energy consumption per unit of transportation for electric trains is much lower than it is for diesel trains, mainly because energy conversion efficiency of power generation and losses of electricity distribution are not included in final energy demand. In terms of primary energy, which takes into account energy conversion and losses of electricity, the electric train is 25% more energy efficient than the diesel train per unit of transportation activity. The high speed elec-

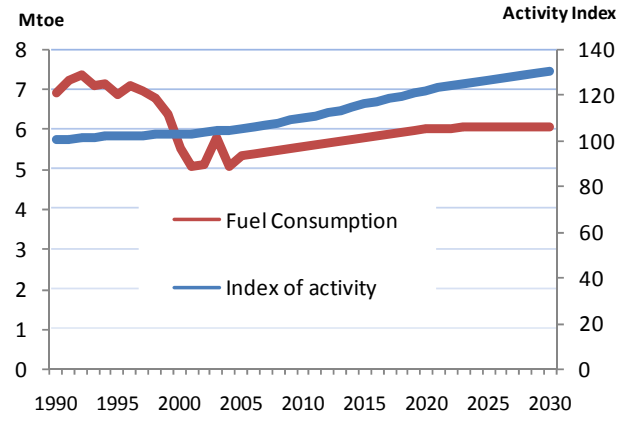
tric trains are consuming more energy than conventional trains but usually have higher occupancy rates.

FIGURE 48: ENERGY CONSUMPTION IN RAIL TRANSPORT



Taking into account these considerations, the Baseline scenario shows significant decline of diesel consumption in rail transport and also a decrease of energy consumption measured in terms of final energy.

FIGURE 49: ENERGY CONSUMPTION IN INLAND NAVIGATION



Inland navigation is traditionally important in the EU for freight transportation and keeps a small share of the market, showing a slow but steady positive rate of growth of activity (around 0.5% per year). The Baseline scenario projects a continuation of this trend and also growing energy efficiency. Energy consumption for inland navigation is projected to increase at a slow pace in the medium term and to stabilise in the long term.

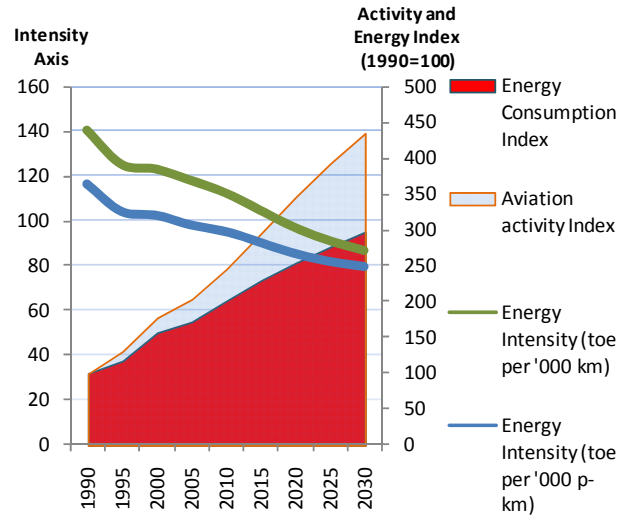
As mentioned above, aviation is the fastest growing transport mode. According to the definitions of Eurostat, which is also followed by the PRIMES model, energy consumption by aviation corresponds to fuelling in EU airports independently of flight destination.

Energy consumption by aviation has grown by 4.6% per year in the period 1990 to 2000; the rate of increase was lower between 2000 and 2005: 1.86% per year. Transportation activity handled by aviation, measured in passenger-km grew faster during the same period.

The average energy intensity of flights, measured in toe per passenger-km decreased considerably during 1990-2005. Improved design of engines and aircrafts in terms of energy efficiency led to a reduction of specific energy consumption of aircrafts by 1.3% per year in 1990-2000 and 0.87% per year in 2000-2005. The Baseline scenario projects a continuation of growth of aviation transportation activity at a fast pace in the short and medium term and at a slower pace in the long term. Aviation activity measured in passenger-km is projected to become 4.4 times higher in 2030 than it was in 1990. Energy consumption is projected to increase significantly but less than the activity level, continuing past trends. This is driven by energy efficiency progress of engines and aircrafts which is projected to provide during 2005-2030 energy intensity gains of 1.2% when measured per year per flight and of 0.84% per year when measured per passenger-km.

Energy consumption by aviation grows by 2.21% per year in the period 2005 to 2030, down from 3.68% per year in 1990-2005. Nevertheless, total volume of energy consumed by aviation is projected to triple in 2030 compared to 1990.

FIGURE 50: ENERGY-RELATED INDICATORS FOR AVIATION



The fuel mix for the transport sector (taken as a whole) is projected to be dominated by oil products, which account for 91% in 2030, down from 97% in 2005. The small loss in market share is exclusively due to the penetration of biofuels. Electricity is used almost exclusively in rail transport and does not penetrate in road transport in the context of

the Baseline scenario assumptions. New energy carriers and technologies do not develop under these assumptions.

Oil needs for transportation purposes are projected to be 20% higher in 2030 than they were in 2005. Transportation activity is projected to increase by 45% during the same period. This imply that the transport sector is projected to display energy efficiency gains between 2005 and 2030, which when measured as energy per unit of transportation activity amount to 1.18% per year for passenger transport and 0.87% per year for freight transport.

FIGURE 51: ENERGY CONSUMPTION IN THE TRANSPORT SECTOR

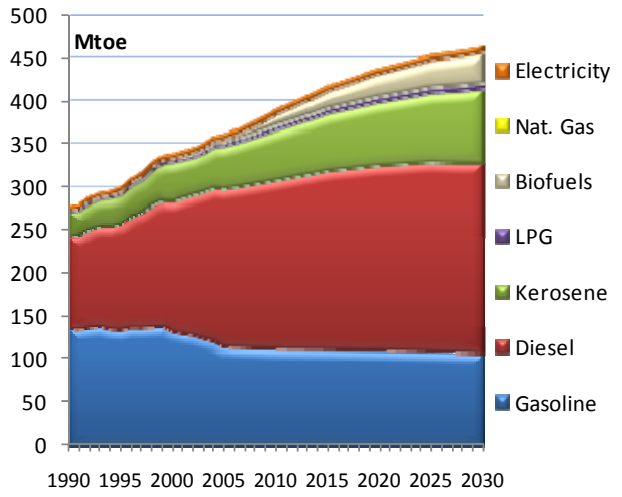


Figure 51 shows the growing part of middle distillates, such as diesel oil and kerosene, in the demand for oil products. In addition, the Baseline scenario shows a significant decrease in the demand for fuel oil and heavy distillates, both in final demand sectors and in power generation. These changes will affect the structure of refineries in the future and are taken into account for the projection of oil product prices in the Baseline scenario.

5.8 Overview of Final Energy Demand

The Baseline scenario shows an increase of final energy demand by all sectors, driven by economic growth, and despite higher energy prices compared to prices prevailing before 2003. The average annual growth rate during 2005-2030 is 0.75%, up from 0.58% experienced in 1990-2005. Demand is projected to increase faster in the period 2005 to 2020 (0.97% per year) than in the decade 2020-2030 (0.4%). Energy intensity measured relatively to GDP is projected to decrease steadily during 2005-2030 at an annual rate of 1.38%, slightly slower than in the period 1990 to 2005.

The transport sector displays the fastest increase in final energy consumption during 2005-2030 (0.99% per year) and the slowest improvement of energy efficiency, compared to other sectors. The part of final energy consumed in transportation activity increases steadily attaining 32.9% in 2030, significantly up from 26.1% in 1990.

Energy demand in industry remains important; it is driven by sustained industrial activity as assumed in the Baseline scenario. Industry maintains a part close to 27.5% of total final energy demand, lower than in 1990 but unchanged compared to 2005. Energy intensity in industry improves at slower pace than in the past which was characterised, especially in the '90s, by important restructuring and economies of scale.

Energy consumed in houses and services buildings accounts for about 40% of total final energy throughout the projection period. The corresponding sectors, i.e. residential and services, display the fastest improving energy efficiency which is a result of combined effects from improved thermal integrity, more efficient appliances and the use of more advanced heat pumps.

TABLE 12: ANNUAL CHANGE OF ENERGY DEMAND AND INTENSITY

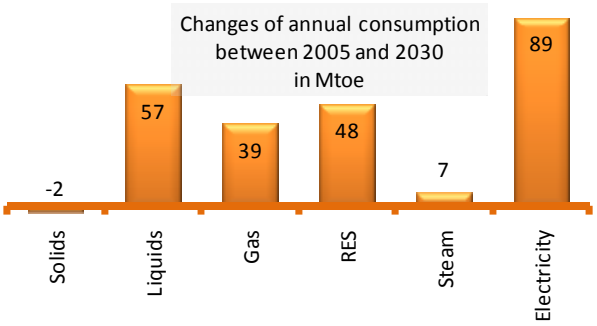
Avg. Annual Change in %	1990-2005	2005-2020	2020-2030	2005-2030
Energy Demand				
Residential	1.00	0.60	0.22	0.45
Services - Agriculture	0.59	1.13	0.35	0.82
Industry	-0.83	0.84	0.50	0.70
Transport	1.74	1.29	0.54	0.99
Total	0.58	0.97	0.42	0.75
Energy Intensity Indicator				
Residential	-1.09	-1.61	-1.46	-1.55
Services - Agriculture	-1.70	-1.35	-1.43	-1.38
Industry	-2.20	-1.48	-1.16	-1.35
Transport	-0.28	-1.11	-1.20	-1.14
Total Final	-1.42	-1.43	-1.32	-1.38
Shares in %	1990	2005	2020	2030
Residential	24.7	26.3	24.9	24.4
Services - Agriculture	14.9	14.9	15.2	15.1
Industry	34.3	27.8	27.3	27.5
Transport	26.1	31.0	32.5	32.9

TABLE 13: FUEL MIX IN FINAL ENERGY DEMAND

Avg. Annual Change in %	1990-2005	2005-2020	2020-2030	2005-2030
Solids	-5.78	0.24	-0.77	-0.16
Liquids	0.72	0.61	0.18	0.44
Gas	1.55	0.60	0.38	0.51
RES	2.71	3.29	1.46	2.55
Steam	-1.09	0.74	0.47	0.63
Electricity	1.71	1.64	0.75	1.28
Total	0.58	0.97	0.42	0.75
Shares (%)	1990	2005	2020	2030
Solids	12.2	4.6	4.1	3.7
Liquids	41.3	42.2	40.0	39.1
Gas	21.3	24.6	23.3	23.2
RES	3.4	4.7	6.6	7.3
Steam	4.6	3.5	3.4	3.4
Electricity	17.2	20.4	22.5	23.2

In the Baseline scenario oil products lose 3.1 percent points in terms of market share between 2005 and 2030. Oil continues to be predominant in transport as an energy carrier and as feedstock in petrochemicals (the latter not being included in final energy demand). Oil is gradually replaced by gas and at a lesser degree by electricity in all thermal uses. The use of solid fuels declines in all final energy demand sectors because of lack of cleanliness and easiness of use, despite its competitive price. The rapid penetration of natural gas experienced in the period up to 2005 is projected to slowdown as a result of loss in competitiveness and also because of increased electrification in some end-user applications. Steam and heat generated by CHP and sold through distribution networks account for a small part of final energy consumption (around 3.5%) but industrial steam generated by on-site CHP and boilers is more significant.

FIGURE 52: INCREMENTAL FINAL ENERGY NEEDS



Renewable energies present the highest rates of increase in terms of final energy consumption. The additional annual needs of renewables in 2030 as compared to 2005 are 48 Mtoe, as high as for gas and for oil products. By far the largest part of this growth is attributed to biomass and waste which are increasingly used in thermal applications and on-site CHP and boilers. Solar energy used for water heating also increases significantly but its share remains low.

Passive solar uses in buildings, passive geothermal energy (e.g. for storage and use of low enthalpy heat) and ambient energy used by heat pumps (used for heating or cooling provided that they have a high COP) are not accounted for in the energy balances and are taken into account only in an implicit way as part of energy conservation.

Growing electrification of end-user applications is an important trend which was observed in the past and is projected to continue in the future. In addition, the Baseline scenario involves some degree of fossil fuel substitutions by electrical energy mainly in thermal applications by means of heat pumps. Electricity makes little inroads in the transport sector under the assumptions of the Baseline scenario. The demand for electricity increases however at a smaller rate than in the past, especially during the last decade of the projection period. This is due to a slowdown in the total energy demand and the growing energy efficiency of electrical equipment and of lighting technology. Nevertheless, the annual demand for electricity in 2030 is 37.5% larger compared to 2005.

Non energy uses are projected to increase by 0.6% per year in the period 2005 to 2030, down from 1% in 1990-2005. The bulk of fuels used are oil products. The part of natural gas is increasing, driven by its use in petrochemicals.

FIGURE 53: FINAL ENERGY DEMAND BY SECTOR

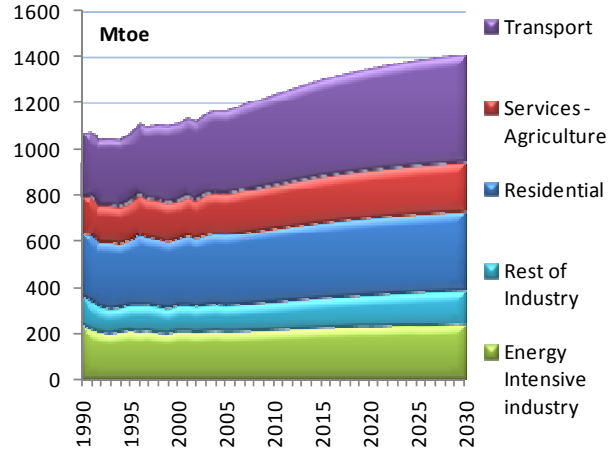


FIGURE 54: FINAL ENERGY DEMAND BY FUEL TYPE

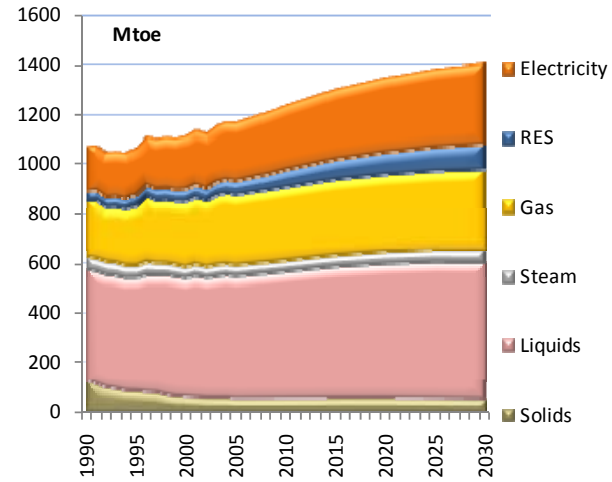
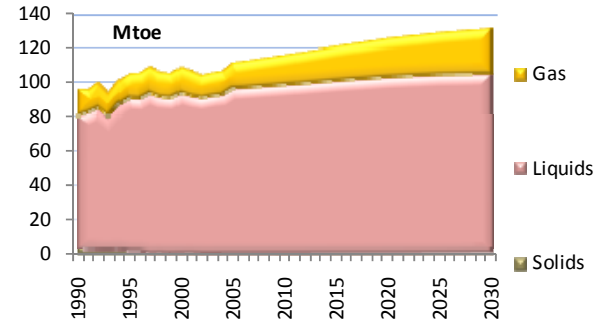


FIGURE 55: ENERGY PRODUCTS IN NON-ENERGY USES

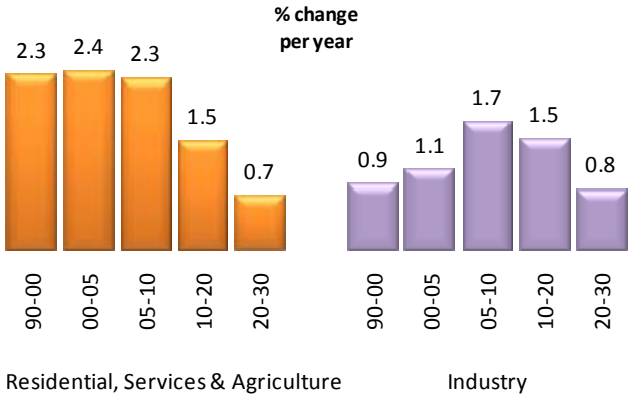


6 Power and Steam Outlook for the EU

6.1 Demand for Electricity

During 1990-2005 EU electricity consumption increased by 1.71% per year merely due to the growing demand for electricity in the services and residential sectors, 2.97% and 2.13% per year, respectively. Electricity demand in the industrial sector was growing at a slower pace: 0.95% per year on average during the same period. Within this sector, demand for electricity in energy-intensive industry increased much less than average (0.5% per year), contrasting higher increase in non energy intensive industries (1.61% per year). The transport sector represents a small market for electricity where demand grew at 1% per year during 1990-2005.

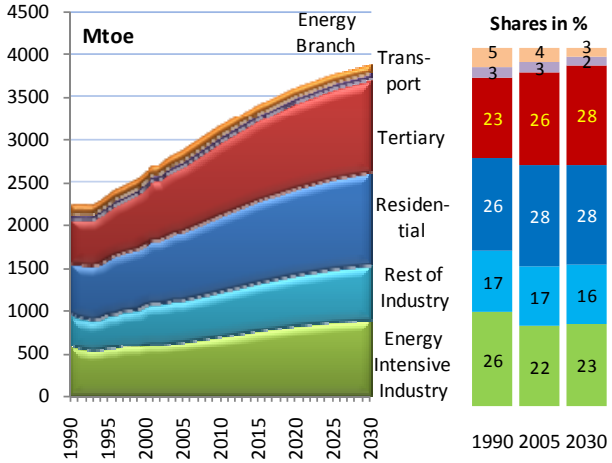
FIGURE 56: ANNUAL GROWTH OF ELECTRICITY SALES



Domestic electricity sales, including consumption by end-users and the energy branch[32], are growing throughout the projection period at 1.22% per year, faster than total energy requirements growth. The well established long term trend towards increased electrification continues, however the rates of growth are lower than those observed during the period 1990-2005. Electricity represents 23% of total final energy demand in 2030, compared to 17% in 1990 and 20% in 2005.

The Baseline scenario shows a progressive slowdown in the expansion of electricity consumption. In the short term electricity consumption is projected to increase at a rate similar to that observed in the recent past, considering that the proliferation of new electricity uses continues as in the recent past. However, for the longer term the Baseline scenario takes the view that energy efficiency improvements in appliance design and the housing stock are exerting a downward pressure on demand which is moderating the growth of electricity consumption in all sectors. Over the past five year, the GDP elasticity of electricity consumption was slightly above one, driven by its increased use in residential and services sectors. In the Baseline scenario, this elasticity progressively decreases and equals 0.6 on average over the projection period.

FIGURE 57: ELECTRICITY CONSUMPTION BY SECTOR



The structure of electricity sales by sector is rather stable over the projection period, with the exception of the share of industry which slightly decreases, and the share of the services sector which increases. Such a trend was also observed in the past. Electricity purchased by services sector and households represent about 55% of total sales, whereas industry purchases account for 40% of sales. Electricity consumption by the energy branch (excluding self-consumption of electricity by power plants and electricity losses for pumping) accounts for 4% of total electricity sales and this share is projected to decline because primary production and transformation of fossil fuels go down in the Baseline scenario. The PRIMES model derives the seasonal and daily variation of electricity load from the patterns of the different uses of electricity. The results for the Baseline scenario show that load variability evolves in a rather stable way. The average load factor[33] is projected to remain relatively unchanged at around 68%.

Electricity consumption breakdown to high, medium and low voltage grids remains essentially the same through time with a small increase in the share of low voltage electricity demand, which accounts for slightly more than half of the total electricity demand.

6.2 System Losses and EU Imports

Grid losses account for about 6.4% of total power supply. Although transmission and distribution loss rates are projected to decrease due to better network technology and

[32] The energy branch comprises energy transformation and production activities, such as mines, oil and gas extraction, pipelines, refineries, district heating, power generation and distributed CHP. These activities consume electricity as the end-users do. Self-consumption of electricity by power plants and electricity losses in pumping are shown separately.

[33] The load factor is the ratio of total electricity consumption divided by the amount of electricity that would have resulted if peak load lasted over all hours of a year.

management, the increase in low voltage demand, as well as the important penetration of dispersed intermittent renewables results in an increase of the transmission losses in absolute terms and offset the effect of technology progress. The grid loss rate is estimated for 2030 at a level slightly higher (6.8%) than that observed in 2005.

Self consumption of electricity by power plants depends on plant's technology and is higher for solid fuel fired plants than for gas fired plants. Nuclear fuel and waste treatment also consumes significant amounts of electricity. Electricity is also used for hydro pumping, which is used for load balancing purposes. Electricity used for self-consumption amounts to 5.5% of total power generation and electricity losses in pumping are generally small in the EU. The projection shows a downward trend of self consumption in the medium term, driven by the wider use of gas plants. Self-consumption increases in the longer term as coal plants resurge.

Taking into account all kinds of losses and self consumption of electricity, power generation (gross) was 14.2% higher than power sales to end-users in 2005. The projection assumes that technology progress enables a decrease of this ratio by 0.3% per year, which is similar to the rate of decrease observed in the past.

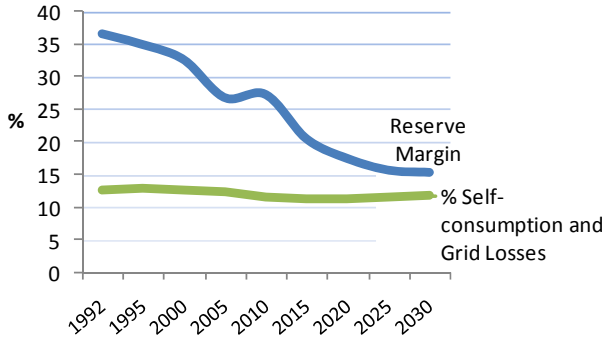
EU net imports of electricity cover a small fraction of electricity demand, less than 0.5% during the past ten years. Net exporters to the EU are the CIS, Norway and at a lesser degree Switzerland. The projection shows net imports by the EU to remain below 0.5% of total electricity consumption.

6.3 Power Generation Capacity Requirements

In 2005, total net power generation capacity[34] in the EU was 740 GW, consisting of 61.3% thermal, 18.2% nuclear, 14.8% hydro, 5.5% wind and 0.2% geothermal and solar power generation capacity. Gross power capacity was 780 GW in 2005.

The nominal "*reserve margin*" is defined as the ratio of total net power capacity, excluding 90-95% of power capacity of intermittent resources (such as wind power), divided by peak load, which in 2005 was 550 GW. The reserve margin was equal to 27% in 2005. The same calculation by Member-State shows important differences, some Member-States currently face a tight situation in terms of reserve capacity, while others have overcapacity supporting their exports. Considering the EU as a whole and ignoring possible limitations due to interconnections, the available capacity in the EU was largely sufficient to cover peak load in 2005.

FIGURE 58: POWER SYSTEM INDICATORS



Under least cost conditions, power capacity expansion is optimized. Thus, in the long term the reserve margin gradually reduces, approaching the value of 15% which was set as a lower bound reflecting reliability constraints.

Total net power capacity is projected to increase by 31% between 2005 and 2030 in order to meet power load. Investment in new power plants is larger because, apart from meeting increasing demand, the system has to replace the power plants that are decommissioned. About 20% of this investment (130 GW net) is imposed to the model as exogenous assumption, based on information about power plants that are currently under construction or are confirmed projects. Most of these plants are expected to be commissioned before 2010 and some until 2015.

The structure of power generation capacity underwent significant changes in the period 1990 to 2005.

The combined cycle power technology reached 91 GW net, which corresponds to a share of 12.3% in total capacity of 2005, up from virtually zero in 1990. Wind[35] power soared in the same period and reached a capacity of 41 MW in 2005 (5.5% of total). Power capacity based on steam turbine generation, burning fossil fuels remained stable between 1990 and 2005. However, its share dropped from 58% in 1990 to 43.5% in 2005. Nuclear power capacity additions amounted to roughly 10 GW-net in the period 1990-2005, and its share was equal to 18.2% in 2005, down from 21% in 1990. Hydropower capacity additions were 13 GW during the same period; its share in 2005 was 14.8% in 2005, down from 16.5% in 1990. The penetration of biomass-waste plants is noticeable, attaining a share of 2.7% in total capacity of 2005. The installation of solar photovoltaic panels has increased considerably during this period, but their share in the total capacity remained very low in 2005.

[34] Net power capacity corresponds to power delivered to system's buses, i.e. not including self-consumption of electricity. Gross power capacity includes self-consumption.

[35] It should be noted that intermittent renewables, such as wind and solar, are treated as equals to the thermal plants in terms of installed capacity but deliver electricity at capacity factors that are far lower than those of thermal plants.

The database of the PRIMES model includes an inventory of about 20,000 thermal and nuclear power plants (data provided by ESAP SA, Belgium) that have been commissioned in the EU or are under construction. The model takes into account the vintages of power plants, hence the fleet of old plants influences power investment evolution.

Data analysis of old plant inventory shows the following:

- The average age of thermal and nuclear plants operating in 2006 was roughly 23 years. About 15% of currently operating plants are more than 35 years old. About one third of power plants, commissioned between 1980 and 1990 and in operation today, has been retrofitted, in order to change fuel and improve efficiency.
- Between 1970 and 2000, i.e. in 30 years, a total of 629 GW thermal and nuclear power plants have been commissioned, of which 139 GW were nuclear. The decade with the highest power plant commissioning was 1980-1990 when half of the existing nuclear plants were commissioned. The system nominal reserve margin has attained 38% in 1992.
- From the end of the '90s the power sector displays a deceleration of investment in new power plants. Despite growth of demand for electricity, new commissioning in the decade 2000-2010 (only taking into account confirmed projects by the end of 2006) represents 60% of average commissioning by decade as experienced between 1970 and 2000. The lack of investment in new plants is covered mainly by extensive retrofitting of old plants.
- The majority (80%) of coal (and lignite) plants operating today have been commissioned before 1990. After 2000 there has been a significant deceleration in the commissioning of new coal plants.
- The majority (65%) of gas plants operating today have been commissioned after 1990. Commissioning of new gas plants during the last ten years (mostly gas combined cycle plants) increased in a spectacular way.
- Roughly 50% of plants (in MW) that are currently under construction are gas firing, 40% use coal or lignite and the larger part of the rest use biomass or waste.
- Regarding distribution by plant size, 28% of total currently operating capacity corresponds to units with capacity less than 200 MW and 55% are units larger than 350 MW. Only 12% of total operating capacity corresponds to units with capacity less than 50 MW, whereas the units larger than 600 MW account for 34% of total capacity.

FIGURE 59: DISTRIBUTION OF THERMAL AND NUCLEAR PLANTS BY COMMISSIONING AND DECOMMISSIONING DATE (INFORMATION FROM PRIMES DATABASE)

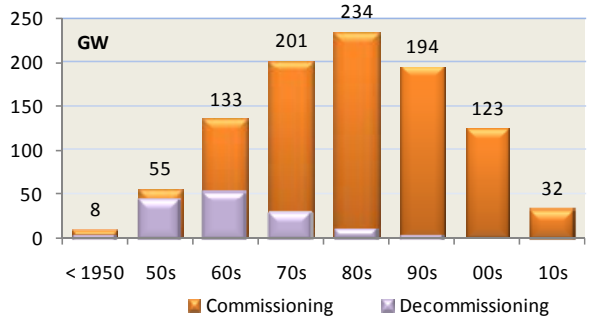


FIGURE 60: DISTRIBUTION OF DECOMMISSIONING AND RETROFITTING BY COMMISSIONING DATE

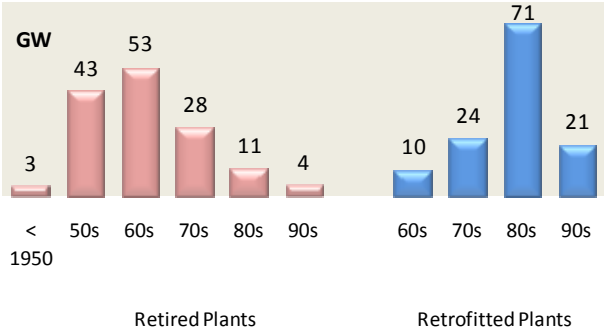


FIGURE 61: DISTRIBUTION OF PLANTS CURRENTLY IN OPERATION BY COMMISSIONING DATE

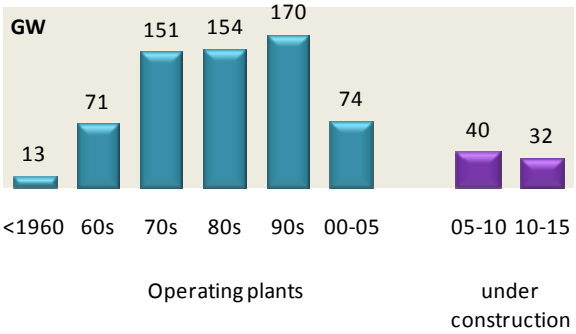


FIGURE 62: DISTRIBUTION OF GAS AND COAL PLANTS

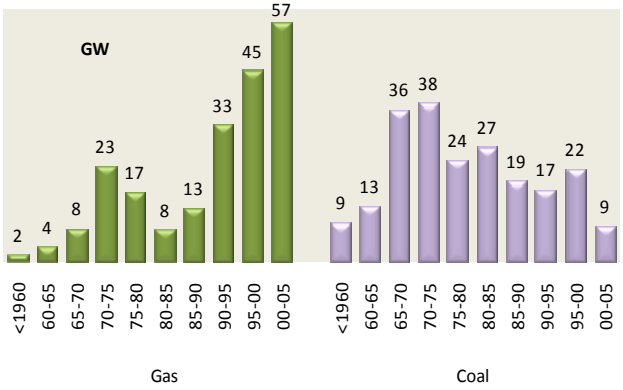


FIGURE 63: POWER GENERATION CAPACITY (NET) BY TYPE OF MAIN FUEL USED

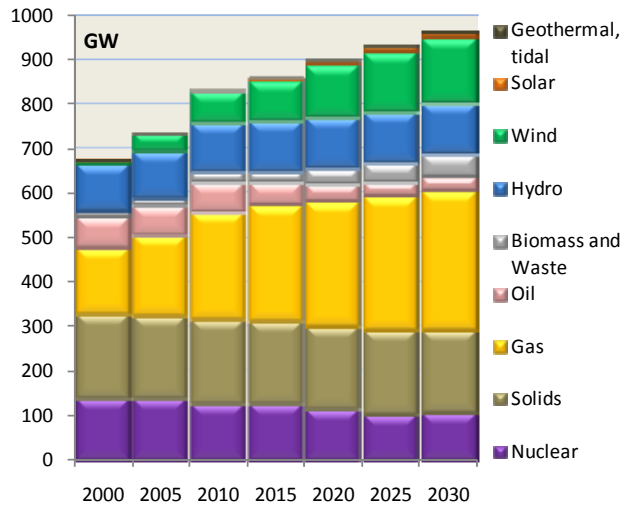
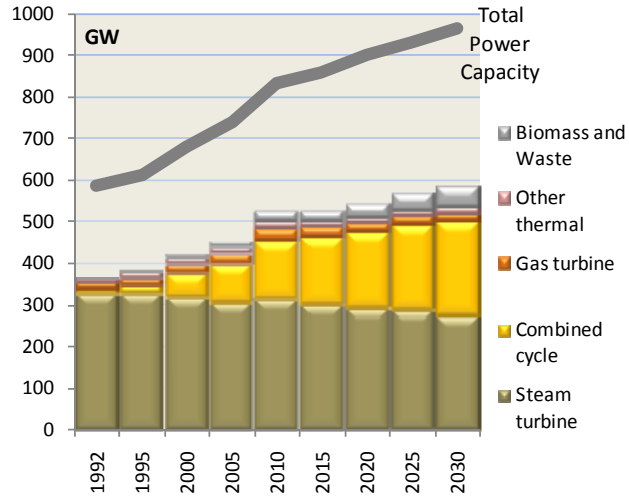


FIGURE 64: THERMAL POWER CAPACITY (NET) BY TYPE OF TECHNOLOGY



The Baseline scenario shows that these changes of the structure of power generation capacity will also have important consequences in the future. The share of nuclear will continue to drop along the projection period, reaching 10.6% in 2030 (nearly half of the share in 2000), owing to the incomplete replacement of units to be decommissioned and the phase out policies followed by certain Member-States. The combined cycle power technology is shown to continue its penetration attaining a share of 23.5% in 2030. Consequently steam turbines using fossil fuels display a decreasing share attaining 30% of total capacity in 2030. However, the market conditions and the supercritical technology will enable re-emergence of coal-based generation in the long term. Wind power is projected to grow throughout the projection period attaining in 2030 a capacity 3.6 times bigger than in 2005, which corresponds to 15% of total capacity. Solar power accounts for almost 2% of total capacity in 2030 and biomass-waste plants reach a share higher than 5% in 2030. Owing to the high exploitation of suitable sites in the EU, the hydropower capacity expands much less than the total capacity. Open-cycle turbines, internal combustion engines and other small devices used to meet peak load, as well as those used in industry, have a share between 2.5 and 3.5% of total capacity throughout the projection period.

The share of solid fuel fired plants in the total capacity drops from 26% in 2005 to 19% in 2030. This is mainly a consequence of the moderate carbon prices assumed in the Baseline scenario and the already decided investments in gas fired power plants, which are expected to be commissioned in the short-medium term. However, the share of coal stabilizes in the long term as investment in new clean solid fossil fuel technologies[36] takes up; by 2030 61% of the power generation capacity from solid fuel is projected to consist of such technologies.

Despite the relatively high natural gas prices, the share of gas plants in total capacity is steadily increasing, accounting for almost one third of the power generation capacity in 2030. This development is mainly driven by the deregulation of the electricity markets and the evolution of EU-ETS in the long term. However, the increase decelerates in the long term and investment mainly concerns small units and CHP plants using gas.

Generation capacity by oil fired plants declines, attaining a very small share in total capacity: 3% in 2030, down from 9% in 2005. The role of oil fired plants role is limited to certain specific applications, like isolated islands, areas without gas infrastructure and peak industrial uses.

The generation capacity of renewable energy (including biomass and waste plants) accounts for 34.2% of total power capacity in 2030, up from 22.6% in 2005. The capacity of intermittent renewable sources accounts for 17% of the total in 2030, considerably up from 2% in 2000. Their high penetration is mainly driven by the development of wind and biomass power plants. Wind power is projected to attain a capacity of 146 GW by 2030, of which 129 GW onshore and 17 GW offshore. Apart from being used in biomass-specific plants (51 GW in 2030) biomass and waste energy is also used through co-firing in thermal plants.

6.4 Power Generation Investment

The Baseline scenario assumes that power generation investment takes place in the context of a well functioning market so as to deliver sufficient new capacity to replace plants which are closing and to meet additional demand with a sufficient reserve margin. It is also assumed that

[36] Clean technologies include supercritical units, fluidised bed combustion technology and integrated gasification plants.

investment decisions are taken in the context of full information and perfect foresight.

The PRIMES model considers different types of power plant investment decisions distinguishing between investments in existing sites and in new sites, and also considering retrofitting of old plants as well as premature replacement of old plants as possible investment options.

FIGURE 65: INVESTMENT IN POWER GENERATION (NET)

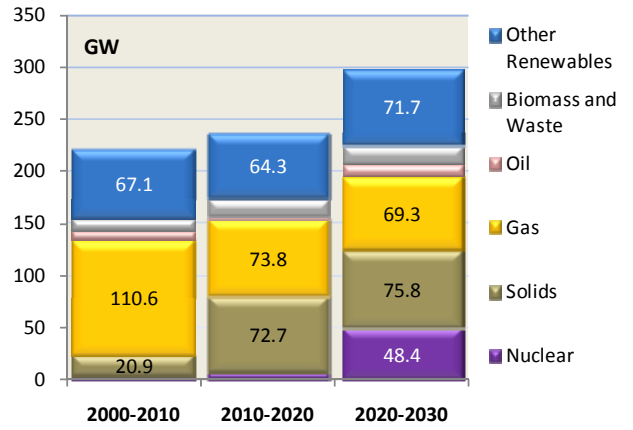
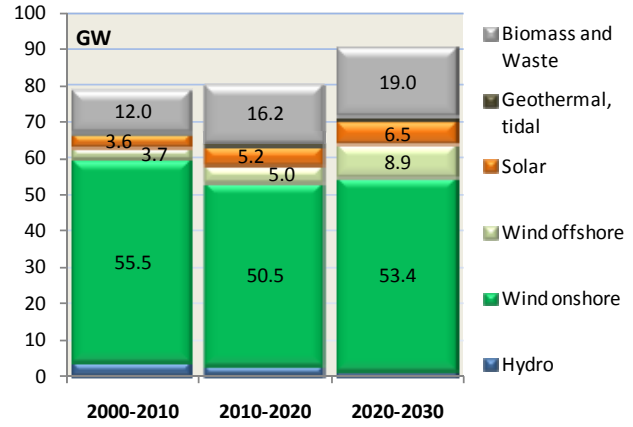


FIGURE 66: INVESTMENT IN RES FOR POWER GENERATION (NET)



Investment in power generation capacity attains considerable levels in the Baseline scenario: 666.4 GW (net) of new power plants will be commissioned between 2006 and 2030, of which around 130 GW (net) are under construction. The total investment includes retrofitting of old plants (45.3 GW) with extension of their lifetime between 5 and 15 years (depending on technology). It also includes 25.7 GW (net) of new plants built to replace old thermal plants that the model finds economic to be decommissioned prematurely.

Between 2006 and 2030 almost half of the installed capacity in 2005 is expected to be decommissioned (393.7 GW), according to information by plant as included in the PRIMES plant inventory. In addition, part of the capacity built after 2006 is decommissioned before 2030 (this applies for example for wind mills).

The re-establishment of an adequate level of power capacity, after experiencing a decelerated investment pace over the past few years, drives a slight acceleration of power investments in the short term, according to the Baseline scenario. In the medium term, the investment pace slows down, but increases again towards the last decade of the projection horizon, mainly due to the decommissioning of old plants.

In terms of new commissioning per year, total projected investment is similar to the one carried out between 1970 and 2000, but lower than investment carried out between 2000 and 2005. In terms of capital investment expenditure, the projection estimates a total investment cost[37] of 737 billion €'2005 to be spent between 2006 and 2030 for building new power plants and retrofitting old plants.

Since mid-'90s a large part of new power generation investments was made for combined cycle gas turbine technology (CCGT), stimulated by low natural gas prices, relatively low cost of capital and technology characteristics that were most suitable for the liberalised market conditions. This trend continues in the short term mainly as a result of construction commitments taken in the past. New CCGT plants represent around 51% of total investment in thermal plants in the period 2005 to 2010. In total CCGT units account for 34% of the total projected thermal plant investments for the period 2006-2030.

Gas power investment is associated with low capital costs, high efficiency and low emissions, but the variable operating costs are high. For this reason, gas power plants are less attractive for base load operation and are mainly used for load following, middle load and peak load, which grows in importance within the projected load pattern. Also, CHP applications, which are found to develop considerably in the Baseline scenario, favour the higher use of gas-based electricity, because of technology flexibility and also for reasons related to urban or semi-urban environment. For these reasons investment in gas-firing plants keeps a significant share throughout the projection period, despite relatively high gas prices. However, the share of gas plants (including all gas technologies) in total investment in thermal plants (expressed in GW) drops from 73% in the short term to 44% in 2010-2025 and to 35% in 2025-2030. In total, 213 GW (net) of gas-fired plants are projected to be commissioned between 2006 and 2030, of which 145 GW will be combined-cycle plants, 44 GW industrial CHP plants and 14 GW gas turbines open-cycle (the remaining 9.7 GW are new plants using derived gases, such as coke-oven and blast-furnace gas).

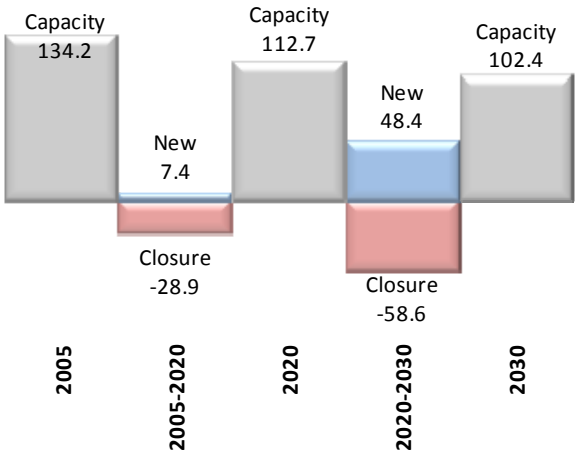
[37] The model takes into account the implications of the large combustion plant directive on unit costs of investment in thermal plants.

By the end of the projection period the continued deterioration of gas competitiveness in power generation vis-à-vis coal induces a reversal of the short-term trends. Gas power investment considerably slows-down and investment in coal plants re-emerges. Investment in coal-based power generation units is also favoured by the diminishing contribution of nuclear energy to the base load as a result of the nuclear policy assumed in the Baseline scenario.

Investment in coal and lignite-fired plants, starting with a share of under 15% of total thermal power investment, account for more than 40% of the total thermal power expansion in the period beyond 2010. Commissioning of 161 GW (net) of new coal and lignite power plants is projected to take place between 2006 and 2030. Two third of this investment refers to clean solid fossil fuel technologies, mostly supercritical combustion technologies. Compared to total installed capacity of 190 GW of coal and lignite plants in 2005, the volume of new investment in solid fuel technology may be qualified as a challenge for the industry, if new cleaner coal technology is targeted. Carbon capture and storage (CCS) power plants are a modelling option, but are not part of the Baseline scenario, given that the carbon price is not high enough to stimulate CCS development. CCS power plants are more capital intensive and involve higher variable operating costs than plants without CCS.

Investment in oil fired power generation units is low, accounting for 3% of total investment. The 23 GW (net) of new oil plants to be commissioned between 2006 and 2030 refer either to peak load units or to plants operating in islands and remote areas.

FIGURE 67: NUCLEAR POWER CAPACITIES (GW NET)



The nuclear electricity sector, under the conditions assumed for the Baseline scenario, is characterised by four main issues. Firstly, there are certain EU-requirements to close a number of plants in new Member-States due to safety reasons. Secondly, many plants built in the 1970s and 1980s reach the end of their conventional lifetime after 2020. The third issue is the political commitment of three member states for a gradual nuclear phase out and the fourth one is that it is likely that large nuclear countries will not replace their entire nuclear capacity after decommissioning. In addition, in the context of the Baseline scenario it is assumed that Member States with a clear non nuclear policy keep this policy and that other Member States not having developed nuclear power so far introduce nuclear in a prudent way.

Despite these unfavourable conditions, nuclear power proves to be competitive for base load generation in the context of the projected fossil fuel prices and the presence of the EU ETS, despite its moderate carbon price in the Baseline scenario. A total of 57.6 GW (net) of new nuclear power plants are projected to be commissioned in the Baseline scenario between 2000 and 2030. Only 9.4 GW of these are already certain investments, the rest being part of the least cost choice as simulated by using the model. The majority of the new nuclear investment takes place at the end of the projection period: 48 GW are commissioned between 2020 and 2030. Between 2000 and 2030 a total of 91 GW nuclear plants are projected to be decommissioned. Since investment in new plants is lower than total decommissioning, nuclear capacity in 2030 is lower than in 2000, by 33.4 GW.

Renewables used for power generation show a remarkable development. Supportive policies are assumed to apply in the short-medium term and gradually reduce in scope in the long term. Renewable technologies benefit from learning by doing and economies of scale, so they are increasingly adopted as technological improvement counterbalances the gradually decreasing incentives.

Biomass based power generation shows significant development in the Baseline scenario. This increase includes landfill gas utilisation and power produced from solid waste; the latter is an attractive option in certain specific cases but is limited in volume. Co-firing of coal or lignite with biomass in conventional power plants is also taken into account, subject however to technical limitations. The Baseline scenario takes a rather optimistic view regarding future availability of biomass resources to be used for energy purposes.

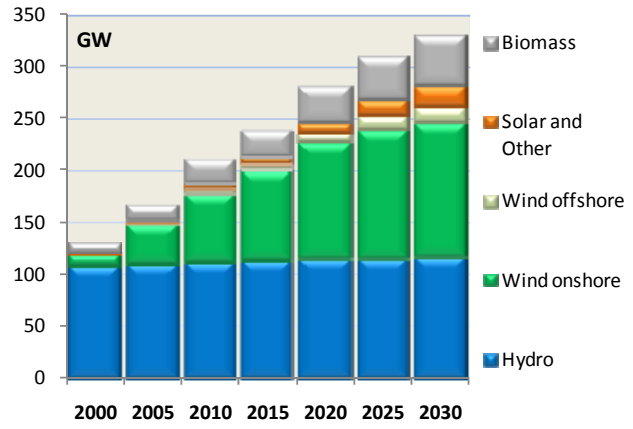
The Baseline scenario foresees 42.8 GW of new biomass-specific power plants between 2006 and 2030, representing 6% of total power generation investments and 10% of new thermal plants to be commissioned during the same period. The vast majority, 80%, of the biomass plants in 2030 are CHP plants and use a variety of new technologies, such as internal combustion engines, bio-gas turbines, high temperature combustion and integrated gasification combined cycle.

Wind power becomes economically competitive over time. As a consequence, onshore wind develops rapidly in the short and medium term. Onshore wind capacity triples: 131.8 GW of new onshore wind mills are constructed between 2006 and 2030. The operating capacity of onshore wind is 129 GW in 2030, since 43 GW of new wind mills are built to replace wind mills to be decommissioned.

Offshore wind starts from a low level and develops rather slowly in the short term. However offshore wind shows significant development in the long term alongside progress related with scale and connectivity. A total capacity of 17 GW offshore wind mills is projected in the Baseline scenario in 2030. The contribution of the offshore wind to the electricity balance is important because its capacity factor is higher than that of other intermittent renewables.

Although considerable technology improvement has been assumed for solar power generation technology, solar energy, mainly photovoltaic (PV) technology, penetrates slowly. In total 13.7 GW of new PV units are built between 2006 and 2030, one third of which correspond to projects that are already decided and included in national plans.

FIGURE 68: CAPACITY OF RENEWABLES IN GW



Regarding hydroelectric power plants, around 5.9 GW of new investments are foreseen to take place between 2006 and 2030, of which 2.3 GW concern hydro power with reservoir. The vast majority of new hydro investments correspond to already decided or planned projects.

Other RES such as tidal/wave energy and high enthalpy geothermal energy for power generation play a minor role; they develop in some countries, where specific potential exists. Tidal/wave energy is projected to develop mainly after 2015 reaching 2.4 GW of installed capacity by 2030, while some 440 MW of new geothermal power stations are anticipated.

6.5 Power Generation by Source

Power generation by source depends on the merit order which in a well functioning market is defined according to an ascending order of variable operating costs of the dispatchable power plants. Therefore, the number of hours per year a plant operates depends on fuel prices and plant efficiency. Power exchange markets, which have an increasing role in the EU liberalised electricity market, contribute to the functioning of such a merit order. The PRIMES model also simulates plant operation according to variable costs.

Concerning fuel cost and prices, the Baseline scenario projects a gradual deterioration of competitiveness of gas relative to coal, which has important consequences for the structure of the merit order, given that these two fuels are among the main options for expansion of dispatchable capacity. The assumption of a relatively low carbon price prevailing in the EU ETS has moderate impacts on the merit order.

The PRIMES model simulates the following scheme of plant operation:

- Low variable cost plants, such as nuclear, hydro run-of-river and lignite plants, rank first in the merit order but their capacities are limited for various reasons.
- Generation by intermittent resources is absorbed by the system according to prevailing regulations, such as the feed-in tariffs which are widely applied in the EU.
- Hydropower plants with reservoir operate according to regular annual cycles and ensure generation in peak hours. They are also the main contributors of ancillary services, such as voltage regulation.
- Peak devices are also used for such purposes and contribute mainly as reserve units in peak hours.
- Operation of plants with a strong cogeneration component is usually driven by steam/heat demand and its load pattern. In the context of the liberalised market the plant operators seek higher operation flexibility so as to get a competitive place in the merit order and the power exchanges. For this purpose they use backup boilers and other plant design arrangements. So, the traditionally forced operation of CHP plants in the merit order changes and depends increasingly on their variable operation costs.

The main domain of competition among power plants within the merit order concerns the gas and coal plants. Older plants are less efficient than new ones and so they lose their rank in the merit order, as capacity expansion progresses over time. This is taken into account by the model through its vintage approach and the information in the plant inventory.

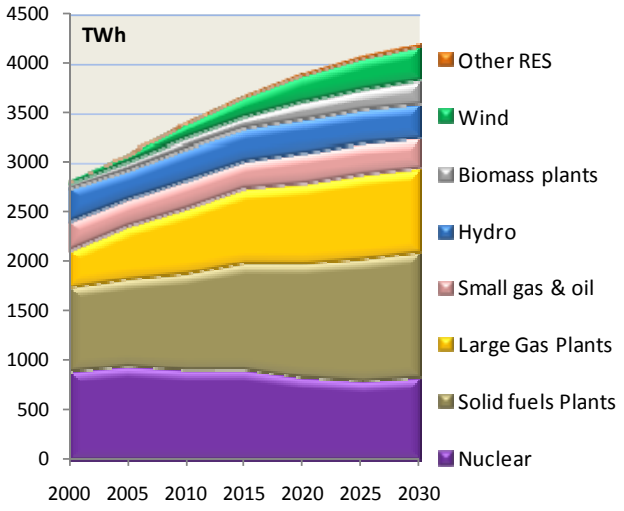
Table 14 and Figure 69 show power generation by plant-type. The model simulates the possibility of co-firing in thermal plants, and so the structure of power generation by source is slightly different from the numbers shown in these

figures. Figure 70 shows power generation according to the fuel use, i.e. generation from a co-firing is split between different categories.

TABLE 14: AVERAGE POWER LOAD FACTOR

	Avg. Electricity Load Factor (net)						
	2000	2005	2010	2015	2020	2025	2030
Nuclear	0.75	0.80	0.83	0.84	0.84	0.92	0.93
Solid fuels Plants	0.51	0.53	0.59	0.65	0.71	0.73	0.77
Large Gas Plants	0.40	0.47	0.42	0.45	0.45	0.44	0.40
Small gas & oil	0.28	0.26	0.24	0.26	0.30	0.32	0.33
Biomass Plants	0.46	0.58	0.48	0.48	0.55	0.52	0.54
Hydro	0.37	0.32	0.34	0.33	0.33	0.34	0.34
Wind	0.20	0.20	0.23	0.25	0.26	0.26	0.27
Other RES	0.57	0.37	0.26	0.22	0.20	0.19	0.18
Total	0.47	0.48	0.46	0.49	0.49	0.50	0.50

FIGURE 69: POWER GENERATION BY PLANT-TYPE (NET)



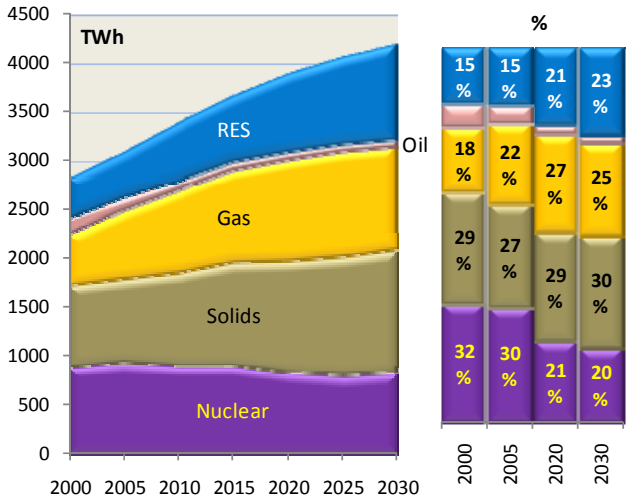
The continued deterioration of gas competitiveness in power generation vis-à-vis coal also induces a reversal of the short-term trends concerning the relative use of the plants. Figure 70 shows that coal and lignite based power, which represented 29.5% of total power generation in 2000 and decreased to 27.3% in 2005, recovers and grows to 30% by the end of the projection period, indicating that solid fired power generation will continue to play a major role in the European energy system.

More specifically, the share of lignite-based generation continues to decrease from 8.4% in 2005 to 7.8% in 2030, while power generation from coal is increasing constantly from almost 19% in 2005 to 22.3% in 2025, and stabilises at 22.1% in 2030. The assumed technology maturity of supercritical coal plants facilitates this re-emergence of coal and a large part of generation from coal in 2030 will be based on this clean coal technology.

Generation from gas loses market share, because of slowdown in gas-plant investment, but also because the average rate of use of large scale gas plants reduces over the projection period. The share of gas fired units in power generation rises from 16.9% in 2000 to 21.3% in 2005, peaking at 25.7% in 2020 and then going down to 24.3% in 2030.

It must be noted that power generation from co-firing of biomass in coal or lignite power plants is attributed to biomass according to its share and not to the fossil fuel (see Figure 70 and Figure 71). Co-firing is constantly increasing throughout the projection period reaching 3% of total fuel consumption in solid fossil fuel fired power plants in the period 2010-2030. Power generation from biomass, including co-firing, attains 262 TWh in 2030, almost tripling from 2005. The projection shows that roughly 90% of biomass-based generation is carried out in biomass-specific power plants.

FIGURE 70: POWER GENERATION (NET) BY SOURCE



As a result of phase out policies and decommissioning, power generation from nuclear plants reduces by 16% in 2025 from its peak value in 2005 (944 TWh), and remains in 2030 some 12% lower than in 2005. The share of nuclear generation in total power generation attains 19.8% in 2030, down from 31.5% in 2000.

Under the relatively high oil price conditions of the Baseline scenario, power generation from petroleum products becomes highly uncompetitive. Consequently, the share of power generation from oil fired plants declines from 4.6% in 2005 to a mere 1.7% at the end of the projection period.

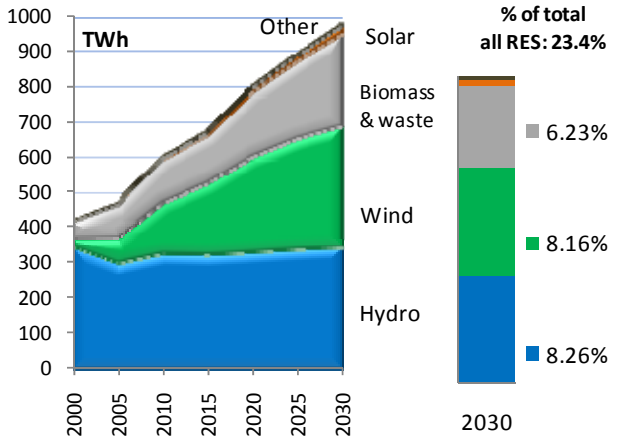
Power generation from renewable energy is proportionally lower than their nominal capacity owing to their rather low capacity factor. Renewable energy, including biomass and waste, is the fastest growing source of power, showing a remarkable increase by 2.9% per year in the Baseline scenario, accounting for 23.4% of total power generation in 2030, considerably higher than 15.1% in 2000. Net electricity generated by renewables in 2030, expressed in TWh, is

higher than the nuclear electricity and almost as high as the electricity generated by natural gas.

The increased contribution of renewable power sources is primarily due to wind and secondarily to biomass development. Power generation from wind reaches 8.2% of total production by 2030, starting from less than 1% in 2000. Almost 14% of that amount is offshore wind in 2030. It is remarkable that wind mills produce in 2030 as much electricity as produced by hydropower which was traditionally the only renewable source of electricity.

Hydropower remains almost stable over the projection period, attaining a share of 8.3% in total power generation in 2030, down from 9.7% in 2005.

FIGURE 71: POWER GENERATION FROM RENEWABLES



Solar power, high enthalpy geothermal and power from tidal and waves increase in volume but their shares remain low, almost insignificant within total power generation. Solar photovoltaic systems are projected to produce 16.5 TWh of electricity by 2030.

6.6 Cogeneration of Electricity and Heat

Cogeneration of heat and power (CHP) is important for improving energy efficiency and is supported by Member-States' policies. CHP has also been facilitated by the wide spread of gas turbines and the low natural gas prices that prevailed between 1996 and 2003; hence, investment in CHP plants increased over that period, resulting in an electric capacity of 134 GW_e (net) in 2005. CHP accounts for 18% of total installed power capacity and 30% of total thermal power generation capacity in 2005. The part of thermal plants with a CHP component is projected to increase slightly up to 33% in 2030. The presence of CHP components is currently and during the projection horizon, much more frequent in small and medium plants using gas (60%) or biomass (75%), than in large-scale coal, lignite and gas plants (between 20 and 25%).

The development of CHP plants is quite significant in the Baseline scenario. The scenario projects construction of 116 GW_e (net) between 2006 and 2030, which account for 26% of total investment in thermal power plants during that period. Half of these new CHP plants are expected to be gas fired units. Solid fossil fuel fired units with a CHP component account for 11% of total CHP investments, oil fired CHP plants have a share of 9% whereas biomass accounts for 27% of total CHP investment.

After accounting for the decommissioning of old plants, CHP capacity grows to 187 GW_e in 2030. While 19% of the CHP units in 2005 where related to industrial activity, in 2030 this share grows to almost 40%.

Power generation from CHP plants more than doubles in the projection period reaching 858 TWh (net) in 2030; its share in total power generation rises from 12.6% in 2005 to 20.5% in 2030. The share of heat/steam generation from CHP units in total heat/steam generation[38] rises also significantly; from 28% in 2005 up to 46% in 2030.

Regarding fuel mix of power generation from CHP units, the dominant fuel in 2005 was gas accounting for 45% of the total. Coal and lignite accounted for another 35% followed by oil fired units with a share of 11% of power generation, and by biomass producing just 9% of the power generated by CHP units.

The Baseline scenario shows further development of gas fired units for CHP, rapid expansion of biomass-based CHP and a decline of oil plants. By 2030, 51% of power generated by CHP units is projected to derive from gas, solid fossil fuels are expected to account for 19%, oil declines to 3% and biomass becomes a major CHP producer with a share of 27%.

In the framework of a liberalised electricity market the operation of CHP plants is less driven by the pattern of steam load as it was the case in the earlier years of CHP development. This is depicted in the electricity to steam/heat generation ratio which grows from an average of 46% in 2005 to 75% in 2030, indicating that the further deployment of the CHP plants is mainly electricity driven. The Baseline scenario findings indicate that under a least-cost view the presence of a CHP component is maintained in almost one third of thermal power plants over the entire projection period.

TABLE 15: POWER CAPACITY OF PLANTS WITH CHP COMPONENT

GW	2000	2005	2010	2015	2020	2025	2030
Solid fuels Plants	47.9	48.0	39.5	43.0	43.2	40.3	33.8
Large Gas Plants	26.0	27.4	30.5	31.3	37.7	42.3	45.0
Small gas & oil	42.4	47.9	44.3	48.5	52.5	54.3	53.0
Biomass plants	7.2	10.3	12.9	15.7	24.9	30.7	38.2
Total	123.5	133.7	127.3	138.5	158.3	167.6	170.0

[38] Including heat generated by industrial boilers on site.

TABLE 16: CHP INDICATORS

	2000	2005	2010	2015	2020	2025	2030
Overall CHP Efficiency (gross)	0.63	0.68	0.76	0.80	0.81	0.82	0.83
Steam to Electricity Generation Ratio (gross)	2.2	2.1	1.6	1.5	1.4	1.3	1.3
% Electricity from CHP (gross)	12.6	12.7	16.6	17.8	20.3	21.1	21.1
% Steam from CHP	44.2	46.9	42.7	45.0	48.9	50.0	50.3

The overall energy efficiency rate of CHP plants, defined as the ratio of electricity and useful steam output per unit of fuel input, is projected to increase in the Baseline scenario. As electricity sales are projected to be determinant for the pattern of plant operation, the average steam to electricity ratio decreases over time from 2.1 in 2005 to only 1.3 in 2030. According to the Baseline scenario, this change is associated with the wider use of combined cycle and gas turbines with heat recovery technologies. By contrast, backpressure technology for CHP develops less than in the past in the Baseline scenario.

6.7 Fuel Consumption for Power Generation

A CHP plant consumes fuels to produce both electricity and steam. In the absence of steam cogeneration, a plant with CHP component consumes less fuel than when producing both electricity and steam. When a table or figure in this section mentions “not adjusted for CHP” it is meant that fuel consumption is attributed entirely to electricity generation. When it mentions “adjusted for CHP” fuel consumption attributed to electricity generation is reduced, the remaining part being attributed to steam production. This latter approach is reflected in the Eurostat statistics. As mentioned in a previous section, the model estimates in detail the amount of fuels that correspond to steam generated by CHP and consumed directly on site in industry. Eurostat includes these amounts in industrial consumption and not in power generation. The figures mentioning “not adjusted for CHP” include also the fuels corresponding to steam from on-site CHP as attributed to electricity generation and not to steam.

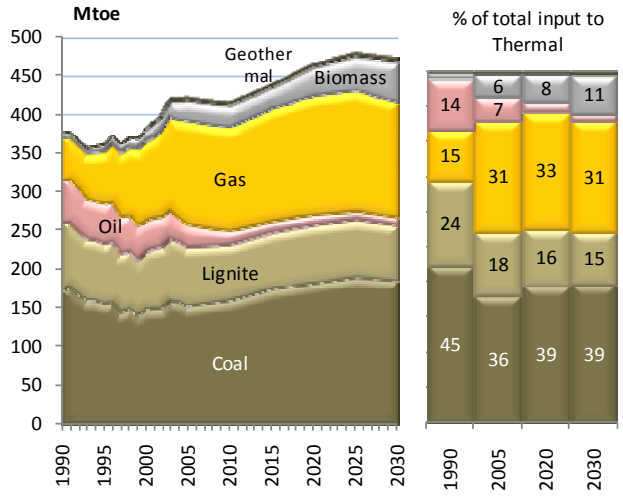
The Baseline scenario assumes that the technology of thermal power generation will continue to deliver more efficient plants. During the last ten years, the providers of power generation equipment achieved spectacular progress in terms of conversion efficiency through the combined thermodynamic cycle, which is projected to reach efficiency rates approaching 0.60 (in terms of gross[39] electricity generation). The progress of supercritical coal combustion technology is also worth mentioning, which is expected to deliver coal plants with efficiency rates higher than 0.45 (gross).

TABLE 17: EFFECTIVE AVERAGE NET EFFICIENCY RATES (NOT ADJUSTED FOR CHP)

Average (old and new plants)	2000	2005	2010	2015	2020	2025	2030
Solid fuels Plants	0.31	0.31	0.34	0.36	0.37	0.39	0.41
Large Gas Plants	0.39	0.42	0.48	0.50	0.50	0.51	0.52
Small gas & oil	0.27	0.29	0.38	0.39	0.41	0.42	0.42
Biomass plants	0.19	0.22	0.28	0.30	0.33	0.33	0.34

These developments are included in the Baseline scenario, together with significant improvements in all other thermal plant technologies. Their effect on average thermal power efficiency depends on investment pace, since progress is embedded in new power plants. Also, the effective efficiency rates are generally lower than state-of-the-art rates, because of plant operation schedules that differ from the optimal ones. For example, a combined cycle plant operating under market conditions is often obliged to vary its load factor, deviating from theoretically optimal operating conditions.

FIGURE 72: FUELS USED BY THERMAL POWER GENERATION (ADJUSTED FOR CHP)



In 1990 coal and lignite accounted for 68% of total fuel consumption in thermal power plants, while the shares of gas and oil were 15% and 14%, respectively, followed by biomass with 2%. The new market conditions have induced significant changes in the fuel mix already in the beginning of the millennium. Between 1990 and 2005, the share of coal and lignite dropped by 15 percentage points to 54% and oil products decreased by 7 percentage points to 7%; gas doubled its share from 1990 contributing 32% in 2005; biomass reached 6% in 2005.

The Baseline scenario shows that the importance of natural gas for power generation will continue in the future. The volume of natural gas consumed in power and CHP gen-

[39] The efficiency rates in terms of net electricity production are lower because self consumption of electricity by the plant is considered as a loss.

eration is projected to increase in the medium term and to stabilise in the long run. The projection shows that in 2020 the EU thermal power generation will require on average some 10% more gas compared to 2005.

Hard coal will be equally important for power generation. Its consumption is projected to increase over time, particularly after 2020 when it will partly replace nuclear energy in base load generation. The share of coal in total fuel input to thermal power generation is projected to be above 50% over the entire projection period. In the period after 2015, the EU coal demand for power generation will be at least 20% higher compared to 2005. The use of lignite in power generation slightly declines over time driven mainly by resource supply limitations. Its share stabilises roughly at 14% in the long term, significantly down from 24% in 1990.

Biomass-based energy forms are projected to be increasingly used for power and steam generation. Around 35% of its consumption in the long term is attributed to waste energy. The volume of biomass and waste consumed in power and CHP generation is projected almost to double in 2030 compared to 2005. For 2020, the projection shows that biomass and waste requirements for electricity generation (including CHP production) will be 34% higher compared to 2005.

The use of derived gases is driven by the activity of integrated steelworks, which is assumed to maintain its position in the EU industrial structure. Their share in total fuels used for power and CHP production is small staying below 2%. The use of oil products is projected to decline: the EU will use for electricity generation and CHP in 2030 only one third compared to 2005.

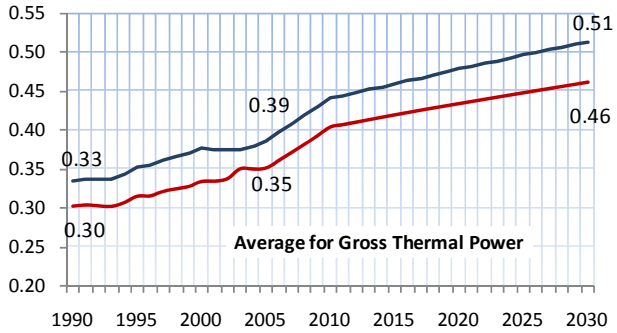
Replacement of old units, development of new technologies and shift to new fuels, underpinned a continuous improvement in thermal efficiency in power generation sector. The average improvement in energy efficiency of thermal power generation, measured as the ratio of gross electricity output divided by the energy content of input fuels, was remarkably steady in the period 1990 to 2005, around 1% per year. This is a notable performance for a sector with so slow capital turnover.

The average increase of energy efficiency of thermal generation in the period 2005-2030 is projected to be equal to 1.1% per year. The projection involves faster progress between 2005 and 2020 (1.5% per year) driven by the massive investment in combined cycle technology, the penetration of supercritical coal technology and the wide use of modern gas turbines in smaller-scale applications. The rate of improvement of energy efficiency of thermal power is projected to slow down in the longer term, attaining on average 0.6% per year.

TABLE 18: NET ELECTRICITY EFFICIENCY RATES

(not adjusted for CHP)	2000	2005	2010	2020	2030	Change in % pa 05-20	20-30
Solids	0.32	0.31	0.34	0.37	0.41	*1.22*	*0.95*
Oil	0.29	0.29	0.37	0.38	0.42	*1.77*	*1.14*
Nat. Gas	0.34	0.39	0.46	0.49	0.50	*1.44*	*0.39*
Der. Gas	0.25	0.28	0.41	0.41	0.42	*2.64*	*0.16*
Biomass	0.19	0.23	0.29	0.33	0.34	*2.46*	*0.25*
Total Net Therm	0.31	0.33	0.38	0.41	0.43	*1.49*	*0.58*

FIGURE 73: GROSS ELECTRICITY EFFICIENCY RATE



% change per year	1990-2005	2005-2020	2020-2030	2005-2030
CHP Adjusted	0.96	1.44	0.69	1.14
Not adjusted	1.01	1.43	0.62	1.10

If adjusted for CHP, the average conversion efficiency of thermal power in terms of gross generation attains 0.51 in 2030, up from 0.39 in 2005 and 0.33 in 1990.

6.8 Costs and Prices of Electricity

The PRIMES model performs detailed calculations for electricity generation, distribution and sales costs and determines explicit prices per sector of activity. Pricing is assumed to reflect all kinds of costs, including capital costs, increased by a profit mark-up which depends on the prevailing market competition regime. The prices are differentiated by type of sector on the basis of sectors' price elasticities, and the association of costs with the specific load pattern of the sector and its voltage connection. The Baseline scenario assumes that a well functioning market will prevail, leading to a gradual reduction of profit mark-ups. This is a rather optimistic assumption from the consumer's point of view, especially for the short term.

The calculation of prices also takes into account taxes, subsidies, if applicable, and the impact of CO_2 emission costs. As regards the latter, the Baseline scenario assumes an EU ETS system based on a "grandfathering" scheme (emission allowances are allocated for free to installations). The Baseline scenario also assumes that a well functioning market will reduce the degree of passing through to consumer prices the opportunity costs associated with the carbon price of the EU ETS. Hence, power producers will mostly pass through to consumers true emission abate-

ment costs induced by the scarcity of emission allowances and are less able to pass through the opportunity cost associated with grandfathered emission allowances. As such "windfall" profits will be limited in the model results under baseline assumptions.

TABLE 19: POWER SYSTEM COSTS AND PRICES

	€'2005/MWh					Change in %	
	2000	2005	2010	2020	2030	00-05	05-30
Generation Costs	53.3	59.5	59.4	63.1	65.1	2.2	0.4
Annual capital costs	17.5	18.9	20.7	22.2	24.2	1.5	1.0
Non-Fuel Gener. Costs	13.3	13.2	13.1	12.4	11.5	-0.2	-0.5
Fuel costs	22.5	27.4	25.5	28.6	29.4	4.1	0.3
Grid and Supply Costs	16.4	17.5	17.8	18.5	19.1	1.3	0.3
Profit mark-up	14.7	6.4	5.6	5.0	5.7	-15.4	-0.5
Avg. Pre-tax Price of Electricity	84.4	83.4	82.7	86.7	89.8	-0.2	0.3
Electricity Taxes	11.2	14.6	14.7	15.1	15.2	5.5	0.2
Avg. End-user Price of Electricity	95.6	98.0	97.5	101.8	105.0	0.5	0.3

TABLE 20: STRUCTURE OF POWER SYSTEM COSTS

	2000	2005	2010	2020	2030
	Generation Costs in %				
Annual capital costs	32.8	31.7	34.9	35.1	37.1
Non-Fuel Gener. Costs	25.0	22.2	22.1	19.6	17.7
Fuel costs	42.2	46.0	43.0	45.3	45.1
	Pre-tax Price in %				
Generation Costs	63.2	71.4	71.7	72.8	72.4
Grid and Supply Costs	19.4	21.0	21.5	21.4	21.2
Profit mark-up	17.5	7.7	6.7	5.8	6.3
% Electricity Taxation	11.7	14.9	15.1	14.8	14.5

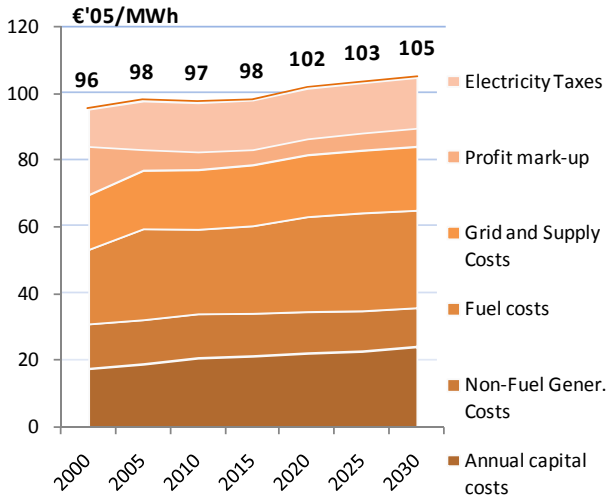
The main factor inducing changes in electricity costs over the projection horizon is related to the rising world fossil fuel prices compared to their level in 2000 and the competitiveness losses incurred for natural gas power technologies.

The direct effect is due to rising fuel costs. The indirect effect is due to the changing fuel mix in which coal re-emerges. Capital costs of coal power are substantially higher than those for gas technologies, implying increasing shares of capital in total cost.

The cost implications of the increasing use of renewables and biomass are similar. According to the fuel price trajectory assumed for the Baseline scenario, the increases in the fuel price have taken place mostly in the period 2000-2005. Beyond 2010, fuel prices increase further in a moderate way. However, the effects on the fuel mix and the capital costs take place with some delay owing to the slow capital turnover in the sector.

Technology progress implies reduction of plants unit investment costs but increasing environmental regulations pull these costs upwards. The net effect is however towards decreasing unit investment costs especially for renewables and the more advanced thermal power technologies.

FIGURE 74: COST AND PRICE OF ELECTRICITY



Least cost expansion and operation of the electricity system enables electricity prices to increase on average at a slower pace than fossil fuel price increases. Profit mark-ups decline in the short term, as they did in a more pronounced way between 2000 and 2005. This decline was driven by increased market competition following liberalization that is applied progressively after 2000. The effects of this process are assumed to vanish beyond 2015, but the resulting well functioning market, as assumed in the Baseline scenario, keeps mark-ups low.

The costs associated with transmission and distribution grids are assumed to be fully regulated following a "natural monopoly" approach. Unit costs of grid expansion are assumed to decrease as a result of technology progress. However, the increasing production from intermittent renewables and the increased generation from dispersed sources drive grid expenditures upwards.

The estimations of costs and prices for past years are based on the model which has been calibrated to reproduce statistics on electricity prices. All unit costs shown in Table 19 and in Figure 74 are evaluated on the basis of total sales to customers, excluding losses and self-consumption.

The estimation of costs shows that between 2000 and 2005 the unit cost of generation has increased by 12% driven by a 22% increase of unit cost of fuels. Unit costs for capital and for the grid have increased less (8% and 7% respectively). The increasing competition has driven a fall of average pre-tax price of electricity by 1% between 2000 and 2005. However, the average price of electricity paid by end-users has increased by 3% because of a rise in electricity taxes.

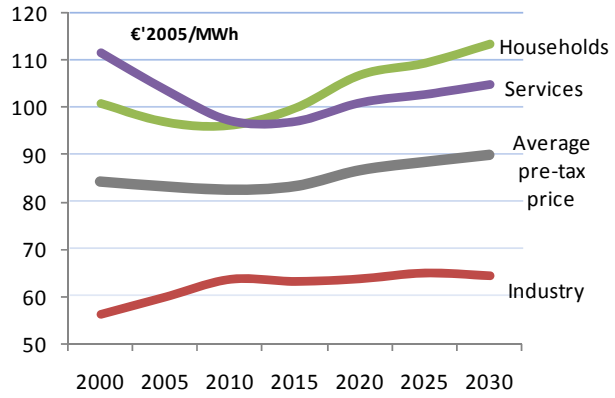
The Baseline scenario estimates that between 2005 and 2030 the unit cost of generation will increase by 9% in total, driven by an increase of unit capital costs (28%) and unit

fuel costs (7%). Variable and fixed operating costs are projected to decrease by 13% over that period. Unit cost of grid and supply services are projected to rise by 9% between 2005 and 2030. The effects from increased market competition vanish progressively leading to a small discrepancy between the pre-tax sales price and total unit cost towards the end of the projection horizon.

The average pre-tax price of electricity, at constant prices, is projected to rise by 8% between 2005 and 2030 (0.3% per year). Electricity taxes are projected to stay at a level of around 15% of end-user prices.

The cost structure of power generation is projected to change. The part of capital costs is projected to rise and attain 37.1% of total generation costs by 2030, up from 31.7% in 2005. Fuel costs keep a rather stable share, around 45% of total generation costs. Grid and supply costs represent around 21% of average pre-tax electricity price, over the entire projection period.

FIGURE 75: ELECTRICITY PRICES (PRE-TAX) BY SECTOR



Electricity tariffs by sector follow relatively diverse trajectories. Industrial tariffs are growing constantly at an average rate of 0.3% per year between 2005 and 2030. They have increased at a higher rate between 2000 and 2005. The average residential tariffs slightly decline up to 2010 (0.5% per year) and increase afterwards at an average rate of 0.8% per year. Tariffs for electricity supply to the services sector show a similar trajectory but their decline is faster between 2000 and 2010 (1.4% per year) and their increase is much lower between 2010 and 2030: only 0.4% per year. This trend reflects the changes in the cost structure of power generation and the diversity of marginal costs for mid- and base load. As market competition increases in this sector, the model projects that cross-subsidies between customers gradually diminish.

In addition, the integration of the EU energy markets and the progressive harmonization of business practices across the EU (i.e. regarding rates of return to capital and pricing policies), drive harmonization of electricity tariffs across the Member-States. Electricity tariffs tend to become more uniform across European countries, involving higher increase of tariffs in countries with currently low prices.

6.9 Electricity trade within the EU

Bilateral electricity trade is projected to change, leading to a more balanced distribution of power exports among countries. This trend is facilitated by increasing investment in base-load generation, using nuclear and coal, in several new EU Member-States.

The overall trade volume is slightly decreasing in the EU as percentage of total electricity consumption, although interconnection capacities are assumed to increase. This is consistent with the least-cost perspective taken by the Baseline scenario. Unless justified by the location of low cost resources (a factor which is decreasing in importance in the EU), location of new plants near the load centres entails lower supply costs. The wider use of imported fuels in power generation, like natural gas and imported coal, also drives plant location near load centres.

6.10 Carbon Intensity of Power Generation

The Baseline scenario shows increasing carbon dioxide emissions from power generation. The sector fails to continue the emissions reduction observed between 1990 and 2000.

Emissions of CO_2 in power generation dropped by 7% in 2000 compared to 1990 (by 5% if fuels used for on-site CHP are also included[40]). Emissions increased by 5% between 2000 and 2005, showing a clear reversal of past trends. The Baseline scenario reflects a slight decrease of CO_2 emissions in power generation by 2010, but then emissions start increasing again, albeit at a rather slow pace. By 2030, CO_2 emissions in power generation are projected to be 4% higher than in 1990 (5% if fuels used for on-site CHP are also included).

Although the Baseline scenario does not include strong policies for CO_2 emission reduction, electricity (and CHP steam) generated grow much faster than emissions. The carbon intensity of electricity generation (i.e. tons of CO_2 divided by TWh of electricity produced) reduces by 24% between 2005 and 2030, following a reduction of 23% between 1990 and 2005. This reduction displays a faster pace in the short term as a result of the natural gas expansion to the detriment of coal and the rapid penetration of renewables. The reduction is slower in the long term because of the coal re-emergence, the non replacement of the nuclear capacity to be decommissioned, and the slower penetration of renewables.

[40] As mentioned in previous sections, Eurostat statistics include part of fuels used for on-site CHP production in industry and not in power generation. The model has estimated these amounts retrospectively and for the projection horizon.

FIGURE 76: CARBON-RELATED INDICATORS

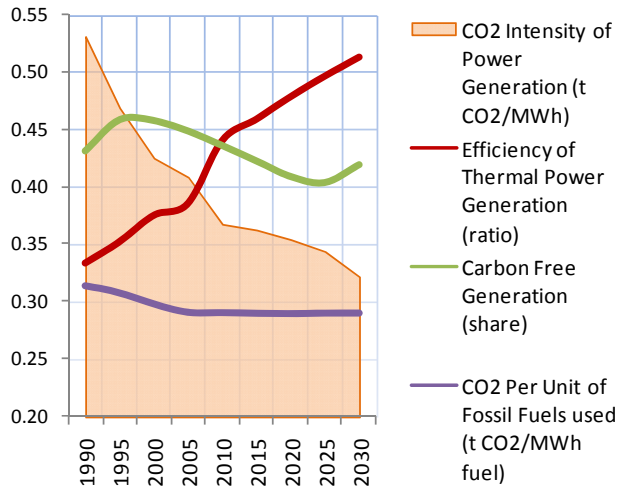


FIGURE 77: CO_2 EMISSIONS AND POWER GENERATION

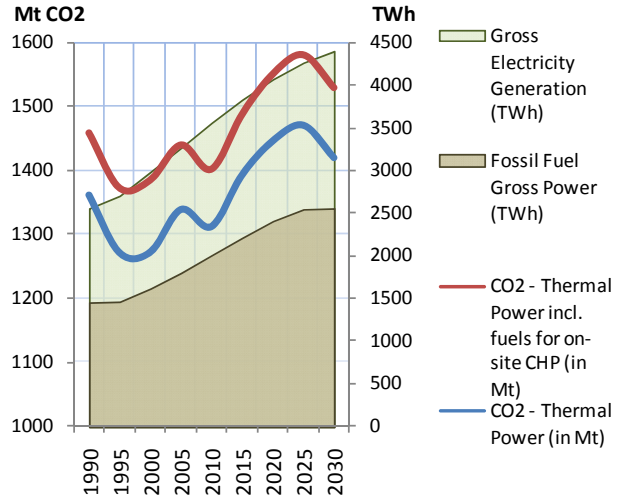


Figure 76 shows the evolution of three key indicators that explain the projected reduction of carbon intensity of power generation.

Emissions per unit of fossil fuels used (fossil fuel substitution effect) reflect the relative share of natural gas in the mix of fossil fuels used for thermal power generation. This indicator has decreased considerably between 1990 and 2005, but the Baseline scenario projects its stabilisation in the future.

The share of carbon free generation, including biomass, other renewables and nuclear, has increased between 1990 and 1995, but according to the projections it displays a decreasing trend until 2025, as a result of the slowdown in nuclear and despite higher renewables contribution to power generation. The share of carbon free generation goes up again after 2025 with new nuclear plants being commissioned during the last five years of the projection period.

TABLE 21: DECOMPOSITION OF CARBON INTENSITY CHANGES

Changes in % between two dates	1990 - 2000	2000 - 2005	2005 - 2020	2020 - 2030	2005-2030
Effect from Fossil Fuel Substitution	-5.1%	-2.4%	-0.4%	0.2%	-0.2%
Effect from Thermal Efficiency Improvement	-12.2%	-3.2%	-20.9%	-7.9%	-28.9%
Effect from Fossil Fuel Share in Generation	-4.9%	1.7%	7.1%	-1.8%	5.3%
CO_2 Intensity of Power Generation	-22.2%	-4.0%	-14.3%	-9.6%	-23.8%

The energy efficiency of thermal power generation is improving considerably during the projection period, continuing past trends, as a result of the penetration of combined cycle and coal supercritical technologies in the long term. This is the decisive factor in the reduction of carbon intensity in power generation, as it is also illustrated in Table 21.

7 Steam and Heat Production in the EU

The PRIMES model devotes special care to the detailed analysis of steam and heat production and supply. It distinguishes between distribution of steam and heat (the latter corresponds to district heating) and splits their production between boilers and cogeneration plants. Possible substitutions in the supply of steam and heat are simulated as driven by relative costs and prices, depending on the development of distribution infrastructure which differs by Member-State.

Cogeneration is the main supplier of steam/heat in the EU (covering about 50% of total), followed by industrial boilers (roughly 40%). District heating boilers have developed unequally in the Member-States and for the EU taken as a whole they account for about 10% of total supply. Their share is projected to decline, attaining 8.5% in 2030. The Baseline scenario shows an increasing contribution of CHP in total steam/heat supply, reaching a share of 55% in 2030, of which roughly 55% is consumed on-site. Only one third of steam/heat produced is distributed to third parties.

TABLE 22: SUMMARY OF STEAM/HEAT BALANCE

	Mtoe				Changes in % pa	Shares in Total, %	
	2000	2005	2020	2030	05-30	2005	2030
Steam from CHP	68.8	74.4	91.2	97.8	1.1	51.1	54.6
- of which distributed	31.8	35.5	39.8	40.8	0.6	24.4	22.8
Steam from Boilers	54.9	57.9	65.1	66.2	0.5	39.8	36.9
District Heat. Boilers	15.9	13.3	15.1	15.3	0.6	9.1	8.5
Steam/Heat Supply	139.7	145.6	171.4	179.3	0.8	100.0	100.0
Losses	3.9	4.4	3.6	2.1	-2.9	3.1	1.2
Steam/Heat Uses							
Industry	72.5	75.9	94.4	102.7	1.2	52.1	57.3
Energy Branch	31.2	34.2	40.8	42.2	0.9	23.5	23.5
Domestic Sector	32.1	31.1	32.6	32.2	0.1	21.4	18.0

In the beginning of the '90s, steam/heat production was mainly using solid fuels and oil products. Between 1990

and 2005 the fuel mix changed in favour of natural gas. Biomass and waste also penetrated this market. With the exception of refinery boilers, which use oil distillates for steam production, the Baseline scenario shows a continuation of these trends in favour of gas and biomass, especially for the short and medium term. In the long term, gas penetration slows down, coal use slightly re-emerges, but the use of oil products continues to decline. Energy efficiency is projected to improve in all means of steam/heat production.

8 Primary Energy Outlook for the EU

8.1 Primary Energy Demand

Total primary energy requirements, termed as Gross Inland Consumption according to Eurostat definitions, refer to primary energy forms and include both their direct use by end-consumers (for energy and non energy purposes) and their use by energy suppliers performing conversion of energy from one form to another. Distribution losses and self consumption by energy suppliers are also included. Eurostat measures renewables, such as hydro, wind and solar PV, in terms of electricity they produce. All other primary energy forms used for power generation are measured according to their inputs to power generation. The analysis below, as well as the appendices, is based on the Eurostat definitions of primary energy.

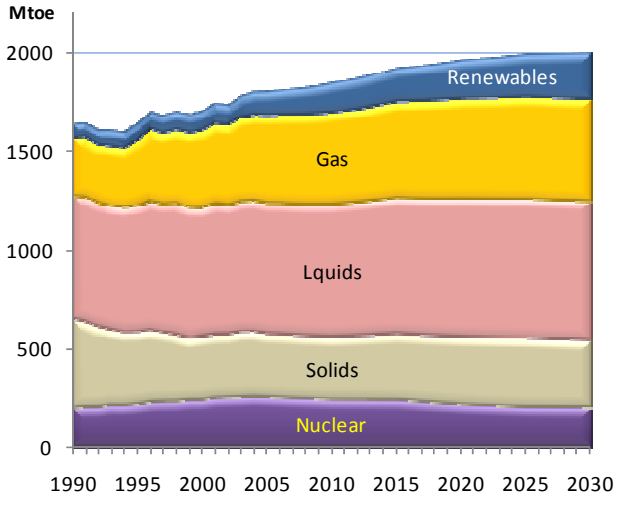
The results of the Baseline scenario show that primary energy requirements of the EU will continue to grow, albeit at rates lower than in the past. EU Gross Inland Consumption is projected to increase by 0.41% per year between 2005 and 2030, down from 0.62% per year in the period 1990 to 2005. These rates are significantly lower than the corresponding GDP growth rates. Consequently, energy intensity (measured by the ratio of Gross Inland Consumption over GDP at constant prices) displays a steadily decreasing trend. The decrease in the energy intensity during 1990-2005, 1.4% per year, is projected to continue between 2005 and 2030, although at a faster pace (1.7%).

The decrease in energy intensity decelerated during 2000-2005 (0.6% per year), especially between 2001 and 2003. Two factors seem to explain this deceleration: firstly, the EU enlargement and market integration have induced abrupt increase of trade flows, hence higher activity and energy consumption in the transport sector; secondly, the EU has experienced relatively low GDP growth rates during this period and associated slower investment paces in all sectors, leading to a deceleration of technology progress enabling higher energy efficiency. From 2003 onwards, the energy consumers experienced rising energy prices driven by a tight world oil market. The price increases induced lower growth of energy consumption, even a reduction of energy demand in some sectors, which further resulted in an acceleration of energy intensity gains, as shown by the most recent statistics.

The Baseline scenario adopts the view that two main factors, namely the energy efficiency improvement in all energy activities (also supported by sustained GDP growth) and the persisting high energy prices, will drive accelerated energy intensity gains in the future. In addition, structural change of economic activity towards more services and non-energy intensive industrial production fosters energy intensity improvements.

Solid fuels have experienced a continuous decrease, by 3.3% per year, between 1990 and 2000, but their primary energy consumption stabilised in the period 2000-2005. The Baseline scenario projects that total primary energy consumption of solid fuels will remain rather stable in the short term while from 2015 onwards it will start increasing, driven by power generation. Power generation will account for almost 80% of total consumption of solid fuels. The rest will be used in specific industrial applications, like the integrated steelworks. Primary energy needs for hard coal increase faster than for lignite, which remains stable and slightly declines in the long term. Demand for solid fuels peaks in 2025, with consumption being 8% higher than in 2005. The share of solid fuels in Gross Inland Consumption remains at roughly 17% throughout the projection period.

FIGURE 78: GROSS INLAND CONSUMPTION



Primary energy needs of oil, driven by increasing consumption for transportation purposes, went up by 0.41% per year between 1990 and 2005. The increasing specialisation in transport and petrochemicals plus the increasing activity in these sectors is projected to drive further increase of oil requirements, albeit at a slower pace than in the past: 0.25% per year between 2005 and 2030. The Baseline scenario shows that oil will continue to be the largest source of energy, maintaining a share above 35% in Gross Inland Consumption.

FIGURE 79: STRUCTURE OF GROSS INLAND CONSUMPTION

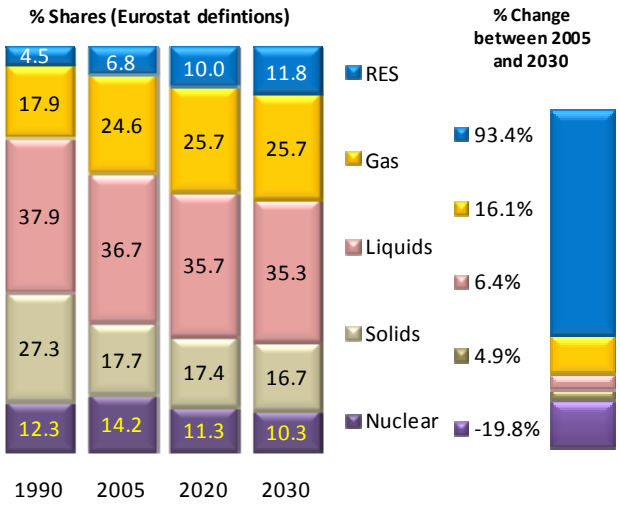
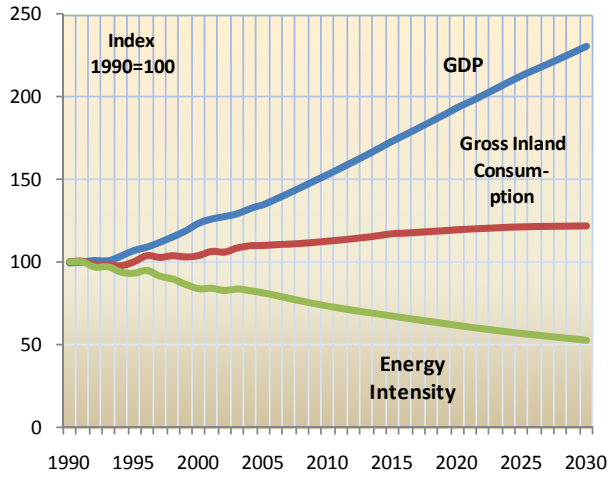


FIGURE 80: GDP AND ENERGY REQUIREMENTS



Natural gas was the fastest growing fuel among the fossil fuels used in the EU, increasing by 2.78% per year between 1990 and 2005. All sectors (with the exception of transport) adopted natural gas to replace coal and oil, owing to its cleanliness and easiness of use. The power generation sector experienced the most rapid penetration of gas through the combined cycle technology, which was a perfect choice under the market conditions prevailing over the past few years. This sector accounted for 35% of total gas used in the EU, up from 19% in 1990.

The Baseline scenario takes the view that natural gas will continue to be the preferred choice by end-consumers and will also preserve a substantial share in the power generation market, despite its high relative price. Gas is challenged by coal in the power sector, which is projected to be increasingly used beyond 2015. Nevertheless gas preserves a share of 25% in power generation by 2030, up from 20% in 2005. Total EU natural gas requirements are projected to increase by 0.6% per year between 2005 and 2030 and to be 16% higher in 2030 compared to 2005. Gas accounts for roughly 26% of Gross Inland Consumption between 2015 and 2030.

Renewables ranked first in terms of growth between 1990 and 2005 (3.47% per year, according to Eurostat accounting definitions) and are projected to continue to rank first in the future, growing by 2.67% per year between 2005 and 2030. Energy from hydropower is projected to increase at a low rate (0.5% per year between 2005 and 2030), but solar energy is projected to grow much faster (10% per year) starting however from a very low level. The main drivers of the increasing use of renewables are wind energy (6.5% per year) and biomass-waste energy (2.67% per year). Their rapid development started already in 2000 and is shown to be higher in the medium term, followed by a slower pace in the long term.

According to Eurostat accounting methodology for renewables, the share of total renewables in Gross Inland Consumption reaches 11.8% in 2030 and 10% in 2020, up from 6.8% in 2005 and only 4.5% in 1990. Wind power in 2030 becomes as large as hydropower, while biomass-waste requirements in 2030 double compared to 2005. Solar energy grows tenfold between 2005 and 2030.

Recently, Eurostat introduced a new indicator termed “share of renewables in Gross Final Energy Consumption”, which is measured as a ratio of renewable energy used in all sectors (including the part of electricity and heat generated by renewables) over final energy demand increased by distribution losses and self consumption of electricity and steam.

This ratio increases in the Baseline scenario to reach 12.5% in 2020 and 14.5% in 2030 compared with 8.5% according to Eurostat statistics. Consequently, the renewables developments in the Baseline scenario are not sufficient to achieve the 20% renewables target endorsed by the European Council of March 2007.

Nuclear energy (measured in primary energy terms according to Eurostat definitions) attained its peak in 2005, when it accounted for 14.2% of Gross Inland Consumption. The projection shows a continuous decline of nuclear energy by 0.88% per year during 2005-2030. Nuclear energy loses 4 percent points between 2005 and 2030, in terms of its share in Gross Inland Consumption.

Adding together renewables and nuclear (Eurostat definitions), carbon-free primary energy forms account for 22.1% of Gross Inland Consumption in 2030, slightly up from 21% in 2005.

8.2 Primary Energy Supply

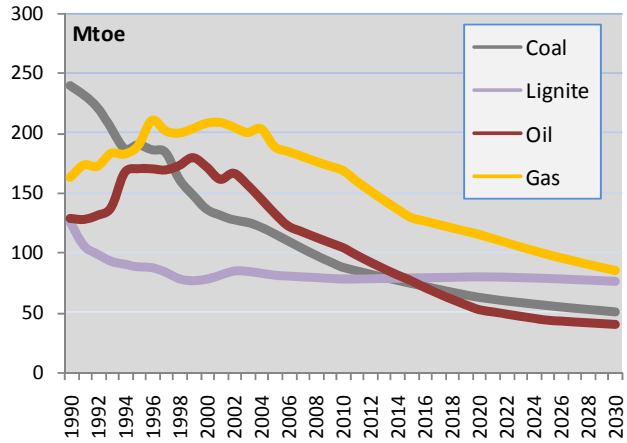
8.2.1 Indigenous Primary Production of Energy

For several reasons, the EU is currently experiencing a decline in the indigenous production of fossil fuels. The production of fossil fuels was 21% lower in 2005 compared to 1990.

EU indigenous coal production has declined considerably between 1990 and 2005 and is projected to further decline during the projection horizon. In 2005, coal produced in the EU was halved compared to 1990 and the Baseline projects coal production reducing to only 62 Mtoe by 2020. Imported coal and coke outpass indigenous production of coal before 2015.

The reason is that, after a long lasting mining history, the EU coal producing industry is lacking cheap coal resources and is facing increasing operating and extraction costs compared to imported coal prices. Increasing extraction costs and other factors related to the local environment in the proximity of opencast mines explain the projected non expansion of lignite exploitation in the EU.

FIGURE 81: INDIGENOUS PRODUCTION OF FOSSIL FUELS



The EU oil and gas upstream industry has developed impressively after the mid-eighties but is facing today declining resources, despite intensive efforts to increase the recovery rate in mature fields as well as in newer smaller fields. Oil production has peaked in 1999, followed by a peak in the gas production in 2001. There is little evidence that new discoveries in the EU will alter the declining production trend.

The Baseline scenario shows a slower declining pace for gas than for oil. Indigenous gas production will be 59% lower in 2030 than its peak and oil production will be 77% lower.

Since nuclear energy (considered as indigenous source by Eurostat) also declines in the Baseline scenario, renewables are the only growing indigenous energy resources. Indigenous production of biomass-waste energy, starting from 4.8% of total indigenous energy production in the EU in 1990, attains a share of 9% in 2005 and is projected to approach 23% by 2030. Primary production of biomass-waste is projected to exceed indigenous production of solid fuels by 2025, in energy terms.

Traditionally the main source of biomass used for energy purposes was wood and wood waste, accounting for 85% of total indigenous biomass-waste energy in 1990. Wood, wood-waste and processed fuels of wood origin are used by end-consumers in a variety of applications and their use, for example in the form of pellets, in steam and power generation is also increasing.

The projection[41] shows wood and wood waste to remain an important source of energy in the future. Its share within total indigenous biomass will decline as its further development is slow driven by limited additional resources: 0.6% per year between 2005 and 2030, down from 3.28% per year in 1990-2005. The share of wood resources in biomass-waste is projected to reach 45% in 2030, down from 74% in 2005.

Waste used for energy purposes is increasing in importance, facilitated by growing investment in its collection and in waste processing. Waste energy in the gas form has the smallest potential but its exploitation is more economic than of other types of waste.

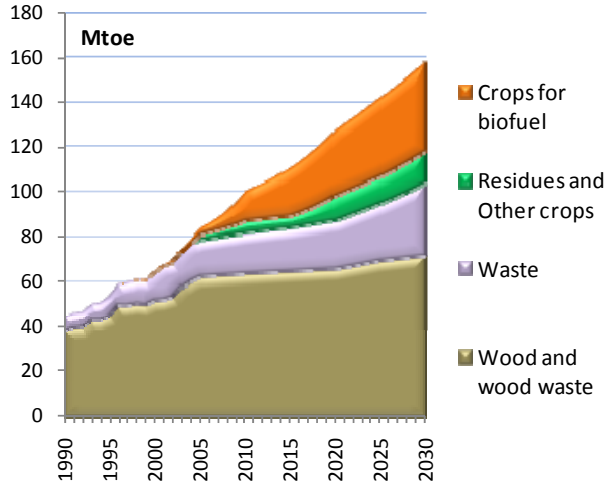
The projection shows a rapid development of energy applications for landfill gas, mostly in power and steam generation, which reached a share of 4.3% in total indigenous biomass in 2005 and is projected to further increase by 2.5% per year. Municipal and industrial waste is also used for energy purposes, accounting for 14% of total indigenous biomass in 2005. They are shown to develop further at an average growth rate of 2.8% per year throughout the projection period, which is consistent with the increase in their resource potential. Waste energy maintains a rather constant share in total indigenous biomass-waste energy, ranging between 17 and 20% throughout the projection period.

The remaining part of indigenous biomass-waste energy comes from crops and agricultural residues. The use of crops for energy purposes, inexistent in 1990, emerged before 2000, driven by the production of biofuels used in transportation. In primary energy terms, crops for biofuels reached a share of 3.8% of total indigenous biomass-waste energy in 2005. Their future development, driven by biofuels production, is possible from the point of view of potential resources because the scenario shows development of the

[41] The analysis about biomass is based on the biomass sub-model of PRIMES which runs independently from the core model and is very detailed regarding biomass resources and the processing, technologies. However the model is not fully mature yet to publish more detailed results.

second generation processing technologies of biofuels. The development of second generation processing technologies for biofuels takes place mainly after 2015 and consists of the processing of lignocellulosic biomass. Crops for biofuels are projected to grow by 10.6% per year between 2005 and 2030, and to attain a share of 25% of total indigenous biomass and waste energy.

FIGURE 82: INDIGENOUS BIOMASS-WASTE PRODUCTION



The Baseline scenario assumes an important development in energy uses of agricultural residues and some kinds of crops, which will be collected at a large scale and transformed into biogas or condensed in pellets for direct combustion. This resource will complement wood and wood waste in a variety of thermal applications and in power and steam generation. Their production is projected to rise considerably in the Baseline scenario, growing by 7.1% per year between 2005 and 2030.

Summarising, the Baseline scenario includes the development of a biomass industry in the EU which is based on indigenous resources, driving significant development of agricultural activity. Given the high increase in other renewables production, which by definition are indigenous, total primary indigenous productions of non-fossil energy forms account for 63.6% of total indigenous production in 2030, up from 42.3% in 2005 and 29.6% in 1990.

8.2.2 Net Imports to the EU and Import Dependence

The continuous growth of energy demand and the decline in EU indigenous fossil fuel production, during the projection horizon, imply increasing dependence on imports of fossil fuels. The indigenous renewable energy growth is not sufficient to change this outcome.

The import dependence indicator, measured as the ratio of net imports of energy over Gross Inland Consumption plus bunkers, was almost constant (around 45%) between 1990 and 2002. This period was marked by high indigenous production of oil and gas in the EU but also by declining hard coal extraction. After 2002, the statistics show that import dependence ratio started to rise, approaching 53% in 2005.

The Baseline scenario projects this tendency to continue in the future and the dependence ratio to equal 66.6% by 2030. Thus, two thirds of EU energy requirements must be met by (net) imports in 2030. EU oil import dependence, ranging from 75 to 80% in the period 1990 to 2005, rises up to 95% in 2030.

Before 2002, imports of natural gas were covering less than half of the EU needs, but they are projected to rise beyond 50% throughout the projection period and to cover 83.6% of the EU gas needs in 2030. By 2010, gas import dependence will already exceed 60%. For hard coal, net imports have already been higher than indigenous production in 2004. Hard coal import dependence is expected to attain 80.5% in 2030, while the solid fuels dependence increases to 62.5%.

FIGURE 83: IMPORT DEPENDENCE OF THE EU

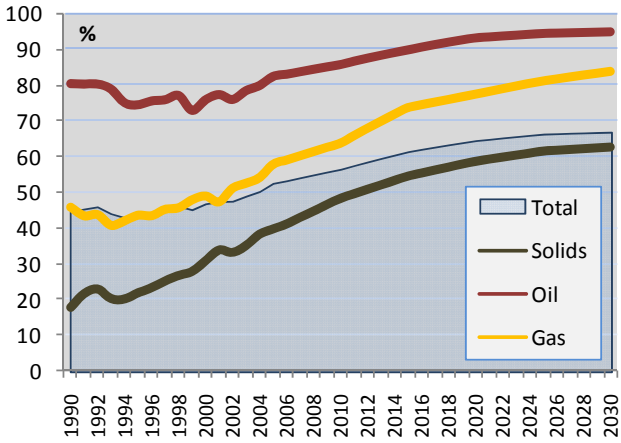
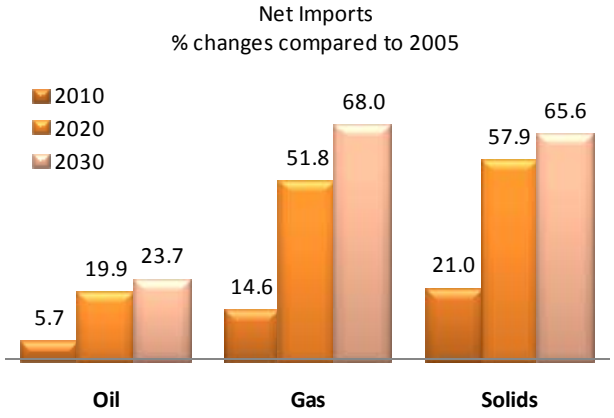


FIGURE 84: INCREMENTAL NEEDS FOR FOSSIL FUEL IMPORTS



According to the Baseline scenario, the EU incremental needs for imports are considerable, especially for natural gas and coal.

9 Energy Costs

The PRIMES model includes a detailed calculation of energy related costs and attributes these costs to the end-consuming sectors. Cost analysis includes expenses for purchasing energy products, annuity payments corresponding to investment in end-use equipment, operating expenses and spending to improve energy efficiency (e.g. insulation, etc.). The end-user prices of energy products are also estimated by the model on the basis of a detailed cost analysis of supply, which includes import prices of energy products, extraction costs, distribution costs and annuity payments for investment. The determination of end-use costs takes the view that prices reflect total costs plus profits.

The total energy related costs increase by 1.85% per year, during 2005-2030. This growth is lower than the GDP growth, implying that energy costs as a percentage of GDP decrease in the Baseline scenario.

TABLE 23: ENERGY COST INDICATORS

	2000	2005	2010	2020	2030	% Changes pa (05-30)
Total Cost related to Energy in billion €'05	978	1080	1219	1516	1709	*1.85*
as % of GDP	*9.73*	*9.87*	*9.81*	*9.66*	*9.15*	
Total Unit Cost of Energy purchased (€/MWh)	76.3	80.0	85.0	96.8	104.6	*1.08*
Tax Revenues from Energy as %	2.1	2.1	1.9	1.6	1.4	
Energy-related Expenses by sector in %						% Diff. (2005-
Households (% of Income)	5.26	5.46	5.55	5.84	5.67	*0.21*
Services & Agriculture (% of Production Value)	1.37	1.40	1.43	1.58	1.41	*0.01*
Industry (% of Production Value)	2.58	2.70	2.92	2.92	2.86	*0.16*
Fuel cost per pkm/tkm travelled (€/pkm or €/tkm)						% Changes pa (05-30)
Passenger	0.043	0.040	0.040	0.040	0.038	*-0.16*
Freight Transport	0.045	0.047	0.048	0.050	0.050	*0.21*

For end-consumers, the unit energy cost (only for purchasing energy products) increases by 1.08% per year between 2005 and 2030. The increase in import energy prices, as assumed in the Baseline scenario, explains the rise in the final energy prices.

The main responsible for this increase is the price of natural gas which rises more than the average energy price. Most sectors, including power generation and heat/steam generation, are rather price inelastic with respect to natural gas. Coal substitution for gas in power generation develops slowly and with some delay, also influenced by the moderate EU ETS carbon price. This implies that gas persists in power generation (steam and heat) and electricity prices increase, roughly following the trajectory of gas prices.

The prices of oil products follow the world oil price rise. However, the increasing penetration of diesel oil and kerosene, which are cheaper, to the detriment of gasoline, as well as the presence of the excise taxes, imply a slower pace in price increase in transportation than in other sectors.

The increase in households energy related spending is projected to exceed the rise of energy prices. This is due to the fast growing variety of energy using equipment, mostly electrical, used in a multitude of applications.

The decrease in energy consumption per unit of value added, in all productive activities, explains the decreasing trend of unit energy costs. In fact, the important energy intensity gains in these sectors over-compensate both the increase in energy prices and the increase in energy-related equipment.

10 CO_2 Emissions Outlook for the EU

The PRIMES model estimates CO_2 emissions as derived from combustion of fossil fuels (coal, lignite, gas, oil). The estimation uses common emission factors for all Member States (IPCC default factors) and is called "the sectoral approach" because it follows a bottom-up calculation of emissions based on the combustion of fossil fuels by sectors and activities.

An alternative approach, called "the reference approach", follows a top-down methodology established by UNFCCC which calculates emissions based on the carbon content of fossil fuels at the level of Gross Inland Consumption.

The two approaches give slightly different estimates of CO_2 emissions and are both reported by the PRIMES model. Hereinafter the analysis is based on the sectoral approach because it provides insights on the dependence of emissions on the structure of the energy system.

According to the sectoral approach for accounting emissions, energy combustion emitted 4046.9 Mt CO_2 in 1990. Over one third originated from power generation, 2.7% from district heating and 3.8% from the rest of the energy supply industry. End-consumers emitted the remaining 60%, which is further split equally into 20% by industry, 20% by houses and other buildings, and 20% by transportation.

The restructuring of the economic and energy system that took place in Eastern and Central European countries in the beginning of the '90s, resulted in a substantial reduction of CO_2 emissions which compensated the increased emis-

sions in most of the other EU Member-States. Worth mentioning is also the emission reduction enabled by the penetration of natural gas in power generation and other energy uses, which replaced coal during 1990-2000. The combination of these changes resulted in a reduction of CO_2 emissions in 2000 by 5.6% compared to 1990.

From 2000 onwards, energy combustion related CO_2 emissions started to rise. In 2005, the emissions were only 2.5% below their 1990 level. Emissions originating from transportation have increased continuously since 1990 and accounted for 26.6% of total emissions in 2005. Freight transport and aviation were the main causes of increasing emissions in the transport sector. This increase cancelled out the reduction of emissions in all other end-use sectors, especially in industry during the period 1990-2005. The part of emissions from power generation remained constant at roughly one third of the total by 2005.

The accelerated penetration of renewables, mainly wind, the natural gas penetration and the further improvement of energy efficiency contributed to the moderate increase in CO_2 emissions over the past few years.

The Baseline scenario projects a steady increase in the CO_2 emissions from energy combustion by 2030. In 2020, the emissions will be 5.1% higher compared to 1990 and in 2030 5.4% higher. The CO_2 emissions are projected to grow by 0.31% per year during 2005-2030.

The main driver for the emissions rise is the EU sustained economic growth, which includes a non declining industrial component, according to the Baseline scenario. The projected energy efficiency improvement alone (including the transport sector) is not sufficient to avoid the emissions growth.

FIGURE 85: CARBON EMISSION INDICATORS

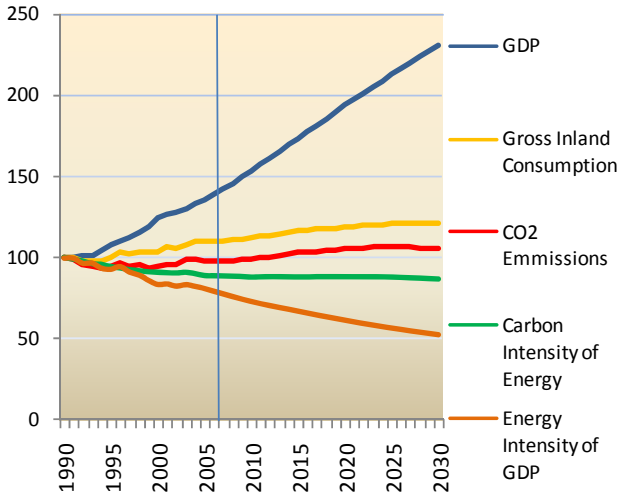


TABLE 24: DECOMPOSITION OF CHANGES IN CARBON INTENSITY OF GDP

Annual Change in %	1990 - 2005	2005 - 2030	1990 - 2000	2000 - 2010	2010 - 2020	2020 - 2030
Carbon Intensity of GDP	**-2.15**	**-1.81**	**-2.68**	**-1.67**	**-1.69**	**-1.71**
Effect from Energy Intensity of GDP	-1.36	-1.72	-1.75	-1.32	-1.72	-1.55
Effect from Share of Fossil Fuels in Gross Inland Consumption	-0.33	-0.06	-0.40	-0.16	0.03	-0.11
Effect from Carbon Intensity of Fossil Fuels	-0.45	-0.04	-0.53	-0.18	0.00	-0.05

The carbon intensity of energy (i.e. CO_2 emissions divided by Gross Inland Consumption), which is projected to decrease at a slower pace during the projection period compared to the past, has a limited contribution to lowering the emissions level. The carbon intensity of energy decreases by only 0.1% per year during 2005-2030, down from 0.8% per year during 1990-2005.

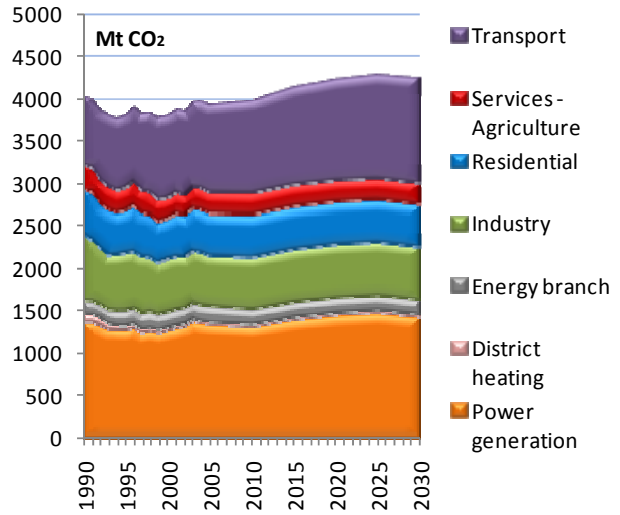
Three factors explain this change of pace: the slowdown in the penetration of gas, the limited development of nuclear, and the re-emergence of coal in the long term. These factors offset the effects of continued penetration of renewables on carbon intensity of energy.

The carbon intensity of GDP, expressed as CO_2 emissions per unit of GDP, is projected to decrease by 1.81% per year during 2005-2030, slightly down from 2.15% per year in 1990-2005. For the period 2005-2030, this result is almost exclusively due to energy efficiency gains, while in the past the reduction of carbon intensity of GDP was also due to the reduction in the carbon intensity of energy (by 33%).

The projected electrification of the final energy consuming sectors implies lower CO_2 emissions just because the emissions associated with power generation are accounted for in the power sector and not in the sectors that ultimately cause them. The final energy demand sectors also perform important energy efficiency gains in the Baseline scenario and continue to use natural gas instead of more carbon intensive fuels.

Consequently, direct CO_2 emissions by these sectors, namely in industry, residential, services and agriculture, are shown to be stable or to increase at a moderate pace between 2005 and 2020. Direct emissions in industry increase by 0.33% per year in the period 2005-2030, contrasting strong decrease during 1990-2005, due to slowdown of natural gas penetration driven by its loss of competitiveness.

FIGURE 86: CO_2 EMISSIONS BY SECTOR



CO_2 emissions from transportation activity are projected to increase at 0.73% between 2005 and 2030 (1% between 2005 and 2020), significantly down from 1.75%, observed between 1990 and 2005. This is due to the deceleration of activity growth, especially regarding passenger transport, and the improvement of energy efficiency of transportation means.

The effects from the penetration of biofuels are small, because of their small share. (The effects of biofuels on overall CO_2 are also small because of the energy consumed for their production).

The power generation sector is subject to a moderate carbon price and faces a continuous deterioration of price competitiveness of gas vis-à-vis coal during the projection period. As a consequence, coal re-emerges in the power sector in the long term, pushing upwards CO_2 emissions.

The CO_2 emissions in the power generation sector increased by 0.23% per year between 2005 and 2030 (0.51% per year between 2005 and 2020). However, the carbon intensity of power generation decreases by 0.95% per year, during 2005-2030, as a result of technology progress in thermal power units and the penetration of renewables.

The share of transport in total CO_2 emissions increases continuously and equals 29.5% in 2030. The share of the power sector is rather constant attaining 33.3% in 2030. The share of CO_2 emissions from industry goes down to 14.9% in 2030. The domestic sector (residential, services and agriculture) accounts for 17.4% of total CO_2 emissions in 2030.

11 General Conclusions

The Baseline scenario assumes a steady growth of the EU economy with a sustained industrial component. It also assumes relatively high world energy prices compared with previous projections and similar to reference projections from other sources[42], which increase at a moderate pace. It takes account of policies and measures already in place at the end of 2006.

The Baseline is essentially a scenario, in which economic actors minimize costs or maximise utility without taking account of external costs and impacts, such as the effects on the environment or concerns related to energy supply security. However, it does not freeze progress on energy efficiency or the penetration of new technologies and renewables. On the contrary, energy-efficiency policies and market trends that lead to improvements in energy productivity do continue into the future under Baseline conditions

The Baseline scenario projects a continuous improvement of energy technology in all its applications. Further progress in gas combined cycle technology, the penetration of advanced supercritical coal plants, the widespread use of efficient electrical appliances, efficient lighting and heat pumps, as well as the improvements in thermal characteristics of buildings and houses are the main drivers of energy efficiency gains in the Baseline scenario. Technology improvements combined with saturation effects for a number of energy uses and for transportation activity, contribute towards the decoupling of energy demand from economic growth. The projected decline in energy intensity of GDP (1.7% per year during 2005-2030) is also due to structural change towards more services and less energy intensive industries.

The Baseline scenario projects a persisting dependence on fossil fuels for the EU energy system. However, it also projects a considerable increase in renewable energy, given that supporting policies continue in the Baseline at current levels while technology costs decrease. Wind power and, at a lesser degree biomass-waste energy, are projected to attain a sufficient industrial scale in the medium to long term. Renewables are the fastest growing energy source. Being clean and indigenous, renewables play an important role in the Baseline scenario in partly alleviating the adverse effects from the persisting dominance of fossil fuels.

[42] This relates to energy projections from the International Energy Agency (IEA) and US Energy Information Administration.

The use of fossil fuels in the EU energy system will become increasingly specialised. Oil becomes a fuel massively used in the transport sector and as a petrochemical feedstock. Solid fuels are only used in power generation and in some specific heavy industry applications. Natural gas continues to be increasingly preferred by end-users, in all sectors except transport, and in small and medium size heat and CHP applications. Natural gas penetration in power generation is projected to slow down as a consequence of its high price relative to coal. Coal re-emerges in power generation in the long term partly as a replacement fuel for nuclear and despite a moderate carbon price, which is assumed to prevail in the EU ETS under Baseline conditions (no further strengthening of climate policies).

The high contribution of the transport sector to the final energy demand growth is remarkable. It is only in the long term that the combined effect of transport activity decoupling from economic growth (particularly for passenger transport) and the technological progress of vehicles might lead to a deceleration of energy demand growth in transport. Freight transport and aviation are the fastest growing transport activities.

Electrification, manifested by an expanding use of electricity in all sectors, is projected to continue in the Baseline scenario. Demand for electricity grows faster than for other energy forms. This implies a large expansion of power generation capacity. To meet rising demand and replace ageing plants, a total capacity of 666.4 GW needs to be constructed in the EU-27 between 2006 and 2030.

Nuclear power production declines in the Baseline scenario as a result of current policies in the Member-States and the incomplete replacement of old plants that are planned to be decommissioned. However, carbon-free primary energy forms (renewables and nuclear) are projected to rise as part of total primary energy consumption.

Under Baseline conditions, carbon dioxide (CO_2) emissions increase significantly less than GDP and even slightly less than total energy requirements. However CO_2 emissions remain far higher than implied in emission reduction targets already agreed or put forward. The considerable energy intensity reductions and the penetration of renewables, projected in the Baseline, are not enough to curb CO_2 emissions as much as needed to mitigate climate change. Similarly, the indicative targets on renewables contained in the RES electricity and biofuels Directives are unlikely to be attained under Baseline conditions.

Moreover, indigenous EU fossil fuels production is projected to decline considerably over time. With rising EU energy consumption this leads to strongly increasing import dependence, which reaches: 66.6% in 2030, up from 52.4% in 2005.

Overall, the Baseline depicts an unsustainable development given CO_2 developments and external risks.

In any case, considering the indicative targets set out in agreed Directives (biofuels, renewables in the internal electricity market), Member-States need to do more compared with the 2007 Baseline that reflects policy implementation up to the end of 2006. This holds even more for the follow up of the ambitious targets for 2020, agreed at the spring European Council of March 2007 (at least 20% greenhouse gas reduction, mandatory target of 20% for renewables).

Rapid implementation of adopted legislation by Member-States (e.g. energy services and eco-design Directives), adoption of the Directives contained in the energy and climate package of January 2008 and the further development of EU legislation (e.g. from Action Plan for Energy Efficiency), should allow for a more favourable view to the future.

GLOSSARY

Carbon capture and storage (CCS): Carbon capture and geological storage is a technique for trapping carbon dioxide as it is emitted from large point sources, compressing it, and transporting it to a suitable storage site where it is injected into the ground.

Carbon intensity: The amount of CO_2 emitted per unit of energy consumed or produced (t of CO_2/tonne of oil equivalent (toe) or MWh).

Clean coal units: A number of innovative, new technologies designed to use coal in a more efficient and cost-effective manner while enhancing environmental protection. Among the most promising technologies are fluidised-bed combustion (PFBC), integrated gasification combined cycle (IGCC) and coal gasification.

CO_2 Emissions to GDP: The amount of CO_2 emitted per unit of GDP (carbon intensity of GDP - t of CO_2/M Euro).

Cogeneration thermal plant: A system using a common energy source to produce both electricity and steam for other uses, resulting in increased fuel efficiency (see also: CHP).

Combined Cycle Gas Turbine plant (CCGT): A technology which combines gas turbines and steam turbines, connected to one or more electrical generators at the same plant. The gas turbine (usually fuelled by natural gas or oil) produces mechanical power, which drives the generator, and heat in the form of hot exhaust gases. These gases are fed to a boiler, where steam is raised at pressure to drive a conventional steam turbine, which is also connected to an electrical generator. This has the effect of producing additional electricity from the same fuel compared to an open cycle turbine.

Combined Heat and Power: This means cogeneration of useful heat and power (electricity) in a single process. In contrast to conventional power plants that convert only a limited part of the primary energy into electricity with the remainder of this energy being discharged as waste heat. CHP makes use of large parts of this energy for e.g. industrial processes, district heating, and space heating. CHP therefore improves energy efficiency (see also: cogeneration thermal plant).

Efficiency for thermal electricity production: A measure of the efficiency of converting a fuel to electricity and useful heat; heat and electricity output divided by the calorific value of input fuel times 100 (for expressing this ratio in percent).

Efficiency indicator in freight transport (activity related): Energy efficiency in freight transport is computed on the basis of energy use per tonne-km. Given the existence of inconsistencies between transport and energy statistics, absolute numbers (especially at the level of individual Member States) might be misleading in some cases. For that reason, the numbers given are only illustrative of the trends in certain cases.

Efficiency indicator in passenger transport (activity related): Energy efficiency in passenger transport is computed on the basis of energy use per passenger-km travelled. Issues related to consistency of transport and energy statistics also apply to passenger transport (see also: Efficiency indicator in freight transport).

Energy branch consumption: Energy consumed in refineries, electricity and steam generation and in other transformation processes; it does not include the energy input for transformation as such.

Energy intensity: energy consumption/GDP or another indicator for economic activity.

Energy intensive industries: Iron and steel, non-ferrous, chemicals, non-metallic minerals, and paper and pulp industries.

EU Emission Trading Scheme (EU-ETS): A scheme for greenhouse gas emission allowance trading within the Community established by Directive 2003/87/EC in order to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner. Installations included in the scheme are combustion plants, oil refineries, coke ovens, iron and steel plants, and factories producing cement, glass, lime, brick, ceramics, pulp and paper.

Feed-in tariff: The price per unit of electricity that a utility or supplier has to pay for renewable electricity.

Final energy demand: Energy finally consumed in the transport, industrial, household, services and agriculture sectors; the latter two sectors are sometimes aggregated and named "tertiary". It excludes deliveries to the energy transformation sector (e.g. power plants) and to the energy branch. It includes electricity consumption in the above final demand sectors.

Freight transport activity: Includes energy consuming transportation of commodities on roads, by rail and by inland navigation.

Inland navigation: It includes both waterborne inland transport activity and domestic sea shipping. However, international short sea shipping is not included in the above category as, according to EUROSTAT energy balances, energy needs for international shipping are allocated to bunkers.

Aviation: Aviation activity includes only intra EU air transportation. Energy consumption in aviation reflects sales of fuels at the point of refuelling, irrespectively of airplane destination.

Fuel cells: A fuel cell is an electrochemical energy conversion device converting hydrogen and oxygen into electricity

and heat with the help of catalysts. The fuel cell provides a direct current voltage that can be used to power various electrical devices including motors and lights.

Fuel input to power generation: Fuel use in electricity and CHP plants.

Gas: Includes natural gas, blast furnace gas, coke-oven gas and gasworks gas.

Gas to liquids (GTL): A refinery process to convert natural gas or other gaseous hydrocarbons into longer-chain hydrocarbons.

Generation capacity: The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer.

Geothermal plant: A plant in which the prime mover is a steam turbine, which is driven either by steam produced from hot water or by natural steam that derives its energy from heat in rocks or fluids beneath the surface of the earth. The energy is extracted by drilling and/or pumping.

Gross Inland Consumption (or primary energy consumption): Quantity of energy consumed within the borders of a country. It is calculated as primary production + recovered products + imports +/- stock changes – exports – bunkers (i.e. quantities supplied to international sea-going ships).

Gross Inland Consumption/GDP: Energy intensity indicator calculated as the ratio of total energy consumption to GDP – (toe/M Euro).

Hydro power plant: A plant producing energy with the use of moving water. In this report, hydro excludes pumped storage plants that generate electricity during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available. Energy losses in pumping are accounted for separately.

Lisbon economic reform process: Ongoing EU action aiming at making the EU " the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social inclusion", as decided by the Heads of State or Government in the meeting of the European Council in Lisbon (2000) .

Non fossil fuels: Nuclear and renewable energy sources.

Non-energy uses: Non-energy consumption of energy carriers in petrochemicals and other sectors, such as chemical feedstocks, lubricants and asphalt for road construction.

Nuclear power plant: A plant in which a nuclear fission chain reaction can be initiated, controlled, and sustained at a specific rate.

Oil: Includes crude oil, feedstocks, refinery gas, liquefied petroleum gas, kerosene, gasoline, diesel oil, fuel oil, naphtha and other petroleum products.

Peak devices: Gas turbines, internal combustion engines and other small scale thermal power plants which are usually used to supply electricity in peak hours.

Passenger transport activity: Passenger transport activity includes energy consuming passenger transport on roads (public and private), by rail, in airplanes and on ships as far as this takes place on rivers, canals, lakes and as domestic sea shipping; international short sea shipping is not included as, according to EUROSTAT energy balances, energy needs for international shipping are allocated to bunkers.

Primary production: Total indigenous production.

Renewable energy sources: Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include: biomass, waste energy, hydro, wind, geothermal, solar, wave and tidal energy.

Solar power plant: A plant producing energy with the use of radiant energy from the sun; includes solar thermal and photovoltaic (direct conversion of solar energy into electricity) plants.

Solids: Include both primary products (hard coal and lignite) and derived fuels (patent fuels, coke, tar, pitch and benzol).

Supercritical polyvalent units: A power plant for which the evaporator part of the boiler operates at pressures above 22.1 Mega Pascals (MPa). The cycle-medium in this case is a single phase fluid with homogenous properties and thus there is no need to separate steam from water in a drum, allowing for higher efficiency in power generation.

Thermal power plants: Type of electric generating station in which the source of energy for the prime mover is heat (nuclear power plants are excluded).

Useful energy: The portion of final energy which is actually available after final conversion to the consumer for the respective use. In final conversion, electricity becomes for instance light, mechanical energy or heat.

Windfall profit: An unexpected profit received by the profiting party without any particular performance.

Wind power plant: Typically a group of wind turbines supplying electricity directly to a consumer or interconnected to a common transmission or distribution system. Offshore wind includes windmills located at sea (coastal wind mills are usually included in onshore wind).

Appendix 1: Demographic and Macroeconomic Assumptions

EU-27: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	470.4	480.5	492.9	496.4	494.8	0.2	0.3	0.1	0.0					
Average household size (persons)	2.7	2.5	2.3	2.2	2.1	-0.8	-0.7	-0.5	-0.4					
Number of households (Million)	176.1	194.9	213.9	226.2	235.1	1.0	0.9	0.6	0.4					
Gross Domestic product (in 000 M€05)	**8108.7**	**10046.1**	**12430.0**	**15686.9**	**18687.0**	**2.2**	**2.2**	**2.4**	**1.8**					
Households expenditure (in 000 M€05)	**4730.7**	**5865.9**	**7270.0**	**9035.6**	**10698.0**	**2.2**	**2.2**	**2.2**	**1.7**					
Gross Value Added (in 000 M€05)	**7386.7**	**9081.2**	**11252.3**	**14213.3**	**16897.9**	**2.1**	**2.2**	**2.4**	**1.7**					
Industry	1579.7	1842.6	2195.1	2760.9	3261.1	1.6	1.8	2.3	1.7	21.4	20.3	19.5	19.4	19.3
iron and steel	53.5	50.5	57.7	67.4	74.4	-0.6	1.3	1.6	1.0	0.7	0.6	0.5	0.5	0.4
non ferrous metals	20.0	24.7	27.4	33.1	37.7	2.1	1.1	1.9	1.3	0.3	0.3	0.2	0.2	0.2
chemicals	151.3	198.9	264.8	343.0	412.1	2.8	2.9	2.6	1.9	2.0	2.2	2.4	2.4	2.4
pharmaceuticals and cosmetics	51.7	82.4	123.0	172.0	218.8	4.8	4.1	3.4	2.4	0.7	0.9	1.1	1.2	1.3
non metallic minerals	78.5	87.1	98.5	120.5	138.3	1.0	1.2	2.0	1.4	1.1	1.0	0.9	0.8	0.8
paper, pulp, printing	146.2	166.8	176.1	216.6	253.2	1.3	0.5	2.1	1.6	2.0	1.8	1.6	1.5	1.5
printing and publishing	96.9	111.7	121.2	152.3	181.3	1.4	0.8	2.3	1.8	1.3	1.2	1.1	1.1	1.1
food, drink, tobacco	203.9	219.8	264.9	341.0	410.4	0.8	1.9	2.6	1.9	2.8	2.4	2.4	2.4	2.4
textiles and leather	122.2	103.5	84.2	84.1	86.4	-1.7	-2.0	0.0	0.3	1.7	1.1	0.7	0.6	0.5
engineering	621.4	792.9	984.8	1251.0	1483.7	2.5	2.2	2.4	1.7	8.4	8.7	8.8	8.8	8.8
other industries	182.6	198.3	236.6	304.3	365.0	0.8	1.8	2.5	1.8	2.5	2.2	2.1	2.1	2.2
Construction	469.9	481.6	573.8	717.5	832.5	0.2	1.8	2.3	1.5	6.4	5.3	5.1	5.0	4.9
Services	4806.1	6176.2	7843.6	10003.2	12000.7	2.5	2.4	2.5	1.8	65.1	68.0	69.7	70.4	71.0
Agriculture	241.5	268.7	288.7	331.8	366.9	1.1	0.7	1.4	1.0	3.3	3.0	2.6	2.3	2.2
Energy sector	289.5	312.0	351.2	399.8	436.7	0.8	1.2	1.3	0.9	3.9	3.4	3.1	2.8	2.6

EU15: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	363.5	375.5	390.8	397.5	398.7	0.3	0.4	0.2	0.0					
Average household size (persons)	2.6	2.4	2.3	2.2	2.1	-0.7	-0.6	-0.5	-0.4					
Number of households (Million)	140.3	155.9	172.4	184.3	192.9	1.1	1.0	0.7	0.5					
Gross Domestic product (in 000 M€05)	**7631.5**	**9503.7**	**11598.2**	**14402.8**	**16891.5**	**2.2**	**2.0**	**2.2**	**1.6**					
Households expenditure (in 000 M€05)	**4462.0**	**5538.5**	**6711.9**	**8178.0**	**9487.1**	**2.2**	**1.9**	**2.0**	**1.5**					
Gross Value Added (in 000 M€05)	**6958.5**	**8602.6**	**10523.1**	**13094.4**	**15338.0**	**2.1**	**2.0**	**2.2**	**1.6**					
Industry	1470.6	1721.7	1995.4	2453.1	2846.6	1.6	1.5	2.1	1.5	21.1	20.0	19.0	18.7	18.6
iron and steel	47.2	45.7	51.7	59.5	65.0	-0.3	1.2	1.4	0.9	0.7	0.5	0.5	0.5	0.4
non ferrous metals	18.8	23.0	25.3	30.3	34.4	2.0	0.9	1.8	1.3	0.3	0.3	0.2	0.2	0.2
chemicals	142.6	190.7	252.4	322.7	382.2	2.9	2.8	2.5	1.7	2.0	2.2	2.4	2.5	2.5
pharmaceuticals and cosmetics	50.0	78.9	117.2	161.4	201.6	4.7	4.0	3.3	2.2	0.7	0.9	1.1	1.2	1.3
non metallic minerals	72.2	79.9	88.1	104.6	117.1	1.0	1.0	1.7	1.1	1.0	0.9	0.8	0.8	0.8
paper, pulp, printing	139.8	159.1	165.0	199.3	229.6	1.3	0.4	1.9	1.4	2.0	1.8	1.6	1.5	1.5
printing and publishing	94.0	106.8	114.2	140.6	164.7	1.3	0.7	2.1	1.6	1.4	1.2	1.1	1.1	1.1
food, drink, tobacco	183.9	194.7	227.4	280.8	327.3	0.6	1.6	2.1	1.5	2.6	2.3	2.2	2.1	2.1
textiles and leather	108.6	93.3	72.7	70.0	69.6	-1.5	-2.5	-0.4	-0.1	1.6	1.1	0.7	0.5	0.5
engineering	588.7	752.6	907.1	1130.3	1322.8	2.5	1.9	2.2	1.6	8.5	8.7	8.6	8.6	8.6
other industries	168.9	182.7	205.6	255.6	298.7	0.8	1.2	2.2	1.6	2.4	2.1	2.0	2.0	1.9
Construction	440.5	453.6	534.0	651.6	738.9	0.3	1.6	2.0	1.3	6.3	5.3	5.1	5.0	4.8
Services	4595.3	5908.1	7441.9	9374.0	11093.1	2.5	2.3	2.3	1.7	66.0	68.7	70.7	71.6	72.3
Agriculture	196.0	234.0	236.5	260.9	277.5	1.8	0.1	1.0	0.6	2.8	2.7	2.2	2.0	1.8
Energy sector	256.0	285.2	315.4	354.8	381.9	1.1	1.0	1.2	0.7	3.7	3.3	3.0	2.7	2.5

NM-12: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	106.9	105.0	102.2	99.0	96.0	-0.2	-0.3	-0.3	-0.3					
Average household size (persons)	3.0	2.7	2.5	2.4	2.3	-1.0	-0.9	-0.4	-0.4					
Number of households (Million)	35.9	39.0	41.5	42.0	42.3	0.8	0.6	0.1	0.1					
Gross Domestic product (in 000 M€05)	**477.2**	**542.4**	**831.8**	**1284.1**	**1795.5**	**1.3**	**4.4**	**4.4**	**3.4**					
Households expenditure (in 000 M€05)	**268.7**	**327.5**	**558.1**	**857.7**	**1210.9**	**2.0**	**5.5**	**4.4**	**3.5**					
Gross Value Added (in 000 M€05)	**428.2**	**478.6**	**729.2**	**1118.9**	**1559.9**	**1.1**	**4.3**	**4.4**	**3.4**					
Industry	109.1	120.9	199.7	307.9	414.6	1.0	5.1	4.4	3.0	25.5	25.3	27.4	27.5	26.6
iron and steel	6.3	4.8	6.0	7.8	9.4	-2.8	2.3	2.7	1.8	1.5	1.0	0.8	0.7	0.6
non ferrous metals	1.2	1.7	2.2	2.8	3.3	3.3	2.6	2.5	1.8	0.3	0.4	0.3	0.2	0.2
chemicals	8.7	8.2	12.4	20.3	29.9	-0.6	4.2	5.1	3.9	2.0	1.7	1.7	1.8	1.9
pharmaceuticals and cosmetics	1.7	3.5	5.8	10.6	17.2	7.5	5.1	6.2	4.9	0.4	0.7	0.8	1.0	1.1
non metallic minerals	6.3	7.2	10.4	16.0	21.2	1.5	3.7	4.4	2.9	1.5	1.5	1.4	1.4	1.4
paper, pulp, printing	6.5	7.7	11.1	17.3	23.6	1.7	3.7	4.6	3.1	1.5	1.6	1.5	1.5	1.5
printing and publishing	2.9	4.8	7.0	11.7	16.6	5.3	3.8	5.3	3.5	0.7	1.0	1.0	1.0	1.1
food, drink, tobacco	20.0	25.1	37.4	60.1	83.2	2.3	4.1	4.9	3.3	4.7	5.2	5.1	5.4	5.3
textiles and leather	13.6	10.2	11.5	14.1	16.8	-2.9	1.2	2.1	1.7	3.2	2.1	1.6	1.3	1.1
engineering	32.7	40.3	77.8	120.7	160.9	2.1	6.8	4.5	2.9	7.6	8.4	10.7	10.8	10.3
other industries	13.7	15.6	31.0	48.7	66.3	1.3	7.1	4.6	3.1	3.2	3.3	4.3	4.4	4.3
Construction	29.5	28.1	39.8	65.9	93.6	-0.5	3.6	5.2	3.6	6.9	5.9	5.5	5.9	6.0
Services	210.8	268.1	401.7	629.2	907.6	2.4	4.1	4.6	3.7	49.2	56.0	55.1	56.2	58.2
Agriculture	45.4	34.8	52.2	70.9	89.4	-2.6	4.1	3.1	2.3	10.6	7.3	7.2	6.3	5.7
Energy sector	33.4	26.8	35.8	45.0	54.8	-2.2	2.9	2.3	2.0	7.8	5.6	4.9	4.0	3.5

Source: PRIMES

AUSTRIA: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	7.6	8.0	8.3	8.4	8.5	0.5	0.4	0.2	0.1					
Average household size (persons)	2.6	2.5	2.4	2.3	2.2	-0.3	-0.5	-0.4	-0.4					
Number of households (Million)	3.0	3.2	3.5	3.7	3.9	0.8	0.9	0.6	0.4					
Gross Domestic product (in 000 M€05)	**177.3**	**228.1**	**277.3**	**335.2**	**386.5**	**2.6**	**2.0**	**1.9**	**1.4**					
Households expenditure (in 000 M€05)	**101.5**	**125.4**	**149.8**	**179.7**	**206.0**	**2.1**	**1.8**	**1.8**	**1.4**					
Gross Value Added (in 000 M€05)	**158.5**	**205.2**	**250.5**	**303.8**	**351.0**	**2.6**	**2.0**	**1.9**	**1.5**					
Industry	32.0	41.6	51.8	63.2	73.2	2.7	2.2	2.0	1.5	20.2	20.3	20.7	20.8	20.8
iron and steel	1.5	1.8	2.2	2.7	2.9	1.9	2.1	1.8	0.8	0.9	0.9	0.9	0.9	0.8
non ferrous metals	0.5	0.8	0.8	0.9	1.1	3.9	-0.1	1.8	1.5	0.3	0.4	0.3	0.3	0.3
chemicals	1.8	2.7	3.6	4.8	5.8	4.1	3.0	2.9	1.9	1.1	1.3	1.4	1.6	1.7
pharmaceuticals and cosmetics	0.6	1.2	1.6	2.4	3.0	7.9	3.1	3.7	2.6	0.4	0.6	0.7	0.8	0.9
non metallic minerals	2.5	2.5	2.7	3.2	3.6	0.1	0.8	1.7	1.0	1.6	1.2	1.1	1.1	1.0
paper, pulp, printing	2.9	4.2	4.8	5.6	6.2	3.8	1.2	1.5	1.1	1.8	2.1	1.9	1.8	1.8
printing and publishing	1.5	2.2	2.7	3.2	3.7	3.6	2.1	1.9	1.4	1.0	1.1	1.1	1.1	1.1
food, drink, tobacco	3.5	4.8	5.9	7.1	8.2	3.2	2.0	1.9	1.4	2.2	2.4	2.4	2.4	2.3
textiles and leather	2.5	2.0	1.7	1.7	1.7	-1.9	-1.6	-0.3	-0.1	1.6	1.0	0.7	0.6	0.5
engineering	12.0	16.3	22.5	28.0	33.4	3.1	3.3	2.2	1.8	7.6	7.9	9.0	9.2	9.5
other industries	4.7	6.5	7.5	9.2	10.4	3.2	1.5	2.0	1.3	3.0	3.2	3.0	3.0	3.0
Construction	11.3	15.4	17.7	20.8	23.9	3.1	1.4	1.6	1.4	7.1	7.5	7.1	6.8	6.8
Services	104.9	135.2	166.0	202.5	234.7	2.6	2.1	2.0	1.5	66.2	65.9	66.3	66.7	66.9
Agriculture	4.7	5.3	5.3	5.8	6.2	1.2	0.0	0.9	0.7	3.0	2.6	2.1	1.9	1.8
Energy sector	5.6	7.7	9.7	11.5	13.1	3.3	2.4	1.7	1.3	3.5	3.7	3.9	3.8	3.7

BELGIUM: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	9.9	10.2	10.6	10.8	11.0	0.3	0.3	0.2	0.2					
Average household size (persons)	2.6	2.4	2.3	2.2	2.1	-0.6	-0.6	-0.5	-0.4					
Number of households (Million)	3.9	4.2	4.6	5.0	5.3	0.9	0.9	0.7	0.6					
Gross Domestic product (in 000 M€05)	**220.3**	**277.7**	**335.9**	**409.2**	**477.7**	**2.3**	**1.9**	**2.0**	**1.6**					
Households expenditure (in 000 M€05)	**118.9**	**147.6**	**173.7**	**207.1**	**238.3**	**2.2**	**1.6**	**1.8**	**1.4**					
Gross Value Added (in 000 M€05)	**207.0**	**246.1**	**295.7**	**358.6**	**416.8**	**1.7**	**1.9**	**1.9**	**1.5**					
Industry	43.3	50.7	56.2	66.0	75.9	1.6	1.0	1.6	1.4	20.9	20.6	19.0	18.4	18.2
iron and steel	3.9	2.9	2.9	3.1	3.2	-3.0	0.2	0.6	0.3	1.9	1.2	1.0	0.9	0.8
non ferrous metals	1.2	1.1	0.9	1.0	1.1	-0.4	-1.8	0.8	0.5	0.6	0.5	0.3	0.3	0.3
chemicals	6.7	10.5	12.2	15.0	18.0	4.6	1.5	2.1	1.8	3.3	4.3	4.1	4.2	4.3
pharmaceuticals and cosmetics	2.2	3.8	5.6	7.6	10.2	5.4	3.9	3.2	2.9	1.1	1.5	1.9	2.1	2.4
non metallic minerals	2.3	2.3	2.6	3.0	3.3	0.1	1.3	1.5	1.0	1.1	0.9	0.9	0.8	0.8
paper, pulp, printing	3.2	3.7	4.2	5.0	5.7	1.4	1.3	1.8	1.5	1.5	1.5	1.4	1.4	1.4
printing and publishing	1.4	2.4	2.7	3.3	3.9	5.3	1.4	1.9	1.7	0.7	1.0	0.9	0.9	0.9
food, drink, tobacco	5.6	5.5	6.3	7.3	8.2	-0.2	1.4	1.5	1.2	2.7	2.2	2.1	2.0	2.0
textiles and leather	2.9	2.9	2.4	2.3	2.3	-0.1	-2.0	-0.4	0.0	1.4	1.2	0.8	0.6	0.5
engineering	14.0	17.7	19.3	23.0	26.9	2.4	0.9	1.8	1.6	6.8	7.2	6.5	6.4	6.4
other industries	3.5	4.1	5.3	6.2	7.2	1.5	2.6	1.7	1.4	1.7	1.7	1.8	1.7	1.7
Construction	11.0	12.3	14.1	16.3	18.3	1.1	1.4	1.4	1.2	5.3	5.0	4.8	4.5	4.4
Services	142.3	170.8	212.5	262.3	307.8	1.8	2.2	2.1	1.6	68.7	69.4	71.9	73.1	73.9
Agriculture	2.7	3.7	4.1	4.5	4.6	3.1	1.0	0.8	0.3	1.3	1.5	1.4	1.3	1.1
Energy sector	7.6	8.7	8.7	9.5	10.2	1.3	0.1	0.9	0.7	3.7	3.5	2.9	2.7	2.4

BULGARIA: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	8.8	8.2	7.5	6.8	6.2	-0.7	-0.9	-0.9	-1.0					
Average household size (persons)	2.9	2.6	2.3	2.1	1.9	-0.9	-1.2	-0.9	-0.9					
Number of households (Million)	3.1	3.1	3.2	3.2	3.2	0.2	0.3	0.0	-0.1					
Gross Domestic product (in 000 M€05)	**20.1**	**16.9**	**27.9**	**49.3**	**84.9**	**-1.7**	**5.2**	**5.8**	**5.6**					
Households expenditure (in 000 M€05)	**14.0**	**12.5**	**21.2**	**36.6**	**61.7**	**-1.1**	**5.4**	**5.6**	**5.4**					
Gross Value Added (in 000 M€05)	**22.6**	**15.3**	**25.0**	**44.4**	**75.8**	**-3.8**	**5.0**	**5.9**	**5.5**					
Industry	5.1	2.8	4.9	9.4	17.1	-5.8	5.7	6.7	6.2	22.6	18.3	19.5	21.1	22.6
iron and steel	0.5	0.3	0.4	0.6	0.9	-6.3	3.3	5.7	4.3	2.2	1.7	1.4	1.4	1.2
non ferrous metals	0.2	0.1	0.1	0.2	0.2	-11.0	6.4	4.0	2.9	0.9	0.4	0.5	0.4	0.3
chemicals	0.6	0.4	0.3	0.6	1.3	-5.1	-1.1	7.1	7.2	2.7	2.3	1.3	1.4	1.7
pharmaceuticals and cosmetics	0.1	0.2	0.2	0.4	1.0	7.2	0.1	9.1	8.6	0.4	1.2	0.7	1.0	1.3
non metallic minerals	0.2	0.1	0.4	0.8	1.3	-0.5	11.9	6.2	5.0	0.7	0.9	1.7	1.8	1.7
paper, pulp, printing	0.1	0.1	0.3	0.6	1.0	1.1	8.0	7.1	5.9	0.5	0.9	1.2	1.3	1.3
printing and publishing	0.1	0.1	0.2	0.4	0.8	6.3	8.0	7.5	6.5	0.2	0.6	0.8	1.0	1.1
food, drink, tobacco	0.4	0.6	0.8	1.6	3.0	4.2	3.4	6.8	6.1	1.8	4.0	3.4	3.7	3.9
textiles and leather	0.2	0.4	0.9	1.6	2.5	10.0	8.1	5.6	4.4	0.7	2.8	3.7	3.6	3.2
engineering	0.9	0.6	1.2	2.5	5.2	-3.7	6.2	8.0	7.5	4.2	4.2	4.7	5.7	6.9
other industries	2.0	0.2	0.4	0.8	1.7	-21.5	8.7	7.0	7.9	8.9	1.2	1.7	1.8	2.3
Construction	0.6	0.6	0.8	1.6	2.8	0.3	2.7	6.8	6.1	2.7	4.1	3.3	3.5	3.7
Services	8.8	8.3	14.4	25.9	44.7	-0.6	5.6	6.1	5.6	39.0	54.2	57.7	58.4	58.9
Agriculture	6.8	1.9	2.2	3.1	4.2	-11.9	1.4	3.5	3.1	30.3	12.5	8.8	7.0	5.6
Energy sector	1.2	1.7	2.7	4.4	7.0	3.1	4.8	5.2	4.6	5.5	10.9	10.7	10.0	9.2

Source: PRIMES

CYPRUS: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	0.6	0.7	0.8	0.9	0.9	1.9	1.4	0.9	0.6					
Average household size (persons)	4.6	4.7	4.5	4.5	4.6	0.1	-0.4	0.1	0.2					
Number of households (Million)	0.1	0.1	0.2	0.2	0.2	1.8	1.8	0.8	0.4					
Gross Domestic product (in 000 M€05)	**7.5**	**11.7**	**16.4**	**23.4**	**30.0**	**4.6**	**3.4**	**3.6**	**2.5**					
Households expenditure (in 000 M€05)	**4.3**	**7.7**	**11.1**	**16.0**	**20.2**	**6.0**	**3.7**	**3.7**	**2.3**					
Gross Value Added (in 000 M€05)	**6.8**	**10.6**	**14.9**	**21.3**	**27.4**	**4.6**	**3.5**	**3.7**	**2.5**					
Industry	0.9	1.0	1.2	1.6	2.0	1.1	1.5	3.0	2.4	13.5	9.6	7.9	7.5	7.4
iron and steel	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
non ferrous metals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
chemicals	0.0	0.1	0.1	0.1	0.1	5.5	-0.2	2.7	2.2	0.6	0.7	0.5	0.4	0.4
pharmaceuticals and cosmetics	0.0	0.1	0.0	0.1	0.1	7.1	-1.6	3.6	2.8	0.4	0.5	0.3	0.3	0.3
non metallic minerals	0.1	0.1	0.2	0.3	0.3	-1.5	5.0	2.9	1.8	2.0	1.1	1.3	1.2	1.1
paper, pulp, printing	0.0	0.1	0.1	0.1	0.1	29.8	0.6	2.2	1.3	0.1	0.9	0.7	0.6	0.5
printing and publishing	0.0	0.1	0.1	0.1	0.1	40.8	0.5	2.5	1.6	0.0	0.7	0.5	0.4	0.4
food, drink, tobacco	0.2	0.3	0.4	0.5	0.7	4.6	1.9	3.1	2.6	3.0	3.1	2.6	2.5	2.5
textiles and leather	0.2	0.1	0.0	0.0	0.0	-8.7	-6.0	-1.1	-0.1	2.9	0.8	0.3	0.2	0.1
engineering	0.2	0.2	0.2	0.3	0.4	-0.1	3.1	4.4	3.2	2.2	1.4	1.4	1.5	1.6
other industries	0.2	0.2	0.2	0.2	0.3	0.5	0.3	2.8	2.8	2.6	1.7	1.3	1.2	1.2
Construction	0.8	0.7	1.1	1.6	1.9	-1.0	4.9	3.4	2.0	11.2	6.5	7.5	7.3	6.9
Services	4.4	8.2	11.8	17.2	22.3	6.3	3.7	3.9	2.6	65.7	77.2	78.9	80.6	81.5
Agriculture	0.4	0.4	0.4	0.5	0.6	0.3	0.0	1.3	1.4	6.1	4.0	2.8	2.2	2.0
Energy sector	0.2	0.3	0.4	0.5	0.6	2.2	3.7	1.9	1.5	3.5	2.8	2.9	2.4	2.2

CZECH REPUBLIC: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	10.4	10.3	10.1	9.9	9.7	-0.1	-0.1	-0.2	-0.2					
Average household size (persons)	2.9	2.6	2.4	2.3	2.3	-0.9	-0.7	-0.4	-0.3					
Number of households (Million)	3.6	3.9	4.2	4.2	4.3	0.8	0.6	0.2	0.0					
Gross Domestic product (in 000 M€05)	**81.3**	**83.4**	**124.6**	**178.2**	**227.0**	**0.3**	**4.1**	**3.6**	**2.5**					
Households expenditure (in 000 M€05)	**40.7**	**45.1**	**66.1**	**94.9**	**120.1**	**1.0**	**3.9**	**3.7**	**2.4**					
Gross Value Added (in 000 M€05)	**66.2**	**74.7**	**111.5**	**158.4**	**200.9**	**1.2**	**4.1**	**3.6**	**2.4**					
Industry	19.8	22.0	37.0	51.4	64.5	1.1	5.3	3.3	2.3	29.9	29.5	33.2	32.4	32.1
iron and steel	1.0	1.0	1.0	1.2	1.3	0.7	-0.3	1.6	1.2	1.5	1.4	0.9	0.7	0.7
non ferrous metals	0.1	0.2	0.2	0.2	0.2	11.3	-3.6	0.8	0.3	0.1	0.3	0.1	0.1	0.1
chemicals	1.6	1.2	2.0	3.1	4.4	-3.3	5.6	4.6	3.4	2.4	1.5	1.8	2.0	2.2
pharmaceuticals and cosmetics	0.2	0.3	0.7	1.3	1.9	2.5	9.3	5.6	4.4	0.4	0.4	0.6	0.8	1.0
non metallic minerals	1.3	1.7	2.7	3.7	4.5	3.0	4.7	3.0	2.1	1.9	2.3	2.5	2.3	2.2
paper, pulp, printing	2.3	1.5	1.8	2.6	3.4	-4.4	2.2	3.5	2.8	3.5	2.0	1.6	1.6	1.7
printing and publishing	0.9	0.8	1.1	1.7	2.3	-1.4	3.7	4.4	3.3	1.3	1.0	1.0	1.1	1.2
food, drink, tobacco	2.7	3.0	3.1	4.3	5.6	0.9	0.3	3.5	2.5	4.1	4.0	2.8	2.7	2.8
textiles and leather	3.2	1.2	1.3	1.5	1.6	-9.1	0.9	1.1	0.8	4.8	1.6	1.2	0.9	0.8
engineering	5.0	9.1	18.9	26.5	33.1	6.1	7.6	3.4	2.2	7.6	12.2	17.0	16.7	16.5
other industries	2.6	3.1	6.0	8.3	10.5	1.6	6.8	3.4	2.4	4.0	4.1	5.3	5.2	5.2
Construction	7.4	3.7	4.6	6.8	8.7	-6.8	2.4	3.9	2.5	11.2	4.9	4.1	4.3	4.3
Services	28.0	41.5	60.9	89.3	115.3	4.0	3.9	3.9	2.6	42.3	55.6	54.6	56.4	57.4
Agriculture	2.1	3.4	4.4	5.6	6.4	4.9	2.7	2.3	1.4	3.2	4.5	4.0	3.5	3.2
Energy sector	8.9	4.1	4.6	5.3	6.0	-7.5	1.2	1.5	1.2	13.4	5.5	4.1	3.4	3.0

DENMARK: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	5.1	5.3	5.5	5.5	5.6	0.4	0.2	0.1	0.1					
Average household size (persons)	2.3	2.2	2.1	2.0	1.9	-0.4	-0.6	-0.5	-0.4					
Number of households (Million)	2.2	2.4	2.6	2.8	2.9	0.7	0.8	0.7	0.5					
Gross Domestic product (in 000 M€05)	**150.8**	**194.8**	**234.9**	**281.3**	**321.3**	**2.6**	**1.9**	**1.8**	**1.3**					
Households expenditure (in 000 M€05)	**77.2**	**93.1**	**115.5**	**135.5**	**153.0**	**1.9**	**2.2**	**1.6**	**1.2**					
Gross Value Added (in 000 M€05)	**130.5**	**168.9**	**201.8**	**241.3**	**275.2**	**2.6**	**1.8**	**1.8**	**1.3**					
Industry	22.4	27.0	29.0	34.1	38.6	1.9	0.7	1.6	1.2	17.2	16.0	14.4	14.1	14.0
iron and steel	0.3	0.4	0.2	0.2	0.2	2.0	-6.8	-0.3	-0.2	0.2	0.2	0.1	0.1	0.1
non ferrous metals	0.1	0.1	0.1	0.1	0.1	3.4	-1.6	0.9	0.5	0.1	0.1	0.1	0.1	0.1
chemicals	1.7	3.8	5.0	6.2	7.1	8.7	2.7	2.1	1.5	1.3	2.3	2.5	2.6	2.6
pharmaceuticals and cosmetics	1.0	2.7	3.7	4.6	5.3	10.4	3.1	2.2	1.6	0.8	1.6	1.8	1.9	1.9
non metallic minerals	1.2	1.3	1.2	1.4	1.5	1.2	-1.2	1.5	1.2	0.9	0.8	0.6	0.6	0.6
paper, pulp, printing	2.7	2.9	2.6	3.1	3.5	1.0	-1.1	1.6	1.2	2.0	1.7	1.3	1.3	1.3
printing and publishing	1.8	2.3	2.0	2.4	2.7	2.8	-1.3	1.7	1.3	1.3	1.4	1.0	1.0	1.0
food, drink, tobacco	4.6	4.3	4.6	5.5	6.3	-0.8	0.8	1.7	1.4	3.5	2.5	2.3	2.3	2.3
textiles and leather	0.9	0.8	0.4	0.4	0.4	-1.6	-5.8	-1.1	-0.3	0.7	0.5	0.2	0.2	0.1
engineering	7.8	9.8	11.3	13.3	15.0	2.3	1.5	1.6	1.2	6.0	5.8	5.6	5.5	5.4
other industries	3.2	3.5	3.5	4.1	4.5	1.0	-0.1	1.5	1.0	2.4	2.1	1.7	1.7	1.6
Construction	7.2	8.2	9.4	11.3	12.8	1.2	1.4	1.8	1.2	5.5	4.9	4.7	4.7	4.6
Services	93.4	121.7	148.9	179.3	206.2	2.7	2.0	1.9	1.4	71.6	72.0	73.8	74.3	75.0
Agriculture	3.7	5.7	7.3	8.4	8.8	4.3	2.5	1.5	0.5	2.9	3.4	3.6	3.5	3.2
Energy sector	3.8	6.4	7.2	8.1	8.7	5.4	1.2	1.2	0.7	2.9	3.8	3.6	3.4	3.2

Source: PRIMES

ESTONIA: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	1.6	1.4	1.3	1.2	1.2	-1.3	-0.4	-0.5	-0.4					
Average household size (persons)	2.6	2.4	2.1	1.9	1.7	-0.6	-1.6	-1.0	-1.2					
Number of households (Million)	0.6	0.6	0.6	0.7	0.7	-0.7	1.2	0.5	0.9					
Gross Domestic product (in 000 M€05)	**8.1**	**7.4**	**16.2**	**23.6**	**29.9**	**-0.8**	**8.1**	**3.8**	**2.4**					
Households expenditure (in 000 M€05)	**4.4**	**4.2**	**8.9**	**12.7**	**15.9**	**-0.4**	**7.8**	**3.6**	**2.3**					
Gross Value Added (in 000 M€05)	**7.2**	**6.6**	**14.4**	**20.9**	**26.5**	**-0.8**	**8.1**	**3.8**	**2.4**					
Industry	1.8	1.3	3.3	4.8	6.2	-3.4	9.9	3.8	2.5	25.6	19.6	23.1	23.0	23.2
iron and steel	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
non ferrous metals	0.0	0.0	0.0	0.0	0.0			1.6	1.0	0.0	0.0	0.0	0.0	0.0
chemicals	0.0	0.1	0.2	0.3	0.4	3.8	10.7	7.0	3.9	0.5	0.8	1.1	1.4	1.6
pharmaceuticals and cosmetics	0.0	0.0	0.0	0.1	0.2	10.6	35.7	11.4	5.4	0.0	0.0	0.3	0.6	0.8
non metallic minerals	0.0	0.1	0.3	0.4	0.5	9.0	11.6	4.1	2.1	0.5	1.3	1.8	1.9	1.8
paper, pulp, printing	0.0	0.1	0.2	0.3	0.4	10.0	8.6	3.0	2.2	0.6	1.6	1.7	1.6	1.5
printing and publishing	0.0	0.1	0.2	0.3	0.3	8.5	9.9	3.1	2.4	0.5	1.2	1.4	1.3	1.3
food, drink, tobacco	0.4	0.2	0.3	0.6	0.8	-5.7	4.4	4.9	3.6	5.7	3.4	2.4	2.7	3.0
textiles and leather	0.7	0.2	0.4	0.5	0.6	-11.7	6.5	3.0	2.0	9.4	3.0	2.5	2.3	2.2
engineering	0.2	0.3	1.0	1.4	1.8	4.0	11.5	3.9	2.3	3.1	4.9	6.7	6.8	6.7
other industries	0.4	0.3	1.0	1.3	1.6	-3.3	12.7	3.2	2.2	5.8	4.5	6.8	6.3	6.2
Construction	0.2	0.5	1.0	1.7	2.1	6.8	8.4	4.9	2.2	3.3	7.0	7.1	7.9	7.8
Services	3.3	4.2	9.2	13.5	17.3	2.4	8.2	3.9	2.5	46.2	63.8	64.2	64.5	65.1
Agriculture	1.3	0.4	0.4	0.4	0.5	-11.7	0.5	1.2	0.9	17.6	5.5	2.6	2.0	1.8
Energy sector	0.5	0.3	0.4	0.5	0.6	-6.2	4.5	2.2	0.7	7.2	4.1	3.0	2.5	2.1

FINLAND: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	5.0	5.2	5.3	5.4	5.4	0.4	0.2	0.2	0.1					
Average household size (persons)	2.5	2.3	2.1	2.0	1.9	-0.8	-0.8	-0.7	-0.6					
Number of households (Million)	2.0	2.3	2.5	2.7	2.9	1.2	1.0	0.9	0.7					
Gross Domestic product (in 000 M€05)	**114.5**	**139.1**	**183.2**	**221.3**	**254.9**	**2.0**	**2.8**	**1.9**	**1.4**					
Households expenditure (in 000 M€05)	**60.1**	**67.6**	**90.3**	**106.1**	**120.5**	**1.2**	**2.9**	**1.6**	**1.3**					
Gross Value Added (in 000 M€05)	**98.8**	**122.4**	**160.6**	**194.4**	**224.3**	**2.2**	**2.8**	**1.9**	**1.4**					
Industry	21.6	36.4	52.0	63.1	71.5	5.4	3.6	1.9	1.3	21.9	29.8	32.4	32.4	31.9
iron and steel	0.7	1.3	1.8	2.1	2.3	5.9	3.8	1.4	0.8	0.7	1.0	1.1	1.1	1.0
non ferrous metals	0.3	0.5	0.4	0.5	0.5	4.4	-1.7	1.2	1.0	0.3	0.4	0.3	0.2	0.2
chemicals	1.4	2.0	2.4	2.6	2.6	3.6	1.8	0.9	0.2	1.4	1.6	1.5	1.3	1.2
pharmaceuticals and cosmetics	0.3	0.5	0.6	0.7	0.7	4.0	1.6	1.4	0.0	0.3	0.4	0.4	0.3	0.3
non metallic minerals	0.9	0.9	1.3	1.5	1.6	0.0	3.7	1.7	0.5	0.9	0.7	0.8	0.8	0.7
paper, pulp, printing	5.8	7.8	8.4	9.9	11.1	3.0	0.8	1.7	1.2	5.9	6.4	5.2	5.1	5.0
printing and publishing	2.4	1.8	2.9	3.6	4.0	-3.1	5.2	2.0	1.3	2.4	1.4	1.8	1.8	1.8
food, drink, tobacco	2.3	2.6	4.2	5.1	5.9	1.3	4.7	2.2	1.4	2.3	2.1	2.6	2.6	2.6
textiles and leather	0.9	0.6	0.5	0.5	0.5	-4.1	-2.2	-0.8	-0.2	1.0	0.5	0.3	0.2	0.2
engineering	6.6	17.1	29.4	36.8	42.6	10.1	5.5	2.3	1.5	6.7	14.0	18.3	18.9	19.0
other industries	2.7	3.7	3.8	4.1	4.3	3.2	0.3	0.8	0.7	2.7	3.0	2.3	2.1	1.9
Construction	7.2	5.4	6.3	7.3	8.1	-2.7	1.5	1.5	1.1	7.2	4.4	3.9	3.8	3.6
Services	62.3	72.7	93.1	113.7	133.6	1.6	2.5	2.0	1.6	63.0	59.4	58.0	58.5	59.6
Agriculture	4.8	4.3	4.4	4.8	4.9	-1.1	0.2	0.9	0.3	4.9	3.5	2.7	2.5	2.2
Energy sector	3.0	3.5	4.8	5.6	6.1	1.8	3.1	1.6	0.9	3.0	2.9	3.0	2.9	2.7

FRANCE: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	56.6	58.8	61.7	63.6	65.1	0.4	0.5	0.3	0.2					
Average household size (persons)	2.6	2.4	2.3	2.2	2.1	-0.8	-0.6	-0.4	-0.4					
Number of households (Million)	21.8	24.7	27.4	29.3	31.3	1.2	1.1	0.7	0.7					
Gross Domestic product (in 000 M€05)	**1301.2**	**1587.9**	**1922.2**	**2434.9**	**2906.3**	**2.0**	**1.9**	**2.4**	**1.8**					
Households expenditure (in 000 M€05)	**750.1**	**889.8**	**1094.0**	**1327.7**	**1544.4**	**1.7**	**2.1**	**2.0**	**1.5**					
Gross Value Added (in 000 M€05)	**1160.0**	**1419.5**	**1716.4**	**2172.3**	**2591.6**	**2.0**	**1.9**	**2.4**	**1.8**					
Industry	206.3	242.5	289.7	368.4	439.9	1.6	1.8	2.4	1.8	17.8	17.1	16.9	17.0	17.0
iron and steel	7.0	7.2	7.1	7.9	8.5	0.3	-0.1	1.0	0.8	0.6	0.5	0.4	0.4	0.3
non ferrous metals	2.7	3.5	3.5	4.1	4.8	2.5	0.1	1.7	1.5	0.2	0.2	0.2	0.2	0.2
chemicals	22.3	24.3	33.1	43.4	52.8	0.9	3.1	2.8	2.0	1.9	1.7	1.9	2.0	2.0
pharmaceuticals and cosmetics	9.4	13.6	21.3	29.5	37.0	3.8	4.6	3.3	2.3	0.8	1.0	1.2	1.4	1.4
non metallic minerals	8.8	9.7	10.3	11.8	12.9	1.0	0.5	1.4	0.9	0.8	0.7	0.6	0.5	0.5
paper, pulp, printing	19.4	20.5	21.6	26.4	30.1	0.5	0.5	2.1	1.3	1.7	1.4	1.3	1.2	1.2
printing and publishing	12.2	14.1	15.3	19.5	22.6	1.4	0.8	2.4	1.5	1.1	1.0	0.9	0.9	0.9
food, drink, tobacco	30.9	31.9	36.9	45.4	52.4	0.3	1.5	2.1	1.4	2.7	2.2	2.1	2.1	2.0
textiles and leather	14.3	11.4	9.5	9.4	9.4	-2.2	-1.8	-0.1	0.0	1.2	0.8	0.6	0.4	0.4
engineering	79.2	108.4	131.5	171.5	210.6	3.2	2.0	2.7	2.1	6.8	7.6	7.7	7.9	8.1
other industries	21.9	25.7	36.4	48.4	58.3	1.6	3.5	2.9	1.9	1.9	1.8	2.1	2.2	2.2
Construction	68.7	70.6	79.0	95.4	109.2	0.3	1.1	1.9	1.4	5.9	5.0	4.6	4.4	4.2
Services	814.8	1020.0	1249.3	1593.7	1917.0	2.3	2.0	2.5	1.9	70.2	71.9	72.8	73.4	74.0
Agriculture	37.6	46.9	44.0	47.1	49.6	2.2	-0.6	0.7	0.5	3.2	3.3	2.6	2.2	1.9
Energy sector	32.6	39.6	54.3	67.8	76.0	2.0	3.2	2.3	1.1	2.8	2.8	3.2	3.1	2.9

Source: PRIMES

GERMANY: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	79.1	82.2	82.6	82.7	81.1	0.4	0.1	0.0	-0.2					
Average household size (persons)	2.4	2.2	2.1	2.1	2.0	-0.5	-0.5	-0.2	-0.2					
Number of households (Million)	33.7	36.7	38.9	39.6	39.8	0.9	0.6	0.2	0.1					
Gross Domestic product (in 000 M€05)	**1824.8**	**2170.7**	**2470.6**	**2927.4**	**3277.3**	**1.8**	**1.3**	**1.7**	**1.1**					
Households expenditure (in 000 M€05)	**1029.9**	**1239.9**	**1366.6**	**1591.4**	**1774.7**	**1.9**	**1.0**	**1.5**	**1.1**					
Gross Value Added (in 000 M€05)	**1648.4**	**1979.1**	**2284.1**	**2737.4**	**3084.7**	**1.8**	**1.4**	**1.8**	**1.2**					
Industry	408.5	447.3	535.2	637.6	720.9	0.9	1.8	1.8	1.2	24.8	22.6	23.4	23.3	23.4
iron and steel	11.8	11.8	13.1	15.2	17.0	0.1	1.0	1.5	1.1	0.7	0.6	0.6	0.6	0.6
non ferrous metals	4.5	6.6	8.0	9.6	10.7	3.9	2.0	1.8	1.2	0.3	0.3	0.4	0.3	0.3
chemicals	38.4	47.6	63.9	77.7	88.6	2.2	3.0	2.0	1.3	2.3	2.4	2.8	2.8	2.9
pharmaceuticals and cosmetics	9.5	14.3	24.8	33.8	42.0	4.2	5.7	3.1	2.2	0.6	0.7	1.1	1.2	1.4
non metallic minerals	15.7	18.8	18.2	20.6	22.6	1.8	-0.3	1.2	0.9	1.0	0.9	0.8	0.8	0.7
paper, pulp, printing	31.1	33.9	31.3	36.4	41.0	0.9	-0.8	1.5	1.2	1.9	1.7	1.4	1.3	1.3
printing and publishing	21.7	23.3	20.7	24.8	28.9	0.7	-1.2	1.8	1.6	1.3	1.2	0.9	0.9	0.9
food, drink, tobacco	38.5	38.9	39.9	47.2	53.9	0.1	0.3	1.7	1.3	2.3	2.0	1.7	1.7	1.7
textiles and leather	16.7	10.4	8.6	8.2	8.0	-4.7	-1.8	-0.6	-0.2	1.0	0.5	0.4	0.3	0.3
engineering	199.1	235.7	305.5	367.3	416.0	1.7	2.6	1.9	1.3	12.1	11.9	13.4	13.4	13.5
other industries	52.7	43.6	46.5	55.5	63.0	-1.9	0.6	1.8	1.3	3.2	2.2	2.0	2.0	2.0
Construction	106.7	103.7	82.7	96.7	105.0	-0.3	-2.2	1.6	0.8	6.5	5.2	3.6	3.5	3.4
Services	1049.3	1349.0	1579.4	1907.6	2158.2	2.5	1.6	1.9	1.2	63.7	68.2	69.1	69.7	70.0
Agriculture	22.8	25.7	29.8	33.9	35.6	1.2	1.5	1.3	0.5	1.4	1.3	1.3	1.2	1.2
Energy sector	61.1	53.4	56.9	61.6	64.9	-1.3	0.6	0.8	0.5	3.7	2.7	2.5	2.3	2.1

GREECE: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	10.1	10.9	11.2	11.4	11.3	0.7	0.3	0.2	-0.1					
Average household size (persons)	3.0	2.8	2.7	2.6	2.6	-0.7	-0.4	-0.3	-0.3					
Number of households (Million)	3.3	3.9	4.1	4.3	4.4	1.5	0.7	0.5	0.2					
Gross Domestic product (in 000 M€05)	**115.8**	**146.0**	**215.3**	**284.2**	**341.2**	**2.3**	**4.0**	**2.8**	**1.8**					
Households expenditure (in 000 M€05)	**82.2**	**102.5**	**145.2**	**187.4**	**222.4**	**2.2**	**3.5**	**2.6**	**1.7**					
Gross Value Added (in 000 M€05)	**110.0**	**132.8**	**190.5**	**247.2**	**294.2**	**1.9**	**3.7**	**2.6**	**1.8**					
Industry	15.2	15.4	20.0	24.8	27.9	0.1	2.6	2.1	1.2	13.8	11.6	10.5	10.0	9.5
iron and steel	0.3	0.4	0.7	0.9	1.0	1.9	7.4	2.3	0.9	0.3	0.3	0.4	0.4	0.3
non ferrous metals	0.9	0.6	0.7	0.9	1.0	-3.1	0.6	2.2	1.4	0.8	0.5	0.4	0.3	0.3
chemicals	1.4	1.0	1.6	2.1	2.5	-3.3	4.4	3.1	1.8	1.3	0.8	0.8	0.9	0.9
pharmaceuticals and cosmetics	0.5	0.6	1.0	1.5	1.8	1.6	6.1	3.7	2.1	0.4	0.4	0.5	0.6	0.6
non metallic minerals	0.8	1.1	1.3	1.6	1.7	3.3	1.2	2.0	1.1	0.7	0.9	0.7	0.6	0.6
paper, pulp, printing	1.2	0.9	1.4	1.7	1.9	-2.7	3.9	2.3	1.1	1.1	0.7	0.7	0.7	0.7
printing and publishing	1.1	0.9	1.3	1.6	1.8	-2.7	4.1	2.4	1.1	1.0	0.6	0.7	0.7	0.6
food, drink, tobacco	3.2	3.5	4.9	6.6	7.5	0.9	3.6	2.9	1.4	2.9	2.6	2.6	2.7	2.6
textiles and leather	4.1	3.4	3.8	3.8	3.7	-2.1	1.3	0.0	-0.4	3.8	2.5	2.0	1.6	1.3
engineering	1.6	2.6	3.3	4.3	5.2	5.1	2.5	2.8	1.8	1.4	1.9	1.7	1.7	1.8
other industries	1.7	1.9	2.3	2.9	3.3	1.5	1.8	2.1	1.5	1.5	1.5	1.2	1.2	1.1
Construction	7.2	9.1	14.0	18.3	21.1	2.4	4.4	2.7	1.4	6.5	6.8	7.3	7.4	7.2
Services	71.3	91.9	139.9	186.1	225.9	2.6	4.3	2.9	2.0	64.8	69.2	73.4	75.3	76.8
Agriculture	11.4	11.1	10.2	11.1	12.1	-0.3	-0.8	0.8	0.8	10.4	8.4	5.4	4.5	4.1
Energy sector	4.9	5.3	6.4	7.0	7.3	0.8	2.0	0.8	0.4	4.4	4.0	3.4	2.8	2.5

HUNGARY: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	10.4	10.2	10.0	9.7	9.5	-0.1	-0.3	-0.3	-0.2					
Average household size (persons)	2.6	2.4	2.2	2.1	2.0	-1.0	-0.7	-0.5	-0.3					
Number of households (Million)	4.0	4.3	4.5	4.6	4.6	0.9	0.4	0.2	0.1					
Gross Domestic product (in 000 M€05)	**64.1**	**71.8**	**104.8**	**147.4**	**191.6**	**1.1**	**3.8**	**3.5**	**2.7**					
Households expenditure (in 000 M€05)	**34.9**	**35.9**	**57.5**	**80.3**	**103.6**	**0.3**	**4.8**	**3.4**	**2.6**					
Gross Value Added (in 000 M€05)	**56.8**	**62.1**	**89.4**	**124.4**	**160.6**	**0.9**	**3.7**	**3.4**	**2.6**					
Industry	11.1	16.3	23.0	30.4	37.7	3.9	3.5	2.8	2.2	19.6	26.2	25.7	24.5	23.5
iron and steel	0.4	0.3	0.3	0.4	0.5	-4.6	2.2	2.2	1.8	0.7	0.4	0.4	0.3	0.3
non ferrous metals	0.2	0.3	0.4	0.5	0.7	3.4	2.1	3.1	2.4	0.4	0.5	0.4	0.4	0.4
chemicals	1.0	0.7	0.9	1.2	1.5	-3.4	1.7	3.1	2.4	1.8	1.2	1.0	1.0	0.9
pharmaceuticals and cosmetics	0.3	0.4	0.6	0.9	1.2	3.8	4.3	3.8	2.9	0.5	0.7	0.7	0.7	0.8
non metallic minerals	0.5	0.6	0.6	0.8	1.0	1.6	-0.6	2.7	2.3	1.0	1.0	0.7	0.6	0.6
paper, pulp, printing	0.3	0.9	1.2	1.5	1.9	10.1	2.7	2.8	2.4	0.6	1.4	1.3	1.2	1.2
printing and publishing	0.2	0.6	0.8	1.1	1.4	12.5	3.2	3.3	2.8	0.3	0.9	0.9	0.9	0.9
food, drink, tobacco	1.9	1.6	1.1	1.5	1.9	-1.8	-3.2	2.7	2.3	3.3	2.5	1.3	1.2	1.2
textiles and leather	1.7	0.9	0.6	0.6	0.6	-5.9	-4.2	-0.6	0.1	2.9	1.5	0.7	0.5	0.4
engineering	3.7	9.7	16.0	21.5	26.7	10.2	5.1	3.0	2.2	6.5	15.7	17.9	17.3	16.6
other industries	1.4	1.2	1.9	2.4	3.0	-0.8	4.1	2.7	2.0	2.4	2.0	2.1	2.0	1.8
Construction	2.4	3.0	4.6	7.7	10.2	2.3	4.2	5.2	2.9	4.3	4.9	5.2	6.2	6.4
Services	36.2	36.6	52.4	73.8	97.2	0.1	3.6	3.5	2.8	63.7	59.0	58.7	59.3	60.5
Agriculture	5.0	4.1	7.7	10.3	12.5	-1.9	6.5	2.9	2.0	8.8	6.7	8.7	8.3	7.8
Energy sector	2.0	2.0	1.6	2.2	2.9	0.0	-2.2	3.2	2.8	3.6	3.3	1.8	1.8	1.8

Source: PRIMES

IRELAND: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	3.5	3.8	4.4	4.8	5.1	0.7	1.5	0.9	0.6					
Average household size (persons)	3.4	3.0	2.8	2.7	2.4	-1.3	-0.6	-0.7	-0.8					
Number of households (Million)	1.0	1.3	1.5	1.8	2.1	2.1	2.0	1.6	1.5					
Gross Domestic product (in 000 M€05)	**62.0**	**125.1**	**203.3**	**286.2**	**365.1**	**7.3**	**5.0**	**3.5**	**2.5**					
Households expenditure (in 000 M€05)	**36.2**	**61.2**	**89.4**	**120.1**	**149.4**	**5.4**	**3.9**	**3.0**	**2.2**					
Gross Value Added (in 000 M€05)	**57.1**	**110.1**	**176.9**	**247.2**	**314.2**	**6.8**	**4.9**	**3.4**	**2.4**					
Industry	19.5	39.6	66.1	93.0	116.5	7.3	5.3	3.5	2.3	34.2	35.9	37.4	37.6	37.1
iron and steel	0.1	0.1	0.0	0.0	0.0	1.8				0.1	0.1	0.0	0.0	0.0
non ferrous metals	0.1	0.1	0.1	0.2	0.2	-3.9	6.8	2.4	1.7	0.2	0.1	0.1	0.1	0.1
chemicals	3.2	14.4	23.1	32.7	41.1	16.3	4.8	3.5	2.3	5.6	13.1	13.1	13.2	13.1
pharmaceuticals and cosmetics	0.7	3.4	5.5	8.3	11.1	16.7	5.0	4.2	3.0	1.3	3.1	3.1	3.4	3.5
non metallic minerals	0.7	0.9	1.3	1.7	2.1	3.1	4.0	2.8	1.9	1.2	0.8	0.7	0.7	0.7
paper, pulp, printing	1.7	4.7	8.6	11.4	14.0	10.7	6.3	2.8	2.1	3.0	4.2	4.9	4.6	4.4
printing and publishing	1.4	4.3	8.1	10.8	13.3	12.0	6.5	2.9	2.1	2.4	3.9	4.6	4.4	4.2
food, drink, tobacco	6.2	5.4	14.4	20.2	25.2	-1.3	10.3	3.4	2.2	10.9	4.9	8.1	8.2	8.0
textiles and leather	0.8	0.4	0.3	0.3	0.3	-6.2	-2.0	-0.5	-0.1	1.4	0.4	0.2	0.1	0.1
engineering	5.4	11.9	15.6	23.2	29.6	8.1	2.8	4.0	2.5	9.5	10.8	8.8	9.4	9.4
other industries	1.4	1.7	2.5	3.4	4.0	2.3	3.9	3.2	1.6	2.4	1.5	1.4	1.4	1.3
Construction	3.0	6.3	10.5	14.7	18.4	7.8	5.3	3.4	2.2	5.2	5.7	5.9	5.9	5.8
Services	29.4	57.2	93.8	132.3	171.5	6.9	5.1	3.5	2.6	51.6	52.0	53.0	53.5	54.6
Agriculture	3.6	5.3	4.7	5.1	5.4	4.1	-1.1	0.8	0.6	6.2	4.8	2.7	2.1	1.7
Energy sector	1.6	1.7	1.8	2.1	2.4	0.6	0.3	1.7	1.3	2.8	1.5	1.0	0.8	0.8

ITALY: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	56.7	56.9	58.7	58.3	57.1	0.0	0.3	-0.1	-0.2					
Average household size (persons)	2.6	2.4	2.2	2.0	1.8	-1.1	-0.9	-0.9	-0.7					
Number of households (Million)	21.5	24.0	27.2	29.6	31.1	1.1	1.2	0.9	0.5					
Gross Domestic product (in 000 M€05)	**1172.7**	**1372.9**	**1541.5**	**1864.3**	**2168.0**	**1.6**	**1.2**	**1.9**	**1.5**					
Households expenditure (in 000 M€05)	**699.7**	**825.0**	**915.3**	**1093.2**	**1260.1**	**1.7**	**1.0**	**1.8**	**1.4**					
Gross Value Added (in 000 M€05)	**1054.6**	**1230.1**	**1379.7**	**1663.4**	**1930.3**	**1.6**	**1.2**	**1.9**	**1.5**					
Industry	226.5	255.6	260.7	318.7	378.6	1.2	0.2	2.0	1.7	21.5	20.8	18.9	19.2	19.6
iron and steel	7.1	6.9	9.5	11.6	13.0	-0.3	3.3	2.0	1.2	0.7	0.6	0.7	0.7	0.7
non ferrous metals	2.2	3.3	3.3	3.9	4.6	4.3	-0.1	1.7	1.6	0.2	0.3	0.2	0.2	0.2
chemicals	18.5	20.5	21.3	27.4	33.8	1.0	0.4	2.5	2.1	1.7	1.7	1.5	1.6	1.8
pharmaceuticals and cosmetics	9.2	10.6	12.1	16.2	20.8	1.4	1.3	2.9	2.5	0.9	0.9	0.9	1.0	1.1
non metallic minerals	14.2	15.5	17.2	19.6	22.0	0.8	1.1	1.3	1.2	1.4	1.3	1.2	1.2	1.1
paper, pulp, printing	14.9	16.9	18.1	22.8	27.7	1.3	0.7	2.3	2.0	1.4	1.4	1.3	1.4	1.4
printing and publishing	9.7	11.0	12.2	15.4	18.8	1.2	1.1	2.4	2.0	0.9	0.9	0.9	0.9	1.0
food, drink, tobacco	22.8	25.5	26.5	33.3	41.1	1.1	0.4	2.3	2.1	2.2	2.1	1.9	2.0	2.1
textiles and leather	33.2	33.1	23.8	22.3	22.1	0.0	-3.3	-0.6	-0.1	3.1	2.7	1.7	1.3	1.1
engineering	87.3	100.9	107.0	134.9	161.4	1.5	0.6	2.3	1.8	8.3	8.2	7.8	8.1	8.4
other industries	26.4	33.0	33.9	43.0	52.8	2.3	0.3	2.4	2.1	2.5	2.7	2.5	2.6	2.7
Construction	65.2	62.4	79.1	86.2	89.6	-0.4	2.4	0.9	0.4	6.2	5.1	5.7	5.2	4.6
Services	696.9	837.4	962.8	1174.5	1372.4	1.9	1.4	2.0	1.6	66.1	68.1	69.8	70.6	71.1
Agriculture	32.5	41.2	41.8	44.6	46.6	2.4	0.1	0.7	0.4	3.1	3.4	3.0	2.7	2.4
Energy sector	33.5	33.5	35.4	39.3	43.2	0.0	0.6	1.1	0.9	3.2	2.7	2.6	2.4	2.2

LATVIA: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	2.7	2.4	2.2	2.1	2.0	-1.1	-0.6	-0.6	-0.4					
Average household size (persons)	2.7	2.6	2.4	2.3	2.2	-0.5	-0.6	-0.3	-0.5					
Number of households (Million)	1.0	0.9	0.9	0.9	0.9	-0.6	0.0	-0.3	0.1					
Gross Domestic product (in 000 M€05)	**12.4**	**8.7**	**18.9**	**31.8**	**43.4**	**-3.5**	**8.1**	**5.4**	**3.1**					
Households expenditure (in 000 M€05)	**7.6**	**5.4**	**12.0**	**20.0**	**27.0**	**-3.4**	**8.3**	**5.2**	**3.0**					
Gross Value Added (in 000 M€05)	**10.9**	**7.7**	**16.7**	**28.3**	**38.6**	**-3.4**	**8.1**	**5.4**	**3.2**					
Industry	3.4	1.5	3.4	5.9	8.1	-7.6	8.1	5.8	3.2	31.0	19.9	20.0	20.7	20.9
iron and steel	0.1	0.1	0.1	0.1	0.1	0.3	4.6	1.6	1.2	0.6	0.9	0.6	0.4	0.4
non ferrous metals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
chemicals	0.1	0.1	0.1	0.3	0.4	-7.1	9.8	6.7	4.2	1.0	0.7	0.8	0.9	1.0
pharmaceuticals and cosmetics	0.0	0.0	0.1	0.2	0.3	50.0	11.5	7.5	4.6	0.0	0.4	0.6	0.7	0.8
non metallic minerals	0.1	0.0	0.3	0.5	0.7	-6.8	20.4	6.2	2.9	0.8	0.6	1.6	1.8	1.7
paper, pulp, printing	0.6	0.2	0.2	0.4	0.6	-12.3	4.8	5.9	3.7	5.2	2.0	1.5	1.5	1.6
printing and publishing	0.4	0.1	0.2	0.4	0.6	-11.5	5.0	6.4	3.9	4.0	1.7	1.2	1.4	1.5
food, drink, tobacco	0.9	0.4	0.6	1.2	1.7	-7.5	4.2	6.6	3.5	8.4	5.4	3.7	4.2	4.3
textiles and leather	0.5	0.2	0.2	0.3	0.3	-10.5	1.8	3.4	1.9	4.7	2.2	1.2	1.0	0.9
engineering	0.9	0.2	0.8	1.5	2.1	-12.4	12.9	6.5	3.3	8.1	3.1	4.8	5.3	5.3
other industries	0.2	0.4	1.0	1.6	2.2	5.0	9.4	5.1	3.2	2.2	5.2	5.8	5.7	5.7
Construction	2.0	0.4	1.1	1.9	2.4	-14.3	10.0	5.3	2.8	18.3	5.5	6.6	6.6	6.3
Services	4.1	4.9	11.1	19.1	26.4	1.7	8.5	5.6	3.3	38.0	63.7	66.3	67.6	68.4
Agriculture	0.9	0.6	0.8	0.9	1.2	-4.8	3.0	2.3	2.1	8.4	7.3	4.5	3.3	3.0
Energy sector	0.5	0.3	0.4	0.5	0.5	-5.1	4.5	1.7	0.8	4.3	3.6	2.5	1.8	1.4

Source: PRIMES

LITHUANIA: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	3.7	3.5	3.3	3.2	3.1	-0.5	-0.5	-0.5	-0.3					
Average household size (persons)	2.9	2.8	2.4	2.3	2.1	-0.4	-1.2	-0.8	-0.6					
Number of households (Million)	1.3	1.3	1.4	1.4	1.5	-0.1	0.7	0.3	0.3					
Gross Domestic product (in 000 M€05)	**19.2**	**14.2**	**28.1**	**44.7**	**64.6**	**-3.0**	**7.1**	**4.7**	**3.8**					
Households expenditure (in 000 M€05)	**12.8**	**9.7**	**19.4**	**30.1**	**42.7**	**-2.8**	**7.2**	**4.5**	**3.6**					
Gross Value Added (in 000 M€05)	**16.8**	**12.7**	**24.7**	**39.1**	**56.4**	**-2.8**	**6.9**	**4.7**	**3.7**					
Industry	4.3	2.7	6.1	10.1	14.6	-4.6	8.6	5.2	3.7	25.4	21.1	24.6	25.9	25.9
iron and steel	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
non ferrous metals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
chemicals	0.2	0.2	0.4	0.7	1.1	-0.4	6.5	5.3	4.7	1.4	1.8	1.7	1.8	2.0
pharmaceuticals and cosmetics	0.0	0.1	0.1	0.2	0.4	4.1	0.7	8.7	8.2	0.3	0.5	0.3	0.4	0.6
non metallic minerals	0.2	0.1	0.3	0.5	0.7	-4.6	9.4	5.7	3.1	1.1	0.9	1.1	1.2	1.2
paper, pulp, printing	0.4	0.2	0.3	0.5	0.7	-4.1	3.7	3.8	3.3	2.1	1.8	1.4	1.2	1.2
printing and publishing	0.2	0.2	0.3	0.4	0.6	-2.0	4.1	3.9	3.4	1.3	1.4	1.1	1.0	1.0
food, drink, tobacco	1.3	0.7	1.0	1.6	2.4	-6.2	4.1	4.8	4.0	7.7	5.4	4.2	4.2	4.3
textiles and leather	1.0	0.5	0.7	0.8	0.9	-6.8	3.0	2.0	1.3	6.1	4.0	2.7	2.1	1.7
engineering	0.7	0.5	1.7	3.2	4.7	-4.7	14.2	6.4	3.8	4.4	3.6	7.0	8.2	8.3
other industries	0.4	0.5	1.6	2.8	4.1	0.4	13.5	5.6	4.1	2.6	3.6	6.5	7.1	7.3
Construction	1.7	0.7	1.8	3.0	4.3	-8.5	9.9	5.1	3.6	10.1	5.6	7.3	7.6	7.5
Services	6.7	7.4	13.7	22.1	32.7	0.9	6.4	4.9	4.0	40.1	58.4	55.6	56.5	58.0
Agriculture	1.6	1.2	1.5	1.9	2.2	-2.5	2.3	1.9	1.6	9.4	9.7	6.2	4.8	3.9
Energy sector	2.5	0.7	1.6	2.1	2.6	-12.4	8.7	3.0	2.4	15.0	5.3	6.3	5.3	4.7

LUXEMBOURG: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	0.4	0.4	0.5	0.5	0.6	1.3	1.0	0.9	0.9					
Average household size (persons)	2.7	2.5	2.4	2.2	2.1	-0.6	-0.6	-0.7	-0.5					
Number of households (Million)	0.1	0.2	0.2	0.2	0.3	2.0	1.5	1.5	1.3					
Gross Domestic product (in 000 M€05)	**13.5**	**25.3**	**36.6**	**51.2**	**66.1**	**6.5**	**3.8**	**3.4**	**2.6**					
Households expenditure (in 000 M€05)	**7.0**	**10.0**	**13.8**	**18.3**	**22.8**	**3.7**	**3.3**	**2.8**	**2.2**					
Gross Value Added (in 000 M€05)	**14.0**	**22.4**	**31.9**	**44.4**	**56.9**	**4.8**	**3.6**	**3.4**	**2.5**					
Industry	2.1	3.0	3.5	4.7	6.0	3.6	1.7	3.1	2.4	14.9	13.2	10.9	10.7	10.5
iron and steel	0.4	0.5	0.5	0.6	0.6	3.2	-0.8	1.5	0.3	2.8	2.4	1.5	1.3	1.0
non ferrous metals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
chemicals	0.1	0.2	0.4	0.6	0.8	8.0	6.4	4.1	3.0	0.7	0.9	1.2	1.3	1.4
pharmaceuticals and cosmetics	0.0	0.1	0.3	0.4	0.6	16.7	11.3	4.6	3.3	0.1	0.4	0.8	1.0	1.0
non metallic minerals	0.2	0.3	0.3	0.4	0.5	2.0	2.1	2.5	2.3	1.6	1.2	1.1	1.0	0.9
paper, pulp, printing	0.1	0.2	0.3	0.5	0.6	2.8	5.9	3.9	2.7	1.0	0.8	1.1	1.1	1.1
printing and publishing	0.1	0.2	0.3	0.5	0.6	2.8	5.9	3.9	2.7	1.0	0.8	1.1	1.1	1.1
food, drink, tobacco	0.2	0.2	0.2	0.3	0.4	-1.7	1.9	4.0	2.8	1.5	0.8	0.7	0.7	0.8
textiles and leather	0.1	0.2	0.3	0.3	0.3	4.1	4.0	0.9	0.7	0.9	0.8	0.9	0.7	0.6
engineering	0.6	0.8	0.8	1.1	1.5	3.2	-0.3	3.3	2.6	4.4	3.8	2.6	2.6	2.6
other industries	0.3	0.6	0.6	0.9	1.2	7.2	1.3	3.7	3.1	2.0	2.5	2.0	2.0	2.1
Construction	1.0	1.3	1.9	2.6	3.2	3.3	3.9	3.0	2.2	6.8	5.9	6.1	5.8	5.7
Services	10.6	17.6	25.8	36.2	46.5	5.2	3.9	3.4	2.5	75.7	78.7	80.8	81.5	81.8
Agriculture	0.1	0.2	0.1	0.1	0.1	1.5	-3.3	0.0	0.8	1.0	0.7	0.4	0.3	0.2
Energy sector	0.2	0.3	0.6	0.8	1.0	4.2	5.8	2.9	2.2	1.6	1.5	1.9	1.8	1.7

MALTA: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	0.4	0.4	0.4	0.5	0.5	0.8	1.0	0.8	0.5					
Average household size (persons)	3.2	2.9	2.6	2.5	2.3	-0.8	-1.0	-0.7	-0.6					
Number of households (Million)	0.1	0.1	0.2	0.2	0.2	1.6	2.1	1.5	1.2					
Gross Domestic product (in 000 M€05)	**2.8**	**4.5**	**5.2**	**7.4**	**9.8**	**4.9**	**1.4**	**3.7**	**2.8**					
Households expenditure (in 000 M€05)	**1.5**	**2.5**	**2.9**	**4.2**	**5.6**	**4.9**	**1.5**	**3.8**	**2.8**					
Gross Value Added (in 000 M€05)	**2.5**	**4.0**	**4.6**	**6.6**	**8.7**	**4.9**	**1.4**	**3.7**	**2.8**					
Industry	0.6	0.9	1.2	1.6	2.1	3.7	2.7	3.1	2.8	25.3	22.5	25.6	24.3	24.3
iron and steel	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
non ferrous metals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
chemicals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
pharmaceuticals and cosmetics	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
non metallic minerals	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
paper, pulp, printing	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
printing and publishing	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
food, drink, tobacco	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
textiles and leather	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
engineering	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
other industries	0.6	0.9	1.2	1.6	2.1	3.7	2.7	3.1	2.8	25.3	22.5	25.6	24.3	24.3
Construction	0.1	0.1	0.1	0.2	0.2	1.9	2.5	3.7	2.7	3.4	2.5	2.8	2.8	2.8
Services	1.7	2.8	3.1	4.6	6.1	5.5	0.9	4.0	2.8	66.9	71.0	67.3	69.4	69.8
Agriculture	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0
Energy sector	0.1	0.2	0.2	0.2	0.3	3.7	2.1	1.7	1.4	4.5	4.0	4.2	3.5	3.1

Source: PRIMES

THE NETHERLANDS: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	14.9	15.9	16.6	17.2	17.6	0.6	0.5	0.4	0.2					
Average household size (persons)	2.5	2.4	2.2	2.0	1.9	-0.6	-0.8	-0.7	-0.5					
Number of households (Million)	6.0	6.8	7.7	8.5	9.2	1.2	1.3	1.1	0.7					
Gross Domestic product (in 000 M€05)	**344.9**	**477.3**	**579.8**	**702.6**	**811.6**	**3.3**	**2.0**	**1.9**	**1.5**					
Households expenditure (in 000 M€05)	**173.6**	**240.1**	**284.4**	**339.9**	**386.9**	**3.3**	**1.7**	**1.8**	**1.3**					
Gross Value Added (in 000 M€05)	**322.2**	**428.3**	**521.1**	**624.8**	**713.6**	**2.9**	**2.0**	**1.8**	**1.3**					
Industry	61.1	74.4	82.4	95.3	106.1	2.0	1.0	1.5	1.1	19.0	17.4	15.8	15.3	14.9
iron and steel	1.7	1.5	1.5	1.7	1.8	-1.0	0.0	1.2	0.5	0.5	0.4	0.3	0.3	0.3
non ferrous metals	0.7	0.8	1.2	1.4	1.6	1.0	3.7	1.9	1.3	0.2	0.2	0.2	0.2	0.2
chemicals	10.2	12.7	17.6	20.4	22.8	2.2	3.3	1.5	1.1	3.2	3.0	3.4	3.3	3.2
pharmaceuticals and cosmetics	1.2	3.0	3.4	3.9	4.2	9.1	1.4	1.2	0.8	0.4	0.7	0.7	0.6	0.6
non metallic minerals	2.8	2.7	2.7	3.0	3.2	-0.2	-0.2	1.1	0.8	0.9	0.6	0.5	0.5	0.5
paper, pulp, printing	7.7	9.0	9.0	10.5	11.7	1.6	0.0	1.5	1.1	2.4	2.1	1.7	1.7	1.6
printing and publishing	5.7	7.0	6.6	7.7	8.7	2.0	-0.6	1.6	1.2	1.8	1.6	1.3	1.2	1.2
food, drink, tobacco	10.1	12.3	14.3	16.7	18.6	2.1	1.5	1.5	1.1	3.1	2.9	2.7	2.7	2.6
textiles and leather	2.0	1.9	1.6	1.6	1.6	-0.4	-1.6	-0.2	0.0	0.6	0.4	0.3	0.3	0.2
engineering	18.8	24.6	24.6	28.5	32.0	2.7	0.0	1.5	1.1	5.8	5.7	4.7	4.6	4.5
other industries	7.1	8.7	9.9	11.5	12.8	2.1	1.2	1.5	1.1	2.2	2.0	1.9	1.8	1.8
Construction	20.3	21.4	21.4	25.5	28.3	0.5	0.0	1.8	1.0	6.3	5.0	4.1	4.1	4.0
Services	213.2	303.5	384.3	468.2	542.3	3.6	2.4	2.0	1.5	66.2	70.9	73.7	74.9	76.0
Agriculture	10.5	12.9	14.3	15.3	15.9	2.0	1.0	0.7	0.4	3.3	3.0	2.7	2.5	2.2
Energy sector	17.1	16.2	18.8	20.4	21.0	-0.5	1.5	0.8	0.3	5.3	3.8	3.6	3.3	2.9

POLAND: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	38.0	38.7	37.8	37.1	36.5	0.2	-0.2	-0.2	-0.1					
Average household size (persons)	3.1	2.8	2.6	2.5	2.4	-1.0	-0.9	-0.3	-0.3					
Number of households (Million)	12.2	13.8	14.7	14.9	15.1	1.2	0.7	0.1	0.2					
Gross Domestic product (in 000 M€05)	**144.8**	**209.9**	**301.3**	**472.2**	**654.3**	**3.8**	**3.7**	**4.6**	**3.3**					
Households expenditure (in 000 M€05)	**73.9**	**130.1**	**224.6**	**340.7**	**472.7**	**5.8**	**5.6**	**4.3**	**3.3**					
Gross Value Added (in 000 M€05)	**127.6**	**181.7**	**257.7**	**399.5**	**550.8**	**3.6**	**3.6**	**4.5**	**3.3**					
Industry	27.4	42.0	66.1	108.4	143.0	4.4	4.6	5.1	2.8	21.5	23.1	25.6	27.1	26.0
iron and steel	2.0	1.6	1.4	1.5	1.7	-2.3	-1.4	1.2	0.9	1.5	0.9	0.5	0.4	0.3
non ferrous metals	0.2	0.3	0.5	0.6	0.7	4.3	3.3	2.7	1.4	0.2	0.2	0.2	0.2	0.1
chemicals	2.5	3.3	5.2	8.6	12.6	2.8	4.6	5.2	3.9	2.0	1.8	2.0	2.2	2.3
pharmaceuticals and cosmetics	0.7	1.6	2.4	4.2	6.7	8.9	4.2	5.8	4.8	0.5	0.9	0.9	1.1	1.2
non metallic minerals	1.5	2.8	3.7	5.9	7.8	6.5	2.5	4.9	2.8	1.2	1.6	1.4	1.5	1.4
paper, pulp, printing	1.1	3.0	4.0	6.4	8.4	10.0	3.1	4.9	2.7	0.9	1.6	1.6	1.6	1.5
printing and publishing	0.5	2.1	2.3	3.9	5.2	14.5	0.9	5.4	3.0	0.4	1.2	0.9	1.0	0.9
food, drink, tobacco	5.0	11.0	16.3	26.6	34.8	8.1	4.1	5.0	2.7	4.0	6.0	6.3	6.7	6.3
textiles and leather	2.3	2.9	2.5	2.8	2.9	2.2	-1.4	1.1	0.4	1.8	1.6	1.0	0.7	0.5
engineering	10.4	11.8	22.7	39.2	52.2	1.3	6.7	5.6	2.9	8.2	6.5	8.8	9.8	9.5
other industries	2.3	5.3	9.8	16.7	21.9	8.8	6.4	5.5	2.7	1.8	2.9	3.8	4.2	4.0
Construction	8.7	12.3	13.7	22.7	31.8	3.5	1.0	5.2	3.4	6.8	6.8	5.3	5.7	5.8
Services	70.6	103.7	144.1	224.5	322.1	3.9	3.4	4.5	3.7	55.4	57.0	55.9	56.2	58.5
Agriculture	10.4	11.5	16.3	23.3	30.5	1.0	3.6	3.6	2.7	8.2	6.3	6.3	5.8	5.5
Energy sector	10.5	12.3	17.5	20.6	23.3	1.6	3.6	1.6	1.3	8.2	6.8	6.8	5.2	4.2

PORTUGAL: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	10.0	10.2	10.7	10.8	10.7	0.2	0.4	0.1	-0.1					
Average household size (persons)	3.0	2.8	2.6	2.5	2.3	-0.9	-0.6	-0.6	-0.5					
Number of households (Million)	3.3	3.7	4.1	4.4	4.6	1.1	1.0	0.7	0.4					
Gross Domestic product (in 000 M€05)	**102.2**	**143.1**	**162.8**	**212.8**	**272.8**	**3.4**	**1.3**	**2.7**	**2.5**					
Households expenditure (in 000 M€05)	**62.8**	**93.8**	**110.7**	**141.6**	**178.3**	**4.1**	**1.7**	**2.5**	**2.3**					
Gross Value Added (in 000 M€05)	**93.8**	**123.4**	**141.2**	**182.1**	**227.1**	**2.8**	**1.4**	**2.6**	**2.2**					
Industry	20.5	23.2	23.9	29.8	35.8	1.2	0.3	2.3	1.8	21.9	18.8	16.9	16.4	15.8
iron and steel	0.2	0.3	0.5	0.6	0.7	8.0	4.1	1.7	1.0	0.2	0.3	0.4	0.3	0.3
non ferrous metals	0.1	0.2	0.2	0.2	0.3	4.8	1.2	1.5	1.1	0.1	0.2	0.2	0.1	0.1
chemicals	1.8	1.5	1.5	2.1	2.8	-1.7	0.1	3.4	2.8	1.9	1.2	1.1	1.2	1.2
pharmaceuticals and cosmetics	0.6	0.7	0.6	1.0	1.4	1.0	-0.7	4.5	3.8	0.6	0.5	0.4	0.5	0.6
non metallic minerals	1.4	2.5	2.3	2.8	3.4	6.1	-0.9	2.1	1.8	1.5	2.0	1.6	1.5	1.5
paper, pulp, printing	2.1	2.1	1.8	2.3	2.9	0.1	-1.3	2.3	2.2	2.2	1.7	1.3	1.3	1.3
printing and publishing	1.3	1.0	1.1	1.5	1.9	-2.3	0.6	2.9	2.4	1.4	0.8	0.8	0.8	0.8
food, drink, tobacco	3.9	2.6	2.8	3.6	4.3	-3.8	0.6	2.6	1.8	4.2	2.1	2.0	2.0	1.9
textiles and leather	5.5	4.4	3.5	3.6	3.6	-2.4	-2.1	0.2	0.1	5.9	3.5	2.5	2.0	1.6
engineering	3.5	6.9	8.1	10.5	12.9	7.1	1.5	2.6	2.1	3.7	5.6	5.7	5.7	5.7
other industries	2.0	2.6	3.1	4.1	5.0	2.5	1.8	2.8	2.1	2.2	2.1	2.2	2.2	2.2
Construction	6.3	8.3	7.3	9.0	10.9	2.8	-1.3	2.2	1.9	6.7	6.7	5.2	5.0	4.8
Services	59.1	81.8	99.7	131.3	167.3	3.3	2.0	2.8	2.5	63.1	66.3	70.6	72.1	73.7
Agriculture	4.9	5.5	5.0	6.0	6.8	1.1	-0.9	1.8	1.3	5.2	4.5	3.6	3.3	3.0
Energy sector	2.9	4.6	5.4	6.0	6.3	4.6	1.5	1.1	0.5	3.1	3.7	3.8	3.3	2.8

Source: PRIMES

ROMANIA: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	23.2	21.9	21.3	20.3	19.2	-0.6	-0.3	-0.5	-0.6					
Average household size (persons)	3.3	2.9	2.6	2.5	2.5	-1.3	-0.9	-0.3	-0.3					
Number of households (Million)	7.1	7.7	8.2	8.0	7.8	0.7	0.6	-0.1	-0.3					
Gross Domestic product (in 000 M€05)	**71.4**	**60.1**	**104.9**	**185.1**	**301.8**	**-1.7**	**5.7**	**5.8**	**5.0**					
Households expenditure (in 000 M€05)	**47.9**	**44.4**	**90.0**	**159.7**	**261.0**	**-0.8**	**7.3**	**5.9**	**5.0**					
Gross Value Added (in 000 M€05)	**66.6**	**56.5**	**98.6**	**173.4**	**282.2**	**-1.6**	**5.7**	**5.8**	**5.0**					
Industry	23.2	17.8	29.4	49.2	75.9	-2.6	5.1	5.3	4.4	34.9	31.5	29.8	28.4	26.9
iron and steel	2.0	0.8	1.1	1.6	2.0	-8.5	3.6	3.2	2.5	2.9	1.4	1.2	0.9	0.7
non ferrous metals	0.3	0.4	0.7	0.8	1.0	1.9	4.7	2.0	1.8	0.5	0.7	0.7	0.5	0.3
chemicals	1.5	1.0	1.3	2.7	4.7	-4.5	3.1	7.4	5.7	2.3	1.7	1.3	1.6	1.7
pharmaceuticals and cosmetics	0.1	0.3	0.5	1.6	3.3	15.0	5.5	11.7	7.4	0.1	0.6	0.5	0.9	1.2
non metallic minerals	1.6	0.8	0.9	1.7	2.7	-6.9	2.0	5.8	4.9	2.4	1.4	1.0	1.0	0.9
paper, pulp, printing	0.6	0.6	1.1	2.3	3.7	0.0	7.2	7.3	4.9	0.9	1.0	1.2	1.3	1.3
printing and publishing	0.1	0.4	0.9	1.8	3.0	9.4	9.3	7.8	4.9	0.2	0.6	0.9	1.1	1.1
food, drink, tobacco	5.4	6.1	12.4	20.5	30.2	1.2	7.4	5.1	4.0	8.1	10.8	12.6	11.8	10.7
textiles and leather	2.7	2.7	3.7	4.9	6.2	0.2	3.2	2.8	2.3	4.0	4.8	3.8	2.8	2.2
engineering	7.0	3.5	4.2	8.0	14.4	-6.9	2.1	6.6	6.0	10.6	6.1	4.3	4.6	5.1
other industries	2.1	2.0	3.8	6.7	11.0	-0.5	6.6	5.8	5.1	3.2	3.6	3.9	3.8	3.9
Construction	3.3	3.5	7.2	13.2	21.7	0.5	7.6	6.3	5.1	4.9	6.1	7.3	7.6	7.7
Services	23.5	23.1	43.8	85.6	151.1	-0.1	6.6	6.9	5.8	35.3	40.9	44.4	49.3	53.5
Agriculture	13.6	9.2	14.6	19.9	25.6	-3.8	4.7	3.1	2.5	20.4	16.3	14.8	11.5	9.1
Energy sector	3.1	2.9	3.6	5.5	7.9	-0.4	2.1	4.4	3.7	4.6	5.2	3.6	3.2	2.8

SLOVAKIA: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	5.3	5.4	5.4	5.3	5.2	0.2	-0.1	-0.2	-0.2					
Average household size (persons)	2.5	2.2	2.0	1.9	1.8	-1.3	-1.0	-0.5	-0.5					
Number of households (Million)	2.1	2.5	2.7	2.8	2.9	1.6	0.9	0.4	0.3					
Gross Domestic product (in 000 M€05)	**26.3**	**30.5**	**50.0**	**77.6**	**105.7**	**1.5**	**5.1**	**4.5**	**3.1**					
Households expenditure (in 000 M€05)	**16.5**	**16.8**	**26.3**	**39.5**	**53.1**	**0.2**	**4.6**	**4.2**	**3.0**					
Gross Value Added (in 000 M€05)	**27.6**	**26.9**	**43.4**	**66.0**	**88.2**	**-0.3**	**4.9**	**4.3**	**2.9**					
Industry	6.2	7.1	16.0	24.6	31.3	1.3	8.5	4.4	2.4	22.4	26.2	36.9	37.3	35.5
iron and steel	0.4	0.7	1.5	2.1	2.5	5.7	8.7	3.6	1.7	1.4	2.4	3.5	3.2	2.8
non ferrous metals	0.0	0.2	0.2	0.3	0.3	19.6	-0.6	1.8	1.3	0.1	0.9	0.5	0.4	0.3
chemicals	0.8	0.6	0.7	1.2	1.6	-2.4	2.1	4.8	3.2	2.8	2.2	1.7	1.8	1.8
pharmaceuticals and cosmetics	0.2	0.2	0.3	0.5	0.8	-1.6	4.0	7.2	4.2	0.7	0.7	0.6	0.8	0.9
non metallic minerals	0.5	0.5	0.7	1.1	1.5	0.5	3.6	4.6	2.6	1.8	1.9	1.7	1.7	1.7
paper, pulp, printing	0.5	0.6	1.1	1.7	2.3	1.4	6.0	4.3	2.9	2.0	2.3	2.6	2.6	2.6
printing and publishing	0.1	0.2	0.6	1.2	1.6	4.4	12.3	5.9	3.6	0.5	0.8	1.5	1.7	1.9
food, drink, tobacco	1.1	0.8	0.8	1.1	1.4	-3.3	0.1	3.6	2.6	3.8	2.8	1.7	1.6	1.6
textiles and leather	0.6	0.6	0.7	0.8	0.8	0.1	1.5	0.7	0.2	2.2	2.3	1.6	1.2	0.9
engineering	1.6	2.3	7.1	11.6	14.8	3.6	12.0	5.0	2.4	5.8	8.5	16.5	17.6	16.8
other industries	0.7	0.8	3.1	4.8	6.2	0.8	14.7	4.5	2.6	2.6	2.9	7.1	7.3	7.1
Construction	1.2	1.4	2.2	3.6	4.8	1.5	4.4	5.0	2.7	4.5	5.4	5.1	5.5	5.4
Services	14.4	15.5	20.0	31.3	45.0	0.8	2.6	4.6	3.7	52.0	57.8	46.1	47.5	51.1
Agriculture	2.6	1.3	3.0	4.2	4.9	-6.2	8.4	3.3	1.6	9.3	5.0	6.9	6.3	5.5
Energy sector	3.3	1.5	2.1	2.2	2.2	-7.4	3.5	0.4	-0.1	11.8	5.7	4.9	3.4	2.5

SLOVENIA: Key Demographic and Economic Assumptions	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	2.0	2.0	2.0	2.0	2.0	0.0	0.1	0.0	-0.1					
Average household size (persons)	3.3	2.9	2.7	2.6	2.4	-1.4	-0.6	-0.6	-0.6					
Number of households (Million)	0.6	0.7	0.7	0.8	0.8	1.4	0.7	0.6	0.6					
Gross Domestic product (in 000 M€05)	**19.4**	**23.3**	**33.7**	**43.5**	**52.3**	**1.9**	**3.7**	**2.6**	**1.9**					
Households expenditure (in 000 M€05)	**10.2**	**13.1**	**18.0**	**23.0**	**27.5**	**2.6**	**3.3**	**2.5**	**1.8**					
Gross Value Added (in 000 M€05)	**16.8**	**19.7**	**28.5**	**36.6**	**43.9**	**1.6**	**3.7**	**2.5**	**1.8**					
Industry	5.2	5.5	8.3	10.5	12.1	0.6	4.1	2.4	1.4	31.1	28.1	29.1	28.7	27.5
iron and steel	0.1	0.1	0.2	0.3	0.3	1.1	4.2	2.1	1.3	0.7	0.7	0.7	0.7	0.7
non ferrous metals	0.1	0.1	0.1	0.2	0.2	-2.1	6.4	3.4	2.0	0.6	0.4	0.5	0.5	0.5
chemicals	0.2	0.6	1.1	1.5	1.8	14.5	6.0	2.8	1.5	1.0	3.2	4.0	4.1	4.0
pharmaceuticals and cosmetics	0.1	0.4	0.8	1.1	1.3	19.2	7.8	3.0	1.5	0.4	2.0	3.0	3.1	3.0
non metallic minerals	0.3	0.3	0.3	0.4	0.4	-0.8	1.7	2.5	1.5	1.6	1.3	1.0	1.0	1.0
paper, pulp, printing	0.5	0.4	0.6	0.8	0.9	-0.6	3.0	2.6	1.6	2.8	2.3	2.1	2.1	2.1
printing and publishing	0.3	0.3	0.4	0.5	0.6	0.4	3.4	2.9	2.0	1.5	1.4	1.3	1.4	1.4
food, drink, tobacco	0.7	0.5	0.5	0.6	0.8	-2.6	-0.7	2.6	2.7	3.9	2.6	1.6	1.7	1.8
textiles and leather	0.7	0.5	0.4	0.4	0.4	-2.5	-1.9	-0.4	-0.2	4.1	2.7	1.6	1.2	1.0
engineering	2.0	2.1	3.8	4.9	5.6	0.5	6.1	2.5	1.3	12.1	10.8	13.5	13.4	12.7
other industries	0.7	0.8	1.2	1.4	1.6	1.3	3.3	2.2	1.3	4.4	4.3	4.1	3.9	3.7
Construction	1.0	1.2	1.5	2.1	2.6	1.2	2.6	3.5	2.2	6.2	5.9	5.3	5.8	6.0
Services	9.1	11.7	17.2	22.3	27.5	2.6	3.9	2.6	2.1	54.2	59.5	60.5	61.1	62.6
Agriculture	0.7	0.7	0.7	0.8	0.9	-0.9	0.6	1.4	1.0	4.4	3.5	2.5	2.3	2.1
Energy sector	0.7	0.6	0.7	0.8	0.8	-1.6	2.1	0.8	0.4	4.1	3.0	2.5	2.2	1.9

Source: PRIMES

SPAIN: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	38.8	40.0	44.4	45.6	45.4	0.3	1.0	0.3	0.0					
Average household size (persons)	3.2	2.9	2.7	2.6	2.4	-1.0	-0.5	-0.6	-0.6					
Number of households (Million)	12.2	14.0	16.4	17.9	18.8	1.3	1.6	0.9	0.5					
Gross Domestic product (in 000 M€05)	**573.7**	**772.2**	**1065.0**	**1410.8**	**1674.6**	**3.0**	**3.3**	**2.9**	**1.7**					
Households expenditure (in 000 M€05)	**348.6**	**463.4**	**641.6**	**837.1**	**982.9**	**2.9**	**3.3**	**2.7**	**1.6**					
Gross Value Added (in 000 M€05)	**567.9**	**706.3**	**958.1**	**1270.3**	**1482.7**	**2.2**	**3.1**	**2.9**	**1.6**					
Industry	106.5	130.9	161.6	217.1	251.2	2.1	2.1	3.0	1.5	18.8	18.5	16.9	17.1	16.9
iron and steel	4.2	4.1	5.4	6.4	6.8	-0.2	2.8	1.8	0.5	0.7	0.6	0.6	0.5	0.5
non ferrous metals	1.1	1.7	2.4	3.3	3.8	4.5	3.6	3.1	1.5	0.2	0.2	0.3	0.3	0.3
chemicals	8.9	11.6	16.8	24.8	30.5	2.7	3.8	4.0	2.1	1.6	1.6	1.8	2.0	2.1
pharmaceuticals and cosmetics	3.9	5.0	7.8	12.9	16.8	2.5	4.5	5.2	2.7	0.7	0.7	0.8	1.0	1.1
non metallic minerals	9.1	10.8	14.0	18.9	21.7	1.7	2.6	3.0	1.4	1.6	1.5	1.5	1.5	1.5
paper, pulp, printing	7.7	11.6	13.8	18.3	21.4	4.2	1.7	2.9	1.6	1.4	1.6	1.4	1.4	1.4
printing and publishing	5.4	7.7	9.4	12.6	14.8	3.6	2.0	3.0	1.6	1.0	1.1	1.0	1.0	1.0
food, drink, tobacco	15.5	19.0	23.8	32.1	37.3	2.1	2.3	3.0	1.5	2.7	2.7	2.5	2.5	2.5
textiles and leather	7.8	10.0	9.4	9.9	10.1	2.5	-0.6	0.6	0.1	1.4	1.4	1.0	0.8	0.7
engineering	38.5	45.7	56.2	76.9	89.4	1.7	2.1	3.2	1.5	6.8	6.5	5.9	6.1	6.0
other industries	13.7	16.4	19.8	26.5	30.1	1.8	1.9	3.0	1.3	2.4	2.3	2.1	2.1	2.0
Construction	47.0	54.3	88.7	118.7	137.2	1.5	5.0	3.0	1.5	8.3	7.7	9.3	9.3	9.3
Services	366.3	456.9	640.1	853.6	1004.5	2.2	3.4	2.9	1.6	64.5	64.7	66.8	67.2	67.7
Agriculture	27.3	37.1	34.3	39.6	43.7	3.1	-0.8	1.4	1.0	4.8	5.2	3.6	3.1	2.9
Energy sector	20.8	27.2	33.4	41.3	46.2	2.7	2.1	2.2	1.1	3.7	3.8	3.5	3.3	3.1

SWEDEN: Key Demographic and Economic Assumptions

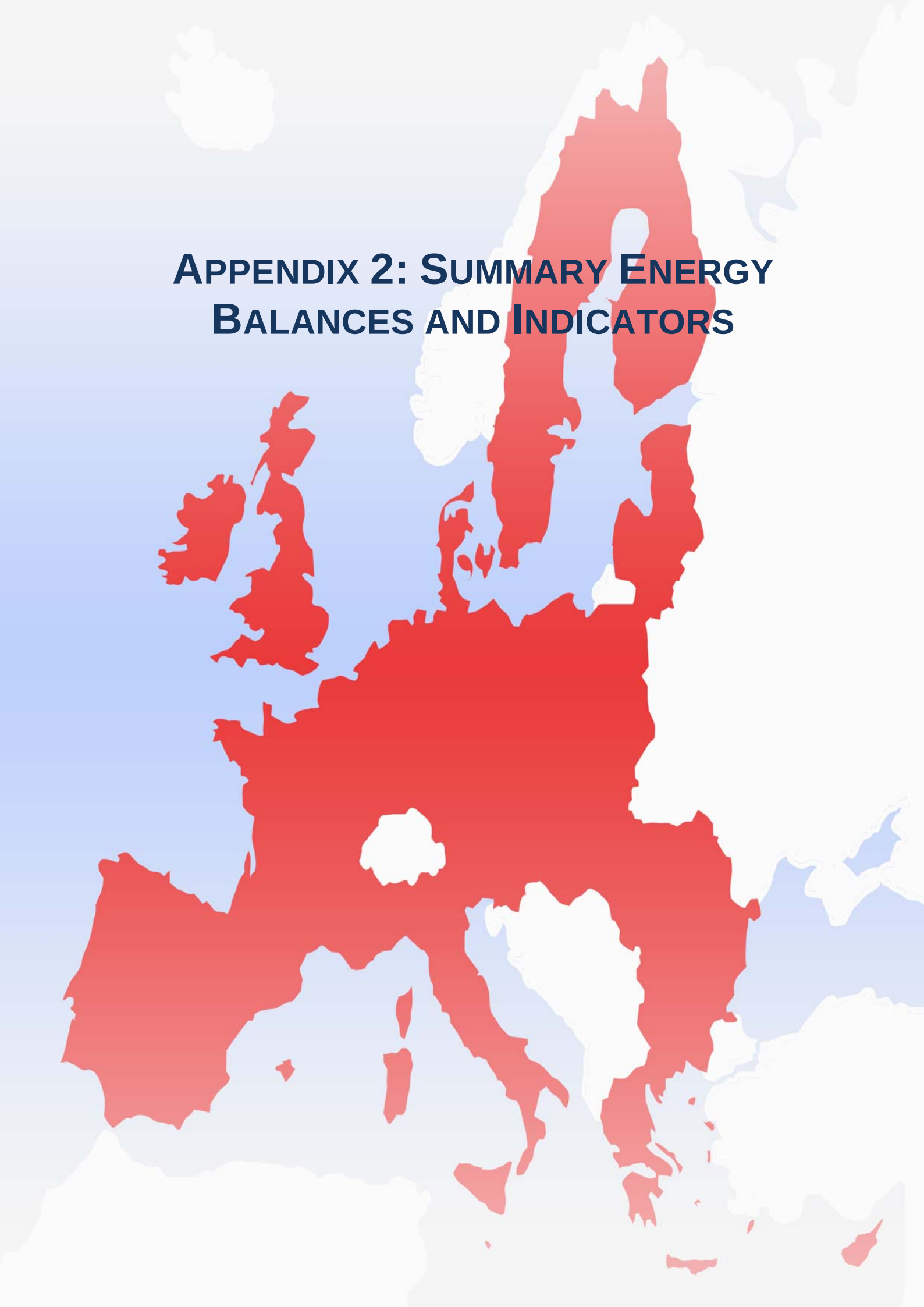
	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	8.5	8.9	9.2	9.6	9.9	0.4	0.4	0.4	0.3					
Average household size (persons)	2.2	2.1	2.0	1.9	1.8	-0.4	-0.7	-0.6	-0.4					
Number of households (Million)	3.8	4.1	4.6	5.1	5.5	0.8	1.1	1.0	0.8					
Gross Domestic product (in 000 M€05)	**208.1**	**256.1**	**336.0**	**421.2**	**502.5**	**2.1**	**2.8**	**2.3**	**1.8**					
Households expenditure (in 000 M€05)	**107.3**	**126.5**	**156.3**	**190.3**	**223.4**	**1.7**	**2.1**	**2.0**	**1.6**					
Gross Value Added (in 000 M€05)	**181.9**	**224.7**	**296.5**	**373.8**	**447.4**	**2.1**	**2.8**	**2.3**	**1.8**					
Industry	33.3	59.9	87.5	112.9	134.7	6.1	3.9	2.6	1.8	18.3	26.6	29.5	30.2	30.1
iron and steel	1.5	2.1	2.1	2.4	2.5	3.6	0.0	1.2	0.6	0.8	1.0	0.7	0.6	0.6
non ferrous metals	0.4	0.4	0.8	0.9	1.0	0.7	5.5	2.1	0.7	0.2	0.2	0.3	0.2	0.2
chemicals	2.7	5.5	8.8	11.8	14.5	7.6	4.8	3.0	2.0	1.5	2.5	3.0	3.2	3.2
pharmaceuticals and cosmetics	1.0	3.3	6.6	9.3	11.7	13.0	7.1	3.5	2.3	0.5	1.5	2.2	2.5	2.6
non metallic minerals	1.1	1.0	1.1	1.3	1.5	-1.7	1.1	1.9	1.3	0.6	0.4	0.4	0.3	0.3
paper, pulp, printing	8.0	7.9	8.7	11.1	13.0	0.0	0.9	2.5	1.6	4.4	3.5	2.9	3.0	2.9
printing and publishing	3.9	2.8	3.5	4.6	5.6	-3.4	2.3	2.8	1.8	2.2	1.2	1.2	1.2	1.2
food, drink, tobacco	3.2	3.4	3.6	4.4	5.2	0.7	0.6	2.1	1.7	1.7	1.5	1.2	1.2	1.2
textiles and leather	0.8	0.5	0.4	0.4	0.4	-4.9	-1.8	0.1	0.2	0.4	0.2	0.1	0.1	0.1
engineering	13.1	34.1	56.2	73.4	88.3	10.0	5.1	2.7	1.9	7.2	15.2	18.9	19.6	19.7
other industries	2.5	4.9	5.9	7.2	8.2	6.9	1.8	2.0	1.3	1.4	2.2	2.0	1.9	1.8
Construction	10.0	8.2	10.7	13.4	15.5	-2.0	2.7	2.2	1.5	5.5	3.7	3.6	3.6	3.5
Services	123.3	144.7	184.4	232.0	280.7	1.6	2.4	2.3	1.9	67.8	64.4	62.2	62.1	62.7
Agriculture	5.6	5.1	6.0	6.9	7.5	-1.0	1.6	1.3	0.8	3.1	2.3	2.0	1.8	1.7
Energy sector	9.7	6.8	7.9	8.6	9.1	-3.5	1.5	0.8	0.6	5.3	3.0	2.7	2.3	2.0

UNITED KINGDOM: Key Demographic and Economic Assumptions

	1990	2000	2010	2020	2030	'90-'00	'00-'10	'10-'20	'20-'30	1990	2000	2010	2020	2030
						Annual % Change				% Structure of total value added				
Main Demographic Assumptions														
Population (Million)	57.2	58.8	61.1	62.9	64.4	0.3	0.4	0.3	0.2					
Average household size (persons)	2.6	2.4	2.3	2.1	2.1	-0.7	-0.6	-0.5	-0.3					
Number of households (Million)	22.3	24.5	27.0	29.3	30.8	0.9	1.0	0.8	0.5					
Gross Domestic product (in 000 M€05)	**1249.5**	**1587.4**	**2033.9**	**2560.2**	**3065.4**	**2.4**	**2.5**	**2.3**	**1.8**					
Households expenditure (in 000 M€05)	**807.0**	**1052.7**	**1365.4**	**1702.5**	**2023.9**	**2.7**	**2.6**	**2.2**	**1.7**					
Gross Value Added (in 000 M€05)	**1153.7**	**1483.3**	**1918.0**	**2433.2**	**2928.0**	**2.5**	**2.6**	**2.4**	**1.9**					
Industry	251.7	274.2	275.8	324.4	369.8	0.9	0.1	1.6	1.3	21.8	18.5	14.4	13.3	12.6
iron and steel	6.7	4.5	4.0	4.2	4.4	-4.0	-1.2	0.5	0.6	0.6	0.3	0.2	0.2	0.2
non ferrous metals	4.0	3.2	2.8	3.2	3.5	-2.1	-1.3	1.4	1.0	0.3	0.2	0.1	0.1	0.1
chemicals	23.6	32.4	40.9	51.0	58.3	3.2	2.4	2.2	1.4	2.0	2.2	2.1	2.1	2.0
pharmaceuticals and cosmetics	9.9	16.1	22.3	29.5	34.9	5.0	3.3	2.8	1.7	0.9	1.1	1.2	1.2	1.2
non metallic minerals	10.5	9.6	11.7	13.7	15.3	-0.9	2.0	1.6	1.1	0.9	0.6	0.6	0.6	0.5
paper, pulp, printing	31.3	32.7	30.4	34.4	38.7	0.4	-0.7	1.3	1.2	2.7	2.2	1.6	1.4	1.3
printing and publishing	24.1	26.0	25.3	29.1	33.2	0.7	-0.3	1.4	1.3	2.1	1.7	1.3	1.2	1.1
food, drink, tobacco	33.3	34.7	39.1	46.0	52.7	0.4	1.2	1.6	1.4	2.9	2.3	2.0	1.9	1.8
textiles and leather	15.9	11.4	6.5	5.4	5.2	-3.3	-5.5	-1.9	-0.2	1.4	0.8	0.3	0.2	0.2
engineering	101.3	120.0	115.7	137.6	158.1	1.7	-0.4	1.8	1.4	8.8	8.1	6.0	5.7	5.4
other industries	25.1	25.7	24.6	28.8	33.5	0.3	-0.4	1.6	1.5	2.2	1.7	1.3	1.2	1.1
Construction	68.5	66.9	91.1	115.4	137.5	-0.2	3.1	2.4	1.8	5.9	4.5	4.8	4.7	4.7
Services	758.1	1047.6	1461.9	1900.6	2324.4	3.3	3.4	2.7	2.0	65.7	70.6	76.2	78.1	79.4
Agriculture	23.7	24.2	25.1	27.7	29.7	0.2	0.4	1.0	0.7	2.1	1.6	1.3	1.1	1.0
Energy sector	51.7	70.4	64.0	65.1	66.5	3.1	-0.9	0.2	0.2	4.5	4.7	3.3	2.7	2.3

Source: PRIMES

APPENDIX 2: SUMMARY ENERGY BALANCES AND INDICATORS



EU27: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**933011**	**946298**	**937567**	**896393**	**833813**	**770223**	**724758**	**698486**	**690691**	**0.0**	**-1.2**	**-1.4**	**-0.5**
Solids	365918	277924	213693	196451	164952	152365	141764	133672	125808	-5.2	-2.6	-1.5	-1.2
Oil	128809	170055	171665	132993	104666	77166	53111	44309	40820	2.9	-4.8	-6.6	-2.6
Natural gas	162447	188965	207559	188021	168212	128999	114934	98306	84761	2.5	-2.1	-3.7	-3.0
Nuclear	202589	223028	243761	257360	245217	243715	221472	208950	206403	1.9	0.1	-1.0	-0.7
Renewable energy sources	73248	86325	100890	121568	150766	167977	193477	213248	232899	3.3	4.1	2.5	1.9
Hydro	25101	28054	30374	26394	28650	28334	28930	29677	30182	1.9	-0.6	0.1	0.4
Biomass & Waste	44737	54203	64774	82903	101964	112480	129229	142874	158041	3.8	4.6	2.4	2.0
Wind	67	350	1913	6060	12441	17372	23321	27030	29437	39.8	20.6	6.5	2.4
Solar and others	153	273	418	816	2149	4168	6242	7669	8671	10.6	17.8	11.3	3.3
Geothermal	3190	3444	3412	5395	5562	5624	5756	5998	6567	0.7	5.0	0.3	1.3
Net Imports	**748677**	**730704**	**818875**	**975298**	**1073937**	**1213468**	**1301127**	**1358383**	**1375782**	**0.9**	**2.7**	**1.9**	**0.6**
Solids	79289	79183	98575	126702	153315	181784	200088	212519	209834	2.2	4.5	2.7	0.5
Oil	530805	504448	525661	589611	623018	669687	706804	723977	729187	-0.1	1.7	1.3	0.3
- Crude oil and Feedstocks	503539	488479	507317	574313	612296	659150	696273	713873	720959	0.1	1.9	1.3	0.3
- Oil products	27265	15969	18344	15298	10722	10537	10530	10104	8228	-3.9	-5.2	-0.2	-2.4
Natural gas	135121	145288	192531	256828	294227	358047	389963	417103	431449	3.6	4.3	2.9	1.0
Electricity	3321	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2
Gross Inland Consumption	**1649991**	**1650662**	**1711954**	**1811406**	**1854101**	**1927639**	**1967569**	**1996562**	**2004713**	**0.4**	**0.8**	**0.6**	**0.2**
Solids	450105	364252	321390	320065	318268	334149	341852	346191	335642	-3.3	-0.1	0.7	-0.2
Oil	625464	642003	650399	665514	674035	690801	701599	707980	708247	0.4	0.4	0.4	0.1
Natural gas	294905	333268	393417	444804	462439	487045	504897	515409	516210	2.9	1.6	0.9	0.2
Nuclear	202589	223028	243761	257360	245217	243715	221472	208950	206403	1.9	0.1	-1.0	-0.7
Electricity	3323	1508	1687	973	1496	1466	1040	927	923	-6.6	-1.2	-3.6	-1.2
Renewable energy forms	73604	86602	101302	122689	152646	170461	196709	217106	237287	3.2	4.2	2.6	1.9
as % in Gross Inland Consumption													
Solids	27.3	22.1	18.8	17.7	17.2	17.3	17.4	17.3	16.7				
Oil	37.9	38.9	38.0	36.7	36.4	35.8	35.7	35.5	35.3				
Natural gas	17.9	20.2	23.0	24.6	24.9	25.3	25.7	25.8	25.7				
Nuclear	12.3	13.5	14.2	14.2	13.2	12.6	11.3	10.5	10.3				
Renewable energy forms	4.5	5.2	5.9	6.8	8.2	8.8	10.0	10.9	11.8				
Electricity Generation in GWh_e	**2562817**	**2712158**	**2992030**	**3275359**	**3568320**	**3839408**	**4078237**	**4272996**	**4408034**	**1.6**	**1.8**	**1.3**	**0.8**
Nuclear	794718	881662	944823	997519	951111	948709	865576	829677	872262	1.7	0.1	-0.9	0.1
Hydro & wind	292648	330306	375545	378860	481529	538143	619322	676027	714430	2.5	2.5	2.5	1.4
Thermal (incl. biomass)	1475450	1500190	1671662	1898980	2135680	2352557	2593340	2767291	2821342	1.3	2.5	2.0	0.8
Fuel Inputs for Thermal Power Generation	**379588**	**365762**	**382767**	**423183**	**415848**	**440003**	**466120**	**480100**	**473699**	**0.1**	**0.8**	**1.1**	**0.2**
Solids	259913	233747	223114	229144	232463	248240	257475	264078	256705	-1.5	0.4	1.0	0.0
Oil (including refinery gas)	54361	51375	39172	29499	18358	14940	13366	11604	10522	-3.2	-7.3	-3.1	-2.4
Gas	56680	67840	102572	133257	132457	144740	153813	155776	148530	6.1	2.6	1.5	-0.3
Biomass & Waste	5861	9809	14969	26638	27764	27199	36433	43340	52041	9.8	6.4	2.8	3.6
Geothermal heat	2774	2992	2939	4645	4806	4884	5032	5301	5900	0.6	5.0	0.5	1.6
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**835145**	**808984**	**818851**	**834206**	**843634**	**868673**	**885771**	**895757**	**900529**	**-0.2**	**0.3**	**0.5**	**0.2**
Refineries	673810	699352	727451	749312	750904	771020	783740	791845	794522	0.8	0.3	0.4	0.1
Biofuels and hydrogen production	2	202	624	3206	15230	23876	32268	37906	42427	80.0	37.6	7.8	2.8
District heating	33413	23351	19302	16177	19742	19218	18450	18404	18902	-5.3	0.2	-0.7	0.2
Others	127920	86079	71473	65511	57757	54558	51313	47602	44678	-5.7	-2.1	-1.2	-1.4
Energy Branch Consumption	**81962**	**88206**	**87583**	**93941**	**90721**	**90473**	**91540**	**93131**	**93293**	**0.7**	**0.4**	**0.1**	**0.2**
Non-Energy Uses	**96068**	**105319**	**109135**	**111706**	**116067**	**120995**	**125519**	**128820**	**131214**	**1.3**	**0.6**	**0.8**	**0.4**
Final Energy Demand	**1070684**	**1066881**	**1112182**	**1166880**	**1237040**	**1302036**	**1347807**	**1382755**	**1405680**	**0.4**	**1.1**	**0.9**	**0.4**
by sector													
Industry	367505	325769	324835	324493	338508	355349	367691	378367	386379	-1.2	0.4	0.8	0.5
- energy intensive industries	236724	213853	212264	209326	216422	224917	230337	234372	236848	-1.1	0.2	0.6	0.3
- other industrial sectors	130780	111916	112571	115167	122086	130432	137355	143995	149531	-1.5	0.8	1.2	0.9
Residential	264548	279716	287255	307013	320538	329712	336005	340246	343345	0.8	1.1	0.5	0.2
Services/Agriculture	159192	161639	160963	173669	187079	198671	205469	210042	212878	0.1	1.5	0.9	0.4
Transport	279440	299758	339129	361705	390915	418304	438642	454100	463079	2.0	1.4	1.2	0.5
by fuel													
Solids	130725	85607	61781	53475	54508	55303	55440	53938	51328	-7.2	-1.2	0.2	-0.8
Oil	442561	455056	477166	492540	510408	528762	539780	548282	549760	0.8	0.7	0.6	0.2
Gas	227872	245996	267506	287197	299128	308836	314216	319612	326376	1.6	1.1	0.5	0.4
Electricity	184059	194149	217155	237501	262655	285252	303129	316864	326805	1.7	1.9	1.4	0.8
Heat (from CHP and District Heating)	48744	45026	40988	41333	41412	43395	46154	47361	48385	-1.7	0.1	1.1	0.5
Other	36724	41048	47586	54833	68929	80488	89089	96698	103025	2.6	3.8	2.6	1.5
CO_2 Emissions (Mt of CO_2)	**4046.9**	**3819.5**	**3820.8**	**3947.0**	**3996.6**	**4156.8**	**4252.5**	**4306.6**	**4263.7**	**-0.6**	**0.5**	**0.6**	**0.0**
Power generation/District heating	1468.7	1335.4	1319.6	1374.9	1350.9	1430.8	1482.8	1509.5	1462.5	-1.1	0.2	0.9	-0.1
Energy Branch	154.2	172.4	173.1	184.3	171.5	172.2	171.5	169.1	164.7	1.2	-0.1	0.0	-0.4
Industry	801.7	684.2	632.4	599.4	617.1	630.4	637.3	637.5	633.3	-2.3	-0.2	0.3	-0.1
Residential	507.7	482.4	466.1	483.1	487.3	487.0	485.0	483.4	483.3	-0.9	0.4	0.0	0.0
Services/Agriculture	304.7	274.8	242.0	254.6	259.6	265.1	263.4	261.7	260.0	-2.3	0.7	0.1	-0.1
Transport	810.0	870.4	987.6	1050.6	1110.2	1171.2	1212.5	1245.4	1259.8	2.0	1.2	0.9	0.4
CO_2 Emissions Index (1990=100)	**100.0**	**94.4**	**94.4**	**97.5**	**98.8**	**102.7**	**105.1**	**106.4**	**105.4**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													EU27: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	470.388	476.493	480.506	489.091	492.946	495.353	496.408	496.268	494.784	0.2	0.3	0.1	0.0
GDP (in 000 M€05)	8108.7	8712.4	10046.1	10949.3	12430.0	14059.2	15686.9	17265.7	18687.0	2.2	2.2	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	203.5	189.5	170.4	165.4	149.2	137.1	125.4	115.6	107.3	-1.8	-1.3	-1.7	-1.6
Gross Inl. Cons./Capita (toe/inhabitant)	3.51	3.46	3.56	3.70	3.76	3.89	3.96	4.02	4.05	0.2	0.5	0.5	0.2
Electricity Generated/Capita (kWh gross/inhabitant)	5448	5692	6227	6697	7239	7751	8215	8610	8909	1.3	1.5	1.3	0.8
Carbon intensity (t of CO_2/toe of GIC)	2.45	2.31	2.23	2.18	2.16	2.16	2.16	2.16	2.13	-0.9	-0.3	0.0	-0.2
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.60	8.02	7.95	8.07	8.11	8.39	8.57	8.68	8.62	-0.8	0.2	0.6	0.1
CO_2 Emissions to GDP (t of CO2/M€05)	499.1	438.4	380.3	360.5	321.5	295.7	271.1	249.4	228.2	-2.7	-1.7	-1.7	-1.7
Import Dependency %	44.4	43.3	46.7	52.4	56.3	61.2	64.2	66.0	66.6	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	132.0	115.0	100.0	94.5	87.5	81.4	75.5	70.8	67.2	-2.7	-1.3	-1.5	-1.2
Residential (Energy on Private Income)	114.2	112.7	100.0	96.9	90.0	82.6	75.9	70.2	65.5	-1.3	-1.0	-1.7	-1.5
Services/Agriculture (Energy on Value added)	126.3	117.3	100.0	97.5	92.1	86.1	79.6	73.8	68.9	-2.3	-0.8	-1.4	-1.4
Transport (Energy on GDP)	102.1	101.9	100.0	97.9	93.2	88.1	82.8	77.9	73.4	-0.2	-0.7	-1.2	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.46	0.40	0.37	0.36	0.33	0.32	0.31	0.31	0.29	-2.0	-1.3	-0.3	-0.8
Final energy demand (t of CO_2/toe)	2.26	2.17	2.09	2.05	2.00	1.96	1.93	1.90	1.88	-0.8	-0.5	-0.4	-0.3
Industry	2.18	2.10	1.95	1.85	1.82	1.77	1.73	1.68	1.64	-1.1	-0.7	-0.5	-0.6
Residential	1.92	1.72	1.62	1.57	1.52	1.48	1.44	1.42	1.41	-1.7	-0.6	-0.5	-0.3
Services/Agriculture	1.91	1.70	1.50	1.47	1.39	1.33	1.28	1.25	1.22	-2.4	-0.8	-0.8	-0.5
Transport	2.90	2.90	2.91	2.90	2.84	2.80	2.76	2.74	2.72	0.0	-0.3	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**680864**	**739517**	**835300**	**861624**	**901228**	**933704**	**966119**		**2.1**	**0.8**	**0.7**
Nuclear energy			135806	134187	125494	123653	112688	98580	102444		-0.8	-1.1	-0.9
Renewable energy			120596	151902	186712	211736	244844	266126	279257		4.5	2.7	1.3
Hydro (pumping excluded)			107638	109284	111355	113039	114302	114886	115520		0.3	0.3	0.1
Wind			12786	40822	71335	92238	120374	137231	145940		18.8	5.4	1.9
Solar			172	1797	3782	6142	8979	12276	15394		36.2	9.0	5.5
Other renewables (tidal etc.)			0	0	240	317	1189	1733	2403			17.4	7.3
Thermal power			424462	453429	523094	526235	543695	568997	584417		2.1	0.4	0.7
of which cogeneration units			123462	133684	127287	138508	158320	167584	170049		0.3	2.2	0.7
Solids fired			191258	188695	187875	188443	186273	191516	188345		-0.2	-0.1	0.1
Gas fired			149738	181031	243517	261100	281835	301287	313393		5.0	1.5	1.1
Oil fired			71858	67498	68200	50189	38323	31435	30718		-0.5	-5.6	-2.2
Biomass-waste fired			10810	15216	22504	25502	36234	43723	50700		7.6	4.9	3.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			798	988	998	1001	1030	1036	1261		2.3	0.3	2.0
Load factor for net electric capacities (%)			47.4	47.8	46.4	48.6	49.3	49.7	49.5				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			37.6	38.6	44.2	46.0	47.8	49.6	51.2				
CHP indicator (% of electricity from CHP)			12.7	12.8	16.7	17.9	20.3	21.2	21.1				
Non fossil fuels in electricity generation (%)			46.1	45.4	44.1	42.7	41.4	40.9	42.6				
- nuclear			31.6	30.5	26.7	24.7	21.2	19.4	19.8				
- renewable energy forms			14.5	14.9	17.4	18.0	20.2	21.5	22.8				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			7.9	8.6	10.5	11.3	12.7	13.7	14.7				
Biofuels share in transport gasoline and diesel (%)			0.2	1.1	3.9	5.7	7.4	8.5	9.5				
Transport sector													
Passenger transport activity (Gpkm)	**4784.5**	**5221.8**	**5819.7**	**6245.4**	**6783.8**	**7350.0**	**7897.1**	**8412.9**	**8860.8**	**2.0**	**1.5**	**1.5**	**1.2**
Public road transport	555.6	498.3	514.0	529.0	540.4	557.5	580.2	600.5	617.4	-0.8	0.5	0.7	0.6
Private cars and motorcycles	3459.2	3930.1	4375.8	4714.4	5115.0	5498.6	5849.3	6171.7	6441.4	2.4	1.6	1.4	1.0
Rail	464.8	412.0	438.5	446.8	468.2	509.2	556.2	611.5	667.6	-0.6	0.7	1.7	1.8
Aviation	247.9	325.9	442.0	506.3	610.9	734.5	860.1	976.5	1080.6	6.0	3.3	3.5	2.3
Inland navigation	57.0	55.4	49.4	48.9	49.4	50.2	51.4	52.7	53.8	-1.4	0.0	0.4	0.5
Travel per person (km per capita)	10171	10959	12112	12769	13762	14838	15909	16952	17908	1.8	1.3	1.5	1.2
Freight transport activity (Gtkm)	**1878.9**	**1929.0**	**2174.9**	**2463.9**	**2769.7**	**3061.3**	**3321.5**	**3546.3**	**3717.2**	**1.5**	**2.4**	**1.8**	**1.1**
Trucks	1096.9	1279.3	1507.5	1790.0	2048.3	2278.9	2485.6	2666.7	2803.0	3.2	3.1	2.0	1.2
Rail	524.8	385.0	396.1	393.9	427.2	469.5	504.6	535.2	558.9	-2.8	0.8	1.7	1.0
Inland navigation	257.2	264.7	271.3	280.1	294.2	312.9	331.3	344.3	355.3	0.5	0.8	1.2	0.7
Freight activity per unit of GDP (tkm/000 €05)	232	221	216	225	223	218	212	205	199	-0.7	0.3	-0.5	-0.6
Energy demand in transport (ktoe)	**279440**	**299758**	**339129**	**361705**	**390915**	**418304**	**438642**	**454100**	**463079**	**2.0**	**1.4**	**1.2**	**0.5**
Public road transport	5216	4538	4464	4316	4256	4275	4335	4339	4279	-1.5	-0.5	0.2	-0.1
Private cars and motorcycles	148125	159084	174735	175721	183393	189769	193342	194654	193848	1.7	0.5	0.5	0.0
Trucks	80641	85832	99349	116963	129609	142040	151841	160060	165301	2.1	2.7	1.6	0.9
Rail	9605	9409	9710	9605	9849	10005	9688	9086	7686	0.1	0.1	-0.2	-2.3
Aviation	28947	34014	45368	49744	58234	66410	73432	79901	85904	4.6	2.5	2.3	1.6
Inland navigation	6905	6881	5503	5356	5574	5805	6003	6059	6061	-2.2	0.1	0.7	0.1
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	39.1	38.8	39.4	37.5	36.9	36.0	34.9	33.6	32.5	0.1	-0.6	-0.6	-0.7
Freight transport (toe/Mtkm)	49.2	50.4	50.5	51.7	50.7	50.1	49.2	48.2	47.0	0.3	0.0	-0.3	-0.4

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

EU15: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**710044**	**742066**	**760438**	**714865**	**672119**	**608418**	**556095**	**524806**	**516477**	**0.7**	**-1.2**	**-1.9**	**-0.7**
Solids	210887	137429	99317	87209	73505	67442	60088	57355	54489	-7.3	-3.0	-2.0	-1.0
Oil	117986	159738	161346	122484	96599	68747	44680	36030	32690	3.2	-5.0	-7.4	-3.1
Natural gas	132777	167045	190481	171437	151931	112464	98532	82839	70056	3.7	-2.2	-4.2	-3.4
Nuclear	183326	204557	222846	232411	224281	220515	192262	172215	168397	2.0	0.1	-1.5	-1.3
Renewable energy sources	65069	73297	86447	101324	125802	139251	160533	176367	190846	2.9	3.8	2.5	1.7
Hydro	22387	25130	27518	22849	25372	24934	25432	26073	26397	2.1	-0.8	0.0	0.4
Biomass & Waste	39357	44216	53319	66495	80984	88242	101313	111478	121978	3.1	4.3	2.3	1.9
Wind	67	350	1912	6037	12125	16838	22623	26161	28411	39.8	20.3	6.4	2.3
Solar and others	153	242	383	771	2011	3871	5667	6907	7738	9.6	18.0	10.9	3.2
Geothermal	3104	3358	3316	5173	5311	5365	5498	5749	6320	0.7	4.8	0.3	1.4
Net Imports	**641811**	**652358**	**742281**	**878304**	**946134**	**1064040**	**1134699**	**1177414**	**1182924**	**1.5**	**2.5**	**1.8**	**0.4**
Solids	87915	94527	110284	131424	143247	164329	176798	185267	178997	2.3	2.6	2.1	0.1
Oil	458925	446591	472409	527899	551795	590672	621193	633748	636077	0.3	1.6	1.2	0.2
- Crude oil and Feedstocks	435511	434626	455447	512533	542383	581601	612166	625273	629688	0.4	1.8	1.2	0.3
- Oil products	23414	11964	16963	15366	9412	9071	9027	8474	6389	-3.2	-5.7	-0.4	-3.4
Natural gas	92497	109277	155340	212897	244416	301942	328587	348613	356845	5.3	4.6	3.0	0.8
Electricity	2333	1619	3644	3904	3613	3298	3410	4391	4913	4.6	-0.1	-0.6	3.7
Gross Inland Consumption	**1321155**	**1367802**	**1457344**	**1536642**	**1566088**	**1618065**	**1634271**	**1643811**	**1639605**	**1.0**	**0.7**	**0.4**	**0.0**
Solids	302139	237010	216152	216615	216752	231770	236887	242622	233486	-3.3	0.0	0.9	-0.1
Oil	544483	575817	588382	595668	596228	605025	609351	611368	608971	0.8	0.1	0.2	0.0
Natural gas	223442	275139	339268	384539	396347	414405	427118	431452	426900	4.3	1.6	0.8	0.0
Nuclear	183326	204557	222846	232411	224281	220515	192262	172215	168397	2.0	0.1	-1.5	-1.3
Electricity	2335	1619	3644	3904	3613	3298	3410	4391	4913	4.6	-0.1	-0.6	3.7
Renewable energy forms	65432	73659	87052	103504	128866	143051	165244	181762	196938	2.9	4.0	2.5	1.8
as % in Gross Inland Consumption													
Solids	22.9	17.3	14.8	14.1	13.8	14.3	14.5	14.8	14.2				
Oil	41.2	42.1	40.4	38.8	38.1	37.4	37.3	37.2	37.1				
Natural gas	16.9	20.1	23.3	25.0	25.3	25.6	26.1	26.2	26.0				
Nuclear	13.9	15.0	15.3	15.1	14.3	13.6	11.8	10.5	10.3				
Renewable energy forms	5.0	5.4	6.0	6.7	8.2	8.8	10.1	11.1	12.0				
Electricity Generation in GWh_e	**2140839**	**2311112**	**2575134**	**2816401**	**3070076**	**3285018**	**3452540**	**3576832**	**3656001**	**1.9**	**1.8**	**1.2**	**0.6**
Nuclear	720059	810120	863759	900819	869460	857979	748453	676539	710788	1.8	0.1	-1.5	-0.5
Hydro & wind	261100	296301	342326	337364	439733	492374	570456	623847	658203	2.7	2.5	2.6	1.4
Thermal (incl. biomass)	1159679	1204691	1369049	1578218	1760882	1934665	2133630	2276446	2287010	1.7	2.5	1.9	0.7
Fuel Inputs for Thermal Power Generation	**271921**	**272420**	**298671**	**337024**	**328494**	**350073**	**372069**	**384556**	**374905**	**0.9**	**1.0**	**1.3**	**0.1**
Solids	182496	161427	155648	160320	162645	176919	182823	190392	182413	-1.6	0.4	1.2	0.0
Oil (including refinery gas)	42108	43423	34135	26192	16543	13661	12265	11089	10156	-2.1	-7.0	-2.9	-1.9
Gas	39116	55096	91594	120654	119017	129475	138507	138949	130926	8.9	2.7	1.5	-0.6
Biomass & Waste	5427	9482	14356	25213	25483	25133	33442	38826	45509	10.2	5.9	2.8	3.1
Geothermal heat	2774	2992	2939	4645	4806	4884	5032	5301	5900	0.6	5.0	0.5	1.6
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**701511**	**701901**	**725616**	**731919**	**737245**	**754590**	**764290**	**769533**	**771710**	**0.3**	**0.2**	**0.4**	**0.1**
Refineries	594671	635325	665309	676015	670517	682428	688461	692178	692360	1.1	0.1	0.3	0.1
Biofuels and hydrogen production	2	191	624	3131	13907	21576	28655	33205	36755	80.0	36.4	7.5	2.5
District heating	10466	8384	8998	7380	10543	10450	9477	9229	9743	-1.5	1.6	-1.1	0.3
Others	96372	58001	50684	45393	42277	40136	37697	34921	32851	-6.2	-1.8	-1.1	-1.4
Energy Branch Consumption	**63939**	**68576**	**69751**	**73457**	**68104**	**66663**	**66494**	**66865**	**66336**	**0.9**	**-0.2**	**-0.2**	**0.0**
Non-Energy Uses	**83968**	**93632**	**95343**	**96319**	**99015**	**101757**	**104068**	**105351**	**106109**	**1.3**	**0.4**	**0.5**	**0.2**
Final Energy Demand	**860751**	**895842**	**958535**	**1002418**	**1053955**	**1099780**	**1128578**	**1149451**	**1161512**	**1.1**	**1.0**	**0.7**	**0.3**
by sector													
Industry	265938	258209	272431	273037	282907	293812	300234	305684	309137	0.2	0.4	0.6	0.3
- energy intensive industries	178806	168576	176390	173888	178924	184226	186512	187901	188039	-0.1	0.1	0.4	0.1
- other industrial sectors	87132	89632	96042	99150	103983	109587	113722	117784	121099	1.0	0.8	0.9	0.6
Residential	216656	227857	240106	257875	267960	274234	277816	279886	281081	1.0	1.1	0.4	0.1
Services/Agriculture	125799	134927	135542	147088	157194	165431	169392	171691	172599	0.7	1.5	0.8	0.2
Transport	252358	274849	310456	324418	345894	366304	381135	392190	398694	2.1	1.1	1.0	0.5
by fuel													
Solids	82426	49060	38615	33595	33371	34578	35207	33946	32423	-7.3	-1.4	0.5	-0.8
Oil	394480	417161	435313	442888	453621	464891	470512	474945	474500	1.0	0.4	0.4	0.1
Gas	178720	208282	233088	250085	258237	263785	265621	267867	271201	2.7	1.0	0.3	0.2
Electricity	155929	169271	191711	210139	231009	248964	261965	271385	277587	2.1	1.9	1.3	0.6
Heat (from CHP and District Heating)	16597	19840	22456	24231	24717	25882	27482	27532	27837	3.1	1.0	1.1	0.1
Other	32598	32229	37353	41480	53000	61680	67791	73776	77964	1.4	3.6	2.5	1.4
CO_2 Emissions (Mt of CO_2)	**3091.7**	**3040.7**	**3145.0**	**3253.8**	**3264.3**	**3387.2**	**3446.2**	**3483.2**	**3428.9**	**0.2**	**0.4**	**0.5**	**-0.1**
Power generation/District heating	998.4	939.7	974.0	1031.8	1007.0	1079.7	1118.2	1147.1	1096.7	-0.2	0.3	1.1	-0.2
Energy Branch	130.8	144.1	146.0	152.6	136.4	136.0	134.2	130.8	127.4	1.1	-0.7	-0.2	-0.5
Industry	581.2	527.7	512.5	494.1	503.3	510.1	509.8	504.2	497.2	-1.3	-0.2	0.1	-0.2
Residential	414.6	402.9	406.8	420.2	420.4	419.1	416.7	414.1	412.9	-0.2	0.3	-0.1	-0.1
Services/Agriculture	232.8	226.2	200.0	212.0	214.5	216.7	213.5	210.7	208.2	-1.5	0.7	0.0	-0.3
Transport	733.8	800.1	905.8	943.0	982.7	1025.5	1053.8	1076.4	1086.4	2.1	0.8	0.7	0.3
CO_2 Emissions Index (1990=100)	**100.0**	**98.4**	**101.7**	**105.2**	**105.6**	**109.6**	**111.5**	**112.7**	**110.9**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									EU15: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	363.493	370.669	375.531	385.566	390.768	394.726	397.458	398.780	398.737	0.3	0.4	0.2	0.0
GDP (in 000 M€05)	7631.5	8253.2	9503.7	10287.7	11598.2	13013.4	14402.8	15727.0	16891.5	2.2	2.0	2.2	1.6
Gross Inl. Cons./GDP (toe/M€05)	173.1	165.7	153.3	149.4	135.0	124.3	113.5	104.5	97.1	-1.2	-1.3	-1.7	-1.5
Gross Inl. Cons./Capita (toe/inhabitant)	3.63	3.69	3.88	3.99	4.01	4.10	4.11	4.12	4.11	0.7	0.3	0.3	0.0
Electricity Generated/Capita (kWh gross/inhabitant)	5890	6235	6857	7305	7857	8322	8687	8969	9169	1.5	1.4	1.0	0.5
Carbon intensity (t of CO_2/toe of GIC)	2.34	2.22	2.16	2.12	2.08	2.09	2.11	2.12	2.09	-0.8	-0.3	0.1	-0.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.51	8.20	8.37	8.44	8.35	8.58	8.67	8.73	8.60	-0.2	0.0	0.4	-0.1
CO_2 Emissions to GDP (t of CO2/M€05)	405.1	368.4	330.9	316.3	281.5	260.3	239.3	221.5	203.0	-2.0	-1.6	-1.6	-1.6
Import Dependency %	47.4	46.5	49.5	55.4	58.5	63.6	67.1	69.2	69.6	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	114.3	107.6	100.0	96.2	89.6	83.4	77.3	72.4	68.6	-1.3	-1.1	-1.5	-1.2
Residential (Energy on Private Income)	112.0	109.6	100.0	98.7	92.1	84.9	78.4	72.8	68.3	-1.1	-0.8	-1.6	-1.4
Services/Agriculture (Energy on Value added)	119.0	116.4	100.0	98.5	92.8	86.5	79.7	73.7	68.8	-1.7	-0.7	-1.5	-1.5
Transport (Energy on GDP)	101.2	101.9	100.0	96.5	91.3	86.2	81.0	76.3	72.3	-0.1	-0.9	-1.2	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.42	0.37	0.34	0.33	0.30	0.30	0.29	0.29	0.27	-2.1	-1.4	-0.1	-0.7
Final energy demand (t of CO_2/toe)	2.28	2.18	2.11	2.06	2.01	1.97	1.94	1.92	1.90	-0.8	-0.5	-0.3	-0.2
Industry	2.19	2.04	1.88	1.81	1.78	1.74	1.70	1.65	1.61	-1.5	-0.6	-0.5	-0.5
Residential	1.91	1.77	1.69	1.63	1.57	1.53	1.50	1.48	1.47	-1.2	-0.8	-0.4	-0.2
Services/Agriculture	1.85	1.68	1.48	1.44	1.36	1.31	1.26	1.23	1.21	-2.2	-0.8	-0.8	-0.4
Transport	2.91	2.91	2.92	2.91	2.84	2.80	2.76	2.74	2.72	0.0	-0.3	-0.3	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**579013**	**634099**	**720614**	**741334**	**777197**	**806448**	**832895**		**2.2**	**0.8**	**0.7**
Nuclear energy			123038	121329	114686	112410	98444	80379	83320		-0.7	-1.5	-1.7
Renewable energy			106654	136808	169340	192284	223879	243731	255443		4.7	2.8	1.3
Hydro (pumping excluded)			93714	94435	96001	97029	97848	98213	98613		0.2	0.2	0.1
Wind			12769	40581	69331	88842	115957	131693	139350		18.4	5.3	1.9
Solar			171	1792	3768	6097	8886	12092	15077		36.2	9.0	5.4
Other renewables (tidal etc.)			0	0	240	317	1189	1733	2403			17.4	7.3
Thermal power			349322	375962	436588	436640	454874	482338	494132		2.3	0.4	0.8
of which cogeneration units			99418	108403	105488	115231	131984	139063	139719		0.6	2.3	0.6
Solids fired			136506	133653	131930	128775	125567	135225	131846		-0.3	-0.5	0.5
Gas fired			136206	165636	220465	237514	259883	279166	289539		4.9	1.7	1.1
Oil fired			65439	61289	61712	45041	34094	28929	28405		-0.6	-5.8	-1.8
Biomass-waste fired			10373	14396	21483	24310	34300	37983	43082		7.6	4.8	2.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			798	988	998	1001	1030	1036	1261		2.3	0.3	2.0
Load factor for net electric capacities (%)			48.3	48.2	46.5	48.5	48.6	48.3	47.8				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			39.4	40.3	46.1	47.5	49.3	50.9	52.5				
CHP indicator (% of electricity from CHP)			11.9	12.1	15.7	17.1	20.0	20.8	20.9				
Non fossil fuels in electricity generation (%)			49.1	47.6	46.8	45.3	43.6	42.5	44.5				
- nuclear			33.5	32.0	28.3	26.1	21.7	18.9	19.4				
- renewable energy forms			15.5	15.6	18.5	19.2	21.9	23.6	25.0				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			7.8	8.3	10.3	11.2	12.6	13.7	14.7				
Biofuels share in transport gasoline and diesel (%)			0.2	1.2	4.0	5.9	7.6	8.7	9.6				
Transport sector													
Passenger transport activity (Gpkm)	**4173.6**	**4699.3**	**5224.8**	**5580.0**	**6021.8**	**6472.3**	**6892.5**	**7277.7**	**7601.1**	**2.3**	**1.4**	**1.4**	**1.0**
Public road transport	371.3	382.0	406.4	425.3	436.3	451.3	468.9	484.1	496.6	0.9	0.7	0.7	0.6
Private cars and motorcycles	3195.3	3631.4	3986.1	4243.2	4553.2	4836.7	5082.8	5299.6	5469.5	2.2	1.3	1.1	0.7
Rail	317.8	321.5	361.0	381.1	403.5	439.5	479.4	525.7	573.0	1.3	1.1	1.7	1.8
Aviation	234.2	310.1	422.6	482.2	580.2	695.5	810.9	916.5	1009.3	6.1	3.2	3.4	2.2
Inland navigation	55.0	54.3	48.6	48.1	48.6	49.3	50.5	51.8	52.8	-1.2	0.0	0.4	0.4
Travel per person (km per capita)	11482	12678	13913	14472	15410	16397	17341	18250	19063	1.9	1.0	1.2	1.0
Freight transport activity (Gtkm)	**1440.4**	**1605.4**	**1833.3**	**1996.7**	**2183.4**	**2364.7**	**2528.2**	**2669.4**	**2779.5**	**2.4**	**1.8**	**1.5**	**1.0**
Trucks	935.7	1124.1	1317.4	1478.1	1638.8	1785.0	1919.0	2037.0	2127.2	3.5	2.2	1.6	1.0
Rail	254.9	221.6	249.4	251.2	265.9	285.5	299.8	313.1	324.6	-0.2	0.6	1.2	0.8
Inland navigation	249.8	259.7	266.4	267.4	278.6	294.2	309.4	319.3	327.7	0.6	0.4	1.1	0.6
Freight activity per unit of GDP (tkm/000 €05)	189	195	193	194	188	182	176	170	165	0.2	-0.2	-0.7	-0.6
Energy demand in transport (ktoe)	**252358**	**274849**	**310456**	**324418**	**345894**	**366304**	**381135**	**392190**	**398694**	**2.1**	**1.1**	**1.0**	**0.5**
Public road transport	3492	3473	3542	3485	3441	3470	3529	3543	3506	0.1	-0.3	0.3	-0.1
Private cars and motorcycles	138894	148322	160129	158854	163769	167648	169176	168776	167361	1.4	0.2	0.3	-0.1
Trucks	69233	76614	89688	100755	108937	117521	124486	130504	134125	2.6	2.0	1.3	0.7
Rail	6953	7370	7855	8107	8297	8334	7980	7427	6274	1.2	0.5	-0.4	-2.4
Aviation	27367	32363	43881	47937	55967	63634	70087	76023	81520	4.8	2.5	2.3	1.5
Inland navigation	6419	6707	5362	5279	5481	5696	5877	5917	5906	-1.8	0.2	0.7	0.0
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	41.7	40.2	40.6	38.5	37.8	36.9	35.8	34.7	33.7	-0.3	-0.7	-0.5	-0.6
Freight transport (toe/Mtkm)	54.4	53.7	53.8	55.0	54.2	53.9	53.2	52.4	51.2	-0.1	0.1	-0.2	-0.4

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

NM12: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**222967**	**204232**	**177130**	**181528**	**161694**	**161805**	**168664**	**173679**	**174214**	**-2.3**	**-0.9**	**0.4**	**0.3**
Solids	155030	140495	114376	109242	91447	84924	81676	76317	71319	-3.0	-2.2	-1.1	-1.3
Oil	10824	10318	10319	10509	8067	8420	8431	8279	8130	-0.5	-2.4	0.4	-0.4
Natural gas	29670	21920	17077	16585	16280	16535	16402	15467	14705	-5.4	-0.5	0.1	-1.1
Nuclear	19264	18471	20914	24949	20936	23200	29210	36735	38006	0.8	0.0	3.4	2.7
Renewable energy sources	8179	13028	14443	20244	24964	28727	32944	36881	42053	5.9	5.6	2.8	2.5
Hydro	2713	2924	2856	3545	3278	3400	3498	3604	3785	0.5	1.4	0.7	0.8
Biomass & Waste	5380	9987	11455	16408	20980	24238	27916	31396	36063	7.8	6.2	2.9	2.6
Wind	0	0	1	24	316	533	698	869	1026		80.5	8.3	3.9
Solar and others	0	31	35	46	139	297	575	763	933		14.6	15.3	5.0
Geothermal	86	86	96	221	251	259	258	248	246	1.1	10.1	0.3	-0.4
Net Imports	**106866**	**78346**	**76593**	**96994**	**127803**	**149427**	**166428**	**180969**	**192857**	**-3.3**	**5.3**	**2.7**	**1.5**
Solids	-8626	-15344	-11709	-4723	10068	17456	23289	27252	30837			8.7	2.8
Oil	71880	57858	53252	61712	71223	79015	85611	90230	93110	-3.0	3.0	1.9	0.8
- Crude oil and Feedstocks	68029	53853	51871	61780	69913	77549	84107	88600	91271	-2.7	3.0	1.9	0.8
- Oil products	3851	4004	1381	-68	1310	1466	1503	1630	1839	-9.7	-0.5	1.4	2.0
Natural gas	42624	36012	37192	43931	49811	56105	61377	68490	74604	-1.4	3.0	2.1	2.0
Electricity	988	-111	-1957	-2931	-2117	-1832	-2369	-3465	-3989				
Gross Inland Consumption	**328836**	**282860**	**254611**	**274764**	**288014**	**309574**	**333298**	**352751**	**365108**	**-2.5**	**1.2**	**1.5**	**0.9**
Solids	147966	127242	105238	103450	101516	102379	104965	103569	102156	-3.4	-0.4	0.3	-0.3
Oil	80981	66186	62017	69846	77807	85776	92248	96611	99276	-2.6	2.3	1.7	0.7
Natural gas	71463	58130	54149	60266	66091	72640	77779	83957	89310	-2.7	2.0	1.6	1.4
Nuclear	19264	18471	20914	24949	20936	23200	29210	36735	38006	0.8	0.0	3.4	2.7
Electricity	988	-111	-1957	-2931	-2117	-1832	-2369	-3465	-3989				
Renewable energy forms	8172	12943	14250	19185	23780	27410	31465	35344	40349	5.7	5.3	2.8	2.5
as % in Gross Inland Consumption													
Solids	45.0	45.0	41.3	37.7	35.2	33.1	31.5	29.4	28.0				
Oil	24.6	23.4	24.4	25.4	27.0	27.7	27.7	27.4	27.2				
Natural gas	21.7	20.6	21.3	21.9	22.9	23.5	23.3	23.8	24.5				
Nuclear	5.9	6.5	8.2	9.1	7.3	7.5	8.8	10.4	10.4				
Renewable energy forms	2.5	4.6	5.6	7.0	8.3	8.9	9.4	10.0	11.1				
Electricity Generation in GWh_e	**421978**	**401046**	**416896**	**458958**	**498244**	**554391**	**625698**	**696164**	**752032**	**-0.1**	**1.8**	**2.3**	**1.9**
Nuclear	74659	71542	81063	96701	81651	90730	117123	153139	161474	0.8	0.1	3.7	3.3
Hydro & wind	31548	34005	33219	41496	41796	45768	48866	52180	56226	0.5	2.3	1.6	1.4
Thermal (incl. biomass)	315771	295499	302614	320762	374797	417892	459709	490845	534331	-0.4	2.2	2.1	1.5
Fuel Inputs for Thermal Power Generation	**107667**	**93342**	**84095**	**86159**	**87354**	**89930**	**94050**	**95543**	**98794**	**-2.4**	**0.4**	**0.7**	**0.5**
Solids	77417	72320	67466	68824	69818	71321	74652	73686	74292	-1.4	0.3	0.7	0.0
Oil (including refinery gas)	12253	7952	5037	3307	1814	1278	1100	516	366	-8.5	-9.7	-4.9	-10.4
Gas	17564	12744	10979	12603	13440	15265	15307	16827	17604	-4.6	2.0	1.3	1.4
Biomass & Waste	434	327	613	1424	2281	2066	2991	4515	6532	3.5	14.0	2.7	8.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**133634**	**107083**	**93235**	**102287**	**106388**	**114083**	**121480**	**126224**	**128819**	**-3.5**	**1.3**	**1.3**	**0.6**
Refineries	79138	64027	62142	73297	80387	88592	95279	99668	102162	-2.4	2.6	1.7	0.7
Biofuels and hydrogen production	0	11	0	75	1323	2300	3612	4701	5672			10.6	4.6
District heating	22948	14967	10304	8798	9199	8769	8973	9174	9160	-7.7	-1.1	-0.2	0.2
Others	31548	28078	20789	20117	15480	14423	13616	12681	11826	-4.1	-2.9	-1.3	-1.4
Energy Branch Consumption	**18022**	**19630**	**17832**	**20484**	**22617**	**23810**	**25045**	**26266**	**26957**	**-0.1**	**2.4**	**1.0**	**0.7**
Non-Energy Uses	**12100**	**11687**	**13792**	**15387**	**17052**	**19238**	**21451**	**23468**	**25105**	**1.3**	**2.1**	**2.3**	**1.6**
Final Energy Demand	**209933**	**171039**	**153647**	**164462**	**183085**	**202256**	**219229**	**233304**	**244169**	**-3.1**	**1.8**	**1.8**	**1.1**
by sector													
Industry	101567	67560	52404	51456	55601	61536	67457	72683	77242	-6.4	0.6	2.0	1.4
- energy intensive industries	57918	45277	35874	35439	37498	40692	43824	46471	48809	-4.7	0.4	1.6	1.1
- other industrial sectors	43649	22284	16530	16017	18103	20845	23633	26211	28432	-9.3	0.9	2.7	1.9
Residential	47891	51859	47149	49138	52577	55478	58189	60360	62263	-0.2	1.1	1.0	0.7
Services/Agriculture	33393	26712	25421	26581	29885	33240	36076	38351	40278	-2.7	1.6	1.9	1.1
Transport	27082	24908	28673	37287	45021	52000	57507	61910	64385	0.6	4.6	2.5	1.1
by fuel													
Solids	48299	36547	23166	19880	21136	20725	20234	19992	18905	-7.1	-0.9	-0.4	-0.7
Oil	48081	37896	41853	49652	56786	63871	69268	73336	75259	-1.4	3.1	2.0	0.8
Gas	49152	37714	34418	37113	40892	45051	48595	51745	55176	-3.5	1.7	1.7	1.3
Electricity	28129	24878	25444	27362	31646	36288	41163	45479	49219	-1.0	2.2	2.7	1.8
Heat (from CHP and District Heating)	32147	25186	18532	17102	16695	17512	18672	19828	20548	-5.4	-1.0	1.1	1.0
Other	4125	8819	10233	13353	15930	18808	21298	22923	25061	9.5	4.5	2.9	1.6
CO_2 Emissions (Mt of CO_2)	**955.2**	**778.8**	**675.8**	**693.2**	**732.3**	**769.6**	**806.3**	**823.3**	**834.8**	**-3.4**	**0.8**	**1.0**	**0.3**
Power generation/District heating	470.3	395.7	345.6	343.1	344.0	351.1	364.5	362.4	365.8	-3.0	0.0	0.6	0.0
Energy Branch	23.3	28.4	27.1	31.7	35.1	36.2	37.3	38.3	37.3	1.5	2.6	0.6	0.0
Industry	220.5	156.5	119.9	105.3	113.8	120.3	127.5	133.3	136.1	-5.9	-0.5	1.1	0.7
Residential	93.1	79.5	59.3	62.9	66.9	67.9	68.3	69.2	70.4	-4.4	1.2	0.2	0.3
Services/Agriculture	71.8	48.6	42.0	42.6	45.1	48.4	49.9	51.0	51.8	-5.2	0.7	1.0	0.4
Transport	76.2	70.2	81.8	107.6	127.5	145.7	158.8	168.9	173.4	0.7	4.5	2.2	0.9
CO_2 Emissions Index (1990=100)	**100.0**	**81.5**	**70.7**	**72.6**	**76.7**	**80.6**	**84.4**	**86.2**	**87.4**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										NM12: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	106.896	105.824	104.975	103.525	102.178	100.627	98.951	97.489	96.047	-0.2	-0.3	-0.3	-0.3
GDP (in 000 M€05)	477.2	459.2	542.4	661.5	831.8	1045.8	1284.1	1538.7	1795.5	1.3	4.4	4.4	3.4
Gross Inl. Cons./GDP (toe/M€05)	689.1	616.0	469.4	415.4	346.3	296.0	259.6	229.2	203.3	-3.8	-3.0	-2.8	-2.4
Gross Inl. Cons./Capita (toe/inhabitant)	3.08	2.67	2.43	2.65	2.82	3.08	3.37	3.62	3.80	-2.3	1.5	1.8	1.2
Electricity Generated/Capita (kWh gross/inhabitant)	3948	3790	3971	4433	4876	5509	6323	7141	7830	0.1	2.1	2.6	2.2
Carbon intensity (t of CO_2/toe of GIC)	2.90	2.75	2.65	2.52	2.54	2.49	2.42	2.33	2.29	-0.9	-0.4	-0.5	-0.6
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.94	7.36	6.44	6.70	7.17	7.65	8.15	8.45	8.69	-3.2	1.1	1.3	0.6
CO_2 Emissions to GDP (t of CO2/M€05)	2001.6	1696.1	1245.9	1047.8	880.4	735.8	628.0	535.1	465.0	-4.6	-3.4	-3.3	-3.0
Import Dependency %	32.4	27.6	30.0	35.1	44.1	48.0	49.7	51.0	52.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	214.9	172.0	100.0	76.9	64.2	56.4	50.6	46.1	43.0	-7.4	-4.3	-2.4	-1.6
Residential (Energy on Private Income)	123.8	132.7	100.0	76.4	65.4	55.1	47.1	40.7	35.7	-2.1	-4.2	-3.2	-2.7
Services/Agriculture (Energy on Value added)	155.2	119.8	100.0	86.9	78.4	69.6	61.4	54.1	48.1	-4.3	-2.4	-2.4	-2.4
Transport (Energy on GDP)	107.4	102.6	100.0	106.6	102.4	94.1	84.7	76.1	67.8	-0.7	0.2	-1.9	-2.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.55	0.52	0.51	0.48	0.45	0.42	0.40	0.36	0.35	-0.9	-1.1	-1.3	-1.4
Final energy demand (t of CO_2/toe)	2.20	2.07	1.97	1.94	1.93	1.89	1.84	1.81	1.77	-1.1	-0.2	-0.4	-0.4
Industry	2.17	2.32	2.29	2.05	2.05	1.95	1.89	1.83	1.76	0.5	-1.1	-0.8	-0.7
Residential	1.94	1.53	1.26	1.28	1.27	1.22	1.17	1.15	1.13	-4.3	0.1	-0.8	-0.4
Services/Agriculture	2.15	1.82	1.65	1.60	1.51	1.45	1.38	1.33	1.29	-2.6	-0.9	-0.9	-0.7
Transport	2.81	2.82	2.85	2.89	2.83	2.80	2.76	2.73	2.69	0.1	-0.1	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**101850**	**105418**	**114686**	**120290**	**124031**	**127255**	**133223**		**1.2**	**0.8**	**0.7**
Nuclear energy			12768	12857	10808	11244	14245	18202	19124		-1.7	2.8	3.0
Renewable energy			13942	15094	17372	19451	20965	22395	23814		2.2	1.9	1.3
Hydro (pumping excluded)			13925	14849	15354	16010	16454	16673	16907		1.0	0.7	0.3
Wind			17	240	2004	3396	4418	5538	6590		61.3	8.2	4.1
Solar			1	5	14	46	93	184	317		32.7	20.5	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			75140	77466	86506	89595	88821	86658	90285		1.4	0.3	0.2
of which cogeneration units			24044	25281	21799	23277	26335	28521	30330		-1.0	1.9	1.4
Solids fired			54752	55042	55945	59668	60706	56291	56499		0.2	0.8	-0.7
Gas fired			13532	15395	23052	23586	21953	22121	23855		5.5	-0.5	0.8
Oil fired			6420	6209	6488	5148	4230	2506	2313		0.1	-4.2	-5.9
Biomass-waste fired			437	820	1021	1193	1933	5741	7619		8.9	6.6	14.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			42.5	45.4	46.2	49.3	54.0	58.6	60.3				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			30.9	32.0	36.9	40.0	42.0	44.2	46.5				
CHP indicator (% of electricity from CHP)			18.0	17.0	22.6	22.5	22.3	23.2	22.2				
Non fossil fuels in electricity generation (%)			28.0	31.7	27.3	27.1	29.4	33.0	33.5				
- nuclear			19.4	21.1	16.4	16.4	18.7	22.0	21.5				
- renewable energy forms			8.6	10.6	11.0	10.8	10.7	11.0	12.0				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			8.7	10.5	11.4	12.1	12.8	13.7	14.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.8	4.2	6.0	7.3	8.6				
Transport sector													
Passenger transport activity (Gpkm)	**610.9**	**522.5**	**594.9**	**665.4**	**762.0**	**877.8**	**1004.7**	**1135.2**	**1259.7**	**-0.3**	**2.5**	**2.8**	**2.3**
Public road transport	184.4	116.3	107.5	103.7	104.1	106.2	111.2	116.3	120.8	-5.2	-0.3	0.7	0.8
Private cars and motorcycles	263.9	298.7	389.7	471.2	561.7	661.9	766.5	872.1	971.9	4.0	3.7	3.2	2.4
Rail	147.0	90.5	77.5	65.7	64.7	69.8	76.8	85.8	94.7	-6.2	-1.8	1.7	2.1
Aviation	13.7	15.8	19.3	24.0	30.7	39.0	49.2	59.9	71.2	3.5	4.7	4.8	3.8
Inland navigation	2.0	1.1	0.9	0.8	0.8	0.9	0.9	1.0	1.0	-7.8	-0.9	1.4	1.2
Travel per person (km per capita)	5715	4937	5668	6428	7457	8723	10153	11644	13116	-0.1	2.8	3.1	2.6
Freight transport activity (Gtkm)	**438.4**	**323.5**	**341.6**	**467.2**	**586.3**	**696.6**	**793.3**	**876.9**	**937.8**	**-2.5**	**5.6**	**3.1**	**1.7**
Trucks	161.2	155.2	190.1	311.9	409.5	493.9	566.6	629.6	675.8	1.7	8.0	3.3	1.8
Rail	269.8	163.4	146.6	142.7	161.2	184.0	204.8	222.1	234.3	-5.9	1.0	2.4	1.4
Inland navigation	7.4	4.9	4.9	12.6	15.6	18.7	22.0	25.1	27.6	-4.0	12.3	3.5	2.3
Freight activity per unit of GDP (tkm/000 €05)	919	705	630	706	705	666	618	570	522	-3.7	1.1	-1.3	-1.7
Energy demand in transport (ktoe)	**27082**	**24908**	**28673**	**37287**	**45021**	**52000**	**57507**	**61910**	**64385**	**0.6**	**4.6**	**2.5**	**1.1**
Public road transport	1724	1065	922	831	815	805	806	796	773	-6.1	-1.2	-0.1	-0.4
Private cars and motorcycles	9232	10761	14607	16867	19624	22121	24166	25878	26486	4.7	3.0	2.1	0.9
Trucks	11408	9218	9662	16208	20671	24519	27355	29556	31176	-1.6	7.9	2.8	1.3
Rail	2652	2039	1854	1498	1552	1670	1708	1660	1411	-3.5	-1.8	1.0	-1.9
Aviation	1580	1651	1487	1807	2267	2776	3345	3878	4384	-0.6	4.3	4.0	2.7
Inland navigation	486	174	141	77	93	109	126	142	155	-11.6	-4.1	3.1	2.1
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	21.3	26.6	29.2	29.7	30.1	29.6	28.4	27.1	25.3	3.2	0.3	-0.6	-1.2
Freight transport (toe/Mtkm)	32.0	34.1	33.1	37.5	37.6	37.4	36.5	35.5	34.7	0.3	1.3	-0.3	-0.5

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Austria: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**8154**	**8638**	**9551**	**9780**	**10427**	**10273**	**9574**	**9939**	**10275**	**1.6**	**0.9**	**-0.8**	**0.7**
Solids	644	305	293	0	16	18	18	18	18	-7.6	-25.5	1.5	0.0
Oil	1245	1071	1071	954	850	620	280	230	190	-1.5	-2.3	-10.5	-3.8
Natural gas	1097	1261	1533	1403	1446	1270	400	385	386	3.4	-0.6	-12.1	-0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	5168	6001	6654	7422	8115	8365	8876	9305	9681	2.6	2.0	0.9	0.9
Hydro	2709	3187	3598	3085	3252	2998	3297	3297	3297	2.9	-1.0	0.1	0.0
Biomass & Waste	2440	2775	2973	4097	4426	4817	4913	5291	5661	2.0	4.1	1.0	1.4
Wind	0	0	6	114	267	324	388	406	394		46.8	3.8	0.2
Solar and others	15	36	64	92	162	217	265	296	312	15.7	9.8	5.0	1.6
Geothermal	4	3	14	35	7	9	12	14	16	14.2	-6.6	6.0	2.9
Net Imports	**17086**	**17769**	**18853**	**24392**	**24665**	**26681**	**28302**	**28365**	**28384**	**1.0**	**2.7**	**1.4**	**0.0**
Solids	3112	2543	3064	3958	3960	4296	4781	5309	5593	-0.2	2.6	1.9	1.6
Oil	9521	10012	10703	13028	13453	13918	13953	13893	13628	1.2	2.3	0.4	-0.2
- Crude oil and Feedstocks	7878	8068	7704	7964	8369	8743	8985	8999	8939	-0.2	0.8	0.7	-0.1
- Oil products	1643	1944	3000	5064	5084	5175	4969	4894	4689	6.2	5.4	-0.2	-0.6
Natural gas	4443	5404	5253	7288	7070	8399	9573	9223	9232	1.7	3.0	3.1	-0.4
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1
Gross Inland Consumption	**24986**	**26722**	**28524**	**33980**	**35092**	**36954**	**37876**	**38304**	**38658**	**1.3**	**2.1**	**0.8**	**0.2**
Solids	4042	3336	3637	4050	3976	4314	4799	5327	5611	-1.1	0.9	1.9	1.6
Oil	10596	11196	11882	14125	14303	14538	14233	14123	13818	1.2	1.9	0.0	-0.3
Natural gas	5184	6374	6519	8263	8517	9669	9973	9608	9618	2.3	2.7	1.6	-0.4
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-40	-212	-118	229	301	196	128	83	84			-8.2	-4.1
Renewable energy forms	5204	6027	6605	7312	7995	8235	8743	9162	9528	2.4	1.9	0.9	0.9
as % in Gross Inland Consumption													
Solids	16.2	12.5	12.7	11.9	11.3	11.7	12.7	13.9	14.5				
Oil	42.4	41.9	41.7	41.6	40.8	39.3	37.6	36.9	35.7				
Natural gas	20.7	23.9	22.9	24.3	24.3	26.2	26.3	25.1	24.9				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	20.8	22.6	23.2	21.5	22.8	22.3	23.1	23.9	24.6				
Electricity Generation in GWh_e	**49287**	**55169**	**60150**	**62969**	**66002**	**72492**	**78344**	**83032**	**85871**	**2.0**	**0.9**	**1.7**	**0.9**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	31503	37062	41902	37209	40964	38710	43015	43304	43269	2.9	-0.2	0.5	0.1
Thermal (incl. biomass)	17784	18107	18248	25759	25038	33781	35330	39728	42602	0.3	3.2	3.5	1.9
Fuel Inputs for Thermal Power Generation	**4011**	**4275**	**3925**	**5469**	**4073**	**5641**	**5846**	**6290**	**6510**	**-0.2**	**0.4**	**3.7**	**1.1**
Solids	1510	1055	1236	1510	1325	1641	2172	2711	2934	-2.0	0.7	5.1	3.1
Oil (including refinery gas)	488	489	287	270	531	547	315	347	326	-5.2	6.4	-5.1	0.3
Gas	1776	2276	1974	2901	1936	3065	2840	2538	2407	1.1	-0.2	3.9	-1.6
Biomass & Waste	237	455	428	786	278	384	513	686	833	6.1	-4.2	6.3	5.0
Geothermal heat	0	0	0	2	3	4	6	8	10			9.1	5.0
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**11443**	**11404**	**11250**	**11743**	**12792**	**12668**	**12581**	**12393**	**12394**	**-0.2**	**1.3**	**-0.2**	**-0.2**
Refineries	9123	9170	8765	9080	9221	9364	9265	9229	9129	-0.4	0.5	0.0	-0.1
Biofuels and hydrogen production	2	5	9	42	323	492	704	865	1044	17.5	43.5	8.1	4.0
District heating	347	438	566	612	1157	825	713	477	432	5.0	7.4	-4.7	-4.9
Others	1971	1790	1910	2009	2091	1987	1899	1822	1789	-0.3	0.9	-1.0	-0.6
Energy Branch Consumption	**1639**	**1703**	**1750**	**2134**	**1967**	**1946**	**1913**	**1892**	**1856**	**0.7**	**1.2**	**-0.3**	**-0.3**
Non-Energy Uses	**1401**	**1145**	**1386**	**1381**	**1411**	**1465**	**1515**	**1557**	**1590**	**-0.1**	**0.2**	**0.7**	**0.5**
Final Energy Demand	**19057**	**20919**	**22913**	**27309**	**29327**	**30706**	**31646**	**32184**	**32510**	**1.9**	**2.5**	**0.8**	**0.3**
by sector													
Industry	6153	6474	7528	8825	9356	9654	9795	9896	9954	2.0	2.2	0.5	0.2
- energy intensive industries	4048	4038	4982	5533	5766	5853	5859	5839	5790	2.1	1.5	0.2	-0.1
- other industrial sectors	2105	2436	2546	3293	3590	3801	3936	4056	4164	1.9	3.5	0.9	0.6
Residential	5755	6222	6042	6548	6938	7262	7520	7649	7761	0.5	1.4	0.8	0.3
Services/Agriculture	2544	3062	3304	3942	4397	4767	4974	5076	5115	2.6	2.9	1.2	0.3
Transport	4603	5161	6038	7994	8635	9023	9356	9564	9679	2.7	3.6	0.8	0.3
by fuel													
Solids	1718	1535	1415	1458	1459	1438	1380	1338	1257	-1.9	0.3	-0.6	-0.9
Oil	7896	8728	9402	11774	11998	12223	12223	12220	12110	1.8	2.5	0.2	-0.1
Gas	2968	3607	4254	4936	5750	5878	6222	6177	6318	3.7	3.1	0.8	0.2
Electricity	3669	3953	4474	4884	5291	5723	6106	6384	6584	2.0	1.7	1.4	0.8
Heat (from CHP and District Heating)	614	848	1052	1260	1388	1493	1564	1580	1541	5.5	2.8	1.2	-0.2
Other	2192	2248	2316	2996	3441	3951	4151	4484	4700	0.6	4.0	1.9	1.3
CO_2 Emissions (Mt of CO_2)	**55.2**	**58.0**	**61.0**	**73.7**	**74.3**	**78.9**	**80.5**	**81.4**	**81.4**	**1.0**	**2.0**	**0.8**	**0.1**
Power generation/District heating	12.8	12.1	11.6	15.0	13.2	17.0	18.2	19.6	20.1	-1.0	1.3	3.3	1.0
Energy Branch	3.8	4.0	4.2	4.6	4.4	4.4	4.3	4.1	4.0	1.0	0.4	-0.2	-0.7
Industry	12.7	13.6	15.5	17.5	18.4	18.3	18.4	18.0	17.8	2.0	1.7	0.0	-0.3
Residential	9.8	9.7	8.8	9.0	9.0	9.0	9.0	9.0	9.1	-1.1	0.2	0.0	0.1
Services/Agriculture	3.4	4.0	3.7	4.5	4.9	5.2	5.0	4.8	4.7	0.8	2.9	0.2	-0.6
Transport	12.7	14.6	17.2	23.1	24.3	25.1	25.5	25.8	25.7	3.1	3.5	0.5	0.0
CO_2 Emissions Index (1990=100)	**100.0**	**105.2**	**110.5**	**133.6**	**134.7**	**143.1**	**146.0**	**147.5**	**147.5**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Austria: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	7.645	7.943	8.002	8.207	8.307	8.358	8.441	8.501	8.520	0.5	0.4	0.2	0.1
GDP (in 000 M€05)	177.3	197.3	228.1	245.1	277.3	306.2	335.2	363.1	386.5	2.6	2.0	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	140.9	135.4	125.1	138.6	126.5	120.7	113.0	105.5	100.0	-1.2	0.1	-1.1	-1.2
Gross Inl. Cons./Capita (toe/inhabitant)	3.27	3.36	3.56	4.14	4.22	4.42	4.49	4.51	4.54	0.9	1.7	0.6	0.1
Electricity Generated/Capita (kWh gross/inhabitant)	6447	6945	7517	7673	7946	8674	9281	9768	10079	1.5	0.6	1.6	0.8
Carbon intensity (t of CO_2/toe of GIC)	2.21	2.17	2.14	2.17	2.12	2.14	2.13	2.12	2.10	-0.3	-0.1	0.0	-0.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.21	7.31	7.62	8.98	8.94	9.45	9.54	9.57	9.55	0.5	1.6	0.6	0.0
CO_2 Emissions to GDP (t of CO2/M€05)	311.1	294.1	267.3	300.6	267.9	257.8	240.2	224.0	210.5	-1.5	0.0	-1.1	-1.3
Import Dependency %	68.4	66.5	66.1	71.8	70.3	72.2	74.7	74.1	73.4	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	106.4	106.5	100.0	108.2	99.9	92.8	85.7	79.7	75.3	-0.6	0.0	-1.5	-1.3
Residential (Energy on Private Income)	117.7	114.7	100.0	102.2	96.1	91.5	86.8	81.8	78.2	-1.6	-0.4	-1.0	-1.0
Services/Agriculture (Energy on Value added)	98.7	105.3	100.0	111.0	109.1	106.8	101.5	95.4	90.3	0.1	0.9	-0.7	-1.2
Transport (Energy on GDP)	98.1	98.8	100.0	123.2	117.6	111.3	105.4	99.5	94.6	0.2	1.6	-1.1	-1.1
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.22	0.18	0.16	0.19	0.16	0.19	0.19	0.19	0.19	-3.4	0.0	1.7	0.3
Final energy demand (t of CO_2/toe)	2.03	2.00	1.97	1.98	1.93	1.87	1.83	1.79	1.76	-0.3	-0.2	-0.5	-0.4
Industry	2.06	2.10	2.06	1.98	1.97	1.89	1.88	1.82	1.79	0.0	-0.4	-0.5	-0.5
Residential	1.71	1.55	1.46	1.37	1.30	1.24	1.20	1.18	1.17	-1.6	-1.1	-0.8	-0.2
Services/Agriculture	1.34	1.32	1.12	1.15	1.12	1.08	1.01	0.95	0.92	-1.8	0.0	-1.0	-0.9
Transport	2.75	2.82	2.85	2.89	2.82	2.78	2.73	2.70	2.65	0.3	-0.1	-0.3	-0.3
Electricity and steam generation													
Net Generation Capacity in MW_e			**16771**	**17685**	**20805**	**22406**	**23554**	**24722**	**25155**		**2.2**	**1.2**	**0.7**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			10792	11287	12018	12985	14123	14552	15282		1.1	1.6	0.8
Hydro (pumping excluded)			10709	10446	10589	11169	11691	11872	12004		-0.1	1.0	0.3
Wind			77	817	1368	1677	2171	2274	2708		33.3	4.7	2.2
Solar			7	24	61	139	261	406	570		24.7	15.6	8.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			5978	6397	8787	9421	9431	10169	9873		3.9	0.7	0.5
of which cogeneration units			3067	3657	3952	4662	5168	5269	5614		2.6	2.7	0.8
Solids fired			1600	1587	1460	1460	1547	1602	1874		-0.9	0.6	1.9
Gas fired			2916	3267	5187	6090	5983	6629	6166		5.9	1.4	0.3
Oil fired			1167	1158	1675	1428	915	770	585		3.7	-5.9	-4.4
Biomass-waste fired			295	384	464	443	984	1166	1246		4.6	7.8	2.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	1	1	1	2	2	3			5.2	3.7
Load factor for net electric capacities (%)			39.8	38.3	34.6	35.6	36.7	36.9	37.5				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			40.0	40.5	52.9	51.5	52.0	54.3	56.3				
CHP indicator (% of electricity from CHP)			12.3	20.6	26.7	31.9	32.6	35.4	36.2				
Non fossil fuels in electricity generation (%)			72.7	65.3	67.3	58.8	61.1	59.5	58.3				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			72.7	65.3	67.3	58.8	61.1	59.5	58.3				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			26.8	24.2	25.1	24.7	26.1	26.8	27.5				
Biofuels share in transport gasoline and diesel (%)			0.2	0.6	3.4	5.1	7.0	8.6	10.3				
Transport sector													
Passenger transport activity (Gpkm)	**95.0**	**106.8**	**114.6**	**120.6**	**131.3**	**139.3**	**147.2**	**154.4**	**160.1**	**1.9**	**1.4**	**1.2**	**0.8**
Public road transport	14.2	14.8	14.8	15.1	15.8	16.4	17.0	17.5	17.7	0.4	0.6	0.7	0.4
Private cars and motorcycles	65.2	73.8	81.3	85.8	93.2	97.8	101.9	105.4	107.7	2.2	1.4	0.9	0.6
Rail	11.5	12.7	11.8	12.3	13.2	14.3	15.2	16.1	16.8	0.3	1.1	1.4	1.0
Aviation	4.1	5.4	6.6	7.3	8.9	10.9	13.0	15.4	17.7	5.0	3.1	3.8	3.1
Inland navigation	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	-0.4	0.5	0.7
Travel per person (km per capita)	12432	13451	14321	14697	15802	16670	17438	18169	18791	1.4	1.0	1.0	0.7
Freight transport activity (Gtkm)	**34.1**	**41.7**	**54.2**	**55.9**	**59.2**	**63.7**	**68.2**	**72.8**	**76.8**	**4.7**	**0.9**	**1.4**	**1.2**
Trucks	20.3	26.5	35.1	37.0	39.4	42.1	45.0	47.9	50.5	5.6	1.1	1.3	1.2
Rail	12.2	13.2	16.6	17.1	18.1	19.7	21.2	22.7	24.1	3.2	0.8	1.6	1.3
Inland navigation	1.7	2.0	2.4	1.8	1.8	1.9	2.1	2.2	2.2	3.9	-3.0	1.4	0.7
Freight activity per unit of GDP (tkm/000 €05)	192	212	237	228	214	208	204	201	199	2.1	-1.1	-0.5	-0.2
Energy demand in transport (ktoe)	**4603**	**5161**	**6038**	**7994**	**8635**	**9023**	**9356**	**9564**	**9679**	**2.7**	**3.6**	**0.8**	**0.3**
Public road transport	80	83	80	107	110	110	111	107	101	-0.1	3.3	0.1	-1.0
Private cars and motorcycles	2499	2643	2865	3890	4195	4235	4250	4183	4038	1.4	3.9	0.1	-0.5
Trucks	1350	1675	2167	3004	3187	3384	3585	3754	3936	4.8	3.9	1.2	0.9
Rail	357	292	333	310	320	333	332	327	306	-0.7	-0.4	0.4	-0.8
Aviation	310	461	586	675	814	950	1068	1183	1286	6.6	3.3	2.8	1.9
Inland navigation	7	6	6	9	9	10	10	11	11	-1.5	4.3	1.2	0.6
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	30.7	30.1	31.1	39.0	39.2	38.2	37.1	35.6	34.1	0.1	2.4	-0.6	-0.8
Freight transport (toe/Mtkm)	49.4	46.6	45.7	59.0	58.9	58.1	57.1	55.8	55.0	-0.8	2.6	-0.3	-0.4

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Belgium: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**12529**	**11336**	**13366**	**14064**	**15031**	**14391**	**12318**	**6251**	**4004**	**0.6**	**1.2**	**-2.0**	**-10.6**
Solids	1085	269	191	57	24	20	18	15	13	-16.0	-18.8	-3.0	-3.0
Oil	0	0	0	6	0	0	0	0	0				
Natural gas	10	0	2	0	0	0	0	0	0	-14.3			
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Renewable energy sources	728	726	751	1723	2083	2667	3233	3596	3991	0.3	10.7	4.5	2.1
Hydro	23	29	39	25	30	31	31	30	30	5.6	-2.7	0.4	-0.6
Biomass & Waste	702	694	706	1675	1830	2228	2619	2899	3254	0.0	10.0	3.7	2.2
Wind	1	1	1	20	197	334	459	515	530	7.9	65.3	8.8	1.5
Solar and others	1	1	1	3	25	73	121	151	176	2.1	37.6	17.1	3.8
Geothermal	1	1	4	1	1	1	1	1	1	14.0	-9.1	-0.2	-0.2
Net Imports	**38857**	**43775**	**48651**	**48968**	**49819**	**51031**	**53562**	**57745**	**59346**	**2.3**	**0.2**	**0.7**	**1.0**
Solids	9492	9343	7566	5511	5066	5349	6502	9575	10821	-2.2	-3.9	2.5	5.2
Oil	21468	23579	27331	28425	29325	29150	29248	29511	29647	2.4	0.7	0.0	0.1
- Crude oil and Feedstocks	26116	25674	32658	30565	32185	32253	32415	32687	32825	2.3	-0.1	0.1	0.1
- Oil products	-4648	-2096	-5328	-2141	-2859	-3103	-3167	-3176	-3178				
Natural gas	8217	10418	13278	14191	14491	15532	16833	17662	17861	4.9	0.9	1.5	0.6
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Gross Inland Consumption	**47258**	**50459**	**57168**	**54952**	**57069**	**57343**	**57382**	**55077**	**54054**	**1.9**	**0.0**	**0.1**	**-0.6**
Solids	10244	8551	8200	5450	5090	5369	6520	9590	10834	-2.2	-4.7	2.5	5.2
Oil	17730	19794	21949	20547	21545	21071	20749	20593	20350	2.2	-0.2	-0.4	-0.2
Natural gas	8169	10611	13369	14113	14491	15532	16833	17662	17861	5.0	0.8	1.5	0.6
Nuclear	10707	10340	12422	12277	12924	11703	9068	2640	0	1.5	0.4	-3.5	
Electricity	-320	350	372	542	610	602	512	480	437		5.1	-1.7	-1.6
Renewable energy forms	728	812	856	2022	2410	3065	3700	4114	4572	1.6	10.9	4.4	2.1
as % in Gross Inland Consumption													
Solids	21.7	16.9	14.3	9.9	8.9	9.4	11.4	17.4	20.0				
Oil	37.5	39.2	38.4	37.4	37.8	36.7	36.2	37.4	37.6				
Natural gas	17.3	21.0	23.4	25.7	25.4	27.1	29.3	32.1	33.0				
Nuclear	22.7	20.5	21.7	22.3	22.6	20.4	15.8	4.8	0.0				
Renewable energy forms	1.5	1.6	1.5	3.7	4.2	5.3	6.4	7.5	8.5				
Electricity Generation in GWh_e	**70202**	**73524**	**82639**	**85694**	**93850**	**101082**	**108939**	**114781**	**117748**	**1.6**	**1.3**	**1.5**	**0.8**
Nuclear	42714	41349	48148	47586	50094	45361	35148	10232	0	1.2	0.4	-3.5	
Hydro & wind	274	347	474	516	2654	4282	5770	6441	6670	5.6	18.8	8.1	1.5
Thermal (incl. biomass)	27214	31828	34017	37591	41102	51439	68020	98107	111078	2.3	1.9	5.2	5.0
Fuel Inputs for Thermal Power Generation	**6544**	**7182**	**7453**	**8299**	**7177**	**8484**	**11007**	**15317**	**17137**	**1.3**	**-0.4**	**4.4**	**4.5**
Solids	3875	3764	3025	1889	1956	2339	3622	6816	8163	-2.4	-4.3	6.4	8.5
Oil (including refinery gas)	318	232	172	411	33	89	80	91	98	-6.0	-15.2	9.3	2.0
Gas	1983	2721	3790	4612	3985	4735	5867	6793	6900	6.7	0.5	3.9	1.6
Biomass & Waste	368	465	466	1388	1203	1321	1437	1618	1975	2.4	10.0	1.8	3.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**35155**	**32956**	**40739**	**38991**	**38535**	**38333**	**38357**	**38329**	**38401**	**1.5**	**-0.6**	**0.0**	**0.0**
Refineries	29036	28632	37085	35792	35210	34902	34812	34789	34822	2.5	-0.5	-0.1	0.0
Biofuels and hydrogen production	0	0	0	0	225	502	787	937	1054			13.4	3.0
District heating	10	5	41	27	71	48	41	45	43	15.2	5.6	-5.3	0.4
Others	6109	4320	3612	3173	3029	2881	2717	2559	2481	-5.1	-1.7	-1.1	-0.9
Energy Branch Consumption	**2310**	**2273**	**2370**	**2127**	**1934**	**1915**	**1923**	**2006**	**2011**	**0.3**	**-2.0**	**-0.1**	**0.4**
Non-Energy Uses	**2739**	**3289**	**5814**	**4583**	**4266**	**4054**	**4029**	**3999**	**3959**	**7.8**	**-3.0**	**-0.6**	**-0.2**
Final Energy Demand	**31296**	**34489**	**36931**	**36403**	**38013**	**38938**	**39613**	**39803**	**39870**	**1.7**	**0.3**	**0.4**	**0.1**
by sector													
Industry	11886	12110	13636	11605	11797	11896	11908	11882	11884	1.4	-1.4	0.1	0.0
- energy intensive industries	9285	9192	10043	8751	8851	8901	8845	8762	8672	0.8	-1.3	0.0	-0.2
- other industrial sectors	2600	2918	3593	2854	2946	2995	3062	3120	3212	3.3	-2.0	0.4	0.5
Residential	8337	9295	9465	9914	10147	10347	10463	10394	10322	1.3	0.7	0.3	-0.1
Services/Agriculture	3370	4604	4158	5005	5412	5579	5711	5750	5745	2.1	2.7	0.5	0.1
Transport	7704	8480	9672	9880	10657	11116	11532	11778	11919	2.3	1.0	0.8	0.3
by fuel													
Solids	3787	3306	3378	2080	1843	1826	1785	1762	1680	-1.1	-5.9	-0.3	-0.6
Oil	14734	16248	16047	16443	16837	16420	16221	16197	16035	0.9	0.5	-0.4	-0.1
Gas	7249	8517	10010	10009	10375	10751	10775	10502	10539	3.3	0.4	0.4	-0.2
Electricity	4986	5885	6667	6894	7698	8255	8774	9105	9282	2.9	1.4	1.3	0.6
Heat (from CHP and District Heating)	213	220	490	427	360	438	471	502	533	8.7	-3.1	2.7	1.3
Other	326	312	338	549	901	1249	1587	1735	1800	0.3	10.3	5.8	1.3
CO_2 Emissions (Mt of CO_2)	**106.2**	**112.4**	**115.4**	**107.8**	**106.0**	**108.8**	**115.6**	**129.4**	**134.1**	**0.8**	**-0.8**	**0.9**	**1.5**
Power generation/District heating	21.8	23.1	22.5	20.6	18.2	21.6	29.2	44.0	49.6	0.3	-2.1	4.8	5.4
Energy Branch	5.4	5.2	5.5	4.3	3.8	3.9	3.8	3.7	3.7	0.3	-3.7	0.1	-0.4
Industry	30.2	28.7	30.5	22.8	22.2	21.3	20.6	20.0	19.7	0.1	-3.1	-0.8	-0.4
Residential	18.7	20.1	20.0	20.3	19.8	19.5	19.0	18.4	18.0	0.7	-0.1	-0.4	-0.5
Services/Agriculture	7.5	10.4	8.2	10.5	10.8	10.7	10.6	10.5	10.3	0.8	2.8	-0.1	-0.3
Transport	22.6	24.9	28.6	29.4	31.1	31.8	32.4	32.8	32.9	2.4	0.8	0.4	0.2
CO_2 Emissions Index (1990=100)	**100.0**	**105.8**	**108.6**	**101.5**	**99.8**	**102.4**	**108.8**	**121.8**	**126.3**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Belgium: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	9.948	10.131	10.239	10.446	10.583	10.674	10.790	10.898	10.984	0.3	0.3	0.2	0.2
GDP (in 000 M€05)	220.3	243.0	277.7	298.5	335.9	373.6	409.2	444.7	477.7	2.3	1.9	2.0	1.6
Gross Inl. Cons./GDP (toe/M€05)	214.5	207.7	205.9	184.1	169.9	153.5	140.2	123.9	113.1	-0.4	-1.9	-1.9	-2.1
Gross Inl. Cons./Capita (toe/inhabitant)	4.75	4.98	5.58	5.26	5.39	5.37	5.32	5.05	4.92	1.6	-0.3	-0.1	-0.8
Electricity Generated/Capita (kWh gross/inhabitant)	7057	7258	8071	8204	8868	9470	10096	10532	10720	1.4	0.9	1.3	0.6
Carbon intensity (t of CO_2/toe of GIC)	2.25	2.23	2.02	1.96	1.86	1.90	2.01	2.35	2.48	-1.1	-0.8	0.8	2.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.68	11.10	11.27	10.32	10.02	10.19	10.71	11.87	12.21	0.5	-1.2	0.7	1.3
CO_2 Emissions to GDP (t of CO2/M€05)	482.2	462.7	415.7	361.2	315.6	291.3	282.5	290.9	280.8	-1.5	-2.7	-1.1	-0.1
Import Dependency %	75.7	80.5	77.8	78.3	76.8	78.0	81.3	90.2	93.7	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	102.0	104.3	100.0	83.8	78.1	72.1	67.1	62.4	58.2	-0.2	-2.4	-1.5	-1.4
Residential (Energy on Private Income)	109.4	110.2	100.0	99.4	91.1	84.6	78.8	72.6	67.6	-0.9	-0.9	-1.4	-1.5
Services/Agriculture (Energy on Value added)	97.5	123.2	100.0	109.5	104.8	96.7	89.8	82.9	77.2	0.2	0.5	-1.5	-1.5
Transport (Energy on GDP)	100.4	100.2	100.0	95.0	91.1	85.4	80.9	76.0	71.6	0.0	-0.9	-1.2	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.30	0.30	0.25	0.23	0.18	0.20	0.25	0.36	0.40	-1.7	-3.2	3.2	4.6
Final energy demand (t of CO_2/toe)	2.52	2.44	2.36	2.28	2.21	2.14	2.08	2.05	2.03	-0.7	-0.7	-0.6	-0.3
Industry	2.54	2.37	2.24	1.97	1.88	1.79	1.73	1.69	1.65	-1.3	-1.7	-0.9	-0.4
Residential	2.24	2.16	2.11	2.05	1.95	1.88	1.81	1.77	1.74	-0.6	-0.8	-0.8	-0.4
Services/Agriculture	2.23	2.26	1.96	2.09	1.99	1.92	1.86	1.82	1.80	-1.3	0.1	-0.7	-0.3
Transport	2.94	2.94	2.96	2.97	2.92	2.86	2.81	2.78	2.76	0.1	-0.1	-0.4	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**14452**	**15254**	**18082**	**18886**	**20599**	**21849**	**22108**		**2.3**	**1.3**	**0.7**
Nuclear energy			5801	5843	5873	5273	4096	1192	0		0.1	-3.5	
Renewable energy			319	467	1237	1927	2625	2973	3083		14.5	7.8	1.6
Hydro (pumping excluded)			306	298	300	303	304	304	304		-0.2	0.1	0.0
Wind			13	167	913	1572	2228	2528	2571		53.0	9.3	1.4
Solar			0	2	24	52	93	141	208			14.6	8.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			8332	8944	10972	11687	13878	17683	19026		2.8	2.4	3.2
of which cogeneration units			1863	2324	3201	4535	5208	5213	5352		5.6	5.0	0.3
Solids fired			1680	1392	1258	1474	2168	4909	5656		-2.8	5.6	10.1
Gas fired			5522	6360	7962	8376	9658	10999	11669		3.7	2.0	1.9
Oil fired			615	641	591	549	523	240	252		-0.4	-1.2	-7.1
Biomass-waste fired			515	551	1161	1287	1528	1536	1450		8.5	2.8	-0.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			62.3	61.4	57.2	59.1	58.4	57.3	58.1				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			39.3	39.0	49.2	52.1	53.1	55.1	55.7				
CHP indicator (% of electricity from CHP)			7.3	7.2	18.0	23.6	25.1	26.6	27.0				
Non fossil fuels in electricity generation (%)			60.3	60.3	62.5	55.8	44.6	22.2	14.8				
- nuclear			58.3	55.5	53.4	44.9	32.3	8.9	0.0				
- renewable energy forms			2.1	4.8	9.1	10.9	12.4	13.3	14.8				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			1.3	2.4	4.9	6.2	7.8	8.7	9.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.1	4.5	6.9	8.1	9.0				
Transport sector													
Passenger transport activity (Gpkm)	**113.7**	**126.3**	**139.3**	**153.2**	**166.2**	**175.9**	**184.2**	**192.0**	**198.7**	**2.0**	**1.8**	**1.0**	**0.8**
Public road transport	10.9	13.1	13.3	17.6	18.5	18.9	19.3	19.6	19.7	2.0	3.4	0.4	0.2
Private cars and motorcycles	90.1	98.6	107.7	114.4	122.2	127.4	131.3	135.3	138.3	1.8	1.3	0.7	0.5
Rail	7.3	7.6	8.6	10.1	11.6	12.8	14.0	15.0	16.2	1.7	3.0	1.9	1.5
Aviation	4.6	6.4	9.3	10.8	13.5	16.5	19.2	21.8	24.1	7.2	3.8	3.6	2.3
Inland navigation	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-7.8	0.1	0.3	0.3
Travel per person (km per capita)	11432	12469	13604	14663	15700	16482	17068	17619	18092	1.8	1.4	0.8	0.6
Freight transport activity (Gtkm)	**48.0**	**58.6**	**65.9**	**60.5**	**63.8**	**68.6**	**74.7**	**80.8**	**86.3**	**3.2**	**-0.3**	**1.6**	**1.4**
Trucks	34.2	45.6	51.0	43.8	46.3	50.4	55.9	61.6	66.8	4.1	-1.0	1.9	1.8
Rail	8.4	7.3	7.7	8.1	8.5	9.0	9.4	9.6	9.8	-0.9	1.1	0.9	0.4
Inland navigation	5.4	5.7	7.2	8.6	9.0	9.2	9.4	9.6	9.7	2.8	2.2	0.5	0.3
Freight activity per unit of GDP (tkm/000 €05)	218	241	237	203	190	184	183	182	181	0.9	-2.2	-0.4	-0.1
Energy demand in transport (ktoe)	**7704**	**8480**	**9672**	**9880**	**10657**	**11116**	**11532**	**11778**	**11919**	**2.3**	**1.0**	**0.8**	**0.3**
Public road transport	165	164	170	173	181	178	176	172	162	0.3	0.6	-0.3	-0.8
Private cars and motorcycles	4075	4502	4794	5442	5772	5787	5746	5522	5265	1.6	1.9	0.0	-0.9
Trucks	2205	2420	2858	2581	2721	2938	3237	3590	3917	2.6	-0.5	1.8	1.9
Rail	177	202	183	185	193	195	193	183	161	0.4	0.5	0.0	-1.8
Aviation	952	945	1530	1281	1565	1788	1946	2079	2185	4.9	0.2	2.2	1.2
Inland navigation	129	247	136	217	226	230	234	232	229	0.5	5.2	0.3	-0.2
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	46.4	45.4	47.1	45.5	45.7	44.5	43.2	40.9	38.7	0.1	-0.3	-0.6	-1.1
Freight transport (toe/Mtkm)	50.6	46.9	47.2	48.0	47.9	47.8	47.9	48.6	49.0	-0.7	0.1	0.0	0.2

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Bulgaria: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**9136**	**10192**	**9845**	**10611**	**9685**	**10079**	**11971**	**12704**	**13023**	**0.8**	**-0.2**	**2.1**	**0.8**
Solids	5121	5287	4310	4178	4636	4979	4867	3561	3567	-1.7	0.7	0.5	-3.1
Oil	60	43	42	30	34	36	40	41	41	-3.5	-2.3	1.7	0.3
Natural gas	11	40	12	384	237	198	169	143	122	1.3	34.4	-3.3	-3.2
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0
Renewable energy sources	161	370	792	1207	1258	1328	1422	1607	1942	17.2	4.7	1.2	3.2
Hydro	161	151	230	373	250	285	295	317	341	3.6	0.9	1.7	1.5
Biomass & Waste	0	219	562	801	924	950	1019	1166	1444		5.1	1.0	3.5
Wind	0	0	0	0	33	36	42	54	78			2.4	6.3
Solar and others	0	0	0	0	4	14	26	36	49			19.4	6.7
Geothermal	0	0	0	33	46	42	39	34	29			-1.6	-2.8
Net Imports	**17823**	**13475**	**8681**	**9416**	**10437**	**10240**	**11159**	**12171**	**12755**	**-6.9**	**1.9**	**0.7**	**1.3**
Solids	3527	2424	2258	2550	2774	2713	2784	2821	2842	-4.4	2.1	0.0	0.2
Oil	8540	6511	4081	5086	5351	5675	6351	6863	7034	-7.1	2.7	1.7	1.0
- Crude oil and Feedstocks	8247	8003	5346	6328	7162	7585	8450	9106	9331	-4.2	3.0	1.7	1.0
- Oil products	292	-1492	-1265	-1242	-1811	-1909	-2099	-2242	-2297				
Natural gas	5430	4563	2742	2458	2549	2135	2710	3235	3692	-6.6	-0.7	0.6	3.1
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768				
Gross Inland Consumption	**27964**	**23305**	**18610**	**19885**	**19987**	**20165**	**22962**	**24696**	**25592**	**-4.0**	**0.7**	**1.4**	**1.1**
Solids	8706	7673	6417	6892	7410	7692	7651	6383	6409	-3.0	1.4	0.3	-1.8
Oil	9593	6245	4181	4847	5250	5557	6222	6725	6889	-8.0	2.3	1.7	1.0
Natural gas	5395	4584	2932	2804	2785	2333	2879	3378	3814	-5.9	-0.5	0.3	2.9
Nuclear	3783	4453	4689	4812	3521	3539	5474	7351	7351	2.2	-2.8	4.5	3.0
Electricity	326	-14	-397	-652	-208	-253	-653	-711	-768				
Renewable energy forms	161	363	788	1181	1228	1297	1389	1570	1896	17.2	4.5	1.2	3.2
as % in Gross Inland Consumption													
Solids	31.1	32.9	34.5	34.7	37.1	38.1	33.3	25.8	25.0				
Oil	34.3	26.8	22.5	24.4	26.3	27.6	27.1	27.2	26.9				
Natural gas	19.3	19.7	15.8	14.1	13.9	11.6	12.5	13.7	14.9				
Nuclear	13.5	19.1	25.2	24.2	17.6	17.5	23.8	29.8	28.7				
Renewable energy forms	0.6	1.6	4.2	5.9	6.1	6.4	6.1	6.4	7.4				
Electricity Generation in GWh_e	**42133**	**41219**	**40639**	**43965**	**40822**	**46123**	**56774**	**62205**	**66708**	**-0.4**	**0.0**	**3.4**	**1.6**
Nuclear	14662	17258	18175	18650	13650	13718	22242	30700	30700	2.2	-2.8	5.0	3.3
Hydro & wind	1878	1751	2673	4338	3298	3741	3938	4338	4912	3.6	2.1	1.8	2.2
Thermal (incl. biomass)	25593	22210	19791	20977	23874	28664	30594	27167	31096	-2.5	1.9	2.5	0.2
Fuel Inputs for Thermal Power Generation	**10103**	**9182**	**6292**	**6523**	**6571**	**6257**	**6600**	**5620**	**6067**	**-4.6**	**0.4**	**0.0**	**-0.8**
Solids	6800	6734	5245	5675	5854	6075	6232	4980	5039	-2.6	1.1	0.6	-2.1
Oil (including refinery gas)	951	613	160	149	0	0	0	21	12	-16.3			
Gas	2352	1835	884	697	684	182	363	580	815	-9.3	-2.5	-6.1	8.4
Biomass & Waste	0	0	3	2	32	0	5	40	202		25.6	-16.6	44.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**13079**	**11635**	**7612**	**8839**	**8830**	**9193**	**9994**	**10641**	**10895**	**-5.3**	**1.5**	**1.2**	**0.9**
Refineries	8341	8023	5406	6586	7394	7814	8680	9322	9525	-4.2	3.2	1.6	0.9
Biofuels and hydrogen production	0	0	0	0	32	65	91	173	291			10.9	12.3
District heating	2779	1544	324	370	493	505	524	525	509	-19.3	4.3	0.6	-0.3
Others	1960	2069	1882	1883	912	810	699	622	570	-0.4	-7.0	-2.6	-2.0
Energy Branch Consumption	**1359**	**1458**	**1146**	**1279**	**1491**	**1462**	**1581**	**1673**	**1727**	**-1.7**	**2.7**	**0.6**	**0.9**
Non-Energy Uses	**1427**	**1236**	**1261**	**1059**	**1000**	**1062**	**1195**	**1300**	**1371**	**-1.2**	**-2.3**	**1.8**	**1.4**
Final Energy Demand	**16138**	**11575**	**8861**	**9682**	**10482**	**11533**	**12852**	**14120**	**15101**	**-5.8**	**1.7**	**2.1**	**1.6**
by sector													
Industry	8966	6032	3637	3673	3633	3868	4335	4800	5282	-8.6	0.0	1.8	2.0
- energy intensive industries	5579	4837	2814	2809	2797	2953	3254	3530	3808	-6.6	-0.1	1.5	1.6
- other industrial sectors	3387	1195	823	864	835	915	1081	1270	1474	-13.2	0.1	2.6	3.2
Residential	2264	2378	2363	2268	2353	2490	2727	2925	3101	0.4	0.0	1.5	1.3
Services/Agriculture	2389	1189	1044	1181	1359	1497	1609	1725	1784	-7.9	2.7	1.7	1.0
Transport	2518	1976	1817	2560	3137	3678	4181	4669	4934	-3.2	5.6	2.9	1.7
by fuel													
Solids	1477	1280	860	936	1131	1104	1063	1072	1058	-5.3	2.8	-0.6	-0.1
Oil	4967	2893	2981	3599	4276	4623	5260	5739	5931	-5.0	3.7	2.1	1.2
Gas	2066	1787	1231	1025	824	1031	1140	1324	1496	-5.0	-3.9	3.3	2.8
Electricity	3085	2639	2358	2383	2624	2985	3419	3782	4074	-2.7	1.1	2.7	1.8
Heat (from CHP and District Heating)	4543	2798	877	939	730	859	979	1117	1361	-15.2	-1.8	3.0	3.4
Other	0	178	555	800	897	931	991	1086	1180		4.9	1.0	1.8
CO_2 Emissions (Mt of CO_2)	**72.4**	**58.1**	**42.1**	**45.1**	**48.3**	**49.3**	**52.3**	**49.6**	**51.2**	**-5.3**	**1.4**	**0.8**	**-0.2**
Power generation/District heating	44.8	38.2	24.9	26.2	27.0	26.7	27.8	23.1	23.9	-5.7	0.8	0.3	-1.5
Energy Branch	1.6	1.4	1.3	1.6	1.9	1.8	1.6	1.7	1.7	-2.1	3.8	-1.3	0.4
Industry	11.2	9.3	8.3	7.6	8.0	7.8	8.4	9.0	9.4	-2.9	-0.5	0.5	1.1
Residential	3.0	2.2	1.2	1.2	1.2	1.1	1.0	1.0	1.1	-8.9	0.2	-1.6	0.3
Services/Agriculture	4.7	1.4	1.2	1.1	1.2	1.4	1.4	1.5	1.5	-13.0	0.5	1.5	0.6
Transport	7.1	5.6	5.2	7.4	9.1	10.6	12.0	13.2	13.7	-3.0	5.7	2.8	1.3
CO_2 Emissions Index (1990=100)	**100.0**	**80.1**	**58.2**	**62.2**	**66.6**	**68.1**	**72.1**	**68.4**	**70.7**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Bulgaria: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	8.767	8.427	8.191	7.761	7.457	7.130	6.796	6.465	6.175	-0.7	-0.9	-0.9	-1.0
GDP (in 000 M€05)	20.1	17.6	16.9	21.4	27.9	36.8	49.3	65.2	84.9	-1.7	5.2	5.8	5.6
Gross Inl. Cons./GDP (toe/M€05)	1394.5	1326.4	1102.4	927.1	715.9	548.3	465.9	378.9	301.4	-2.3	-4.2	-4.2	-4.3
Gross Inl. Cons./Capita (toe/inhabitant)	3.19	2.77	2.27	2.56	2.68	2.83	3.38	3.82	4.14	-3.3	1.7	2.3	2.1
Electricity Generated/Capita (kWh gross/inhabitant)	4806	4891	4961	5665	5474	6469	8354	9622	10804	0.3	1.0	4.3	2.6
Carbon intensity (t of CO_2/toe of GIC)	2.59	2.49	2.26	2.27	2.42	2.45	2.28	2.01	2.00	-1.3	0.6	-0.6	-1.3
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.26	6.89	5.14	5.81	6.47	6.92	7.69	7.67	8.30	-4.6	2.3	1.7	0.8
CO_2 Emissions to GDP (t of CO2/M€05)	3612.8	3304.9	2496.1	2101.9	1729.1	1341.6	1060.5	760.7	603.4	-3.6	-3.6	-4.8	-5.5
Import Dependency %	63.6	57.2	46.5	47.1	51.9	50.4	48.2	48.9	49.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	136.2	124.2	100.0	76.3	57.5	44.4	35.8	29.0	23.8	-3.0	-5.4	-4.6	-4.0
Residential (Energy on Private Income)	86.0	101.6	100.0	73.0	58.8	47.7	39.5	32.4	26.7	1.5	-5.2	-3.9	-3.9
Services/Agriculture (Energy on Value added)	149.8	101.5	100.0	90.4	80.2	67.1	54.3	44.6	35.8	-4.0	-2.2	-3.8	-4.1
Transport (Energy on GDP)	116.6	104.5	100.0	110.9	104.4	92.9	78.8	66.5	54.0	-1.5	0.4	-2.8	-3.7
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.45	0.49	0.46	0.45	0.49	0.43	0.37	0.28	0.27	0.2	0.7	-2.7	-3.2
Final energy demand (t of CO_2/toe)	1.61	1.60	1.80	1.79	1.86	1.81	1.78	1.75	1.70	1.1	0.3	-0.4	-0.4
Industry	1.25	1.55	2.29	2.06	2.19	2.01	1.94	1.87	1.78	6.2	-0.4	-1.2	-0.8
Residential	1.33	0.92	0.50	0.53	0.51	0.44	0.38	0.35	0.34	-9.3	0.2	-3.0	-0.9
Services/Agriculture	1.98	1.16	1.13	0.91	0.91	0.94	0.89	0.87	0.85	-5.5	-2.1	-0.2	-0.4
Transport	2.81	2.84	2.87	2.91	2.89	2.87	2.87	2.83	2.78	0.2	0.1	-0.1	-0.3
Electricity and steam generation													
Net Generation Capacity in MW_e			**10900**	**10201**	**10022**	**11075**	**10505**	**11690**	**12559**		**-0.8**	**0.5**	**1.8**
Nuclear energy			3473	2678	1885	1910	2870	3817	3817		-5.9	4.3	2.9
Renewable energy			1921	2005	2462	2514	2583	2728	3086		2.5	0.5	1.8
Hydro (pumping excluded)			1921	2004	2177	2202	2217	2255	2403		1.3	0.2	0.8
Wind			0	1	283	308	358	458	657			2.4	6.2
Solar			0	0	2	4	8	15	27			17.5	13.5
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			5505	5517	5675	6650	5053	5145	5657		0.3	-1.2	1.1
of which cogeneration units			2163	2183	1016	1564	1636	1940	2530		-7.3	4.9	4.5
Solids fired			4536	4527	4398	5542	4072	4057	3865		-0.3	-0.8	-0.5
Gas fired			603	625	887	744	678	950	1414		3.9	-2.6	7.6
Oil fired			355	355	359	334	262	61	192		0.1	-3.1	-3.1
Biomass-waste fired			11	11	30	31	40	76	186		11.0	2.8	16.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			38.3	44.6	42.7	43.8	57.4	56.9	56.8				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			27.0	27.7	31.2	39.4	39.9	41.6	44.1				
CHP indicator (% of electricity from CHP)			12.0	14.3	10.8	18.3	18.3	19.3	22.2				
Non fossil fuels in electricity generation (%)			51.3	52.4	42.0	38.3	46.5	57.0	54.7				
- nuclear			44.7	42.4	33.4	29.7	39.2	49.4	46.0				
- renewable energy forms			6.6	10.0	8.5	8.5	7.4	7.7	8.6				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			8.2	11.3	10.9	10.4	10.0	10.2	11.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.1	1.9	2.3	4.0	6.4				
Transport sector													
Passenger transport activity (Gpkm)	**40.3**	**21.4**	**33.8**	**38.7**	**45.0**	**52.3**	**60.4**	**68.5**	**75.5**	**-1.7**	**2.9**	**3.0**	**2.3**
Public road transport	26.0	11.6	13.9	11.5	10.5	9.9	9.7	9.7	9.8	-6.1	-2.8	-0.8	0.1
Private cars and motorcycles	5.4	4.0	15.5	23.1	29.5	36.0	42.5	49.0	54.3	11.2	6.6	3.7	2.5
Rail	7.8	4.7	3.5	2.4	2.5	2.8	3.5	4.2	5.0	-7.8	-3.3	3.4	3.7
Aviation	0.8	0.9	0.9	1.6	2.5	3.6	4.7	5.7	6.4	0.6	10.8	6.4	3.2
Inland navigation	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-23.0	-2.4	-0.7	0.4
Travel per person (km per capita)	4596	2543	4128	4980	6031	7336	8887	10603	12227	-1.1	3.9	4.0	3.2
Freight transport activity (Gtkm)	**27.8**	**18.9**	**12.3**	**20.3**	**26.2**	**32.8**	**38.7**	**43.5**	**46.9**	**-7.9**	**7.9**	**4.0**	**1.9**
Trucks	12.0	9.7	6.4	14.3	19.7	24.9	29.6	33.3	35.9	-6.1	11.9	4.1	2.0
Rail	14.1	8.6	5.5	5.2	5.5	6.6	7.7	8.7	9.4	-8.9	-0.1	3.5	1.9
Inland navigation	1.6	0.5	0.3	0.8	1.0	1.2	1.4	1.6	1.6	-15.1	12.0	3.9	1.5
Freight activity per unit of GDP (tkm/000 €05)	1384	1073	726	945	938	891	786	668	553	-6.3	2.6	-1.8	-3.5
Energy demand in transport (ktoe)	**2518**	**1976**	**1817**	**2560**	**3137**	**3678**	**4181**	**4669**	**4934**	**-3.2**	**5.6**	**2.9**	**1.7**
Public road transport	318	152	158	97	82	72	67	65	62	-6.8	-6.4	-1.9	-0.8
Private cars and motorcycles	231	175	639	928	1096	1241	1363	1490	1497	10.7	5.5	2.2	0.9
Trucks	1459	1223	842	1274	1629	1952	2250	2538	2749	-5.4	6.8	3.3	2.0
Rail	216	144	77	60	61	71	80	81	69	-9.8	-2.4	2.8	-1.5
Aviation	276	276	101	200	268	338	417	491	553	-9.6	10.3	4.5	2.9
Inland navigation	18	6	1	2	2	3	3	3	3	-25.5	8.4	3.4	1.3
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	20.9	28.7	26.8	31.8	32.2	31.7	30.7	29.9	28.0	2.5	1.9	-0.5	-0.9
Freight transport (toe/Mtkm)	60.4	72.2	74.4	65.7	64.4	61.7	60.2	60.2	60.0	2.1	-1.4	-0.7	0.0

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Cyprus: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**6**	**42**	**44**	**51**	**87**	**108**	**153**	**179**	**200**	**23.0**	**6.9**	**5.8**	**2.7**
Solids	0	0	0	0	1	1	2	3	4			10.3	10.4
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	6	42	44	51	86	107	151	176	196	23.0	6.9	5.8	2.6
Hydro	0	0	0	0	0	0	0	0	0				
Biomass & Waste	6	11	9	10	14	18	23	28	35	4.7	5.0	4.6	4.6
Wind	0	0	0	0	7	9	41	55	64			19.1	4.6
Solar and others	0	31	35	41	65	80	88	93	97		6.2	3.1	0.9
Geothermal	0	0	0	0	0	0	0	0	0			-0.2	-1.9
Net Imports	**1554**	**2017**	**2537**	**2808**	**3147**	**3068**	**3154**	**3169**	**3214**	**5.0**	**2.2**	**0.0**	**0.2**
Solids	68	17	36	44	34	35	34	34	35	-6.3	-0.5	0.1	0.2
Oil	1486	2000	2502	2764	2918	2506	2493	2293	2271	5.3	1.6	-1.6	-0.9
- Crude oil and Feedstocks	725	794	1149	0	2	2	2	2	2	4.7	-45.9	-0.8	-0.5
- Oil products	761	1207	1353	2764	2915	2504	2490	2291	2269	5.9	8.0	-1.6	-0.9
Natural gas	0	0	0	0	195	518	602	760	805			11.9	2.9
Electricity	0	0	0	0	0	0	0	0	0				
Gross Inland Consumption	**1500**	**1970**	**2381**	**2461**	**2899**	**2838**	**2966**	**3005**	**3069**	**4.7**	**2.0**	**0.2**	**0.3**
Solids	60	13	35	36	34	35	36	37	39	-5.3	-0.2	0.4	0.9
Oil	1434	1914	2302	2374	2583	2168	2152	1950	1926	4.8	1.2	-1.8	-1.1
Natural gas	0	0	0	0	195	518	602	760	805			11.9	2.9
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	0	0	0	0	0	0	0	0				
Renewable energy forms	6	42	44	51	87	117	176	258	299	23.0	6.9	7.4	5.4
as % in Gross Inland Consumption													
Solids	4.0	0.7	1.5	1.5	1.2	1.2	1.2	1.2	1.3				
Oil	95.6	97.2	96.7	96.5	89.1	76.4	72.6	64.9	62.8				
Natural gas	0.0	0.0	0.0	0.0	6.7	18.2	20.3	25.3	26.2				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	0.4	2.2	1.9	2.1	3.0	4.1	5.9	8.6	9.7				
Electricity Generation in GWh_e	**1974**	**2473**	**3369**	**4377**	**5093**	**5716**	**6512**	**7180**	**7723**	**5.5**	**4.2**	**2.5**	**1.7**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	0	0	0	1	84	107	474	635	745			18.9	4.6
Thermal (incl. biomass)	1974	2473	3369	4376	5009	5609	6038	6545	6977	5.5	4.0	1.9	1.5
Fuel Inputs for Thermal Power Generation	**509**	**641**	**884**	**1077**	**1219**	**1067**	**1097**	**1086**	**1126**	**5.7**	**3.3**	**-1.0**	**0.3**
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	509	641	884	1077	1024	544	481	258	234	5.7	1.5	-7.3	-6.9
Gas	0	0	0	0	195	518	602	760	805			11.9	2.9
Biomass & Waste	0	0	0	0	0	4	14	68	87			45.8	19.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**725**	**824**	**1167**	**0**	**6**	**13**	**22**	**30**	**39**	**4.9**	**-40.6**	**13.0**	**6.0**
Refineries	725	824	1167	0	2	2	2	2	2	4.9	-46.0	-0.8	-0.5
Biofuels and hydrogen production	0	0	0	0	4	11	19	27	37			17.4	6.6
District heating	0	0	0	0	0	0	0	0	0				
Others	0	0	0	0	0	0	0	0	0				
Energy Branch Consumption	**35**	**43**	**54**	**22**	**27**	**18**	**18**	**17**	**17**	**4.3**	**-6.6**	**-4.2**	**-0.5**
Non-Energy Uses	**111**	**155**	**188**	**185**	**186**	**189**	**200**	**208**	**214**	**5.4**	**-0.1**	**0.7**	**0.6**
Final Energy Demand	**1013**	**1306**	**1527**	**1691**	**1880**	**2025**	**2143**	**2226**	**2276**	**4.2**	**2.1**	**1.3**	**0.6**
by sector													
Industry	281	201	229	201	202	208	224	236	244	-2.0	-1.3	1.1	0.8
- energy intensive industries	246	125	117	78	74	74	72	70	69	-7.2	-4.5	-0.3	-0.3
- other industrial sectors	35	76	113	122	128	134	153	166	174	12.3	1.3	1.8	1.3
Residential	102	172	215	234	259	274	285	291	294	7.8	1.9	1.0	0.3
Services/Agriculture	151	186	233	289	344	402	459	499	531	4.4	3.9	2.9	1.5
Transport	479	747	850	967	1075	1140	1175	1199	1208	5.9	2.4	0.9	0.3
by fuel													
Solids	76	13	35	36	34	35	36	37	39	-7.5	-0.2	0.4	0.9
Oil	781	1068	1190	1263	1374	1434	1471	1484	1478	4.3	1.4	0.7	0.1
Gas	0	0	0	0	0	0	0	0	0			6.7	3.7
Electricity	151	191	258	340	394	453	519	575	618	5.5	4.3	2.8	1.8
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0				
Other	6	33	44	51	78	102	118	130	141	23.0	5.8	4.2	1.8
CO_2 Emissions (Mt of CO_2)	**4.4**	**5.4**	**6.6**	**7.4**	**8.0**	**7.4**	**7.5**	**7.2**	**7.2**	**4.3**	**1.8**	**-0.6**	**-0.4**
Power generation/District heating	1.6	2.1	2.8	3.5	3.7	3.0	2.9	2.6	2.6	5.7	2.8	-2.3	-1.1
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8			
Industry	0.9	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.6	-3.2	-2.2	1.0	1.0
Residential	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	3.9	-2.3	-2.8	-4.3
Services/Agriculture	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	4.3	1.6	0.9	-0.6
Transport	1.4	2.2	2.5	2.9	3.2	3.4	3.4	3.5	3.5	6.0	2.3	0.8	0.2
CO_2 Emissions Index (1990=100)	**100.0**	**123.9**	**152.5**	**168.8**	**182.8**	**169.2**	**171.7**	**164.8**	**165.4**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Cyprus: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	0.573	0.645	0.690	0.749	0.794	0.828	0.866	0.897	0.921	1.9	1.4	0.9	0.6
GDP (in 000 M€05)	7.5	9.7	11.7	13.6	16.4	19.6	23.4	26.8	30.0	4.6	3.4	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	200.9	203.7	204.2	180.6	177.3	145.1	127.0	112.0	102.4	0.2	-1.4	-3.3	-2.1
Gross Inl. Cons./Capita (toe/inhabitant)	2.62	3.05	3.45	3.29	3.65	3.43	3.43	3.35	3.33	2.8	0.6	-0.6	-0.3
Electricity Generated/Capita (kWh gross/inhabitant)	3446	3831	4880	5843	6416	6905	7524	8006	8381	3.5	2.8	1.6	1.1
Carbon intensity (t of CO_2/toe of GIC)	2.90	2.74	2.79	2.99	2.75	2.60	2.52	2.39	2.35	-0.4	-0.2	-0.9	-0.7
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.61	8.36	9.62	9.82	10.04	8.91	8.64	8.01	7.82	2.4	0.4	-1.5	-1.0
CO_2 Emissions to GDP (t of CO2/M€05)	583.5	558.1	569.5	539.7	487.1	377.0	320.2	267.7	240.4	-0.2	-1.5	-4.1	-2.8
Import Dependency %	100.1	99.1	98.8	100.7	97.3	96.6	95.4	94.7	94.1	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	136.5	86.5	100.0	83.9	75.6	68.9	62.2	57.1	53.1	-3.1	-2.8	-1.9	-1.6
Residential (Energy on Private Income)	85.0	98.4	100.0	91.0	83.5	73.7	63.8	57.1	52.2	1.6	-1.8	-2.7	-2.0
Services/Agriculture (Energy on Value added)	115.0	100.1	100.0	106.2	104.0	100.9	95.8	90.4	85.7	-1.4	0.4	-0.8	-1.1
Transport (Energy on GDP)	88.0	106.1	100.0	97.4	90.3	80.0	69.0	61.4	55.3	1.3	-1.0	-2.6	-2.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.83	0.83	0.84	0.79	0.73	0.52	0.45	0.36	0.34	0.2	-1.4	-4.7	-2.8
Final energy demand (t of CO_2/toe)	2.61	2.49	2.42	2.31	2.25	2.18	2.11	2.06	2.01	-0.8	-0.7	-0.6	-0.5
Industry	3.07	2.67	2.72	2.48	2.47	2.46	2.47	2.49	2.50	-1.2	-0.9	0.0	0.1
Residential	1.51	1.15	1.05	0.82	0.69	0.58	0.47	0.38	0.30	-3.6	-4.1	-3.7	-4.5
Services/Agriculture	1.37	1.55	1.35	1.18	1.07	0.97	0.88	0.78	0.71	-0.1	-2.3	-2.0	-2.1
Transport	2.97	2.98	2.98	2.97	2.96	2.95	2.93	2.91	2.90	0.0	-0.1	-0.1	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**930**	**1155**	**1393**	**1381**	**1680**	**1901**	**2065**		**4.1**	**1.9**	**2.1**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			1	1	47	50	213	276	314		49.4	16.3	4.0
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	46	49	212	275	313			16.5	4.0
Solar			1	1	1	1	1	1	1		0.0	0.0	0.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			929	1154	1346	1331	1467	1625	1751		3.8	0.9	1.8
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	0	429	605	846	1062				5.8
Oil fired			929	1154	1346	899	846	732	618		3.8	-4.5	-3.1
Biomass-waste fired			0	0	0	3	16	48	70			55.8	16.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			39.3	40.8	39.2	45.5	42.9	42.0	41.6				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			32.8	35.0	35.4	45.2	47.3	51.8	53.3				
CHP indicator (% of electricity from CHP)			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non fossil fuels in electricity generation (%)			0.0	0.0	1.7	2.3	8.4	13.6	15.3				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	1.7	2.3	8.4	13.6	15.3				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			2.8	3.0	4.5	5.5	7.5	9.4	10.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.4	1.2	2.0	2.8	3.7				
Transport sector													
Passenger transport activity (Gpkm)	**7.9**	**9.0**	**11.1**	**13.5**	**15.5**	**16.9**	**18.1**	**19.0**	**19.7**	**3.5**	**3.4**	**1.6**	**0.8**
Public road transport	0.8	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	3.1	1.8	1.5	1.1
Private cars and motorcycles	2.3	2.5	3.0	3.9	4.4	4.6	4.8	5.0	5.2	2.5	4.0	1.0	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	4.7	5.5	7.0	8.4	9.8	10.8	11.7	12.4	12.8	4.0	3.4	1.8	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	13725	13988	16045	17973	19550	20393	20950	21239	21385	1.6	2.0	0.7	0.2
Freight transport activity (Gtkm)	**1.0**	**1.2**	**1.3**	**1.4**	**1.5**	**1.5**	**1.6**	**1.7**	**1.7**	**2.7**	**1.2**	**0.9**	**0.6**
Trucks	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.7	2.7	1.2	0.9	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	135	124	112	102	90	79	69	62	57	-1.8	-2.2	-2.7	-1.9
Energy demand in transport (ktoe)	**479**	**747**	**850**	**967**	**1075**	**1140**	**1175**	**1199**	**1208**	**5.9**	**2.4**	**0.9**	**0.3**
Public road transport	8	14	16	16	17	18	19	19	19	6.4	1.0	1.1	-0.3
Private cars and motorcycles	117	145	177	288	325	338	341	343	333	4.2	6.3	0.5	-0.2
Trucks	201	321	368	364	385	409	420	429	442	6.2	0.5	0.9	0.5
Rail	0	0	0	0	0	0	0	0	0				
Aviation	152	267	290	299	348	374	395	408	414	6.6	1.8	1.3	0.5
Inland navigation	0	0	0	0	0	0	0	0	0				
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	35.4	47.2	43.5	44.8	44.5	43.3	41.6	40.4	38.9	2.1	0.2	-0.7	-0.7
Freight transport (toe/Mtkm)	199.1	267.7	280.6	261.2	261.2	264.6	261.5	259.0	260.0	3.5	-0.7	0.0	-0.1

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Czech Republic: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**38484**	**31733**	**29788**	**32779**	**28126**	**25620**	**24561**	**25269**	**21501**	**-2.5**	**-0.6**	**-1.3**	**-1.3**
Solids	34715	27481	25002	23520	17097	14063	12040	11001	10086	-3.2	-3.7	-3.4	-1.8
Oil	222	272	384	584	200	200	200	200	200	5.6	-6.3	0.0	0.0
Natural gas	201	198	169	154	159	167	169	171	179	-1.7	-0.6	0.6	0.6
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	5599	0.8	7.9	0.5	-3.3
Renewable energy sources	100	627	727	2142	3191	3598	4314	4911	5436	22.0	15.9	3.1	2.3
Hydro	100	172	151	205	211	212	218	221	230	4.2	3.4	0.3	0.6
Biomass & Waste	0	455	576	1933	2900	3229	3895	4444	4926		17.5	3.0	2.4
Wind	0	0	0	2	50	90	103	121	137			7.5	2.9
Solar and others	0	0	0	2	29	66	97	126	143			12.7	3.9
Geothermal	0	0	0	0	0	0	0	0	0			1.3	1.2
Net Imports	**7630**	**8417**	**9297**	**12271**	**18840**	**21059**	**24654**	**26077**	**30296**	**2.0**	**7.3**	**2.7**	**2.1**
Solids	-5685	-5784	-4751	-3489	1886	2492	4973	6021	9581			10.2	6.8
Oil	8589	7742	7428	9499	10771	11853	12772	13461	13956	-1.4	3.8	1.7	0.9
- Crude oil and Feedstocks	7382	6798	5492	7539	8612	9431	10124	10643	11014	-2.9	4.6	1.6	0.8
- Oil products	1207	944	1936	1960	2159	2422	2648	2818	2942	4.8	1.1	2.1	1.1
Natural gas	4786	6424	7482	7535	7788	8197	8269	8367	8786	4.6	0.4	0.6	0.6
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Gross Inland Consumption	**47380**	**40801**	**40307**	**44798**	**46966**	**46679**	**49215**	**51346**	**51798**	**-1.6**	**1.5**	**0.5**	**0.5**
Solids	29882	22556	21645	20099	18983	16554	17013	17022	19667	-3.2	-1.3	-1.1	1.5
Oil	8964	7876	7790	9748	10971	12053	12972	13661	14156	-1.4	3.5	1.7	0.9
Natural gas	5248	6552	7500	7703	7947	8364	8438	8537	8965	3.6	0.6	0.6	0.6
Nuclear	3246	3155	3506	6379	7479	7592	7839	8986	5599	0.8	7.9	0.5	-3.3
Electricity	-60	36	-861	-1086	-1414	-1271	-1105	-1480	-1702				
Renewable energy forms	100	627	727	1955	3000	3386	4058	4620	5113	22.0	15.2	3.1	2.3
as % in Gross Inland Consumption													
Solids	63.1	55.3	53.7	44.9	40.4	35.5	34.6	33.2	38.0				
Oil	18.9	19.3	19.3	21.8	23.4	25.8	26.4	26.6	27.3				
Natural gas	11.1	16.1	18.6	17.2	16.9	17.9	17.1	16.6	17.3				
Nuclear	6.9	7.7	8.7	14.2	15.9	16.3	15.9	17.5	10.8				
Renewable energy forms	0.2	1.5	1.8	4.4	6.4	7.3	8.2	9.0	9.9				
Electricity Generation in GWh_e	**62260**	**60564**	**72898**	**81916**	**94016**	**99085**	**104386**	**116739**	**126471**	**1.6**	**2.6**	**1.1**	**1.9**
Nuclear	12583	12228	13588	24724	28995	29433	30388	35583	22720	0.8	7.9	0.5	-2.9
Hydro & wind	1161	2002	1758	2402	3038	3521	3737	3989	4290	4.2	5.6	2.1	1.4
Thermal (incl. biomass)	48516	46335	57553	54791	61982	66131	70260	77166	99461	1.7	0.7	1.3	3.5
Fuel Inputs for Thermal Power Generation	**10989**	**14575**	**15873**	**15591**	**15104**	**13023**	**13808**	**14476**	**17623**	**3.7**	**-0.5**	**-0.9**	**2.5**
Solids	9947	13571	14031	13955	13890	11682	12304	12524	15717	3.5	-0.1	-1.2	2.5
Oil (including refinery gas)	741	311	203	126	80	28	28	1	0	-12.2	-8.9	-10.0	
Gas	300	573	1270	1286	1032	1235	1087	1057	857	15.5	-2.1	0.5	-2.4
Biomass & Waste	0	119	369	224	101	78	390	894	1049		-12.1	14.4	10.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**18634**	**14422**	**11312**	**13108**	**13317**	**13852**	**14620**	**15000**	**15315**	**-4.9**	**1.6**	**0.9**	**0.5**
Refineries	7946	7026	6047	7957	8869	9713	10425	10952	11334	-2.7	3.9	1.6	0.8
Biofuels and hydrogen production	0	11	0	3	378	539	756	891	1001			7.2	2.8
District heating	2138	1404	999	909	1039	838	775	630	537	-7.3	0.4	-2.9	-3.6
Others	8549	5982	4266	4239	3031	2762	2663	2527	2444	-6.7	-3.4	-1.3	-0.9
Energy Branch Consumption	**2124**	**1866**	**1919**	**1915**	**2262**	**2264**	**2343**	**2446**	**2551**	**-1.0**	**1.7**	**0.4**	**0.9**
Non-Energy Uses	**1680**	**2132**	**1962**	**2419**	**2848**	**3204**	**3591**	**3894**	**4109**	**1.6**	**3.8**	**2.3**	**1.4**
Final Energy Demand	**36267**	**25697**	**23905**	**25801**	**28144**	**29998**	**31644**	**32878**	**33892**	**-4.1**	**1.6**	**1.2**	**0.7**
by sector													
Industry	19215	12191	10031	9439	9955	10336	10805	11141	11420	-6.3	-0.1	0.8	0.6
- energy intensive industries	8050	6719	6276	6588	6874	7070	7283	7422	7515	-2.5	0.9	0.6	0.3
- other industrial sectors	11165	5472	3755	2851	3081	3265	3522	3719	3905	-10.3	-2.0	1.3	1.0
Residential	8625	5796	5260	6063	6719	7039	7196	7340	7471	-4.8	2.5	0.7	0.4
Services/Agriculture	5622	4871	3893	3730	3914	4233	4559	4849	5172	-3.6	0.1	1.5	1.3
Transport	2804	2840	4721	6569	7557	8390	9084	9547	9829	5.3	4.8	1.9	0.8
by fuel													
Solids	17789	6457	5164	3619	3685	3451	3421	3409	2904	-11.6	-3.3	-0.7	-1.6
Oil	6229	5018	5291	6913	7535	8357	8876	9284	9560	-1.6	3.6	1.7	0.7
Gas	5146	6119	6419	6581	6636	7048	7197	7250	7868	2.2	0.3	0.8	0.9
Electricity	4142	4129	4243	4750	5405	5977	6523	7085	7555	0.2	2.4	1.9	1.5
Heat (from CHP and District Heating)	2959	3664	2624	2478	2452	2413	2566	2742	2540	-1.2	-0.7	0.5	-0.1
Other	0	309	165	1460	2430	2752	3062	3106	3466		30.9	2.3	1.2
CO_2 Emissions (Mt of CO_2)	**154.8**	**118.4**	**116.7**	**114.8**	**116.5**	**110.1**	**113.7**	**115.1**	**127.4**	**-2.8**	**0.0**	**-0.2**	**1.1**
Power generation/District heating	48.8	60.4	62.1	61.0	60.1	51.3	53.1	53.2	65.3	2.4	-0.3	-1.2	2.1
Energy Branch	2.3	1.5	2.2	2.3	2.7	2.7	2.8	2.8	2.8	-0.5	2.1	0.1	0.0
Industry	58.1	29.0	25.2	20.9	21.0	21.1	21.4	21.6	21.1	-8.0	-1.8	0.2	-0.1
Residential	24.0	10.6	7.9	7.1	7.6	7.7	7.7	7.8	7.8	-10.5	-0.3	0.0	0.2
Services/Agriculture	14.1	9.2	5.9	4.5	3.9	3.8	3.9	3.8	3.9	-8.4	-4.0	-0.1	0.2
Transport	7.5	7.7	13.4	19.1	21.2	23.3	24.9	25.9	26.4	6.0	4.6	1.6	0.6
CO_2 Emissions Index (1990=100)	**100.0**	**76.5**	**75.4**	**74.2**	**75.2**	**71.1**	**73.4**	**74.3**	**82.3**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Czech Republic: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	10.362	10.333	10.278	10.221	10.145	10.012	9.902	9.812	9.693	-0.1	-0.1	-0.2	-0.2
GDP (in 000 M€05)	81.3	77.5	83.4	99.7	124.6	148.5	178.2	203.8	227.0	0.3	4.1	3.6	2.5
Gross Inl. Cons./GDP (toe/M€05)	582.6	526.6	483.2	449.2	377.1	314.4	276.2	251.9	228.1	-1.9	-2.5	-3.1	-1.9
Gross Inl. Cons./Capita (toe/inhabitant)	4.57	3.95	3.92	4.38	4.63	4.66	4.97	5.23	5.34	-1.5	1.7	0.7	0.7
Electricity Generated/Capita (kWh gross/inhabitant)	6008	5861	7093	8015	9267	9897	10542	11898	13048	1.7	2.7	1.3	2.2
Carbon intensity (t of CO_2/toe of GIC)	3.27	2.90	2.89	2.56	2.48	2.36	2.31	2.24	2.46	-1.2	-1.5	-0.7	0.6
CO_2 Emissions/Capita (t of CO_2/inhabitant)	14.94	11.46	11.35	11.23	11.48	10.99	11.48	11.73	13.15	-2.7	0.1	0.0	1.4
CO_2 Emissions to GDP (t of CO2/M€05)	1904.2	1528.5	1399.0	1151.3	935.0	741.2	637.8	564.7	561.2	-3.0	-3.9	-3.8	-1.3
Import Dependency %	16.1	20.6	23.1	27.4	40.1	45.1	50.1	50.8	58.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	212.7	162.3	100.0	72.4	59.0	51.9	46.1	42.0	38.8	-7.3	-5.1	-2.4	-1.7
Residential (Energy on Private Income)	181.6	126.0	100.0	98.7	87.1	76.4	65.0	58.1	53.3	-5.8	-1.4	-2.9	-2.0
Services/Agriculture (Energy on Value added)	215.6	130.1	100.0	81.5	69.2	62.4	55.4	51.4	49.1	-7.4	-3.6	-2.2	-1.2
Transport (Energy on GDP)	60.9	64.7	100.0	116.4	107.2	99.8	90.1	82.8	76.5	5.1	0.7	-1.7	-1.6
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.46	0.55	0.56	0.51	0.45	0.37	0.36	0.33	0.39	1.8	-2.1	-2.0	0.8
Final energy demand (t of CO_2/toe)	2.86	2.20	2.19	2.00	1.91	1.87	1.83	1.80	1.75	-2.6	-1.4	-0.4	-0.4
Industry	3.03	2.38	2.51	2.21	2.11	2.04	1.98	1.93	1.85	-1.8	-1.7	-0.6	-0.7
Residential	2.78	1.84	1.50	1.16	1.14	1.10	1.07	1.06	1.05	-6.0	-2.7	-0.7	-0.2
Services/Agriculture	2.51	1.89	1.51	1.21	1.00	0.91	0.85	0.79	0.76	-5.0	-4.1	-1.6	-1.1
Transport	2.68	2.71	2.85	2.90	2.80	2.78	2.74	2.72	2.69	0.6	-0.2	-0.2	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**12048**	**13981**	**15774**	**17545**	**17632**	**18294**	**19448**		**2.7**	**1.1**	**1.0**
Nuclear energy			1661	3504	3519	3534	3541	4141	2640		7.8	0.1	-2.9
Renewable energy			1148	1227	1632	1968	2082	2249	2395		3.6	2.5	1.4
Hydro (pumping excluded)			1142	1196	1244	1246	1251	1256	1262		0.9	0.1	0.1
Wind			7	30	386	716	820	971	1103		49.8	7.8	3.0
Solar			0	1	2	6	12	22	29			19.5	9.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			9239	9250	10623	12044	12008	11904	14413		1.4	1.2	1.8
of which cogeneration units			3030	3110	3387	4017	4571	5364	5593		1.1	3.0	2.0
Solids fired			7747	7661	8760	10277	10008	9365	11499		1.2	1.3	1.4
Gas fired			1208	1302	1514	1447	1482	1634	1910		2.3	-0.2	2.6
Oil fired			118	122	125	118	57	30	113		0.6	-7.5	7.0
Biomass-waste fired			165	165	225	203	461	875	892		3.1	7.5	6.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			63.9	61.7	63.3	60.5	63.5	68.4	69.5				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			31.2	30.2	35.3	43.7	43.8	45.8	48.5				
CHP indicator (% of electricity from CHP)			21.1	16.7	21.2	26.6	28.0	29.4	26.4				
Non fossil fuels in electricity generation (%)			22.3	34.1	35.2	34.2	35.0	37.7	25.2				
- nuclear			18.6	30.2	30.8	29.7	29.1	30.5	18.0				
- renewable energy forms			3.6	4.0	4.3	4.5	5.9	7.2	7.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			2.4	6.7	9.7	10.3	11.6	12.5	13.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.6	5.9	7.7	8.6	9.5				
Transport sector													
Passenger transport activity (Gpkm)	**92.9**	**95.4**	**101.3**	**105.1**	**116.4**	**130.1**	**146.9**	**162.2**	**174.8**	**0.9**	**1.4**	**2.4**	**1.8**
Public road transport	23.6	18.6	16.2	14.7	14.9	15.4	16.0	17.0	17.7	-3.7	-0.8	0.7	1.0
Private cars and motorcycles	46.8	59.0	67.3	71.3	80.6	91.4	104.5	116.1	125.6	3.7	1.8	2.6	1.9
Rail	20.6	15.7	15.4	15.6	15.9	16.6	17.5	18.4	19.0	-2.9	0.4	0.9	0.8
Aviation	1.9	2.1	2.5	3.5	5.0	6.7	8.8	10.7	12.5	2.8	7.1	5.9	3.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	8968	9232	9861	10279	11470	12993	14835	16528	18034	1.0	1.5	2.6	2.0
Freight transport activity (Gtkm)	**64.2**	**53.9**	**55.6**	**59.3**	**64.7**	**70.4**	**77.2**	**84.0**	**90.6**	**-1.4**	**1.5**	**1.8**	**1.6**
Trucks	26.3	31.3	37.3	43.4	51.5	58.4	64.9	71.2	77.3	3.6	3.3	2.3	1.8
Rail	38.0	22.6	17.5	14.8	12.9	11.9	12.1	12.8	13.3	-7.5	-3.0	-0.6	0.9
Inland navigation	0.0	0.0	0.8	1.0	0.3	0.2	0.1	0.0	0.1		-8.7	-8.1	-5.1
Freight activity per unit of GDP (tkm/000 €05)	790	696	666	594	520	474	433	412	399	-1.7	-2.5	-1.8	-0.8
Energy demand in transport (ktoe)	**2804**	**2840**	**4721**	**6569**	**7557**	**8390**	**9084**	**9547**	**9829**	**5.3**	**4.8**	**1.9**	**0.8**
Public road transport	132	110	98	111	111	112	111	108	104	-2.9	1.3	-0.1	-0.6
Private cars and motorcycles	1271	1373	2257	2850	3192	3496	3768	3911	3905	5.9	3.5	1.7	0.4
Trucks	956	971	1868	2987	3536	3964	4267	4511	4750	6.9	6.6	1.9	1.1
Rail	272	200	295	271	236	214	207	198	180	0.8	-2.2	-1.3	-1.4
Aviation	174	185	197	346	481	603	731	819	889	1.3	9.3	4.3	2.0
Inland navigation	0	0	5	5	2	1	1	0	0		-11.0	-8.2	-5.2
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	17.4	17.8	25.6	31.9	32.9	32.7	31.6	30.0	28.2	4.0	2.5	-0.4	-1.1
Freight transport (toe/Mtkm)	18.5	21.1	38.3	54.3	57.6	58.8	57.5	55.7	54.0	7.5	4.2	0.0	-0.6

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Denmark: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**10040**	**15562**	**27617**	**31173**	**28760**	**24007**	**20214**	**20029**	**18564**	**10.6**	**0.4**	**-3.5**	**-0.8**
Solids	0	0	0	0	0	0	0	0	0				
Oil	6071	9326	18142	18892	16500	14000	11000	10000	9000	11.6	-0.9	-4.0	-2.0
Natural gas	2770	4702	7412	9383	9000	6546	5376	5770	5000	10.3	2.0	-5.0	-0.7
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1199	1534	2064	2897	3260	3461	3838	4258	4564	5.6	4.7	1.6	1.7
Hydro	2	3	3	2	3	3	3	3	3	1.1	-0.1	0.5	0.4
Biomass & Waste	1140	1423	1687	2313	2535	2682	2939	3169	3418	4.0	4.2	1.5	1.5
Wind	52	101	365	569	682	687	770	931	968	21.4	6.5	1.2	2.3
Solar and others	2	5	7	10	41	89	126	156	175	12.5	18.7	12.0	3.3
Geothermal	2	2	3	3	0	0	0	0	0	1.9	-37.3	0.9	0.2
Net Imports	**8605**	**7534**	**-7076**	**-10498**	**-7725**	**-2993**	**972**	**1059**	**2437**				**9.6**
Solids	6216	7664	3784	3505	3707	4386	4753	4235	3954	-4.8	-0.2	2.5	-1.8
Oil	2711	1429	-8094	-9381	-7330	-4753	-1798	-999	87				
- Crude oil and Feedstocks	2032	802	-9607	-11186	-8506	-5946	-2976	-2075	-1006				
- Oil products	679	627	1512	1804	1176	1193	1178	1076	1093	8.3	-2.5	0.0	-0.7
Natural gas	-928	-1496	-2882	-5010	-4298	-3126	-2568	-2756	-2171				
Electricity	606	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Gross Inland Consumption	**17856**	**20244**	**19659**	**19534**	**20186**	**20136**	**20282**	**20155**	**20040**	**1.0**	**0.3**	**0.0**	**-0.1**
Solids	6088	6498	3987	3715	3707	4386	4753	4235	3954	-4.1	-0.7	2.5	-1.8
Oil	8144	9105	9043	8133	8321	8369	8297	8068	8126	1.1	-0.8	0.0	-0.2
Natural gas	1818	3170	4449	4399	4702	3420	2809	3015	2829	9.4	0.6	-5.0	0.1
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	608	-68	57	118	-101	186	240	208	166	-21.0			-3.6
Renewable energy forms	1199	1540	2123	3168	3557	3775	4182	4630	4965	5.9	5.3	1.6	1.7
as % in Gross Inland Consumption													
Solids	34.1	32.1	20.3	19.0	18.4	21.8	23.4	21.0	19.7				
Oil	45.6	45.0	46.0	41.6	41.2	41.6	40.9	40.0	40.5				
Natural gas	10.2	15.7	22.6	22.5	23.3	17.0	13.8	15.0	14.1				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	6.7	7.6	10.8	16.2	17.6	18.7	20.6	23.0	24.8				
Electricity Generation in GWh_e	**25733**	**36648**	**36043**	**36269**	**40601**	**38873**	**39734**	**41349**	**42569**	**3.4**	**1.2**	**-0.2**	**0.7**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	637	1207	4270	6636	7963	8027	9013	10888	11332	21.0	6.4	1.2	2.3
Thermal (incl. biomass)	25096	35442	31772	29634	32637	30846	30721	30461	31237	2.4	0.3	-0.6	0.2
Fuel Inputs for Thermal Power Generation	**6016**	**8423**	**7822**	**7129**	**7046**	**6606**	**6569**	**6383**	**6346**	**2.7**	**-1.0**	**-0.7**	**-0.3**
Solids	5541	6061	3667	3444	3477	4140	4507	3853	3442	-4.0	-0.5	2.6	-2.7
Oil (including refinery gas)	237	1008	1344	344	335	278	253	52	192	19.0	-13.0	-2.8	-2.7
Gas	174	975	2112	2003	2091	1018	405	645	647	28.4	-0.1	-15.1	4.8
Biomass & Waste	65	378	699	1338	1143	1170	1404	1834	2064	26.9	5.0	2.1	3.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**9073**	**10750**	**8984**	**8343**	**8903**	**9022**	**9076**	**8828**	**8868**	**-0.1**	**-0.1**	**0.2**	**-0.2**
Refineries	8027	9958	8452	7821	7994	8054	8024	7925	7994	0.5	-0.6	0.0	0.0
Biofuels and hydrogen production	0	0	0	0	186	310	471	538	610			9.8	2.6
District heating	1005	761	515	509	723	657	582	364	264	-6.5	3.5	-2.2	-7.6
Others	42	31	17	13	0	0	0	0	0	-8.4			
Energy Branch Consumption	**736**	**1014**	**1160**	**1258**	**1281**	**1074**	**974**	**980**	**942**	**4.7**	**1.0**	**-2.7**	**-0.3**
Non-Energy Uses	**293**	**291**	**292**	**276**	**275**	**279**	**280**	**282**	**286**	**-0.1**	**-0.6**	**0.2**	**0.2**
Final Energy Demand	**13492**	**14720**	**14610**	**15324**	**15910**	**16367**	**16664**	**16763**	**16794**	**0.8**	**0.9**	**0.5**	**0.1**
by sector													
Industry	2711	3026	2935	2831	2927	3004	3040	3047	3099	0.8	0.0	0.4	0.2
- energy intensive industries	1076	1121	1243	1152	1178	1202	1204	1195	1191	1.5	-0.5	0.2	-0.1
- other industrial sectors	1636	1905	1692	1679	1748	1802	1837	1852	1908	0.3	0.3	0.5	0.4
Residential	3946	4468	4154	4398	4521	4590	4615	4623	4617	0.5	0.8	0.2	0.0
Services/Agriculture	2822	2779	2801	2840	2927	2994	3030	3056	3035	-0.1	0.4	0.3	0.0
Transport	4012	4447	4720	5254	5535	5780	5979	6037	6043	1.6	1.6	0.8	0.1
by fuel													
Solids	396	405	290	236	230	245	246	381	513	-3.1	-2.3	0.7	7.6
Oil	7097	7132	6950	7204	7189	7312	7365	7376	7322	-0.2	0.3	0.2	-0.1
Gas	1159	1691	1667	1701	1828	1875	1887	1791	1656	3.7	0.9	0.3	-1.3
Electricity	2517	2655	2791	2882	3013	3147	3250	3334	3377	1.0	0.8	0.8	0.4
Heat (from CHP and District Heating)	1758	2242	2255	2408	2543	2517	2499	2366	2286	2.5	1.2	-0.2	-0.9
Other	566	595	657	892	1107	1271	1416	1514	1640	1.5	5.4	2.5	1.5
CO_2 Emissions (Mt of CO_2)	**51.7**	**59.3**	**52.4**	**48.9**	**49.5**	**49.4**	**49.2**	**47.0**	**45.7**	**0.1**	**-0.6**	**-0.1**	**-0.7**
Power generation/District heating	24.5	30.2	24.0	19.7	20.0	19.8	19.8	17.2	16.0	-0.2	-1.8	-0.1	-2.1
Energy Branch	1.5	2.0	2.4	2.5	2.5	2.1	1.8	1.8	1.7	4.9	0.6	-3.2	-0.6
Industry	5.4	6.0	5.4	5.0	4.9	5.0	5.0	5.1	5.2	-0.1	-0.8	0.1	0.5
Residential	4.9	4.9	3.9	3.5	3.4	3.3	3.3	3.4	3.5	-2.3	-1.4	-0.1	0.6
Services/Agriculture	3.6	3.1	2.9	2.7	2.7	2.7	2.7	2.8	2.8	-2.1	-0.8	0.2	0.3
Transport	11.9	13.1	13.9	15.5	16.0	16.4	16.6	16.6	16.5	1.6	1.4	0.4	-0.1
CO_2 Emissions Index (1990=100)	**100.0**	**114.6**	**101.4**	**94.6**	**95.7**	**95.5**	**95.2**	**90.9**	**88.4**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Denmark: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	5.135	5.216	5.330	5.411	5.459	5.498	5.526	5.557	5.577	0.4	0.2	0.1	0.1
GDP (in 000 M€05)	150.8	169.2	194.8	208.3	234.9	259.3	281.3	301.6	321.3	2.6	1.9	1.8	1.3
Gross Inl. Cons./GDP (toe/M€05)	118.4	119.6	100.9	93.8	85.9	77.7	72.1	66.8	62.4	-1.6	-1.6	-1.7	-1.4
Gross Inl. Cons./Capita (toe/inhabitant)	3.48	3.88	3.69	3.61	3.70	3.66	3.67	3.63	3.59	0.6	0.0	-0.1	-0.2
Electricity Generated/Capita (kWh gross/inhabitant)	5011	7027	6762	6702	7438	7070	7190	7441	7633	3.0	1.0	-0.3	0.6
Carbon intensity (t of CO_2/toe of GIC)	2.90	2.93	2.67	2.50	2.45	2.45	2.43	2.33	2.28	-0.8	-0.8	-0.1	-0.6
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.07	11.36	9.84	9.04	9.07	8.98	8.91	8.46	8.20	-0.2	-0.8	-0.2	-0.8
CO_2 Emissions to GDP (t of CO2/M€05)	342.9	350.2	269.1	234.8	210.7	190.4	175.0	155.9	142.3	-2.4	-2.4	-1.8	-2.1
Import Dependency %	45.7	34.5	-33.7	-51.6	-36.7	-14.2	4.6	5.0	11.6	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	111.3	111.3	100.0	99.8	92.7	87.2	81.9	77.1	73.8	-1.1	-0.8	-1.2	-1.0
Residential (Energy on Private Income)	114.6	115.6	100.0	94.6	87.7	81.7	76.4	71.8	67.6	-1.4	-1.3	-1.4	-1.2
Services/Agriculture (Energy on Value added)	132.1	115.3	100.0	94.6	85.2	78.8	73.4	68.9	64.2	-2.7	-1.6	-1.5	-1.3
Transport (Energy on GDP)	109.9	108.5	100.0	104.1	97.3	92.0	87.7	82.6	77.6	-0.9	-0.3	-1.0	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.48	0.43	0.35	0.27	0.26	0.26	0.27	0.24	0.22	-3.1	-2.9	0.3	-1.9
Final energy demand (t of CO_2/toe)	1.91	1.84	1.78	1.74	1.69	1.68	1.66	1.67	1.67	-0.7	-0.5	-0.2	0.1
Industry	2.00	1.98	1.83	1.76	1.68	1.67	1.63	1.68	1.69	-0.9	-0.8	-0.3	0.3
Residential	1.24	1.09	0.93	0.80	0.75	0.73	0.72	0.75	0.77	-2.8	-2.2	-0.3	0.6
Services/Agriculture	1.27	1.12	1.04	0.94	0.92	0.90	0.91	0.92	0.93	-2.0	-1.2	-0.2	0.3
Transport	2.96	2.95	2.95	2.96	2.88	2.84	2.78	2.76	2.72	0.0	-0.2	-0.4	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**11888**	**12794**	**12938**	**12712**	**11975**	**12799**	**12963**		**0.9**	**-0.8**	**0.8**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			2311	3014	3665	3687	4023	4627	4657		4.7	0.9	1.5
Hydro (pumping excluded)			10	11	11	11	11	11	11		1.5	0.0	0.0
Wind			2300	3000	3638	3638	3944	4520	4526		4.7	0.8	1.4
Solar			2	3	16	37	68	97	120		24.9	15.8	5.8
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			9577	9781	9273	9026	7952	8172	8306		-0.3	-1.5	0.4
of which cogeneration units			7504	8538	6576	6141	4723	4757	4131		-1.3	-3.3	-1.3
Solids fired			5528	5566	4819	4425	3541	3032	2425		-1.4	-3.0	-3.7
Gas fired			2328	2485	2584	2918	2640	3021	3366		1.0	0.2	2.5
Oil fired			1271	1236	1182	988	911	919	899		-0.7	-2.6	-0.1
Biomass-waste fired			450	494	688	694	860	1200	1617		4.3	2.3	6.5
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			32.7	30.4	33.8	33.0	35.8	34.9	35.5				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			34.9	35.8	39.8	40.2	40.2	41.0	42.3				
CHP indicator (% of electricity from CHP)			63.9	68.3	62.5	62.2	58.8	52.6	49.0				
Non fossil fuels in electricity generation (%)			18.9	32.1	29.9	31.4	36.3	44.5	48.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			18.9	32.1	29.9	31.4	36.3	44.5	48.1				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			12.4	15.5	18.7	19.6	20.9	22.5	24.2				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.4	5.5	8.1	9.3	10.5				
Transport sector													
Passenger transport activity (Gpkm)	**70.1**	**73.0**	**77.8**	**81.6**	**87.0**	**91.6**	**95.6**	**99.4**	**102.6**	**1.1**	**1.1**	**0.9**	**0.7**
Public road transport	6.4	7.3	7.4	7.4	7.4	7.5	7.6	7.8	8.0	1.4	0.0	0.3	0.5
Private cars and motorcycles	47.8	49.0	51.9	54.4	57.6	59.6	61.2	62.8	64.1	0.8	1.0	0.6	0.5
Rail	5.1	4.9	5.5	6.2	6.6	7.2	7.6	8.0	8.3	0.9	1.8	1.4	0.8
Aviation	5.5	7.0	9.0	9.8	11.6	13.5	15.2	16.7	17.9	5.0	2.6	2.7	1.7
Inland navigation	5.2	4.7	3.9	3.7	3.8	3.8	4.0	4.1	4.3	-2.9	-0.4	0.6	0.8
Travel per person (km per capita)	13645	13988	14598	15073	15934	16655	17296	17881	18400	0.7	0.9	0.8	0.6
Freight transport activity (Gtkm)	**21.7**	**26.7**	**27.5**	**27.0**	**29.4**	**31.7**	**34.0**	**36.2**	**38.5**	**2.4**	**0.7**	**1.5**	**1.3**
Trucks	18.1	22.4	24.0	23.3	25.4	27.4	29.3	31.3	33.3	2.9	0.6	1.4	1.3
Rail	1.7	2.0	2.0	2.0	2.1	2.3	2.4	2.6	2.7	1.6	0.4	1.4	1.2
Inland navigation	1.9	2.3	1.5	1.7	1.9	2.1	2.2	2.4	2.5	-2.4	2.4	1.6	1.3
Freight activity per unit of GDP (tkm/000 €05)	144	158	141	130	125	122	121	120	120	-0.2	-1.2	-0.4	-0.1
Energy demand in transport (ktoe)	**4012**	**4447**	**4720**	**5254**	**5535**	**5780**	**5979**	**6037**	**6043**	**1.6**	**1.6**	**0.8**	**0.1**
Public road transport	57	76	78	83	80	79	78	76	72	3.1	0.3	-0.2	-0.8
Private cars and motorcycles	1628	1709	1788	2034	2076	2062	2026	1893	1771	0.9	1.5	-0.2	-1.3
Trucks	1374	1690	1816	1952	2066	2211	2355	2488	2639	2.8	1.3	1.3	1.1
Rail	113	117	103	106	107	108	105	95	48	-1.0	0.4	-0.2	-7.6
Aviation	690	675	820	944	1068	1178	1268	1333	1359	1.7	2.7	1.7	0.7
Inland navigation	150	181	115	136	138	142	147	152	155	-2.6	1.8	0.6	0.6
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	36.1	36.2	36.2	39.3	38.8	37.9	36.9	34.8	32.7	0.0	0.7	-0.5	-1.2
Freight transport (toe/Mtkm)	68.3	67.8	69.2	75.8	73.5	72.9	72.2	71.2	69.7	0.1	0.6	-0.2	-0.4

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Estonia: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**6249**	**3618**	**3332**	**4304**	**3309**	**3469**	**3447**	**3624**	**3631**	**-6.1**	**-0.1**	**0.4**	**0.5**
Solids	5798	3129	2830	3261	2515	2706	2607	2679	2474	-6.9	-1.2	0.4	-0.5
Oil	0	0	2	331	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	450	489	500	712	793	763	840	945	1157	1.1	4.7	0.6	3.3
Hydro	0	0	0	2	2	2	2	3	3		16.3	2.3	0.4
Biomass & Waste	450	488	500	706	745	713	788	877	1073	1.0	4.1	0.6	3.1
Wind	0	0	0	5	45	46	46	61	76		87.1	0.3	5.0
Solar and others	0	0	0	0	1	2	4	5	6			10.3	5.1
Geothermal	0	0	0	0	0	0	0	0	0			1.5	0.5
Net Imports	**4456**	**1987**	**1447**	**1463**	**2401**	**2602**	**2560**	**2557**	**2664**	**-10.6**	**5.2**	**0.6**	**0.4**
Solids	697	292	244	27	119	129	140	152	134	-10.0	-6.9	1.6	-0.4
Oil	3139	1178	626	867	1556	1773	1845	1884	1953	-14.9	9.5	1.7	0.6
- Crude oil and Feedstocks	0	0	0	0	1	1	1	1	1			1.6	0.5
- Oil products	3139	1178	626	867	1555	1772	1844	1883	1951	-14.9	9.5	1.7	0.6
Natural gas	1222	583	662	800	973	896	798	757	867	-5.9	3.9	-2.0	0.8
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Gross Inland Consumption	**10642**	**5630**	**4712**	**5627**	**5559**	**5899**	**5819**	**5984**	**6093**	**-7.8**	**1.7**	**0.5**	**0.5**
Solids	6703	3598	3119	3255	2634	2835	2746	2831	2608	-7.4	-1.7	0.4	-0.5
Oil	2858	1032	510	1090	1405	1600	1657	1687	1750	-15.8	10.7	1.7	0.5
Natural gas	1222	583	662	800	973	896	798	757	867	-5.9	3.9	-2.0	0.8
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	-602	-65	-80	-138	-151	-102	-120	-123	-150				
Renewable energy forms	460	483	501	621	697	670	738	831	1018	0.9	3.4	0.6	3.3
as % in Gross Inland Consumption													
Solids	63.0	63.9	66.2	57.8	47.4	48.1	47.2	47.3	42.8				
Oil	26.9	18.3	10.8	19.4	25.3	27.1	28.5	28.2	28.7				
Natural gas	11.5	10.3	14.1	14.2	17.5	15.2	13.7	12.7	14.2				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	4.3	8.6	10.6	11.0	12.5	11.4	12.7	13.9	16.7				
Electricity Generation in GWh_e	**17178**	**8691**	**8511**	**10203**	**12064**	**12942**	**14621**	**15952**	**17088**	**-6.8**	**3.6**	**1.9**	**1.6**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	0	2	6	76	548	557	568	736	909		57.1	0.4	4.8
Thermal (incl. biomass)	17178	8689	8505	10127	11516	12385	14053	15215	16179	-6.8	3.1	2.0	1.4
Fuel Inputs for Thermal Power Generation	**5654**	**2682**	**2452**	**2539**	**3008**	**3073**	**2951**	**3049**	**3070**	**-8.0**	**2.1**	**-0.2**	**0.4**
Solids	5085	2499	2213	2297	2480	2648	2551	2624	2421	-8.0	1.1	0.3	-0.5
Oil (including refinery gas)	210	80	12	10	23	42	42	44	49	-25.2	7.3	6.2	1.4
Gas	357	100	226	227	275	327	237	190	228	-4.5	2.0	-1.5	-0.4
Biomass & Waste	2	2	2	5	229	56	120	191	371	-0.3	60.1	-6.2	11.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**2285**	**1007**	**783**	**769**	**406**	**456**	**403**	**381**	**413**	**-10.2**	**-6.4**	**-0.1**	**0.2**
Refineries	1	1	1	1	1	1	1	1	1	0.0	2.3	1.6	0.5
Biofuels and hydrogen production	0	0	0	0	43	63	83	96	111			6.9	2.9
District heating	1755	527	485	511	348	383	312	278	297	-12.1	-3.3	-1.1	-0.5
Others	529	479	297	257	14	9	6	5	4	-5.6	-26.4	-7.5	-4.1
Energy Branch Consumption	**295**	**148**	**179**	**209**	**219**	**220**	**241**	**258**	**266**	**-4.9**	**2.1**	**0.9**	**1.0**
Non-Energy Uses	**69**	**225**	**219**	**230**	**224**	**217**	**218**	**218**	**217**	**12.2**	**0.3**	**-0.3**	**0.0**
Final Energy Demand	**6392**	**2627**	**2445**	**2854**	**3276**	**3608**	**3851**	**4028**	**4155**	**-9.2**	**3.0**	**1.6**	**0.8**
by sector													
Industry	2742	794	531	654	770	859	932	1003	1055	-15.1	3.8	1.9	1.2
- energy intensive industries	738	430	203	215	226	251	273	289	299	-12.1	1.1	1.9	0.9
- other industrial sectors	2004	364	328	440	544	607	660	713	755	-16.6	5.2	1.9	1.4
Residential	1482	1054	984	977	983	1019	1062	1088	1109	-4.0	0.0	0.8	0.4
Services/Agriculture	1330	289	353	498	630	714	773	823	847	-12.4	6.0	2.1	0.9
Transport	839	490	577	725	893	1016	1084	1115	1145	-3.7	4.5	2.0	0.6
by fuel													
Solids	1059	201	122	102	105	108	116	122	119	-19.5	-1.5	1.0	0.3
Oil	1803	855	748	960	1191	1315	1373	1406	1487	-8.4	4.8	1.4	0.8
Gas	439	202	134	207	294	292	320	356	379	-11.2	8.1	0.9	1.7
Electricity	608	510	506	584	717	837	933	1019	1075	-1.8	3.5	2.7	1.4
Heat (from CHP and District Heating)	2086	593	511	547	558	576	592	595	584	-13.1	0.9	0.6	-0.1
Other	397	265	424	453	413	480	516	530	510	0.7	-0.3	2.3	-0.1
CO_2 Emissions (Mt of CO_2)	**39.2**	**16.2**	**14.1**	**15.2**	**16.8**	**18.1**	**17.7**	**18.0**	**17.6**	**-9.7**	**1.8**	**0.5**	**-0.1**
Power generation/District heating	27.9	12.3	10.9	11.2	11.9	12.8	12.1	12.3	11.5	-9.0	0.9	0.2	-0.5
Energy Branch	0.4	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-9.8	3.6	0.0	-0.5
Industry	4.6	1.7	0.8	0.8	1.3	1.3	1.3	1.4	1.7	-16.0	4.6	0.7	2.1
Residential	2.0	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.4	-17.7	1.6	0.9	0.4
Services/Agriculture	1.9	0.3	0.3	0.5	0.6	0.6	0.6	0.7	0.7	-17.6	7.7	1.0	1.3
Transport	2.4	1.4	1.7	2.1	2.5	2.9	3.0	3.1	3.1	-3.6	4.1	1.7	0.3
CO_2 Emissions Index (1990=100)	**100.0**	**41.2**	**35.9**	**38.7**	**42.9**	**46.2**	**45.1**	**46.0**	**44.9**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Estonia: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	1.571	1.448	1.372	1.348	1.315	1.279	1.248	1.224	1.202	-1.3	-0.4	-0.5	-0.4
GDP (in 000 M€05)	8.1	5.5	7.4	11.1	16.2	19.9	23.6	27.2	29.9	-0.8	8.1	3.8	2.4
Gross Inl. Cons./GDP (toe/M€05)	1316.2	1019.0	633.3	508.7	342.9	296.5	247.0	220.4	203.4	-7.1	-6.0	-3.2	-1.9
Gross Inl. Cons./Capita (toe/inhabitant)	6.78	3.89	3.43	4.18	4.23	4.61	4.66	4.89	5.07	-6.6	2.1	1.0	0.8
Electricity Generated/Capita (kWh gross/inhabitant)	10937	6002	6203	7572	9171	10119	11718	13032	14210	-5.5	4.0	2.5	1.9
Carbon intensity (t of CO_2/toe of GIC)	3.69	2.87	2.99	2.69	3.03	3.07	3.04	3.02	2.89	-2.1	0.1	0.0	-0.5
CO_2 Emissions/Capita (t of CO_2/inhabitant)	24.97	11.17	10.28	11.25	12.80	14.17	14.18	14.74	14.63	-8.5	2.2	1.0	0.3
CO_2 Emissions to GDP (t of CO2/M€05)	4851.1	2926.6	1895.2	1371.0	1038.8	911.1	751.1	664.4	587.6	-9.0	-5.8	-3.2	-2.4
Import Dependency %	41.2	34.8	30.0	25.5	42.1	42.9	42.6	41.4	42.3	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	364.5	222.2	100.0	75.1	56.6	51.5	47.2	43.9	41.7	-12.1	-5.5	-1.8	-1.2
Residential (Energy on Private Income)	144.8	146.1	100.0	67.2	47.1	40.2	35.7	32.0	29.7	-3.6	-7.2	-2.7	-1.8
Services/Agriculture (Energy on Value added)	376.5	108.2	100.0	96.7	84.9	78.7	71.9	66.4	61.7	-12.4	-1.6	-1.6	-1.5
Transport (Energy on GDP)	133.7	114.4	100.0	84.4	71.0	65.8	59.3	52.9	49.3	-2.9	-3.4	-1.8	-1.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.65	0.71	0.69	0.63	0.60	0.61	0.54	0.52	0.47	0.5	-1.3	-1.1	-1.4
Final energy demand (t of CO_2/toe)	1.70	1.48	1.25	1.33	1.43	1.41	1.39	1.38	1.41	-3.1	1.4	-0.3	0.1
Industry	1.67	2.20	1.51	1.28	1.63	1.47	1.45	1.42	1.58	-1.0	0.8	-1.2	0.9
Residential	1.33	0.44	0.29	0.36	0.34	0.35	0.34	0.35	0.34	-14.2	1.6	0.1	0.0
Services/Agriculture	1.42	0.87	0.77	0.94	0.91	0.85	0.82	0.85	0.86	-5.9	1.7	-1.0	0.4
Transport	2.89	2.90	2.92	2.94	2.83	2.81	2.77	2.74	2.70	0.1	-0.3	-0.2	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**2999**	**2998**	**2704**	**2930**	**2614**	**2883**	**3087**		**-1.0**	**-0.3**	**1.7**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			2	39	208	210	213	269	308		59.3	0.2	3.8
Hydro (pumping excluded)			1	7	7	7	7	7	7		20.3	0.0	-0.1
Wind			1	32	201	203	205	261	300		72.3	0.2	3.9
Solar			0	0	0	0	1	1	1				4.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			2997	2959	2497	2721	2401	2614	2779		-1.8	-0.4	1.5
of which cogeneration units			477	513	462	533	696	831	876		-0.3	4.2	2.3
Solids fired			2738	2672	2159	2157	1640	1506	1505		-2.3	-2.7	-0.9
Gas fired			175	200	234	480	580	857	821		2.9	9.5	3.5
Oil fired			65	65	66	42	78	88	109		0.2	1.6	3.4
Biomass-waste fired			19	21	37	42	102	163	344		6.9	10.8	12.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			28.9	34.7	46.0	46.1	57.9	57.0	57.0				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			29.8	34.3	32.9	34.7	41.0	42.9	45.3				
CHP indicator (% of electricity from CHP)			17.6	33.1	22.0	26.7	27.4	25.7	24.8				
Non fossil fuels in electricity generation (%)			0.7	2.3	11.8	6.6	8.0	10.3	14.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.7	2.3	11.8	6.6	8.0	10.3	14.1				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			20.2	18.3	16.7	16.5	17.0	18.1	21.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	4.2	5.4	6.8	7.7	8.7				
Transport sector													
Passenger transport activity (Gpkm)	**11.8**	**9.0**	**11.4**	**13.8**	**15.9**	**17.0**	**17.9**	**18.7**	**19.1**	**-0.3**	**3.4**	**1.2**	**0.6**
Public road transport	4.5	2.0	2.6	2.7	2.6	2.5	2.4	2.4	2.4	-5.1	-0.1	-0.7	-0.3
Private cars and motorcycles	5.1	5.9	7.7	10.1	12.2	13.2	13.9	14.5	14.7	4.2	4.6	1.4	0.5
Rail	1.5	0.5	0.4	0.3	0.4	0.4	0.5	0.5	0.6	-13.3	0.0	2.4	2.0
Aviation	0.2	0.2	0.3	0.3	0.4	0.5	0.7	0.8	1.0	2.5	3.4	5.8	4.8
Inland navigation	0.6	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	-2.1	-0.2	0.8	0.6
Travel per person (km per capita)	7543	6230	8338	10270	12105	13299	14368	15278	15898	1.0	3.8	1.7	1.0
Freight transport activity (Gtkm)	**11.5**	**5.4**	**12.0**	**16.5**	**20.9**	**23.7**	**25.7**	**27.1**	**28.0**	**0.5**	**5.7**	**2.1**	**0.8**
Trucks	4.5	1.5	3.9	5.8	8.6	10.9	12.6	13.8	14.7	-1.4	8.2	3.9	1.5
Rail	7.0	3.8	8.1	10.6	12.2	12.9	13.1	13.2	13.3	1.5	4.2	0.7	0.1
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	1421	976	1618	1488	1288	1193	1093	998	933	1.3	-2.3	-1.6	-1.6
Energy demand in transport (ktoe)	**839**	**490**	**577**	**725**	**893**	**1016**	**1084**	**1115**	**1145**	**-3.7**	**4.5**	**2.0**	**0.6**
Public road transport	44	21	25	23	21	20	18	17	16	-5.5	-1.7	-1.2	-1.5
Private cars and motorcycles	273	263	307	338	386	404	403	393	376	1.2	2.3	0.4	-0.7
Trucks	414	139	167	263	371	464	528	565	619	-8.7	8.3	3.6	1.6
Rail	65	44	51	48	54	56	51	44	26	-2.4	0.6	-0.7	-6.3
Aviation	36	18	20	42	50	60	71	83	95	-5.9	9.9	3.6	2.9
Inland navigation	7	4	7	11	11	11	12	12	12	0.0	4.5	0.7	0.3
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	30.9	34.5	31.5	29.9	29.4	29.2	28.2	27.1	26.2	0.2	-0.7	-0.4	-0.7
Freight transport (toe/Mtkm)	41.2	33.3	18.0	18.8	20.3	21.9	22.5	22.5	23.1	-7.9	1.2	1.0	0.3

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Finland: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**11860**	**13166**	**15001**	**16461**	**16670**	**19467**	**20573**	**21397**	**21271**	**2.4**	**1.1**	**2.1**	**0.3**
Solids	1581	2061	1207	2129	1643	1679	1753	1725	1705	-2.7	3.1	0.7	-0.3
Oil	0	15	37	205	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7780	1.5	0.4	4.0	-1.4
Renewable energy sources	5273	6133	7959	8124	8974	8795	9827	10679	11786	4.2	1.2	0.9	1.8
Hydro	934	1111	1261	1185	1188	1194	1202	1220	1234	3.0	-0.6	0.1	0.3
Biomass & Waste	4338	5021	6691	6924	7724	7535	8533	9338	10389	4.4	1.4	1.0	2.0
Wind	0	1	7	15	57	57	72	95	128		23.8	2.4	5.9
Solar and others	0	0	1	1	5	9	19	26	34	3.8	25.5	13.6	5.9
Geothermal	0	0	0	0	0	0	0	0	0			0.6	0.2
Net Imports	**18031**	**15542**	**18512**	**19163**	**19588**	**19213**	**18539**	**18103**	**17331**	**0.3**	**0.6**	**-0.5**	**-0.7**
Solids	4378	3774	3533	3338	3874	4154	4025	3919	3576	-2.1	0.9	0.4	-1.2
Oil	10477	8205	10535	10844	10258	9651	9316	9187	9057	0.1	-0.3	-1.0	-0.3
- Crude oil and Feedstocks	8890	8548	12115	11017	11884	11524	11321	11241	11162	3.1	-0.2	-0.5	-0.1
- Oil products	1587	-343	-1580	-173	-1625	-1874	-2005	-2054	-2105				
Natural gas	2261	2839	3422	3598	4163	4323	4675	4558	4188	4.2	2.0	1.2	-1.1
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1
Gross Inland Consumption	**28956**	**28959**	**32483**	**34515**	**35757**	**38179**	**38610**	**38996**	**38096**	**1.2**	**1.0**	**0.8**	**-0.1**
Solids	5327	5950	5087	4925	5516	5833	5778	5644	5282	-0.5	0.8	0.5	-0.9
Oil	9939	8344	9195	10482	9757	9148	8813	8683	8551	-0.8	0.6	-1.0	-0.3
Natural gas	2261	2839	3422	3598	4163	4323	4675	4558	4188	4.2	2.0	1.2	-1.1
Nuclear	5006	4957	5799	6003	6054	8994	8994	8994	7780	1.5	0.4	4.0	-1.4
Electricity	915	723	1021	1461	1380	1171	620	544	626	1.1	3.1	-7.7	0.1
Renewable energy forms	5508	6146	7959	8046	8887	8710	9730	10573	11669	3.8	1.1	0.9	1.8
as % in Gross Inland Consumption													
Solids	18.4	20.5	15.7	14.3	15.4	15.3	15.0	14.5	13.9				
Oil	34.3	28.8	28.3	30.4	27.3	24.0	22.8	22.3	22.4				
Natural gas	7.8	9.8	10.5	10.4	11.6	11.3	12.1	11.7	11.0				
Nuclear	17.3	17.1	17.9	17.4	16.9	23.6	23.3	23.1	20.4				
Renewable energy forms	19.0	21.2	24.5	23.3	24.9	22.8	25.2	27.1	30.6				
Electricity Generation in GWh_e	**54367**	**64023**	**69976**	**70536**	**80830**	**89544**	**101005**	**105894**	**108268**	**2.6**	**1.5**	**2.3**	**0.7**
Nuclear	19213	19213	22475	23267	23470	36243	36243	36243	31821	1.6	0.4	4.4	-1.3
Hydro & wind	10857	12935	14737	13954	14478	14555	14834	15320	15875	3.1	-0.2	0.2	0.7
Thermal (incl. biomass)	24298	31876	32764	33315	42882	38746	49927	54331	60572	3.0	2.7	1.5	2.0
Fuel Inputs for Thermal Power Generation	**5451**	**6715**	**6923**	**7538**	**7597**	**6998**	**8385**	**8900**	**9572**	**2.4**	**0.9**	**1.0**	**1.3**
Solids	3216	3882	3168	2974	3651	3995	3893	3808	3580	-0.1	1.4	0.6	-0.8
Oil (including refinery gas)	294	257	131	107	96	0	0	0	0	-7.8	-3.0	-53.5	0.0
Gas	1015	1581	2106	2384	2626	2233	2733	2796	2487	7.6	2.2	0.4	-0.9
Biomass & Waste	926	996	1518	2073	1223	771	1758	2296	3505	5.1	-2.1	3.7	7.1
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**12055**	**14028**	**15309**	**15473**	**15755**	**15930**	**15716**	**15562**	**15204**	**2.4**	**0.3**	**0.0**	**-0.3**
Refineries	10689	12029	13200	13194	12318	11965	11767	11690	11610	2.1	-0.7	-0.5	-0.1
Biofuels and hydrogen production	0	0	0	0	98	224	311	378	451			12.2	3.8
District heating	573	548	803	954	2099	2567	2525	2468	2201	3.4	10.1	1.9	-1.4
Others	793	1451	1306	1325	1240	1174	1113	1025	942	5.1	-0.5	-1.1	-1.6
Energy Branch Consumption	**781**	**965**	**1285**	**1228**	**1245**	**1262**	**1295**	**1374**	**1393**	**5.1**	**-0.3**	**0.4**	**0.7**
Non-Energy Uses	**1441**	**1152**	**896**	**1095**	**1173**	**1212**	**1233**	**1246**	**1258**	**-4.6**	**2.7**	**0.5**	**0.2**
Final Energy Demand	**21727**	**22041**	**24159**	**25121**	**26638**	**27273**	**27641**	**27934**	**27919**	**1.1**	**1.0**	**0.4**	**0.1**
by sector													
Industry	9618	9988	12053	11988	12691	12937	13075	13214	13162	2.3	0.5	0.3	0.1
- energy intensive industries	7351	7628	9456	9067	9482	9590	9652	9742	9674	2.6	0.0	0.2	0.0
- other industrial sectors	2267	2359	2596	2921	3209	3347	3423	3472	3489	1.4	2.1	0.6	0.2
Residential	5321	5418	4536	4846	5103	5255	5329	5378	5376	-1.6	1.2	0.4	0.1
Services/Agriculture	2479	2484	3127	3471	3724	3846	3905	3954	3961	2.3	1.8	0.5	0.1
Transport	4309	4151	4443	4816	5119	5235	5332	5388	5419	0.3	1.4	0.4	0.2
by fuel													
Solids	1621	1277	1099	966	990	1010	1061	1082	1033	-3.8	-1.0	0.7	-0.3
Oil	8100	7563	7507	7890	7469	7210	6997	6952	6899	-0.8	-0.1	-0.7	-0.1
Gas	1501	1523	1328	1156	1441	1555	1317	1054	993	-1.2	0.8	-0.9	-2.8
Electricity	5068	5608	6487	6959	7667	8128	8481	8718	8943	2.5	1.7	1.0	0.5
Heat (from CHP and District Heating)	1915	2126	2780	3597	3907	4291	4704	4810	4792	3.8	3.5	1.9	0.2
Other	3522	3944	4957	4552	5165	5078	5082	5318	5260	3.5	0.4	-0.2	0.3
CO_2 Emissions (Mt of CO_2)	**54.4**	**55.6**	**53.8**	**54.1**	**56.9**	**56.6**	**56.1**	**55.0**	**52.3**	**-0.1**	**0.6**	**-0.1**	**-0.7**
Power generation/District heating	17.8	21.8	20.2	20.5	24.1	24.4	25.2	24.8	22.8	1.3	1.8	0.4	-1.0
Energy Branch	1.4	1.7	2.7	2.5	2.4	2.3	2.2	2.2	2.1	7.0	-1.0	-1.0	-0.5
Industry	14.1	12.4	12.5	11.8	10.7	10.5	9.7	8.8	8.1	-1.2	-1.5	-0.9	-1.8
Residential	6.4	5.9	2.3	2.1	1.9	1.6	1.4	1.4	1.5	-9.6	-2.3	-3.0	0.7
Services/Agriculture	2.1	1.7	3.0	3.0	3.0	2.9	2.7	2.9	3.0	3.8	0.0	-1.0	0.9
Transport	12.7	12.2	13.1	14.2	14.8	14.9	15.0	15.0	14.9	0.3	1.3	0.1	-0.1
CO_2 Emissions Index (1990=100)	**100.0**	**102.3**	**98.9**	**99.5**	**104.7**	**104.1**	**103.3**	**101.1**	**96.2**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Finland: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	4.974	5.099	5.171	5.237	5.299	5.353	5.405	5.439	5.443	0.4	0.2	0.2	0.1
GDP (in 000 M€05)	114.5	110.2	139.1	157.4	183.2	202.7	221.3	239.8	254.9	2.0	2.8	1.9	1.4
Gross Inl. Cons./GDP (toe/M€05)	252.9	262.8	233.5	219.3	195.2	188.4	174.5	162.6	149.4	-0.8	-1.8	-1.1	-1.5
Gross Inl. Cons./Capita (toe/inhabitant)	5.82	5.68	6.28	6.59	6.75	7.13	7.14	7.17	7.00	0.8	0.7	0.6	-0.2
Electricity Generated/Capita (kWh gross/inhabitant)	10929	12557	13532	13470	15254	16726	18688	19470	19890	2.2	1.2	2.1	0.6
Carbon intensity (t of CO_2/toe of GIC)	1.88	1.92	1.65	1.57	1.59	1.48	1.45	1.41	1.37	-1.3	-0.4	-0.9	-0.6
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.93	10.91	10.39	10.33	10.75	10.57	10.39	10.11	9.61	-0.5	0.3	-0.3	-0.8
CO_2 Emissions to GDP (t of CO2/M€05)	474.9	504.5	386.3	343.7	310.9	279.2	253.8	229.2	205.1	-2.0	-2.1	-2.0	-2.1
Import Dependency %	61.1	53.1	55.8	54.7	54.0	49.7	47.4	45.8	44.9	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	134.5	125.6	100.0	83.1	73.7	67.5	62.7	58.8	55.6	-2.9	-3.0	-1.6	-1.2
Residential (Energy on Private Income)	132.0	141.2	100.0	90.5	84.3	79.6	74.9	70.4	66.5	-2.7	-1.7	-1.2	-1.2
Services/Agriculture (Energy on Value added)	91.0	94.6	100.0	102.5	94.1	87.8	81.2	75.3	70.4	1.0	-0.6	-1.5	-1.4
Transport (Energy on GDP)	117.9	117.9	100.0	95.8	87.5	80.9	75.5	70.4	66.6	-1.6	-1.3	-1.5	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.23	0.24	0.19	0.18	0.18	0.17	0.16	0.15	0.14	-1.6	-0.4	-1.6	-1.4
Final energy demand (t of CO_2/toe)	1.62	1.46	1.28	1.24	1.14	1.09	1.04	1.00	0.98	-2.3	-1.1	-0.9	-0.6
Industry	1.46	1.24	1.03	0.98	0.84	0.81	0.74	0.66	0.62	-3.4	-2.1	-1.2	-1.8
Residential	1.21	1.09	0.52	0.43	0.36	0.31	0.26	0.26	0.27	-8.1	-3.4	-3.4	0.6
Services/Agriculture	0.84	0.70	0.96	0.86	0.81	0.74	0.70	0.73	0.76	1.4	-1.7	-1.4	0.7
Transport	2.94	2.93	2.94	2.94	2.90	2.84	2.81	2.78	2.74	0.0	-0.2	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**17044**	**17512**	**18357**	**18605**	**20139**	**20888**	**21415**		**0.7**	**0.9**	**0.6**
Nuclear energy			2687	2690	2691	4207	4207	4207	3691		0.0	4.6	-1.3
Renewable energy			3057	3104	3331	3353	3447	3578	3756		0.9	0.3	0.9
Hydro (pumping excluded)			3016	3018	3057	3072	3097	3116	3131		0.1	0.1	0.1
Wind			38	82	267	267	327	427	580		21.5	2.1	5.9
Solar			3	4	8	14	23	34	44		12.5	11.0	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			11300	11718	12335	11046	12485	13104	13969		0.9	0.1	1.1
of which cogeneration units			7129	7583	7222	7214	9057	9629	10690		0.1	2.3	1.7
Solids fired			5539	5687	5678	5048	3843	3476	2932		0.2	-3.8	-2.7
Gas fired			2479	2444	2878	2992	4418	4990	5542		1.5	4.4	2.3
Oil fired			1341	1340	1341	700	667	603	365		0.0	-6.7	-5.9
Biomass-waste fired			1942	2247	2438	2306	3557	4034	5130		2.3	3.9	3.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			45.1	44.2	48.2	52.6	54.7	54.9	54.6				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			40.7	38.0	48.5	47.6	51.2	52.5	54.4				
CHP indicator (% of electricity from CHP)			44.9	45.7	46.4	38.8	46.6	48.4	53.4				
Non fossil fuels in electricity generation (%)			69.2	69.8	62.9	69.6	68.3	69.2	70.8				
- nuclear			32.1	33.0	29.0	40.5	35.9	34.2	29.4				
- renewable energy forms			37.0	36.8	33.9	29.1	32.4	34.9	41.5				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			31.0	28.8	30.4	29.1	31.6	33.7	36.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.8	4.0	5.4	6.6	7.8				
Transport sector													
Passenger transport activity (Gpkm)	**74.8**	**74.1**	**81.0**	**88.2**	**95.2**	**100.3**	**104.5**	**108.6**	**111.9**	**0.8**	**1.6**	**0.9**	**0.7**
Public road transport	8.5	8.0	7.7	7.4	7.5	7.6	7.9	8.1	8.2	-1.0	-0.3	0.5	0.4
Private cars and motorcycles	51.9	50.8	56.6	63.4	69.1	72.2	74.4	76.4	77.4	0.9	2.0	0.8	0.4
Rail	3.7	3.6	3.9	4.0	4.1	4.4	4.7	5.0	5.5	0.6	0.6	1.4	1.4
Aviation	5.3	6.1	7.9	8.6	9.8	11.3	12.7	14.3	15.9	4.1	2.3	2.6	2.3
Inland navigation	5.4	5.6	5.0	4.7	4.7	4.7	4.8	4.8	4.9	-0.8	-0.5	0.1	0.3
Travel per person (km per capita)	15033	14538	15670	16846	17968	18727	19340	19975	20556	0.4	1.4	0.7	0.6
Freight transport activity (Gtkm)	**35.8**	**34.5**	**42.4**	**41.8**	**42.9**	**44.0**	**45.3**	**46.6**	**47.7**	**1.7**	**0.1**	**0.5**	**0.5**
Trucks	26.3	24.5	32.0	31.9	32.9	33.8	34.6	35.4	36.1	2.0	0.3	0.5	0.4
Rail	8.4	9.6	10.1	9.7	9.8	10.0	10.5	11.0	11.5	1.9	-0.3	0.7	0.9
Inland navigation	1.1	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-12.2	-5.8	0.0	0.2
Freight activity per unit of GDP (tkm/000 €05)	312	313	305	265	234	217	205	194	187	-0.2	-2.6	-1.3	-0.9
Energy demand in transport (ktoe)	**4309**	**4151**	**4443**	**4816**	**5119**	**5235**	**5332**	**5388**	**5419**	**0.3**	**1.4**	**0.4**	**0.2**
Public road transport	97	84	55	57	57	57	58	59	59	-5.4	0.4	0.2	0.2
Private cars and motorcycles	1840	1867	1904	2137	2314	2328	2346	2322	2342	0.3	2.0	0.1	0.0
Trucks	1699	1557	1715	1764	1821	1852	1882	1921	1912	0.1	0.6	0.3	0.2
Rail	99	102	94	97	100	102	101	99	75	-0.6	0.7	0.1	-2.9
Aviation	459	408	505	565	635	705	751	793	838	1.0	2.3	1.7	1.1
Inland navigation	116	134	170	195	192	192	193	193	193	3.9	1.3	0.0	0.0
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	33.5	33.6	32.5	33.5	33.7	32.8	32.1	31.0	30.7	-0.3	0.3	-0.5	-0.4
Freight transport (toe/Mtkm)	50.4	48.2	42.6	44.5	44.6	44.3	43.7	43.3	41.6	-1.7	0.5	-0.2	-0.5

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

France: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**110428**	**126844**	**131806**	**135848**	**137950**	**144249**	**147268**	**148234**	**141804**	**1.8**	**0.5**	**0.7**	**-0.4**
Solids	7625	5359	2267	383	406	216	15	14	14	-11.4	-15.8	-27.9	-1.0
Oil	3491	3481	2877	1468	0	0	0	0	0	-1.9			
Natural gas	2516	2793	1505	828	0	0	0	0	0	-5.0			
Nuclear	81018	97308	107093	116474	116590	122274	122397	121348	113186	2.8	0.9	0.5	-0.8
Renewable energy sources	15778	17903	18065	16695	20954	21759	24857	26872	28604	1.4	1.5	1.7	1.4
Hydro	4635	6322	5822	4491	5578	5451	5567	6021	6110	2.3	-0.4	0.0	0.9
Biomass & Waste	11014	11434	12087	11968	14370	14646	16747	18139	19518	0.9	1.7	1.5	1.5
Wind	0	0	7	82	762	1149	1799	1842	2022		60.7	9.0	1.2
Solar and others	19	15	26	24	114	378	605	732	821	2.8	16.1	18.1	3.1
Geothermal	110	132	124	130	131	135	138	138	133	1.2	0.5	0.5	-0.3
Net Imports	**120027**	**116049**	**133463**	**143600**	**145708**	**147936**	**149962**	**149353**	**149580**	**1.1**	**0.9**	**0.3**	**0.0**
Solids	13004	9010	13201	13660	13712	13950	13305	8504	7463	0.2	0.4	-0.3	-5.6
Oil	86558	85551	90452	94460	94392	96826	97525	98758	99714	0.4	0.4	0.3	0.2
- Crude oil and Feedstocks	76007	78951	84375	84707	85753	87850	88448	89505	90324	1.0	0.2	0.3	0.2
- Oil products	10551	6600	6077	9753	8639	8976	9076	9252	9389	-5.4	3.6	0.5	0.3
Natural gas	24371	27493	35778	40720	42901	42328	43488	45124	44465	3.9	1.8	0.1	0.2
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971				
Gross Inland Consumption	**226550**	**239896**	**258985**	**275439**	**280748**	**289136**	**294066**	**294300**	**287975**	**1.3**	**0.8**	**0.5**	**-0.2**
Solids	19955	15287	15240	14428	14118	14166	13320	8518	7476	-2.7	-0.8	-0.6	-5.6
Oil	87673	85826	88790	92086	91481	93777	94360	95471	96305	0.1	0.3	0.3	0.2
Natural gas	26032	29577	35766	40996	42901	42328	43488	45124	44465	3.2	1.8	0.1	0.2
Nuclear	81018	97308	107093	116474	116590	122274	122397	121348	113186	2.8	0.9	0.5	-0.8
Electricity	-3907	-6005	-5974	-5185	-5230	-5101	-4278	-2950	-1971				
Renewable energy forms	15778	17903	18070	16640	20888	21691	24779	26789	28514	1.4	1.5	1.7	1.4
as % in Gross Inland Consumption													
Solids	8.8	6.4	5.9	5.2	5.0	4.9	4.5	2.9	2.6				
Oil	38.7	35.8	34.3	33.4	32.6	32.4	32.1	32.4	33.4				
Natural gas	11.5	12.3	13.8	14.9	15.3	14.6	14.8	15.3	15.4				
Nuclear	35.8	40.6	41.4	42.3	41.5	42.3	41.6	41.2	39.3				
Renewable energy forms	7.0	7.5	7.0	6.0	7.4	7.5	8.4	9.1	9.9				
Electricity Generation in GWh_e	**416667**	**490848**	**536004**	**570542**	**611064**	**625050**	**637250**	**635064**	**631574**	**2.6**	**1.3**	**0.4**	**-0.1**
Nuclear	314024	377163	415087	451448	451980	475395	475869	474707	477316	2.8	0.9	0.5	0.0
Hydro & wind	53890	73521	67781	53197	73775	77309	86301	92193	95513	2.3	0.9	1.6	1.0
Thermal (incl. biomass)	48752	40164	53135	65897	85308	72346	75080	68164	58744	0.9	4.8	-1.3	-2.4
Fuel Inputs for Thermal Power Generation	**11117**	**8486**	**13129**	**15985**	**15276**	**12520**	**13133**	**9889**	**8580**	**1.7**	**1.5**	**-1.5**	**-4.2**
Solids	7334	5441	6231	6402	6624	6876	6441	1949	1288	-1.6	0.6	-0.3	-14.9
Oil (including refinery gas)	1921	605	1272	1653	0	0	13	1	3	-4.0			-13.5
Gas	1423	1216	4062	6291	6664	4469	4311	4991	3095	11.1	5.1	-4.3	-3.3
Biomass & Waste	439	1224	1565	1640	1989	1175	2368	2948	4193	13.6	2.4	1.8	5.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**89549**	**90896**	**97392**	**94237**	**96147**	**99190**	**100097**	**101646**	**102897**	**0.8**	**-0.1**	**0.4**	**0.3**
Refineries	79634	83057	90084	87693	87338	89482	90120	91228	92089	1.2	-0.3	0.3	0.2
Biofuels and hydrogen production	0	155	328	434	2148	3238	4176	4988	5613		20.7	6.9	3.0
District heating	1019	605	312	273	280	291	304	314	312	-11.1	-1.1	0.8	0.3
Others	8896	7079	6668	5837	6381	6179	5497	5116	4882	-2.8	-0.4	-1.5	-1.2
Energy Branch Consumption	**9230**	**10345**	**10689**	**10095**	**9603**	**8022**	**7743**	**7590**	**7765**	**1.5**	**-1.1**	**-2.1**	**0.0**
Non-Energy Uses	**13272**	**16593**	**15672**	**15786**	**16414**	**17110**	**17689**	**18243**	**18731**	**1.7**	**0.5**	**0.8**	**0.6**
Final Energy Demand	**136214**	**141436**	**152315**	**156523**	**163626**	**170499**	**174433**	**177684**	**179434**	**1.1**	**0.7**	**0.6**	**0.3**
by sector													
Industry	36205	36949	36579	35580	36066	37731	38648	39283	39793	0.1	-0.1	0.7	0.3
- energy intensive industries	24279	21310	22143	20671	20662	21119	21213	21200	21150	-0.9	-0.7	0.3	0.0
- other industrial sectors	11926	15639	14436	14909	15405	16612	17434	18083	18643	1.9	0.7	1.2	0.7
Residential	36375	36198	42516	45491	47434	48036	48237	48473	48324	1.6	1.1	0.2	0.0
Services/Agriculture	21726	24164	21620	25696	28099	29540	30187	30553	30561	0.0	2.7	0.7	0.1
Transport	41908	44125	51599	49756	52027	55192	57360	59374	60756	2.1	0.1	1.0	0.6
by fuel													
Solids	9017	6905	5775	4685	4108	4045	4152	4076	3814	-4.4	-3.3	0.1	-0.8
Oil	67377	67964	71964	71245	73693	76039	76347	77104	77172	0.7	0.2	0.4	0.1
Gas	23400	27098	30880	33902	34188	35079	35861	36533	38073	2.8	1.0	0.5	0.6
Electricity	25960	29456	33096	36330	39500	42082	43861	44967	45300	2.5	1.8	1.1	0.3
Heat (from CHP and District Heating)	774	459	237	207	253	262	277	300	293	-11.1	0.6	0.9	0.6
Other	9686	9553	10364	10153	11884	12991	13934	14703	14782	0.7	1.4	1.6	0.6
CO_2 Emissions (Mt of CO_2)	**352.9**	**344.7**	**373.5**	**378.4**	**378.7**	**382.8**	**382.8**	**369.7**	**365.2**	**0.6**	**0.1**	**0.1**	**-0.5**
Power generation/District heating	40.1	27.6	39.6	46.7	43.1	38.9	36.9	20.7	13.7	-0.1	0.8	-1.5	-9.4
Energy Branch	17.1	19.1	19.6	16.6	14.6	13.9	13.1	12.8	12.7	1.4	-2.9	-1.0	-0.4
Industry	79.1	76.1	70.1	66.0	66.9	69.1	68.4	67.5	68.3	-1.2	-0.5	0.2	0.0
Residential	55.2	52.2	61.5	64.8	65.0	63.9	63.4	63.4	63.0	1.1	0.6	-0.2	-0.1
Services/Agriculture	39.2	40.9	32.1	39.2	40.9	41.7	41.3	41.3	41.0	-2.0	2.5	0.1	-0.1
Transport	122.1	129.0	150.6	145.2	148.3	155.3	159.7	164.0	166.6	2.1	-0.1	0.7	0.4
CO_2 Emissions Index (1990=100)	**100.0**	**97.7**	**105.9**	**107.2**	**107.3**	**108.5**	**108.5**	**104.8**	**103.5**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									France: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	56.577	57.753	58.825	60.702	61.743	62.616	63.571	64.392	65.118	0.4	0.5	0.3	0.2
GDP (in 000 M€05)	1301.2	1383.1	1587.9	1710.0	1922.2	2178.6	2434.9	2681.2	2906.3	2.0	1.9	2.4	1.8
Gross Inl. Cons./GDP (toe/M€05)	174.1	173.5	163.1	161.1	146.1	132.7	120.8	109.8	99.1	-0.7	-1.1	-1.9	-2.0
Gross Inl. Cons./Capita (toe/inhabitant)	4.00	4.15	4.40	4.54	4.55	4.62	4.63	4.57	4.42	1.0	0.3	0.2	-0.4
Electricity Generated/Capita (kWh gross/inhabitant)	7365	8499	9112	9399	9897	9982	10024	9862	9699	2.2	0.8	0.1	-0.3
Carbon intensity (t of CO_2/toe of GIC)	1.56	1.44	1.44	1.37	1.35	1.32	1.30	1.26	1.27	-0.8	-0.7	-0.4	-0.3
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.24	5.97	6.35	6.23	6.13	6.11	6.02	5.74	5.61	0.2	-0.3	-0.2	-0.7
CO_2 Emissions to GDP (t of CO2/M€05)	271.2	249.3	235.2	221.3	197.0	175.7	157.2	137.9	125.7	-1.4	-1.8	-2.2	-2.2
Import Dependency %	52.4	47.9	50.9	51.6	51.4	50.6	50.5	50.2	51.3	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	116.3	109.8	100.0	91.6	82.5	76.1	69.6	64.1	60.0	-1.5	-1.9	-1.7	-1.5
Residential (Energy on Private Income)	101.5	96.8	100.0	95.8	90.7	83.0	76.0	70.4	65.5	-0.1	-1.0	-1.8	-1.5
Services/Agriculture (Energy on Value added)	125.8	130.8	100.0	110.6	107.2	99.3	90.8	83.3	76.7	-2.3	0.7	-1.6	-1.7
Transport (Energy on GDP)	99.1	98.2	100.0	89.5	83.3	78.0	72.5	68.1	64.3	0.1	-1.8	-1.4	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.09	0.06	0.07	0.08	0.07	0.06	0.06	0.03	0.02	-2.4	-0.5	-1.9	-9.4
Final energy demand (t of CO_2/toe)	2.17	2.11	2.06	2.01	1.96	1.94	1.91	1.89	1.89	-0.5	-0.5	-0.3	-0.1
Industry	2.18	2.06	1.92	1.85	1.86	1.83	1.77	1.72	1.72	-1.3	-0.3	-0.5	-0.3
Residential	1.52	1.44	1.45	1.43	1.37	1.33	1.31	1.31	1.30	-0.5	-0.5	-0.4	-0.1
Services/Agriculture	1.81	1.69	1.48	1.53	1.45	1.41	1.37	1.35	1.34	-2.0	-0.2	-0.6	-0.2
Transport	2.91	2.92	2.92	2.92	2.85	2.81	2.78	2.76	2.74	0.0	-0.2	-0.2	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**111945**	**113154**	**117132**	**118179**	**118195**	**113391**	**115085**		**0.5**	**0.1**	**-0.3**
Nuclear energy			62547	62570	62811	64567	64687	55286	55372		0.0	0.3	-1.5
Renewable energy			25092	26102	29218	31384	33860	34278	35308		1.5	1.5	0.4
Hydro (pumping excluded)			25016	25313	25351	25405	25470	25607	25778		0.1	0.0	0.1
Wind			66	756	3559	5621	7943	8102	8748		49.0	8.4	1.0
Solar			11	33	68	117	207	329	542		20.4	11.8	10.1
Other renewables (tidal etc.)			0	0	240	240	240	240	240			0.0	0.0
Thermal power			24306	24482	25103	22228	19647	23827	24406		0.3	-2.4	2.2
of which cogeneration units			4205	5546	8530	7498	8017	10897	11509		7.3	-0.6	3.7
Solids fired			9912	9150	4273	4039	3774	3689	2454		-8.1	-1.2	-4.2
Gas fired			4408	5210	12093	11528	11342	14736	13499		10.6	-0.6	1.8
Oil fired			9128	8975	7345	5100	2160	2072	4182		-2.1	-11.5	6.8
Biomass-waste fired			860	1147	1392	1560	2372	3330	4270		4.9	5.5	6.1
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			52.2	54.9	57.1	58.1	59.3	61.7	60.1				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			34.8	35.5	48.0	49.7	49.2	59.3	58.9				
CHP indicator (% of electricity from CHP)			3.1	2.9	6.7	6.3	6.5	8.8	8.1				
Non fossil fuels in electricity generation (%)			90.9	89.4	87.7	89.3	90.0	91.8	93.8				
- nuclear			77.4	79.1	74.0	76.1	74.7	74.7	75.6				
- renewable energy forms			13.5	10.3	13.7	13.3	15.3	17.0	18.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			10.8	9.5	11.6	11.8	13.0	13.8	14.5				
Biofuels share in transport gasoline and diesel (%)			0.8	1.0	4.0	5.8	7.2	8.3	9.2				
Transport sector													
Passenger transport activity (Gpkm)	**746.0**	**799.7**	**886.4**	**940.3**	**1001.9**	**1070.0**	**1136.5**	**1205.6**	**1273.5**	**1.7**	**1.2**	**1.3**	**1.1**
Public road transport	41.3	41.6	42.4	44.0	46.2	49.2	52.8	56.4	60.0	0.3	0.9	1.3	1.3
Private cars and motorcycles	599.7	654.3	713.2	749.5	790.8	830.3	866.7	904.1	939.0	1.7	1.0	0.9	0.8
Rail	73.9	64.6	80.7	89.7	98.1	109.9	121.1	132.3	142.6	0.9	2.0	2.1	1.7
Aviation	26.1	34.1	46.0	53.1	63.0	76.9	91.9	108.6	127.4	5.8	3.2	3.8	3.3
Inland navigation	4.9	5.1	4.1	3.9	3.8	3.8	4.0	4.3	4.5	-1.7	-0.9	0.6	1.2
Travel per person (km per capita)	13186	13847	15069	15491	16226	17089	17878	18723	19556	1.3	0.7	1.0	0.9
Freight transport activity (Gtkm)	**211.8**	**233.0**	**268.4**	**254.9**	**276.6**	**301.0**	**325.1**	**351.2**	**377.9**	**2.4**	**0.3**	**1.6**	**1.5**
Trucks	153.5	178.2	204.0	205.3	233.1	257.6	280.3	303.7	327.2	2.9	1.3	1.9	1.6
Rail	50.7	48.1	55.3	40.7	34.6	34.7	36.1	38.5	41.5	0.9	-4.6	0.4	1.4
Inland navigation	7.6	6.6	9.1	8.9	8.8	8.8	8.8	9.0	9.1	1.8	-0.3	0.0	0.3
Freight activity per unit of GDP (tkm/000 €05)	163	168	169	149	144	138	134	131	130	0.4	-1.6	-0.7	-0.3
Energy demand in transport (ktoe)	**41908**	**44125**	**51599**	**49756**	**52027**	**55192**	**57360**	**59374**	**60756**	**2.1**	**0.1**	**1.0**	**0.6**
Public road transport	384	403	417	424	421	437	456	460	453	0.8	0.1	0.8	-0.1
Private cars and motorcycles	23233	22171	24945	23052	23062	23360	23189	22924	21875	0.7	-0.8	0.1	-0.6
Trucks	12587	14909	17407	18419	19901	21871	23536	25204	27056	3.3	1.3	1.7	1.4
Rail	1150	1220	1373	1264	1154	1152	1108	1042	937	1.8	-1.7	-0.4	-1.7
Aviation	3839	4690	6683	6291	7191	8075	8767	9429	10113	5.7	0.7	2.0	1.4
Inland navigation	714	731	775	305	298	296	305	315	321	0.8	-9.1	0.2	0.5
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	37.7	35.0	37.0	32.1	31.0	30.2	28.9	27.6	25.8	-0.2	-1.7	-0.7	-1.1
Freight transport (toe/Mtkm)	65.0	69.4	70.2	76.8	75.7	76.0	75.4	74.4	73.8	0.8	0.8	0.0	-0.2

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Germany: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**186698**	**141981**	**133330**	**135237**	**117148**	**109381**	**88015**	**78288**	**78236**	**-3.3**	**-1.3**	**-2.8**	**-1.2**
Solids	125210	78868	59628	56514	45309	44266	37998	37520	37052	-7.2	-2.7	-1.7	-0.3
Oil	3963	3272	3495	5720	2860	2530	2200	0	0	-1.2	-2.0	-2.6	
Natural gas	13532	15099	15800	14224	13500	12000	11000	10000	8500	1.6	-1.6	-2.0	-2.5
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6	
Renewable energy sources	6320	7420	10656	16718	21759	24448	28021	30769	32684	5.4	7.4	2.6	1.6
Hydro	1498	1873	1869	1684	1696	1788	1800	1843	1889	2.2	-1.0	0.6	0.5
Biomass & Waste	4797	5351	7877	12190	15473	17231	19078	20459	21690	5.1	7.0	2.1	1.3
Wind	6	147	804	2341	3660	4177	5643	6766	7298	62.9	16.4	4.4	2.6
Solar and others	11	41	96	365	772	1077	1306	1485	1587	24.3	23.2	5.4	2.0
Geothermal	7	9	10	138	158	175	194	214	220	3.4	32.1	2.1	1.3
Net Imports	**164822**	**195060**	**204678**	**214351**	**215277**	**225276**	**239338**	**246757**	**245092**	**2.2**	**0.5**	**1.1**	**0.2**
Solids	2881	10931	21576	26781	31513	38702	48226	51939	49466	22.3	3.9	4.3	0.3
Oil	120126	130810	125974	122228	115076	114225	114170	114915	112676	0.5	-0.9	-0.1	-0.1
- Crude oil and Feedstocks	88505	101168	101801	113120	111457	111121	111297	112860	111854	1.4	0.9	0.0	0.0
- Oil products	31621	29643	24173	9108	3619	3104	2873	2055	823	-2.7	-17.3	-2.3	-11.8
Natural gas	41747	52904	56865	65734	68153	71412	75578	78468	81499	3.1	1.8	1.0	0.8
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6
Gross Inland Consumption	**354795**	**338258**	**340167**	**345456**	**329870**	**332024**	**324637**	**322257**	**320476**	**-0.4**	**-0.3**	**-0.2**	**-0.1**
Solids	131510	92177	83727	82805	76822	82967	86224	89459	86518	-4.4	-0.9	1.2	0.0
Oil	124248	133627	129918	123409	115381	114122	113655	112127	109825	0.4	-1.2	-0.2	-0.3
Natural gas	54976	67298	71853	80856	81653	83412	86578	88468	89999	2.7	1.3	0.6	0.4
Nuclear	37674	37322	43750	42061	33721	26138	8796	0	0	1.5	-2.6	-12.6	
Electricity	68	415	263	-393	535	937	1364	1434	1451	14.5	7.4	9.8	0.6
Renewable energy forms	6320	7420	10656	16718	21759	24448	28021	30769	32684	5.4	7.4	2.6	1.6
as % in Gross Inland Consumption													
Solids	37.1	27.3	24.6	24.0	23.3	25.0	26.6	27.8	27.0				
Oil	35.0	39.5	38.2	35.7	35.0	34.4	35.0	34.8	34.3				
Natural gas	15.5	19.9	21.1	23.4	24.8	25.1	26.7	27.5	28.1				
Nuclear	10.6	11.0	12.9	12.2	10.2	7.9	2.7	0.0	0.0				
Renewable energy forms	1.8	2.2	3.1	4.8	6.6	7.4	8.6	9.5	10.2				
Electricity Generation in GWh_e	**547549**	**533711**	**567219**	**613054**	**636953**	**664263**	**672778**	**687490**	**693818**	**0.4**	**1.2**	**0.5**	**0.3**
Nuclear	152441	154063	169575	163026	130723	101327	34100	0	0	1.1	-2.6	-12.6	
Hydro & wind	17495	23495	31138	48083	64784	72729	90547	104593	111710	5.9	7.6	3.4	2.1
Thermal (incl. biomass)	377614	356153	366505	401945	441446	490208	548131	582896	582108	-0.3	1.9	2.2	0.6
Fuel Inputs for Thermal Power Generation	**93214**	**85878**	**85253**	**92546**	**81727**	**89104**	**98581**	**103690**	**100961**	**-0.9**	**-0.4**	**1.9**	**0.2**
Solids	75843	69147	68066	66172	61111	67737	71364	74889	71766	-1.1	-1.1	1.6	0.1
Oil (including refinery gas)	2871	2083	1108	2038	2848	2131	2123	2170	1747	-9.1	9.9	-2.9	-1.9
Gas	12676	11982	12906	19233	13322	14262	19325	20072	20375	0.2	0.3	3.8	0.5
Biomass & Waste	1824	2665	3174	5102	4435	4953	5733	6503	7011	5.7	3.4	2.6	2.0
Geothermal heat	0	0	0	0	10	21	36	56	63			14.0	5.6
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**164613**	**140203**	**136936**	**144522**	**141712**	**141167**	**140166**	**139220**	**138593**	**-1.8**	**0.3**	**-0.1**	**-0.1**
Refineries	106658	116715	119856	127082	121868	121098	120604	119539	118058	1.2	0.2	-0.1	-0.2
Biofuels and hydrogen production	0	31	222	1942	4173	5436	6436	7056	7538		34.1	4.4	1.6
District heating	6389	3638	1435	873	2980	2898	2298	2726	3756	-13.9	7.6	-2.6	5.0
Others	51565	19819	15423	14625	12691	11735	10829	9899	9241	-11.4	-1.9	-1.6	-1.6
Energy Branch Consumption	**15384**	**14906**	**14242**	**15144**	**13597**	**13245**	**12715**	**12605**	**12415**	**-0.8**	**-0.5**	**-0.7**	**-0.2**
Non-Energy Uses	**23249**	**22912**	**25272**	**24779**	**24738**	**24784**	**24783**	**24377**	**23961**	**0.8**	**-0.2**	**0.0**	**-0.3**
Final Energy Demand	**228372**	**222379**	**220163**	**218010**	**223580**	**228220**	**229460**	**231126**	**231866**	**-0.4**	**0.2**	**0.3**	**0.1**
by sector													
Industry	72116	61981	59715	56706	56510	56106	55006	54763	54608	-1.9	-0.6	-0.3	-0.1
- energy intensive industries	49422	42778	40359	38652	38089	37447	36386	35720	35194	-2.0	-0.6	-0.5	-0.3
- other industrial sectors	22693	19203	19356	18053	18421	18659	18619	19043	19414	-1.6	-0.5	0.1	0.4
Residential	58400	62212	61905	65931	68107	69199	69910	70709	71617	0.6	1.0	0.3	0.2
Services/Agriculture	39361	35275	32547	33416	35103	36482	36515	36482	36276	-1.9	0.8	0.4	-0.1
Transport	58494	62910	65997	61958	63860	66433	68029	69173	69365	1.2	-0.3	0.6	0.2
by fuel													
Solids	38693	14917	10951	9639	9778	9760	9740	9515	8798	-11.9	-1.1	0.0	-1.0
Oil	96422	104474	98052	87411	81797	81695	81530	81374	80768	0.2	-1.8	0.0	-0.1
Gas	42724	52595	58030	61814	65839	66481	65173	65370	66132	3.1	1.3	-0.1	0.1
Electricity	38391	38912	41496	44497	47627	50269	51625	52783	53320	0.8	1.4	0.8	0.3
Heat (from CHP and District Heating)	9150	8747	6831	7428	7965	8231	8633	8684	8762	-2.9	1.5	0.8	0.1
Other	2991	2734	4804	7222	10575	11784	12760	13400	14086	4.9	8.2	1.9	1.0
CO_2 Emissions (Mt of CO_2)	**959.8**	**860.5**	**823.3**	**804.8**	**764.1**	**790.5**	**810.8**	**825.6**	**813.1**	**-1.5**	**-0.7**	**0.6**	**0.0**
Power generation/District heating	375.1	328.9	316.2	325.0	296.8	323.3	348.0	365.2	356.3	-1.7	-0.6	1.6	0.2
Energy Branch	26.2	27.7	27.1	28.9	24.1	23.3	22.8	21.8	21.2	0.3	-1.2	-0.5	-0.7
Industry	170.5	130.6	118.3	105.6	98.8	94.8	89.0	86.2	82.7	-3.6	-1.8	-1.0	-0.7
Residential	134.3	127.4	117.7	120.0	118.1	117.4	117.4	117.7	119.0	-1.3	0.0	-0.1	0.1
Services/Agriculture	84.7	64.1	53.1	51.1	51.3	52.0	50.7	49.5	49.0	-4.6	-0.3	-0.1	-0.3
Transport	168.9	181.9	190.9	174.3	175.0	179.8	182.9	185.3	184.9	1.2	-0.9	0.4	0.1
CO_2 Emissions Index (1990=100)	**100.0**	**89.7**	**85.8**	**83.9**	**79.6**	**82.4**	**84.5**	**86.0**	**84.7**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Germany: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	79.113	81.539	82.163	82.501	82.627	82.864	82.676	82.108	81.146	0.4	0.1	0.0	-0.2
GDP (in 000 M€05)	1824.8	1965.3	2170.7	2241.0	2470.6	2712.0	2927.4	3117.5	3277.3	1.8	1.3	1.7	1.1
Gross Inl. Cons./GDP (toe/M€05)	194.4	172.1	156.7	154.2	133.5	122.4	110.9	103.4	97.8	-2.1	-1.6	-1.8	-1.3
Gross Inl. Cons./Capita (toe/inhabitant)	4.48	4.15	4.14	4.19	3.99	4.01	3.93	3.92	3.95	-0.8	-0.4	-0.2	0.1
Electricity Generated/Capita (kWh gross/inhabitant)	6921	6545	6904	7431	7709	8016	8137	8373	8550	0.0	1.1	0.5	0.5
Carbon intensity (t of CO_2/toe of GIC)	2.71	2.54	2.42	2.33	2.32	2.38	2.50	2.56	2.54	-1.1	-0.4	0.8	0.2
CO_2 Emissions/Capita (t of CO_2/inhabitant)	12.13	10.55	10.02	9.76	9.25	9.54	9.81	10.06	10.02	-1.9	-0.8	0.6	0.2
CO_2 Emissions to GDP (t of CO2/M€05)	526.0	437.8	379.3	359.1	309.3	291.5	277.0	264.8	248.1	-3.2	-2.0	-1.1	-1.1
Import Dependency %	46.1	57.3	59.8	61.6	64.8	67.3	73.1	75.9	75.8	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	132.2	116.0	100.0	88.5	79.1	71.6	64.6	60.1	56.7	-2.8	-2.3	-2.0	-1.3
Residential (Energy on Private Income)	113.6	109.8	100.0	105.3	99.8	93.4	88.0	83.9	80.8	-1.3	0.0	-1.3	-0.8
Services/Agriculture (Energy on Value added)	155.1	123.5	100.0	97.3	92.1	86.2	79.4	74.1	69.8	-4.3	-0.8	-1.5	-1.3
Transport (Energy on GDP)	105.4	105.3	100.0	90.9	85.0	80.6	76.4	73.0	69.6	-0.5	-1.6	-1.1	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.56	0.51	0.48	0.46	0.40	0.42	0.44	0.46	0.44	-1.4	-1.8	1.0	0.0
Final energy demand (t of CO_2/toe)	2.45	2.27	2.18	2.07	1.98	1.95	1.92	1.90	1.88	-1.1	-0.9	-0.3	-0.2
Industry	2.36	2.11	1.98	1.86	1.75	1.69	1.62	1.57	1.51	-1.8	-1.2	-0.8	-0.7
Residential	2.30	2.05	1.90	1.82	1.73	1.70	1.68	1.66	1.66	-1.9	-0.9	-0.3	-0.1
Services/Agriculture	2.15	1.82	1.63	1.53	1.46	1.42	1.39	1.36	1.35	-2.7	-1.1	-0.5	-0.3
Transport	2.89	2.89	2.89	2.81	2.74	2.71	2.69	2.68	2.67	0.0	-0.5	-0.2	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**112509**	**122874**	**138449**	**142767**	**151017**	**155562**	**152045**		**2.1**	**0.9**	**0.1**
Nuclear energy			21301	20680	15608	12165	4105	0	0		-3.1	-12.5	
Renewable energy			9611	23545	30352	33062	40539	45834	44382		12.2	2.9	0.9
Hydro (pumping excluded)			3408	3580	3661	3732	3790	3828	3862		0.7	0.3	0.2
Wind			6113	18428	23993	25707	32446	37177	35254		14.7	3.1	0.8
Solar			90	1537	2697	3624	4303	4829	5266		40.5	4.8	2.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			81597	78649	92490	97539	106372	109728	107664		1.3	1.4	0.1
of which cogeneration units			40073	37870	32996	34136	40829	39067	36200		-1.9	2.2	-1.2
Solids fired			47883	45326	49646	52958	53501	56441	52155		0.4	0.8	-0.3
Gas fired			24817	24439	30665	35726	43226	44589	46413		2.1	3.5	0.7
Oil fired			7114	6403	8205	5120	4377	3492	3338		1.4	-6.1	-2.7
Biomass-waste fired			1783	2481	3971	3731	5260	5194	5744		8.3	2.9	0.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	2	5	8	12	14			13.8	5.6
Load factor for net electric capacities (%)			53.7	53.1	49.1	49.8	47.7	47.2	48.8				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			37.0	37.4	46.5	47.3	47.8	48.3	49.6				
CHP indicator (% of electricity from CHP)			16.9	15.5	21.2	22.4	28.9	28.2	28.5				
Non fossil fuels in electricity generation (%)			37.1	37.6	34.0	30.2	22.9	20.1	21.3				
- nuclear			29.9	26.6	20.5	15.3	5.1	0.0	0.0				
- renewable energy forms			7.2	11.0	13.5	14.9	17.9	20.1	21.3				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			3.9	5.9	8.5	9.3	10.9	11.8	12.6				
Biofuels share in transport gasoline and diesel (%)			0.4	3.7	6.6	8.3	9.6	10.4	11.2				
Transport sector													
Passenger transport activity (Gpkm)	**889.5**	**1041.7**	**1081.9**	**1142.4**	**1235.6**	**1336.2**	**1422.0**	**1497.8**	**1559.2**	**2.0**	**1.3**	**1.4**	**0.9**
Public road transport	73.1	68.5	69.0	68.2	66.3	69.4	73.9	78.1	82.0	-0.6	-0.4	1.1	1.0
Private cars and motorcycles	702.1	838.2	858.2	911.1	988.9	1059.8	1111.8	1151.6	1180.1	2.0	1.4	1.2	0.6
Rail	76.1	85.4	90.0	90.2	92.7	99.5	108.4	121.7	135.8	1.7	0.3	1.6	2.3
Aviation	34.3	46.2	62.0	70.5	85.3	105.0	125.4	143.8	158.5	6.1	3.2	3.9	2.4
Inland navigation	3.8	3.4	2.7	2.5	2.4	2.5	2.5	2.6	2.7	-3.6	-0.9	0.5	0.7
Travel per person (km per capita)	11243	12775	13167	13847	14954	16125	17200	18242	19214	1.6	1.3	1.4	1.1
Freight transport activity (Gtkm)	**352.9**	**371.3**	**424.7**	**463.9**	**503.8**	**540.7**	**574.0**	**603.8**	**629.9**	**1.9**	**1.7**	**1.3**	**0.9**
Trucks	196.4	237.8	280.7	310.1	336.3	361.3	387.8	411.7	433.2	3.6	1.8	1.4	1.1
Rail	101.7	69.5	77.5	89.7	100.9	108.9	111.7	113.6	114.7	-2.7	2.7	1.0	0.3
Inland navigation	54.8	64.0	66.5	64.1	66.6	70.5	74.5	78.5	82.0	1.9	0.0	1.1	1.0
Freight activity per unit of GDP (tkm/000 €05)	193	189	196	207	204	199	196	194	192	0.1	0.4	-0.4	-0.2
Energy demand in transport (ktoe)	**58494**	**62910**	**65997**	**61958**	**63860**	**66433**	**68029**	**69173**	**69365**	**1.2**	**-0.3**	**0.6**	**0.2**
Public road transport	656	611	612	529	475	474	489	499	516	-0.7	-2.5	0.3	0.5
Private cars and motorcycles	38247	40001	39981	36421	36595	36866	36347	35878	35272	0.4	-0.9	-0.1	-0.3
Trucks	11518	13643	15834	14528	14634	15258	16214	17107	17458	3.2	-0.8	1.0	0.7
Rail	2111	2126	1946	1858	1986	2037	1907	1711	1436	-0.8	0.2	-0.4	-2.8
Aviation	5307	5975	7345	8304	9843	11455	12715	13604	14297	3.3	3.0	2.6	1.2
Inland navigation	656	554	279	318	327	343	358	373	387	-8.2	1.6	0.9	0.8
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	50.2	45.2	44.7	39.9	38.2	36.7	35.0	33.6	32.3	-1.2	-1.6	-0.9	-0.8
Freight transport (toe/Mtkm)	39.2	42.6	41.5	35.3	33.0	32.1	31.7	31.3	30.2	0.6	-2.3	-0.4	-0.5

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Greece: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**9152**	**9740**	**10010**	**10315**	**11031**	**9319**	**10304**	**10504**	**10340**	**0.9**	**1.0**	**-0.7**	**0.0**
Solids	7077	7911	8222	8538	8690	6529	7037	7039	6292	1.5	0.6	-2.1	-1.1
Oil	832	459	280	100	98	100	100	0	0	-10.3	-9.9	0.2	
Natural gas	138	44	42	18	34	0	0	0	0	-11.2	-2.2		
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1105	1326	1466	1659	2208	2691	3167	3466	4048	2.9	4.2	3.7	2.5
Hydro	152	303	318	431	418	426	431	435	439	7.6	2.8	0.3	0.2
Biomass & Waste	893	935	1010	1015	1392	1580	1820	2056	2206	1.2	3.3	2.7	1.9
Wind	0	3	39	109	254	457	581	597	938	74.8	20.7	8.6	4.9
Solar and others	56	82	99	102	142	213	274	316	350	5.8	3.7	6.8	2.5
Geothermal	3	3	2	1	2	16	62	62	114	-4.7	4.3	38.1	6.4
Net Imports	**15415**	**18207**	**21982**	**23336**	**26109**	**28947**	**29870**	**30677**	**30787**	**3.6**	**1.7**	**1.4**	**0.3**
Solids	988	925	768	371	225	1074	1083	1225	1391	-2.5	-11.6	17.0	2.5
Oil	14366	17214	19527	20307	21298	22392	22821	22906	22735	3.1	0.9	0.7	0.0
- Crude oil and Feedstocks	14757	16955	20439	19352	20807	21822	22219	22309	22228	3.3	0.2	0.7	0.0
- Oil products	-391	259	-912	955	491	570	602	597	507			2.1	-1.7
Natural gas	0	0	1689	2332	4320	5241	5750	6352	6485		9.8	2.9	1.2
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1
Gross Inland Consumption	**22278**	**24174**	**28140**	**31240**	**34033**	**34946**	**36679**	**37544**	**37380**	**2.4**	**1.9**	**0.8**	**0.2**
Solids	8091	8783	9040	8952	8915	7603	8120	8264	7683	1.1	-0.1	-0.9	-0.6
Oil	12883	13952	15929	17951	18290	19171	19425	19268	18989	2.1	1.4	0.6	-0.2
Natural gas	138	44	1705	2354	4354	5241	5750	6352	6485	28.6	9.8	2.8	1.2
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	61	69	-1	325	266	240	216	195	175			-2.1	-2.1
Renewable energy forms	1105	1326	1466	1659	2208	2691	3167	3466	4048	2.9	4.2	3.7	2.5
as % in Gross Inland Consumption													
Solids	36.3	36.3	32.1	28.7	26.2	21.8	22.1	22.0	20.6				
Oil	57.8	57.7	56.6	57.5	53.7	54.9	53.0	51.3	50.8				
Natural gas	0.6	0.2	6.1	7.5	12.8	15.0	15.7	16.9	17.3				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	5.0	5.5	5.2	5.3	6.5	7.7	8.6	9.2	10.8				
Electricity Generation in GWh_e	**34767**	**41291**	**53415**	**59416**	**68877**	**74475**	**80002**	**84632**	**88151**	**4.4**	**2.6**	**1.5**	**1.0**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	1769	3562	4143	6283	7885	10658	12371	12832	17086	8.9	6.6	4.6	3.3
Thermal (incl. biomass)	32998	37728	49272	53133	60993	63817	67631	71800	71065	4.1	2.2	1.0	0.5
Fuel Inputs for Thermal Power Generation	**8617**	**9937**	**11614**	**12403**	**13145**	**12529**	**13236**	**13696**	**13184**	**3.0**	**1.2**	**0.1**	**0.0**
Solids	6890	7810	8234	8693	8565	7249	7761	7900	7317	1.8	0.4	-1.0	-0.6
Oil (including refinery gas)	1708	2075	2036	2053	1359	1556	1357	1066	985	1.8	-4.0	0.0	-3.2
Gas	18	14	1280	1605	3166	3635	3906	4391	4467	53.1	9.5	2.1	1.4
Biomass & Waste	0	38	64	52	53	75	152	278	302		-1.8	11.1	7.1
Geothermal heat	0	0	0	0	1	14	60	60	113			47.9	6.5
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**16698**	**17913**	**22435**	**21508**	**21565**	**22746**	**23303**	**23443**	**23456**	**3.0**	**-0.4**	**0.8**	**0.1**
Refineries	16621	17860	22404	21415	21249	22259	22658	22653	22567	3.0	-0.5	0.6	0.0
Biofuels and hydrogen production	0	0	0	0	243	420	585	734	837			9.2	3.6
District heating	0	0	0	0	0	0	0	0	0				
Others	77	52	30	93	73	67	60	56	52	-8.8	9.2	-1.9	-1.4
Energy Branch Consumption	**1196**	**1174**	**1637**	**1758**	**1673**	**1696**	**1734**	**1776**	**1746**	**3.2**	**0.2**	**0.4**	**0.1**
Non-Energy Uses	**651**	**441**	**689**	**711**	**703**	**703**	**715**	**725**	**722**	**0.6**	**0.2**	**0.2**	**0.1**
Final Energy Demand	**14509**	**15801**	**18513**	**20742**	**23034**	**24684**	**25899**	**26535**	**26780**	**2.5**	**2.2**	**1.2**	**0.3**
by sector													
Industry	3942	4107	4437	4132	4071	4203	4302	4318	4369	1.2	-0.9	0.6	0.2
- energy intensive industries	2534	2489	2693	2526	2525	2619	2684	2693	2706	0.6	-0.6	0.6	0.1
- other industrial sectors	1408	1618	1744	1607	1546	1584	1618	1625	1663	2.2	-1.2	0.5	0.3
Residential	3048	3323	4470	5467	6370	6935	7342	7528	7571	3.9	3.6	1.4	0.3
Services/Agriculture	1711	1940	2410	3075	3480	3769	4000	4110	4182	3.5	3.7	1.4	0.4
Transport	5808	6431	7196	8068	9113	9777	10255	10579	10657	2.2	2.4	1.2	0.4
by fuel													
Solids	1053	1074	888	446	326	333	339	346	349	-1.7	-9.5	0.4	0.3
Oil	10041	10799	12584	14219	15321	15924	16402	16536	16343	2.3	2.0	0.7	0.0
Gas	15	14	257	585	843	1297	1483	1587	1646	33.0	12.6	5.8	1.1
Electricity	2448	2931	3710	4377	5075	5487	5863	6154	6420	4.2	3.2	1.5	0.9
Heat (from CHP and District Heating)	0	0	28	49	43	48	52	62	56		4.5	1.9	0.7
Other	952	982	1046	1066	1425	1594	1760	1851	1965	0.9	3.1	2.1	1.1
CO_2 Emissions (Mt of CO_2)	**71.2**	**78.3**	**89.2**	**96.2**	**100.2**	**99.3**	**103.3**	**104.7**	**101.7**	**2.3**	**1.2**	**0.3**	**-0.2**
Power generation/District heating	34.1	39.0	43.7	46.3	47.3	43.4	45.5	46.3	43.7	2.5	0.8	-0.4	-0.4
Energy Branch	2.6	2.3	3.4	3.6	3.3	3.5	3.5	3.5	3.5	2.9	-0.4	0.6	0.0
Industry	9.4	10.0	10.1	8.6	7.9	7.8	7.8	7.8	7.7	0.7	-2.5	-0.1	0.0
Residential	4.6	4.7	7.4	9.6	11.2	12.3	12.9	13.0	12.6	4.9	4.2	1.5	-0.2
Services/Agriculture	3.3	3.2	3.4	4.2	4.3	4.5	4.7	4.7	4.6	0.1	2.4	1.0	-0.2
Transport	17.2	19.0	21.2	23.8	26.3	27.8	28.9	29.5	29.5	2.1	2.2	0.9	0.2
CO_2 Emissions Index (1990=100)	**100.0**	**109.9**	**125.3**	**135.1**	**140.8**	**139.5**	**145.1**	**147.1**	**142.9**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Greece: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	10.121	10.595	10.904	11.083	11.243	11.390	11.427	11.394	11.316	0.7	0.3	0.2	-0.1
GDP (in 000 M€05)	115.8	123.2	146.0	181.1	215.3	250.5	284.2	315.7	341.2	2.3	4.0	2.8	1.8
Gross Inl. Cons./GDP (toe/M€05)	192.3	196.1	192.7	172.5	158.1	139.5	129.1	118.9	109.5	0.0	-2.0	-2.0	-1.6
Gross Inl. Cons./Capita (toe/inhabitant)	2.20	2.28	2.58	2.82	3.03	3.07	3.21	3.30	3.30	1.6	1.6	0.6	0.3
Electricity Generated/Capita (kWh gross/inhabitant)	3435	3897	4899	5361	6126	6539	7001	7428	7790	3.6	2.3	1.3	1.1
Carbon intensity (t of CO_2/toe of GIC)	3.20	3.24	3.17	3.08	2.95	2.84	2.82	2.79	2.72	-0.1	-0.7	-0.4	-0.3
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.03	7.39	8.18	8.68	8.92	8.72	9.04	9.19	8.99	1.5	0.9	0.1	-0.1
CO_2 Emissions to GDP (t of CO2/M€05)	614.6	635.0	610.9	531.2	465.5	396.6	363.6	331.7	298.1	-0.1	-2.7	-2.4	-2.0
Import Dependency %	62.1	65.7	69.3	68.5	70.3	75.6	74.4	74.5	74.9	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	90.0	100.8	100.0	81.0	70.7	65.2	60.4	56.8	54.5	1.1	-3.4	-1.6	-1.0
Residential (Energy on Private Income)	85.0	84.6	100.0	100.5	100.5	95.3	89.8	83.5	78.1	1.6	0.1	-1.1	-1.4
Services/Agriculture (Energy on Value added)	88.4	93.9	100.0	103.9	99.1	92.5	86.7	80.0	75.1	1.2	-0.1	-1.3	-1.4
Transport (Energy on GDP)	101.7	105.9	100.0	90.4	85.9	79.2	73.2	68.0	63.4	-0.2	-1.5	-1.6	-1.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.98	0.94	0.81	0.77	0.68	0.58	0.56	0.54	0.49	-1.9	-1.7	-1.9	-1.4
Final energy demand (t of CO_2/toe)	2.38	2.34	2.28	2.23	2.15	2.12	2.10	2.07	2.04	-0.4	-0.5	-0.3	-0.3
Industry	2.39	2.43	2.28	2.09	1.94	1.85	1.81	1.80	1.77	-0.5	-1.6	-0.7	-0.2
Residential	1.51	1.43	1.66	1.76	1.75	1.78	1.76	1.72	1.67	0.9	0.6	0.0	-0.5
Services/Agriculture	1.96	1.65	1.40	1.36	1.23	1.20	1.17	1.13	1.10	-3.3	-1.3	-0.4	-0.7
Transport	2.96	2.96	2.95	2.95	2.88	2.85	2.82	2.79	2.77	0.0	-0.2	-0.2	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**11361**	**13277**	**15880**	**18753**	**19889**	**21131**	**23956**		**3.4**	**2.3**	**1.9**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			3233	3744	4521	5722	6637	6951	8873		3.4	3.9	2.9
Hydro (pumping excluded)			3043	3165	3235	3386	3461	3514	3549		0.6	0.7	0.3
Wind			189	573	1226	2012	2683	2759	4448		20.6	8.1	5.2
Solar			1	5	60	324	494	678	877		46.8	23.6	5.9
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			8128	9533	11359	13031	13252	14179	15083		3.4	1.6	1.3
of which cogeneration units			340	381	477	744	847	966	951		3.4	5.9	1.2
Solids fired			4505	4798	4796	4389	4389	4433	3897		0.6	-0.9	-1.2
Gas fired			1134	1876	3344	5639	5929	6940	8878		11.4	5.9	4.1
Oil fired			2487	2827	3145	2926	2774	2610	2033		2.4	-1.2	-3.1
Biomass-waste fired			2	31	66	70	132	170	177		45.2	7.1	3.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	8	8	28	28	98			13.3	13.3
Load factor for net electric capacities (%)			49.7	47.4	46.5	42.9	43.5	43.2	39.9				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			36.5	36.8	39.9	43.8	43.9	45.1	46.4				
CHP indicator (% of electricity from CHP)			1.2	1.5	3.0	4.7	5.2	5.8	5.5				
Non fossil fuels in electricity generation (%)			8.8	10.9	11.8	14.8	16.5	16.8	21.2				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			8.8	10.9	11.8	14.8	16.5	16.8	21.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			7.5	7.5	9.0	10.0	11.0	11.6	13.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.6	4.1	5.3	6.3	7.2				
Transport sector													
Passenger transport activity (Gpkm)	**75.3**	**91.5**	**116.2**	**141.2**	**160.1**	**176.1**	**188.8**	**197.5**	**203.3**	**4.4**	**3.3**	**1.7**	**0.7**
Public road transport	17.7	20.2	21.7	21.4	21.4	21.5	21.8	22.0	22.1	2.0	-0.2	0.2	0.1
Private cars and motorcycles	32.2	41.3	58.6	80.0	94.1	105.2	113.0	118.1	120.8	6.2	4.8	1.8	0.7
Rail	2.8	2.3	3.1	3.4	3.8	4.2	4.7	5.1	5.5	0.9	2.0	2.3	1.5
Aviation	15.5	19.9	24.1	27.7	32.0	36.2	40.1	43.0	45.6	4.5	2.9	2.3	1.3
Inland navigation	7.0	7.9	8.7	8.7	8.9	9.0	9.1	9.2	9.3	2.1	0.2	0.3	0.2
Travel per person (km per capita)	7438	8641	10660	12741	14244	15458	16523	17330	17962	3.7	2.9	1.5	0.8
Freight transport activity (Gtkm)	**19.8**	**22.0**	**26.6**	**32.7**	**38.1**	**43.0**	**47.3**	**50.6**	**53.1**	**3.0**	**3.6**	**2.2**	**1.2**
Trucks	12.5	14.6	17.5	22.0	26.0	29.6	32.8	35.6	37.8	3.4	4.0	2.4	1.4
Rail	0.6	0.3	0.4	0.6	0.8	0.9	1.0	1.1	1.2	-3.5	6.2	3.0	1.3
Inland navigation	6.6	7.1	8.7	10.1	11.4	12.6	13.5	13.9	14.1	2.8	2.7	1.7	0.5
Freight activity per unit of GDP (tkm/000 €05)	171	178	182	181	177	172	166	160	156	0.7	-0.3	-0.6	-0.7
Energy demand in transport (ktoe)	**5808**	**6431**	**7196**	**8068**	**9113**	**9777**	**10255**	**10579**	**10657**	**2.2**	**2.4**	**1.2**	**0.4**
Public road transport	154	175	175	153	149	142	142	139	131	1.3	-1.6	-0.5	-0.8
Private cars and motorcycles	1404	1704	2243	2913	3335	3492	3609	3666	3533	4.8	4.0	0.8	-0.2
Trucks	2345	2726	2902	3120	3610	3966	4220	4447	4643	2.2	2.2	1.6	1.0
Rail	75	57	60	58	63	68	76	77	72	-2.2	0.5	1.9	-0.5
Aviation	1264	1226	1325	1181	1289	1423	1506	1543	1574	0.5	-0.3	1.6	0.4
Inland navigation	566	544	491	643	668	687	702	707	704	-1.4	3.1	0.5	0.0
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	43.6	38.8	35.6	33.6	33.0	31.6	30.6	29.7	28.3	-2.0	-0.8	-0.8	-0.8
Freight transport (toe/Mtkm)	127.8	130.9	114.6	101.5	100.6	97.9	94.9	93.3	92.5	-1.1	-1.3	-0.6	-0.3

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Hungary: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**14146**	**13456**	**11207**	**10514**	**10236**	**10090**	**10278**	**10221**	**10256**	**-2.3**	**-0.9**	**0.0**	**0.0**
Solids	3948	3095	2893	1748	1720	1725	1734	1738	1741	-3.1	-5.1	0.1	0.0
Oil	2320	2329	1665	1655	1200	1000	1000	900	800	-3.3	-3.2	-1.8	-2.2
Natural gas	3812	3788	2475	2331	2200	2000	1900	1800	1700	-4.2	-1.2	-1.5	-1.1
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1
Renewable energy sources	523	626	516	1212	1328	1503	1704	1811	2044	-0.1	9.9	2.5	1.8
Hydro	15	14	15	17	16	16	17	17	17	0.0	0.4	0.4	0.4
Biomass & Waste	422	526	415	1105	1201	1377	1534	1605	1785	-0.2	11.2	2.5	1.5
Wind	0	0	0	1	6	8	17	32	48			12.1	10.8
Solar and others	0	0	0	2	13	21	74	105	148			19.3	7.1
Geothermal	86	86	86	87	93	81	62	52	46	0.0	0.8	-3.9	-3.1
Net Imports	**14436**	**12629**	**14011**	**17558**	**18736**	**20670**	**22075**	**22849**	**23384**	**-0.3**	**2.9**	**1.7**	**0.6**
Solids	1686	1395	1081	1340	1200	1103	1198	1162	1321	-4.3	1.0	0.0	1.0
Oil	6621	5496	5352	5875	6609	7583	7924	8127	8335	-2.1	2.1	1.8	0.5
- Crude oil and Feedstocks	6475	5937	5866	6167	6679	7614	7939	8138	8342	-1.0	1.3	1.7	0.5
- Oil products	146	-441	-514	-291	-71	-31	-15	-11	-7				
Natural gas	5170	5532	7283	9807	10389	11633	12651	13339	13541	3.5	3.6	2.0	0.7
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7
Gross Inland Consumption	**28641**	**25864**	**25000**	**27920**	**28972**	**30760**	**32353**	**33070**	**33640**	**-1.4**	**1.5**	**1.1**	**0.4**
Solids	5969	4549	3967	3090	2920	2827	2931	2900	3062	-4.0	-3.0	0.0	0.4
Oil	8734	7689	6907	7420	7809	8583	8924	9027	9135	-2.3	1.2	1.3	0.2
Natural gas	8913	9175	9657	12094	12589	13633	14551	15139	15241	0.8	2.7	1.5	0.5
Nuclear	3544	3618	3658	3569	3787	3863	3940	3972	3972	0.3	0.3	0.4	0.1
Electricity	958	207	296	535	539	351	302	222	187	-11.1	6.2	-5.6	-4.7
Renewable energy forms	523	626	516	1212	1328	1503	1704	1811	2044	-0.1	9.9	2.5	1.8
as % in Gross Inland Consumption													
Solids	20.8	17.6	15.9	11.1	10.1	9.2	9.1	8.8	9.1				
Oil	30.5	29.7	27.6	26.6	27.0	27.9	27.6	27.3	27.2				
Natural gas	31.1	35.5	38.6	43.3	43.5	44.3	45.0	45.8	45.3				
Nuclear	12.4	14.0	14.6	12.8	13.1	12.6	12.2	12.0	11.8				
Renewable energy forms	1.8	2.4	2.1	4.3	4.6	4.9	5.3	5.5	6.1				
Electricity Generation in GWh_e	**28431**	**34011**	**35185**	**35749**	**40520**	**47085**	**52708**	**57136**	**60453**	**2.2**	**1.4**	**2.7**	**1.4**
Nuclear	13729	14023	14177	13832	14678	14971	15271	15394	15394	0.3	0.3	0.4	0.1
Hydro & wind	178	163	178	213	251	293	415	608	836	0.0	3.5	5.1	7.3
Thermal (incl. biomass)	14524	19824	20829	21704	25590	31821	37022	41133	44223	3.7	2.1	3.8	1.8
Fuel Inputs for Thermal Power Generation	**4970**	**6113**	**5985**	**5659**	**5289**	**6008**	**6604**	**6897**	**7306**	**1.9**	**-1.2**	**2.2**	**1.0**
Solids	2871	2977	2731	1924	1965	1971	2010	2007	2192	-0.5	-3.2	0.2	0.9
Oil (including refinery gas)	440	1447	1052	122	4	163	142	15	15	9.1	-42.4	42.2	-19.9
Gas	1636	1634	2140	3078	3020	3567	4116	4556	4657	2.7	3.5	3.1	1.2
Biomass & Waste	24	55	62	534	299	306	336	320	442	10.2	17.0	1.2	2.8
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**11679**	**10680**	**9226**	**9831**	**10430**	**11393**	**11854**	**12034**	**12087**	**-2.3**	**1.2**	**1.3**	**0.2**
Refineries	8831	8500	7588	8390	9064	9914	10233	10307	10375	-1.5	1.8	1.2	0.1
Biofuels and hydrogen production	0	0	0	0	198	280	415	505	563			7.7	3.1
District heating	1145	789	471	629	467	555	589	647	614	-8.5	-0.1	2.3	0.4
Others	1704	1392	1168	813	701	644	616	576	535	-3.7	-5.0	-1.3	-1.4
Energy Branch Consumption	**1402**	**1310**	**1162**	**1581**	**1642**	**1724**	**1791**	**1824**	**1843**	**-1.9**	**3.5**	**0.9**	**0.3**
Non-Energy Uses	**1569**	**1609**	**1586**	**2282**	**2503**	**2660**	**2723**	**2754**	**2783**	**0.1**	**4.7**	**0.8**	**0.2**
Final Energy Demand	**19258**	**15814**	**15998**	**18098**	**19732**	**20934**	**21984**	**22743**	**23133**	**-1.8**	**2.1**	**1.1**	**0.5**
by sector													
Industry	6523	3808	3489	3427	3486	3660	3869	4028	4201	-6.1	0.0	1.0	0.8
- energy intensive industries	4160	2691	2563	2328	2277	2335	2445	2515	2598	-4.7	-1.2	0.7	0.6
- other industrial sectors	2364	1116	926	1099	1209	1326	1424	1513	1603	-8.9	2.7	1.6	1.2
Residential	6437	5911	5465	6411	7079	7278	7424	7525	7540	-1.6	2.6	0.5	0.2
Services/Agriculture	3273	3442	3792	4085	4470	4795	5081	5241	5295	1.5	1.7	1.3	0.4
Transport	3024	2653	3252	4175	4697	5201	5610	5949	6098	0.7	3.7	1.8	0.8
by fuel													
Solids	2502	965	793	692	598	555	527	527	511	-10.9	-2.8	-1.3	-0.3
Oil	6009	4147	4173	4792	5131	5610	5919	6214	6312	-3.6	2.1	1.4	0.6
Gas	5941	6370	6503	7852	8334	8630	9023	8997	9025	0.9	2.5	0.8	0.0
Electricity	2811	2500	2658	2823	3228	3580	3969	4242	4485	-0.6	2.0	2.1	1.2
Heat (from CHP and District Heating)	1570	1287	1440	1297	1469	1474	1337	1462	1424	-0.9	0.2	-0.9	0.6
Other	425	545	430	642	972	1085	1209	1300	1377	0.1	8.5	2.2	1.3
CO_2 Emissions (Mt of CO_2)	**65.5**	**56.8**	**53.6**	**55.0**	**56.5**	**60.5**	**63.9**	**65.3**	**66.5**	**-2.0**	**0.5**	**1.2**	**0.4**
Power generation/District heating	20.5	23.0	21.0	17.3	16.6	18.4	20.0	20.8	21.7	0.2	-2.4	1.9	0.8
Energy Branch	2.5	2.2	1.5	1.9	2.5	2.6	2.7	2.7	2.7	-4.9	5.2	0.9	-0.3
Industry	14.7	8.7	6.4	6.3	5.9	6.2	7.0	7.1	7.0	-7.9	-0.9	1.7	0.1
Residential	13.7	9.9	9.0	10.5	11.4	11.2	10.9	10.6	10.5	-4.1	2.4	-0.4	-0.4
Services/Agriculture	5.6	5.5	6.2	6.7	7.0	7.4	7.8	8.0	8.0	1.1	1.2	1.1	0.3
Transport	8.6	7.6	9.4	12.2	13.3	14.6	15.5	16.3	16.6	0.9	3.5	1.6	0.7
CO_2 Emissions Index (1990=100)	**100.0**	**86.7**	**81.8**	**84.0**	**86.3**	**92.3**	**97.5**	**99.7**	**101.5**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Hungary: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	10.375	10.337	10.222	10.098	9.969	9.834	9.693	9.588	9.484	-0.1	-0.3	-0.3	-0.2
GDP (in 000 M€05)	64.1	57.4	71.8	88.8	104.8	125.6	147.4	169.9	191.6	1.1	3.8	3.5	2.7
Gross Inl. Cons./GDP (toe/M€05)	446.6	450.3	348.1	314.4	276.6	244.9	219.4	194.7	175.6	-2.5	-2.3	-2.3	-2.2
Gross Inl. Cons./Capita (toe/inhabitant)	2.76	2.50	2.45	2.76	2.91	3.13	3.34	3.45	3.55	-1.2	1.7	1.4	0.6
Electricity Generated/Capita (kWh gross/inhabitant)	2740	3290	3442	3540	4065	4788	5438	5959	6374	2.3	1.7	3.0	1.6
Carbon intensity (t of CO_2/toe of GIC)	2.29	2.20	2.14	1.97	1.95	1.97	1.97	1.98	1.98	-0.7	-0.9	0.1	0.0
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.32	5.50	5.24	5.45	5.67	6.15	6.59	6.81	7.01	-1.8	0.8	1.5	0.6
CO_2 Emissions to GDP (t of CO2/M€05)	1021.7	989.5	746.0	619.5	539.8	481.7	433.3	384.7	347.1	-3.1	-3.2	-2.2	-2.2
Import Dependency %	50.4	48.8	56.0	62.9	64.7	67.2	68.2	69.1	69.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	273.5	170.7	100.0	80.6	70.8	63.9	59.4	54.8	52.0	-9.6	-3.4	-1.7	-1.3
Residential (Energy on Private Income)	121.1	125.3	100.0	86.0	80.8	69.6	60.7	53.6	47.8	-1.9	-2.1	-2.8	-2.4
Services/Agriculture (Energy on Value added)	85.5	106.1	100.0	85.5	79.9	72.0	65.0	58.2	51.9	1.6	-2.2	-2.0	-2.2
Transport (Energy on GDP)	104.1	102.0	100.0	103.8	99.0	91.5	84.0	77.3	70.3	-0.4	-0.1	-1.6	-1.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.42	0.45	0.39	0.33	0.27	0.27	0.28	0.27	0.27	-0.8	-3.5	0.2	-0.4
Final energy demand (t of CO_2/toe)	2.21	2.00	1.94	1.97	1.90	1.88	1.87	1.84	1.82	-1.3	-0.2	-0.2	-0.3
Industry	2.25	2.28	1.85	1.84	1.69	1.69	1.80	1.76	1.67	-2.0	-0.9	0.6	-0.8
Residential	2.13	1.68	1.64	1.64	1.61	1.54	1.47	1.40	1.40	-2.6	-0.2	-0.9	-0.5
Services/Agriculture	1.70	1.59	1.64	1.64	1.56	1.55	1.53	1.53	1.52	-0.3	-0.5	-0.2	-0.1
Transport	2.84	2.85	2.90	2.92	2.82	2.80	2.76	2.74	2.72	0.2	-0.3	-0.2	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**7789**	**8587**	**10359**	**10574**	**9932**	**10241**	**11044**		**2.9**	**-0.4**	**1.1**
Nuclear energy			1708	1730	1756	1781	1794	1794	1794		0.3	0.2	0.0
Renewable energy			45	64	110	161	312	556	884		9.4	11.0	11.0
Hydro (pumping excluded)			44	46	46	61	71	95	143		0.5	4.4	7.2
Wind			1	18	61	86	211	406	639		52.4	13.2	11.7
Solar			0	0	3	14	30	55	102			27.2	13.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			6036	6793	8493	8632	7827	7891	8366		3.5	-0.8	0.7
of which cogeneration units			1915	2391	2489	2824	2781	2557	2552		2.7	1.1	-0.9
Solids fired			1683	1592	1735	1356	901	1129	1182		0.3	-6.3	2.7
Gas fired			3516	4572	6089	6682	6368	6002	6332		5.6	0.4	-0.1
Oil fired			762	313	322	254	219	224	264		-8.3	-3.8	1.9
Biomass-waste fired			76	316	348	340	338	535	589		16.5	-0.3	5.7
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			47.3	44.1	42.3	48.6	58.0	61.0	59.9				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			29.9	33.0	41.6	45.5	48.2	51.3	52.1				
CHP indicator (% of electricity from CHP)			24.5	28.3	31.6	27.5	23.2	27.0	25.7				
Non fossil fuels in electricity generation (%)			41.4	45.9	41.1	36.1	33.0	31.1	30.7				
- nuclear			40.3	38.7	36.2	31.8	29.0	26.9	25.5				
- renewable energy forms			1.1	7.2	4.9	4.3	4.0	4.1	5.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			2.9	4.7	5.6	6.0	6.5	7.2	7.9				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	3.8	4.8	6.6	7.7	8.4				
Transport sector													
Passenger transport activity (Gpkm)	**82.0**	**75.2**	**80.0**	**80.3**	**86.9**	**95.4**	**105.2**	**114.8**	**124.2**	**-0.2**	**0.8**	**1.9**	**1.7**
Public road transport	19.3	16.6	18.7	18.2	17.6	16.6	15.9	15.3	14.7	-0.3	-0.6	-1.0	-0.7
Private cars and motorcycles	47.3	45.7	46.6	47.2	54.0	62.6	72.0	80.9	88.8	-0.1	1.5	2.9	2.1
Rail	13.9	10.9	12.3	12.2	12.0	12.0	11.9	11.8	12.2	-1.2	-0.2	-0.1	0.2
Aviation	1.6	1.9	2.4	2.7	3.3	4.2	5.4	6.8	8.4	4.3	3.1	5.1	4.5
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	7905	7274	7829	7954	8719	9705	10855	11976	13092	-0.1	1.1	2.2	1.9
Freight transport activity (Gtkm)	**34.0**	**22.2**	**27.9**	**35.8**	**42.1**	**48.1**	**53.6**	**58.4**	**61.8**	**-1.9**	**4.2**	**2.5**	**1.4**
Trucks	15.2	13.8	19.1	25.2	30.9	36.4	41.3	45.5	48.4	2.4	4.9	2.9	1.6
Rail	16.8	8.4	8.8	8.6	8.8	9.1	9.4	9.7	10.1	-6.3	0.0	0.7	0.7
Inland navigation	2.0	0.0	0.0	2.1	2.4	2.7	2.9	3.2	3.3			2.0	1.3
Freight activity per unit of GDP (tkm/000 €05)	530	387	389	403	402	383	364	344	323	-3.1	0.3	-1.0	-1.2
Energy demand in transport (ktoe)	**3024**	**2653**	**3252**	**4175**	**4697**	**5201**	**5610**	**5949**	**6098**	**0.7**	**3.7**	**1.8**	**0.8**
Public road transport	160	124	149	167	156	140	126	113	102	-0.7	0.4	-2.1	-2.1
Private cars and motorcycles	1482	1462	1824	2321	2571	2813	3010	3155	3149	2.1	3.5	1.6	0.5
Trucks	938	695	886	1297	1551	1779	1955	2109	2230	-0.6	5.8	2.3	1.3
Rail	271	190	175	159	149	142	129	114	88	-4.3	-1.6	-1.4	-3.8
Aviation	164	182	219	230	269	326	388	456	527	2.9	2.1	3.7	3.1
Inland navigation	9	0	0	1	1	1	1	1	2			1.8	1.1
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	22.6	24.2	28.0	34.5	35.0	34.7	33.8	32.7	30.6	2.1	2.3	-0.4	-1.0
Freight transport (toe/Mtkm)	34.4	37.7	36.4	39.3	39.4	39.2	38.3	37.6	37.1	0.5	0.8	-0.3	-0.3

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Ireland: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**3353**	**4020**	**2175**	**1650**	**1962**	**2242**	**2436**	**2664**	**2673**	**-4.2**	**-1.0**	**2.2**	**0.9**
Solids	1312	1606	959	789	757	743	728	716	672	-3.1	-2.3	-0.4	-0.8
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	1873	2249	958	461	498	568	575	583	500	-6.5	-6.3	1.5	-1.4
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	168	165	258	401	708	931	1133	1365	1501	4.4	10.6	4.8	2.9
Hydro	60	61	73	54	74	77	80	82	83	2.0	0.2	0.7	0.4
Biomass & Waste	108	102	164	250	370	469	587	685	783	4.3	8.5	4.7	2.9
Wind	0	1	21	96	252	349	415	536	568		28.2	5.1	3.2
Solar and others	0	0	0	0	12	36	51	61	67	14.8	51.1	15.8	2.7
Geothermal	0	0	0	0	0	0	0	0	0	13.3	-8.4	-0.7	-0.8
Net Imports	**7074**	**7604**	**12234**	**13620**	**15928**	**16363**	**16887**	**16848**	**16969**	**5.6**	**2.7**	**0.6**	**0.0**
Solids	2064	1823	1789	1969	2055	2294	2651	2377	2148	-1.4	1.4	2.6	-2.1
Oil	5010	5698	7959	8466	10543	10203	10259	10413	10435	4.7	2.9	-0.3	0.2
- Crude oil and Feedstocks	2018	2260	3002	3297	3645	3558	3554	3583	3568	4.1	2.0	-0.3	0.0
- Oil products	2992	3438	4957	5168	6898	6645	6705	6830	6867	5.2	3.4	-0.3	0.2
Natural gas	0	85	2478	3010	3250	3709	3756	3808	4106		2.8	1.5	0.9
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Gross Inland Consumption	**10225**	**10844**	**14319**	**15121**	**17771**	**18477**	**19188**	**19372**	**19500**	**3.4**	**2.2**	**0.8**	**0.2**
Solids	3416	2775	2711	2685	2812	3037	3379	3093	2820	-2.3	0.4	1.9	-1.8
Oil	4768	5571	7906	8390	10423	10075	10125	10274	10293	5.2	2.8	-0.3	0.2
Natural gas	1873	2334	3436	3470	3748	4277	4331	4391	4606	6.3	0.9	1.5	0.6
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	-1	8	176	80	86	95	103	112		25.2	1.7	1.7
Renewable energy forms	168	165	258	401	708	1002	1259	1511	1669	4.4	10.6	5.9	2.9
as % in Gross Inland Consumption													
Solids	33.4	25.6	18.9	17.8	15.8	16.4	17.6	16.0	14.5				
Oil	46.6	51.4	55.2	55.5	58.7	54.5	52.8	53.0	52.8				
Natural gas	18.3	21.5	24.0	22.9	21.1	23.2	22.6	22.7	23.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.6	1.5	1.8	2.6	4.0	5.4	6.6	7.8	8.6				
Electricity Generation in GWh_e	**14226**	**17601**	**23669**	**24992**	**31679**	**34234**	**36744**	**37867**	**38723**	**5.2**	**3.0**	**1.5**	**0.5**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	697	729	1090	1743	3799	4965	5776	7216	7614	4.6	13.3	4.3	2.8
Thermal (incl. biomass)	13530	16872	22579	23249	27879	29270	30968	30651	31110	5.3	2.1	1.1	0.0
Fuel Inputs for Thermal Power Generation	**3019**	**3711**	**4792**	**4747**	**5223**	**5186**	**5379**	**5100**	**5039**	**4.7**	**0.9**	**0.3**	**-0.7**
Solids	1839	2028	1925	1903	2177	2461	2881	2663	2447	0.5	1.2	2.8	-1.6
Oil (including refinery gas)	339	622	1019	774	933	226	16	0	0	11.6	-0.9	-33.2	
Gas	841	1060	1825	2040	2035	2415	2379	2299	2393	8.1	1.1	1.6	0.1
Biomass & Waste	0	0	24	30	77	84	102	138	199		12.5	2.9	6.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**1939**	**2429**	**3481**	**3472**	**3859**	**3877**	**3997**	**4084**	**4113**	**6.0**	**1.0**	**0.4**	**0.3**
Refineries	1742	2263	3310	3336	3645	3558	3554	3583	3568	6.6	1.0	-0.3	0.0
Biofuels and hydrogen production	0	0	0	1	132	254	396	469	523			11.6	2.8
District heating	0	0	0	0	0	0	0	0	0				
Others	197	167	171	135	82	66	47	32	22	-1.4	-7.0	-5.5	-7.2
Energy Branch Consumption	**168**	**185**	**246**	**380**	**363**	**363**	**373**	**363**	**355**	**3.9**	**4.0**	**0.3**	**-0.5**
Non-Energy Uses	**617**	**545**	**546**	**299**	**411**	**466**	**515**	**556**	**590**	**-1.2**	**-2.8**	**2.3**	**1.4**
Final Energy Demand	**7355**	**7903**	**10678**	**12346**	**13697**	**14491**	**15084**	**15498**	**15714**	**3.8**	**2.5**	**1.0**	**0.4**
by sector													
Industry	1744	1851	2344	2484	2733	2889	3032	3173	3284	3.0	1.6	1.0	0.8
- energy intensive industries	869	879	1170	1231	1387	1486	1567	1635	1695	3.0	1.7	1.2	0.8
- other industrial sectors	875	972	1173	1253	1346	1403	1464	1538	1590	3.0	1.4	0.8	0.8
Residential	2404	2208	2509	2923	3139	3247	3311	3336	3342	0.4	2.3	0.5	0.1
Services/Agriculture	1222	1502	1821	1958	2129	2285	2370	2438	2478	4.1	1.6	1.1	0.4
Transport	1985	2343	4005	4981	5696	6070	6371	6550	6610	7.3	3.6	1.1	0.4
by fuel													
Solids	1784	933	699	704	619	561	485	417	362	-9.0	-1.2	-2.4	-2.9
Oil	3874	4796	6894	7990	8733	9065	9303	9455	9471	5.9	2.4	0.6	0.2
Gas	568	796	1201	1337	1632	1775	1867	2008	2130	7.8	3.1	1.4	1.3
Electricity	1020	1277	1744	2094	2435	2647	2847	2956	3039	5.5	3.4	1.6	0.7
Heat (from CHP and District Heating)	0	0	0	0	1	1	1	1	1			3.8	0.4
Other	108	102	141	221	278	441	582	660	711	2.7	7.0	7.7	2.0
CO_2 Emissions (Mt of CO_2)	**30.9**	**33.0**	**42.1**	**45.7**	**49.9**	**50.7**	**52.3**	**51.7**	**51.2**	**3.1**	**1.7**	**0.5**	**-0.2**
Power generation/District heating	10.4	12.6	15.2	14.8	16.5	16.2	17.1	16.0	15.4	3.9	0.8	0.4	-1.1
Energy Branch	0.2	0.2	0.3	0.6	0.6	0.6	0.6	0.6	0.6	4.0	5.9	0.6	0.1
Industry	4.0	3.9	4.8	5.2	5.7	6.0	6.2	6.4	6.5	1.8	1.8	0.8	0.5
Residential	7.5	6.0	6.1	6.6	6.8	6.8	6.7	6.6	6.4	-2.1	1.2	-0.2	-0.3
Services/Agriculture	2.9	3.4	3.8	3.6	3.6	3.7	3.7	3.8	3.8	2.8	-0.5	0.2	0.5
Transport	5.9	6.9	11.9	14.8	16.6	17.5	18.0	18.4	18.4	7.3	3.4	0.8	0.2
CO_2 Emissions Index (1990=100)	**100.0**	**106.9**	**136.4**	**147.9**	**161.5**	**164.4**	**169.3**	**167.5**	**165.9**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Ireland: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	3.507	3.598	3.778	4.109	4.363	4.555	4.756	4.922	5.066	0.7	1.5	0.9	0.6
GDP (in 000 M€05)	62.0	78.7	125.1	161.2	203.3	243.6	286.2	328.6	365.1	7.3	5.0	3.5	2.5
Gross Inl. Cons./GDP (toe/M€05)	164.8	137.7	114.5	93.8	87.4	75.8	67.1	59.0	53.4	-3.6	-2.7	-2.6	-2.3
Gross Inl. Cons./Capita (toe/inhabitant)	2.92	3.01	3.79	3.68	4.07	4.06	4.03	3.94	3.85	2.7	0.7	-0.1	-0.5
Electricity Generated/Capita (kWh gross/inhabitant)	4057	4892	6265	6082	7261	7516	7726	7693	7644	4.4	1.5	0.6	-0.1
Carbon intensity (t of CO_2/toe of GIC)	3.02	3.04	2.94	3.02	2.81	2.75	2.72	2.67	2.63	-0.3	-0.5	-0.3	-0.4
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.80	9.17	11.14	11.11	11.43	11.14	10.99	10.51	10.11	2.4	0.3	-0.4	-0.8
CO_2 Emissions to GDP (t of CO2/M€05)	497.5	419.2	336.5	283.3	245.3	208.3	182.7	157.4	140.2	-3.8	-3.1	-2.9	-2.6
Import Dependency %	69.1	69.4	84.5	89.5	89.0	87.9	87.4	86.3	86.4	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	150.8	147.3	100.0	81.3	69.8	61.4	55.0	50.6	47.6	-4.0	-3.5	-2.4	-1.4
Residential (Energy on Private Income)	161.8	125.8	100.0	96.4	85.6	75.9	67.2	59.9	54.5	-4.7	-1.5	-2.4	-2.1
Services/Agriculture (Energy on Value added)	127.2	118.2	100.0	85.8	74.2	67.0	59.3	52.9	48.1	-2.4	-2.9	-2.2	-2.1
Transport (Energy on GDP)	99.9	92.9	100.0	96.5	87.5	77.8	69.5	62.3	56.5	0.0	-1.3	-2.3	-2.0
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.73	0.71	0.64	0.59	0.52	0.47	0.46	0.42	0.40	-1.3	-2.1	-1.1	-1.6
Final energy demand (t of CO_2/toe)	2.75	2.55	2.49	2.45	2.39	2.34	2.29	2.26	2.24	-1.0	-0.4	-0.4	-0.2
Industry	2.31	2.09	2.05	2.08	2.10	2.06	2.04	2.01	1.97	-1.2	0.3	-0.3	-0.3
Residential	3.11	2.71	2.42	2.27	2.18	2.10	2.01	1.96	1.93	-2.5	-1.0	-0.8	-0.4
Services/Agriculture	2.34	2.28	2.07	1.83	1.68	1.61	1.55	1.55	1.55	-1.2	-2.1	-0.8	0.0
Transport	2.96	2.96	2.97	2.98	2.92	2.88	2.83	2.81	2.79	0.1	-0.2	-0.3	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**4627**	**6052**	**8278**	**8157**	**9003**	**9882**	**10291**		**6.0**	**0.8**	**1.3**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			343	714	1690	1815	2139	2707	2852		17.3	2.4	2.9
Hydro (pumping excluded)			223	232	234	239	242	242	242		0.5	0.3	0.0
Wind			118	480	1443	1546	1850	2394	2510		28.5	2.5	3.1
Solar			2	2	13	29	48	71	100		20.1	13.7	7.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			4284	5338	6588	6342	6864	7175	7439		4.4	0.4	0.8
of which cogeneration units			108	561	557	607	526	822	910		17.8	-0.6	5.6
Solids fired			1282	1367	1361	1597	1774	2229	2475		0.6	2.7	3.4
Gas fired			1974	2937	4116	4538	4882	4789	4833		7.6	1.7	-0.1
Oil fired			1010	995	1006	92	81	24	7		0.0	-22.3	-21.7
Biomass-waste fired			18	39	105	115	127	134	124		19.2	1.9	-0.3
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			55.2	44.0	41.3	45.6	44.4	41.9	41.3				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			40.5	42.1	45.9	48.5	49.5	51.7	53.1				
CHP indicator (% of electricity from CHP)			1.1	0.9	5.4	7.2	7.8	6.9	7.9				
Non fossil fuels in electricity generation (%)			5.0	7.5	13.1	15.6	17.0	20.6	22.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			5.0	7.5	13.1	15.6	17.0	20.6	22.1				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			2.2	3.0	4.7	6.3	7.5	8.8	9.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	4.2	6.2	7.3	8.1				
Transport sector													
Passenger transport activity (Gpkm)	**22.0**	**28.3**	**37.6**	**45.4**	**54.6**	**63.0**	**71.7**	**79.3**	**84.7**	**5.5**	**3.8**	**2.8**	**1.7**
Public road transport	3.9	5.2	6.1	6.7	7.2	7.5	7.9	8.2	8.5	4.7	1.6	1.0	0.7
Private cars and motorcycles	12.6	15.6	21.1	26.0	31.8	36.8	41.9	45.8	47.9	5.3	4.2	2.8	1.4
Rail	1.2	1.3	1.4	1.8	2.3	2.8	3.3	3.9	4.5	1.3	5.3	3.4	3.3
Aviation	3.2	5.1	7.9	9.6	11.9	14.5	17.2	19.8	22.2	9.5	4.2	3.7	2.6
Inland navigation	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	0.1	2.0	1.4	0.7
Travel per person (km per capita)	6263	7863	9960	11056	12510	13825	15083	16110	16727	4.7	2.3	1.9	1.0
Freight transport activity (Gtkm)	**5.9**	**6.4**	**13.3**	**18.8**	**23.9**	**27.4**	**30.3**	**32.6**	**34.2**	**8.5**	**6.0**	**2.4**	**1.2**
Trucks	5.1	5.5	12.3	17.9	22.9	26.3	29.0	31.2	32.7	9.2	6.4	2.4	1.2
Rail	0.6	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.4	-1.8	-3.7	1.5	1.0
Inland navigation	0.2	0.3	0.6	0.6	0.7	0.8	0.9	1.0	1.1	9.3	1.9	2.8	2.2
Freight activity per unit of GDP (tkm/000 €05)	95	81	107	117	118	112	106	99	94	1.1	1.0	-1.0	-1.2
Energy demand in transport (ktoe)	**1985**	**2343**	**4005**	**4981**	**5696**	**6070**	**6371**	**6550**	**6610**	**7.3**	**3.6**	**1.1**	**0.4**
Public road transport	58	76	99	101	97	92	90	91	95	5.5	-0.3	-0.7	0.6
Private cars and motorcycles	993	1146	1695	1915	2113	2185	2223	2156	2101	5.5	2.2	0.5	-0.6
Trucks	495	653	1532	2066	2398	2546	2691	2831	2874	12.0	4.6	1.2	0.7
Rail	48	50	42	44	50	50	38	38	27	-1.4	1.8	-2.5	-3.4
Aviation	365	390	613	836	1019	1175	1305	1409	1487	5.3	5.2	2.5	1.3
Inland navigation	26	28	25	18	20	22	24	25	26	-0.5	-2.1	1.6	0.9
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	66.2	58.4	64.8	63.6	59.9	55.5	50.8	46.5	43.8	-0.2	-0.8	-1.6	-1.5
Freight transport (toe/Mtkm)	89.6	108.0	117.7	111.2	101.4	94.0	89.9	87.8	84.5	2.8	-1.5	-1.2	-0.6

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Italy: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**25537**	**29408**	**27099**	**28044**	**31023**	**32047**	**31838**	**33150**	**34360**	**0.6**	**1.4**	**0.3**	**0.8**
Solids	218	44	4	60	0	0	0	0	0	-33.8			
Oil	4745	5378	4782	6475	6124	6347	6000	5800	5500	0.1	2.5	-0.2	-0.9
Natural gas	14030	16347	13622	9886	11023	10000	8000	8000	8000	-0.3	-2.1	-3.2	0.0
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	6544	7640	8691	11622	13875	15700	17838	19350	20860	2.9	4.8	2.5	1.6
Hydro	2719	3249	3812	3101	3243	3146	3100	3069	3068	3.4	-1.6	-0.5	-0.1
Biomass & Waste	849	1215	1716	3505	5158	6215	7604	8631	9642	7.3	11.6	4.0	2.4
Wind	0	1	48	202	464	858	1199	1279	1180	73.3	25.4	10.0	-0.2
Solar and others	5	8	12	23	89	546	945	1176	1321	9.2	21.9	26.7	3.4
Geothermal	2971	3167	3103	4791	4920	4935	4990	5195	5648	0.4	4.7	0.1	1.2
Net Imports	**132060**	**134651**	**152953**	**160475**	**170615**	**182117**	**193013**	**197772**	**200928**	**1.5**	**1.1**	**1.2**	**0.4**
Solids	13792	12987	13188	16366	16943	19809	20743	20839	21158	-0.4	2.5	2.0	0.2
Oil	89885	89684	88458	79421	81211	84360	86192	86599	86312	-0.2	-0.9	0.6	0.0
- Crude oil and Feedstocks	84284	82558	90244	94404	93612	97038	98990	99407	99404	0.7	0.4	0.6	0.0
- Oil products	5602	7126	-1786	-14983	-12401	-12678	-12799	-12808	-13092				
Natural gas	25311	28530	47008	59840	67755	72897	80874	85065	88024	6.4	3.7	1.8	0.9
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3
Gross Inland Consumption	**153098**	**161262**	**172537**	**186766**	**198099**	**210520**	**221171**	**227218**	**231584**	**1.2**	**1.4**	**1.1**	**0.5**
Solids	14621	12272	12659	16477	16943	19809	20743	20839	21158	-1.4	3.0	2.0	0.2
Oil	89860	93248	88947	83169	83796	87062	88512	88695	88108	-0.1	-0.6	0.5	0.0
Natural gas	39001	44652	57940	70651	78779	82897	88874	93065	96024	4.0	3.1	1.2	0.8
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	2980	3218	3813	4227	3792	3949	3857	3739	3725	2.5	-0.1	0.2	-0.3
Renewable energy forms	6636	7871	9177	12243	14789	16801	19185	20879	22568	3.3	4.9	2.6	1.6
as % in Gross Inland Consumption													
Solids	9.6	7.6	7.3	8.8	8.6	9.4	9.4	9.2	9.1				
Oil	58.7	57.8	51.6	44.5	42.3	41.4	40.0	39.0	38.0				
Natural gas	25.5	27.7	33.6	37.8	39.8	39.4	40.2	41.0	41.5				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	4.3	4.9	5.3	6.6	7.5	8.0	8.7	9.2	9.7				
Electricity Generation in GWh_e	**213400**	**237312**	**270016**	**296786**	**341751**	**393400**	**437758**	**471938**	**496200**	**2.4**	**2.4**	**2.5**	**1.3**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	31624	37798	44909	38435	43196	46940	50856	51864	51463	3.6	-0.4	1.6	0.1
Thermal (incl. biomass)	181775	199514	225107	258350	298555	346460	386902	420074	444737	2.2	2.9	2.6	1.4
Fuel Inputs for Thermal Power Generation	**40325**	**43578**	**47764**	**52894**	**54165**	**60146**	**65445**	**68495**	**70760**	**1.7**	**1.3**	**1.9**	**0.8**
Solids	7017	5287	5836	10001	10423	12981	13679	13757	14313	-1.8	6.0	2.8	0.5
Oil (including refinery gas)	21528	25009	18955	9642	6984	6876	6219	5492	5078	-1.3	-9.5	-1.2	-2.0
Gas	8971	10234	19665	26402	29793	32834	37592	40555	41461	8.2	4.2	2.4	1.0
Biomass & Waste	39	94	419	2270	2252	2692	3116	3626	4368	26.8	18.3	3.3	3.4
Geothermal heat	2770	2954	2890	4578	4713	4763	4840	5065	5540	0.4	5.0	0.3	1.4
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**99234**	**98663**	**102560**	**107150**	**108604**	**113079**	**116117**	**116855**	**116812**	**0.3**	**0.6**	**0.7**	**0.1**
Refineries	91545	92283	96749	102214	101858	105554	107180	107311	106932	0.6	0.5	0.5	0.0
Biofuels and hydrogen production	0	0	0	162	1868	2647	3913	4665	5276			7.7	3.0
District heating	0	0	0	0	0	0	0	0	0				
Others	7688	6380	5811	4773	4879	4878	5024	4880	4604	-2.8	-1.7	0.3	-0.9
Energy Branch Consumption	**7045**	**7362**	**7289**	**8620**	**8089**	**8453**	**8672**	**8743**	**8682**	**0.3**	**1.0**	**0.7**	**0.0**
Non-Energy Uses	**9896**	**13633**	**10838**	**11007**	**11333**	**11915**	**12386**	**12478**	**12465**	**0.9**	**0.4**	**0.9**	**0.1**
Final Energy Demand	**107160**	**113709**	**123254**	**134080**	**145970**	**155074**	**162631**	**167950**	**171973**	**1.4**	**1.7**	**1.1**	**0.6**
by sector													
Industry	36221	36430	39489	40729	43241	44901	46745	48588	50260	0.9	0.9	0.8	0.7
- energy intensive industries	25218	24737	24840	25798	27150	28059	29096	29881	30547	-0.2	0.9	0.7	0.5
- other industrial sectors	11002	11692	14648	14931	16091	16842	17649	18707	19713	2.9	0.9	0.9	1.1
Residential	26284	26673	28331	31849	35433	37348	38790	39405	39798	0.8	2.3	0.9	0.3
Services/Agriculture	11252	12970	14171	17898	20633	22932	24447	25333	25842	2.3	3.8	1.7	0.6
Transport	33404	37636	41263	43604	46662	49892	52649	54625	56072	2.1	1.2	1.2	0.6
by fuel													
Solids	4209	4012	3681	4220	4437	4697	4930	4998	4871	-1.3	1.9	1.1	-0.1
Oil	53623	53099	56147	58196	61131	63932	65630	66591	66584	0.5	0.9	0.7	0.1
Gas	29813	34652	37984	43747	47209	48133	49132	50197	52071	2.5	2.2	0.4	0.6
Electricity	18408	20442	23435	25828	29409	33461	36767	39251	41140	2.4	2.3	2.3	1.1
Heat (from CHP and District Heating)	0	0	0	0	15	22	25	25	27			5.3	0.7
Other	1107	1505	2007	2089	3768	4828	6148	6888	7281	6.1	6.5	5.0	1.7
CO_2 Emissions (Mt of CO_2)	**386.9**	**401.3**	**421.3**	**451.0**	**469.1**	**498.1**	**518.5**	**528.8**	**535.2**	**0.9**	**1.1**	**1.0**	**0.3**
Power generation/District heating	118.9	126.1	130.7	133.8	135.1	151.9	163.6	168.5	171.3	1.0	0.3	1.9	0.5
Energy Branch	16.6	17.0	16.6	20.2	18.7	19.2	19.5	19.4	19.1	0.1	1.2	0.4	-0.2
Industry	79.6	75.4	77.5	81.6	86.0	87.0	89.3	91.1	92.6	-0.3	1.0	0.4	0.4
Residential	55.6	52.8	54.7	61.3	68.0	70.2	71.4	71.5	71.8	-0.2	2.2	0.5	0.0
Services/Agriculture	19.1	21.2	22.0	27.2	29.4	30.1	29.8	29.3	28.9	1.4	2.9	0.1	-0.3
Transport	97.1	108.9	119.7	126.8	131.9	139.7	144.9	149.0	151.6	2.1	1.0	0.9	0.5
CO_2 Emissions Index (1990=100)	**100.0**	**103.7**	**108.9**	**116.6**	**121.2**	**128.7**	**134.0**	**136.7**	**138.3**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Italy: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	56.694	56.846	56.929	58.462	58.698	58.630	58.300	57.751	57.071	0.0	0.3	-0.1	-0.2
GDP (in 000 M€05)	1172.7	1249.2	1372.9	1417.2	1541.5	1704.6	1864.3	2023.9	2168.0	1.6	1.2	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	130.5	129.1	125.7	131.8	128.5	123.5	118.6	112.3	106.8	-0.4	0.2	-0.8	-1.0
Gross Inl. Cons./Capita (toe/inhabitant)	2.70	2.84	3.03	3.19	3.37	3.59	3.79	3.93	4.06	1.2	1.1	1.2	0.7
Electricity Generated/Capita (kWh gross/inhabitant)	3764	4175	4743	5077	5822	6710	7509	8172	8694	2.3	2.1	2.6	1.5
Carbon intensity (t of CO_2/toe of GIC)	2.53	2.49	2.44	2.41	2.37	2.37	2.34	2.33	2.31	-0.3	-0.3	-0.1	-0.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.82	7.06	7.40	7.71	7.99	8.50	8.89	9.16	9.38	0.8	0.8	1.1	0.5
CO_2 Emissions to GDP (t of CO2/M€05)	329.9	321.3	306.9	318.2	304.3	292.2	278.1	261.3	246.9	-0.7	-0.1	-0.9	-1.2
Import Dependency %	84.8	82.3	87.3	84.4	84.6	85.0	85.8	85.6	85.4	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	103.5	96.7	100.0	108.9	107.4	100.5	94.9	89.8	85.9	-0.3	0.7	-1.2	-1.0
Residential (Energy on Private Income)	109.4	106.5	100.0	109.6	112.7	108.2	103.3	97.2	92.0	-0.9	1.2	-0.9	-1.2
Services/Agriculture (Energy on Value added)	95.6	102.5	100.0	120.1	127.3	127.8	124.3	118.7	112.9	0.4	2.4	-0.2	-1.0
Transport (Energy on GDP)	94.8	100.2	100.0	102.4	100.7	97.4	94.0	89.8	86.0	0.5	0.1	-0.7	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.56	0.53	0.48	0.45	0.39	0.39	0.37	0.36	0.34	-1.4	-2.0	-0.6	-0.8
Final energy demand (t of CO_2/toe)	2.35	2.27	2.22	2.22	2.16	2.11	2.06	2.03	2.01	-0.5	-0.3	-0.5	-0.3
Industry	2.20	2.07	1.96	2.00	1.99	1.94	1.91	1.88	1.84	-1.1	0.1	-0.4	-0.4
Residential	2.11	1.98	1.93	1.93	1.92	1.88	1.84	1.82	1.80	-0.9	-0.1	-0.4	-0.2
Services/Agriculture	1.70	1.63	1.55	1.52	1.42	1.31	1.22	1.16	1.12	-0.9	-0.9	-1.5	-0.9
Transport	2.91	2.89	2.90	2.91	2.83	2.80	2.75	2.73	2.70	0.0	-0.3	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**69851**	**76966**	**100395**	**98495**	**103754**	**109871**	**118462**		**3.7**	**0.3**	**1.3**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			14588	15810	17234	20002	22334	23249	23146		1.7	2.6	0.4
Hydro (pumping excluded)			14135	14133	14136	14138	14139	14139	14139		0.0	0.0	0.0
Wind			427	1639	3005	5520	7469	7974	7210		21.5	9.5	-0.4
Solar			26	38	93	344	697	1106	1721		13.6	22.3	9.5
Other renewables (tidal etc.)			0	0	0	0	30	31	76				9.8
Thermal power			55264	61156	83161	78493	81420	86621	95316		4.2	-0.2	1.6
of which cogeneration units			9682	10847	11369	14913	17384	18439	18753		1.6	4.3	0.8
Solids fired			9621	9715	11851	9931	9894	9156	9817		2.1	-1.8	-0.1
Gas fired			27466	33995	53620	56913	61790	67879	74929		6.9	1.4	1.9
Oil fired			16795	15253	15327	7890	5852	5617	5932		-0.9	-9.2	0.1
Biomass-waste fired			597	1223	1392	2789	2913	2998	3533		8.8	7.7	1.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			785	971	971	971	971	971	1105		2.1	0.0	1.3
Load factor for net electric capacities (%)			41.7	41.7	37.5	43.9	46.5	47.4	46.3				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			40.5	42.0	47.4	49.5	50.8	52.7	54.1				
CHP indicator (% of electricity from CHP)			11.6	8.1	16.3	20.8	23.4	23.7	23.2				
Non fossil fuels in electricity generation (%)			19.4	18.0	17.8	17.1	16.8	16.5	16.5				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			19.4	18.0	17.8	17.1	16.8	16.5	16.5				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			5.1	5.3	6.3	7.4	8.2	8.6	9.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.4	3.8	5.2	7.3	8.4	9.4				
Transport sector													
Passenger transport activity (Gpkm)	**722.2**	**831.0**	**969.5**	**980.5**	**1003.3**	**1038.5**	**1078.3**	**1115.2**	**1146.2**	**3.0**	**0.3**	**0.7**	**0.6**
Public road transport	84.0	87.1	93.6	101.3	105.5	108.3	110.4	111.6	111.8	1.1	1.2	0.5	0.1
Private cars and motorcycles	561.6	660.7	779.1	777.9	788.8	808.8	832.8	855.4	874.5	3.3	0.1	0.5	0.5
Rail	48.9	49.1	52.7	52.3	51.0	52.0	54.9	59.1	63.3	0.8	-0.3	0.7	1.4
Aviation	21.3	27.9	38.2	43.1	52.1	63.4	74.2	83.0	90.4	6.0	3.2	3.6	2.0
Inland navigation	6.4	6.1	5.9	5.8	5.9	5.9	6.0	6.2	6.3	-0.8	0.0	0.2	0.4
Travel per person (km per capita)	12738	14618	17030	16772	17092	17712	18496	19311	20084	2.9	0.0	0.8	0.8
Freight transport activity (Gtkm)	**186.1**	**231.6**	**237.6**	**260.0**	**282.3**	**302.0**	**314.6**	**324.7**	**331.0**	**2.5**	**1.7**	**1.1**	**0.5**
Trucks	130.9	174.4	184.7	211.8	233.8	251.6	261.5	269.1	273.0	3.5	2.4	1.1	0.4
Rail	19.4	21.7	22.8	20.1	20.6	22.3	23.9	25.7	27.4	1.7	-1.0	1.5	1.4
Inland navigation	35.8	35.4	30.2	28.1	27.9	28.2	29.2	30.0	30.6	-1.7	-0.8	0.4	0.5
Freight activity per unit of GDP (tkm/000 €05)	159	185	173	183	183	177	169	160	153	0.9	0.6	-0.8	-1.0
Energy demand in transport (ktoe)	**33404**	**37636**	**41263**	**43604**	**46662**	**49892**	**52649**	**54625**	**56072**	**2.1**	**1.2**	**1.2**	**0.6**
Public road transport	684	599	656	701	746	776	796	800	778	-0.4	1.3	0.7	-0.2
Private cars and motorcycles	20584	23615	25521	24557	25363	26355	27530	28042	28542	2.2	-0.1	0.8	0.4
Trucks	9137	9737	10559	13327	14841	16225	17060	17871	18321	1.5	3.5	1.4	0.7
Rail	738	819	834	907	906	920	898	882	868	1.2	0.8	-0.1	-0.3
Aviation	1872	2418	3491	3863	4559	5368	6112	6772	7305	6.4	2.7	3.0	1.8
Inland navigation	389	448	202	248	247	248	252	256	258	-6.3	2.0	0.2	0.2
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	32.6	32.6	31.0	30.2	31.0	31.7	32.3	32.3	32.3	-0.5	0.0	0.4	0.0
Freight transport (toe/Mtkm)	53.0	45.6	47.3	54.0	55.1	56.2	56.7	57.3	57.5	-1.1	1.5	0.3	0.2

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Latvia: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**1245**	**1639**	**1576**	**2304**	**2563**	**2859**	**3138**	**3188**	**3375**	**2.4**	**5.0**	**2.0**	**0.7**
Solids	182	234	49	6	4	4	4	3	3	-12.3	-22.6	-0.6	-1.8
Oil	1	0	0	7	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	1062	1405	1527	2291	2560	2855	3134	3184	3372	3.7	5.3	2.0	0.7
Hydro	387	253	242	286	261	244	261	262	260	-4.6	0.7	0.0	-0.1
Biomass & Waste	675	1153	1284	2001	2268	2539	2777	2803	2983	6.6	5.9	2.0	0.7
Wind	0	0	0	4	30	70	92	114	122		56.4	11.8	2.8
Solar and others	0	0	0	0	0	2	4	5	7			23.4	7.2
Geothermal	0	0	0	0	0	0	0	0	0			2.5	0.2
Net Imports	**7440**	**3358**	**2253**	**2783**	**3252**	**3878**	**4277**	**4783**	**4961**	**-11.3**	**3.7**	**2.8**	**1.5**
Solids	627	170	62	76	79	72	83	85	88	-20.7	2.4	0.5	0.6
Oil	3944	2086	1096	1662	2057	2443	2657	2945	3031	-12.0	6.5	2.6	1.3
- Crude oil and Feedstocks	1	2	93	4	1	2	2	2	2	55.9	-34.4	3.1	1.0
- Oil products	3942	2084	1003	1658	2055	2441	2655	2943	3029	-12.8	7.4	2.6	1.3
Natural gas	2561	999	1113	1434	1594	1909	2109	2248	2387	-8.0	3.7	2.8	1.2
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3
Gross Inland Consumption	**8059**	**4854**	**4007**	**4720**	**5490**	**6344**	**6965**	**7470**	**7800**	**-6.7**	**3.2**	**2.4**	**1.1**
Solids	867	456	252	83	82	76	86	88	91	-11.6	-10.6	0.5	0.5
Oil	3458	1885	1155	1376	1732	2051	2207	2445	2495	-10.4	4.1	2.5	1.2
Natural gas	2380	1010	1092	1358	1594	1909	2109	2248	2387	-7.5	3.9	2.8	1.2
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	308	194	154	185	172	181	225	308	309	-6.7	1.1	2.7	3.3
Renewable energy forms	1045	1309	1354	1718	1910	2127	2339	2381	2517	2.6	3.5	2.0	0.7
as % in Gross Inland Consumption													
Solids	10.8	9.4	6.3	1.8	1.5	1.2	1.2	1.2	1.2				
Oil	42.9	38.8	28.8	29.2	31.5	32.3	31.7	32.7	32.0				
Natural gas	29.5	20.8	27.3	28.8	29.0	30.1	30.3	30.1	30.6				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	13.0	27.0	33.8	36.4	34.8	33.5	33.6	31.9	32.3				
Electricity Generation in GWh_e	**6647**	**3978**	**4135**	**4904**	**6706**	**8235**	**9232**	**9826**	**11009**	**-4.6**	**5.0**	**3.2**	**1.8**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	4495	2936	2822	3371	3386	3653	4116	4376	4447	-4.5	1.8	2.0	0.8
Thermal (incl. biomass)	2152	1042	1313	1533	3320	4582	5116	5450	6562	-4.8	9.7	4.4	2.5
Fuel Inputs for Thermal Power Generation	**926**	**722**	**607**	**591**	**643**	**877**	**981**	**1011**	**1180**	**-4.1**	**0.6**	**4.3**	**1.9**
Solids	59	194	142	0	0	0	0	0	0	9.2			
Oil (including refinery gas)	177	242	77	13	44	42	41	0	0	-8.0	-5.5	-0.5	
Gas	690	286	388	541	573	745	857	905	1023	-5.6	4.0	4.1	1.8
Biomass & Waste	0	0	0	37	27	90	83	107	157			12.1	6.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**2601**	**941**	**645**	**591**	**719**	**767**	**824**	**884**	**903**	**-13.0**	**1.1**	**1.4**	**0.9**
Refineries	1	1	1	1	1	2	2	2	2	0.0	2.2	3.1	1.0
Biofuels and hydrogen production	0	0	0	3	49	77	126	162	190			9.9	4.2
District heating	2573	930	643	587	668	688	696	720	711	-12.9	0.4	0.4	0.2
Others	27	9	1	0	0	0	0	0	0	-28.3			
Energy Branch Consumption	**130**	**149**	**151**	**102**	**112**	**130**	**140**	**149**	**155**	**1.5**	**-2.9**	**2.3**	**1.0**
Non-Energy Uses	**77**	**46**	**77**	**91**	**102**	**113**	**124**	**134**	**138**	**0.1**	**2.8**	**1.9**	**1.1**
Final Energy Demand	**6445**	**3880**	**3332**	**4046**	**4854**	**5589**	**6151**	**6640**	**6910**	**-6.4**	**3.8**	**2.4**	**1.2**
by sector													
Industry	1972	701	614	827	1088	1350	1563	1783	1932	-11.0	5.9	3.7	2.1
- energy intensive industries	707	305	219	282	448	533	568	599	617	-11.1	7.4	2.4	0.8
- other industrial sectors	1265	396	396	545	640	817	995	1184	1315	-11.0	4.9	4.5	2.8
Residential	1632	1663	1368	1476	1586	1676	1751	1823	1845	-1.7	1.5	1.0	0.5
Services/Agriculture	1747	804	606	744	892	1012	1075	1125	1150	-10.0	3.9	1.9	0.7
Transport	1094	712	744	999	1287	1551	1761	1908	1983	-3.8	5.6	3.2	1.2
by fuel													
Solids	330	126	58	73	78	71	74	80	83	-16.0	3.0	-0.5	1.1
Oil	2047	1119	1003	1220	1521	1768	1927	2238	2282	-6.9	4.2	2.4	1.7
Gas	672	366	329	508	596	729	807	1036	1062	-6.9	6.1	3.1	2.8
Electricity	768	470	443	537	702	832	952	1080	1175	-5.3	4.7	3.1	2.1
Heat (from CHP and District Heating)	2013	905	590	598	628	693	735	775	799	-11.5	0.6	1.6	0.8
Other	616	894	909	1111	1330	1497	1655	1430	1509	4.0	3.9	2.2	-0.9
CO_2 Emissions (Mt of CO_2)	**19.2**	**9.4**	**6.9**	**7.3**	**8.9**	**10.6**	**11.5**	**12.6**	**13.0**	**-9.7**	**2.6**	**2.6**	**1.2**
Power generation/District heating	10.0	4.5	2.8	2.1	2.5	3.1	3.3	2.8	3.0	-12.0	-1.2	3.0	-0.8
Energy Branch	0.1	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3	5.0	-0.4	2.0	1.1
Industry	2.5	1.3	0.9	1.0	1.4	1.6	1.7	2.8	2.8	-9.7	4.1	2.0	5.4
Residential	1.2	0.5	0.3	0.5	0.6	0.7	0.8	0.9	1.0	-13.7	7.7	2.5	2.5
Services/Agriculture	2.1	0.8	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-12.8	1.4	0.4	-0.3
Transport	3.2	2.1	2.2	2.9	3.7	4.4	4.9	5.2	5.3	-3.7	5.4	2.9	0.8
CO_2 Emissions Index (1990=100)	**100.0**	**49.1**	**36.1**	**38.1**	**46.6**	**55.2**	**60.1**	**65.5**	**68.0**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Latvia: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	2.668	2.501	2.382	2.306	2.241	2.174	2.115	2.068	2.022	-1.1	-0.6	-0.6	-0.4
GDP (in 000 M€05)	12.4	6.7	8.7	12.8	18.9	25.4	31.8	38.3	43.4	-3.5	8.1	5.4	3.1
Gross Inl. Cons./GDP (toe/M€05)	650.6	727.0	461.0	367.7	290.8	249.7	218.9	195.3	179.9	-3.4	-4.5	-2.8	-1.9
Gross Inl. Cons./Capita (toe/inhabitant)	3.02	1.94	1.68	2.05	2.45	2.92	3.29	3.61	3.86	-5.7	3.8	3.0	1.6
Electricity Generated/Capita (kWh gross/inhabitant)	2491	1591	1736	2126	2992	3787	4364	4751	5444	-3.5	5.6	3.8	2.2
Carbon intensity (t of CO_2/toe of GIC)	2.38	1.94	1.73	1.55	1.63	1.67	1.65	1.68	1.67	-3.1	-0.6	0.2	0.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.18	3.76	2.91	3.17	3.99	4.86	5.44	6.07	6.45	-8.6	3.2	3.2	1.7
CO_2 Emissions to GDP (t of CO2/M€05)	1547.0	1409.0	796.5	569.2	473.1	416.3	361.9	328.2	300.7	-6.4	-5.1	-2.6	-1.8
Import Dependency %	87.3	67.1	56.1	55.9	55.9	57.6	57.7	60.0	59.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	146.0	144.2	100.0	93.7	81.0	72.9	66.5	62.6	59.8	-3.7	-2.1	-2.0	-1.0
Residential (Energy on Private Income)	84.9	157.6	100.0	71.0	52.4	41.5	34.8	30.3	27.2	1.7	-6.3	-4.0	-2.4
Services/Agriculture (Energy on Value added)	311.7	176.8	100.0	82.8	67.7	56.9	48.2	41.8	37.5	-10.7	-3.8	-3.3	-2.5
Transport (Energy on GDP)	103.1	124.6	100.0	90.9	79.6	71.3	64.6	58.3	53.4	-0.3	-2.3	-2.1	-1.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.29	0.27	0.21	0.16	0.16	0.17	0.17	0.14	0.14	-3.0	-3.0	0.9	-1.8
Final energy demand (t of CO_2/toe)	1.40	1.21	1.17	1.26	1.29	1.30	1.29	1.43	1.40	-1.8	0.9	0.0	0.8
Industry	1.28	1.88	1.48	1.26	1.25	1.16	1.06	1.57	1.46	1.5	-1.7	-1.6	3.2
Residential	0.75	0.31	0.21	0.33	0.37	0.40	0.43	0.48	0.53	-12.1	6.1	1.5	2.0
Services/Agriculture	1.21	1.02	0.89	0.85	0.69	0.64	0.60	0.57	0.54	-3.0	-2.5	-1.4	-1.0
Transport	2.90	2.89	2.92	2.94	2.85	2.83	2.77	2.71	2.66	0.1	-0.2	-0.3	-0.4
Electricity and steam generation													
Net Generation Capacity in MW_e			**2062**	**2144**	**2763**	**3052**	**3090**	**3028**	**3221**		**3.0**	**1.1**	**0.4**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			1519	1578	1730	1971	2089	2205	2253		1.3	1.9	0.8
Hydro (pumping excluded)			1517	1554	1559	1563	1567	1570	1574		0.3	0.1	0.0
Wind			2	24	171	404	516	625	665		56.0	11.7	2.6
Solar			0	0	1	4	7	11	14			21.4	7.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			543	565	1033	1082	1001	822	968		6.6	-0.3	-0.3
of which cogeneration units			542	564	602	564	758	729	743		1.1	2.3	-0.2
Solids fired			29	2	2	2	2	0	0		-23.3	1.1	
Gas fired			414	502	949	957	875	740	853		8.7	-0.8	-0.3
Oil fired			98	45	60	61	62	15	15		-4.7	0.2	-13.0
Biomass-waste fired			2	16	22	62	62	67	100		24.9	11.1	4.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			20.4	23.5	27.2	30.2	33.4	36.4	38.3				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			18.6	22.3	44.4	44.9	44.8	46.4	47.8				
CHP indicator (% of electricity from CHP)			24.0	11.8	46.5	42.3	37.8	44.1	41.0				
Non fossil fuels in electricity generation (%)			68.3	69.6	52.1	49.7	49.1	49.8	47.4				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			68.3	69.6	52.1	49.7	49.1	49.8	47.4				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			36.9	42.2	36.6	35.3	35.3	32.6	33.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	3.5	4.5	6.6	7.9	9.0				
Transport sector													
Passenger transport activity (Gpkm)	**17.7**	**9.0**	**12.3**	**15.8**	**19.7**	**22.9**	**25.5**	**27.9**	**29.4**	**-3.6**	**4.8**	**2.6**	**1.4**
Public road transport	5.9	1.8	2.3	2.8	3.0	3.1	3.2	3.2	3.2	-8.7	2.6	0.5	0.1
Private cars and motorcycles	5.8	5.1	8.7	11.6	14.8	17.6	19.9	21.9	23.2	4.2	5.5	3.0	1.6
Rail	5.8	1.8	1.1	1.3	1.5	1.7	1.9	2.1	2.2	-15.5	3.1	2.7	1.5
Aviation	0.1	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.7	2.3	6.3	4.9	2.5
Inland navigation	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-14.4			
Travel per person (km per capita)	6650	3605	5177	6869	8771	10527	12067	13468	14529	-2.5	5.4	3.2	1.9
Freight transport activity (Gtkm)	**24.8**	**12.0**	**18.1**	**26.3**	**35.8**	**44.2**	**51.7**	**58.0**	**62.0**	**-3.1**	**7.1**	**3.7**	**1.8**
Trucks	5.9	1.8	4.8	8.4	12.3	16.8	21.0	25.2	28.4	-2.0	9.9	5.5	3.1
Rail	18.5	9.8	13.3	17.9	23.5	27.5	30.6	32.8	33.5	-3.3	5.9	2.7	0.9
Inland navigation	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	2005	1795	2083	2050	1899	1741	1624	1516	1430	0.4	-0.9	-1.6	-1.3
Energy demand in transport (ktoe)	**1094**	**712**	**744**	**999**	**1287**	**1551**	**1761**	**1908**	**1983**	**-3.8**	**5.6**	**3.2**	**1.2**
Public road transport	111	41	23	25	26	25	25	24	24	-14.6	1.2	-0.3	-0.6
Private cars and motorcycles	317	284	373	451	547	614	654	676	679	1.7	3.9	1.8	0.4
Trucks	370	240	241	371	517	683	844	993	1107	-4.2	7.9	5.0	2.8
Rail	188	90	75	93	119	134	135	107	64	-8.7	4.6	1.3	-7.2
Aviation	73	26	27	59	78	95	103	109	110	-9.6	11.4	2.8	0.6
Inland navigation	35	31	4	0	0	0	0	0	0	-18.7			
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	30.4	41.8	34.9	34.1	33.4	32.3	30.8	29.1	27.8	1.4	-0.5	-0.8	-1.0
Freight transport (toe/Mtkm)	22.3	28.0	17.3	17.5	17.6	18.4	18.9	18.9	18.8	-2.5	0.2	0.7	0.0

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Lithuania: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**4768**	**3724**	**3210**	**3721**	**1113**	**1311**	**4325**	**4594**	**5082**	**-3.9**	**-10.1**	**14.5**	**1.6**
Solids	42	43	35	39	9	7	5	4	4	-1.7	-12.3	-5.4	-3.4
Oil	12	130	347	239	238	263	279	281	284	40.0	-3.7	1.6	0.2
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Renewable energy sources	321	501	656	777	865	1040	1240	1464	1902	7.4	2.8	3.7	4.4
Hydro	36	32	29	39	33	36	36	36	37	-2.0	1.3	0.7	0.4
Biomass & Waste	285	469	627	735	819	980	1175	1395	1813	8.2	2.7	3.7	4.4
Wind	0	0	0	0	11	24	27	29	47			8.9	5.9
Solar and others	0	0	0	0	0	1	2	4	5			17.7	7.1
Geothermal	0	0	0	3	0	0	0	0	0			2.1	1.0
Net Imports	**11666**	**5643**	**4327**	**5096**	**6882**	**7808**	**6819**	**7262**	**7463**	**-9.4**	**4.8**	**-0.1**	**0.9**
Solids	758	157	84	190	345	339	308	310	318	-19.8	15.2	-1.1	0.3
Oil	7260	3686	2299	2677	2872	3147	3332	3348	3381	-10.9	2.2	1.5	0.1
- Crude oil and Feedstocks	9531	3609	4827	9054	10061	11058	11719	11797	11918	-6.6	7.6	1.5	0.2
- Oil products	-2271	77	-2528	-6377	-7189	-7911	-8387	-8449	-8537				
Natural gas	4678	2029	2065	2492	3663	4418	3628	4053	4231	-7.9	5.9	-0.1	1.6
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Gross Inland Consumption	**16071**	**8706**	**7080**	**8606**	**7826**	**8929**	**10939**	**11643**	**12332**	**-7.9**	**1.0**	**3.4**	**1.2**
Solids	831	285	121	215	355	346	313	314	321	-17.5	11.4	-1.2	0.3
Oil	6878	3080	2190	2746	2941	3220	3407	3417	3452	-10.8	3.0	1.5	0.1
Natural gas	4678	2029	2064	2476	3663	4418	3628	4053	4231	-7.9	5.9	-0.1	1.6
Nuclear	4394	3050	2172	2666	0	0	2799	2845	2892	-6.8			0.3
Electricity	-1030	-230	-115	-255	24	-71	-417	-413	-419				
Renewable energy forms	320	493	649	758	843	1015	1210	1427	1855	7.3	2.7	3.7	4.4
as % in Gross Inland Consumption													
Solids	5.2	3.3	1.7	2.5	4.5	3.9	2.9	2.7	2.6				
Oil	42.8	35.4	30.9	31.9	37.6	36.1	31.1	29.3	28.0				
Natural gas	29.1	23.3	29.1	28.8	46.8	49.5	33.2	34.8	34.3				
Nuclear	27.3	35.0	30.7	31.0	0.0	0.0	25.6	24.4	23.4				
Renewable energy forms	2.0	5.7	9.2	8.8	10.8	11.4	11.1	12.3	15.0				
Electricity Generation in GWh_e	**28400**	**13518**	**11118**	**14410**	**12023**	**15128**	**21673**	**23388**	**25257**	**-9.0**	**0.8**	**6.1**	**1.5**
Nuclear	17030	11820	8417	10335	0	0	12399	12602	12808	-6.8			0.3
Hydro & wind	414	373	339	451	520	696	726	756	981	-2.0	4.4	3.4	3.1
Thermal (incl. biomass)	10956	1325	2362	3624	11503	14432	8548	10030	11468	-14.2	17.2	-2.9	3.0
Fuel Inputs for Thermal Power Generation	**2610**	**950**	**911**	**1218**	**2417**	**2969**	**1814**	**2091**	**2334**	**-10.0**	**10.2**	**-2.8**	**2.6**
Solids	0	0	0	0	168	168	138	138	143			-2.0	0.4
Oil (including refinery gas)	1067	516	196	169	1	0	0	0	0	-15.6	-39.2		
Gas	1543	433	716	1044	2215	2763	1635	1875	2025	-7.4	12.0	-3.0	2.2
Biomass & Waste	0	0	0	5	32	37	41	78	165			2.5	14.9
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**11408**	**4490**	**5755**	**9951**	**10661**	**11694**	**12694**	**12708**	**12769**	**-6.6**	**6.4**	**1.8**	**0.1**
Refineries	9561	3392	5086	9418	10232	11283	11978	12068	12197	-6.1	7.2	1.6	0.2
Biofuels and hydrogen production	0	0	0	3	13	49	128	154	169			25.3	2.9
District heating	1823	1079	657	522	412	360	586	484	401	-9.7	-4.6	3.6	-3.7
Others	24	18	12	8	4	3	2	2	2	-7.0	-10.3	-7.4	-1.3
Energy Branch Consumption	**991**	**601**	**655**	**915**	**781**	**879**	**973**	**1022**	**1065**	**-4.1**	**1.8**	**2.2**	**0.9**
Non-Energy Uses	**852**	**540**	**648**	**775**	**964**	**1112**	**1239**	**1371**	**1509**	**-2.7**	**4.1**	**2.5**	**2.0**
Final Energy Demand	**9696**	**4728**	**3820**	**4527**	**5149**	**5805**	**6297**	**6756**	**7215**	**-8.9**	**3.0**	**2.0**	**1.4**
by sector													
Industry	3334	1025	782	996	1132	1338	1508	1700	1917	-13.5	3.8	2.9	2.4
- energy intensive industries	1678	482	362	436	532	627	703	785	879	-14.2	3.9	2.8	2.3
- other industrial sectors	1656	543	420	560	600	711	805	916	1037	-12.8	3.6	3.0	2.6
Residential	1854	1733	1402	1437	1524	1675	1820	1966	2120	-2.8	0.8	1.8	1.5
Services/Agriculture	2518	933	589	697	794	872	947	1007	1059	-13.5	3.0	1.8	1.1
Transport	1990	1037	1048	1397	1698	1920	2022	2084	2119	-6.2	4.9	1.8	0.5
by fuel													
Solids	760	241	96	197	173	167	166	169	172	-18.7	6.1	-0.4	0.3
Oil	4055	1666	1348	1599	1996	2175	2244	2300	2346	-10.4	4.0	1.2	0.4
Gas	1483	510	363	503	535	592	687	619	630	-13.1	4.0	2.5	-0.9
Electricity	1048	670	606	749	904	1051	1191	1323	1459	-5.3	4.1	2.8	2.0
Heat (from CHP and District Heating)	2078	1193	828	905	971	1032	1066	1090	1116	-8.8	1.6	0.9	0.5
Other	272	448	579	574	570	788	943	1256	1493	7.9	-0.2	5.2	4.7
CO_2 Emissions (Mt of CO_2)	**32.5**	**13.6**	**10.4**	**12.6**	**16.1**	**18.2**	**16.4**	**17.1**	**17.3**	**-10.8**	**4.5**	**0.2**	**0.5**
Power generation/District heating	12.0	5.6	3.9	4.0	6.4	7.7	5.4	6.1	6.2	-10.5	4.9	-1.6	1.4
Energy Branch	1.7	0.9	1.2	2.0	1.8	2.0	2.1	2.1	2.0	-3.3	4.3	1.5	-0.6
Industry	6.1	1.7	1.1	1.3	1.7	1.7	1.9	1.7	1.7	-15.9	4.6	1.3	-1.2
Residential	2.3	0.8	0.6	0.7	0.6	0.7	0.8	0.9	1.0	-13.2	0.6	2.5	2.9
Services/Agriculture	4.5	1.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	-19.8	1.7	-0.2	0.1
Transport	5.8	3.0	3.1	4.1	4.9	5.5	5.6	5.7	5.8	-6.2	4.9	1.3	0.2
CO_2 Emissions Index (1990=100)	**100.0**	**41.9**	**31.9**	**38.9**	**49.4**	**56.0**	**50.6**	**52.7**	**53.3**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Lithuania: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	3.694	3.643	3.512	3.425	3.339	3.258	3.182	3.134	3.092	-0.5	-0.5	-0.5	-0.3
GDP (in 000 M€05)	19.2	11.3	14.2	20.6	28.1	36.0	44.7	54.4	64.6	-3.0	7.1	4.7	3.8
Gross Inl. Cons./GDP (toe/M€05)	837.2	770.4	498.5	417.4	278.6	247.8	244.9	213.9	190.8	-5.1	-5.7	-1.3	-2.5
Gross Inl. Cons./Capita (toe/inhabitant)	4.35	2.39	2.02	2.51	2.34	2.74	3.44	3.72	3.99	-7.4	1.5	3.9	1.5
Electricity Generated/Capita (kWh gross/inhabitant)	7689	3711	3166	4207	3601	4644	6811	7463	8169	-8.5	1.3	6.6	1.8
Carbon intensity (t of CO_2/toe of GIC)	2.02	1.56	1.46	1.47	2.05	2.04	1.50	1.47	1.40	-3.2	3.4	-3.1	-0.7
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.80	3.73	2.95	3.69	4.81	5.59	5.16	5.46	5.60	-10.3	5.0	0.7	0.8
CO_2 Emissions to GDP (t of CO2/M€05)	1692.8	1203.4	730.3	612.6	571.4	505.3	368.0	314.5	267.8	-8.1	-2.4	-4.3	-3.1
Import Dependency %	72.2	63.8	60.3	58.3	86.1	85.6	61.2	61.2	59.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	267.2	185.2	100.0	79.4	63.7	56.9	51.0	47.3	44.9	-9.4	-4.4	-2.2	-1.3
Residential (Energy on Private Income)	99.9	161.1	100.0	68.7	54.4	47.2	41.9	37.5	34.4	0.0	-5.9	-2.6	-2.0
Services/Agriculture (Energy on Value added)	442.7	201.8	100.0	87.3	76.0	66.0	57.9	50.2	44.4	-13.8	-2.7	-2.7	-2.6
Transport (Energy on GDP)	140.5	124.4	100.0	91.9	81.9	72.2	61.4	51.9	44.4	-3.3	-2.0	-2.8	-3.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.21	0.17	0.16	0.14	0.24	0.26	0.15	0.16	0.15	-2.7	4.2	-4.9	0.5
Final energy demand (t of CO_2/toe)	1.94	1.51	1.37	1.47	1.52	1.46	1.41	1.32	1.26	-3.5	1.1	-0.7	-1.1
Industry	1.83	1.70	1.38	1.35	1.49	1.26	1.27	1.01	0.88	-2.8	0.8	-1.6	-3.6
Residential	1.26	0.47	0.41	0.46	0.40	0.40	0.42	0.45	0.48	-10.8	-0.2	0.7	1.4
Services/Agriculture	1.80	1.66	0.85	0.83	0.75	0.67	0.61	0.58	0.56	-7.2	-1.3	-1.9	-1.0
Transport	2.93	2.91	2.93	2.92	2.91	2.88	2.78	2.74	2.72	0.0	-0.1	-0.5	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**4839**	**3827**	**3634**	**3742**	**5311**	**4732**	**4304**		**-2.8**	**3.9**	**-2.1**
Nuclear energy			2291	1200	0	0	1515	1515	1515				0.0
Renewable energy			98	115	214	325	373	402	494		8.2	5.7	2.9
Hydro (pumping excluded)			98	108	116	117	141	148	152		1.7	2.0	0.7
Wind			0	6	98	204	225	241	326			8.7	3.8
Solar			0	0	1	4	7	13	16			21.3	8.6
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			2451	2512	3419	3418	3422	2815	2295		3.4	0.0	-3.9
of which cogeneration units			2442	2498	2514	2219	2477	2175	1980		0.3	-0.2	-2.2
Solids fired			0	0	103	103	103	103	103			0.0	0.0
Gas fired			1838	1877	2690	2702	2702	2387	2078		3.9	0.0	-2.6
Oil fired			613	631	604	588	589	275	0		-0.1	-0.3	
Biomass-waste fired			0	5	22	25	28	50	114			2.7	14.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			23.0	39.4	36.5	44.6	44.5	53.9	64.1				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			22.3	25.6	40.9	41.8	40.5	41.2	42.3				
CHP indicator (% of electricity from CHP)			18.5	22.7	69.1	66.6	34.7	36.6	38.4				
Non fossil fuels in electricity generation (%)			78.8	75.0	5.6	5.7	61.5	58.7	57.8				
- nuclear			75.7	71.7	0.0	0.0	57.2	53.9	50.7				
- renewable energy forms			3.0	3.3	5.6	5.7	4.2	4.8	7.1				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			15.9	15.0	15.1	16.3	17.7	19.8	23.1				
Biofuels share in transport gasoline and diesel (%)			0.0	0.3	0.8	2.6	6.5	7.7	8.4				
Transport sector													
Passenger transport activity (Gpkm)	**21.3**	**15.6**	**19.7**	**33.9**	**38.8**	**42.5**	**45.3**	**47.4**	**49.2**	**-0.8**	**7.0**	**1.6**	**0.8**
Public road transport	7.9	4.2	2.8	3.8	4.3	4.7	4.8	5.0	5.0	-10.0	4.6	1.1	0.4
Private cars and motorcycles	9.3	10.1	16.1	29.3	33.6	36.8	39.1	40.8	42.2	5.6	7.6	1.5	0.8
Rail	3.6	1.1	0.6	0.4	0.5	0.5	0.6	0.7	0.9	-16.3	-3.0	3.1	3.7
Aviation	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.9	5.6	5.3	3.9
Inland navigation	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-13.2	1.2	1.9	0.9
Travel per person (km per capita)	5774	4288	5622	9910	11632	13059	14235	15134	15919	-0.3	7.5	2.0	1.1
Freight transport activity (Gtkm)	**26.8**	**12.4**	**16.7**	**28.4**	**37.5**	**46.1**	**52.4**	**56.6**	**57.5**	**-4.6**	**8.4**	**3.4**	**0.9**
Trucks	7.3	5.2	7.8	15.9	21.5	26.5	30.3	32.9	33.4	0.6	10.7	3.5	1.0
Rail	19.3	7.2	8.9	12.5	16.0	19.5	22.1	23.7	24.1	-7.4	6.0	3.3	0.9
Inland navigation	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	1394	1099	1175	1376	1335	1278	1173	1041	889	-1.7	1.3	-1.3	-2.7
Energy demand in transport (ktoe)	**1990**	**1037**	**1048**	**1397**	**1698**	**1920**	**2022**	**2084**	**2119**	**-6.2**	**4.9**	**1.8**	**0.5**
Public road transport	164	50	25	30	34	35	35	35	35	-17.1	3.0	0.4	-0.1
Private cars and motorcycles	396	485	630	823	941	1001	1012	1025	1049	4.8	4.1	0.7	0.4
Trucks	1159	374	288	414	558	685	758	800	809	-13.0	6.8	3.1	0.7
Rail	132	86	75	79	100	118	122	116	105	-5.5	2.9	2.0	-1.5
Aviation	135	41	27	46	61	75	89	102	114	-14.9	8.6	3.9	2.5
Inland navigation	5	1	3	5	5	6	6	7	7	-5.0	5.9	1.8	0.6
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	33.3	37.7	34.8	26.7	26.8	26.3	25.3	24.7	24.5	0.4	-2.6	-0.6	-0.3
Freight transport (toe/Mtkm)	47.8	36.2	21.6	17.3	17.5	17.4	16.8	16.1	15.9	-7.6	-2.1	-0.4	-0.5

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Luxembourg: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**47**	**47**	**57**	**74**	**149**	**179**	**222**	**251**	**273**	**1.9**	**10.1**	**4.1**	**2.1**
Solids	0	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	47	47	57	74	149	179	222	251	273	1.9	10.1	4.1	2.1
Hydro	6	7	10	8	9	9	9	9	10	5.8	-1.2	0.2	0.2
Biomass & Waste	41	39	44	59	89	111	139	162	184	0.7	7.3	4.6	2.8
Wind	0	0	2	5	11	12	18	18	14		16.9	4.8	-2.3
Solar and others	0	0	0	2	40	47	56	61	66			3.5	1.7
Geothermal	0	0	0	0	0	0	0	0	0			1.4	0.2
Net Imports	**3520**	**3257**	**3620**	**4606**	**4961**	**5281**	**5411**	**5479**	**5506**	**0.3**	**3.2**	**0.9**	**0.2**
Solids	1134	514	125	82	54	50	47	36	30	-19.8	-8.1	-1.5	-4.4
Oil	1620	1756	2332	3066	3356	3475	3476	3480	3448	3.7	3.7	0.4	-0.1
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0				
- Oil products	1620	1756	2332	3066	3356	3475	3476	3480	3448	3.7	3.7	0.4	-0.1
Natural gas	430	557	670	1179	1161	1312	1405	1423	1428	4.6	5.6	1.9	0.2
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9
Gross Inland Consumption	**3556**	**3335**	**3628**	**4698**	**5110**	**5460**	**5633**	**5730**	**5779**	**0.2**	**3.5**	**1.0**	**0.3**
Solids	1134	514	125	82	54	50	47	36	30	-19.8	-8.1	-1.5	-4.4
Oil	1609	1788	2283	3084	3356	3475	3476	3480	3448	3.6	3.9	0.4	-0.1
Natural gas	430	557	670	1179	1161	1312	1405	1423	1428	4.6	5.6	1.9	0.2
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	336	430	492	280	353	343	331	363	400	3.9	-3.3	-0.6	1.9
Renewable energy forms	47	47	57	74	187	280	374	428	474	1.9	12.7	7.2	2.4
as % in Gross Inland Consumption													
Solids	31.9	15.4	3.5	1.7	1.1	0.9	0.8	0.6	0.5				
Oil	45.2	53.6	62.9	65.6	65.7	63.6	61.7	60.7	59.7				
Natural gas	12.1	16.7	18.5	25.1	22.7	24.0	24.9	24.8	24.7				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	1.3	1.4	1.6	1.6	3.7	5.1	6.6	7.5	8.2				
Electricity Generation in GWh_e	**627**	**498**	**433**	**3344**	**2867**	**3564**	**4110**	**4061**	**3937**	**-3.6**	**20.8**	**3.7**	**-0.4**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	68	84	147	164	255	264	338	345	300	8.0	5.7	2.8	-1.2
Thermal (incl. biomass)	559	414	286	3180	2612	3300	3772	3717	3637	-6.5	24.8	3.7	-0.4
Fuel Inputs for Thermal Power Generation	**190**	**132**	**75**	**568**	**479**	**588**	**653**	**640**	**628**	**-8.8**	**20.3**	**3.1**	**-0.4**
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	3	2	0	0	0	0	0	0	0				
Gas	162	106	47	525	434	543	608	589	565	-11.6	24.8	3.4	-0.7
Biomass & Waste	25	24	28	43	45	45	45	51	63	1.0	4.8	0.0	3.4
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**378**	**144**	**0**	**1**	**67**	**152**	**232**	**275**	**311**			**13.3**	**2.9**
Refineries	0	0	0	0	0	0	0	0	0				
Biofuels and hydrogen production	0	0	0	1	67	152	232	275	311			13.3	2.9
District heating	0	0	0	0	0	0	0	0	0				
Others	378	144	0	0	0	0	0	0	0				
Energy Branch Consumption	**31**	**30**	**26**	**30**	**7**	**9**	**9**	**9**	**9**	**-1.8**	**-11.8**	**1.9**	**-0.3**
Non-Energy Uses	**20**	**23**	**14**	**20**	**25**	**28**	**31**	**33**	**35**	**-3.9**	**6.4**	**1.9**	**1.4**
Final Energy Demand	**3329**	**3165**	**3549**	**4424**	**4875**	**5161**	**5299**	**5404**	**5456**	**0.6**	**3.2**	**0.8**	**0.3**
by sector													
Industry	1729	1196	958	937	985	1071	1127	1188	1245	-5.7	0.3	1.4	1.0
- energy intensive industries	1525	900	501	470	479	504	507	511	507	-10.5	-0.5	0.6	0.0
- other industrial sectors	204	296	457	467	506	566	620	678	737	8.4	1.0	2.1	1.7
Residential	519	563	596	649	696	706	713	721	722	1.4	1.6	0.2	0.1
Services/Agriculture	74	99	118	130	143	155	165	171	172	4.7	2.0	1.4	0.4
Transport	1007	1307	1877	2708	3051	3229	3294	3324	3318	6.4	5.0	0.8	0.1
by fuel													
Solids	756	369	125	82	54	50	47	36	30	-16.5	-8.0	-1.5	-4.4
Oil	1581	1752	2266	3065	3330	3447	3445	3447	3413	3.7	3.9	0.3	-0.1
Gas	622	585	623	678	726	769	797	833	861	0.0	1.6	0.9	0.8
Electricity	355	430	491	529	582	629	663	690	716	3.3	1.7	1.3	0.8
Heat (from CHP and District Heating)	0	14	27	55	74	81	88	98	106		10.7	1.6	1.9
Other	15	15	16	16	108	185	259	299	331	0.4	21.1	9.2	2.5
CO_2 Emissions (Mt of CO_2)	**10.6**	**8.7**	**8.8**	**12.4**	**13.0**	**13.7**	**13.9**	**13.9**	**13.8**	**-1.8**	**3.9**	**0.7**	**-0.1**
Power generation/District heating	0.7	0.4	0.1	1.2	1.0	1.3	1.4	1.4	1.3	-17.0	24.8	3.4	-0.7
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Industry	5.7	3.1	1.7	1.5	1.5	1.6	1.6	1.7	1.8	-11.5	-1.1	0.9	0.7
Residential	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.1	-0.1	-0.1	-0.1
Services/Agriculture	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	17.3	-1.5	2.3	0.0
Transport	3.0	3.9	5.6	8.1	9.0	9.4	9.4	9.3	9.3	6.5	4.9	0.4	-0.1
CO_2 Emissions Index (1990=100)	**100.0**	**82.0**	**83.2**	**116.4**	**122.0**	**128.6**	**130.5**	**130.6**	**129.5**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Luxembourg: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	0.379	0.406	0.434	0.455	0.477	0.499	0.521	0.544	0.567	1.3	1.0	0.9	0.9
GDP (in 000 M€05)	13.5	18.8	25.3	29.4	36.6	43.8	51.2	58.9	66.1	6.5	3.8	3.4	2.6
Gross Inl. Cons./GDP (toe/M€05)	262.8	177.6	143.4	159.8	139.7	124.7	109.9	97.3	87.4	-5.9	-0.3	-2.4	-2.3
Gross Inl. Cons./Capita (toe/inhabitant)	9.37	8.22	8.37	10.33	10.71	10.95	10.82	10.53	10.19	-1.1	2.5	0.1	-0.6
Electricity Generated/Capita (kWh gross/inhabitant)	1653	1227	998	7350	6012	7147	7891	7466	6944	-4.9	19.7	2.8	-1.3
Carbon intensity (t of CO_2/toe of GIC)	2.99	2.61	2.44	2.64	2.54	2.50	2.46	2.42	2.38	-2.0	0.4	-0.3	-0.3
CO_2 Emissions/Capita (t of CO_2/inhabitant)	28.05	21.50	20.41	27.22	27.22	27.43	26.65	25.54	24.30	-3.1	2.9	-0.2	-0.9
CO_2 Emissions to GDP (t of CO2/M€05)	786.3	464.3	349.9	421.3	355.0	312.3	270.9	236.0	208.3	-7.8	0.1	-2.7	-2.6
Import Dependency %	99.0	97.7	99.8	98.0	97.1	96.7	96.1	95.6	95.3	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	257.2	159.2	100.0	96.3	87.2	80.7	73.6	68.2	64.3	-9.0	-1.4	-1.7	-1.3
Residential (Energy on Private Income)	125.2	116.2	100.0	91.5	84.6	74.0	65.5	58.7	53.1	-2.2	-1.7	-2.5	-2.1
Services/Agriculture (Energy on Value added)	104.8	111.9	100.0	93.4	83.5	75.5	68.5	61.9	55.5	-0.5	-1.8	-2.0	-2.1
Transport (Energy on GDP)	100.2	93.8	100.0	124.1	112.4	99.3	86.6	76.1	67.6	0.0	1.2	-2.6	-2.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	1.13	0.59	0.15	0.31	0.27	0.28	0.27	0.26	0.25	-18.4	6.0	0.2	-0.7
Final energy demand (t of CO_2/toe)	2.98	2.63	2.46	2.52	2.46	2.40	2.35	2.32	2.28	-1.9	0.0	-0.4	-0.3
Industry	3.28	2.58	1.74	1.63	1.51	1.48	1.45	1.43	1.41	-6.1	-1.4	-0.4	-0.3
Residential	2.45	2.39	2.37	2.21	2.01	1.98	1.95	1.92	1.91	-0.3	-1.7	-0.3	-0.2
Services/Agriculture	0.21	0.34	0.65	0.48	0.46	0.46	0.50	0.50	0.48	12.0	-3.4	0.9	-0.4
Transport	2.95	2.96	2.97	3.00	2.96	2.90	2.84	2.81	2.79	0.1	-0.1	-0.4	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**275**	**722**	**895**	**964**	**1084**	**1134**	**1092**		**12.5**	**1.9**	**0.1**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			167	214	251	258	289	294	273		4.1	1.4	-0.6
Hydro (pumping excluded)			155	155	155	155	155	155	155		0.0	0.0	0.0
Wind			10	35	71	75	104	107	85		21.6	3.9	-2.0
Solar			2	23	25	28	30	33	33		29.0	1.7	1.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			108	509	644	707	795	840	820		19.5	2.1	0.3
of which cogeneration units			61	112	242	254	288	275	295		14.7	1.8	0.2
Solids fired			0	0	0	0	0	0	0				
Gas fired			87	477	552	616	723	765	742		20.3	2.7	0.3
Oil fired			6	7	7	6	4	4	4		0.9	-4.5	-0.5
Biomass-waste fired			15	25	85	85	68	71	74		19.1	-2.2	0.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			16.8	52.5	35.6	41.1	42.2	39.9	40.1				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			32.7	48.1	46.9	48.3	49.7	50.0	49.8				
CHP indicator (% of electricity from CHP)			53.7	11.8	33.2	29.6	29.0	32.9	35.1				
Non fossil fuels in electricity generation (%)			48.5	7.8	15.2	12.6	12.8	13.7	14.2				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			48.5	7.8	15.2	12.6	12.8	13.7	14.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			1.0	1.1	3.4	4.7	6.1	6.8	7.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.1	4.6	7.0	8.2	9.1				
Transport sector													
Passenger transport activity (Gpkm)	**5.2**	**6.2**	**7.4**	**8.3**	**9.1**	**9.7**	**10.2**	**10.7**	**11.1**	**3.5**	**2.1**	**1.1**	**0.8**
Public road transport	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.0	1.0	2.6	3.7	0.7	0.9
Private cars and motorcycles	4.2	4.9	5.8	6.4	7.0	7.4	7.7	8.0	8.3	3.4	1.9	1.0	0.8
Rail	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4.8	-2.1	0.6	1.8
Aviation	0.4	0.5	0.7	0.8	1.0	1.2	1.3	1.4	1.4	5.8	3.9	2.8	0.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	13779	15267	17074	18268	19129	19515	19593	19588	19571	2.2	1.1	0.2	0.0
Freight transport activity (Gtkm)	**3.8**	**6.0**	**8.2**	**9.2**	**10.6**	**11.8**	**12.9**	**14.0**	**15.1**	**8.0**	**2.5**	**2.0**	**1.6**
Trucks	3.2	5.5	7.6	8.8	10.2	11.5	12.6	13.8	14.9	9.0	3.0	2.2	1.6
Rail	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.2	0.2	0.3	-5.7	-3.0	-0.8
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	282	321	326	313	289	269	252	239	228	1.5	-1.2	-1.4	-1.0
Energy demand in transport (ktoe)	**1007**	**1307**	**1877**	**2708**	**3051**	**3229**	**3294**	**3324**	**3318**	**6.4**	**5.0**	**0.8**	**0.1**
Public road transport	18	18	24	29	31	31	30	29	28	2.9	2.8	-0.4	-0.6
Private cars and motorcycles	500	609	760	916	984	986	953	908	862	4.3	2.6	-0.3	-1.0
Trucks	345	482	757	1323	1519	1656	1734	1809	1878	8.2	7.2	1.3	0.8
Rail	13	9	15	9	8	7	6	5	5	2.0	-6.1	-3.3	-2.2
Aviation	131	189	320	431	509	549	571	572	545	9.3	4.7	1.2	-0.5
Inland navigation	0	0	0	0	0	0	0	0	0				
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	124.7	132.1	149.6	165.9	167.3	161.2	152.5	141.9	129.5	1.8	1.1	-0.9	-1.6
Freight transport (toe/Mtkm)	93.1	81.1	93.3	144.6	144.4	141.2	134.7	129.0	124.5	0.0	4.5	-0.7	-0.8

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Malta: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
											Annual % Change		
Primary Production	**0**	**0**	**0**	**0**	**2**	**7**	**16**	**23**	**25**			**23.8**	**4.4**
Solids	0	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	0	0	0	0	2	7	16	23	25			23.8	4.4
Hydro	0	0	0	0	0	0	0	0	0				
Biomass & Waste	0	0	0	0	0	0	0	0	0				
Wind	0	0	0	0	0	0	2	5	5				7.6
Solar and others	0	0	0	0	2	7	14	18	20			22.1	3.8
Geothermal	0	0	0	0	0	0	0	0	0			0.7	-1.7
Net Imports	**611**	**890**	**818**	**953**	**989**	**910**	**905**	**843**	**859**	**3.0**	**1.9**	**-0.9**	**-0.5**
Solids	0	0	0	0	0	0	0	0	0				
Oil	611	890	818	953	930	776	703	514	513	3.0	1.3	-2.8	-3.1
- Crude oil and Feedstocks	0	0	0	0	0	0	0	0	0				
- Oil products	611	890	818	953	930	776	703	514	513	3.0	1.3	-2.8	-3.1
Natural gas	0	0	0	0	59	57	106	217	220			6.2	7.6
Electricity	0	0	0	0	0	73	85	95	108				2.4
Gross Inland Consumption	**581**	**808**	**769**	**953**	**991**	**918**	**921**	**865**	**884**	**2.8**	**2.6**	**-0.7**	**-0.4**
Solids	0	0	0	0	0	0	0	0	0				
Oil	581	808	769	953	930	776	703	514	513	2.8	1.9	-2.8	-3.1
Natural gas	0	0	0	0	59	57	106	217	220			6.2	7.6
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	0	0	0	0	0	73	85	95	108				2.4
Renewable energy forms	0	0	0	0	3	11	27	39	43			26.9	4.6
as % in Gross Inland Consumption													
Solids	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Oil	100.0	100.0	100.0	100.0	93.8	84.6	76.3	59.4	58.1				
Natural gas	0.0	0.0	0.0	0.0	5.9	6.2	11.5	25.1	24.9				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	0.0	0.0	0.0	0.0	0.3	1.2	3.0	4.5	4.8				
Electricity Generation in GWh_e	**1100**	**1632**	**1917**	**2240**	**2217**	**1573**	**1638**	**1700**	**1714**	**5.7**	**1.5**	**-3.0**	**0.5**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	0	0	0	0	0	0	26	53	55				7.6
Thermal (incl. biomass)	1100	1632	1917	2240	2217	1573	1612	1647	1659	5.7	1.5	-3.1	0.3
Fuel Inputs for Thermal Power Generation	**321**	**463**	**494**	**580**	**559**	**373**	**328**	**250**	**251**	**4.4**	**1.2**	**-5.2**	**-2.6**
Solids	0	0	0	0	0	0	0	0	0				
Oil (including refinery gas)	321	463	494	580	500	315	215	22	20	4.4	0.1	-8.1	-21.3
Gas	0	0	0	0	58	57	106	217	220			6.2	7.6
Biomass & Waste	0	0	0	0	0	1	7	11	11				5.0
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**0**	**0**	**0**	**0**	**1**	**3**	**4**	**5**	**6**			**22.8**	**4.9**
Refineries	0	0	0	0	0	0	0	0	0				
Biofuels and hydrogen production	0	0	0	0	0	3	4	5	6			23.5	4.9
District heating	0	0	0	0	0	0	0	0	0			1.5	-3.1
Others	0	0	0	0	0	0	0	0	0				
Energy Branch Consumption	**8**	**19**	**10**	**12**	**9**	**5**	**4**	**3**	**3**	**2.5**	**-0.4**	**-8.9**	**-1.8**
Non-Energy Uses	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**				
Final Energy Demand	**332**	**451**	**408**	**528**	**606**	**667**	**718**	**743**	**760**	**2.1**	**4.0**	**1.7**	**0.6**
by sector													
Industry	0	42	43	46	50	55	62	68	74		1.4	2.1	1.9
- energy intensive industries	0	0	0	0	0	0	0	0	0				
- other industrial sectors	0	42	43	46	50	55	62	68	74		1.4	2.1	1.9
Residential	55	73	76	89	102	114	124	130	134	3.2	3.0	2.0	0.7
Services/Agriculture	56	32	52	66	76	87	93	98	100	-0.7	3.9	2.0	0.7
Transport	221	304	237	328	378	410	439	447	452	0.7	4.8	1.5	0.3
by fuel													
Solids	0	0	0	0	0	0	0	0	0				
Oil	254	342	274	373	429	461	488	493	493	0.8	4.6	1.3	0.1
Gas	0	0	0	0	0	0	0	0	0			3.8	2.7
Electricity	78	108	135	155	174	196	213	228	241	5.6	2.6	2.0	1.3
Heat (from CHP and District Heating)	0	0	0	0	0	0	0	0	0			1.5	-3.0
Other	0	0	0	0	2	10	17	22	26			21.9	4.0
CO_2 Emissions (Mt of CO_2)	**1.8**	**2.5**	**2.4**	**3.0**	**3.0**	**2.5**	**2.4**	**2.0**	**2.0**	**3.0**	**2.4**	**-2.3**	**-1.5**
Power generation/District heating	1.0	1.5	1.6	1.9	1.7	1.1	0.9	0.6	0.6	4.4	1.0	-6.0	-4.8
Energy Branch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Residential	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-1.8	3.6	0.3	-1.4
Services/Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		4.6	-0.4	0.2
Transport	0.7	0.9	0.7	1.0	1.1	1.2	1.3	1.3	1.3	0.7	4.8	1.4	0.3
CO_2 Emissions Index (1990=100)	**100.0**	**140.2**	**134.2**	**167.3**	**170.1**	**141.8**	**134.8**	**115.2**	**115.4**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Malta: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	0.352	0.369	0.380	0.403	0.420	0.439	0.454	0.468	0.479	0.8	1.0	0.8	0.5
GDP (in 000 M€05)	2.8	3.6	4.5	4.6	5.2	6.1	7.4	8.6	9.8	4.9	1.4	3.7	2.8
Gross Inl. Cons./GDP (toe/M€05)	208.0	226.4	171.2	209.3	192.1	150.4	124.3	100.2	90.6	-1.9	1.2	-4.3	-3.1
Gross Inl. Cons./Capita (toe/inhabitant)	1.65	2.19	2.02	2.37	2.36	2.09	2.03	1.85	1.84	2.1	1.6	-1.5	-0.9
Electricity Generated/Capita (kWh gross/inhabitant)	3121	4417	5041	5562	5282	3585	3609	3634	3578	4.9	0.5	-3.7	-0.1
Carbon intensity (t of CO_2/toe of GIC)	3.06	3.08	3.10	3.12	3.05	2.75	2.60	2.36	2.32	0.1	-0.2	-1.6	-1.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	5.04	6.74	6.27	7.38	7.20	5.74	5.27	4.37	4.28	2.2	1.4	-3.1	-2.1
CO_2 Emissions to GDP (t of CO2/M€05)	636.1	698.2	530.7	652.5	585.8	413.0	323.0	236.9	210.2	-1.8	1.0	-5.8	-4.2
Import Dependency %	100.0	104.5	100.8	100.0	99.8	99.2	98.2	97.4	97.2	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	0.0	126.5	100.0	92.9	88.2	84.2	79.9	76.0	73.0		-1.3	-1.0	-0.9
Residential (Energy on Private Income)	117.9	117.1	100.0	110.4	115.6	108.7	96.8	86.3	78.6	-1.6	1.5	-1.8	-2.1
Services/Agriculture (Energy on Value added)	183.1	76.9	100.0	132.1	134.8	128.5	111.4	100.0	90.7	-5.9	3.0	-1.9	-2.0
Transport (Energy on GDP)	149.8	161.4	100.0	136.1	138.5	127.2	112.0	97.9	87.7	-4.0	3.3	-2.1	-2.4
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.93	0.91	0.82	0.83	0.79	0.73	0.57	0.34	0.34	-1.3	-0.5	-3.1	-5.2
Final energy demand (t of CO_2/toe)	2.26	2.24	1.98	2.10	2.11	2.06	2.03	1.98	1.94	-1.3	0.7	-0.4	-0.4
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Residential	1.66	1.47	1.01	1.10	1.07	0.98	0.90	0.81	0.73	-4.9	0.6	-1.7	-2.1
Services/Agriculture	0.00	0.00	0.50	0.49	0.54	0.49	0.42	0.41	0.40		0.6	-2.4	-0.5
Transport	2.97	2.96	2.98	3.00	3.00	2.98	2.98	2.97	2.96	0.0	0.1	-0.1	0.0
Electricity and steam generation													
Net Generation Capacity in MW_e			**472**	**483**	**538**	**543**	**555**	**603**	**639**		**1.3**	**0.3**	**1.4**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			0	0	0	0	10	20	21				7.6
Hydro (pumping excluded)			0	0	0	0	0	0	0				
Wind			0	0	0	0	10	20	21				7.6
Solar			0	0	0	0	0	0	0				
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			472	483	538	543	545	583	618		1.3	0.1	1.3
of which cogeneration units			0	0	0	0	0	0	0				
Solids fired			0	0	0	0	0	0	0				
Gas fired			0	0	51	51	274	282	318			18.2	1.5
Oil fired			472	483	487	491	266	293	293		0.3	-5.9	1.0
Biomass-waste fired			0	0	0	1	5	7	7				5.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			43.6	49.5	44.7	31.9	32.8	31.5	30.0				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			33.4	33.2	34.1	36.3	42.3	56.6	56.8				
CHP indicator (% of electricity from CHP)			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Non fossil fuels in electricity generation (%)			0.0	0.0	0.0	0.4	3.9	6.8	6.8				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			0.0	0.0	0.0	0.4	3.9	6.8	6.8				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			0.0	0.0	0.4	1.5	3.1	4.2	4.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	0.1	0.8	1.0	1.2	1.6				
Transport sector													
Passenger transport activity (Gpkm)	**2.4**	**3.4**	**4.0**	**4.4**	**5.0**	**5.7**	**6.3**	**6.8**	**7.2**	**5.2**	**2.4**	**2.2**	**1.5**
Public road transport	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	5.9	1.6	1.5	1.3
Private cars and motorcycles	0.9	1.3	1.4	1.6	1.8	2.0	2.1	2.1	2.2	4.4	2.4	1.2	0.6
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Aviation	1.2	1.6	2.1	2.3	2.7	3.1	3.6	4.0	4.3	5.6	2.5	2.9	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	6828	9154	10472	11041	12021	12898	13786	14515	15093	4.4	1.4	1.4	0.9
Freight transport activity (Gtkm)	**0.7**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**-3.2**	**0.1**	**0.3**	**0.0**
Trucks	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-3.2	0.1	0.3	0.0
Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	248	140	111	110	98	84	70	60	53	-7.7	-1.3	-3.3	-2.7
Energy demand in transport (ktoe)	**221**	**304**	**237**	**328**	**378**	**410**	**439**	**447**	**452**	**0.7**	**4.8**	**1.5**	**0.3**
Public road transport	5	11	10	12	14	15	16	17	16	5.8	3.8	1.6	0.1
Private cars and motorcycles	87	160	89	142	175	191	209	214	218	0.2	7.0	1.8	0.4
Trucks	57	59	52	84	84	85	84	81	79	-0.8	4.9	-0.1	-0.6
Rail	0	0	0	0	0	0	0	0	0				
Aviation	72	74	86	90	104	119	130	135	139	1.8	1.9	2.3	0.7
Inland navigation	0	0	0	0	0	0	0	0	0				
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	68.3	72.4	46.5	54.8	58.1	57.4	56.7	53.9	51.6	-3.8	2.3	-0.2	-0.9
Freight transport (toe/Mtkm)	81.8	118.6	104.3	167.6	167.4	166.3	161.0	155.0	151.0	2.5	4.9	-0.4	-0.6

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Netherlands: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**60478**	**65988**	**57172**	**61834**	**56867**	**56206**	**53968**	**45499**	**38663**	**-0.6**	**-0.1**	**-0.5**	**-3.3**
Solids	0	0	0	0	0	0	0	0	0				
Oil	4029	3562	2423	2296	0	0	0	0	0	-5.0			
Natural gas	54613	60456	51904	56265	53300	51980	49180	40100	32670	-0.5	0.3	-0.8	-4.0
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Renewable energy sources	956	933	1831	2242	2545	3203	3763	4365	4948	6.7	3.3	4.0	2.8
Hydro	7	8	12	8	8	9	9	9	9	5.3	-3.6	0.0	0.0
Biomass & Waste	942	894	1739	2035	2092	2385	2845	3265	3740	6.3	1.9	3.1	2.8
Wind	5	27	71	178	360	626	641	748	812	30.9	17.6	5.9	2.4
Solar and others	2	4	9	22	84	184	268	343	387	15.5	25.1	12.3	3.7
Geothermal	0	0	0	0	0	0	0	0	0			0.2	0.1
Net Imports	**17443**	**16359**	**34331**	**36912**	**43749**	**49481**	**54652**	**64913**	**73316**	**7.0**	**2.5**	**2.3**	**3.0**
Solids	9574	8921	8222	8313	7718	10254	11630	10394	12636	-1.5	-0.6	4.2	0.8
Oil	30876	32829	41673	47392	50250	51218	52176	53351	54028	3.0	1.9	0.4	0.3
- Crude oil and Feedstocks	47956	59277	60955	61302	66081	67165	68190	69511	70227	2.4	0.8	0.3	0.3
- Oil products	-17080	-26448	-19282	-13910	-15831	-15948	-16015	-16159	-16199				
Natural gas	-23799	-26370	-17191	-20941	-16148	-13405	-10552	-510	5019				
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Gross Inland Consumption	**67059**	**73374**	**75712**	**80963**	**83012**	**87352**	**89540**	**90642**	**91651**	**1.2**	**0.9**	**0.8**	**0.2**
Solids	9206	9098	8035	8190	7718	10254	11630	10394	12636	-1.4	-0.4	4.2	0.8
Oil	24415	27242	28496	32027	32645	32883	33096	33580	33700	1.6	1.4	0.1	0.2
Natural gas	30810	34085	34711	35324	37152	38575	38628	39590	37689	1.2	0.7	0.4	-0.2
Nuclear	881	1036	1013	1031	1022	1023	1024	1035	1045	1.4	0.1	0.0	0.2
Electricity	792	980	1626	1573	1337	740	594	756	577	7.5	-1.9	-7.8	-0.3
Renewable energy forms	956	933	1831	2817	3137	3876	4567	5287	6004	6.7	5.5	3.8	2.8
as % in Gross Inland Consumption													
Solids	13.7	12.4	10.6	10.1	9.3	11.7	13.0	11.5	13.8				
Oil	36.4	37.1	37.6	39.6	39.3	37.6	37.0	37.0	36.8				
Natural gas	45.9	46.5	45.8	43.6	44.8	44.2	43.1	43.7	41.1				
Nuclear	1.3	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.1				
Renewable energy forms	1.4	1.3	2.4	3.5	3.8	4.4	5.1	5.8	6.6				
Electricity Generation in GWh_e	**71824**	**81054**	**89599**	**100202**	**116461**	**138471**	**151535**	**158379**	**168110**	**2.2**	**2.7**	**2.7**	**1.0**
Nuclear	3501	4017	3925	3996	3961	3967	3971	4686	4733	1.1	0.1	0.0	1.8
Hydro & wind	141	406	979	2189	4382	7568	7896	9312	10279	21.4	16.2	6.1	2.7
Thermal (incl. biomass)	68182	76631	84695	94017	108118	126936	139669	144382	153098	2.2	2.5	2.6	0.9
Fuel Inputs for Thermal Power Generation	**14621**	**16843**	**18233**	**19563**	**19335**	**22184**	**24409**	**24349**	**25317**	**2.2**	**0.6**	**2.4**	**0.4**
Solids	5698	5900	5114	4958	4482	7022	8506	7394	9726	-1.1	-1.3	6.6	1.3
Oil (including refinery gas)	702	876	618	640	0	0	0	4	0	-1.3	-57.3	-21.4	-1.0
Gas	7651	9466	11071	11913	13101	13481	13900	14571	12821	3.8	1.7	0.6	-0.8
Biomass & Waste	570	601	1430	2052	1752	1681	2002	2382	2770	9.6	2.1	1.3	3.3
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**72281**	**83698**	**85058**	**89914**	**88286**	**89399**	**90027**	**91046**	**91411**	**1.6**	**0.4**	**0.2**	**0.2**
Refineries	68767	80009	82188	86416	84401	85203	85667	86669	86945	1.8	0.3	0.1	0.1
Biofuels and hydrogen production	0	0	0	0	315	716	1129	1328	1480			13.6	2.7
District heating	0	0	0	436	551	519	462	428	435			-1.8	-0.6
Others	3514	3689	2870	3062	3020	2961	2769	2622	2552	-2.0	0.5	-0.9	-0.8
Energy Branch Consumption	**5410**	**6247**	**5484**	**6580**	**6526**	**6701**	**6762**	**6854**	**6901**	**0.1**	**1.8**	**0.4**	**0.2**
Non-Energy Uses	**9495**	**9406**	**9579**	**12301**	**13244**	**13717**	**13799**	**13844**	**13819**	**0.1**	**3.3**	**0.4**	**0.0**
Final Energy Demand	**42924**	**47670**	**50125**	**51588**	**53843**	**56289**	**57622**	**58781**	**59663**	**1.6**	**0.7**	**0.7**	**0.3**
by sector													
Industry	12643	12714	13812	14597	15458	16415	16717	17081	17271	0.9	1.1	0.8	0.3
- energy intensive industries	9577	8701	9885	10367	11010	11722	11947	12184	12288	0.3	1.1	0.8	0.3
- other industrial sectors	3066	4012	3927	4231	4448	4692	4770	4897	4983	2.5	1.3	0.7	0.4
Residential	9932	11124	10286	10335	10362	10623	10795	10946	11061	0.4	0.1	0.4	0.2
Services/Agriculture	9993	11429	12207	11587	11927	12294	12429	12477	12521	2.0	-0.2	0.4	0.1
Transport	10356	12404	13820	15068	16095	16957	17680	18277	18809	2.9	1.5	0.9	0.6
by fuel													
Solids	1755	1461	1352	1515	1504	1551	1580	1548	1496	-2.6	1.1	0.5	-0.5
Oil	12790	14685	16469	17366	18168	18740	19094	19736	20036	2.6	1.0	0.5	0.5
Gas	21244	22515	21008	20335	20446	20643	19811	19797	19550	-0.1	-0.3	-0.3	-0.1
Electricity	6322	7143	8421	8986	10039	11166	12053	12673	13207	2.9	1.8	1.8	0.9
Heat (from CHP and District Heating)	439	1568	2558	2981	2929	3021	3505	3233	3433	19.3	1.4	1.8	-0.2
Other	374	298	317	405	756	1168	1578	1794	1941	-1.6	9.1	7.6	2.1
CO_2 Emissions (Mt of CO_2)	**152.2**	**167.4**	**165.8**	**171.6**	**173.4**	**186.5**	**192.8**	**191.6**	**196.6**	**0.9**	**0.4**	**1.1**	**0.2**
Power generation/District heating	43.3	49.1	48.9	51.1	50.4	61.2	68.2	65.4	70.3	1.2	0.3	3.1	0.3
Energy Branch	13.7	15.8	13.1	14.8	14.5	14.6	14.7	14.7	14.6	-0.4	1.0	0.1	0.0
Industry	27.0	25.1	24.8	25.4	26.4	27.6	26.3	27.1	26.5	-0.8	0.6	-0.1	0.1
Residential	19.2	20.6	18.9	17.8	17.3	17.2	16.9	16.7	16.5	-0.2	-0.9	-0.2	-0.2
Services/Agriculture	18.9	20.7	19.5	18.1	18.0	17.7	17.3	17.0	16.7	0.3	-0.8	-0.4	-0.4
Transport	30.1	36.2	40.5	44.4	46.7	48.3	49.5	50.8	52.0	3.0	1.4	0.6	0.5
CO_2 Emissions Index (1990=100)	**100.0**	**110.0**	**109.0**	**112.7**	**113.9**	**122.5**	**126.7**	**125.9**	**129.2**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Netherlands: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	14.893	15.424	15.864	16.306	16.611	16.957	17.209	17.429	17.589	0.6	0.5	0.4	0.2
GDP (in 000 M€05)	344.9	391.4	477.3	505.6	579.8	644.5	702.6	760.4	811.6	3.3	2.0	1.9	1.5
Gross Inl. Cons./GDP (toe/M€05)	194.4	187.4	158.6	160.1	143.2	135.5	127.4	119.2	112.9	-2.0	-1.0	-1.2	-1.2
Gross Inl. Cons./Capita (toe/inhabitant)	4.50	4.76	4.77	4.97	5.00	5.15	5.20	5.20	5.21	0.6	0.5	0.4	0.0
Electricity Generated/Capita (kWh gross/inhabitant)	4823	5255	5648	6145	7011	8166	8805	9087	9558	1.6	2.2	2.3	0.8
Carbon intensity (t of CO_2/toe of GIC)	2.27	2.28	2.19	2.12	2.09	2.14	2.15	2.11	2.15	-0.4	-0.5	0.3	0.0
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.22	10.85	10.45	10.52	10.44	11.00	11.20	10.99	11.18	0.2	0.0	0.7	0.0
CO_2 Emissions to GDP (t of CO2/M€05)	441.3	427.7	347.5	339.3	299.1	289.4	274.4	252.0	242.2	-2.4	-1.5	-0.9	-1.2
Import Dependency %	22.4	19.3	38.6	37.8	43.5	46.8	50.3	58.8	65.5	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	111.4	113.0	100.0	105.3	101.0	98.6	94.4	90.9	87.6	-1.1	0.1	-0.7	-0.7
Residential (Energy on Private Income)	133.5	134.0	100.0	96.7	85.0	79.0	74.1	69.9	66.7	-2.9	-1.6	-1.4	-1.0
Services/Agriculture (Energy on Value added)	115.8	115.3	100.0	87.5	77.6	71.7	66.6	61.8	58.1	-1.5	-2.5	-1.5	-1.4
Transport (Energy on GDP)	103.7	109.4	100.0	102.9	95.9	90.9	86.9	83.0	80.0	-0.4	-0.4	-1.0	-0.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.56	0.48	0.39	0.35	0.32	0.34	0.34	0.32	0.33	-3.4	-2.1	0.7	-0.3
Final energy demand (t of CO_2/toe)	2.22	2.15	2.07	2.05	2.01	1.97	1.91	1.90	1.87	-0.7	-0.3	-0.5	-0.2
Industry	2.14	1.97	1.80	1.74	1.71	1.68	1.57	1.59	1.53	-1.7	-0.5	-0.8	-0.2
Residential	1.93	1.85	1.84	1.72	1.67	1.62	1.56	1.53	1.50	-0.5	-1.0	-0.6	-0.5
Services/Agriculture	1.89	1.81	1.60	1.56	1.51	1.44	1.39	1.36	1.33	-1.7	-0.6	-0.8	-0.5
Transport	2.91	2.92	2.93	2.95	2.90	2.85	2.80	2.78	2.76	0.1	-0.1	-0.4	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**20113**	**19871**	**26285**	**29633**	**32033**	**34117**	**35928**		**2.7**	**2.0**	**1.2**
Nuclear energy			501	501	501	501	501	541	547		0.0	0.0	0.9
Renewable energy			495	1653	3042	3197	3432	4114	4606		19.9	1.2	3.0
Hydro (pumping excluded)			37	37	37	37	37	37	37		0.0	0.0	0.0
Wind			446	1565	2860	2860	2872	3289	3439		20.4	0.0	1.8
Solar			12	51	145	300	523	787	1131		28.0	13.7	8.0
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			19116	17718	22742	25935	28100	29462	30775		1.8	2.1	0.9
of which cogeneration units			9089	9231	10128	10798	12151	11964	11838		1.1	1.8	-0.3
Solids fired			4171	4171	4171	5923	5325	5359	7473		0.0	2.5	3.4
Gas fired			13574	11700	16310	17815	20304	21679	20615		1.9	2.2	0.2
Oil fired			839	825	825	694	663	482	682		-0.2	-2.2	0.3
Biomass-waste fired			533	1022	1436	1504	1808	1941	2005		10.4	2.3	1.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			48.8	55.2	48.6	51.2	51.9	50.7	51.0				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			39.9	41.3	48.1	49.2	49.2	51.0	52.0				
CHP indicator (% of electricity from CHP)			32.0	37.6	38.7	36.2	40.5	40.0	37.9				
Non fossil fuels in electricity generation (%)			9.7	12.9	13.1	13.3	13.7	15.4	16.0				
- nuclear			4.4	4.0	3.4	2.9	2.6	3.0	2.8				
- renewable energy forms			5.3	8.9	9.7	10.5	11.1	12.4	13.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			1.8	3.5	4.9	6.0	6.9	7.9	8.8				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.2	4.9	7.5	8.6	9.5				
Transport sector													
Passenger transport activity (Gpkm)	**175.3**	**177.6**	**189.5**	**198.2**	**215.6**	**235.4**	**254.9**	**275.2**	**296.1**	**0.8**	**1.3**	**1.7**	**1.5**
Public road transport	13.0	12.0	11.3	11.7	12.1	12.4	12.7	12.9	13.0	-1.4	0.7	0.5	0.3
Private cars and motorcycles	138.7	133.2	143.4	149.5	162.0	174.5	186.7	199.0	210.8	0.3	1.2	1.4	1.2
Rail	12.3	17.7	16.1	16.3	17.2	19.2	21.5	23.9	26.6	2.7	0.7	2.2	2.2
Aviation	9.8	13.5	17.8	19.7	23.5	28.2	33.0	38.5	44.7	6.2	2.8	3.5	3.1
Inland navigation	1.5	1.2	0.9	0.9	0.9	1.0	1.0	1.1	1.1	-5.4	0.7	1.0	1.1
Travel per person (km per capita)	11769	11514	11944	12153	12979	13879	14809	15793	16837	0.1	0.8	1.3	1.3
Freight transport activity (Gtkm)	**94.8**	**105.7**	**125.4**	**131.6**	**143.8**	**158.2**	**172.2**	**183.7**	**194.4**	**2.8**	**1.4**	**1.8**	**1.2**
Trucks	56.1	67.1	79.6	84.2	93.0	102.1	111.7	120.6	128.1	3.6	1.6	1.8	1.4
Rail	3.1	3.1	4.5	5.2	5.9	6.7	7.3	7.9	8.4	3.9	2.7	2.2	1.3
Inland navigation	35.7	35.5	41.3	42.2	44.9	49.4	53.2	55.2	57.9	1.5	0.9	1.7	0.9
Freight activity per unit of GDP (tkm/000 €05)	275	270	263	260	248	245	245	242	239	-0.5	-0.6	-0.1	-0.2
Energy demand in transport (ktoe)	**10356**	**12404**	**13820**	**15068**	**16095**	**16957**	**17680**	**18277**	**18809**	**2.9**	**1.5**	**0.9**	**0.6**
Public road transport	104	105	95	91	90	88	86	85	85	-0.9	-0.5	-0.5	-0.1
Private cars and motorcycles	5043	5525	5286	5999	6268	6370	6409	6402	6511	0.5	1.7	0.2	0.2
Trucks	2899	3325	4254	4933	5283	5647	5986	6266	6318	3.9	2.2	1.3	0.5
Rail	147	162	176	172	180	192	188	175	158	1.8	0.3	0.4	-1.7
Aviation	1608	2589	3343	3670	4057	4426	4760	5091	5468	7.6	2.0	1.6	1.4
Inland navigation	556	697	667	204	216	235	250	258	269	1.8	-10.6	1.5	0.7
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	39.4	47.3	46.8	49.7	48.8	46.7	44.6	42.4	41.1	1.7	0.4	-0.9	-0.8
Freight transport (toe/Mtkm)	36.4	37.9	39.5	39.6	38.8	37.8	36.7	35.9	34.2	0.8	-0.2	-0.5	-0.7

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Poland: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**99383**	**99400**	**80296**	**79265**	**68489**	**66624**	**65615**	**67146**	**68728**	**-2.1**	**-1.6**	**-0.4**	**0.5**
Solids	94459	91104	71298	68876	57160	53878	51527	47768	43917	-2.8	-2.2	-1.0	-1.6
Oil	178	364	1429	1489	750	700	700	650	600	23.2	-6.2	-0.7	-1.5
Natural gas	2378	3169	3313	3884	3200	3100	3000	2800	2700	3.4	-0.3	-0.6	-1.0
Nuclear	0	0	0	0	0	0	0	3996	8367				
Renewable energy sources	2369	4763	4256	5016	7379	8946	10389	11931	13145	6.0	5.7	3.5	2.4
Hydro	139	162	181	189	211	234	261	276	299	2.7	1.5	2.1	1.4
Biomass & Waste	2230	4600	4072	4806	7027	8440	9704	11128	12243	6.2	5.6	3.3	2.4
Wind	0	0	0	12	128	237	300	357	392		76.7	8.9	2.7
Solar and others	0	0	0	0	4	24	113	158	198			38.9	5.8
Geothermal	0	0	3	9	10	10	11	13	13		12.4	1.9	1.3
Net Imports	**2238**	**-152**	**10131**	**16954**	**32654**	**44880**	**51934**	**56586**	**59300**	**16.3**	**12.4**	**4.7**	**1.3**
Solids	-18913	-21202	-16309	-12482	-3446	1848	3704	4198	3893				0.5
Oil	14468	15481	20381	21929	26139	30071	32772	34770	35820	3.5	2.5	2.3	0.9
- Crude oil and Feedstocks	13085	13984	18827	18169	21685	24763	26839	28364	29144	3.7	1.4	2.2	0.8
- Oil products	1383	1498	1554	3760	4454	5308	5933	6406	6676	1.2	11.1	2.9	1.2
Natural gas	6773	5810	6607	8531	10911	13638	16093	18552	20606	-0.2	5.1	4.0	2.5
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861				
Gross Inland Consumption	**100021**	**100019**	**90777**	**93935**	**100775**	**111092**	**117108**	**123267**	**127548**	**-1.0**	**1.1**	**1.5**	**0.9**
Solids	75405	70500	56358	55184	53714	55726	55230	51966	47810	-2.9	-0.5	0.3	-1.4
Oil	13399	16003	20759	22525	26520	30360	33030	34955	35939	4.5	2.5	2.2	0.8
Natural gas	8938	8995	9960	12235	14111	16738	19093	21352	23306	1.1	3.5	3.1	2.0
Nuclear	0	0	0	0	0	0	0	3996	8367				
Electricity	-90	-241	-548	-962	-859	-567	-510	-790	-861				
Renewable energy forms	2369	4763	4249	4954	7288	8837	10263	11788	12987	6.0	5.5	3.5	2.4
as % in Gross Inland Consumption													
Solids	75.4	70.5	62.1	58.7	53.3	50.2	47.2	42.2	37.5				
Oil	13.4	16.0	22.9	24.0	26.3	27.3	28.2	28.4	28.2				
Natural gas	8.9	9.0	11.0	13.0	14.0	15.1	16.3	17.3	18.3				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	6.6				
Renewable energy forms	2.4	4.8	4.7	5.3	7.2	8.0	8.8	9.6	10.2				
Electricity Generation in GWh_e	**134591**	**137017**	**143147**	**155331**	**169039**	**185082**	**204192**	**221100**	**236467**	**0.6**	**1.7**	**1.9**	**1.5**
Nuclear	0	0	0	0	0	0	0	18096	37994				
Hydro & wind	1617	1888	2110	2336	3938	5478	6521	7373	8073	2.7	6.4	5.2	2.2
Thermal (incl. biomass)	132974	135130	141038	152995	165101	179604	197670	195632	190400	0.6	1.6	1.8	-0.4
Fuel Inputs for Thermal Power Generation	**43419**	**36847**	**35960**	**38149**	**38639**	**41680**	**42052**	**39724**	**36785**	**-1.9**	**0.7**	**0.8**	**-1.3**
Solids	41138	35842	34793	35942	36088	38818	39139	36194	33002	-1.7	0.4	0.8	-1.7
Oil (including refinery gas)	1236	405	228	179	29	32	31	121	25	-15.6	-18.7	0.7	-2.2
Gas	673	488	783	1483	1192	1567	1641	1823	2211	1.5	4.3	3.2	3.0
Biomass & Waste	372	114	157	546	1330	1263	1241	1586	1546	-8.3	23.9	-0.7	2.2
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**37855**	**32959**	**33903**	**31826**	**32645**	**35200**	**37443**	**39275**	**40172**	**-1.1**	**-0.4**	**1.4**	**0.7**
Refineries	13160	14929	19949	19591	22697	25765	27862	29348	30076	4.2	1.3	2.1	0.8
Biofuels and hydrogen production	0	0	0	55	435	840	1411	1791	1982			12.5	3.5
District heating	9949	5985	4320	3639	3492	3417	3573	3932	4205	-8.0	-2.1	0.2	1.6
Others	14746	12045	9635	8541	6020	5177	4597	4204	3910	-4.2	-4.6	-2.7	-1.6
Energy Branch Consumption	**6809**	**7655**	**7401**	**7680**	**9499**	**10204**	**10629**	**11079**	**11288**	**0.8**	**2.5**	**1.1**	**0.6**
Non-Energy Uses	**4193**	**3646**	**4218**	**4354**	**5164**	**6288**	**7279**	**8210**	**8965**	**0.1**	**2.0**	**3.5**	**2.1**
Final Energy Demand	**59583**	**63489**	**55720**	**57169**	**63712**	**71246**	**77448**	**82174**	**85467**	**-0.7**	**1.3**	**2.0**	**1.0**
by sector													
Industry	25252	22720	18883	16373	17763	20118	22387	24195	25487	-2.9	-0.6	2.3	1.3
- energy intensive industries	16252	15428	13374	11149	11638	12822	13996	14950	15742	-1.9	-1.4	1.9	1.2
- other industrial sectors	9000	7292	5509	5225	6125	7297	8391	9245	9745	-4.8	1.1	3.2	1.5
Residential	18126	23284	17516	18375	19484	20511	21316	21751	22186	-0.3	1.1	0.9	0.4
Services/Agriculture	8867	9229	10136	10334	11575	12968	14167	15172	16148	1.3	1.3	2.0	1.3
Transport	7338	8256	9185	12087	14891	17649	19578	21057	21647	2.3	5.0	2.8	1.0
by fuel													
Solids	17066	23299	13728	11262	11688	11381	10863	10706	10428	-2.2	-1.6	-0.7	-0.4
Oil	9104	11582	15452	17798	20424	23487	25600	26878	27334	5.4	2.8	2.3	0.7
Gas	7987	7735	7447	8400	10657	12432	14043	15396	16393	-0.7	3.6	2.8	1.6
Electricity	8233	7703	8317	8498	9701	11167	12719	13818	14947	0.1	1.6	2.7	1.6
Heat (from CHP and District Heating)	15563	8763	6886	7056	6670	7204	7610	7923	8081	-7.8	-0.3	1.3	0.6
Other	1631	4408	3889	4156	4572	5575	6613	7453	8285	9.1	1.6	3.8	2.3
CO_2 Emissions (Mt of CO_2)	**332.2**	**330.8**	**290.3**	**290.7**	**304.8**	**327.8**	**337.5**	**333.6**	**323.3**	**-1.3**	**0.5**	**1.0**	**-0.4**
Power generation/District heating	209.3	169.9	158.8	162.1	159.8	170.9	172.2	161.9	150.2	-2.7	0.1	0.8	-1.4
Energy Branch	5.8	12.7	11.4	10.6	12.5	12.7	13.0	13.3	12.3	6.9	1.0	0.3	-0.6
Industry	44.0	59.9	46.3	33.2	37.4	40.3	43.5	46.0	47.7	0.5	-2.1	1.5	0.9
Residential	33.1	44.4	27.9	30.2	31.6	31.8	31.4	30.9	30.0	-1.7	1.3	-0.1	-0.5
Services/Agriculture	19.4	20.7	20.1	20.4	21.9	23.7	24.6	25.4	26.0	0.4	0.9	1.2	0.6
Transport	20.5	23.1	25.8	34.3	41.5	48.5	52.7	56.0	57.1	2.3	4.9	2.4	0.8
CO_2 Emissions Index (1990=100)	**100.0**	**99.6**	**87.4**	**87.5**	**91.8**	**98.7**	**101.6**	**100.4**	**97.3**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Poland: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	38.038	38.581	38.654	38.174	37.833	37.428	37.065	36.836	36.542	0.2	-0.2	-0.2	-0.1
GDP (in 000 M€05)	144.8	161.4	209.9	243.8	301.3	385.3	472.2	565.7	654.3	3.8	3.7	4.6	3.3
Gross Inl. Cons./GDP (toe/M€05)	691.0	619.7	432.4	385.4	334.5	288.3	248.0	217.9	194.9	-4.6	-2.5	-2.9	-2.4
Gross Inl. Cons./Capita (toe/inhabitant)	2.63	2.59	2.35	2.46	2.66	2.97	3.16	3.35	3.49	-1.1	1.3	1.7	1.0
Electricity Generated/Capita (kWh gross/inhabitant)	3538	3551	3703	4069	4468	4945	5509	6002	6471	0.5	1.9	2.1	1.6
Carbon intensity (t of CO_2/toe of GIC)	3.32	3.31	3.20	3.09	3.02	2.95	2.88	2.71	2.53	-0.4	-0.6	-0.5	-1.3
CO_2 Emissions/Capita (t of CO_2/inhabitant)	8.73	8.57	7.51	7.62	8.06	8.76	9.10	9.06	8.85	-1.5	0.7	1.2	-0.3
CO_2 Emissions to GDP (t of CO2/M€05)	2294.8	2049.5	1382.7	1192.6	1011.6	850.8	714.7	589.6	494.1	-4.9	-3.1	-3.4	-3.6
Import Dependency %	2.2	-0.2	11.1	18.0	32.3	40.2	44.2	45.7	46.3	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	205.0	181.1	100.0	72.5	59.8	51.4	45.9	42.0	39.6	-6.9	-5.0	-2.6	-1.5
Residential (Energy on Private Income)	182.2	177.3	100.0	74.1	64.4	54.2	46.5	39.8	34.9	-5.8	-4.3	-3.2	-2.8
Services/Agriculture (Energy on Value added)	124.3	113.7	100.0	89.0	82.0	72.6	64.9	57.5	52.0	-2.1	-2.0	-2.3	-2.2
Transport (Energy on GDP)	115.9	116.9	100.0	113.3	113.0	104.7	94.8	85.1	75.6	-1.5	1.2	-1.7	-2.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.62	0.67	0.67	0.65	0.59	0.58	0.54	0.47	0.42	0.8	-1.2	-1.0	-2.5
Final energy demand (t of CO_2/toe)	1.96	2.33	2.16	2.06	2.08	2.03	1.97	1.93	1.88	0.9	-0.4	-0.6	-0.4
Industry	1.74	2.64	2.45	2.02	2.11	2.00	1.94	1.90	1.87	3.5	-1.5	-0.8	-0.4
Residential	1.83	1.90	1.59	1.64	1.62	1.55	1.47	1.42	1.35	-1.4	0.2	-1.0	-0.8
Services/Agriculture	2.19	2.25	1.98	1.97	1.89	1.83	1.74	1.68	1.61	-1.0	-0.5	-0.9	-0.7
Transport	2.80	2.80	2.81	2.84	2.79	2.75	2.69	2.66	2.64	0.0	-0.1	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**30194**	**31711**	**32728**	**34719**	**39073**	**42047**	**43363**		**0.8**	**1.8**	**1.0**
Nuclear energy			0	0	0	0	0	2089	4385				
Renewable energy			640	1038	1689	2385	2788	3175	3353		10.2	5.1	1.9
Hydro (pumping excluded)			635	914	978	1072	1156	1235	1235		4.4	1.7	0.7
Wind			5	124	711	1313	1628	1924	2077		63.5	8.6	2.5
Solar			0	0	0	0	3	15	40			25.7	29.1
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			29554	30673	31039	32334	36285	36784	35625		0.5	1.6	-0.2
of which cogeneration units			6632	6800	6938	7310	7994	9087	9096		0.5	1.4	1.3
Solids fired			28139	28775	28755	29745	33696	30534	28302		0.2	1.6	-1.7
Gas fired			820	1263	1664	1807	1807	2775	3378		7.3	0.8	6.5
Oil fired			472	474	461	472	472	352	296		-0.2	0.2	-4.6
Biomass-waste fired			122	160	160	310	310	3123	3650		2.8	6.9	28.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			49.2	51.1	54.4	56.1	55.2	55.5	57.4				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			33.7	34.5	36.7	37.1	40.4	42.4	44.5				
CHP indicator (% of electricity from CHP)			12.2	12.9	22.7	18.5	19.4	20.7	17.3				
Non fossil fuels in electricity generation (%)			2.2	3.5	6.8	7.8	7.6	15.7	24.0				
- nuclear			0.0	0.0	0.0	0.0	0.0	8.2	16.1				
- renewable energy forms			2.2	3.5	6.8	7.8	7.6	7.5	7.9				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			7.2	7.4	9.3	10.3	11.1	12.8	13.6				
Biofuels share in transport gasoline and diesel (%)			0.0	0.6	3.0	4.9	7.5	8.9	9.6				
Transport sector													
Passenger transport activity (Gpkm)	**207.0**	**183.3**	**216.5**	**243.8**	**281.4**	**330.7**	**383.3**	**439.2**	**492.2**	**0.5**	**2.7**	**3.1**	**2.5**
Public road transport	46.3	34.0	31.7	29.9	28.8	29.1	31.7	34.2	36.3	-3.7	-1.0	1.0	1.4
Private cars and motorcycles	102.8	115.0	153.1	188.3	227.6	272.8	317.6	364.0	407.8	4.1	4.0	3.4	2.5
Rail	55.4	31.6	28.8	22.3	20.6	22.6	25.6	30.1	34.4	-6.3	-3.3	2.2	3.0
Aviation	2.0	2.3	2.6	3.1	4.1	5.9	8.0	10.6	13.3	3.1	4.5	6.9	5.2
Inland navigation	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.4	-6.8	-0.8	2.5	2.2
Travel per person (km per capita)	5441	4750	5601	6387	7438	8836	10341	11923	13470	0.3	2.9	3.4	2.7
Freight transport activity (Gtkm)	**122.9**	**120.3**	**130.2**	**156.0**	**193.4**	**234.2**	**268.4**	**296.6**	**316.7**	**0.6**	**4.0**	**3.3**	**1.7**
Trucks	40.3	51.2	75.0	111.8	143.3	173.9	198.9	219.8	234.8	6.4	6.7	3.3	1.7
Rail	81.6	68.2	54.0	43.8	49.7	60.0	69.0	76.3	81.4	-4.0	-0.8	3.3	1.7
Inland navigation	1.0	0.9	1.2	0.3	0.3	0.4	0.4	0.5	0.5	1.3	-11.8	2.3	2.7
Freight activity per unit of GDP (tkm/000 €05)	849	745	620	640	642	608	568	524	484	-3.1	0.3	-1.2	-1.6
Energy demand in transport (ktoe)	**7338**	**8256**	**9185**	**12087**	**14891**	**17649**	**19578**	**21057**	**21647**	**2.3**	**5.0**	**2.8**	**1.0**
Public road transport	314	229	217	190	183	180	187	189	183	-3.6	-1.7	0.2	-0.2
Private cars and motorcycles	3299	4112	4876	5324	6440	7509	8319	9023	9165	4.0	2.8	2.6	1.0
Trucks	2335	2847	3178	5748	7355	8860	9808	10436	10862	3.1	8.8	2.9	1.0
Rail	1095	667	539	502	531	609	650	656	553	-6.8	-0.2	2.0	-1.6
Aviation	196	371	369	319	380	489	611	750	881	6.5	0.3	4.9	3.7
Inland navigation	99	29	6	2	2	2	3	3	3	-24.4	-10.3	2.3	2.2
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	19.5	26.4	25.8	24.3	25.2	25.0	24.0	22.9	21.0	2.9	-0.2	-0.5	-1.3
Freight transport (toe/Mtkm)	26.9	28.4	27.6	39.4	40.3	40.1	38.7	37.1	35.8	0.3	3.9	-0.4	-0.8

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Portugal: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**2808**	**2602**	**3109**	**3583**	**5114**	**5488**	**6060**	**6831**	**7543**	**1.0**	**5.1**	**1.7**	**2.2**
Solids	115	0	0	0	0	0	0	0	0				
Oil	0	0	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	0	0	0	0	0	0	0	0	0				
Renewable energy sources	2692	2602	3109	3583	5114	5488	6060	6831	7543	1.4	5.1	1.7	2.2
Hydro	787	717	974	407	870	870	871	871	872	2.1	-1.1	0.0	0.0
Biomass & Waste	1891	1831	2053	2936	3326	3589	3917	4321	4877	0.8	4.9	1.6	2.2
Wind	0	1	14	152	768	843	1008	1327	1401	66.9	48.8	2.8	3.3
Solar and others	11	15	18	23	68	101	172	198	217	5.4	13.9	9.7	2.3
Geothermal	3	37	49	66	82	84	91	114	176	31.4	5.2	1.1	6.8
Net Imports	**15160**	**17876**	**21588**	**24040**	**24082**	**25851**	**27463**	**28220**	**28175**	**3.6**	**1.1**	**1.3**	**0.3**
Solids	2789	3797	3913	3223	3482	4296	5145	5250	4748	3.4	-1.2	4.0	-0.8
Oil	12367	14001	15556	16338	16072	16923	17483	17748	17608	2.3	0.3	0.8	0.1
- Crude oil and Feedstocks	11360	13547	12022	13459	13457	14136	14582	14795	14739	0.6	1.1	0.8	0.1
- Oil products	1007	454	3534	2878	2614	2786	2900	2953	2869	13.4	-3.0	1.0	-0.1
Natural gas	0	0	2039	3893	4423	4481	4750	5146	5750		8.1	0.7	1.9
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Gross Inland Consumption	**16890**	**19611**	**24108**	**26677**	**28590**	**30697**	**32851**	**34350**	**34993**	**3.6**	**1.7**	**1.4**	**0.6**
Solids	2580	3493	3803	3347	3482	4296	5145	5250	4748	4.0	-0.9	4.0	-0.8
Oil	11614	13437	15083	15410	15466	16281	16811	17047	16884	2.6	0.3	0.8	0.0
Natural gas	0	0	2034	3751	4423	4481	4750	5146	5750		8.1	0.7	1.9
Nuclear	0	0	0	0	0	0	0	0	0				
Electricity	3	79	80	587	105	151	85	77	69	38.1	2.8	-2.1	-2.1
Renewable energy forms	2692	2602	3109	3583	5114	5488	6060	6831	7543	1.4	5.1	1.7	2.2
as % in Gross Inland Consumption													
Solids	15.3	17.8	15.8	12.5	12.2	14.0	15.7	15.3	13.6				
Oil	68.8	68.5	62.6	57.8	54.1	53.0	51.2	49.6	48.2				
Natural gas	0.0	0.0	8.4	14.1	15.5	14.6	14.5	15.0	16.4				
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Renewable energy forms	15.9	13.3	12.9	13.4	17.9	17.9	18.4	19.9	21.6				
Electricity Generation in GWh_e	**28350**	**33148**	**43364**	**46180**	**60899**	**68372**	**77280**	**86038**	**93427**	**4.3**	**3.5**	**2.4**	**1.9**
Nuclear	0	0	0	0	0	0	0	0	0				
Hydro & wind	9156	8358	11490	6506	19160	20099	22601	26417	27338	2.3	5.2	1.7	1.9
Thermal (incl. biomass)	19194	24791	31874	39674	41739	48273	54678	59622	66089	5.2	2.7	2.7	1.9
Fuel Inputs for Thermal Power Generation	**4304**	**5493**	**6507**	**8007**	**8217**	**9116**	**10047**	**10420**	**10731**	**4.2**	**2.4**	**2.0**	**0.7**
Solids	2027	2919	3198	3319	3477	4292	5142	5246	4745	4.7	0.8	4.0	-0.8
Oil (including refinery gas)	2105	2371	1670	1884	1356	1355	1270	1150	1001	-2.3	-2.1	-0.6	-2.4
Gas	19	18	1234	2309	2609	2512	2618	2823	3336	51.6	7.8	0.0	2.5
Biomass & Waste	149	148	356	430	696	876	928	1089	1476	9.1	6.9	2.9	4.8
Geothermal heat	3	37	49	65	79	82	89	112	174	31.4	4.9	1.2	6.9
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**11484**	**14055**	**12700**	**13608**	**13924**	**14739**	**15338**	**15694**	**15718**	**1.0**	**0.9**	**1.0**	**0.2**
Refineries	11152	13579	12251	13608	13744	14420	14863	15068	15008	0.9	1.2	0.8	0.1
Biofuels and hydrogen production	0	0	0	0	180	318	475	626	710			10.2	4.1
District heating	0	16	0	0	0	0	0	0	0				
Others	332	460	449	0	0	0	0	0	0	3.1			
Energy Branch Consumption	**658**	**870**	**881**	**900**	**852**	**911**	**951**	**1040**	**1007**	**3.0**	**-0.3**	**1.1**	**0.6**
Non-Energy Uses	**2103**	**1875**	**2330**	**2405**	**2578**	**2686**	**2843**	**2990**	**3116**	**1.0**	**1.0**	**1.0**	**0.9**
Final Energy Demand	**11208**	**13042**	**16937**	**18654**	**20251**	**21758**	**23232**	**24493**	**25289**	**4.2**	**1.8**	**1.4**	**0.9**
by sector													
Industry	4139	4247	5518	5656	5916	6222	6619	6968	7144	2.9	0.7	1.1	0.8
- energy intensive industries	2497	2646	3437	3757	3883	4043	4270	4470	4575	3.2	1.2	1.0	0.7
- other industrial sectors	1642	1601	2081	1899	2033	2179	2349	2498	2569	2.4	-0.2	1.5	0.9
Residential	2290	2569	2804	3206	3628	4013	4392	4698	4970	2.0	2.6	1.9	1.2
Services/Agriculture	1052	1373	2098	2766	3121	3370	3586	3803	3987	7.2	4.0	1.4	1.1
Transport	3728	4853	6517	7026	7587	8153	8633	9024	9188	5.7	1.5	1.3	0.6
by fuel													
Solids	617	546	465	16	4	4	3	3	3	-2.8	-37.5	-2.1	-2.3
Oil	6683	8187	10469	10492	10797	11483	11935	12163	12061	4.6	0.3	1.0	0.1
Gas	103	97	853	1307	1750	1907	2070	2258	2346	23.6	7.4	1.7	1.3
Electricity	2024	2477	3299	3983	4716	5299	5896	6466	7025	5.0	3.6	2.3	1.8
Heat (from CHP and District Heating)	28	36	134	328	325	321	313	356	440	16.8	9.2	-0.4	3.5
Other	1752	1698	1716	2529	2658	2745	3014	3246	3414	-0.2	4.5	1.3	1.3
CO_2 Emissions (Mt of CO_2)	**39.0**	**48.3**	**58.5**	**61.6**	**63.1**	**68.6**	**73.7**	**75.2**	**73.7**	**4.1**	**0.8**	**1.6**	**0.0**
Power generation/District heating	14.8	19.2	20.9	24.5	24.1	27.1	30.5	31.0	29.7	3.5	1.5	2.3	-0.2
Energy Branch	1.5	2.2	2.3	2.3	2.3	2.4	2.4	2.3	2.2	4.3	0.1	0.3	-0.9
Industry	8.2	8.4	10.8	7.3	7.8	8.7	9.3	9.5	9.1	2.8	-3.2	1.8	-0.2
Residential	1.6	1.9	2.0	2.3	2.5	2.7	2.9	3.1	3.2	2.0	2.1	1.7	0.9
Services/Agriculture	1.9	2.2	3.2	4.2	4.2	4.1	4.0	3.9	3.8	5.4	2.9	-0.5	-0.6
Transport	11.0	14.4	19.4	21.0	22.2	23.6	24.6	25.4	25.7	5.8	1.4	1.0	0.4
CO_2 Emissions Index (1990=100)	**100.0**	**123.7**	**149.9**	**157.8**	**161.7**	**175.8**	**188.8**	**192.7**	**188.9**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Portugal: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	9.996	10.018	10.195	10.529	10.655	10.762	10.771	10.730	10.660	0.2	0.4	0.1	-0.1
GDP (in 000 M€05)	102.2	117.1	143.1	147.8	162.8	185.2	212.8	243.7	272.8	3.4	1.3	2.7	2.5
Gross Inl. Cons./GDP (toe/M€05)	165.2	167.4	168.4	180.5	175.6	165.8	154.4	141.0	128.3	0.2	0.4	-1.3	-1.8
Gross Inl. Cons./Capita (toe/inhabitant)	1.69	1.96	2.36	2.53	2.68	2.85	3.05	3.20	3.28	3.4	1.3	1.3	0.7
Electricity Generated/Capita (kWh gross/inhabitant)	2836	3309	4253	4386	5715	6353	7175	8019	8764	4.1	3.0	2.3	2.0
Carbon intensity (t of CO_2/toe of GIC)	2.31	2.46	2.43	2.31	2.21	2.24	2.24	2.19	2.11	0.5	-0.9	0.2	-0.6
CO_2 Emissions/Capita (t of CO_2/inhabitant)	3.91	4.82	5.74	5.85	5.92	6.38	6.84	7.01	6.92	3.9	0.3	1.5	0.1
CO_2 Emissions to GDP (t of CO2/M€05)	382.0	412.3	408.9	416.9	387.7	370.6	346.3	308.8	270.3	0.7	-0.5	-1.1	-2.4
Import Dependency %	86.7	89.0	87.2	88.2	82.5	82.5	81.9	80.5	78.9	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	84.8	93.6	100.0	102.6	104.0	98.5	93.1	87.6	83.7	1.7	0.4	-1.1	-1.1
Residential (Energy on Private Income)	122.0	112.6	100.0	106.3	109.6	107.7	103.8	98.1	93.3	-2.0	0.9	-0.5	-1.1
Services/Agriculture (Energy on Value added)	68.3	77.7	100.0	123.9	124.1	116.9	108.7	101.2	95.3	3.9	2.2	-1.3	-1.3
Transport (Energy on GDP)	80.1	91.0	100.0	104.4	102.4	96.7	89.1	81.3	74.0	2.2	0.2	-1.4	-1.8
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.52	0.57	0.47	0.49	0.37	0.38	0.38	0.34	0.30	-1.0	-2.2	0.1	-2.2
Final energy demand (t of CO_2/toe)	2.03	2.06	2.09	1.86	1.81	1.80	1.76	1.71	1.65	0.3	-1.4	-0.3	-0.6
Industry	1.99	1.97	1.96	1.30	1.32	1.40	1.41	1.37	1.28	-0.1	-3.9	0.7	-0.9
Residential	0.71	0.74	0.71	0.70	0.68	0.67	0.66	0.66	0.64	0.0	-0.5	-0.2	-0.3
Services/Agriculture	1.77	1.61	1.50	1.53	1.35	1.23	1.12	1.03	0.95	-1.6	-1.1	-1.9	-1.6
Transport	2.95	2.96	2.97	2.98	2.93	2.89	2.85	2.82	2.80	0.1	-0.2	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**10643**	**13440**	**21026**	**22001**	**23631**	**26769**	**27988**		**7.0**	**1.2**	**1.7**
Nuclear energy			0	0	0	0	0	0	0				
Renewable energy			4058	5284	9242	9825	11028	12947	13573		8.6	1.8	2.1
Hydro (pumping excluded)			3958	4234	4310	4435	4490	4490	4490		0.9	0.4	0.0
Wind			100	1047	4852	5252	6091	7933	8514		47.4	2.3	3.4
Solar			1	3	80	138	172	220	233		66.1	8.0	3.1
Other renewables (tidal etc.)			0	0	0	0	274	303	335				2.0
Thermal power			6585	8156	11784	12176	12603	13822	14415		6.0	0.7	1.4
of which cogeneration units			1372	1373	1829	2206	2222	2581	3161		2.9	2.0	3.6
Solids fired			1903	1914	1914	2465	3040	3127	3246		0.1	4.7	0.7
Gas fired			1868	3724	6401	5917	5919	6918	7097		13.1	-0.8	1.8
Oil fired			2338	2008	1981	2147	1941	1803	1547		-1.6	-0.2	-2.2
Biomass-waste fired			463	493	1472	1631	1682	1951	2485		12.3	1.3	4.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			13	16	16	16	21	22	41		2.1	2.8	6.8
Load factor for net electric capacities (%)			44.8	37.8	32.2	34.4	36.2	35.1	36.6				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			42.1	42.6	43.7	45.5	46.8	49.2	53.0				
CHP indicator (% of electricity from CHP)			11.3	10.1	10.4	12.7	13.1	15.5	17.7				
Non fossil fuels in electricity generation (%)			30.8	21.8	36.1	36.5	36.6	39.2	40.1				
- nuclear			0.0	0.0	0.0	0.0	0.0	0.0	0.0				
- renewable energy forms			30.8	21.8	36.1	36.5	36.6	39.2	40.1				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			16.7	16.6	23.5	23.2	23.9	25.3	26.7				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	2.3	3.8	5.4	6.8	7.7				
Transport sector													
Passenger transport activity (Gpkm)	**52.7**	**68.5**	**88.5**	**100.7**	**112.9**	**125.0**	**137.0**	**149.2**	**160.2**	**5.3**	**2.5**	**1.9**	**1.6**
Public road transport	10.3	11.3	11.8	11.1	11.2	11.5	11.8	12.2	12.4	1.4	-0.5	0.5	0.5
Private cars and motorcycles	28.6	42.5	60.0	71.4	81.0	89.5	97.0	104.5	111.0	7.7	3.0	1.8	1.4
Rail	6.3	5.3	4.6	4.6	4.8	5.1	5.6	6.3	7.1	-3.2	0.4	1.6	2.5
Aviation	7.1	9.1	11.7	13.2	15.5	18.5	22.0	25.7	29.1	5.1	2.8	3.5	2.8
Inland navigation	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	-0.3	2.3	1.4	1.0
Travel per person (km per capita)	5270	6838	8677	9564	10596	11617	12715	13904	15029	5.1	2.0	1.8	1.7
Freight transport activity (Gtkm)	**26.4**	**30.7**	**41.9**	**46.0**	**51.5**	**57.9**	**63.7**	**69.3**	**74.2**	**4.7**	**2.1**	**2.1**	**1.5**
Trucks	23.1	27.3	38.9	42.6	47.7	53.6	59.0	64.3	68.9	5.4	2.1	2.1	1.6
Rail	1.5	2.0	2.2	2.4	2.7	3.1	3.3	3.5	3.8	4.1	2.2	2.1	1.3
Inland navigation	1.9	1.4	0.8	1.0	1.1	1.3	1.4	1.5	1.5	-7.9	2.8	2.4	0.8
Freight activity per unit of GDP (tkm/000 €05)	258	262	293	311	317	313	300	284	272	1.3	0.8	-0.6	-1.0
Energy demand in transport (ktoe)	**3728**	**4853**	**6517**	**7026**	**7587**	**8153**	**8633**	**9024**	**9188**	**5.7**	**1.5**	**1.3**	**0.6**
Public road transport	67	90	100	108	103	100	100	97	91	4.2	0.2	-0.3	-0.9
Private cars and motorcycles	1575	2299	2945	3058	3288	3426	3494	3509	3358	6.5	1.1	0.6	-0.4
Trucks	1387	1717	2551	2872	3061	3340	3619	3872	4100	6.3	1.8	1.7	1.3
Rail	82	80	88	66	67	65	61	57	50	0.6	-2.6	-1.0	-2.0
Aviation	574	620	790	881	1021	1169	1304	1430	1529	3.2	2.6	2.5	1.6
Inland navigation	43	46	43	41	47	52	56	59	60	0.0	0.8	1.9	0.7
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	43.0	44.7	43.9	40.6	39.5	37.9	36.0	34.0	31.3	0.2	-1.0	-0.9	-1.4
Freight transport (toe/Mtkm)	55.4	58.4	62.9	63.8	60.7	59.0	58.0	57.0	56.2	1.3	-0.3	-0.5	-0.3

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Romania: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**41400**	**32600**	**28774**	**28181**	**29440**	**32197**	**34973**	**35722**	**36715**	**-3.6**	**0.2**	**1.7**	**0.5**
Solids	7935	7889	5879	5793	6233	5691	6954	7575	7466	-3.0	0.6	1.1	0.7
Oil	7947	7104	6389	6120	5608	6183	6172	6167	6164	-2.2	-1.3	1.0	0.0
Natural gas	22911	14446	10968	9701	10349	10925	11008	10383	9822	-7.1	-0.6	0.6	-1.1
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4
Renewable energy sources	2607	3162	4131	5134	5775	6529	7229	7916	9508	4.7	3.4	2.3	2.8
Hydro	1460	1435	1271	1737	1597	1632	1653	1693	1788	-1.4	2.3	0.3	0.8
Biomass & Waste	1147	1726	2854	3314	4066	4730	5350	5956	7413	9.5	3.6	2.8	3.3
Wind	0	0	0	0	4	8	14	20	26			14.1	6.3
Solar and others	0	0	0	0	7	35	71	100	126			25.2	6.0
Geothermal	0	0	7	82	100	123	142	147	155		31.1	3.5	0.9
Net Imports	**20360**	**14542**	**8099**	**10719**	**12450**	**14749**	**18018**	**22889**	**25517**	**-8.8**	**4.4**	**3.8**	**3.5**
Solids	2423	2870	1905	2904	3221	4646	5577	7559	7663	-2.4	5.4	5.6	3.2
Oil	11194	6852	3542	3874	5008	5732	7018	8061	8785	-10.9	3.5	3.4	2.3
- Crude oil and Feedstocks	16094	8735	4836	8751	9752	10959	12708	14122	15101	-11.3	7.3	2.7	1.7
- Oil products	-4900	-1883	-1294	-4877	-4744	-5226	-5690	-6061	-6316				
Natural gas	5928	4794	2712	4190	4524	4776	5845	7704	9530	-7.5	5.3	2.6	5.0
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Gross Inland Consumption	**61492**	**47109**	**37069**	**39147**	**41890**	**46946**	**52991**	**58612**	**62232**	**-4.9**	**1.2**	**2.4**	**1.6**
Solids	10126	10796	7757	8769	9453	10337	12531	15134	15129	-2.6	2.0	2.9	1.9
Oil	19106	13886	10148	10162	10616	11915	13190	14228	14949	-6.1	0.5	2.2	1.3
Natural gas	28838	19240	13680	13942	14874	15700	16853	18087	19352	-7.2	0.8	1.3	1.4
Nuclear	0	0	1407	1433	1474	2869	3609	3681	3755		0.5	9.4	0.4
Electricity	815	26	-60	-250	-248	-342	-350	-356	-362				
Renewable energy forms	2607	3162	4137	5090	5721	6466	7158	7837	9410	4.7	3.3	2.3	2.8
as % in Gross Inland Consumption													
Solids	16.5	22.9	20.9	22.4	22.6	22.0	23.6	25.8	24.3				
Oil	31.1	29.5	27.4	26.0	25.3	25.4	24.9	24.3	24.0				
Natural gas	46.9	40.8	36.9	35.6	35.5	33.4	31.8	30.9	31.1				
Nuclear	0.0	0.0	3.8	3.7	3.5	6.1	6.8	6.3	6.0				
Renewable energy forms	4.2	6.7	11.2	13.0	13.7	13.8	13.5	13.4	15.1				
Electricity Generation in GWh_e	**63398**	**59255**	**51925**	**59402**	**67065**	**79683**	**92938**	**108006**	**119724**	**-2.0**	**2.6**	**3.3**	**2.6**
Nuclear	0	0	5455	5554	6207	11614	14892	15219	15554		1.3	9.1	0.4
Hydro & wind	16977	16690	14775	20203	18623	19082	19395	19955	21154	-1.4	2.3	0.4	0.9
Thermal (incl. biomass)	46421	42565	31694	33645	42235	48987	58650	72832	83016	-3.7	2.9	3.3	3.5
Fuel Inputs for Thermal Power Generation	**23389**	**16475**	**10638**	**10103**	**9388**	**9850**	**12219**	**14853**	**15890**	**-7.6**	**-1.2**	**2.7**	**2.7**
Solids	8166	7352	5442	5982	6415	7072	9049	11560	11843	-4.0	1.7	3.5	2.7
Oil (including refinery gas)	6202	2997	1684	775	54	0	0	0	0	-12.2	-29.2		
Gas	8984	6090	3507	3343	2835	2753	2816	2818	2572	-9.0	-2.1	-0.1	-0.9
Biomass & Waste	36	37	4	3	84	26	354	474	1475	-19.0	34.5	15.5	15.3
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**25764**	**21571**	**14558**	**17946**	**19167**	**21027**	**22752**	**24168**	**25169**	**-5.5**	**2.8**	**1.7**	**1.0**
Refineries	23718	15646	11318	14978	15360	17142	18880	20289	21265	-7.1	3.1	2.1	1.2
Biofuels and hydrogen production	0	0	0	0	78	161	234	459	800			11.6	13.1
District heating	496	1901	1737	823	1244	1049	1067	1106	1051	13.4	-3.3	-1.5	-0.1
Others	1551	4024	1503	2144	2485	2675	2572	2314	2054	-0.3	5.2	0.3	-2.2
Energy Branch Consumption	**3594**	**5270**	**4137**	**4184**	**4373**	**4654**	**4978**	**5315**	**5531**	**1.4**	**0.6**	**1.3**	**1.1**
Non-Energy Uses	**908**	**1326**	**2291**	**2448**	**2427**	**2636**	**2925**	**3232**	**3528**	**9.7**	**0.6**	**1.9**	**1.9**
Final Energy Demand	**36548**	**26449**	**22374**	**24625**	**28044**	**32019**	**35906**	**39666**	**43152**	**-4.8**	**2.3**	**2.5**	**1.9**
by sector													
Industry	25106	14528	8788	9751	10811	12508	14117	15789	17575	-10.0	2.1	2.7	2.2
- energy intensive industries	15699	10582	5962	6928	7513	8491	9409	10318	11232	-9.2	2.3	2.3	1.8
- other industrial sectors	9407	3946	2826	2823	3299	4017	4707	5471	6344	-11.3	1.6	3.6	3.0
Residential	4190	6461	8557	8093	8580	9225	9995	10754	11426	7.4	0.0	1.5	1.3
Services/Agriculture	2845	2401	1646	2576	3278	3811	4162	4390	4517	-5.3	7.1	2.4	0.8
Transport	4407	3058	3384	4204	5375	6474	7632	8732	9634	-2.6	4.7	3.6	2.4
by fuel													
Solids	2678	1529	703	1429	1742	1851	1892	1750	1572	-12.5	9.5	0.8	-1.8
Oil	8030	5234	5292	6547	7670	8957	10199	11182	11855	-4.1	3.8	2.9	1.5
Gas	20495	10249	6885	7721	8730	9642	10418	11442	12571	-10.3	2.4	1.8	1.9
Electricity	4355	3282	3122	3481	4153	5042	6004	7110	7997	-3.3	2.9	3.8	2.9
Heat (from CHP and District Heating)	377	4679	3570	2135	1736	1816	2316	2661	3228	25.2	-7.0	2.9	3.4
Other	612	1476	2802	3312	4012	4710	5077	5521	5929	16.4	3.7	2.4	1.6
CO_2 Emissions (Mt of CO_2)	**166.7**	**113.9**	**83.6**	**89.7**	**96.8**	**105.5**	**120.3**	**136.0**	**140.3**	**-6.7**	**1.5**	**2.2**	**1.5**
Power generation/District heating	75.9	59.2	40.6	37.2	36.4	38.0	46.7	57.3	57.7	-6.1	-1.1	2.5	2.1
Energy Branch	6.2	7.5	7.4	8.0	8.7	9.3	9.7	10.2	10.4	1.8	1.5	1.2	0.6
Industry	58.1	30.2	17.6	20.9	22.5	24.9	26.5	27.5	28.6	-11.3	2.5	1.6	0.8
Residential	7.5	5.2	6.5	7.2	8.2	8.6	9.1	10.0	11.0	-1.4	2.4	1.1	1.9
Services/Agriculture	6.7	3.1	1.8	4.4	5.6	6.3	6.6	6.5	6.4	-12.1	11.8	1.5	-0.2
Transport	12.3	8.6	9.6	12.1	15.4	18.5	21.7	24.4	26.2	-2.4	4.8	3.5	1.9
CO_2 Emissions Index (1990=100)	**100.0**	**68.3**	**50.1**	**53.8**	**58.1**	**63.3**	**72.2**	**81.6**	**84.2**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Romania: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	23.211	22.194	21.908	21.659	21.302	20.917	20.342	19.746	19.244	-0.6	-0.3	-0.5	-0.6
GDP (in 000 M€05)	71.4	64.0	60.1	79.3	104.9	141.1	185.1	238.4	301.8	-1.7	5.7	5.8	5.0
Gross Inl. Cons./GDP (toe/M€05)	861.5	735.9	617.0	493.6	399.4	332.7	286.3	245.8	206.2	-3.3	-4.3	-3.3	-3.2
Gross Inl. Cons./Capita (toe/inhabitant)	2.65	2.12	1.69	1.81	1.97	2.24	2.60	2.97	3.23	-4.4	1.5	2.9	2.2
Electricity Generated/Capita (kWh gross/inhabitant)	2731	2670	2370	2743	3148	3810	4569	5470	6221	-1.4	2.9	3.8	3.1
Carbon intensity (t of CO_2/toe of GIC)	2.71	2.42	2.26	2.29	2.31	2.25	2.27	2.32	2.25	-1.8	0.2	-0.2	-0.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	7.18	5.13	3.82	4.14	4.55	5.05	5.92	6.89	7.29	-6.1	1.8	2.7	2.1
CO_2 Emissions to GDP (t of CO2/M€05)	2336.2	1779.0	1391.5	1131.3	923.2	748.0	650.1	570.3	464.9	-5.0	-4.0	-3.4	-3.3
Import Dependency %	33.1	30.9	21.8	27.4	29.7	31.4	34.0	39.1	41.0	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	219.2	177.7	100.0	86.3	74.5	65.5	58.1	52.0	46.9	-7.5	-2.9	-2.5	-2.1
Residential (Energy on Private Income)	45.4	77.5	100.0	61.8	49.5	39.4	32.5	27.1	22.7	8.2	-6.8	-4.1	-3.5
Services/Agriculture (Energy on Value added)	150.9	131.9	100.0	116.3	110.2	94.5	77.5	62.5	50.2	-4.0	1.0	-3.5	-4.2
Transport (Energy on GDP)	109.6	84.8	100.0	94.1	91.0	81.5	73.2	65.0	56.7	-0.9	-0.9	-2.2	-2.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	1.12	0.43	0.39	0.39	0.37	0.34	0.36	0.38	0.35	-10.1	-0.4	-0.4	-0.4
Final energy demand (t of CO_2/toe)	2.32	1.78	1.59	1.81	1.85	1.82	1.78	1.73	1.67	-3.7	1.5	-0.4	-0.6
Industry	2.31	2.08	2.00	2.14	2.08	1.99	1.87	1.74	1.63	-1.4	0.4	-1.0	-1.4
Residential	1.78	0.81	0.76	0.89	0.96	0.93	0.91	0.93	0.96	-8.2	2.3	-0.5	0.5
Services/Agriculture	2.37	1.30	1.12	1.69	1.72	1.65	1.57	1.48	1.42	-7.2	4.3	-0.9	-1.0
Transport	2.79	2.81	2.85	2.89	2.87	2.85	2.85	2.80	2.72	0.2	0.1	-0.1	-0.5
Electricity and steam generation													
Net Generation Capacity in MW_e			**19962**	**19838**	**23212**	**22644**	**22094**	**19252**	**20422**		**1.5**	**-0.5**	**-0.8**
Nuclear energy			654	650	1330	1342	1726	1764	1802		7.4	2.6	0.4
Renewable energy			5935	6215	6404	6789	7123	7243	7310		0.8	1.1	0.3
Hydro (pumping excluded)			5935	6212	6365	6713	6993	7046	7046		0.7	0.9	0.1
Wind			0	0	35	70	121	173	218			13.1	6.1
Solar			0	3	3	6	9	25	46			12.0	17.4
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			13373	12972	15478	14513	13245	10245	11309		1.5	-1.5	-1.6
of which cogeneration units			5378	5459	2259	2215	3144	3490	4356		-8.3	3.4	3.3
Solids fired			7285	7139	7129	7675	7866	6538	7165		-0.2	1.0	-0.9
Gas fired			3692	3459	5886	5115	3865	3002	2710		4.8	-4.1	-3.5
Oil fired			2375	2354	2442	1702	1204	298	298		0.3	-6.8	-13.0
Biomass-waste fired			20	20	21	22	311	407	1137		0.1	31.1	13.9
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			27.0	30.8	30.7	38.0	45.4	60.2	62.7				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			25.6	28.6	38.7	42.8	41.3	42.2	44.9				
CHP indicator (% of electricity from CHP)			30.2	25.8	19.4	18.4	20.7	20.3	23.5				
Non fossil fuels in electricity generation (%)			39.2	43.9	37.7	38.8	38.2	34.4	35.6				
- nuclear			10.5	9.3	9.3	14.6	16.0	14.1	13.0				
- renewable energy forms			28.7	34.5	28.4	24.2	22.1	20.3	22.6				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			17.7	19.7	19.2	19.2	18.9	18.6	20.3				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.2	2.1	2.6	4.5	7.3				
Transport sector													
Passenger transport activity (Gpkm)	**68.0**	**51.4**	**51.7**	**60.9**	**76.9**	**98.1**	**122.0**	**149.2**	**179.9**	**-2.7**	**4.1**	**4.7**	**4.0**
Public road transport	24.0	12.3	7.7	9.4	11.7	14.4	16.6	18.6	20.5	-10.7	4.2	3.6	2.1
Private cars and motorcycles	12.6	19.4	31.5	42.4	55.5	71.5	89.5	110.2	133.9	9.6	5.8	4.9	4.1
Rail	30.6	18.9	11.6	8.0	8.1	9.7	11.7	14.0	16.2	-9.2	-3.6	3.7	3.3
Aviation	0.7	0.7	0.8	1.2	1.7	2.5	4.1	6.3	9.3	1.6	7.5	9.4	8.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.1	-2.4	0.8	0.8
Travel per person (km per capita)	2928	2316	2359	2813	3612	4689	5997	7555	9350	-2.1	4.4	5.2	4.5
Freight transport activity (Gtkm)	**80.0**	**40.7**	**33.3**	**76.5**	**101.8**	**123.5**	**146.3**	**168.6**	**186.3**	**-8.4**	**11.8**	**3.7**	**2.4**
Trucks	29.0	19.7	14.3	51.5	72.2	88.9	105.7	121.9	133.7	-6.8	17.6	3.9	2.4
Rail	48.9	17.9	16.4	16.6	18.1	20.4	23.5	26.9	30.6	-10.4	1.0	2.7	2.7
Inland navigation	2.1	3.1	2.6	8.4	11.6	14.2	17.1	19.8	22.0	2.3	15.9	4.0	2.6
Freight activity per unit of GDP (tkm/000 €05)	1121	636	554	965	971	875	790	707	617	-6.8	5.8	-2.0	-2.4
Energy demand in transport (ktoe)	**4407**	**3058**	**3384**	**4204**	**5375**	**6474**	**7632**	**8732**	**9634**	**-2.6**	**4.7**	**3.6**	**2.4**
Public road transport	329	176	117	93	109	129	144	155	161	-9.9	-0.7	2.8	1.1
Private cars and motorcycles	591	845	1681	1609	1997	2440	2888	3331	3727	11.0	1.7	3.8	2.6
Trucks	2617	1272	893	2130	2836	3391	3969	4494	4872	-10.2	12.2	3.4	2.1
Rail	282	470	449	208	215	233	243	256	248	4.8	-7.1	1.2	0.2
Aviation	275	192	128	113	149	197	288	381	497	-7.3	1.5	6.8	5.6
Inland navigation	312	103	115	51	69	84	100	116	127	-9.5	-4.9	3.8	2.4
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	18.7	25.3	38.8	30.4	29.8	28.6	27.4	26.1	24.5	7.6	-2.6	-0.8	-1.1
Freight transport (toe/Mtkm)	39.2	43.2	41.4	30.7	30.3	29.7	29.3	28.7	28.0	0.5	-3.1	-0.3	-0.5

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Slovak Republic: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**5248**	**4808**	**5970**	**6305**	**5075**	**5963**	**6489**	**7284**	**7628**	**1.3**	**-1.6**	**2.5**	**1.6**
Solids	1397	1017	1018	637	846	845	831	837	764	-3.1	-1.8	-0.2	-0.8
Oil	81	74	59	55	37	38	39	40	40	-3.1	-4.5	0.6	0.2
Natural gas	338	264	133	126	131	145	157	170	182	-8.9	-0.1	1.8	1.5
Nuclear	3105	2950	4255	4573	3191	3854	4066	4571	4709	3.2	-2.8	2.5	1.5
Renewable energy sources	328	503	506	914	869	1082	1396	1665	1933	4.4	5.6	4.8	3.3
Hydro	162	427	406	399	391	425	432	435	438	9.7	-0.4	1.0	0.1
Biomass & Waste	166	76	100	507	470	639	931	1179	1425	-5.0	16.8	7.1	4.3
Wind	0	0	0	1	1	4	11	19	28			24.2	10.0
Solar and others	0	0	0	0	4	11	20	29	38			16.1	7.0
Geothermal	0	0	0	8	2	2	3	3	3			3.4	2.0
Net Imports	**16086**	**12482**	**11623**	**13163**	**13448**	**14356**	**15344**	**16152**	**16714**	**-3.2**	**1.5**	**1.3**	**0.9**
Solids	6055	4131	3437	3794	3504	3697	4030	4419	4454	-5.5	0.2	1.4	1.0
Oil	4231	3704	2711	3935	4008	4138	4262	4323	4312	-4.4	4.0	0.6	0.1
- Crude oil and Feedstocks	5892	5405	5283	5768	5956	6133	6322	6423	6414	-1.1	1.2	0.6	0.1
- Oil products	-1661	-1701	-2573	-1833	-1948	-1995	-2060	-2100	-2102				
Natural gas	5353	4528	5707	5757	6010	6647	7199	7797	8350	0.6	0.5	1.8	1.5
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Gross Inland Consumption	**20967**	**17692**	**17483**	**19407**	**18523**	**20319**	**21834**	**23435**	**24342**	**-1.8**	**0.6**	**1.7**	**1.1**
Solids	7771	5414	4261	4288	4351	4541	4861	5256	5218	-5.8	0.2	1.1	0.7
Oil	4229	3487	2925	4045	4045	4176	4301	4363	4353	-3.6	3.3	0.6	0.1
Natural gas	5088	5217	5776	5925	6141	6792	7355	7967	8532	1.3	0.6	1.8	1.5
Nuclear	3105	2950	4255	4573	3191	3854	4066	4571	4709	3.2	-2.8	2.5	1.5
Electricity	447	119	-232	-281	-22	-55	-43	-257	-245				
Renewable energy forms	328	504	498	858	817	1011	1293	1535	1776	4.3	5.1	4.7	3.2
as % in Gross Inland Consumption													
Solids	37.1	30.6	24.4	22.1	23.5	22.3	22.3	22.4	21.4				
Oil	20.2	19.7	16.7	20.8	21.8	20.6	19.7	18.6	17.9				
Natural gas	24.3	29.5	33.0	30.5	33.2	33.4	33.7	34.0	35.0				
Nuclear	14.8	16.7	24.3	23.6	17.2	19.0	18.6	19.5	19.3				
Renewable energy forms	1.6	2.8	2.8	4.4	4.4	5.0	5.9	6.5	7.3				
Electricity Generation in GWh_e	**23428**	**26036**	**30431**	**31346**	**32255**	**37664**	**43032**	**51523**	**55153**	**2.6**	**0.6**	**2.9**	**2.5**
Nuclear	12034	11435	16491	17724	12371	15244	16180	19509	20135	3.2	-2.8	2.7	2.2
Hydro & wind	1880	4960	4725	4644	4568	4998	5165	5308	5474	9.7	-0.3	1.2	0.6
Thermal (incl. biomass)	9514	9641	9214	8978	15316	17423	21687	26707	29544	-0.3	5.2	3.5	3.1
Fuel Inputs for Thermal Power Generation	**3232**	**3170**	**2656**	**2622**	**2911**	**3317**	**3977**	**4675**	**4989**	**-1.9**	**0.9**	**3.2**	**2.3**
Solids	2054	1835	1617	1638	1479	1594	1802	2168	2275	-2.4	-0.9	2.0	2.4
Oil (including refinery gas)	243	119	37	99	53	111	118	33	10	-17.1	3.5	8.5	-21.8
Gas	936	1216	1002	845	1263	1440	1728	1837	1875	0.7	2.3	3.2	0.8
Biomass & Waste	0	0	0	40	117	172	328	637	828			10.9	9.7
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**9009**	**7973**	**8020**	**9335**	**10006**	**10223**	**10558**	**10755**	**10711**	**-1.2**	**2.2**	**0.5**	**0.1**
Refineries	6314	5182	5410	6374	6765	6954	7214	7376	7384	-1.5	2.3	0.6	0.2
Biofuels and hydrogen production	0	0	0	11	49	106	175	222	266			13.5	4.2
District heating	237	731	584	717	877	820	708	725	754	9.4	4.2	-2.1	0.6
Others	2458	2060	2026	2233	2315	2343	2460	2432	2308	-1.9	1.3	0.6	-0.6
Energy Branch Consumption	**1154**	**990**	**905**	**2482**	**2073**	**2138**	**2222**	**2323**	**2338**	**-2.4**	**8.6**	**0.7**	**0.5**
Non-Energy Uses	**1203**	**651**	**1109**	**1239**	**1263**	**1338**	**1508**	**1677**	**1783**	**-0.8**	**1.3**	**1.8**	**1.7**
Final Energy Demand	**14893**	**11085**	**10822**	**10560**	**11597**	**12585**	**13512**	**14291**	**14850**	**-3.1**	**0.7**	**1.5**	**0.9**
by sector													
Industry	6706	4339	3953	4413	4873	5268	5583	5793	5862	-5.1	2.1	1.4	0.5
- energy intensive industries	4081	3091	3145	3590	3973	4295	4507	4629	4657	-2.6	2.4	1.3	0.3
- other industrial sectors	2626	1248	808	823	900	973	1075	1164	1205	-11.1	1.1	1.8	1.1
Residential	2275	2158	2822	2533	2641	2808	3023	3254	3476	2.2	-0.7	1.4	1.4
Services/Agriculture	4473	3078	2498	1809	1936	2160	2414	2655	2876	-5.7	-2.5	2.2	1.8
Transport	1440	1509	1549	1805	2148	2349	2493	2589	2636	0.7	3.3	1.5	0.6
by fuel													
Solids	4319	2322	1511	1455	1832	1920	1975	2016	1922	-10.0	1.9	0.8	-0.3
Oil	3294	1873	1870	2195	2447	2596	2676	2739	2736	-5.5	2.7	0.9	0.2
Gas	4319	3907	4537	3651	3502	3773	4019	4367	4734	0.5	-2.6	1.4	1.7
Electricity	2013	1868	1893	1965	2382	2764	3181	3595	3879	-0.6	2.3	2.9	2.0
Heat (from CHP and District Heating)	781	1111	1011	951	1283	1234	1243	1230	1207	2.6	2.4	-0.3	-0.3
Other	166	4	1	344	152	298	418	344	372	-42.8	73.3	10.6	-1.2
CO_2 Emissions (Mt of CO_2)	**53.3**	**39.7**	**35.1**	**37.1**	**39.4**	**41.9**	**44.4**	**47.1**	**48.0**	**-4.1**	**1.2**	**1.2**	**0.8**
Power generation/District heating	12.1	12.9	10.6	10.5	11.3	12.2	13.5	14.9	15.3	-1.3	0.7	1.8	1.3
Energy Branch	2.5	1.8	1.5	5.0	4.5	4.6	4.9	5.1	5.0	-4.6	11.3	0.8	0.3
Industry	17.8	12.2	10.3	10.4	11.8	12.3	12.6	13.0	12.7	-5.3	1.3	0.7	0.1
Residential	4.4	2.9	4.1	3.5	3.4	3.8	4.2	4.8	5.4	-0.6	-1.8	2.1	2.5
Services/Agriculture	12.6	5.7	4.2	2.5	2.2	2.3	2.3	2.3	2.4	-10.3	-6.1	0.4	0.3
Transport	4.0	4.2	4.4	5.2	6.2	6.6	6.9	7.1	7.1	0.8	3.5	1.1	0.3
CO_2 Emissions Index (1990=100)	**100.0**	**74.5**	**65.9**	**69.7**	**74.0**	**78.7**	**83.4**	**88.4**	**90.0**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									Slovak Republic: Baseline scenario				
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	5.288	5.356	5.399	5.385	5.354	5.309	5.271	5.237	5.186	0.2	-0.1	-0.2	-0.2
GDP (in 000 M€05)	26.3	25.7	30.5	38.1	50.0	62.8	77.6	92.3	105.7	1.5	5.1	4.5	3.1
Gross Inl. Cons./GDP (toe/M€05)	797.9	688.1	574.0	509.2	370.3	323.8	281.5	253.8	230.2	-3.2	-4.3	-2.7	-2.0
Gross Inl. Cons./Capita (toe/inhabitant)	3.97	3.30	3.24	3.60	3.46	3.83	4.14	4.48	4.69	-2.0	0.7	1.8	1.3
Electricity Generated/Capita (kWh gross/inhabitant)	4431	4861	5637	5821	6025	7094	8165	9839	10635	2.4	0.7	3.1	2.7
Carbon intensity (t of CO_2/toe of GIC)	2.54	2.24	2.01	1.91	2.13	2.06	2.03	2.01	1.97	-2.3	0.6	-0.4	-0.3
CO_2 Emissions/Capita (t of CO_2/inhabitant)	10.07	7.41	6.50	6.90	7.36	7.89	8.43	9.00	9.25	-4.3	1.2	1.4	0.9
CO_2 Emissions to GDP (t of CO2/M€05)	2027.3	1543.8	1152.8	974.5	787.6	667.8	572.5	510.2	453.6	-5.5	-3.7	-3.1	-2.3
Import Dependency %	76.7	70.6	66.5	67.8	72.6	70.7	70.3	68.9	68.7	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	193.1	137.4	100.0	67.5	54.4	46.6	40.4	36.0	33.4	-6.4	-5.9	-2.9	-1.9
Residential (Energy on Private Income)	82.4	95.9	100.0	72.6	59.9	51.7	45.6	41.6	39.1	2.0	-5.0	-2.7	-1.5
Services/Agriculture (Energy on Value added)	178.8	146.3	100.0	68.4	56.9	50.6	46.0	42.2	39.0	-5.6	-5.5	-2.1	-1.6
Transport (Energy on GDP)	107.7	115.4	100.0	93.1	84.4	73.6	63.2	55.1	49.0	-0.7	-1.7	-2.9	-2.5
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.34	0.30	0.23	0.23	0.22	0.22	0.22	0.21	0.21	-3.8	-0.5	0.0	-0.4
Final energy demand (t of CO_2/toe)	2.60	2.26	2.13	2.05	2.03	1.99	1.93	1.90	1.86	-2.0	-0.4	-0.5	-0.4
Industry	2.65	2.82	2.61	2.37	2.41	2.34	2.26	2.25	2.16	-0.2	-0.8	-0.7	-0.4
Residential	1.93	1.35	1.46	1.39	1.30	1.36	1.40	1.47	1.56	-2.8	-1.1	0.7	1.1
Services/Agriculture	2.81	1.87	1.69	1.37	1.16	1.06	0.97	0.88	0.84	-4.9	-3.7	-1.7	-1.4
Transport	2.80	2.76	2.82	2.89	2.87	2.82	2.76	2.73	2.69	0.1	0.2	-0.4	-0.3
Electricity and steam generation													
Net Generation Capacity in MW_e			**6795**	**7307**	**8128**	**8571**	**7980**	**8751**	**8989**		**1.8**	**-0.2**	**1.2**
Nuclear energy			2326	2439	1652	2011	2132	2385	2457		-3.4	2.6	1.4
Renewable energy			1669	1838	1894	2038	2118	2203	2305		1.3	1.1	0.8
Hydro (pumping excluded)			1668	1832	1882	1996	2013	2021	2029		1.2	0.7	0.1
Wind			1	5	10	35	90	155	236		26.0	24.5	10.1
Solar			0	0	2	7	15	26	40			24.6	10.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			2800	3031	4582	4522	3730	4164	4227		5.0	-2.0	1.3
of which cogeneration units			1220	1400	1716	1627	1690	1713	1820		3.5	-0.2	0.7
Solids fired			1598	1661	1846	1696	1401	1726	1675		1.5	-2.7	1.8
Gas fired			1184	1221	2557	2647	2084	2088	2097		8.0	-2.0	0.1
Oil fired			18	115	115	115	114	114	114		20.7	-0.1	0.0
Biomass-waste fired			1	34	64	64	131	235	341		51.8	7.5	10.0
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			45.5	44.3	43.2	48.0	58.9	64.0	66.6				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			29.8	29.4	45.3	45.2	46.9	49.1	50.9				
CHP indicator (% of electricity from CHP)			26.0	15.8	26.5	23.5	24.6	22.1	21.6				
Non fossil fuels in electricity generation (%)			69.7	71.9	54.2	55.8	53.6	54.7	54.5				
- nuclear			54.2	56.5	38.4	40.5	37.6	37.9	36.5				
- renewable energy forms			15.5	15.4	15.8	15.3	16.0	16.9	18.0				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			3.6	6.9	5.4	6.4	7.6	8.5	9.4				
Biofuels share in transport gasoline and diesel (%)			0.0	0.7	2.0	3.9	6.1	7.4	8.8				
Transport sector													
Passenger transport activity (Gpkm)	**41.5**	**34.2**	**35.8**	**36.4**	**39.1**	**42.5**	**47.8**	**53.2**	**57.9**	**-1.5**	**0.9**	**2.0**	**1.9**
Public road transport	19.5	11.2	8.4	8.1	7.9	7.7	7.6	7.6	7.6	-8.1	-0.6	-0.3	0.0
Private cars and motorcycles	15.6	18.4	24.1	25.6	28.6	32.1	37.3	42.5	46.9	4.5	1.7	2.7	2.3
Rail	6.4	4.6	3.2	2.5	2.4	2.4	2.5	2.6	2.7	-6.6	-3.0	0.4	0.9
Aviation	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.7			6.5	4.7
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	7841	6386	6633	6762	7300	8006	9073	10152	11159	-1.7	1.0	2.2	2.1
Freight transport activity (Gtkm)	**35.6**	**29.7**	**25.6**	**32.0**	**41.7**	**47.4**	**50.3**	**52.4**	**54.1**	**-3.3**	**5.0**	**1.9**	**0.7**
Trucks	14.2	15.9	14.3	22.6	31.7	36.3	38.6	40.4	42.0	0.1	8.2	2.0	0.8
Rail	21.4	13.8	11.2	9.5	10.0	11.1	11.7	11.9	12.1	-6.2	-1.2	1.6	0.4
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	1355	1155	840	840	833	755	648	567	512	-4.7	-0.1	-2.5	-2.3
Energy demand in transport (ktoe)	**1440**	**1509**	**1549**	**1805**	**2148**	**2349**	**2493**	**2589**	**2636**	**0.7**	**3.3**	**1.5**	**0.6**
Public road transport	96	79	70	59	55	51	48	45	43	-3.1	-2.5	-1.2	-1.3
Private cars and motorcycles	671	729	886	964	1018	1075	1176	1253	1278	2.8	1.4	1.5	0.8
Trucks	572	583	510	693	971	1103	1136	1146	1160	-1.1	6.6	1.6	0.2
Rail	100	119	83	49	50	51	49	47	45	-1.9	-5.0	-0.1	-0.8
Aviation	0	0	0	39	55	69	84	98	109			4.3	2.7
Inland navigation	0	0	0	0	0	0	0	0	0				
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	19.3	25.0	27.6	29.6	29.2	28.4	27.6	26.5	24.9	3.6	0.6	-0.6	-1.0
Freight transport (toe/Mtkm)	17.9	22.0	21.9	22.7	24.1	24.1	23.3	22.6	22.1	2.0	1.0	-0.3	-0.5

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Slovenia: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**2902**	**3020**	**3085**	**3492**	**3571**	**3479**	**3698**	**3726**	**4049**	**0.6**	**1.5**	**0.3**	**0.9**
Solids	1432	1216	1062	1184	1226	1026	1105	1147	1294	-2.9	1.4	-1.0	1.6
Oil	3	2	1	0	0	0	0	0	0	-10.4			
Natural gas	20	16	6	3	4	0	0	0	0	-11.4	-3.3		
Nuclear	1192	1245	1228	1518	1483	1483	1483	1333	1362	0.3	1.9	0.0	-0.8
Renewable energy sources	254	542	788	787	857	969	1109	1247	1393	12.0	0.8	2.6	2.3
Hydro	254	279	330	298	304	313	324	346	371	2.7	-0.8	0.6	1.4
Biomass & Waste	0	263	458	489	545	622	720	816	924		1.8	2.8	2.5
Wind	0	0	0	0	0	1	2	2	3			27.1	4.4
Solar and others	0	0	0	0	7	33	63	82	95			24.0	4.2
Geothermal	0	0	0	0	0	0	0	0	0			1.4	0.7
Net Imports	**2567**	**3056**	**3369**	**3810**	**4566**	**5207**	**5527**	**5632**	**5730**	**2.8**	**3.1**	**1.9**	**0.4**
Solids	130	187	245	323	353	384	460	490	509	6.5	3.7	2.7	1.0
Oil	1798	2231	2418	2589	3005	3316	3483	3638	3719	3.0	2.2	1.5	0.7
- Crude oil and Feedstocks	596	587	151	0	1	1	1	1	2	-12.8	-38.2	1.4	0.6
- Oil products	1202	1644	2267	2589	3003	3315	3481	3637	3718	6.5	2.9	1.5	0.7
Natural gas	723	750	820	925	1156	1283	1367	1462	1588	1.3	3.5	1.7	1.5
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5	
Gross Inland Consumption	**5517**	**6103**	**6415**	**7305**	**8136**	**8686**	**9225**	**9358**	**9779**	**1.5**	**2.4**	**1.3**	**0.6**
Solids	1645	1402	1306	1539	1579	1410	1565	1637	1802	-2.3	1.9	-0.1	1.4
Oil	1748	2281	2381	2560	3005	3316	3483	3638	3719	3.1	2.4	1.5	0.7
Natural gas	763	746	826	929	1161	1283	1367	1462	1588	0.8	3.5	1.7	1.5
Nuclear	1192	1245	1228	1518	1483	1483	1483	1333	1362	0.3	1.9	0.0	-0.8
Electricity	-85	-142	-114	-28	52	224	218	42	-86			15.5	
Renewable energy forms	254	571	788	787	857	969	1109	1247	1393	12.0	0.8	2.6	2.3
as % in Gross Inland Consumption													
Solids	29.8	23.0	20.4	21.1	19.4	16.2	17.0	17.5	18.4				
Oil	31.7	37.4	37.1	35.0	36.9	38.2	37.8	38.9	38.0				
Natural gas	13.8	12.2	12.9	12.7	14.3	14.8	14.8	15.6	16.2				
Nuclear	21.6	20.4	19.1	20.8	18.2	17.1	16.1	14.2	13.9				
Renewable energy forms	4.6	9.3	12.3	10.8	10.5	11.2	12.0	13.3	14.2				
Electricity Generation in GWh_e	**12440**	**12652**	**13622**	**15114**	**16425**	**16074**	**17992**	**21408**	**24265**	**0.9**	**1.9**	**0.9**	**3.0**
Nuclear	4621	4778	4760	5883	5751	5751	5751	6036	6169	0.3	1.9	0.0	0.7
Hydro & wind	2949	3240	3833	3460	3542	3642	3783	4053	4351	2.7	-0.8	0.7	1.4
Thermal (incl. biomass)	4869	4633	5028	5771	7132	6681	8458	11320	13745	0.3	3.6	1.7	5.0
Fuel Inputs for Thermal Power Generation	**1543**	**1523**	**1342**	**1507**	**1608**	**1436**	**1619**	**1810**	**2174**	**-1.4**	**1.8**	**0.1**	**3.0**
Solids	1296	1315	1253	1411	1479	1292	1428	1491	1659	-0.3	1.7	-0.3	1.5
Oil (including refinery gas)	155	119	12	9	3	1	1	1	1	-22.8	-11.5	-10.5	0.0
Gas	92	90	62	58	97	111	119	210	316	-3.8	4.6	2.0	10.3
Biomass & Waste	0	0	15	30	29	32	71	108	197		6.5	9.4	10.8
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**594**	**580**	**253**	**90**	**201**	**261**	**312**	**345**	**338**	**-8.2**	**-2.3**	**4.5**	**0.8**
Refineries	540	503	169	1	1	1	1	1	2	-11.0	-38.9	1.4	0.6
Biofuels and hydrogen production	0	0	0	0	42	106	170	215	256			14.9	4.2
District heating	53	76	83	89	157	154	141	128	81	4.7	6.5	-1.1	-5.4
Others	1	1	0	0	0	0	0	0	0				
Energy Branch Consumption	**122**	**121**	**112**	**104**	**127**	**115**	**126**	**156**	**174**	**-0.9**	**1.2**	**-0.1**	**3.3**
Non-Energy Uses	**6**	**121**	**234**	**305**	**371**	**419**	**448**	**470**	**490**	**43.5**	**4.7**	**1.9**	**0.9**
Final Energy Demand	**3368**	**3940**	**4431**	**4880**	**5608**	**6247**	**6725**	**7039**	**7257**	**2.8**	**2.4**	**1.8**	**0.8**
by sector													
Industry	1468	1179	1423	1655	1838	1969	2072	2145	2194	-0.3	2.6	1.2	0.6
- energy intensive industries	728	587	839	1036	1146	1241	1313	1363	1394	1.4	3.2	1.4	0.6
- other industrial sectors	740	593	584	619	692	728	758	782	800	-2.3	1.7	0.9	0.5
Residential	850	1176	1122	1183	1266	1368	1466	1514	1561	2.8	1.2	1.5	0.6
Services/Agriculture	122	259	578	573	618	687	738	767	800	16.9	0.7	1.8	0.8
Transport	928	1326	1309	1469	1886	2223	2449	2614	2702	3.5	3.7	2.6	1.0
by fuel													
Solids	243	115	97	80	69	82	99	103	98	-8.8	-3.3	3.7	-0.1
Oil	1507	2098	2231	2392	2795	3088	3237	3381	3445	4.0	2.3	1.5	0.6
Gas	603	468	569	665	783	882	941	957	1018	-0.6	3.2	1.9	0.8
Electricity	837	807	905	1096	1261	1404	1539	1622	1714	0.8	3.4	2.0	1.1
Heat (from CHP and District Heating)	177	192	195	196	198	211	229	232	209	1.0	0.1	1.5	-0.9
Other	0	260	435	452	502	580	679	744	773		1.4	3.1	1.3
CO_2 Emissions (Mt of CO_2)	**13.2**	**14.1**	**14.0**	**15.2**	**17.2**	**17.6**	**18.8**	**19.7**	**20.9**	**0.6**	**2.1**	**0.9**	**1.1**
Power generation/District heating	6.2	6.2	5.5	6.2	6.7	5.9	6.5	6.9	7.7	-1.1	1.9	-0.3	1.8
Energy Branch	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.9			0.6
Industry	2.5	1.8	2.3	2.3	2.5	2.6	2.7	2.6	2.7	-0.7	0.5	0.7	0.2
Residential	1.7	2.1	1.3	1.4	1.5	1.6	1.7	1.8	1.9	-2.5	1.7	1.2	1.1
Services/Agriculture	0.0	0.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	46.9	0.7	0.5	0.3
Transport	2.7	3.9	3.8	4.3	5.5	6.3	6.8	7.2	7.4	3.5	3.7	2.3	0.7
CO_2 Emissions Index (1990=100)	**100.0**	**106.8**	**106.3**	**115.7**	**130.5**	**133.4**	**142.9**	**149.8**	**158.7**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Slovenia: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	1.996	1.989	1.988	1.998	2.010	2.019	2.017	2.014	2.006	0.0	0.1	0.0	-0.1
GDP (in 000 M€05)	19.4	18.8	23.3	27.6	33.7	38.8	43.5	48.1	52.3	1.9	3.7	2.6	1.9
Gross Inl. Cons./GDP (toe/M€05)	284.7	324.3	274.9	264.3	241.5	223.9	212.2	194.5	186.9	-0.3	-1.3	-1.3	-1.3
Gross Inl. Cons./Capita (toe/inhabitant)	2.76	3.07	3.23	3.66	4.05	4.30	4.57	4.65	4.87	1.6	2.3	1.2	0.6
Electricity Generated/Capita (kWh gross/inhabitant)	6231	6359	6853	7566	8171	7962	8921	10629	12096	1.0	1.8	0.9	3.1
Carbon intensity (t of CO_2/toe of GIC)	2.38	2.30	2.18	2.08	2.11	2.02	2.04	2.11	2.13	-0.9	-0.3	-0.4	0.5
CO_2 Emissions/Capita (t of CO_2/inhabitant)	6.59	7.07	7.03	7.62	8.54	8.70	9.32	9.79	10.41	0.7	2.0	0.9	1.1
CO_2 Emissions to GDP (t of CO2/M€05)	679.0	746.9	599.2	551.0	509.8	452.6	432.4	409.8	398.9	-1.2	-1.6	-1.6	-0.8
Import Dependency %	46.5	50.1	52.5	52.2	56.1	59.9	59.9	60.2	58.6	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	109.4	109.3	100.0	95.0	86.4	81.2	77.0	73.6	71.0	-0.9	-1.4	-1.1	-0.8
Residential (Energy on Private Income)	97.8	122.0	100.0	92.6	82.0	77.4	74.3	69.6	66.2	0.2	-2.0	-1.0	-1.1
Services/Agriculture (Energy on Value added)	26.5	53.6	100.0	82.6	73.9	71.4	68.4	63.6	60.4	14.2	-3.0	-0.8	-1.2
Transport (Energy on GDP)	85.4	125.6	100.0	94.8	99.8	102.2	100.4	96.9	92.1	1.6	0.0	0.1	-0.9
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.42	0.41	0.34	0.34	0.34	0.31	0.30	0.28	0.29	-2.0	0.1	-1.2	-0.6
Final energy demand (t of CO_2/toe)	2.05	1.99	1.89	1.85	1.87	1.87	1.83	1.82	1.81	-0.8	-0.1	-0.2	-0.1
Industry	1.72	1.55	1.65	1.38	1.35	1.34	1.28	1.23	1.24	-0.4	-2.0	-0.5	-0.4
Residential	1.98	1.80	1.17	1.21	1.22	1.20	1.19	1.22	1.24	-5.2	0.5	-0.3	0.4
Services/Agriculture	0.17	0.13	1.65	1.76	1.65	1.57	1.45	1.44	1.38	25.7	0.0	-1.2	-0.5
Transport	2.88	2.91	2.89	2.94	2.89	2.84	2.80	2.76	2.73	0.0	0.0	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**2861**	**3188**	**3431**	**3513**	**3565**	**3834**	**4082**		**1.8**	**0.4**	**1.4**
Nuclear energy			656	656	666	666	666	697	712		0.2	0.0	0.7
Renewable energy			964	975	982	1041	1061	1070	1092		0.2	0.8	0.3
Hydro (pumping excluded)			964	975	980	1033	1038	1039	1056		0.2	0.6	0.2
Wind			0	0	2	7	22	29	34			27.1	4.4
Solar			0	0	0	1	1	1	2			11.2	8.2
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			1241	1557	1783	1806	1839	2067	2277		3.7	0.3	2.2
of which cogeneration units			244	363	413	403	590	635	782		5.4	3.6	2.9
Solids fired			996	1013	1057	1117	1017	1333	1204		0.6	-0.4	1.7
Gas fired			81	374	530	525	632	558	883		20.7	1.8	3.4
Oil fired			142	99	100	73	60	23	0		-3.4	-5.0	-38.9
Biomass-waste fired			21	71	95	91	130	154	189		16.2	3.2	3.8
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			51.1	50.7	50.9	49.1	54.2	59.5	63.3				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			32.2	32.9	38.1	40.0	44.9	53.8	54.4				
CHP indicator (% of electricity from CHP)			3.5	3.2	9.4	13.1	19.3	18.6	16.4				
Non fossil fuels in electricity generation (%)			63.9	63.0	57.9	60.3	56.5	51.1	48.6				
- nuclear			34.9	38.9	35.0	35.8	32.0	28.2	25.4				
- renewable energy forms			29.0	24.1	22.9	24.5	24.5	22.9	23.2				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			17.0	15.1	14.4	14.5	15.3	16.2	17.5				
Biofuels share in transport gasoline and diesel (%)			0.0	0.0	1.9	4.0	5.8	6.9	8.0				
Transport sector													
Passenger transport activity (Gpkm)	**18.1**	**15.5**	**17.2**	**18.7**	**21.3**	**23.6**	**25.9**	**28.3**	**30.5**	**-0.5**	**2.2**	**2.0**	**1.7**
Public road transport	6.4	2.5	1.6	0.9	0.9	0.9	1.0	1.1	1.1	-13.1	-5.6	1.1	1.2
Private cars and motorcycles	10.0	12.2	14.7	16.8	19.2	21.3	23.2	25.2	27.1	3.9	2.7	1.9	1.6
Rail	1.4	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.5	-6.8	2.5	3.1	2.4
Aviation	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.8	3.1	2.0	5.3	5.0
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Travel per person (km per capita)	9045	7795	8646	9366	10595	11703	12853	14044	15228	-0.4	2.1	2.0	1.7
Freight transport activity (Gtkm)	**9.1**	**6.4**	**8.2**	**14.3**	**20.3**	**24.1**	**26.9**	**29.4**	**31.6**	**-1.1**	**9.6**	**2.8**	**1.6**
Trucks	4.9	3.3	5.3	11.0	15.9	19.0	21.4	23.4	25.0	0.8	11.6	3.0	1.5
Rail	4.2	3.1	2.9	3.2	4.5	5.2	5.5	6.0	6.6	-3.8	4.6	2.1	1.9
Inland navigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Freight activity per unit of GDP (tkm/000 €05)	470	339	350	517	604	622	619	611	604	-2.9	5.6	0.2	-0.2
Energy demand in transport (ktoe)	**928**	**1326**	**1309**	**1469**	**1886**	**2223**	**2449**	**2614**	**2702**	**3.5**	**3.7**	**2.6**	**1.0**
Public road transport	43	58	15	7	8	8	8	8	8	-10.0	-6.7	0.3	0.6
Private cars and motorcycles	498	727	867	828	937	999	1024	1064	1110	5.7	0.8	0.9	0.8
Trucks	330	492	368	582	878	1144	1337	1454	1497	1.1	9.1	4.3	1.1
Rail	29	29	34	29	38	43	42	42	33	1.4	1.3	1.0	-2.4
Aviation	27	20	25	23	25	30	37	45	54	-0.8	0.1	4.1	3.7
Inland navigation	0	0	0	0	0	0	0	0	0				
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	31.6	52.1	52.9	46.0	45.6	44.0	41.3	39.6	38.4	5.3	-1.5	-1.0	-0.7
Freight transport (toe/Mtkm)	39.1	81.1	48.9	42.6	44.9	49.1	51.2	50.9	48.4	2.3	-0.9	1.3	-0.6

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Spain: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**33724**	**31355**	**31345**	**30126**	**35274**	**36406**	**40549**	**35388**	**39248**	**-0.7**	**1.2**	**1.4**	**-0.3**
Solids	11679	10170	7740	6265	5856	4664	4251	3062	2577	-4.0	-2.8	-3.2	-4.9
Oil	794	779	225	165	166	150	100	0	0	-11.8	-3.0	-4.9	
Natural gas	1273	379	148	144	130	100	0	0	0	-19.4	-1.3		
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4
Renewable energy sources	6276	5722	7185	8710	13368	16503	21209	23508	26019	1.4	6.4	4.7	2.1
Hydro	2184	1987	2534	1681	2359	2244	2298	2419	2552	1.5	-0.7	-0.3	1.1
Biomass & Waste	4067	3684	4205	5129	7693	8577	11401	12883	14929	0.3	6.2	4.0	2.7
Wind	1	23	406	1825	3032	5184	6723	7128	7293	79.0	22.3	8.3	0.8
Solar and others	21	25	33	68	276	489	779	1070	1237	4.5	23.8	10.9	4.7
Geothermal	2	3	8	8	8	8	8	8	8	12.3	0.4	0.3	-0.1
Net Imports	**59857**	**75415**	**98351**	**122830**	**130537**	**140086**	**140732**	**148039**	**142672**	**5.1**	**2.9**	**0.8**	**0.1**
Solids	7038	9146	12636	14418	15655	16803	17394	24744	23705	6.0	2.2	1.1	3.1
Oil	49166	58363	69866	78279	79388	82136	84422	85685	85245	3.6	1.3	0.6	0.1
- Crude oil and Feedstocks	53256	55362	58393	59850	61245	63196	64845	65776	65584	0.9	0.5	0.6	0.1
- Oil products	-4091	3001	11473	18429	18143	18941	19577	19909	19661		4.7	0.8	0.0
Natural gas	3690	7521	15467	30248	35008	40564	38360	37257	33285	15.4	8.5	0.9	-1.4
Electricity	-36	386	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6
Gross Inland Consumption	**89401**	**102207**	**122698**	**143487**	**157295**	**167499**	**171906**	**173806**	**172279**	**3.2**	**2.5**	**0.9**	**0.0**
Solids	18942	19515	20643	20698	21511	21468	21645	27806	26283	0.9	0.4	0.1	2.0
Oil	45547	54556	63223	69507	71038	73293	75147	76064	75604	3.3	1.2	0.6	0.1
Natural gas	4970	7722	15219	29844	35138	40664	38360	37257	33285	11.8	8.7	0.9	-1.4
Nuclear	13701	14305	16046	14842	15753	14989	14989	8817	10652	1.6	-0.2	-0.5	-3.4
Electricity	-36	385	382	-115	264	334	225	-20	3		-3.6	-1.6	-34.6
Renewable energy forms	6276	5723	7185	8711	13591	16752	21540	23882	26452	1.4	6.6	4.7	2.1
as % in Gross Inland Consumption													
Solids	21.2	19.1	16.8	14.4	13.7	12.8	12.6	16.0	15.3				
Oil	50.9	53.4	51.5	48.4	45.2	43.8	43.7	43.8	43.9				
Natural gas	5.6	7.6	12.4	20.8	22.3	24.3	22.3	21.4	19.3				
Nuclear	15.3	14.0	13.1	10.3	10.0	8.9	8.7	5.1	6.2				
Renewable energy forms	7.0	5.6	5.9	6.1	8.6	10.0	12.5	13.7	15.4				
Electricity Generation in GWh_e	**150944**	**165585**	**222776**	**290555**	**330397**	**363761**	**386819**	**406570**	**416795**	**4.0**	**4.0**	**1.6**	**0.7**
Nuclear	54258	55445	62195	57529	61059	58096	58096	34176	48490	1.4	-0.2	-0.5	-1.8
Hydro & wind	25409	23381	34206	40843	63359	87713	107746	115878	120472	3.0	6.4	5.5	1.1
Thermal (incl. biomass)	71276	86759	126375	192183	205979	217951	220977	256517	247833	5.9	5.0	0.7	1.2
Fuel Inputs for Thermal Power Generation	**16682**	**18603**	**26461**	**35416**	**37972**	**39441**	**38260**	**43758**	**39831**	**4.7**	**3.7**	**0.1**	**0.4**
Solids	13881	13585	18249	17641	18899	19065	19331	25635	24193	2.8	0.4	0.2	2.3
Oil (including refinery gas)	2170	3654	4442	5246	1896	557	604	700	726	7.4	-8.2	-10.8	1.9
Gas	486	987	3075	11140	14182	18017	13452	11535	8517	20.3	16.5	-0.5	-4.5
Biomass & Waste	145	377	694	1389	2995	1802	4873	5888	6395	16.9	15.7	5.0	2.8
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**57883**	**58965**	**63144**	**63843**	**65288**	**68677**	**70933**	**72094**	**71998**	**0.9**	**0.3**	**0.8**	**0.1**
Refineries	53753	56041	60048	60507	60979	63157	64882	65779	65623	1.1	0.2	0.6	0.1
Biofuels and hydrogen production	0	0	65	259	2096	3651	4405	4888	5171		41.5	7.7	1.6
District heating	0	0	0	0	0	0	0	0	0			-0.5	0.6
Others	4131	2924	3031	3077	2213	1869	1646	1427	1205	-3.0	-3.1	-2.9	-3.1
Energy Branch Consumption	**4757**	**5473**	**6118**	**6397**	**5854**	**5975**	**6151**	**6517**	**6549**	**2.5**	**-0.4**	**0.5**	**0.6**
Non-Energy Uses	**5847**	**8006**	**9094**	**7823**	**8098**	**8600**	**9081**	**9428**	**9613**	**4.5**	**-1.2**	**1.2**	**0.6**
Final Energy Demand	**56647**	**63536**	**79422**	**97170**	**108516**	**117655**	**122658**	**125386**	**126148**	**3.4**	**3.2**	**1.2**	**0.3**
by sector													
Industry	20014	20476	25474	31036	34229	37377	39390	40265	40532	2.4	3.0	1.4	0.3
- energy intensive industries	13069	13620	17260	20421	22305	24152	25140	25517	25582	2.8	2.6	1.2	0.2
- other industrial sectors	6945	6856	8213	10615	11924	13226	14250	14748	14950	1.7	3.8	1.8	0.5
Residential	9266	9986	11871	15150	16865	17666	17768	17798	17664	2.5	3.6	0.5	-0.1
Services/Agriculture	5041	7007	9219	11556	12631	13455	13751	13933	13972	6.2	3.2	0.9	0.2
Transport	22326	26069	32858	39428	44791	49157	51750	53390	53980	3.9	3.1	1.5	0.4
by fuel													
Solids	3524	2235	1671	1782	1633	1591	1602	1575	1598	-7.2	-0.2	-0.2	0.0
Oil	33488	38971	45784	52776	56829	59943	61325	61962	61428	3.2	2.2	0.8	0.0
Gas	4873	6841	12141	17978	20792	22164	24277	24857	24029	9.6	5.5	1.6	-0.1
Electricity	10817	12116	16205	20827	24489	27189	28798	29785	30537	4.1	4.2	1.6	0.6
Heat (from CHP and District Heating)	0	39	74	0	21	20	27	25	24		-11.9	2.7	-1.2
Other	3945	3335	3547	3806	4752	6748	6629	7182	8532	-1.1	3.0	3.4	2.6
CO_2 Emissions (Mt of CO_2)	**203.3**	**225.7**	**283.2**	**339.4**	**357.7**	**375.8**	**375.2**	**398.6**	**381.3**	**3.4**	**2.4**	**0.5**	**0.2**
Power generation/District heating	63.6	68.2	94.1	113.2	114.3	119.6	110.1	130.7	118.0	4.0	2.0	-0.4	0.7
Energy Branch	11.5	13.1	13.6	14.7	13.6	14.0	14.0	13.9	13.1	1.6	0.1	0.3	-0.7
Industry	41.9	43.4	48.9	58.2	63.7	66.2	70.0	70.3	67.2	1.6	2.7	1.0	-0.4
Residential	12.9	13.6	16.4	20.4	21.2	21.6	21.0	20.5	19.9	2.5	2.6	-0.1	-0.5
Services/Agriculture	7.7	10.5	12.9	16.2	16.3	16.6	16.3	15.9	15.3	5.3	2.3	0.0	-0.6
Transport	65.6	76.9	97.3	116.7	128.5	137.8	143.8	147.3	147.8	4.0	2.8	1.1	0.3
CO_2 Emissions Index (1990=100)	**100.0**	**111.0**	**139.3**	**166.9**	**175.9**	**184.8**	**184.5**	**196.0**	**187.5**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)													Spain: Baseline scenario
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	38.826	39.343	40.050	43.047	44.433	45.264	45.559	45.556	45.379	0.3	1.0	0.3	0.0
GDP (in 000 M€05)	573.7	631.5	772.2	905.5	1065.0	1242.2	1410.8	1556.3	1674.6	3.0	3.3	2.9	1.7
Gross Inl. Cons./GDP (toe/M€05)	155.8	161.8	158.9	158.5	147.7	134.8	121.8	111.7	102.9	0.2	-0.7	-1.9	-1.7
Gross Inl. Cons./Capita (toe/inhabitant)	2.30	2.60	3.06	3.33	3.54	3.70	3.77	3.82	3.80	2.9	1.5	0.6	0.1
Electricity Generated/Capita (kWh gross/inhabitant)	3888	4209	5562	6750	7436	8036	8491	8925	9185	3.6	2.9	1.3	0.8
Carbon intensity (t of CO_2/toe of GIC)	2.27	2.21	2.31	2.37	2.27	2.24	2.18	2.29	2.21	0.1	-0.1	-0.4	0.1
CO_2 Emissions/Capita (t of CO_2/inhabitant)	5.24	5.74	7.07	7.88	8.05	8.30	8.24	8.75	8.40	3.0	1.3	0.2	0.2
CO_2 Emissions to GDP (t of CO2/M€05)	354.5	357.5	366.8	374.8	335.9	302.5	266.0	256.1	227.7	0.3	-0.9	-2.3	-1.5
Import Dependency %	64.2	71.6	76.5	81.2	78.7	79.4	77.6	80.7	78.4	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	96.6	97.9	100.0	114.8	108.9	101.2	93.2	87.2	82.9	0.3	0.9	-1.5	-1.2
Residential (Energy on Private Income)	103.7	102.8	100.0	107.5	102.6	92.9	82.9	75.7	70.1	-0.4	0.3	-2.1	-1.7
Services/Agriculture (Energy on Value added)	68.6	89.1	100.0	106.9	100.3	91.7	82.5	76.1	71.4	3.8	0.0	-1.9	-1.4
Transport (Energy on GDP)	91.5	97.0	100.0	102.3	98.8	93.0	86.2	80.6	75.8	0.9	-0.1	-1.4	-1.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.42	0.41	0.42	0.39	0.35	0.33	0.28	0.32	0.28	0.0	-1.9	-1.9	-0.1
Final energy demand (t of CO_2/toe)	2.26	2.27	2.21	2.18	2.12	2.06	2.05	2.03	1.98	-0.2	-0.4	-0.3	-0.3
Industry	2.10	2.12	1.92	1.87	1.86	1.77	1.78	1.75	1.66	-0.9	-0.3	-0.5	-0.7
Residential	1.39	1.36	1.39	1.34	1.26	1.22	1.18	1.15	1.13	0.0	-0.9	-0.7	-0.4
Services/Agriculture	1.53	1.50	1.40	1.40	1.29	1.23	1.19	1.14	1.10	-0.9	-0.8	-0.8	-0.8
Transport	2.94	2.95	2.96	2.96	2.87	2.80	2.78	2.76	2.74	0.1	-0.3	-0.3	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**60718**	**80297**	**91569**	**98732**	**109134**	**112098**	**117458**		**4.2**	**1.8**	**0.7**
Nuclear energy			7579	7579	7434	6986	6986	4107	5600		-0.2	-0.6	-2.2
Renewable energy			14974	22714	30615	40396	49344	52645	56189		7.4	4.9	1.3
Hydro (pumping excluded)			12725	12725	13817	13820	13822	13822	13822		0.8	0.0	0.0
Wind			2235	9937	16363	25712	33692	35695	38509		22.0	7.5	1.3
Solar			14	52	435	864	1830	3128	3858		41.5	15.4	7.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			38166	50004	53520	51350	52803	55346	55669		3.4	-0.1	0.5
of which cogeneration units			5017	7578	7906	8052	10456	11436	11482		4.7	2.8	0.9
Solids fired			11352	11485	11277	10570	11342	15425	16378		-0.1	0.1	3.7
Gas fired			19801	32257	35544	34467	33883	32314	31804		6.0	-0.5	-0.6
Oil fired			6518	5375	5589	5216	3925	3248	2504		-1.5	-3.5	-4.4
Biomass-waste fired			495	887	1109	1097	3653	4360	4982		8.4	12.7	3.2
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			40.0	39.6	39.8	40.8	39.1	39.6	38.7				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			41.1	46.7	46.7	47.5	49.7	50.4	53.5				
CHP indicator (% of electricity from CHP)			7.4	13.5	12.0	11.3	14.6	15.2	14.7				
Non fossil fuels in electricity generation (%)			44.8	35.7	41.7	42.4	48.8	43.8	48.3				
- nuclear			27.9	19.8	18.5	16.0	15.0	8.4	11.6				
- renewable energy forms			16.9	15.9	23.3	26.4	33.8	35.4	36.7				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			8.2	8.2	10.5	12.7	15.6	16.8	18.5				
Biofuels share in transport gasoline and diesel (%)			0.2	0.8	4.5	7.3	8.5	9.3	10.0				
Transport sector													
Passenger transport activity (Gpkm)	**276.7**	**372.3**	**461.8**	**535.3**	**617.2**	**700.1**	**772.5**	**830.0**	**867.9**	**5.3**	**2.9**	**2.3**	**1.2**
Public road transport	33.4	39.6	50.3	54.6	56.9	59.4	62.1	64.4	66.4	4.2	1.3	0.9	0.7
Private cars and motorcycles	182.0	258.4	310.7	369.2	427.8	481.4	523.2	552.2	568.0	5.5	3.3	2.0	0.8
Rail	19.9	20.8	25.4	27.2	29.2	32.2	35.9	41.3	46.7	2.5	1.4	2.1	2.7
Aviation	39.5	51.4	73.6	82.2	100.9	124.7	148.9	169.7	184.4	6.4	3.2	4.0	2.2
Inland navigation	2.1	2.0	1.9	2.1	2.3	2.4	2.4	2.4	2.4	-0.7	1.8	0.4	0.0
Travel per person (km per capita)	7127	9462	11532	12435	13890	15466	16957	18220	19126	4.9	1.9	2.0	1.2
Freight transport activity (Gtkm)	**128.0**	**150.5**	**191.3**	**276.4**	**320.0**	**358.0**	**391.5**	**414.0**	**421.0**	**4.1**	**5.3**	**2.0**	**0.7**
Trucks	83.8	101.6	148.7	233.2	272.7	305.0	333.3	353.6	359.8	5.9	6.3	2.0	0.8
Rail	11.2	11.0	11.6	11.1	12.4	13.9	15.3	16.2	16.6	0.4	0.6	2.1	0.8
Inland navigation	33.0	38.0	31.0	32.0	34.9	39.1	42.9	44.2	44.6	-0.6	1.2	2.1	0.4
Freight activity per unit of GDP (tkm/000 €05)	223	238	248	305	300	288	278	266	251	1.1	1.9	-0.8	-1.0
Energy demand in transport (ktoe)	**22326**	**26069**	**32858**	**39428**	**44791**	**49157**	**51750**	**53390**	**53980**	**3.9**	**3.1**	**1.5**	**0.4**
Public road transport	224	221	275	284	280	278	281	281	286	2.1	0.2	0.0	0.2
Private cars and motorcycles	7830	10598	14286	16266	17858	18934	19383	19579	19549	6.2	2.3	0.8	0.1
Trucks	9634	9647	11587	14854	17348	19247	20364	20805	20627	1.9	4.1	1.6	0.1
Rail	528	626	847	1166	1210	1287	1307	1267	939	4.8	3.6	0.8	-3.3
Aviation	2456	3105	4486	5323	6429	7599	8485	9523	10672	6.2	3.7	2.8	2.3
Inland navigation	1655	1871	1378	1534	1667	1810	1930	1936	1908	-1.8	1.9	1.5	-0.1
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	40.0	39.0	42.4	42.1	40.9	39.3	37.3	36.2	36.0	0.6	-0.4	-0.9	-0.4
Freight transport (toe/Mtkm)	87.8	76.6	69.3	61.1	61.0	60.5	58.6	56.3	54.1	-2.3	-1.3	-0.4	-0.8

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Sweden: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**29728**	**31514**	**30077**	**34378**	**36076**	**36696**	**37316**	**38092**	**38467**	**0.1**	**1.8**	**0.3**	**0.3**
Solids	216	321	231	302	306	306	270	246	145	0.7	2.9	-1.2	-6.0
Oil	3	4	0	0	0	0	0	0	0				
Natural gas	0	0	0	0	0	0	0	0	0				
Nuclear	17764	18040	14781	18670	19475	19476	19477	19479	19479	-1.8	2.8	0.0	0.0
Renewable energy sources	11745	13149	15065	15406	16295	16914	17568	18367	18843	2.5	0.8	0.8	0.7
Hydro	6234	5856	6757	6260	6226	6253	6279	6279	6279	0.8	-0.8	0.1	0.0
Biomass & Waste	5507	7279	8264	9059	9691	10203	10820	11593	12002	4.1	1.6	1.1	1.0
Wind	1	9	39	80	356	423	425	446	506	54.2	24.7	1.8	1.8
Solar and others	3	5	5	6	21	35	44	50	56	5.3	14.9	7.5	2.4
Geothermal	0	0	0	0	0	0	0	0	0			1.2	-0.1
Net Imports	**17923**	**19281**	**19172**	**19867**	**21489**	**22941**	**23246**	**23200**	**22886**	**0.7**	**1.1**	**0.8**	**-0.2**
Solids	2329	2657	2340	2462	3029	5065	5177	4959	4776	0.0	2.6	5.5	-0.8
Oil	15169	16014	15654	17198	18006	17195	16714	16747	16615	0.3	1.4	-0.7	-0.1
- Crude oil and Feedstocks	16989	17815	20372	19825	20649	20112	19770	19823	19693	1.8	0.1	-0.4	0.0
- Oil products	-1820	-1801	-4718	-2626	-2643	-2916	-3056	-3076	-3078				
Natural gas	577	755	776	843	1382	2144	2767	2817	2853	3.0	5.9	7.2	0.3
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358				
Gross Inland Consumption	**47166**	**50446**	**47849**	**51555**	**55528**	**57527**	**58377**	**59023**	**59009**	**0.1**	**1.5**	**0.5**	**0.1**
Solids	2677	2893	2442	2626	3335	5371	5447	5206	4921	-0.9	3.2	5.0	-1.0
Oil	14555	15754	14382	14646	15969	15085	14529	14478	14271	-0.1	1.1	-0.9	-0.2
Natural gas	577	755	776	843	1382	2144	2767	2817	2853	3.0	5.9	7.2	0.3
Nuclear	17764	18040	14781	18670	19475	19476	19477	19479	19479	-1.8	2.8	0.0	0.0
Electricity	-152	-145	402	-636	-928	-1463	-1411	-1324	-1358				
Renewable energy forms	11745	13149	15065	15406	16295	16914	17568	18367	18843	2.5	0.8	0.8	0.7
as % in Gross Inland Consumption													
Solids	5.7	5.7	5.1	5.1	6.0	9.3	9.3	8.8	8.3				
Oil	30.9	31.2	30.1	28.4	28.8	26.2	24.9	24.5	24.2				
Natural gas	1.2	1.5	1.6	1.6	2.5	3.7	4.7	4.8	4.8				
Nuclear	37.7	35.8	30.9	36.2	35.1	33.9	33.4	33.0	33.0				
Renewable energy forms	24.9	26.1	31.5	29.9	29.3	29.4	30.1	31.1	31.9				
Electricity Generation in GWh_e	**145958**	**148264**	**145524**	**158341**	**172992**	**185921**	**188746**	**190416**	**191585**	**0.0**	**1.7**	**0.9**	**0.1**
Nuclear	68173	69922	57306	72364	75517	75881	75886	75891	75893	-1.7	2.8	0.0	0.0
Hydro & wind	72496	68189	79027	73731	76542	77626	77964	78206	78909	0.9	-0.3	0.2	0.1
Thermal (incl. biomass)	5289	10153	9191	12246	20933	32414	34896	36319	36783	5.7	8.6	5.2	0.5
Fuel Inputs for Thermal Power Generation	**1491**	**3245**	**3239**	**4465**	**5304**	**6291**	**6195**	**5786**	**5512**	**8.1**	**5.1**	**1.6**	**-1.2**
Solids	558	705	467	494	724	1000	646	507	166	-1.8	4.5	-1.1	-12.7
Oil (including refinery gas)	253	737	276	316	172	46	14	1	1	0.9	-4.6	-22.3	-25.6
Gas	253	406	414	490	162	400	477	553	596	5.0	-8.9	11.4	2.2
Biomass & Waste	427	1398	2083	3166	4247	4844	5057	4724	4749	17.2	7.4	1.8	-0.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**20579**	**23463**	**25294**	**24304**	**24610**	**24419**	**24322**	**24379**	**24224**	**2.1**	**-0.3**	**-0.1**	**0.0**
Refineries	18041	19475	21618	20537	20627	20101	19765	19821	19692	1.8	-0.5	-0.4	0.0
Biofuels and hydrogen production	0	0	0	210	422	631	794	928	1053			6.5	2.9
District heating	1123	2373	1973	1722	1648	1749	1763	1705	1664	5.8	-1.8	0.7	-0.6
Others	1415	1615	1704	1835	1913	1938	2000	1926	1815	1.9	1.2	0.4	-1.0
Energy Branch Consumption	**1758**	**1629**	**1532**	**1424**	**1555**	**1661**	**1680**	**1743**	**1735**	**-1.4**	**0.1**	**0.8**	**0.3**
Non-Energy Uses	**1769**	**1772**	**1771**	**2344**	**2518**	**2550**	**2570**	**2586**	**2602**	**0.0**	**3.6**	**0.2**	**0.1**
Final Energy Demand	**30514**	**32602**	**33302**	**33145**	**35036**	**37032**	**38260**	**39533**	**39938**	**0.9**	**0.5**	**0.9**	**0.4**
by sector													
Industry	11857	11527	12047	12042	12992	14260	14931	15674	15855	0.2	0.8	1.4	0.6
- energy intensive industries	8574	8572	9161	9204	9767	10688	11143	11725	11796	0.7	0.6	1.3	0.6
- other industrial sectors	3283	2955	2886	2838	3225	3572	3788	3949	4059	-1.3	1.1	1.6	0.7
Residential	6840	8032	7546	7882	8122	8270	8308	8381	8374	1.0	0.7	0.2	0.1
Services/Agriculture	4555	5378	5581	4577	4835	4974	5090	5186	5249	2.1	-1.4	0.5	0.3
Transport	7263	7666	8128	8643	9087	9527	9931	10293	10460	1.1	1.1	0.9	0.5
by fuel													
Solids	1231	1192	1141	1345	1594	2846	3176	3061	3167	-0.8	3.4	7.1	0.0
Oil	12004	12567	12341	11087	11676	10968	11134	11354	11380	0.3	-0.6	-0.5	0.2
Gas	587	611	673	746	1687	2248	2406	2203	2102	1.4	9.6	3.6	-1.3
Electricity	10348	10711	11068	11382	12148	12640	12913	13076	13135	0.7	0.9	0.6	0.2
Heat (from CHP and District Heating)	1706	3540	3550	4174	3868	3981	4013	4018	3977	7.6	0.9	0.4	-0.1
Other	4639	3981	4528	4410	4063	4349	4618	5821	6176	-0.2	-1.1	1.3	3.0
CO_2 Emissions (Mt of CO_2)	**50.5**	**54.0**	**50.5**	**48.5**	**53.6**	**61.1**	**61.5**	**60.9**	**59.6**	**0.0**	**0.6**	**1.4**	**-0.3**
Power generation/District heating	6.3	7.9	5.1	5.5	4.9	8.2	6.7	6.7	5.4	-2.0	-0.4	3.1	-2.0
Energy Branch	1.5	1.8	1.9	2.3	2.3	2.6	2.2	2.1	2.0	2.3	1.7	-0.3	-1.1
Industry	11.6	12.5	11.0	12.2	16.5	19.7	21.0	19.4	19.2	-0.5	4.1	2.4	-0.9
Residential	4.8	4.6	3.7	1.4	1.7	1.7	1.8	2.0	2.1	-2.6	-7.7	0.6	1.9
Services/Agriculture	5.6	5.4	5.6	3.1	3.3	3.2	3.3	3.3	3.4	0.0	-5.2	0.1	0.3
Transport	20.7	21.8	23.2	24.0	24.9	25.7	26.5	27.3	27.5	1.1	0.7	0.6	0.4
CO_2 Emissions Index (1990=100)	**100.0**	**107.0**	**100.2**	**96.2**	**106.3**	**121.2**	**121.8**	**120.7**	**118.2**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)										Sweden: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	8.527	8.816	8.861	9.011	9.192	9.373	9.575	9.769	9.911	0.4	0.4	0.4	0.3
GDP (in 000 M€05)	208.1	218.5	256.1	287.7	336.0	378.5	421.2	464.1	502.5	2.1	2.8	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	226.6	230.9	186.8	179.2	165.3	152.0	138.6	127.2	117.4	-1.9	-1.2	-1.7	-1.6
Gross Inl. Cons./Capita (toe/inhabitant)	5.53	5.72	5.40	5.72	6.04	6.14	6.10	6.04	5.95	-0.2	1.1	0.1	-0.2
Electricity Generated/Capita (kWh gross/inhabitant)	17117	16817	16422	17571	18819	19836	19711	19493	19330	-0.4	1.4	0.5	-0.2
Carbon intensity (t of CO_2/toe of GIC)	1.07	1.07	1.06	0.94	0.97	1.06	1.05	1.03	1.01	-0.1	-0.9	0.9	-0.4
CO_2 Emissions/Capita (t of CO_2/inhabitant)	5.92	6.12	5.70	5.39	5.83	6.52	6.42	6.23	6.02	-0.4	0.2	1.0	-0.6
CO_2 Emissions to GDP (t of CO2/M€05)	242.4	247.2	197.3	168.7	159.6	161.5	145.9	131.2	118.7	-2.0	-2.1	-0.9	-2.0
Import Dependency %	37.5	37.5	39.0	37.2	37.3	38.5	38.4	37.9	37.3	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	177.2	136.0	100.0	82.4	73.8	70.6	65.7	62.5	58.5	-5.6	-3.0	-1.2	-1.2
Residential (Energy on Private Income)	106.8	124.4	100.0	96.2	87.1	80.0	73.2	67.7	62.8	-0.7	-1.4	-1.7	-1.5
Services/Agriculture (Energy on Value added)	94.9	109.2	100.0	75.3	68.2	62.3	57.2	52.6	48.9	0.5	-3.8	-1.7	-1.6
Transport (Energy on GDP)	110.0	110.6	100.0	94.7	85.2	79.3	74.3	69.9	65.6	-0.9	-1.6	-1.4	-1.2
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.04	0.04	0.03	0.03	0.02	0.04	0.03	0.03	0.02	-3.1	-1.9	2.3	-2.1
Final energy demand (t of CO_2/toe)	1.40	1.36	1.31	1.23	1.32	1.36	1.37	1.32	1.31	-0.7	0.1	0.4	-0.5
Industry	0.97	1.08	0.91	1.01	1.27	1.38	1.41	1.24	1.21	-0.6	3.4	1.0	-1.5
Residential	0.70	0.57	0.49	0.18	0.20	0.21	0.21	0.24	0.25	-3.5	-8.4	0.4	1.8
Services/Agriculture	1.23	1.00	1.00	0.68	0.67	0.64	0.64	0.65	0.64	-2.0	-3.8	-0.5	-0.1
Transport	2.85	2.85	2.85	2.77	2.75	2.70	2.67	2.65	2.63	0.0	-0.4	-0.3	-0.2
Electricity and steam generation													
Net Generation Capacity in MW_e			**32460**	**33376**	**35604**	**36244**	**37015**	**38943**	**40152**		**0.9**	**0.4**	**0.8**
Nuclear energy			9584	9630	9044	9446	9449	9449	9449		-0.6	0.4	0.0
Renewable energy			15856	16148	17273	17544	17563	17582	17821		0.9	0.2	0.1
Hydro (pumping excluded)			15625	15651	15651	15651	15651	15576	15576		0.0	0.0	0.0
Wind			231	493	1612	1872	1881	1961	2184		21.4	1.6	1.5
Solar			0	4	10	22	32	45	61			11.9	6.7
Other renewables (tidal etc.)			0	0	0	0	0	0	0				
Thermal power			7021	7598	9286	9254	10003	11912	12883		2.8	0.7	2.6
of which cogeneration units			3791	4762	3704	5068	5434	5887	5897		-0.2	3.9	0.8
Solids fired			847	868	756	724	666	620	262		-1.1	-1.3	-8.9
Gas fired			514	522	942	1298	2996	4587	5263		6.2	12.3	5.8
Oil fired			4271	4366	4135	3022	1586	1596	1919		-0.3	-9.1	1.9
Biomass-waste fired			1389	1842	3453	4210	4755	5108	5440		9.5	3.3	1.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			49.9	52.8	53.9	56.7	56.3	53.8	52.5				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			24.4	23.6	33.9	44.3	48.4	54.0	57.4				
CHP indicator (% of electricity from CHP)			5.9	7.5	9.0	13.4	15.0	16.2	17.0				
Non fossil fuels in electricity generation (%)			96.8	97.7	96.7	95.8	96.5	96.7	97.4				
- nuclear			39.4	45.7	43.7	40.8	40.2	39.9	39.6				
- renewable energy forms			57.4	52.0	53.0	55.0	56.3	56.9	57.8				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			42.3	42.4	39.8	39.2	39.8	40.9	42.0				
Biofuels share in transport gasoline and diesel (%)			0.0	2.8	4.1	6.0	7.3	8.4	9.6				
Transport sector													
Passenger transport activity (Gpkm)	**120.6**	**123.8**	**134.0**	**142.2**	**156.0**	**168.7**	**181.0**	**193.1**	**203.9**	**1.1**	**1.5**	**1.5**	**1.2**
Public road transport	8.0	8.5	9.5	9.0	9.1	9.3	9.7	10.1	10.4	1.7	-0.4	0.6	0.7
Private cars and motorcycles	87.6	88.1	93.3	99.4	108.4	115.9	123.3	130.9	137.2	0.6	1.5	1.3	1.1
Rail	8.6	8.8	10.2	11.0	12.1	13.6	14.7	15.5	16.5	1.7	1.7	2.0	1.2
Aviation	8.1	10.8	13.8	15.6	19.1	22.4	25.7	28.9	31.8	5.4	3.3	3.0	2.1
Inland navigation	8.3	7.7	7.2	7.2	7.3	7.4	7.6	7.7	7.9	-1.3	0.1	0.4	0.4
Travel per person (km per capita)	14140	14044	15127	15783	16966	17997	18905	19765	20568	0.7	1.2	1.1	0.8
Freight transport activity (Gtkm)	**53.9**	**58.9**	**62.0**	**67.3**	**75.5**	**82.7**	**89.5**	**96.2**	**102.0**	**1.4**	**2.0**	**1.7**	**1.3**
Trucks	26.5	31.6	35.6	38.6	43.6	47.2	51.1	55.3	59.0	3.0	2.0	1.6	1.5
Rail	19.1	19.4	19.5	21.7	24.6	27.7	30.1	32.1	34.0	0.2	2.4	2.0	1.2
Inland navigation	8.3	7.9	6.9	7.0	7.3	7.8	8.4	8.8	9.0	-1.8	0.6	1.4	0.7
Freight activity per unit of GDP (tkm/000 €05)	259	269	242	234	225	218	213	207	203	-0.7	-0.7	-0.6	-0.5
Energy demand in transport (ktoe)	**7263**	**7666**	**8128**	**8643**	**9087**	**9527**	**9931**	**10293**	**10460**	**1.1**	**1.1**	**0.9**	**0.5**
Public road transport	230	275	189	156	146	145	149	152	151	-2.0	-2.6	0.2	0.2
Private cars and motorcycles	4004	4099	4086	4472	4512	4633	4736	4746	4699	0.2	1.0	0.5	-0.1
Trucks	1872	2066	2471	2695	2965	3120	3272	3464	3535	2.8	1.8	1.0	0.8
Rail	252	273	299	332	366	388	391	385	389	1.7	2.0	0.7	0.0
Aviation	760	849	928	846	954	1092	1231	1389	1529	2.0	0.3	2.6	2.2
Inland navigation	143	103	154	141	144	148	153	156	157	0.8	-0.7	0.6	0.3
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	42.9	43.4	40.2	39.7	37.1	35.8	34.8	33.5	32.2	-0.6	-0.8	-0.6	-0.8
Freight transport (toe/Mtkm)	38.8	39.0	44.2	44.6	43.8	42.1	40.7	39.8	38.2	1.3	-0.1	-0.7	-0.6

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

United Kingdom: Baseline scenario										SUMMARY ENERGY BALANCE AND INDICATORS (A)			
ktoe	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**'90-'00**	**'00-'10**	**'10-'20**	**'20-'30**
										Annual % Change			
Primary Production	**205508**	**249865**	**268722**	**202300**	**168638**	**108066**	**75439**	**68290**	**70757**	**2.7**	**-4.6**	**-7.7**	**-0.6**
Solids	54125	30516	18577	12172	10500	9000	8000	7000	6000	-10.1	-5.5	-2.7	-2.8
Oil	92813	132390	128014	86203	70000	45000	25000	20000	18000	3.3	-5.9	-9.8	-3.2
Natural gas	40925	63715	97554	78823	63000	30000	24000	18000	15000	9.1	-4.3	-9.2	-4.6
Nuclear	16574	21249	21942	21054	18742	15918	7517	9903	16255	2.8	-1.6	-8.7	8.0
Renewable energy sources	1070	1996	2635	4048	6396	8148	10922	13387	15501	9.4	9.3	5.5	3.6
Hydro	436	416	437	427	417	436	452	485	523	0.0	-0.5	0.8	1.5
Biomass & Waste	627	1539	2104	3340	4816	5974	7352	8586	9685	12.9	8.6	4.3	2.8
Wind	1	34	81	250	1003	1360	2481	3528	4359	59.3	28.5	9.5	5.8
Solar and others	5	6	11	30	159	377	636	785	933	8.1	30.4	14.8	3.9
Geothermal	1	1	1	1	1	1	2	2	3	0.0	4.4	4.1	3.3
Net Imports	**5932**	**-36021**	**-39030**	**32641**	**61330**	**125828**	**152748**	**160884**	**159517**			**9.6**	**0.4**
Solids	9122	10493	14577	27467	32253	33846	31337	31963	27533	4.8	8.3	-0.3	-1.3
Oil	-10396	-48554	-45515	-2171	16498	43753	65237	71556	74842			14.7	1.4
- Crude oil and Feedstocks	-4537	-36357	-39025	4856	21747	49029	70525	76853	80146			12.5	1.3
- Oil products	-5858	-12196	-6490	-7027	-5249	-5275	-5288	-5297	-5304				
Natural gas	6178	637	-9311	5973	10783	46128	53897	54975	54820			17.5	0.2
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7
Gross Inland Consumption	**211082**	**218011**	**231368**	**232259**	**227928**	**231814**	**226072**	**227036**	**228131**	**0.9**	**-0.1**	**-0.1**	**0.1**
Solids	64305	45866	36816	38186	42753	42846	39337	38963	33533	-5.4	1.5	-0.8	-1.6
Oil	80903	82378	81357	82701	84458	86674	88123	89418	90700	0.1	0.4	0.4	0.3
Natural gas	47203	65119	87399	84898	73783	76128	77897	72975	69820	6.4	-1.7	0.5	-1.1
Nuclear	16574	21249	21942	21054	18742	15918	7517	9903	16255	2.8	-1.6	-8.7	8.0
Electricity	1027	1403	1219	715	849	925	832	702	417	1.7	-3.6	-0.2	-6.7
Renewable energy forms	1070	1996	2635	4704	7343	9323	12367	15075	17405	9.4	10.8	5.4	3.5
as % in Gross Inland Consumption													
Solids	30.5	21.0	15.9	16.4	18.8	18.5	17.4	17.2	14.7				
Oil	38.3	37.8	35.2	35.6	37.1	37.4	39.0	39.4	39.8				
Natural gas	22.4	29.9	37.8	36.6	32.4	32.8	34.5	32.1	30.6				
Nuclear	7.9	9.7	9.5	9.1	8.2	6.9	3.3	4.4	7.1				
Renewable energy forms	0.5	0.9	1.1	2.0	3.2	4.0	5.5	6.6	7.6				
Electricity Generation in GWh_e	**316937**	**332435**	**374308**	**397522**	**414854**	**431516**	**451496**	**469320**	**479224**	**1.7**	**1.0**	**0.8**	**0.6**
Nuclear	65735	88948	85048	81603	72657	61709	29140	40603	72535	2.6	-1.6	-8.7	9.5
Hydro & wind	5083	5228	6033	7876	16536	20928	35427	49039	60370	1.7	10.6	7.9	5.5
Thermal (incl. biomass)	246119	238259	283227	308044	325661	348878	386929	379678	346319	1.4	1.4	1.7	-1.1
Fuel Inputs for Thermal Power Generation	**56319**	**49920**	**55481**	**61996**	**61759**	**65239**	**64926**	**61842**	**54797**	**-0.1**	**1.1**	**0.5**	**-1.7**
Solids	47267	33844	27232	30920	35753	36122	32877	33262	28334	-5.4	2.8	-0.8	-1.5
Oil (including refinery gas)	7172	3403	806	815	0	0	1	17	0	-19.6			-8.3
Gas	1668	12054	26033	26807	22910	25856	28094	23798	20856	31.6	-1.3	2.1	-2.9
Biomass & Waste	212	620	1410	3455	3096	3261	3954	4764	5607	20.9	8.2	2.5	3.6
Geothermal heat	0	0	0	0	0	0	0	0	0				
Hydrogen - Methanol	0	0	0	0	0	0	0	0	0				
Fuel Input in other transformation proc.	**99146**	**102334**	**100335**	**94812**	**97199**	**101192**	**104028**	**105685**	**107309**	**0.1**	**-0.3**	**0.7**	**0.3**
Refineries	89882	94255	89299	87320	90065	93311	95300	96893	98324	-0.1	0.1	0.6	0.3
Biofuels and hydrogen production	0	0	0	80	1433	2583	3842	4532	5084			10.4	2.8
District heating	0	0	3354	1976	1035	896	790	703	635		-11.1	-2.7	-2.2
Others	9263	8079	7682	5436	4665	4402	4096	3558	3266	-1.9	-4.9	-1.3	-2.2
Energy Branch Consumption	**12836**	**14401**	**15039**	**15383**	**13559**	**13430**	**13600**	**13375**	**12971**	**1.6**	**-1.0**	**0.0**	**-0.5**
Non-Energy Uses	**11173**	**12550**	**11152**	**11510**	**11828**	**12188**	**12599**	**13009**	**13362**	**0.0**	**0.6**	**0.6**	**0.6**
Final Energy Demand	**136947**	**142429**	**151665**	**151580**	**151639**	**155634**	**158435**	**160377**	**162158**	**1.0**	**0.0**	**0.4**	**0.2**
by sector													
Industry	34962	35132	35909	33889	33935	35146	35899	36346	36677	0.3	-0.6	0.6	0.2
- energy intensive industries	19483	19965	19215	16289	16390	16840	16998	16828	16672	-0.1	-1.6	0.4	-0.2
- other industrial sectors	15479	15167	16694	17600	17544	18307	18901	19518	20005	0.8	0.5	0.7	0.6
Residential	37939	39567	43072	43284	41094	40735	40321	39846	39562	1.3	-0.5	-0.2	-0.2
Services/Agriculture	18596	20863	20359	19170	18632	18991	19232	19369	19502	0.9	-0.9	0.3	0.1
Transport	45451	46867	52324	55236	57979	60762	62983	64816	66417	1.4	1.0	0.8	0.5
by fuel													
Solids	12266	8891	5683	4422	4791	4621	4680	3806	3452	-7.4	-1.7	-0.2	-3.0
Oil	58770	60197	62437	65731	68652	70490	71561	72477	73478	0.6	1.0	0.4	0.3
Gas	41893	47140	52180	49853	43730	43229	42544	42701	42755	2.2	-1.8	-0.3	0.0
Electricity	23597	25274	28325	29686	31321	32841	34068	35041	35562	1.8	1.0	0.8	0.4
Heat (from CHP and District Heating)	0	0	2439	1317	1025	1154	1309	1470	1566		-8.3	2.5	1.8
Other	421	926	600	572	2120	3299	4273	4882	5344	3.6	13.4	7.3	2.3
CO_2 Emissions (Mt of CO_2)	**566.9**	**533.4**	**546.0**	**559.7**	**554.7**	**566.3**	**559.9**	**549.8**	**523.9**	**-0.4**	**0.2**	**0.1**	**-0.7**
Power generation/District heating	214.2	173.6	181.2	193.8	197.8	205.7	197.9	189.7	163.2	-1.7	0.9	0.0	-1.9
Energy Branch	27.9	31.9	33.1	34.6	29.3	29.4	29.2	27.9	27.0	1.7	-1.2	0.0	-0.8
Industry	81.8	78.8	70.5	65.5	65.7	66.6	67.2	65.3	64.8	-1.5	-0.7	0.2	-0.4
Residential	77.8	77.3	81.9	79.7	73.2	70.5	68.2	66.1	64.9	0.5	-1.1	-0.7	-0.5
Services/Agriculture	32.9	35.2	26.7	24.3	21.8	21.6	21.3	21.0	20.9	-2.1	-2.0	-0.2	-0.2
Transport	132.4	136.5	152.7	161.8	166.9	172.5	176.1	179.9	183.2	1.4	0.9	0.5	0.4
CO_2 Emissions Index (1990=100)	**100.0**	**94.1**	**96.3**	**98.7**	**97.8**	**99.9**	**98.8**	**97.0**	**92.4**				

Source: PRIMES

SUMMARY ENERGY BALANCE AND INDICATORS (B)									United Kingdom: Baseline scenario			
	1990	1995	2000	2005	2010	2015	2020	2025	2030	'90-'00	'00-'10	'10-'20	'20-'30
										Annual % Change			
Main Energy System Indicators													
Population (Million)	57.157	57.943	58.785	60.060	61.078	61.934	62.930	63.792	64.388	0.3	0.4	0.3	0.2
GDP (in 000 M€05)	1249.5	1356.6	1587.4	1792.0	2033.9	2288.1	2560.2	2827.6	3065.4	2.4	2.5	2.3	1.8
Gross Inl. Cons./GDP (toe/M€05)	168.9	160.7	145.8	129.6	112.1	101.3	88.3	80.3	74.4	-1.5	-2.6	-2.4	-1.7
Gross Inl. Cons./Capita (toe/inhabitant)	3.69	3.76	3.94	3.87	3.73	3.74	3.59	3.56	3.54	0.6	-0.5	-0.4	-0.1
Electricity Generated/Capita (kWh gross/inhabitant)	5545	5737	6367	6619	6792	6967	7175	7357	7443	1.4	0.6	0.5	0.4
Carbon intensity (t of CO_2/toe of GIC)	2.69	2.45	2.36	2.41	2.43	2.44	2.48	2.42	2.30	-1.3	0.3	0.2	-0.8
CO_2 Emissions/Capita (t of CO_2/inhabitant)	9.92	9.20	9.29	9.32	9.08	9.14	8.90	8.62	8.14	-0.7	-0.2	-0.2	-0.9
CO_2 Emissions to GDP (t of CO2/M€05)	453.7	393.2	344.0	312.3	272.7	247.5	218.7	194.4	170.9	-2.7	-2.3	-2.2	-2.4
Import Dependency %	2.8	-16.3	-16.7	13.9	26.7	53.8	66.9	70.2	69.3	0.0	0.0	0.0	0.0
Energy intensity indicators (2000=100)													
Industry (Energy on Value added)	106.1	104.6	100.0	97.3	94.0	89.5	84.5	79.4	75.7	-0.6	-0.6	-1.1	-1.1
Residential (Energy on Private Income)	114.9	112.1	100.0	87.5	73.6	65.1	57.9	52.0	47.8	-1.4	-3.0	-2.4	-1.9
Services/Agriculture (Energy on Value added)	125.2	126.7	100.0	79.0	66.0	58.8	52.5	47.4	43.6	-2.2	-4.1	-2.3	-1.8
Transport (Energy on GDP)	110.3	104.8	100.0	93.5	86.5	80.6	74.6	69.5	65.7	-1.0	-1.4	-1.5	-1.3
Carbon Intensity indicators													
Electricity and Steam production (t of CO_2/MWh)	0.68	0.52	0.45	0.47	0.46	0.46	0.42	0.39	0.33	-4.0	0.2	-0.9	-2.5
Final energy demand (t of CO_2/toe)	2.37	2.30	2.19	2.19	2.16	2.13	2.10	2.07	2.06	-0.8	-0.1	-0.3	-0.2
Industry	2.34	2.24	1.96	1.93	1.94	1.89	1.87	1.80	1.77	-1.7	-0.1	-0.3	-0.6
Residential	2.05	1.95	1.90	1.84	1.78	1.73	1.69	1.66	1.64	-0.7	-0.7	-0.5	-0.3
Services/Agriculture	1.77	1.69	1.31	1.27	1.17	1.14	1.11	1.08	1.07	-3.0	-1.1	-0.6	-0.3
Transport	2.91	2.91	2.92	2.93	2.88	2.84	2.80	2.78	2.76	0.0	-0.1	-0.3	-0.1
Electricity and steam generation													
Net Generation Capacity in MW_e			**84356**	**90824**	**94919**	**94798**	**96175**	**103293**	**108797**		**1.2**	**0.1**	**1.2**
Nuclear energy			13038	11837	10723	9265	4412	5596	8662		-1.9	-8.5	7.0
Renewable energy			1758	3009	5651	7129	12495	17400	21643		12.4	8.3	5.6
Hydro (pumping excluded)			1350	1437	1457	1475	1489	1500	1514		0.8	0.2	0.2
Wind			406	1562	4161	5511	10257	14553	18064		26.2	9.4	5.8
Solar			2	11	32	66	105	187	313		32.8	12.5	11.6
Other renewables (tidal etc.)			0	0	0	77	645	1160	1752				10.5
Thermal power			69560	75978	78545	78405	79268	80298	78491		1.2	0.1	-0.1
of which cogeneration units			6116	8041	6800	8403	9672	11860	12936		1.1	3.6	3.0
Solids fired			30684	30627	28669	23771	20764	21727	20804		-0.7	-3.2	0.0
Gas fired			27319	33944	38268	42681	46189	48331	48723		3.4	1.9	0.5
Oil fired			10540	9879	9357	9164	7715	5449	4158		-1.2	-1.9	-6.0
Biomass-waste fired			1017	1528	2251	2788	4601	4791	4807		8.3	7.4	0.4
Fuel Cells			0	0	0	0	0	0	0				
Geothermal heat			0	0	0	0	0	0	0				
Load factor for net electric capacities (%)			48.4	47.7	47.9	50.1	51.3	49.4	48.0				
Indicators for gross electricity production													
Efficiency for thermal electricity production (%)			43.9	42.7	45.3	46.0	51.3	52.8	54.4				
CHP indicator (% of electricity from CHP)			9.0	8.5	10.3	12.5	14.1	15.1	15.7				
Non fossil fuels in electricity generation (%)			25.6	25.9	24.7	22.5	18.6	23.8	33.2				
- nuclear			22.7	20.5	17.5	14.3	6.5	8.7	15.1				
- renewable energy forms			2.9	5.3	7.2	8.2	12.2	15.2	18.0				
Indicators for renewables in final demand													
RES in gross final demand (1) (%)			1.0	1.6	3.3	4.4	6.2	7.9	9.0				
Biofuels share in transport gasoline and diesel (%)			0.0	0.2	2.6	4.6	6.8	8.1	9.0				
Transport sector													
Passenger transport activity (Gpkm)	**734.6**	**778.5**	**839.2**	**901.9**	**976.0**	**1042.6**	**1108.1**	**1169.7**	**1221.7**	**1.3**	**1.5**	**1.3**	**1.0**
Public road transport	46.2	44.3	47.0	48.8	50.3	51.6	53.1	54.3	55.2	0.2	0.7	0.5	0.4
Private cars and motorcycles	591.1	622.0	644.9	684.7	730.6	770.1	809.7	850.3	884.3	0.9	1.3	1.0	0.9
Rail	39.9	37.1	46.7	51.8	56.6	62.0	67.6	72.2	77.2	1.6	1.9	1.8	1.3
Aviation	49.3	66.8	94.0	110.0	131.9	152.3	171.1	186.0	198.1	6.7	3.4	2.6	1.5
Inland navigation	8.1	8.4	6.6	6.5	6.5	6.6	6.7	6.7	6.8	-2.1	0.0	0.2	0.2
Travel per person (km per capita)	12853	13435	14275	15016	15979	16834	17608	18336	18974	1.1	1.1	1.0	0.7
Freight transport activity (Gtkm)	**217.5**	**227.9**	**243.7**	**250.8**	**261.8**	**273.9**	**284.7**	**292.9**	**297.4**	**1.1**	**0.7**	**0.8**	**0.4**
Trucks	145.7	161.5	165.6	167.5	175.4	185.7	195.0	202.1	205.9	1.3	0.6	1.1	0.5
Rail	16.0	13.3	18.1	22.1	24.2	25.7	27.0	27.8	28.3	1.2	3.0	1.1	0.5
Inland navigation	55.8	53.1	60.0	61.2	62.1	62.5	62.8	63.0	63.1	0.7	0.4	0.1	0.1
Freight activity per unit of GDP (tkm/000 €05)	174	168	154	140	129	120	111	104	97	-1.2	-1.7	-1.5	-1.4
Energy demand in transport (ktoe)	**45451**	**46867**	**52324**	**55236**	**57979**	**60762**	**62983**	**64816**	**66417**	**1.4**	**1.0**	**0.8**	**0.5**
Public road transport	514	493	518	490	477	482	488	497	498	0.1	-0.8	0.2	0.2
Private cars and motorcycles	25438	25836	27031	25783	26035	26628	26936	27045	27644	0.6	-0.4	0.3	0.3
Trucks	10387	10366	11277	13316	13584	14260	14730	15074	14912	0.8	1.9	0.8	0.1
Rail	1063	1233	1464	1532	1587	1429	1269	1083	804	3.2	0.8	-2.2	-4.5
Aviation	6779	7822	11115	12847	15014	16680	18297	19873	21332	5.1	3.1	2.0	1.5
Inland navigation	1269	1117	920	1269	1282	1282	1264	1244	1227	-3.2	3.4	-0.1	-0.3
Efficiency indicator (activity related)													
Passenger transport (toe/Mpkm)	45.8	45.1	47.4	44.6	43.8	42.9	42.1	41.3	41.2	0.3	-0.8	-0.4	-0.2
Freight transport (toe/Mtkm)	54.4	51.7	51.5	59.8	58.3	58.4	57.5	56.4	54.0	-0.5	1.2	-0.1	-0.6

(1) Including electricity and steam transmission/distributiom losses and own consumption

Source: PRIMES

Disclaimer: Energy and transport statistics reported in this publication and used for the modelling are taken mainly from EUROSTAT and from the publication "EU Energy and Transport in Figures" of the Directorate General for Energy and Transport. Energy and transport statistical concepts have developed differently in the past according to their individual purposes. Energy demand in transport reflects usually sales of fuels at the point of refuelling, which can differ from the region of consumption. This is particularly relevant for airplanes and trucks. Transport statistics deal with the transport activity within a country but may not always fully include transit shipments. These differences should be borne in mind when comparing energy and transport figures. This applies in particular to transport activity ratios, such as energy efficiency in freight transport, which is measured in tonnes of oil equivalent per million tonne-km.

Abbreviations

GIC: Gross Inland Consumption
CHP: combined heat and power

Geographical regions

EU27: EU27 Member States
EU15: EU15 Member States (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, United Kingdom)
NM12: New Member States (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia)

Units

toe: tonne of oil equivalent, or 10^7 kilocalories, or 41.86 GJ (Gigajoule)
Mtoe: million toe

GW: Gigawatt or 10^9 watt
kWh: kilowatt-hour or 10^3 watt-hour
MWh: megawatt-hour or 10^6 watt-hour
TWh: Terawatt-hour or 10^{12} watt-hour

t: metric tonnes, or 1000 kilogrammes
Mt: Million metric tonnes

km: kilometre
pkm: passenger-kilometre (one passenger transported a distance of one kilometre)
tkm: tonne-kilometre (one tonne transported a distance of one kilometre)
Gpkm: Giga passenger-kilometre, or 10^9 passenger-kilometre
Gtkm: Giga tonne-kilometre, or 10^9 tonne-kilometre

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