DG ENER

European Commission
1049 Brussels

EU Pilot Case No 5051/13/ENER

Further to the Commission's enquiry in EU Pilot case No 505/13/ENER on the failure to submit the indicative national energy efficiency target referred to in Article 3(1) of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, the Latvian authorities provide additional information on the indicative national energy efficiency target.

The Latvian authorities have notified the Commission of Latvia's primary energy savings target in Latvia's second progress report on the implementation of Latvia's National Reform Programme within the context of the Europe 2020 strategy.

Therefore this additional information has been prepared in accordance with Article 3(1) of Directive 2012/27/EC.

Indicative national energy efficiency target

Pursuant to Article 3 of Directive 2012/27/EU, Latvia's indicative national energy efficiency target, based on savings of primary energy in 2020, is 0.670 Mtoe (28 PJ), which corresponds to savings in final energy consumption of 0.457 Mtoe (19 PJ).

Impact of the target on energy consumption in 2020

By implementing energy efficiency measures and achieving the savings in line with the indicative national energy efficiency target, primary and final energy consumption in Latvia in 2020 will be as shown in the following table (see Table 1):

Table 1

Latvia's indicative national energy efficiency target, expressed as the absolute level of primary and final energy consumption in 2020

	2010	**2015**	**2020**
Consumption of primary energy resources, PJ	200.5	223	225
Final energy consumption, PJ	178.5	185	187

Clarification with regard to the data on which the calculation of the target is based

1. Conversion factors and other data

Table 2

Conversion factors used for recalculating Latvia's consumption of energy resources (highlighted in bold), taking into account the net calorific values used in Annex IV to Directive 2012/27/EU and by the Central Statistical Bureau of the Republic of Latvia

Energy resource	**Unit of measurement**	**Net calorific value (NCV)**	
		according to Annex IV to Directive 2012/27/EU	according to the Central Statistical Bureau of the Republic of Latvia
Coal	TJ/thousand tonnes	17.2 – 30.7	**26.22**
Peat	TJ/thousand tonnes	7.8 – 13.8	**10.05**
Peat bricks	TJ/thousand tonnes	16-16.8	**15.49**
Coke	TJ/thousand tonnes	**28.5**	26.79
Natural gas	TJ/thousand tonnes	**47.2**	in 2009: 49.01 in 2010: 49.12 in 2011: 49.14
Bituminous oil shale	TJ/thousand tonnes		**39.35**
LPG	TJ/thousand tonnes	**46**	45.54
Automotive and aviation fuel	TJ/thousand tonnes	**44**	43.97
Gasoline type jet fuel	TJ/thousand tonnes	**44**	43.21
Gasoline type jet fuel	TJ/thousand tonnes	**44**	43.21
Kerosene	TJ/thousand tonnes	**44**	43.20
Diesel fuel and domestic furnace fuel	TJ/thousand tonnes	**42.3**	42.49
Fuel oil	TJ/thousand tonnes	**40**	40.60
Bituminous oil shale	TJ/thousand tonnes		**39.35**
Petroleum coke	TJ/thousand tonnes		**32.98**
Other oil products	TJ/thousand tonnes		**41.86**
Spent oils	TJ/thousand tonnes		**29.23**
Electricity	TJ/GWh	**3.6**	3.60
Heat	TJ/TJ	**1**	1.00
Municipal waste for use as fuel	TJ/thousand tonnes	7.4-10.7	**in 2009: 20.80** **in 2010: 18.56** **in 2011: 17.18**
Used tyres	TJ/thousand tonnes	7.4-10.7	**in 2009: 26.20** **in 2010: 26.20** **in 2011: 27.98**
Wood charcoal	TJ/thousand tonnes		**30.00**
Bioethanol	TJ/t		**0.0268**
Biodiesel	TJ/t		**0.0372**
Landfill gas	TJ/million m^3		**in 2009: 19.51** **in 2010: 19.82** **in 2011: 19.03**
Sewage sludge gas	TJ/million m^3		**in 2009: 23.04** **in 2010: 22.80** **in 2011: 20.49**
Straw	TJ/thousand tonnes		**14.40**
Fuel wood	TJ/thousand solid m^3		**6.70**

Wood residues	TJ/thousand loose bulk freight m^3		**2.68**
Wood chips	TJ/thousand loose bulk freight m^3		**3.40**
Wood briquettes	TJ/thousand tonnes	**16.8**	17.00
Wood pellets	TJ/thousand tonnes	**16.8**	18.00

Table 3

Table of indicators for the year 2011, in accordance with Annex XIV to Directive 2012/27/EU

No	**Name of indicator**	**Indicator**	**Unit of measurement**	**Source of data**
1.	Primary energy consumption	4.25	Mtoe	Central Statistical Bureau of the Republic of Latvia (CSP)
2.	Total final energy consumption	3.99	Mtoe	CSP
3.	Final energy consumption by sector	3.99	Mtoe	CSP
	industry (including construction)	0.75	Mtoe	CSP
	transport	1.18	Mtoe	CSP
	households	1.32	Mtoe	CSP
	services	0.59	Mtoe	CSP
	agriculture and forestry	0.15	Mtoe	CSP
4.	Gross value added by sector at current prices:			
	total value added	18110.0	million EUR	Eurostat
	industry (excluding construction)	3488.1	million EUR	Eurostat
	construction	987.1	million EUR	Eurostat
	agriculture and forestry	924.5	million EUR	Eurostat
	services	12710.3	million EUR	Eurostat
	b) in constant 2005 prices:			
	total value added	11936.6	million EUR	Eurostat
	industry (excluding construction)	2025.9	million EUR	Eurostat
	construction	607.6	million EUR	Eurostat
	agriculture and forestry	447.5	million EUR	Eurostat

	services	8800.4	million EUR	Eurostat
5.	Disposable income of households:			CSP
	average per household	744.2 (523.02)	EUR/month (LVL/month)	CSP
	average per member of household	303.5 (213.31)	EUR/month (LVL/month)	CSP
	average per equivalent consumer	456.9 (321.11)	EUR/month (LVL/month)	
6.	Gross domestic product (GDP)			
	at current prices	20211.3	million EUR	Eurostat
	in constant 2005 prices:	13094.7	million EUR	Eurostat
7.	Electricity generation from thermal power generation			
8.	Electricity generation from combined heat and power	3137	GWh	CSP
9.	Heat generation from thermal power generation (boiler houses)	2832	GWh	CSP
10.	Heat generation from combined heat and power plants, including industrial waste heat	4112	GWh	CSP
11.	Fuel input for thermal power generation (boiler houses)	0.31	Mtoe	CSP
12.	Fuel input for combined heat and power plants	0.75	Mtoe	CSP
13.	Passenger-kilometres (pkm):			
	carriage of passengers by car	15490	Mpkm	CSP
	carriage of passengers by public transport	1981	Mpkm	CSP
	carriage of passengers by rail (including by tram)	741	Mpkm	CSP
	carriage of passengers by domestic and international air transport	4113	Mpkm	CSP
14.	Tonne-kilometres (tkm)			
	road haulage	12131	Mtkm	CSP
	carriage of goods by rail	21410	Mtkm	CSP
15.	Population (at the start of the year)	2 074 605	number of people	CSP
16.	Population (average)	2 058 184	number of people	CSP

2. Gross Domestic Product (GDP) projections and related assumptions

The basic assumptions relating to the processes determining economic development in Latvia and globally, especially in the EU, also underpin the mid-term GDP projections made by the Ministry of the Economy.

The main aims and orientations of Latvia's economic structural policy up until 2020 have already been set down in principle in the policy documents *Latvijas ilgtspējīgas attīstības stratēģija „Latvija 2030"* (Latvia's Sustainable Development Strategy 'Latvia 2030')[1] , *Latvijas Nacionālais attīstības plāns 2014.-2020. gadam* (Latvia's National Development Plan 2014-2010)[2] and *Latvijas nacionālā reformu programma „ES 2020" stratēģijas īstenošanai* (Latvia's National Reform Programme for the purpose of implementing the 'EU 2020' Strategy)[3].

In these policy documents, the successful attainment of the specified objectives is linked to structural changes in the deployment of economic resources, aimed in particular at fostering:

- the production of goods and services with greater added value;
- export-oriented sectors;
- greater investment in new technology, innovation and information and communication technologies (ICT);
- improvements in the education system and promoting science.

Implementing this policy will strengthen economic growth potential by accelerating industrial growth and increasing economic productivity, thereby guaranteeing stable growth both in the medium and long term.

Given that Latvia's future economic development will be closely linked to export opportunities, the greatest risk to Latvia's economic growth is connected with developments in the global economy. The economic development scenario predicts harmonic development of the global economy, i.e. stable EU development and economic growth in the medium and long term.

The basic macroeconomic assumptions underlying the medium- and long-term scenarios and used for preparing the projections are given in Table 4. The projections also take into account the European Commission's medium-term projections (till 2016), the long-term economic and budgetary projections included in the Commission's *2012 Ageing Report* for 2010-2060, and the International Monetary Fund projections for the period up until 2017.

Table 4

Basic macroeconomic assumptions

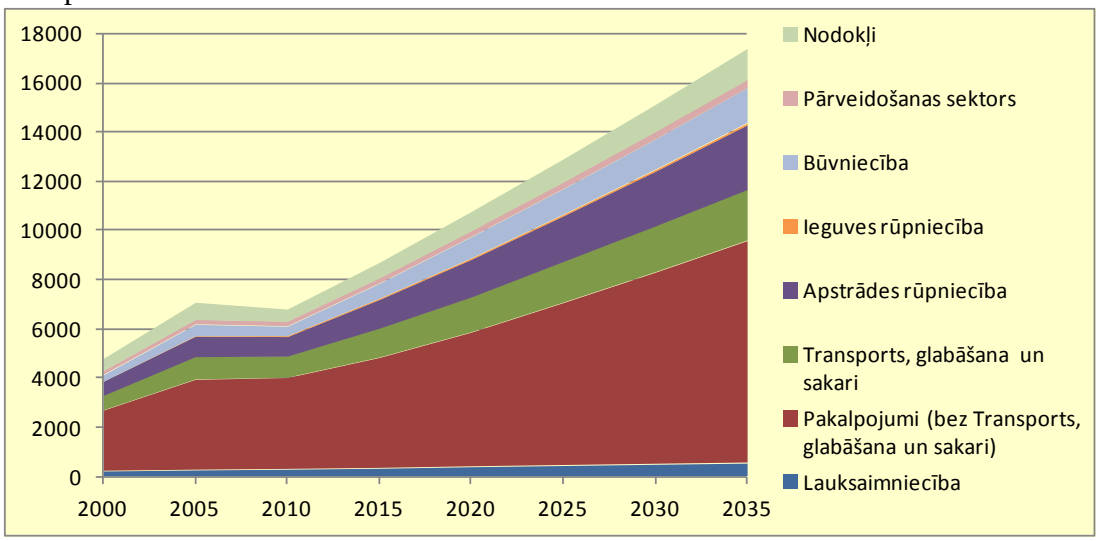
	2012-2014	**2015-2020**	**2021-2030**
Latvia's economic growth (%, annual average for the period)	5	**4…5**	**3…4**
Latvia's population (at the end of the period, in millions)	1.985	1.932	1.892
Economic growth in the EU-15 (%, annual average for the period)	0.5…1	1…2	2…3
Population of the EU-15 (at the end of the period, in millions)	405	411	422

[1] http://www.latvija2030.lv
[2] http://www.nap.lv/
[3] http://www.em.gov.lv

GDP growth per capita in the EU-15 (%, annual average for the period)	0.5	1…2.5	1.5…3
GDP in terms of PPS per capita in Latvia as compared to the average for the EU-15 at the end of the period (%)	55	67	72

In Latvia's economic development scenario it is assumed that up until 2020 Latvia will successfully implement structural policies that enhance its growth potential, and that the development of the global economy and the EU will be stable, allowing Latvia to increase its GDP by at least 4-5% every year until 2020. As the EU average is approached over the coming decade, the pace of growth may slow slightly.

Figure 1 shows the long-term GDP projection prepared by the Ministry of the Economy for the period up until 2030 for certain sectors corresponding to final energy consumption sectors in the energy mix, i.e. industry, services, agriculture and, to some extent, transport.



Key (top to bottom): taxes; transformation sector; construction; extractive industry; processing industry; transport, storage and communications; services (excluding transport, storage and communications); agriculture

Figure 1. GDP projection in 2000 prices, in millions of LVL (2000)

Economic activity is the main factor that influences final energy consumption. If GDP increases more rapidly, it is assumed that demand for energy will almost definitely increase at a faster rate.

3. Method of calculation

The assessment of energy savings, consumption of primary energy resources and final energy consumption was carried out as part of the 2012 study by the Physical Energy Institute (FEI), 'Modelling Latvia's energy development scenario (for the period up until 2030), taking economic, environmental and political aspects into consideration' ('the study').

The MARKAL-LV model devised by the FEI was used in the study. This model relies on the mathematical and programming software of the MARKAL modelling platform[4].

The MARKAL-LV model describes Latvia's energy system, starting from the demand for energy services, followed by the final consumption and transformation sector stages and finishing with the supply of primary energy (extraction of local resources, import and export).

[4]http://www.iea-etsap.org/web/index.asp

Demand for energy is directly linked to economic development, so future demand for energy services (useful energy) has been calculated for output parameters, using the projected values for macroeconomic development parameters, i.e. GDP, added value per economic sector and industrial sub-sector, and the dynamics of change in private consumption (see Table 5).

Table 5. ***GDP and macroeconomic forecast***

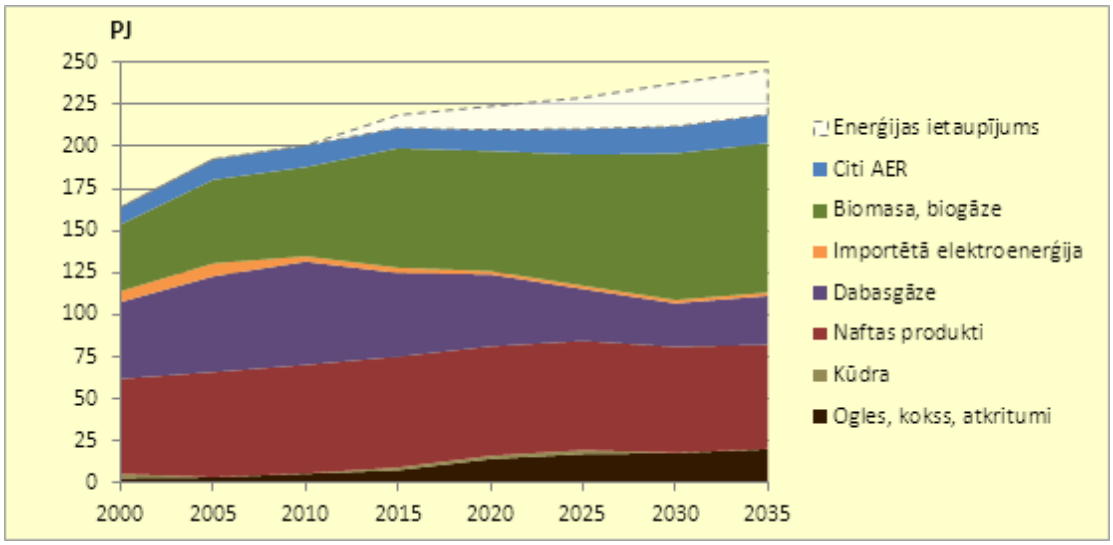
	2010	2015	2020	2025	2030
GDP in 2000 prices, in millions of LVL					
GDP	6765	8672	10752	12900	15121
Agriculture	272	313	378	430	482
Services (excluding transport, storage and communications)	3709	4487	5456	6610	7797
Transport, storage and communications	875	1192	1433	1672	1882
Manufacturing	799	1176	1537	1863	2234
Chemical industry	40	60	79	95	114
Food industry	155	171	204	227	254
Metals industry	27	37	52	68	86
Non-metallic minerals industry	46	78	103	124	149
Paper production and printing	42	51	65	74	85
Wood processing industry	199	304	399	480	577
Other manufacturing	290	473	636	793	968
Extractive industry	38	44	50	58	66
Construction	380	604	857	1027	1217
Transformation sector	191	216	249	289	329
Taxes	501	639	792	950	1114
Annual changes					
GDP		5.1%	4.4%	3.7%	3.2%
Agriculture		2.9%	3.8%	2.6%	2.3%
Services (excluding transport, storage and communications)		3.9%	4.0%	3.9%	3.4%
Transport, storage and communications		6.4%	3.8%	3.1%	2.4%
Manufacturing		8.0%	5.5%	3.9%	3.7%
Chemical industry		8.5%	5.6%	3.8%	3.7%
Food industry		2.1%	3.5%	2.2%	2.2%

Demand for energy is connected with economic development. Therefore, in order to predict the consumption of useful energy, the long-term macroeconomic development forecast is taken into account, and the set of economic, technical and social factors influencing the demand for each energy service or type of useful energy is taken into account:

- size of the population;
- sectoral value added;
- residents' private consumption;
- tonne-kilometres (T-km) of freight transport;
- passenger-kilometres (P-km) of passenger transport;

- total area to be heated in the service sector;
- number of households;
- total floor space of dwellings;
- etc.

To assess energy savings, two alternative energy development scenarios for Latvia were modelled for the period from 2010 to 2030, on the basis of characteristic parameters (structure of primary resources, final energy consumption, structure of electricity production, use of renewable energy sources). The projection for primary energy consumption and structure in 2030 and the energy savings to be achieved are shown in Figure 2.



Key (top to bottom): Energy saving; other renewable energy resources; biomass, biogas; imported electricity; natural gas; petroleum products; peat; coal, coke, waste

Figure 2: Projected primary energy consumption in 2030.

The model takes into account the planned objectives of energy policy and implementing measures (energy efficiency policy up until 2010, the objectives of renewable energy policy up until 2020, and measures to develop the energy sector as referred to in the National Development Plan for 2020). The most significant energy savings are to be made by renovating multi-storey residential and local and central government buildings, implementing measures in the industrial, transport and services sectors, and renovating district heating systems. All in all, the implementation of energy efficiency measures will facilitate the transition to a more energy-efficient economy and increase the competitiveness of the industrial and other sectors.