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***Latvia's First National Energy Efficiency Action Plan
2008-2010
(Information Part)***

Contents

1	CALCULATION OF THE NATIONAL INDICATIVE ENERGY SAVINGS TARGET	3
1.1	Energy efficiency measures for 1998-2007	3
1.2	Calculation of the national indicative target	10
2	ENERGY EFFICIENCY MEASURES IN DIFFERENT SECTORS	14
2.1	Residential	14
2.2	Tertiary sector	23
2.3	Industry	27
2.4	Transport	35
2.5	Agriculture and rural development	42
2.6	Horizontal and cross-sectoral measures	47
2.7	Implementation of the exemplary role of the public sector	50
2.8	Centralised heat supply	54
2.9	Legislative initiatives	58

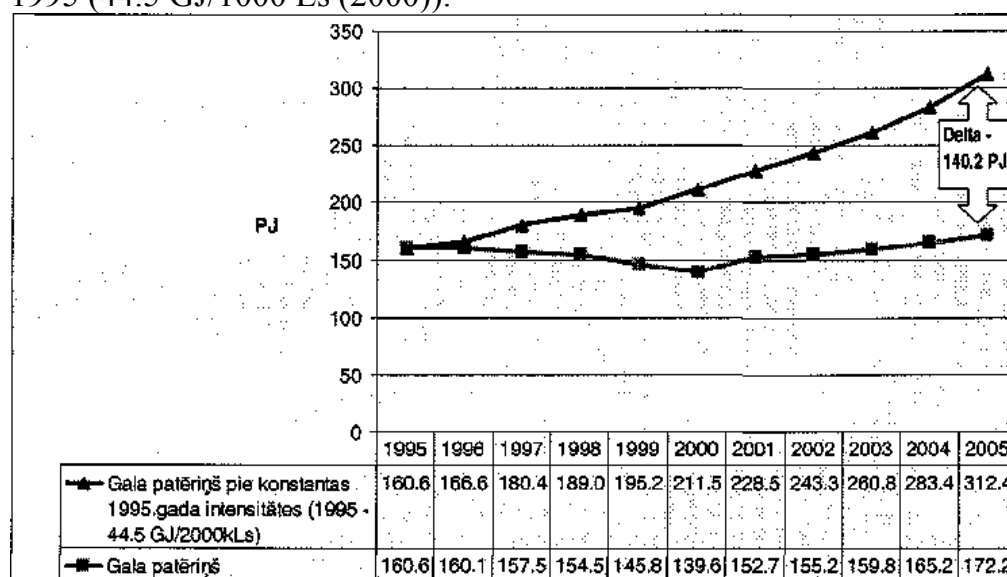
1 CALCULATION OF THE NATIONAL INDICATIVE ENERGY SAVINGS TARGET

1.1 Energy efficiency measures for 1998-2007

Both energy efficiency measures and energy saving measures contribute to the effective use of energy. Technologies have an impact on energy efficiency to a great extent. On the other hand, energy saving is a process based on the habits and behaviour of energy consumers. Energy efficiency and energy saving strategies should be based on a common national strategy with such key instruments as tax policy and various support mechanisms. Quality information and market processes can significantly accelerate the achievement of higher energy effectiveness and saving.

To date, a number of energy efficiency measures have already been undertaken in the Republic of Latvia with positive results. By using the top-down methods of analysis, figure 1 shows two final energy consumption curves.

The lowest indicates actual final energy consumption, but the highest indicates possible final energy consumption for constant energy intensity in 1995 (44.5 GJ/1000 Ls (2000)).



Latvian	English
<i>Gala patēriņš pie konstantas 1995.gada intensitātes (1995 – 44.5 GJ/2000 k Ls)</i>	Final consumption at a constant intensity in 1995 (1995 – 44.5 GJ/2000 k Ls)
<i>Gala patēriņš</i>	Final consumption

Figure 1. Final energy saving for 1995-2005.

The difference of 140.2 PJ between these curves is the energy saving, which has been influenced by various factors:

- Energy efficiency measures taken in various sectors;

- Structural changes to the national economy;
- Development of technologies and their implementation in all sectors of energy consumption;
- Changes in consumer behaviour (change of attitude and investment in energy efficiency measures) as a result of more expensive energy resources.

The most extensive energy efficiency measures undertaken within the previous period were in the area of improving the energy efficiency of buildings in the residential and public sector, as well as in certain areas of industry.

The new building regulation LBN 002-01 “Heat engineering of the envelopes of buildings” which entered into force on 1 January 2003, lays down the expected standard and maximum thermal resistance coefficient values to be used for calculating a building's heat loss coefficient and is applicable to the design of new buildings and buildings that are to be renovated as from 2003. In addition, the maximum thermal resistance coefficient values for buildings constructed after 2003 have been reduced several times, and the energy efficiency of buildings has increased.

A number of energy audit programmes in buildings have been undertaken in Latvia. The first energy certificate programme entitled ENERLAB was implemented within the framework of the ES LIFE demonstration programme and was carried out in the town of Ogre by experts of the Heat, Gas, Water Technology Institute of Riga Technical University.

Energy certification projects have also been performed by the State Housing Agency, which has been implementing the “Public and private partnership project – Energy Audits of Housing” for the last three years.

Energy efficiency measures financed by the State budget, EU funds and other allocations over the period of 1998 to 2007 are described in Table 1.1, in which co-financing indicates the volume of public financing.

The summarised information about heat consumption by several hundreds of audited standard apartment houses and contribution of evaluated energy efficiency measures to energy saving serves as a basis for a systematised information base which gives a view of the impact of various energy efficiency measures on reducing energy consumption.

The bottom-up analysis method together with evaluations made during energy audits and summarised research information on energy consumption and on energy efficiency measures to be taken were used to define three groups of energy efficiency measures in accordance with the relevant costs¹ and the possible volume of energy saving, which were used to determine energy saving specified in Table 1.1:

¹ Based on 2007 costs

- Group 1 – urgent energy efficiency measures that pay out quickly, including window sealing, repair of outer doors, adjustment of heating facilities, and pipeline insulation. Such energy efficiency measures allow for heat saving of up to 15% with the necessary costs from 0 to 190 LVL/MWh.
- Group 2 covers additional heat insulation of the attic, replacement of heating facilities and improvement of internal engineering systems. The cost of such measures is from 190 to 310 LVL/MWh with a potential saving effect of 15 - 30% of the total heat consumption in the building.
- Group 3 – additional heat insulation of outer walls and roof structures, replacement of windows, glazing of loggias and measures for improvement of ventilation systems, with capital investments from 310 to 560 Ls/MWh.

In accordance with the above evaluations and summarised information on projects implemented for energy effectiveness, the calculated resulting total energy saving in measures where public financing is used amounts to 325 GWh (1.17 PJ) over the period from 1998 to 2007.

Table 1.1

Energy efficiency measures over the period 2000-2007

Year	Measure	Total costs, 1000 LVL	Co-financing, 1000 LVL	Sources of co-financing	Measures implemented	Energy saving, GWh
2007	Energy efficiency measures in public buildings	1,600	1,200	State budget	Higher energy effectiveness of buildings	*
2007	Projects for higher efficiency of heat production, transportation or distribution	5,067	3,800	State budget	Replaced heating networks, efficient heating boilers installed	*
2006	Programme of the state heating supply sector, incl. for higher energy efficiency of public buildings	2,735	2,052	State budget	Higher energy efficiency in 31 buildings	12
	incl. for higher efficiency of heat production and transportation	6,598	4,948	State budget	35 km of heating networks replaced, efficient heating boilers installed of total capacity 7 MW	25
	Total	9,333	7,000			37
2006	Modernisation of heating supply systems in accordance with environmental requirements increase of					

Year	Measure	Total costs, 1000 LVL	Co-financing, 1000 LVL	Sources of co-financing	Measures implemented	Energy saving, GWh
	energy efficiency both on the part of production and distribution of the heating supply system, and the final consumer incl. for higher energy efficiency of public buildings	4,699	4,493	ERDF and national/ local authority budget	Higher energy efficiency in 35 buildings	11
	incl. for higher efficiency of heat production and transportation	15,528	7,259	ERDF and national/ local authority budget	50 km of heating networks replaced, 26 efficient heating boilers installed of total capacity 44 MW	32
	Total	20,227	11,752			43
2005	Heating supply	694	455	State investment programme	7 projects implemented	2
2004	Heating supply	1868	871	State investment programme	9 projects implemented	6
2003	Heating supply	3,723	2,668	State investment programme	28 projects implemented	12
2002	Heating supply	4,482	1654	State	23 projects	16

Year	Measure	Total costs, 1000 LVL	Co-financing, 1000 LVL	Sources of co-financing	Measures implemented	Energy saving, GWh
				investment programme	implemented	
2001	Heating supply	3,486	2,524	State investment programme	29 projects implemented	13
2000	Heating supply	28,833	17,649	State investment programme	36 projects implemented	98
2003	Improving energy efficiency of housing stock	6,850	1470	Donation of the Federal Ministry for the Environment, Natural Conservation and Nuclear Safety of Germany	Higher energy efficiency in 47 buildings	22
2000- 2004	Education Improvement Project (ISAP)	22,345	17,875	World Bank	Higher energy efficiency in 100 educational establishments	65
1998- 2007	Energy efficiency measures		851	Energy Efficiency Foundation	Higher energy efficiency in 17 buildings	3

Year	Measure	Total costs, 1000 LVL	Co-financing, 1000 LVL	Sources of co-financing	Measures implemented	Energy saving, GWh
1998-2006	Energy efficiency projects	2,695	1267	Environmenta l Investment Fund	Reconstruction of 22 heating systems (including heating sources, heating networks and buildings)	8
1998-2007	Total	140,763	89,788			325

* - measures implemented in 2007 and saving results are being summarised

For continued improved identification and documentation of energy savings resulting from energy efficiency projects, reports on heat consumption before and after implementation of the project will need to be filed in respect of all energy efficiency projects that receive co-financing from the State budget or EU funds. In order to determine energy consumption precisely, an energy audit is required before and after the implementation of the relevant measure. The necessity and procedures of such an energy audit, as well as the form and procedures of filing, are to be laid down in the *Energy Efficiency Law* (the need for the said law is described in section 2.9 below), as well as in legal enactments that regulate the application of various patterns of support for energy efficiency measures.

1.2 Calculation of the national indicative target

Data on final energy consumption over the period of five years from 2000 to 2004 is used to calculate the national indicative energy savings target pursuant to Annex I to Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services. Table 1.2 shows final energy consumption in various sectors for the chosen period.

Table 1.2

Final energy consumption by sector 2000-2004, PJ

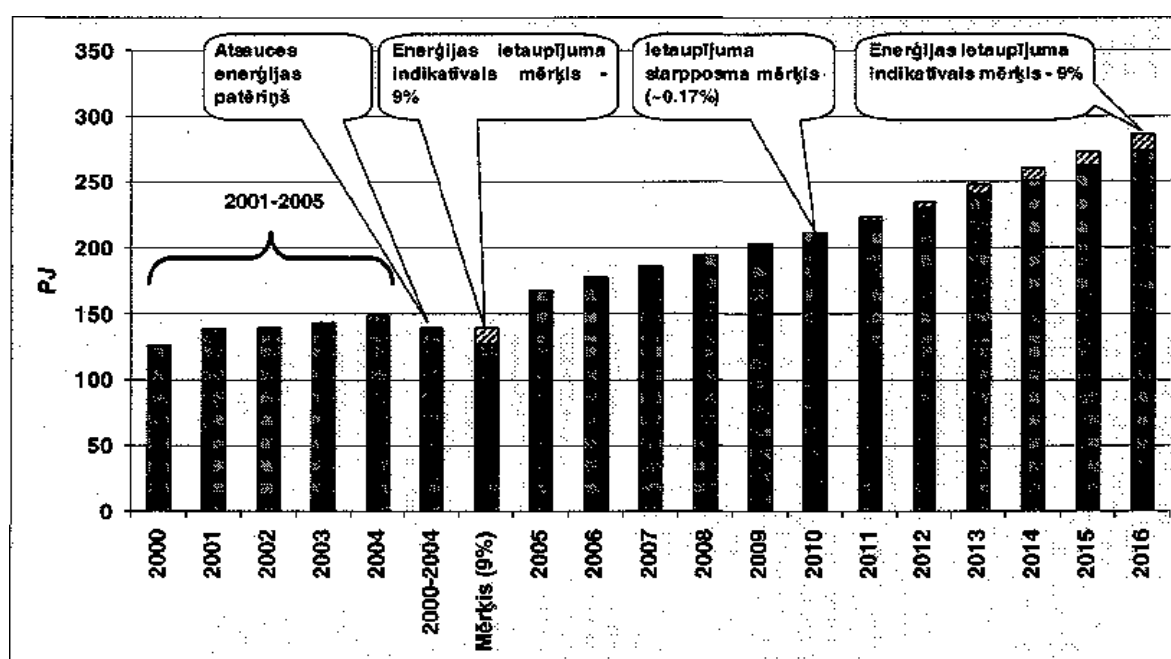
	2000	2001	2002	2003	2004
Residential	55.4	61.3	60.9	61.4	59.7
Tertiary	21.8	22.5	24.4	25.2	28.3
Transport	31.4	36.8	36.6	38.7	40.3
Industry	23.9	25.5	26.4	26.8	28.9
Agriculture	3.9	4.1	3.7	4.4	4.5
Energy consumption in industrial emission trade installations	10.6	12.0	12.4	12.5	12.6
Final energy	125.8	138.0	139.6	143.9	149.2

On the basis of the data of final energy consumption shown in table 1.2, the final energy consumption is calculated as the average final energy consumption and the savings target for 2016 (see table 1.3, Figure 2 and Figure 3). The conversion coefficients and abbreviations used to calculate the target are provided in the Annex.

Table 1.3

National energy savings target calculated

	PJ	GWh
Average final consumption over five- year period	139.3	38,701
9% energy savings target in 2016	12.5	3,483
Approved energy savings target (9% or higher)	12.5	3,483
Intermediate target in 2010 adopted	2.1	67



Latvian	English
Atsauces enerģijas patēriņš	Reference energy consumption
Enerģijas ietaupījuma indikatīvais mērķis – 9%	Energy savings indicative target – 9%
Ietaupījuma starpposma mērķis (~ 0,17%)	Savings interim target (~ 0,17%)
Enerģijas ietaupījuma indikatīvais mērķis – 9%	Energy savings indicative target – 9%
Mērķis (9%)	Mērķis (9%)

Figure 2. National final energy consumption and energy savings calculated (cumulatively)

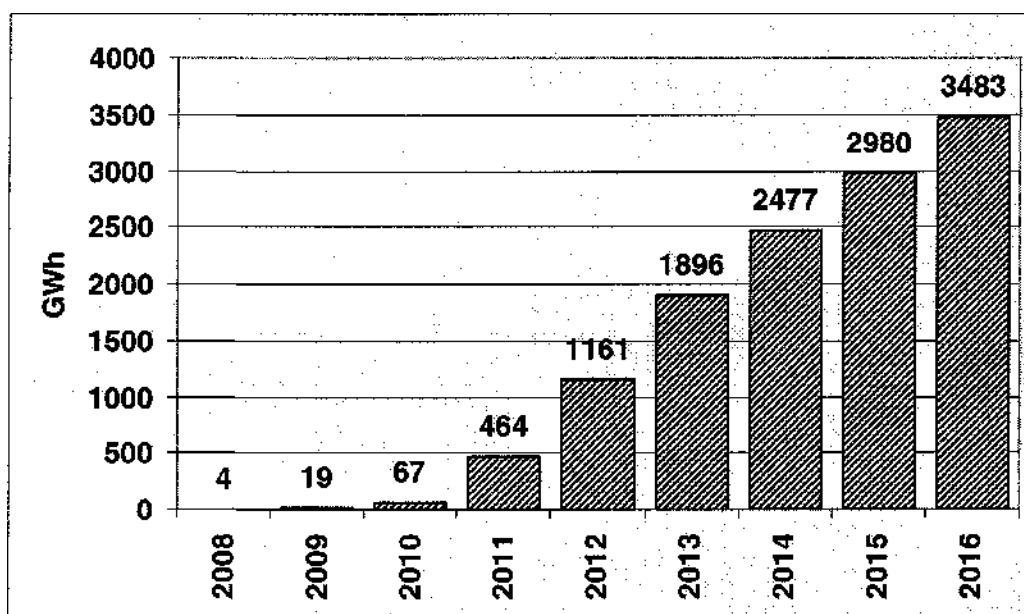


Figure 3. National energy savings target calculated (cumulatively)

Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services stipulates that the calculation of the savings target specified in the National Energy Efficiency Action Plan shall not apply to those undertakings involved in categories of activities listed in Annex I to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community.

In accordance with the National Allocation Plan 2008-2012 currently in force, there are 90 installations in operation in Latvia that have been allocated emission quotas and that take part in the emission trading scheme. Of 90 installations, the main operation of 52 installations is related to the production of heat and/or electricity, and the main production processes of the remaining 38 installations are related to the production of various manufactured products.

In the context of Latvia's first National Energy Efficiency Action plan 2008-2010 and pursuant to the requirements of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services, a total of 37 enterprises, for which the main form of activity is not the production of heat and/or electricity, have been used as the basis for calculating the consumption of different types of fuel in the industrial sector over a five-year period.

The calculated energy savings target for the period 2008-2016 by individual sectors of the national economy is provided in Table 1.4. The cumulative (summed-up) method is used to reflect savings over each specific year against the reference year (2008).

Table 1.4

Calculated national energy savings target by sector, GWh

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total	4	19	67	464	1161	1896	2,477	2,980	3,483
Residential	3	15	52	360	900	1471	1921	2,311	2,701
Transport	0	1	4	26	68	111	145	175	204
Industry	0	1	3	21	53	86	113	137	159
Tertiary	1	2	8	54	136	222	290	349	408
Agriculture	0	0	0	2	4	6	8	10	11

2 ENERGY EFFICIENCY MEASURES IN THE SECTORS

2.1 Residential

The largest final energy consumer in the Republic of Latvia is the residential sector, comprising 36% of total final energy consumption. In addition, housing stock of the Republic of Latvia is increasing each year, reaching 56.4 million m² in 2005, of which 69% was in urban areas and 31% in rural areas. Approximately one third of the population lives in the capital, Riga, where the housing stock comprises 31% of the entire national housing stock. Therefore, the housing stock in Riga has a significant impact on the technical and heat consumption indicators of the total housing stock.

Figure 4 shows final consumption in the residential sector in 1995-2006. Uneven consumption may be explained by changing climatic conditions, different methods of statistical evaluation used, as well as changing construction volumes and energy efficiency measures implemented.

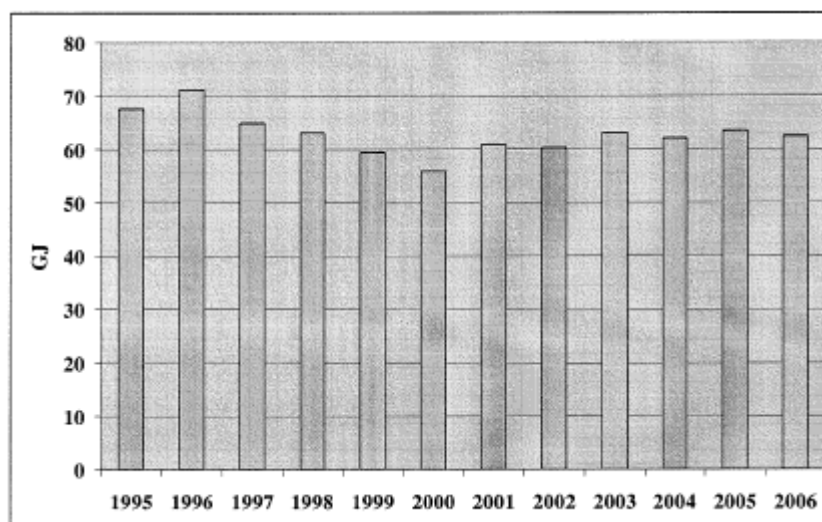


Figure 4. Final consumption in the residential sector, 1995-2006.

Source: CSB

The objective laid down in the “**Energy Development Guidelines for Latvia 2007-2016**” is to reduce the average specific consumption of heat in buildings from 220-250 kWh/m²/year to 195 kWh/m²/year for the period up to 2016; it is possible to save up to 7 PJ energy in buildings each year, but with the increase in efficiency in heat production installations, the annual savings are approximately 11.5 PJ. The energy savings in buildings can give an annual economic saving in the residential sector of approximately LVL 48 million (based on average heating costs in 2005), but the annual import payment balance may be reduced by approximately LVL 21 million. In 2020, by reducing the average specific consumption of heat in buildings to 150 kWh/m²/year, it is possible to save up to 15 PJ per year, and the annual economic saving in the residential sector may reach LVL 104 million. This saving can be attained by implementing the current energy efficiency market (building owners implement measures at their own expense and/or with borrowed funds) and economic (public co-financing is used to carry on energy efficiency measures) potential. Current dramatic increases in prices of energy

resources continue to encourage the implementation of energy efficiency market potential.

The Guidelines provide for establishing local and regional energy agencies within local authorities to serve as an instrument of management and co-ordination of energy supply and energy efficiency by local authorities.

The following sources of financing are due to be used in order to undertake the measures set out in the guidelines:

- State budget allocation from general revenue;
- local authority budget allocations;
- institutions' paid services and other own revenue;
- building owners' funds;
- EU Structural Funds.

Measures under Operational Programme 3 'Infrastructure and Services' of the National Development Plan provide financial support for the improvement of heat insulation of apartment residential buildings and social residential buildings.

Taking into account the amount of anticipated allocations from the Structural Funds, Cohesion Fund and Climate Change Facility² providing for increase of energy efficiency of apartment buildings, intensity of project financing, as well as on the basis of assessment of costs for energy efficiency measures and energy savings, total energy savings of 373 GWh are forecast as a result of planned activities in the residential sector at the close of projects implementation in 2015. As most of the projects will be implemented after 2010, the most significant energy savings are planned after 2010 (see Tables 2.1.1, 2.1.2 and 2.1.3).

The planned public financing covers funds from the EU Structural Fund and Cohesion Fund, as well as national public financing. The financing under the programme 'Improvement of Heat Insulation of Social Residential Buildings' and the Climate Change Facility provides for 0.3 intensity.

The programmes and the facility are aimed at the implementation of the economic potential of energy efficiency.

Table 2.1.1

Programme 'Improvement of Heat Insulation of Social Residential Buildings'

	Total financing amount, 1000 Ls	Public co-financing (ERFF), 1000 LVL	Annual energy savings, GWh	Cumulative energy savings, GWh
2010	3,898.5	1,169.5	22	22
2011	4,387.2	1,316.7	24	46
2012	5,048.2	1,514.4	28	74
2013	5,608.8	1,682.6	31	105
2014	4,132.0	1,239.2	23	128

² Receipts from sale of greenhouse gas emission units under procedures pursuant to Article 17 of Kyoto Protocol

Table 2.1.2**Programme ‘Improvement of Heat Insulation of Apartment Residential’**

	Total financing amount, 1000 Ls	Public co-financing (State budget ³), 1000 LVL ⁴	Annual energy savings, GWh	Cumulative energy savings, GWh
2010	1,817.2	1,817.2	10	10
2011	2,403.2	2,403.2	13	23
2012	3,174.1	3,174.1	18	41
2013	8,772.5	8,772.5	49	90
2014	7,219.7	7,219.7	40	130
2015	4,137.0	4,137.0	23	153

Table 2.1.3**Climate Change Facility**

	Total financing amount, 1000 Ls	Public co-financing (ERFF), 1000 LVL	Annual energy savings, GWh	Cumulative energy savings, GWh
2010 ⁵	-3,600	-1,100	20	20
2011	-13,000	-3,900	72	92

Disseminating information, which would include the following main activities:

- creation of regional and local authority information centres;
- publication of brochures and advertisements;
- publication of articles in local, professional or technical publications (magazines and newspapers);
- organisation of exhibitions and seminars;
- dissemination of information on the TV, radio, internet, video or in training materials.

Disseminating information is aimed at encouraging building owners and managers to implement the energy efficiency market potential.

Local authorities play a particular role in increasing energy efficiency in buildings, as they are responsible for organising the supply of heat within their territories and have the closest contact with energy consumers – residents.

³ From receipts from CO₂ sales

⁴ Public co-financing specified is approximate, because currently (March 2008) specific amounts are unknown

⁵ Granting of this facility is forecast in 2010; its implementation will continue in 2011

Table 2.1.4

Required public financing volume for information campaigns and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Consumer information campaigns	67.50 52.3		2009 2010
	Total	119.8		2009-2010

Table 2.1.5

EE measures in the residential sector

No	Measure	End-user action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	Undertaking energy audits in buildings and energy certification of buildings	Undertaking energy audits and informing final energy consumers	*	2005-2016	Ministry of Economics (ME), National Construction, Energy and Housing Agency (NCEHA)
2.	Increasing energy efficiency in blocks of flats	Improving energy efficiency in buildings	1900	2007-2016	ME, NCEHA
3.	Increasing energy efficiency in State and local authority buildings	Improving energy efficiency in buildings	570	2007-2016	ME, NCEHA
4.	Informing energy consumers	Informing final energy consumers	*	2006-2016	ME, NCEHA
5.	Developing legal enactments to increase energy	Developing Cabinet Regulations pursuant to the Energy Efficiency Law:		2008-2016	ME

No	Measure	End-user action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
	efficiency in buildings	1) Institutional system, its tasks, obligations and responsibilities; 2) Energy consumption standards for blocks of flats, and the application of minimum requirements for the energy certification of homes; 3) Unified method of calculation for determining the energy efficiency parameters of buildings; 4) Procedures for training and certifying independent experts; 5) Procedures for inspecting boilers and air conditioning systems.			
	Total		2,701*		

* - anticipated energy savings resulting from working out information measures and regulatory documents are determined for the industry overall. Savings are calculated on the basis of the number of participants of the campaign and assessment of part of the impact of implemented activities in the sector against the basic scenario without the measures implemented. The plan is to use sector indicators for assessment of the action impact.

Measure 1	Undertaking energy audits in buildings and energy certification of buildings
Category	Information measures: <ol style="list-style-type: none"> 1. Information on the building's level of energy efficiency 2. Energy consumption indicators
Scope of the measure	Throughout Latvia
Target group	Local authorities, associations of flat owners, building managers and individuals
End-use action targeted	<ol style="list-style-type: none"> 1. Undertaking energy audits in the building sector 2. Monitoring energy audits in buildings and processing data 3. Energy certification of buildings
Activities	The process of energy audits in buildings has already begun in the Republic of Latvia in order to inform final energy consumers of the energy efficiency of buildings and to receive recommendations for increasing energy efficiency.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.1.1
Status of implementation and exact time-frame for start and completion	The process of energy audits was begun in 2005 and the first stage will be completed in 2016.

Measure 2	Increasing energy efficiency in blocks of flats
Category	Financial instrument
Scope of the measure	Throughout Latvia
Target group	Local authorities, associations of flat owners, building managers and individuals
End-use action targeted	The objective of the programme is to foster activity on the part of flat owners in prolonging the life of residential buildings and in the economic use of energy resources, whilst indirectly ensuring an improvement in the quality of people's lives.
Activities	State aid is to be provided within the framework of the measure for increasing the energy efficiency of buildings by reducing the average specific consumption of heat in buildings to 150 kWh/m ² /year.
Annual energy savings expected in 2016 and 2010	Activity 3.4.4.1 under Operational Programme 3 Improvement of Heat

	Insulation of Apartment Residential Buildings and Climate Change Facility In 2010 320 GWh In 2016 1900 GWh
Status of implementation and exact time-frame for start and completion	The programme is due to begin in 2008 and the first stage will be completed in 2015.

Measure 3	Increasing energy efficiency in State and local authority buildings
Category	Financial instrument
Scope of the measure	Throughout Latvia
Target group	State and local authority enterprises
End-use action targeted	The objective of the measure is to increase energy efficiency in State and local authority buildings, which, at the same time, will serve as an example for increasing energy efficiency in the consumer sector.
Activities	Energy efficiency measures in buildings are due to be undertaken within the framework of the measure and heat consumption is due to be reduced by 20-60%.
Annual energy savings expected in 2016 and 2010	Activity 3.4.4.2 'Improvement of Heat Insulation of Social Residential Buildings' under Operational Programme 3: In 2010 22 GWh In 2016 570 GWh
Status of implementation and exact time-frame for start and completion	The programme is due to begin in 2008 and the first stage will be completed in 2014.

Measure 4	Informing energy consumers
Category	Information measures
Scope of the measure	Throughout Latvia
Target group	Final energy consumers
End-use action targeted	The aim of the measure is to inform final energy consumers of the energy efficiency measures and their economic benefits. Given that the majority of building owners and consumers of energy resources have no special technical education, the information they receive as regards improving energy efficiency, must be easily understandable, with accurately defined objectives and specific priorities.
Activities	The process of informing final energy consumers is due to include the following: – creation of regional and local authority

	<p>information centres;</p> <ul style="list-style-type: none"> – publication of brochures and advertisements; – publication of articles in local, professional or technical publications (magazines and newspapers); – organisation of exhibitions and seminars; – dissemination of information on the TV, radio, internet, video or in training materials.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.1.1
Status of implementation and exact time-frame for start and completion	The information programme was begun in 2006 and the first stage will be completed in 2016.

Measure 5	Developing legal enactments to increase energy efficiency in buildings
Category	Regulations
Scope of the measure	Throughout Latvia
Target group	Final energy consumers
End-use action targeted	There are no relevant legal enactments in place for final energy consumers to increase energy efficiency in buildings; therefore, this measure will include the development of an energy efficiency law and appropriate regulations relating to this law.
Activities	<p>1. The draft “Law on the Energy Efficiency of Buildings” is currently being prepared for the second reading in Saeima. The draft law will foster the economical use of energy in buildings, reduce carbon dioxide emissions, and provide people with information on the energy efficiency of buildings.</p> <p>The draft law sets out the energy efficiency of buildings, which is calculated taking into account the heat conductivity of a building’s self-standing constructions, the heating system, hot water supply, air conditioning system, ventilation, fixed lighting systems, location of the building, external climatic conditions and the interior micro climate.</p> <p>2. On the basis of the draft “Law on the Energy Efficiency of Buildings”, several Cabinet Regulations are being prepared to take effect on 1 July 2009, which will</p>

	<p>determine the method of calculation of the energy efficiency, procedures of energy certification of the building, as well as the type, sample and content of the energy certificate, and procedures of its issue and registration.</p> <p>The Regulations will include inspection procedures for air conditioning systems with rated capacity over 12 kW and heating boilers with rated capacity over 20 kW, as well as requirements for energy audits and procedures of their certification and supervision. The Regulations will provide procedures for the supervision of energy certification by the Ministry of Economics and for summarising, updating and use of information on issued energy certificates of buildings by the National Construction, Energy and Housing Agency. The methods will incorporate minimum requirements for current buildings under reconstruction of the total area above 1000 m² and newly built structures.</p>
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.1.1
Status of implementation and exact time-frame for start and completion	This measure was begun in 2005 and will be completed on 1 July 2009.

Total energy savings in the sector for 2008-2016 will be 2,701 GWh, in the mid-term (2008-2010) – 52 GWh.

In implementation of energy efficiency measures, it is recommended to use public/local authority and private partnership (PPP) schemes for attraction of private capital. PPP approach to project implementation may take different forms, including distribution of project risks and responsibilities between the public and private sectors, as well as types of project financing (funds of the State, local authorities or private sector, as well as raising grant support).

Currently, the number of PPP projects in the residential sector or possible representatives in the private sector has not been evaluated; it is therefore impossible to calculate the savings potential of the implementation of PPP patterns.

2.2 Tertiary sector

The tertiary sector in Latvia has one of the most dynamic levels of development of all sectors. A cross-section of the sectors shows that the tertiary sector and construction sector comprise 17.7% of total final energy consumption. The tertiary sector includes public administration, health care, education, communications, information and business services. The role of public administration as regards the implementation of energy efficiency measures is considered in a separate section of this document.

Table 2.2.1

EE measures in the tertiary sector

No	Measure	End-user action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	Information campaigns on applying energy efficient lighting in company offices;	1) Changing light fittings in existing company offices in accordance with energy efficiency requirements; 2) Installing energy efficient light fittings in offices being built	*	2008-2016	ME, NCEHA
2.	Information campaigns on the use of energy efficient computers in company offices;	Purchase of energy efficient computer equipment in enterprises, replacing out-dated computer equipment with new equipment	*	2008-2016	ME, NCEHA
3.	Information campaigns on the information provided on the energy efficient labels for electrical equipment.	Purchase of more energy efficient electrical equipment for the needs of enterprises.	*	2011-2016	ME, NCEHA
	Total		408*		

* - anticipated energy savings resulting from information measures and regulatory documents are determined for the industry overall. Savings are calculated on the basis of the number of participants of the campaign and assessment of part of the impact of implemented activities in the sector against the basic scenario without the measures implemented. The plan is to use sector indicators for assessment of the action impact.

Table 2.2.2

Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Information campaigns on applying energy efficient lighting in company offices;	7.90 8.46	State budget	2009 2010
2	Information campaigns on the use of energy efficient computers in company offices;	7.90 8.46	State budget	2009 2010
3	Information campaigns on the information provided on the energy efficient labels for electrical equipment.	7.90 8.46	State budget	2009 2010
	Total	49.8		2009-2010

Measure 1	Information campaigns on applying energy efficient lighting in company offices
Category	Information measures
Scope of the measure	Throughout Latvia
Target group	Offices of tertiary enterprises, industrial enterprises
End-use action targeted	1) Changing light fittings in existing company offices in accordance with energy efficiency requirements 2) Installing energy efficient light fittings in offices being built.
Activities	According to expert assessments, lighting comprises the greatest consumption of energy on the part of tertiary enterprises. Therefore, the implementation of energy efficient lighting in the tertiary sector will significantly improve the energy efficiency of the sector. It is expected that during the first two years of implementation the effect will not be as great as in subsequent years,

	because it takes time to change people's way of thinking and to take specific action.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.2.1
Status of implementation and exact time-frame for start and completion	A communications campaign concept will be developed in 2008 and the campaign process will be planned. Information campaigns will be organised on a regular basis from 2010 to 2016, as well as in subsequent years, and the results of these campaigns will be measured. It is expected that the results of action by enterprises will start to appear in 2010.

Measure 2	Information campaigns on the use of energy efficient computers in company offices
Category	Information measures
Scope of the measure	Throughout Latvia
Target group	Offices of tertiary enterprises, industrial enterprises
End-use action targeted	Purchase of energy efficient computer equipment in enterprises, replacing out-dated computer equipment with new equipment.
Activities	According to expert assessments, computer equipment comprises the second greatest consumption of energy on the part of tertiary enterprises. Therefore, the implementation of energy efficient computer equipment in the tertiary sector will significantly improve the energy efficiency of the sector. It is expected that during the first two years of implementation the effect will not be as great as in subsequent years, because it takes time to change people's way of thinking and to take specific action.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.2.1
Status of implementation and exact time-frame for start and completion	A communications campaign concept will be developed in 2008 and the campaign process will be planned. Information campaigns will be organised on a regular basis from 2010 to 2016, as well as in subsequent years, and the results of these campaigns will be measured. It is expected that the results of action by enterprises will start to appear in 2010.

Measure 3	Information campaigns on the information provided on the energy efficient labels for electrical equipment.
Category	Information measures
Scope of the measure	Throughout Latvia
Target group	Offices of tertiary enterprises, industrial enterprises
End-use action targeted	Purchase of more energy efficient electrical equipment for the needs of enterprises.
Activities	Awareness on the part of enterprises of the energy efficiency of electrical equipment and the way it is shown on product labels will increase the demand for energy efficient electrical equipment.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.2.1
Status of implementation and exact time-frame for start and completion	A communications campaign concept will be developed in 2010 and the campaign process will be planned. Information campaigns will be organised on a regular basis from 2011 to 2016, as well as in subsequent years, and the results of these campaigns will be measured. It is expected that the results of action by enterprises will start to appear in 2012.

Total energy savings in the sector for 2008-2016 will be 408 GWh, in the mid-term (2008-2010) – 8 GWH.

2.3 Industry

Industry is the third greatest consumer of energy in Latvia after the residential and transport sectors. Industry final consumption comprised 18.2% of total national final energy consumption in 2004 (see Figure 5).

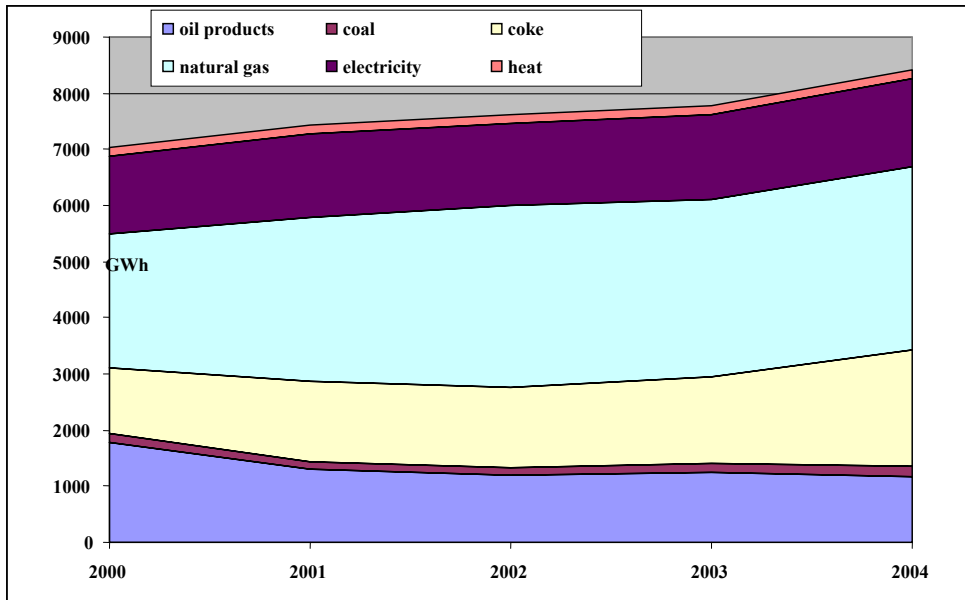


Figure 5. Industry final energy consumption, 2000-2004.

The largest consumers of energy are metal and metal product manufacturers, food, drink and tobacco product manufacturers, and producers of other non-metal minerals. These three areas comprise approximately 75% of overall industrial consumption.

The overall annual increase in industrial production in the Republic of Latvia over the last six years (1999-2005) was, on average, 8%, exceeding average national economic growth by 0.14% (see Figure 6).

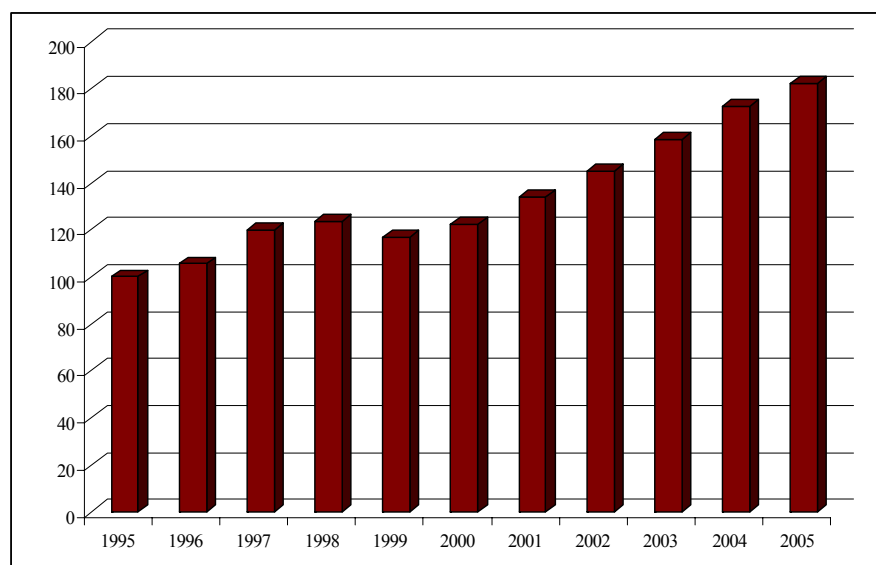


Figure 6. Increase in the volume of industrial production (1995 = 100%)
Source: CSB

Industry comprises a smaller proportion of the overall national economy industry than in the majority of other Member States. In 2005, industry comprised only 19.6% of GDP.

The greatest proportion of Latvia's GDP in the industrial sector in 2005 was as follows:

- food industry – 21.3%,
- wood processing industry – 21.2%,
- metal and metal product manufacturing – 15.1%,
- light industry – textile and clothing manufacturers – 5.7%,
- chemical industry – 2.7% and mineral industry.

Table 2.3.1

EE measures in the industrial sector

No	Measure	End-user action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	Access to information on the most effective technical solutions and information provided on the energy efficient labels for	<ol style="list-style-type: none"> 1. Analysis of information on the best technical solutions in the appropriate areas of industry; 2. Implementation of more effective 	*	1995-2016	ME, NCEHA

	electrical equipment	technical solutions			
2.	Improving the energy efficiency of lighting in industrial enterprises	<ol style="list-style-type: none"> 1. Analysis of information on energy efficient lighting; 2. Use of energy efficient light fittings; 3. Choice of appropriate lighting regimes 	*	1995-2016	ME, NCEHA
3.	Energy audits, improving the energy efficiency of technical processes and restructuring of enterprises	<ol style="list-style-type: none"> 1. Energy audits of industrial enterprises; 2. Improving technical processes; 3. Restructuring the operation of enterprises. 	*	1995-2016	ME, NCEHA
	Total		1589*		

* - anticipated energy savings resulting from information measures and regulatory documents are determined for the industry overall. Savings are calculated on the basis of the number of participants of the campaign and assessment of part of the impact of implemented activities in the sector against the basic scenario without the measures implemented. The plan is to use sector indicators for assessment of the action impact.

Table 2.3.2

Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Information on the most effective technical solutions information provided on the energy efficient labels for electrical equipment	13.40 25.05	State budget	2009 2010
2	Improving the energy efficiency of lighting	5.52 5.90	State budget	2009 2010
3	Energy audits, improving the energy efficiency of technical processes and restructuring of enterprises	10.00	State budget	2009
	Total	59.87		2009-2010

Measure 1	Access to information on the most effective technical solutions and information provided on the energy efficient labels for electrical equipment
Category	Information measures: 1. Information campaigns and centres; 2. Energy consumption indicators
Scope of the measure	The measure will be undertaken on a national scale
Target group	National industry sectors: – food industry, – wood processing, – metal and metal product manufacturing, – light industry, – chemical industry, – other areas of industry.
End-use action targeted	1. Analysis of information on the best technical solutions in the appropriate areas of industry; 2. Implementation of more effective technical solutions
Activities	Statistical data shows that Latvia has few

	<p>industrial enterprises that use modern-day, progressive technologies. The traditional areas have a small volume of sales of new types of products. In addition, the volume of investments in research and development is very small. Data shows that between 1999 and 2001 only 19% of enterprises in the Republic of Latvia were innovative and introduced new or improved products onto the market, or that new improved technologies were introduced into these enterprises. The proportion of innovative enterprises in Latvia is noticeably lower than the average indicator in other Member States, where the proportion is 45% of enterprises.</p> <p>Existing energy efficiency standards must be evaluated within the framework of the activity and new standards must be set out. Given rapid development, energy efficiency standards must be re-evaluated every 3-5 years, in order to incorporate the latest energy efficiency requirements that comply with available technologies.</p>
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.3.1
Status of implementation and exact time-frame for start and completion	Over the last 10 years various environmental institutions have provided information to the various industrial sector enterprises on the best available technical processes, and the LPTP descriptions for the sectors, drawn up by the European Commission, are available. Nevertheless, the technologies used in many enterprises do not comply with these standards, and therefore the measure is due to continue for the entire reporting period (up to 2016).

Measure 2	Improving the energy efficiency of lighting
Category	Information measures: 1. Information campaigns and centres; 2. Energy consumption indicators
Scope of the measure	The measure will be undertaken on a national scale
Target group	National industry sectors: – food industry, – wood processing,

	<ul style="list-style-type: none"> – metal and metal product manufacturing, – light industry, – chemical industry, – other areas of industry.
End-use action targeted	<ol style="list-style-type: none"> 1. Analysis of information on energy efficient lighting; 2. Use of energy efficient light fittings; 3. Choice of appropriate lighting regimes
Activities	<p>The use of lighting may be different depending on the activities being undertaken inside or outside, materials or substances, type of use, working hours and other conditions. There are different forms of lighting depending on the purpose – general, local, combined or special.</p> <p>Energy efficient lighting is regarded as lighting that provides a level of lighting that consumes the least possible amount of energy. This is available with the latest lighting technologies.</p>
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.3.1
Status of implementation and exact time-frame for start and completion	Enterprises have been provided with information on energy efficient lighting over the last 10 years. Nevertheless, the energy efficiency of lighting in many enterprises does not comply with the best standards; therefore the measure is due to continue for the entire reporting period (up to 2016).

Measure 3	Energy audit, improving the energy efficiency of technical processes and restructuring of enterprises
Category	Information measures: <ol style="list-style-type: none"> 1. Energy audit; 2. Information campaigns, information centres; 3. Energy consumption standards, indicators
Scope of the measure	The measure will be undertaken on a national scale.
Target group	National industry sectors: <ul style="list-style-type: none"> – food industry, – wood processing, – metal and metal product manufacturing, – light industry,

	<ul style="list-style-type: none"> – chemical industry, – other areas of industry.
End-use action targeted	<ol style="list-style-type: none"> 1. Energy audits of industrial enterprises; 2. Improving technical processes; 3. Restructuring the operation of enterprises.
Activities	<p>An energy audit is an effective and specific method of achieving a rapid improvement of energy efficiency in buildings and manufacturing processes. Adequate energy savings can be achieved easily through active implementation of the energy audit programme in Latvia, by informing energy consumers of the opportunities provided by energy savings measures.</p> <p>Specific indicators are achieved as a result of the energy audit and these are compared to the indicators in the respective sectors in other European countries. If the indicators are lower, measures are proposed to improve the indicators and increase energy efficiency.</p> <p>An absolute measure of characteristics for production (energy consumption) is insufficient for evaluating and comparing efficiency (for example when there is an increase in production), and therefore specific quantities are used.</p> <p>The volume of energy used serves as the base quantity for creating specific indicators – where necessary the quantity is divided by energy carriers or energy costs. The quantities against which the volume of energy is applied may be very different – turnover, number of workers, number of items of produce etc.</p> <p>Specific energy indicators may be divided into three groups:</p> <ul style="list-style-type: none"> – general indicators: these quantities may be used in all sectors (for example, energy costs or consumption applied against turnover, added value, number of employees, salaries); – sector specific indicators: these indicators are used only within the framework of a specific sector (for example, energy costs or consumption against items of produce, weight, area, volume);

	<ul style="list-style-type: none"> – additional specific indicators: these are not energy specific indicators but provide additional information on the aforementioned indicators (for example, energy costs per kWh, electricity as a proportion of energy consumption, capacity as a component of electricity costs).
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.3.1
Status of implementation and exact time-frame for start and completion	<p>This measure has been used in Latvia since the mid 1990s. Energy audits have been undertaken in many food industries (milk, meat, bread, beer and confectionary production) and other enterprises over the last 10 years, and the specific indicators obtained have been compared with the average indicators in European countries. The data obtained following these comparisons has verified that the specific energy consumption indicators in Latvia are 1.5-3 times higher. Restructuring and improvements to technical processes have been carried out in enterprises in accordance with the recommendations, and energy efficiency has improved as a result. Nevertheless, there continues to be potential for energy efficiency in industrial enterprises, and therefore, the measure is due to continue during the entire reporting period.</p>

Total energy savings for 2008-2016 will be 159 GWh, in the mid-term (2008-2010) – 3 GWh.

The top-down method has been used to evaluate energy savings. Energy savings have been calculated by analysing total energy consumption in the industrial sector as a whole, as well as in certain areas of industry (food, wood processing, metal and metal product manufacturing, light industry, chemical industry and others). An analysis has been made of the following main types of energy and fuel:

- Electricity;
- Heat;
- Fuel (natural gas, wood, oil products, coal and peat).

2.4 Transport

Over the last five years final energy consumption in the transport sector has increased in Latvia, particularly in the area of road transport. One of the main reasons for this trend is high economic growth and a rise in people's level of prosperity, evident also from the rapid increase in the number of motor vehicles.

Road transport is widely used for inland freight consignments and for international freight consignments. Road transport consumes 85% of the total energy consumption in the sector; hence most energy efficiency measures are focused in this sector. Measures in other types of transport are certain to have a positive impact on general improvement of energy efficiency in the sector.

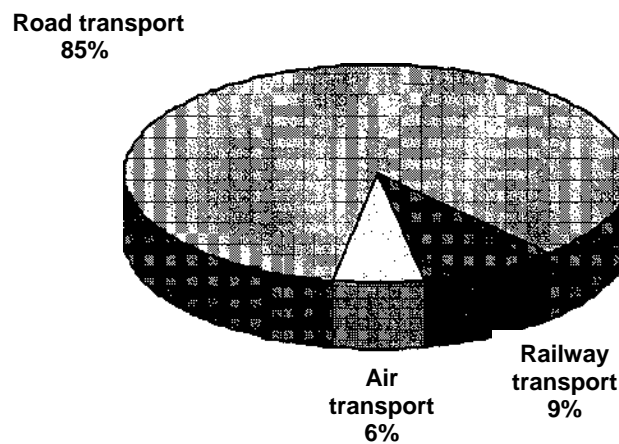
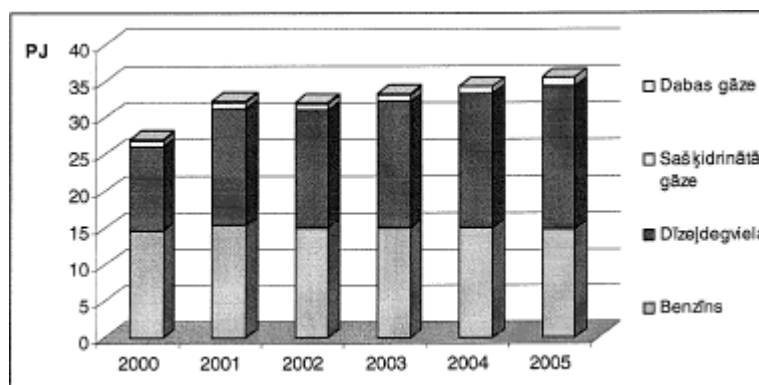


Figure 7. Breakdown of fuel consumption across different means of transport in the Republic of Latvia in 2005

Source: CSP

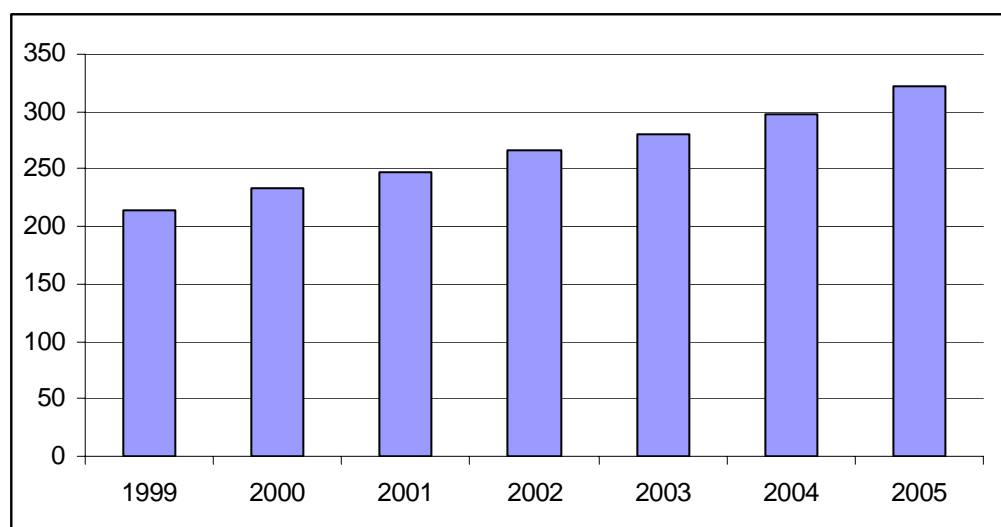
Data of the Road Traffic Safety Directorate (CSDD) shows that over the last five years the total number of motor vehicles in Latvia has increased by 24.5%, but there has been an even greater increase in the number of passenger cars - 27%.



Latvian	English
<i>Dabas gāze</i>	Natural gas
<i>Sašķīdinātā gāze</i>	Liquefied gas
<i>Dīzeļviela</i>	Diesel fuel
<i>Benzīns</i>	Petrol

Figure 8. Fuel consumption in the road transport sector in Latvia

Source: CSB

**Figure 9. Changes in the number of registered passenger cars per 1000 people in Latvia.**

Source: CSDD

The engine size and average age of motor vehicles also have an impact on fuel consumption and the volume of harmful emissions. The average age of motor vehicles registered in Latvia continues to be high, although there has been a reduction over the last five years. This indicator is far better for vehicles that are technically sound and which, in essence, take part in road traffic.

Given that there is no car-manufacturing industry in Latvia and therefore, there is little opportunity for influencing the technical development of motor vehicles, the main energy efficiency measures are aimed at improving the transport system and the effective use of the infrastructure, as well as disseminating information to traffic participants on ways of using energy more effectively.

Table 2.4.1
Energy efficiency measures in the transport sector

No	Measure	End-user action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	Systematic inspection of the technical condition of motor vehicles	Annual technical inspections of motor vehicles, with only those vehicles that comply with	34	1995-2016	Ministry of Transport (MT)

		technical and environmental requirements being allowed to take part in road traffic			
2.	Increasing the efficiency of the existing main road network in the city of Riga and planning the transport system	1. Optimisation of traffic flow in the city of Riga. 2. Creating a high-speed road network.	50	2000 - 2016	Riga City Council (RCC) MT
3.	Integration of the suburban railway and public transport system in Riga for improvement of public transport efficiency	Increasing passenger flow on public transport in Riga and the suburbs.	30	2010-2016	RCC MT
4.	Applying a differential tax rate for passenger cars depending on engine size and age	Fostering the economic advantages of cars with a smaller engine size and less fuel consumption	*	2007 - 2016	Ministry of Finance (MF) MT
5.	Dissemination of information on technologies and approaches for reducing energy consumption effectively.	Dissemination of information to users on ways of economising petrol (change in tyre pressure, driving skills and others).	*	2009 - 2016	MT
	Total		204*		

* - anticipated energy savings resulting from information measures and regulatory documents are determined for the industry overall. Savings are calculated on the basis of the number of participants in the campaign and assessment of part of the impact of implemented activities in the sector against the basic scenario without the measures implemented. The plan is to use sector indicators for assessment of the action impact.

Table 2.4.2

Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
2	Increasing the efficiency of the existing main road network in the city of Riga and planning the transport system	91,912	ERDF and Cohesion Fund	2010- 2016
3	Integration of the suburban railway and public transport system in Riga for improvement of the public transport efficiency	86,020	Cohesion Fund	2009-2016
5	Dissemination of information on technologies and approaches for reducing energy consumption effectively	11.05 11.82	State budget	2009 2010
	Total	177,954.87		2009-2016

Measure 1	Systematic inspection of the technical condition of motor vehicles
Category	Rules – Mandatory annual inspection, where a permit is issued and vehicles are marked
Scope of the measure	Throughout Latvia
Target group	All motor vehicle groups (passenger, freight, buses)
End-use action targeted	Annual technical inspections of motor vehicles, with only those vehicles that comply with technical and environmental requirements being allowed to take part in road traffic
Activities	Annual technical inspections of motor vehicles (and more frequently for certain groups) not only improves traffic safety, but ensures that only those vehicles that comply with environmental requirements and are energy efficient take part in road traffic.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.4.1

Status of implementation and exact time-frame for start and completion	Already being implemented in Latvia and due to continue and be developed up until 2016.
Measure 2	Increasing the efficiency of the existing main road network in the city of Riga and planning the transport system
Category	Financial instrument/EU Structural Funds
Scope of the measure	Riga
Target group	All motor vehicle groups (passenger, freight, buses)
End-use action targeted	Optimisation of traffic flow in the city of Riga. Creating a high-speed road network.
Activities	The Riga Development Plan 2006-2018 sets out plans to increase the efficiency of the existing main road network, by adding missing links to the network, creating a high-speed road network, constructing new crossings over the Daugava river and eliminating the narrow areas in the existing and future crossings over the Daugava river where they are linked to the existing road network, and to improve the city road network links with the TEN-T road network. The newly constructed flyovers and reconstruction of sections of roads will increase traffic speed and flow
Annual energy savings expected in 2016 and 2010	In 2010 1 GWh In 2016 50 GWh
Status of implementation and exact time-frame for start and completion	The first road flyover construction projects have been completed, but given the volume of work and available financial resources work will continue after 2016.
Measure 3	Integration of the suburban railway and public transport system in Riga for improvement of the public transport efficiency
Category	Financial instrument/EU Structural Funds
Scope of the measure	Riga and the suburbs of Riga
Target group	Public transport passengers
End-use action targeted	Increasing passenger flow on public transport in Riga and the suburbs.
Activities	The project includes development of the railway infrastructure, serving passengers (modernisation of stations, changing the height of platforms to 550 mm), which will enable the acquisition of modern low-floor electric trains. Measures are due to be undertaken to link the

	passenger railway transport system to the public transport system in Riga. The measures will increase access to public transport and will allow a certain proportion of passenger car drivers to start using public transport.
Annual energy savings expected in 2016 and 2010	In 2016 30 GWh
Status of implementation and exact time-frame for start and completion	After carrying out a survey financed from the ERDF (2007) more detailed project planning will begin. Given the scope, it will be implemented not earlier than 2016.
Measure 4	Applying a differential tax rate for passenger cars depending on engine size and age
Category	Financial instrument/tax
Scope of the measure	Throughout Latvia
Target group	Passenger cars with an engine size above 3,000 cm ³
End-use action targeted	Fostering the economic advantages of cars with a smaller engine size and less fuel consumption
Activities	The measure is aimed at structural changes of the passenger car fleet, which will foster a reduction in fuel consumption and the number of kilometres driven. In addition, the measure will foster a reduction in the average age of vehicles, which will also have a positive impact on the efficient use of energy.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.4.1
Status of implementation and exact time-frame for start and completion	The new rates come into effect in 2007 and are due to be in force until 2016.
Measure 5	Dissemination of information on technologies and approaches for reducing energy consumption effectively (the best air pressure in passenger car tyres).
Category	Information measures
Scope of the measure	Throughout Latvia
Target group	All motor vehicle groups
End-use action targeted	Dissemination of information to users on ways of economising petrol (change in tyre pressure, driving skills and others).
Activities	The measure is aimed at collating and disseminating information on different ways in which users can save petrol; these changes are not related to high costs, but mainly concern

	changes in users' behaviour. Information can be disseminated in a number of ways (press, TV and booklets).
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.4.1
Status of implementation and exact time-frame for start and completion	2008-2016

Total energy savings in the sector for 2008-2016 are 204 GWh, but in the mid-term (2008-2010) the savings are 4 GWh.

The top-down method will be used to evaluate energy savings, by calculating the energy intensity of the sector and specific energy consumption indicators per unit selected.

2.5 Agriculture and rural development

In 2004 agriculture comprised 4.3% of total GDP; it is a relatively small final energy consumer in Latvia. In 2004 final energy consumption of agriculture comprised 3.0% of national final energy consumption. One of the difficulties in implementing efficient farming is due to the outdated agricultural machinery, buildings and equipment, and lack of resources, including facilities that comply with environmental protection requirements. Therefore, considerable capital investments are due to be made in acquiring machinery and equipment in order to increase efficiency.

Table 2.5.1

EE measures in agriculture and rural development

No	Programme	End-use action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	SAPARD programme for structural reforms in agricultural and rural development	Modernisation of agricultural buildings and facilities, and machinery used in agriculture	*	2001-2003	Ministry of Agriculture (MA)
2.	Latvia's Rural Development Programme 2007-2013	Modernisation of farms, construction or reconstruction of power supply systems utilising renewable energy sources, production of fuel derived from agricultural and forestry produce in an existing enterprise (except	*	2007-2013	MA

		production of biogas and its transformation into thermal energy)			
	Total		11		

* - anticipated energy savings are determined for the industry overall.
The plan is to use sector indicators for assessment of the action impact.

Table 2.5.2

Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	SAPARD Latvia's Agricultural and Rural Development Programme 2000-2004.	24,413	EU financing, Public financing	2000-2004
2	Latvia's Rural Development Programme 2007-2013	661,213 *	EAFRD Public financing Private financing State budget	2007-2013
	Total	685,626		

* Planned financing specified for the overall programme period.

Measure 1	SAPARD sub-programme 1.1 modernisation of agricultural machinery, equipment and construction of buildings
Category	Financial instrument/pre-structural funds
Scope of the measure	Throughout Latvia
Target group	Farmers, agricultural enterprises, rural entrepreneurs, as well as agricultural and fisheries product processing enterprises.
End-use action targeted	The objective will be reached by implementing the following: - increasing the manufacturing competitiveness of agricultural products.
Effectiveness (description of activities)	The largest volume of investments (93%) has been earmarked for modernisation of machinery, as farmers wish to renew their machinery yards.

Annual energy savings expected in 2016 and 2010	* - see note to Table 2.5.1
Status of implementation and exact time-frame for start and completion	Given that the SAPARD programme was a pre-structural funds programme, the time-frame was 2001-2003.

Measure 2	Latvia's Rural Development Programme 2007-2013 – measure 121 – Modernisation of agricultural holdings – to improve their economic performance indicators, competitiveness, the quality of agricultural products and to promote the implementation of tighter animal welfare, labour safety and environmental standards.
Category	Financial instrument/EAFRD
Scope of the measure	Throughout Latvia
Target group	Beneficiaries: - legal or natural persons who manufacture agricultural produce pursuant to Annex I to the Treaty on establishment of the European Community, or else the relevant co-operative union of agricultural services.
End-use action targeted	The objective of the measure is to increase the efficiency of agricultural production, reduce petrol consumption when using agricultural machinery and foster sustainable development for modernisation of agricultural machinery. Therefore the measure provides for the following activities: <ul style="list-style-type: none"> ■ investments in supply and installation of new equipment, machinery, accessories, information technologies and software designed for the manufacture of agricultural produce; ■ construction, reconstruction of new agricultural production buildings and purchase of necessary building materials.
Effectiveness	The introduction of machinery throughout the entire chain of agricultural produce manufacturing that is economic on resources, can be re-used and reduces the volume of environmentally harmful emissions must be fostered, given the ever increasing environmental protection and energy efficiency requirements; this includes transport used in agriculture and the consumption of non-renewable natural resources,

	or those that are difficult to renew – in particular water and energy.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.5.1
Status of implementation and exact time-frame for start and completion	2007–2013

Measure 3	Latvia's Rural Development Programme 2007-2013 – measure 312 (311) - Support for creation and development of enterprises (including diversification into non-agricultural activities) sub-measure 'Production of energy from biomass which is of an agricultural or forestry origin' - the purpose of this sub-measure is to support holdings which establish production of energy from biomass of an agricultural or forestry origin.
Category	Financial instrument/EAFRD
Scope of the measure	Latvian rural territory
Target group	Beneficiaries: - a natural or a legal person who manufactures agricultural produce pursuant to Annex I to the Treaty on establishment of the European Community.
End-use action targeted	The objective of the measure is support holdings, which establish production of energy from biomass of an agricultural or forestry origin. Within the framework of the measure investment is supported into purchase and construction of new equipment to ensure energy production from agricultural or forestry origin biomass and transfer into thermal energy or electricity.
Effectiveness	The measure will ensure more effective use of resources and ensure access to alternative energy sources.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.5.1
Status of implementation and exact time-frame for start and completion	2007–2013

Measure 4	Latvia's Rural Development Programme 2007-2013 – measure 321 - Basic services for the economy and rural population - the purpose of this measure is to enhance the upgrading of the quality of public infrastructure in rural territories to preserve the rural population.
Category	Financial instrument/EAFRD
Scope of the measure	Latvian rural territory other than Riga district municipalities with population over 5000. Regions comprising rural territories and towns comprising rural territories may implement the specified measure only in rural territories.
Target group	Beneficiaries: - town, regional or parish municipalities administering a rural territory of Latvia, qualifying as a target territory for this measure.
End-use action targeted	The objective of the measure is to enhance the upgrading of the quality of public infrastructures in rural territories to preserve the rural population. Under this measure support is provided to construction and reconstruction of power supply system utilising renewable energy sources.
Effectiveness	The measure will ensure more effective use of resources and ensure access to alternative energy sources.
Annual energy savings expected in 2016 and 2010	* - see note to Table 2.5.1
Status of implementation and exact time-frame for start and completion	2007–2013

The total energy savings for 2008-2016 will be 11 GWh, in the mid-term (2008-2010) the savings will be 0 GWh.

The top-down method has been used to evaluate energy savings. Energy savings have been calculated by analysing overall energy consumption in the agriculture sector as a whole in the Republic of Latvia. An analysis has been made of the following main types of energy and fuel:

- Electricity;
- Heat;
- Fuel (natural gas, wood, oil products and coal).

2.6 Horizontal and cross-sectoral measures

If the price of energy resources fosters an increase in consumption for inadequate efficiency, one instrument that can be used to remind consumers of the need to retain competitiveness and invest in measures that foster energy efficiency, is the application of an energy tax. This is a powerful stimulus in the growth of innovation and technological progress.

Table 2.6.1

Horizontal and cross-sectoral EE measures

No	Measure	End-use action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	Application of excise duty for oil products	To achieve petrol consumption savings in the transport sector		2004-2016	MF
2.	Application of excise duty for electricity	Foster consumers' motivation regarding energy efficiency measures in various energy consumption sectors		2007-2016	MF

Table 2.6.2

Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Application of excise duty for oil products	-	-	-
2	Application of excise duty for electricity	-	-	-
	Total	-		

Measure 1	Application of excise duty for oil products
Category	Financial instrument/tax
Scope of the measure	Throughout Latvia
Target group	Various groups of transport users
End-use action targeted	To achieve savings in fuel consumption in the transport sector
Activities	In accordance with the Law on Excise Tax the Republic of Latvia will harmonise the rates for oil products with those laid down by the EU (Council Directive 2004/74/EC of 29 April 2004 amending Directive 2003/96/EC as regards the possibility for certain Member States to apply, in respect of energy products and electricity, temporary exemptions or reductions in the levels of taxation) by 2013. The application of higher excise tax on oil products facilitates the organisation of traffic, the creation of a structure that is favourable for road traffic, and will encourage passengers to transfer to more energy efficient forms of transport, including public transport (electric transport).
Annual energy savings expected in 2016 and 2010	n.a.
Status of implementation and exact time-frame for start and completion	2004-2016
Measure	Application of excise duty for electricity.
Category	Financial instrument/tax
Scope of the measure	Throughout Latvia
Target group	Various groups of energy consumers
End-use action targeted	Foster consumers' motivation regarding energy efficiency measures in various energy consumption sectors
Activities	Pursuant to Council Directive 2004/74/EC of 29 April 2004 amending Directive 2003/96/EC as regards the possibility for certain Member States to apply, in respect of energy products and electricity, temporary exemptions or reductions in the levels of taxation, the Republic of Latvia will introduce excise tax on electricity. Application of excise tax and further increases in rates will facilitate energy consumers in various sectors to pay attention to energy efficiency issues and carry out measures for lower consumption.

Annual energy savings expected in 2016 and 2010	n.a.
Status of implementation and exact time-frame for start and completion	2007-2016

Given that the evaluation methods recommended by the Commission for cross-sectoral energy efficiency measures were unclear at the time when the Energy Efficiency Action Plan was being drawn up, the tables do not show the numerical values of expected savings.

2.7 Implementation of the exemplary role of the public sector

Pursuant to Article 5 of Directive 2006/32/EC of the European Parliament and of the Council on energy end-use efficiency and energy services (Article 5), the State must undertake an exemplary role in implementing energy efficiency requirements. Member States shall implement the required measures for fulfilment of the requirements of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC, and transpose the Directive requirements in the national legal enactments until 17 May 2008. In accordance with the requirements of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services, the following mandatory requirements have been selected in order to implement the exemplary role of the public sector:

- To purchase energy efficient electrical equipment for the needs of public administration bodies and local authorities,
- To carry out energy audits and implement the resulting cost-effective recommendations.

Table 2.7.1

EE measures in the public sector

No	Measure	End-use action targeted	Annual energy savings expected in 2016 (GWh)	Duration	Responsible body
1.	Inclusion of the requirements of Annex VI, points c) and e) of Directive 2006/32/EC of 5 April 2006 on energy end-use efficiency and energy services in the Public Procurement Law.	1) Purchase of energy efficient electrical equipment for the needs of public administration bodies and local authorities 2) Voluntary purchase of energy efficient electrical in the private sector as a result of the exemplary role of the public sector.	28	2008-2016	ME
2.	Construction of new public administration buildings in accordance with the principles of good practice in energy efficient construction and the provisions of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings	1) Construction of energy efficient public administration buildings 2) Voluntary construction of energy efficiency buildings in the private sector as a result of the exemplary role of the public sector.	12	2009-2016	ME
	Total		40		

Table 2.7.2

Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Inclusion of the requirements of Annex VI, points c) and e) of Directive 2006/32/EC of 5 April 2006 on energy end-use efficiency and energy services in the Public Procurement Law	50	State budget	2008
2	Construction of new public administration buildings in accordance with the principles of good practice in energy efficient construction and the provisions of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings	100	State budget	2009-2010
	Total	150		2080-2010

Measure 1	Inclusion of the requirements of Annex VI, points c) and e) of Directive 2006/32/EC of 5 April 2006 on energy end-use efficiency and energy services in the Public Procurement Law
Category	Exemplary role of the public sector
Scope of the measure	Throughout Latvia
Target group	Public administration bodies, local authorities
End-use action targeted	1) Purchase of energy efficient electrical equipment for the needs of public administration bodies and local authorities 2) Voluntary purchase of energy efficient electrical in the private sector as a result of the exemplary role of the public sector.
Effectiveness	It is expected that there will be less effect during the first year of the amended Law

	being in force (8 GWh). The overall effectiveness of the measure is seen as high, because implementation will be mandatory on the part of public administration bodies.
Annual energy savings expected in 2016 and 2010	In 2010 2 GWh In 2016 28 GWh
Status of implementation and exact time-frame for start and completion	Amendments to the Public Procurement Law will be drawn up and implemented in 2008, and the amended Law will enter into force in 2009.

Measure 2	Construction of new public administration buildings in accordance with the principles of good practice in energy efficient construction and the provisions of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings
Category	Exemplary role of the public sector
Scope of the measure	Throughout Latvia
Target group	Public administration bodies
End-use action targeted	1) Construction of energy efficient public administration buildings 2) Voluntary construction of energy efficient buildings in the private sector as a result of the exemplary role of the public sector.
Effectiveness	The main impact of the measure on overall national energy efficiency is expected via the demonstration effect, because the energy consumption of public administration buildings as a proportion of the national energy balance is seen as minimal. It is expected that effectiveness following implementation of the measure will only be seen in 2015, because energy efficient buildings that have actually been constructed are required for demonstration.
Annual energy savings expected in 2016 and 2010	In 2010 0.00 GWh In 2016 12 GWh
Status of implementation and exact time-frame for start and completion	Guidelines for the construction of energy efficient buildings will be drawn up in 2009-2011. The construction of public administration buildings will be undertaken in accordance with these guidelines as from 2011.

Total energy savings for 2008-2016 – 40 GWh, in the mid-term (2008-2010) – 2 GWh.

2.8 Centralised heat supply

Centralised heat supply has large energy efficiency potential, however pursuant to Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services the Energy Efficiency Action Plan is only focused on final energy saving. Therefore, savings resulting from implementation of measures in heat sources and heat supply systems are not incorporated in calculation of the national energy savings target.

In Latvia, the centralised heating supply systems generated 30.1 PJ (8349 GWh) of heat energy in 2006. The rest of the required heat energy volume is produced by local and individual producers. Figure 10 shows dynamics of heat energy production over the period from 2000 to 2006. Irregularity and a trend for decrease are due to climatic factors, as well as energy efficiency measures implemented in heat sources, heat supply systems and consumer systems.

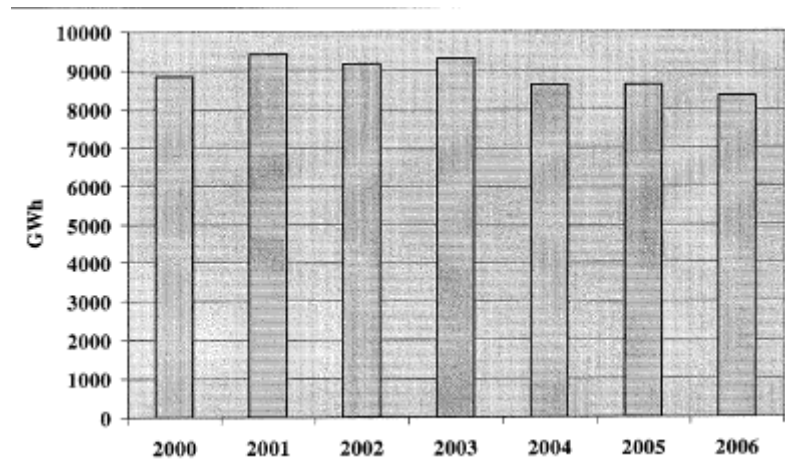


Figure 10. Heat produced in CHS⁶

In 2006, centralised heat supply is characterised by the following heat consumption data:

- residential 17.8 PJ (4,949 GWh) or 73.1%;
- industry 0.6 PJ (1176 GWh) or 2.6%;
- other consumers 5.9 PJ (1649 GWh) or 24.3%.

In a centralised heat supply, heat is produced in cogeneration power plants and boiler houses. Cogeneration power plants produce 16.7 PJ (4,627 GWh) or 55.4%, and boiler houses 13.4 PJ (3,722 GWh) or 44.6% of heat.

In Latvia, two main types of fuel – natural gas and timber – account for almost 97% of primary resources used in heating supply. Natural gas is a prevailing fuel (91.8%) in centralised heat supply systems, and the portion of timber is also considerable (15.0%).

In 2006, indicators of heat supply efficiency may be evaluated as low and indicate considerable potential of energy efficiency in heat supply:

- heat production efficiency of heat sources (boiler houses and cogeneration power plants) is 76.5% (energy production against the fuel volume used). Taking into account that efficiency in modern heating sources of natural gas and liquid fuel exceeds 90%, but in solid fuel - 80%, one may conclude that there is potential for an increase of efficiency. It is impossible to quantify production efficiency in local and individual heat supply because heat produced is not registered; however, there is potential for the increase of efficiency here as well, especially for use of timber in the individual sector;
- in heat transmission heat losses amount to 15.6% (heat losses against heat transferred to the network), and in individual heat supply systems they even exceed 20%. Heat transmission systems have a great potential for the increase of energy efficiency.

⁶ Data of the Republic of Latvia Central Statistical Bureau

Increasing energy efficiency entails considerable investment. Previously, funding from local authorities and heat supply enterprises, State investments and other support programmes were used in the reconstruction process. An opportunity has recently opened for use of EU funds co-financing.

Modernisation of both heat sources and heat systems requires substantial capital investments, giving rise to funding problems. In many cases, the adequate heat supply tariff is an obstacle for investments, as it only covers the required operation and maintenance costs.

For centralised heat supply systems, the average unused⁷ potential of average heat loads over the heating season is approximately 550 MW_{th}, and is distributed as follows:

- Cogeneration potential in Riga is about 50 MW_{th};
- In Latvia's major towns - 250 MW_{th} (in Daugavpils - 100 MW_{th}, in Liepāja - 80 MW_{th}, in Ventspils - 40 MW_{th}, in Rēzekne - 30 MW_{th});
- Other towns (with population of at least 4,000) - 250 MW_{th}.

In order to use such cogeneration potential as far as possible, the current centralised heat supply should be retained and developed to ensure the required permanent heat load. For maximum effect, the current heat load should be taken into account in choosing cogeneration capacities.

Pursuant to the Energy Development Guidelines for 2007 – 2016:

- The average efficiency level of heat production equipment in this country is to be increased up to 80%-90% by 2016.
- The average level of heat loss in heat transmission and distribution networks in this country is to be decreased to 14% over the period until 2016.

In the 2007-2013 planning period, priority 3.5 'Promotion of Environmental Infrastructure and Environmental Friendly Energy' under the Operational Programme 'Infrastructure and Services' provides for support for the energy industry. This priority is financed by the Cohesion Fund and aimed at creating environment-friendly preconditions for development, thus improving environmental infrastructure, raising energy efficiency and the use of renewable energy resources in central heating services.

Within the framework of the "Energy" measure assistance will be provided for raising efficiency in all stages of the heat supply system – in production, transmission and distribution – and for the conversion of fuel in order to use renewable or other local primary energy resources, as well as for the development of cogeneration power stations using renewable resources :

- activity 3.5.2.1. Measures regarding the increase of efficiency of centralised heat supply systems (planned public financing 42.32 million LVL);
- activity 3.5.2.2. Development of cogeneration power plants utilising renewable energy sources (planned public financing 17.35 million LVL).

Projected indicative results of the above-mentioned activities:

- Approximately 20 km of heating mains to be replaced with heat losses

⁷ This volume of heat loads is not used in cogeneration process yet, it is only covered by water boilers

- decreased by approximately 50 GWh;
- Electric load installed in cogeneration powers plants to use renewable energy resources – approximately 10 MW_{el}.

Table 2.8.2
Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Measures regarding the increase of efficiency of centralised heat supply systems	42,320	Cohesion fund	2009-2010
2	Development of cogeneration power plants utilising renewable energy sources	17,350	Cohesion fund	2008-2009
	Total	59,670		2008-2010

2.9 Legislative initiatives

The Law on Energy Efficiency in Buildings has been drawn up and submitted to the Cabinet of Ministers; this item of Latvian legislation will implement Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings. Pursuant to this Law, a number of Cabinet Regulations will have to be drawn up and will include the following:

- An institutional system, its tasks, obligations and responsibilities;
- Defined energy consumption standards for blocks of flats, and the application of minimum requirements for the energy certification of homes;
- A unified method of calculation for determining the energy efficiency parameters of buildings;
- Procedures for training and certifying independent experts;
- Procedures for inspecting boilers and air conditioning systems.

Table 2.9.2
Required public financing volume and deadlines

	Measure	Required financing, 1000 LVL	Source of financing	Year of implementation
1	Transposing the requirements of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings	30	State budget	2008
2	Transposing the requirements of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services	35	State budget	2009
	Total	65		2008-2009

This legislation must be introduced in the Republic of Latvia by the end of 2008 in order to implement the requirements of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

This Law is due to be supplemented with the requirements of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services by the end of 2009, thereby developing a single law on energy efficiency.

A plan for implementing Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services will be drawn up in 2008 in order to consolidate all the requirements of Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services in legal enactments of the Republic of Latvia, and the relevant Cabinet Regulations will be drawn up and implemented in accordance with this plan.