Latvia Energy efficiency report

Objectives:

- 3.5 TWh of end-user energy savings by 2016
- 40% share of renewables in final energy consumption by 2020
- 60% share of renewables in electricity consumption by 2020

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<th>Overview</th>
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<td>-3.1%</td>
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<td>CO₂ emissions per capita (tCO₂/cap)</td>
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<td>-0.7%</td>
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<tr>
<td>2009</td>
<td>++</td>
<td>++</td>
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<td>2000-2009 (% / year)</td>
<td></td>
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*2008 and 2000-2008 for steel

++ Among best countries    + Better than the EU average    - Below the EU average    -- Among countries with lowest performances

Latest update: January 2011
1. Overview
1.1. Policies: 9% energy savings in 2016
Latvia adopted its National Energy Efficiency Action Plan (NEEAP) in 2008. It sets an energy savings target of 3.5 TWh (300 ktoe) in 2016, 78 percent of which must be achieved in the households sector, 12 percent in the services sector, 6 percent in the transport sector and 5 percent in industry.

Latvia’s Law on End-use Energy Efficiency was adopted in January 2010 to comply with EU requirements. Its objectives are to define the main principles of the NEEAP, implement energy efficiency monitoring and create the conditions for the development of a market for energy efficiency services including ESCOs (Energy Service Companies).

Most energy efficiency measures concern the households sector. Latvia’s Energy Development Guidelines 2007-2016 aim to reduce the average heat consumption in buildings by at least 11 percent over the period and to improve energy efficiency in heat production installations. In 2008 Latvia adopted a new Building Energy Performance Law, establishing the requirements for the certification of energy auditors and energy certificates for buildings. Information campaigns and energy audits are the two key measures introduced to improve energy efficiency in the households and services sectors.

Latvia also aims to improve the energy efficiency of district heating, which is the main source of heating in the country. More specifically, it aims to raise the efficiency of heat production from 77 percent in 2006 to 90 percent by 2016. Heat distribution losses should decrease from 16 percent to 14 percent by 2016.

1.2. Energy consumption trends: low energy consumption per capita
Latvia’s energy consumption per capita is almost half that of the EU average (1.8 toe in 2009). Total energy consumption (primary consumption) fell rapidly between 1995 and 2000 (-4.1 percent/year) but increased by 2.4 percent/year until 2008. In 2009, following the severe economic crisis that hit the country, energy consumption dropped by 11 percent.

The market share of oil in total energy consumption has decreased from 41 percent in 1995 to 30 percent at present. The share of gas and biomass consumption is growing, from 22 percent each in 1995 to 26 percent and 31 percent, respectively, in 2009. The share of hydroelectricity is around 7 percent.

The households and services sector is the largest energy consumer in Latvia, although its share in final consumption is decreasing slightly (from 62 percent to 54 percent). The buoyant growth in the energy consumption of the transport sector (+8 percent/year between 1995 and 2008) raised that sector’s share from 18 percent of final consumption in 1995 to 27 percent in 2009. Industry’s share in final consumption is stable, at around 19 percent.
2. Power generation

2.1. Policies: 60% of renewables in electricity consumption by 2020

According to the target set by the European Directive, renewable energy should account for 40 percent of final energy consumption (1.9 Mtoe) and nearly 60 percent of electricity consumption by 2020. According to Latvia’s Energy Development Guidelines 2007-2016, electricity produced from highly-efficient CHP using biomass should account for 8 percent by 2016.

Latvia offers financial support for the conversion of technologies using fossil fuels to renewables. Feed-in tariffs have been introduced for wind, biomass and biogas, small-hydro and CHP (guaranteed purchase only for a fixed amount of electricity generated from renewable energy resources).

In 2009, tax exemptions were introduced for electricity production facilities using renewables and for CHP plants. Latvia also plans to implement premiums for electricity generated from renewables and indirect state aid to promote the utilization of renewable energies (renewable plants under 5 MW).

2.2. Power generation trends by source: 60% of hydropower

Latvia’s electricity mix is divided between hydropower (62 percent in 2009) and gas (36 percent); wind and biomass account for 1 percent each. Electricity generation from coal and oil stopped in 2004; they accounted for 2 percent and 11 percent, respectively, in 1995.

1.3. Energy efficiency and CO₂ trends: rapid improvement in energy and CO₂ intensities

Latvia’s primary energy intensity (total energy consumption per unit of GDP) has been decreasing very rapidly (by 5.3 percent/year between 1995 and 2009). That improvement is linked to the decrease in final energy intensity (final energy consumption per unit of GDP), which dropped by 4.8 percent/year, and to efficiency gains in the electricity sector: Latvia ceased to produce electricity from oil and coal and increased power generation from gas to 36 percent (13 percent in 1995). Measured at purchasing power parity, Latvia’s primary energy intensity is still 14 percent higher than the EU average.

Most of the rapid reduction in the CO₂ intensity (CO₂ emissions per unit of GDP), which fell by around 6 percent/year between 1995 and 2009, was achieved through overall energy efficiency gains, since energy intensities are decreasing; substitutions by fuels with a lower carbon content explain just 13 percent of the overall reduction.
2.3. Efficiency of the power sector: high efficiency and low CO₂ intensity

The average efficiency of Latvia’s power sector is high, at 51 percent in 2009, owing to the large share of hydropower in electricity generation. The efficiency rate has increased by 12 percentage points since 1995, as the efficiency of thermal power plants grew from 14 percent in 1995 to 28 percent in 2009. This improvement is due to the growing share of gas-fired generation (first CCGT unit in 2008). However, the efficiency rate of thermal power plants is 28 percent lower than the EU average.

The rate of T&D losses is high (60 percent higher than the EU average), despite a noticeable fall since 1996 (by almost 60 percent).
Increased between 1995 and 2005, and then declined until reaching its 2000 level (37 percent in 2009). The shares of electricity and biomass grew significantly: from 17 percent and 7 percent, respectively, to 23 percent and 21 percent, respectively, in 2009. Coal consumption is almost insignificant but its share increased from 2 percent in 1995 to 7 percent in 2009. Oil consumption decreased dramatically over time and now accounts for 11 percent (down from 36 percent in 1995).

3. Industry

3.1. Policies: 1.6 TWh of energy savings in industry by 2016

Latvia’s National Energy Efficiency Action Plan sets a target of 1.6 TWh of energy savings in the industrial sector by 2016 (about 137 ktoe). Energy audits were introduced in the mid-1990s, and are aimed at improving technical processes and restructuring the operations of industrial enterprises. Latvia also leads information campaigns on the most effective technical solutions to increase the use of energy-efficient and innovative technologies.

3.2. Energy consumption trends: low industrial consumption

After a decline between 1995 and 2000, industrial energy consumption grew by 2.1 percent/year until 2008; in 2009, it fell by 12 percent.

Between 2000 and 2009, the share of energy-intensive industries remained stable at around 40 percent. Steel and non-metallic minerals are the largest consuming sectors (18 percent and 17 percent, respectively, in 2009, compared with 24 percent and 11 percent, respectively, in 2000). The chemical sector accounts for 4 percent of industrial energy consumption and the share of the paper sector is marginal.
3.3. Energy intensity trends: efficiency gains in the steel sector

The energy intensity of the Latvian industry is decreasing rapidly (by 4 percent/year between 2000 and 2008). That improvement was achieved through efficiency gains in the steel industry, which is the country’s largest industrial consuming sector: the energy consumption per ton of steel produced decreased by 3.9 percent/year. Efficiency gains in the cement sector were almost insignificant (-0.3 percent/year).

Despite a high share of CHP capacity (all thermal power plants), CHP in industry is limited (4 percent in 2009). This can be explained by the reduced shares of the paper and chemical sectors, which are branches in which CHP usually plays an important role.

Figure 13: Trends in the energy intensity of industrial branches

Figure 14: Share of Industrial CHP in industrial consumption

The energy intensity of the manufacturing industry (ie, excluding construction and mining) decreased less than overall industrial energy intensity: -2.8 percent/year between 2000 and 2008. That decrease is mainly due to energy efficiency improvements, since changes in the structure of the manufacturing industry played a marginal role. Indeed the share of energy-intensive industries in the value added dropped by just 1.1 percentage points between 2000 and 2008.

Figure 15: Trend in energy intensity of manufacturing and structural effector power generation

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