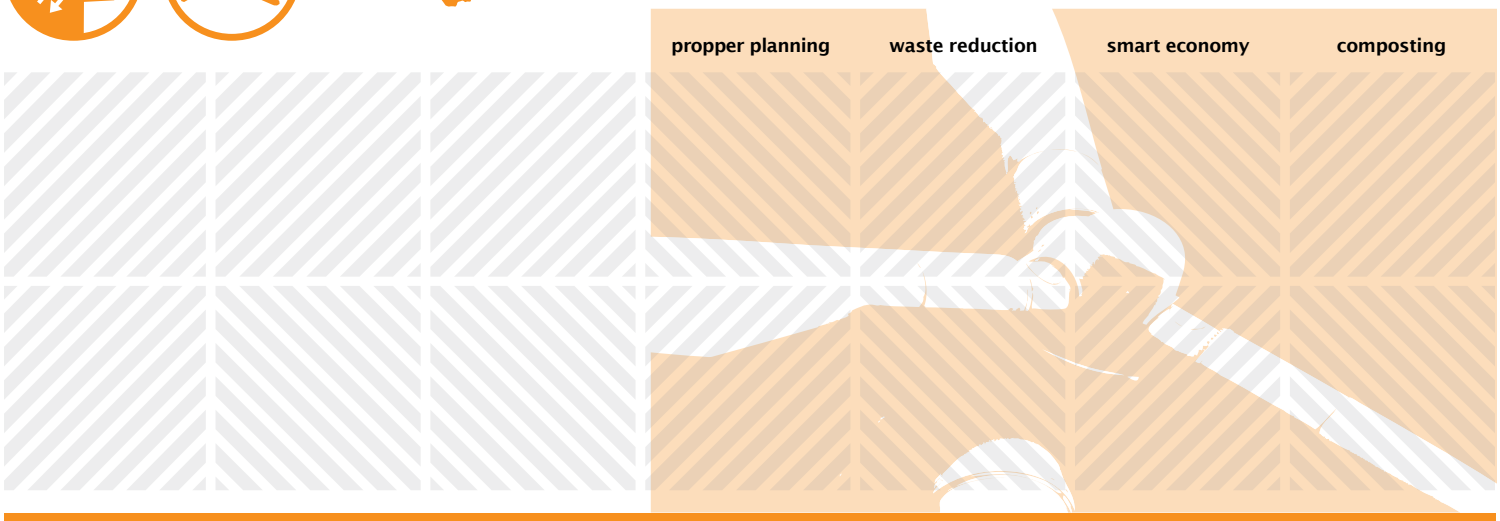

Latvia: Energy Efficiency and Renewables

Shadow position on energy and climate, use of EU funds for 2014-2020 period

Description of the situation and key challenges

In 2010 Latvia's annual primary energy consumption was 55708 GWh (200.5 PJ), including energy end-use consumption – 49569 GWh (178.4 PJ), non-energy needs – 848 GWh (3.1 PJ) and the energy transformation sector (including losses and energy sector's own consumption) – 5291 GWh (19.0 PJ). Gross domestic energy consumption is 52800 GWh (190.0 PJ). [Source: NEEAP]

Renewable energy sources in the primary energy balance of Latvia account for an estimated 35%, with a national commitment to increase this to 40% by 2020. Also the highest level long-term planning policy document in Latvia i.e. Sustainable development strategy for Latvia 2030 - states that renewable and safe energy should be promoted.

Apart from this, Latvia has undertaken several international commitments in the field of energy and GHG emissions and fulfilment of those should promote green energy:

Area	Target value	Current value
Reduction in energy consumption on the end user side within the period 2009 – 2016	9%	
Reduction in primary energy consumption by 2020	28.1 P	
Share of renewables on energy consumption by 2020 (Directive 2009/28/EC)	40%	33.6% in 2010
Share of RES in transport by 2020	10%	2.3% in 2010
Greenhouse gas emission reduction in non-ETS sector over the period 2013-2020 (compared to 2005):	maximum +17%	
GHG emissions	17.0 Mt CO_2 equivalent	

During last 10 years there has been a relative de-coupling of GHG emissions and GDP growth. In 2010 GDP had increased by 43 percentage points compared to the year 2000. GHG emissions in the same period grew by 17%. This relative decoupling is mainly attributed to an increase in energy efficiency in all sectors of the economy, whereas the contribution of RES use to this trend has been very small.

Furthermore, limiting GHG emission increase by 2020 and decreasing it afterwards can be seen as an integrated indicator for sustainable development in Latvia. In order to achieve an absolute decoupling of GDP growth and CO_2 emissions, energy policy should be directed

Highly efficient biomass boilers for district heating, such as the one in Tucums, are the way forward to achieve Latvia's high renewable energy target.

Photo: Tukuma Siltums

towards improved energy efficiency throughout the whole cycle i.e. from production to final energy consumption, as well as towards wider use of RES.

Heat consumption in centralised heating supply systems is on a downward trend following the implementation of energy efficiency measures, and also with certain structures being switched off from centralised heating systems. In 2010 heat totalling 7962 GWh (28.7 PJ) was generated in centralised heating supply systems in Latvia, and 53% of this volume was generated in Riga. With the operation of the new cogeneration block being launched in the centralised heating system in Riga, more than 90% of the heat consumed in the city is generated through a highly efficient cogeneration process. The remaining volume of heat required is generated by local and individual producers.

The main directions of official energy policy are aimed at increasing national energy security through promoting a diversification of supply of primary energy resources, creating favourable conditions to increase self-generation of electricity, and with new interconnections, prevent isolation from the regional electricity market. From an environmental point of view these targets are seen as neither good nor bad per se and th environmental impacts depend on the safeguards that are applied to every energy source. However there are some concerns about the sustainability of bioenergy, in particular biogas and biomass, as well as wind energy. Energy experts emphasize that the creation of competitive conditions to promote the use of renewable and local energy resources, besides improving energy efficiency, is also important.

Energy efficiency

Energy efficiency measures produce a positive impact as they reduce overall costs in the energy supply system. The hurdles which prevent using the potential are the rather high initial investments and the long pay-back periods. During the previous period energy efficiency improvement measures were implemented in the energy end-use sectors. The most significant energy efficiency improvement measures in this period were taken in the area of improving the energy efficiency of buildings in both the residential and public sectors.

Despite some improvements being made, energy efficiency has a high potential in Latvia. Energy intensity (in terms of final energy consumption) in Latvia in 2010 was around 3,5 times higher than the EU average and the gap is narrowing at a very slow pace. Even if purchasing power parity is being considered, energy intensity in Latvia is 75% higher than the EU average. In order to improve this indicator, substantial improvements in energy efficiency in all sectors are necessary. In particular, the industry sector should be highlighted, where the energy intensity is around 50% higher than the EU average. Since 2003 this has been a worrisome trend i.e. despite an increase in turnover of the sector, energy consumption in relative terms has been increasing. This means that growth took place at the expense of efficient use of energy sources. Similarly, in the services sectors energy intensity is a lot higher that the EU average. In this sector both state and municipal services play an important role, since these services constitute around 40% of the total energy consumption in the sector. Energy efficiency measures in the public sector will be partly pushed by the requirements of the Energy services directive.

The speed of energy efficiency improvement measures in centralised heating systems is hampered by the large volume of investments that are required, the restricted possibilities of local authorities to take out loans, as well as slow capital turnover. These are the reasons why local authorities continue to operate inefficient equipment which has an increased level of fuel consumption and cannot ensure the supply of heat at the quality required. If complex renovation of the system is carried out, it will be possible to optimise the energy generation process and reduce heat losses in the transmission systems. (Source: 2nd NEEAP)

For an energy efficiency increase in the residential sector, stronger incentives are necessary – asking to ensure compliance with certain energy efficiency levels and at the same time providing the tools to do this. Current legislation doesn't envisage any support mechanisms for energy efficiency increase for individual households. Although there has been some success with moving energy efficiency measures forward with the help of EU funds in the 2007-2013 programming period, in particular in the area of renovating multi-apartment residential buildings, the overall picture is still very grim. There are around 39 thousand multi-apartment houses (including social housing) in Latvia and less than 1% of them have been renovated. According to experts from the Ministry of Economics, around 60-70% of existing multi-apartment buildings can be renovated applying cost-optimal solutions. Energy consumption of 98% of all housing stock is far beyond optimal level and annual heat energy consumption exceeds 150 kWh/m2. Thus continued support for renovations of residential buildings is of crucial importance.

Renewable energy sources

Renewable resources should be selected which are commercially justified from the point of view of the circulation cycle analysis, as well as environmentally and climate friendly. The amounts of their use should vary depending upon prices,

availability of resources, development of innovative technologies and impact on climate change mitigation policies.
In the long run the use of RES should be widened – both in the heat and electricity generation sectors. The use of biomass in small and medium scale district heating plants stimulates forestry, wood processing and agricultural industries, allowing using residues efficiently. Wider use of local RES would also reduce exports of local energy sources (primarily wood-chips) and decrease dependency on fossil fuel imports.
In the period up to 2020, the main emphasis must be on a more complete use of biomass, without neglecting the use of wind energy after 2020 and the use of solar energy primarily in multi-apartment houses, thus ensuring hot water supply.

Moving towards greater energy independence

Growing energy dependence, apart from growing energy demand per se is one of the central challenges – around 65% of energy is imported. An increase in the use of renewable energy combined with an increase in energy efficiency can contribute to overcoming the vulnerability caused by energy market isolation from EU markets. Apart from this, it will also stimulate local economic activity.
The availability of energy sources, complemented by low voltage grids with necessary capacity, district heating networks, cooling or energy for technological processes are important factors for business activities, in particular, industrial production. Apart from this, local distribution grids allow for a reduction in energy losses which occur when electricity is transported long distances from the producer to the consumer.

Specific measures

Energy efficiency in housing sector

Renovation of existing housing stock: Latvia has to put forward a mix of policy measures addressing energy savings such as energy efficiency in residential buildings. Heat insulation measures in multi-apartment residential buildings should be continued, especially if accompanied by regulations which encourage households to invest in energy efficiency measures. The demand for these types of measures has been steadily increasing; moreover the refurbishment of these buildings contributes to an improved quality of housing. Investment needs significantly exceed available financing.

Further decrease of energy consumption of buildings: In addition there is a need to stimulate the transformation of buildings that are already refurbished into nearly zero-energy buildings, as well as deep renovation of existing buildings to beyond cost-optimal levels. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewables produced on-site or nearby.

Revolving fund for energy efficiency: Support for the establishment of revolving funds should be considered. That would allow the provision of support for energy efficiency measures in a higher number of households. Financing from EU funds should be part of this fund.

Tax discounts for energy efficient houses: To complement public grants and provide additional incentives for housing renovation, there should be a scheme created that allows recovering part of the investment costs though tax discounts for those owners who have made investments in energy efficiency from their own resources. This is particularly important for single-family houses.

Required finance for energy efficiency investments in the housing sector: The estimated amount of overall investment to reach the indicated target would be up to 11.2 billion EUR (at 2010 prices).
If the present ratio of co-financing were to be preserved (45% on average), it would require around 5,04 billion EUR (at 2010 prices). This is, however, an amount which far exceeds the total expected envelope of cohesion policy financing, and there is no agreement on what share of this should be covered from EU funds, but indicates a high potential. Ministry of Economics calculations suggest that around 3.84 billion EUR would be required to renovate 60-70% of the residential sector. In addition, the absorbtion capacity of the construction sector should also be considered so as to prevent an inflation in costs and low-quality renovations.

Energy efficiency increase in industry

Support for the acquisition of new technologies and modernisation should be given to those companies that can clearly demonstrate a decrease in energy consumption on one unit of production. This criterion can also contribute to a reduction of CO_2 emissions (at least per unit).
In order to reach out to those companies that need support the most and where energy efficiency potential is the highest, the IRR should be used as one of the project selection and evaluation criteria.
Specifically two types of technologies should be considered for support:
- Technologies directly linked to the production process that can be used only in a specific company;

- Technologies that are used widely across the sector: mostly electricity consuming equipment (engines and pumps in different systems), heat and steam generating and using technologies.

Energy efficiency increase in services sector

Services sector: hotels and catering; education and research institutions; wholesale and retail trade; IT, real estate and financial services; state administration and insurance; health care and social care services.
An energy audit is still a tool, but not an obligation for SMEs. For this reason a scheme which provides support to SME's for energy audits and necessary investments is advisable. Audits which are done by external energy experts could be valuable for the proper growth of SME's, especially with regard to an improvement in production processes and other efficiency improvement measures, and thus, in the ling term, increase energy efficiency.

District heating

Further development is needed to improve the efficiency of local district heating plants and the recovery of industrial waste heat (e.g. connections to local district heating systems as well as industrial processes, flue gas recovery with condensers).

Support for energy efficiency measures in district heating systems, including distribution networks and an energy efficiency increase in boiler houses and co-generation plants using renewable energy sources.

Support for the replacement of out-of-date biomass plants used in district heating. Many small biomass plants have been in operation for 15-20 years and are reaching the end of their lifespan. They lag behind in efficiency and often their installed capacities are too high for present demand. Estimated costs for these investments: 150 000 EUR/1 MW installed capacity.

Renewable energy sources

Considering that Latvia has to achieve 40% of RES in gross final energy consumption by 2020, measures should be supported to allow movement towards this target.
Support should be directed towards wider RES use in district heating and co-generation systems. Considering that RES use in heat production is already competitive in the market, then intensity of support should be appropriate. The level of support should be dependent on achieved GHG emissions reduction as well as a consideration of the price differences of equipment between RES and fossil fuel technologies.
Also, measures aimed at renewable energy use in SME's, especially in small-scale production and the services sector could be supported.

However, no direct investment support should be envisaged to electricity production using RES. Support to electricity production should be non-discriminatory and hence should be put forward through legislation and Cabinet regulations. This would allow avoiding the situation where some companies receive support from several sources to be avoided. However, support for small and medium scale electricity production from renewable energy sources should be planned as indirect support i.e. supporting costs related to connection to transmission lines etc. In the sector of transport, support should be made available for upgrading the public transport fleet so as to use biogas.

Distribution grids

Investments are needed to develop smart grids (measuring, monitoring, intelligent management and control) and interconnections for integration of the use of renewable energy, controlling the demand response bringing new energy services and to change the attitude of consumers from being a passive player to being an active contributor, empowering local consumers by active energy management and demand response services. Installing of smart distribution systems and upgrading of low voltage level electricity networks are necessary to ensure the uptake of electricity produced at small scale (households, municipalities, and other small entities).

Horizontal issues: green procurement, local energy plans and functioning market

Green procurement:

- Green procurement should be mandatory for all EU funded projects – both in private (industry, services etc.) and public sectors. This way green procurement can be used as a tool to mainstream energy efficiency;
- Specific requirements in the field of energy efficiency (green procurement) should be applied as a standard requirement in all procurement processes related to the spending of EU funds. This would allow for achieving higher energy efficiency and bring synergies of EU funding.

Local energy plans and low carbon strategies:

- The government should define precise conditions for the use of renewable energy resources for heat and electrical energy production in the long-term. These should be based on area development plans incorporating power plans.
- The main effort has to be put into the enhancement of an integrated approach to sustainable urban development, mainly the promotion of sustainable urban mobility, including support for "park and ride" systems, creation of low transport intensity (low emission) areas in cities, development of infrastructure for non-motorised transport modes such as bicycle lanes, pedestrian paths etc. Similarly, upgrading the public transport fleet to use biogas should be supported. It has to be also noted that urban transport has a strong synergy with urban air quality.
- Actions and projects considering urban activities, focused on the production sector, taking into account lifestyle changes and urban sprawl and the consideration that urban consumption must change.
- Support in assistance of energy efficiency increase in districts of buildings, energy networks and local energy supplies (i.e. solar collectors and photovoltaic systems in urban areas), and ICT.

Functioning market and grids:

- In order to promote the use of decentralized energy sources, a functioning market is important and adequate market surveillance necessary;
- Upgrading of electricity distribution networks is necessary so as to ensure an uptake of electricity produced from renewable energy sources;
- Support for the creation of a network for biogas collection and distribution can contribute to the creation of a functioning gas market and foster the development of biogas technologies.

Indicators and targets

Energy efficiency target in industry

Assessments show that the energy savings potential (measures with a pay-off period not exceeding 5 years) by 2020 is estimated to be 87 ktoe (3.6 PJ). This should be accepted as a target and split as follows:

- Primary energy savings: 39 ktoe (1.6 PJ)
- Electricity savings: 48 ktoe (2.0 PJ).

In comparison with the energy consumption of industry in 2010, this would mean a saving of around 15%.

Energy efficiency target in services sector

Assessments show that the economically justified energy savings potential (measures with a pay-off period not exceeding 5 years) by 2020 is estimated to be 56 ktoe (2.3 PJ). This is split as follows:

- Primary energy savings: 9 ktoe (0.4 PJ)
- Electricity savings: 47 ktoe (1.9 PJ).

Energy efficiency measures in residential sector

The target is to ensure that average heat energy consumption in the residential sector is below 100 kWh/m2/year by 2020.

Reference documents:

Second National Energy Efficiency Action Plan of Latvia, 2011-2013 (2011)
National Energy strategy 2030 (draft by the Ministry of Economy)
Latvia's National Reform Programme "EU 2020"
Green energy strategy of Latvia 2050, Riga Technical University Institute of Energy Systems and Environment, September 2011
Country specific recommendations by the EC
Inputs by experts to draft National Development Plan 2014-2020
Spruds A.: Latvia's energy strategy: between structural entrapments and policy choices
Other assessments by energy experts and NGOs