

Non-cost barriers to renewables

– *AEON* study

Latvia

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- Confidential -

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1 Issue 1 Administrative Procedures

1.1 Introduction

Latvia is a leader among European Union nations with regard to renewable energy share in the total energy balance (mainly due to large hydropower plants), however support for RES development through legislative, administrative and financial commitments is weak.

The following facts below confirm the above statement:

- There have been no new wind energy installations developed in the last three years due to national regulation instability;
- No investments in the area of hydropower installations have been taken forward since 2002 due to national legislation providing restrictions for building and renovating hydropower stations on a number of rivers in Latvia;
- Solar energy is uncommon in Latvia and it is still a novelty. There are no solar energy installations connected to the electricity grid to date;
- There are no deep geothermal installations in Latvia;
- The number of heat pump installations developed in Latvia is low and there is an insignificant market for shallow geothermal energy;
- Biogas and biomass installations are relatively well developed in Latvia; however, in 2008 the reduction in taxes for biomass energy was abolished whilst energy taxes for natural gas were reduced.

Electricity deficit is feared in Latvia. Latvia does not have the capacity to produce a sufficient amount of energy and therefore imports energy from neighbouring countries. The energy sector is relatively poorly developed as compared to other EU Member States (Täfelberga 2010, Declaration of Government 2009).

The lack of a comprehensive legislative and administrative structure in Latvia for the development of renewable energy sources (RES) is generally considered as a barrier and a number of areas of improvement have been identified in this chapter. The obstacles to the development of RES installations in Latvia are mainly inconsistent and constantly changing legal regulations.

The remaining barriers in development of RES facilities in Latvia are the following:

- complex RES administration;
- long lasting and troublesome procedures;
- weak spatial planning enforcement;
- long and complex process for obtaining permits;
- corruption.

The majority of renewable energy developers interviewed for this study have largely agreed that the administrative procedures are too lengthy, too complicated and in some cases unclear. Spatial planning procedures are also time-consuming and competing public interests are present. The competence and expertise of the institutions involved in the authorisation process has been reported to be inadequate.

1.2 Description of barriers & solutions

1.2.1 Detailed description of the barriers and solutions

Barrier 1.1 – Inefficient general administrative procedures

In Latvia the RES sector is not regulated by means of a single act dedicated to RES. The legal framework consists of a number of articles in common law on energy and in resolutions of the government.

Energy issues fall under the Ministry of Economy. Until July 2009, this responsibility was shared with the Ministry of Environment. The Ministry of Economy is also responsible for the national budget and follow a policy of cost minimisation, favouring conventional technologies. There are therefore budget consequences for the Latvian government on allocating RES to the Ministry of Economy.

The legislative base for renewable energy is incomplete, there are gaps and inconsistencies. The absence of a comprehensive legal framework creates problems at the administrative level as lower tier regulations are consequently incomplete.

The following **legislative** barrier was identified:

Incomplete legislative base resulting in instable overall management system for renewable energy development.

All respondents of this study indicated that the incomplete or the inexistent legislature is the most significant barrier for Latvia's renewable energy development. The consequence of an incomplete legislative base is an instable overall management system on the administrative level.

All respondents emphasized that instability of the existing legislative base is also a significant barrier. The regulations and eligibility requirements continuously change (Zauers 2009) Additionally changing feed-in tariffs also affect renewable energy project financial viability and profitability. Therefore, according to the interviewees, there is limited trust in the government in the area of renewable energy.

Regarding **wind** installations:

- Due to the instability of regulations and continuously changing eligibility requirements there have been no new wind energy installations in Latvia in the last 3 years. (Soros foundation 2010).

Regarding **biogas** installations:

- The biogas project authorization process has been reported to be complicated and inconsistent. Incomplete legislative base for biogas development is identified as a barrier for this RES technology (Dzene 2008). **Possible solution:** A new renewable energy resources law is being developed in Latvia (Tāfelberga 2010) and it is expected that it will be accepted by the Parliament in 2011. The draft version is currently being consulted with Latvian energy specialists, however, it has not been made available to the public neither for the purpose of this study. All stakeholders agreed that the new renewable energy resources law may bring positive perspectives for future RES developments. It is likely to reduce the uncertainty with regards to renewable energy goals and administrative procedures.

The following general **administrative** barriers were identified:

Long lead time to obtain necessary permits

One of the barriers for renewable energy production in Latvia is the long time required to obtain all the necessary permits. In Latvia it can take many years to obtain all the permits necessary to construct a RES plant. Also it may be unclear how long procedures will take.

Regarding **wind energy** installations:

- In total the administrative procedures can take minimum 1.5 year till the final permit is issued and there are minimum 8 permits needed for wind energy project authorisation. The project developer needs to arrange the documents of ownership or long-term rent of land, wind measurement in the proposed location, an environmental impact assessment, a bank statement, a permit from the distribution system operator and etc. An environmental impact statement is required if the wind plant is over 20m in height.

Regarding **biomass** installations:

- The authorisation of the production of electricity from biomass facilities requires a minimum period of 6 months. The RES developer has to apply for quota during a public competition process available for application twice a year. It has been reported during the interviews that the competition in this process is high. The potential investor has to provide a number of documents to the Ministry of Economy (e.g. documents of ownership, EI, ect.). **Possible solution.** Develop a one-stop shop for coordinating all steps of the permitting procedure for different types of RES technology. Currently in Latvia one-stop shop is not possible. Clear guidelines for authorization procedures are recommended, and obligatory response periods for the authorities involved should be incorporated in these procedures.

Complexity of administrative procedures

Another barrier correlated with the long lead time barrier described above is the complexity of administrative procedures. In Latvia the number of authorizations and authorities involved is perceived as too large and might pose a barrier in the application process.

A number of institutions are involved in the authorisation process in Latvia and the responsibilities of different administrative bodies are not clearly coordinated and defined. According to the interviewees the competence and expertise of the institutions involved is

not always adequate. The responsibilities of administrative bodies for authorisation procedures are not clearly coordinated on national level. Possible impacts of this problem are: multiplication of similar authorizations with long lead time to obtain necessary permits and unnecessary additional costs to develop RES projects. **Possible solution.** A considerable improvement could be made by reducing the number of local, regional and national administrations involved in the authorization process for permits.

Corruption prevents procedures

The lack of transparency and corruption in decision-making and administrative processes is another issue mentioned frequently by the stakeholders in Latvia. The policy making process in Latvia is criticized for poor stakeholder involvement, inadequately defined lobbying practices and lack of publicity (Soros foundation 2010). Unclear or last minute changes on rules concerning the public competition of renewable energy quotas is also typical in Latvia (Zauers 2009).

Regarding **wind** installations:

- A scandal was mentioned by an interviewee where wind power quotas decided in a public bid were allocated to companies related to one politician. **Possible solution.** An increased push for transparency of the overall management system on national level could decrease corruption.

Discriminative administrative procedures

It has been reported that there are situations when the regulations for quota application may be amended inconsistently with previous arrangements without explanation of the reasoning behind the decision. This is perceived by RES developers as a barrier in planning renewable energy projects. It has been made clear in the interviews that the government is also criticized for prioritizing larger scale foreign investments instead of supporting local financial beneficiaries in case of wind power, in particular. **Possible solution:** Encourage local small and medium scale businesses to take the lead in renewable energy development by means of a comprehensive regulatory framework (Stokenberga 2009).

A high number of authorizations and authorities involved

It has been reported that too many different institutions are involved in the authorisation process. The responsible authorities are usually made up of several administrative bodies.

Regarding **biogas** facilities:

- Authorisation procedures involve multi-level authorities and a variety of their departments. The later makes the procedure considerably more time-consuming and costly. The lack of expertise and competence among authorities involved might also be a result of the dispersion of responsibilities amongst multiple authorities (Dzene 2008).

RES technologies in general are considered a novelty in Latvia and as a result the administration bodies are insufficiently organised to deal with the matter. They lack experience in authorising renewable energy projects and lack competences in assessing proposals. It is common in Latvia that the assessment of social and environmental issues is associated with high uncertainty and poses difficulties for the local authorities. **Possible**

solution: A significant improvement could be made by reducing the number of local, regional and national administrations involved in the authorization process for permits.

Barrier 1.2 – Competing public interests

Competing public interests represent another barrier related to the administrative procedures. During the administrative procedure, different competing interests must be balanced, for example environmental protection, neighbours interests, etc. During the administrative process, the interest to develop a RES installation may compete with other public interests.

The following competing public interests were identified:

Competing energy interests at a strategic energy policy level

All stakeholders reported that interests of the conventional energy sector are the most significant barrier for development of RES in Latvia. The lobby of the conventional energy sector e.g. Russian natural gas is strong and successful in competing with renewable energy development in Latvia.

The political situation in Latvia tends to be generally unfavourable for the development of renewables. As a result, the Ministry of Economy, responsible for renewable energy development, is perceived by some stakeholders as a barrier (Renewable energy policy review 2004). Historically the Latvian government has not been successful in imposing an energy tax on fossil fuels. The energy tax on fossil fuels will enter into force in May, 2010. (Soros Foundation 2010). The latter generally indicates a poor position of RES on the Latvian market.

The political parties in Latvia do not present strong positions on support of renewable energy sources. Latvian renewable energy policy has been dependent to a considerable degree on local political opinions and interest fluctuations (Soros foundation 2010). The opinion of the public and the media is divided between supporters of conventional energy and renewable energy. Short-term issues are usually dominant in the energy sector policy making disregarding long-term sustainability issues (Soros foundation 2010).

Despite the limitations described above, it seems that currently the political will is emerging to advance renewable energy policy. Renewable energy legislation and regulations are being developed. A new renewable energy resources law is being prepared for Latvia (Täfelberga 2010) and it is expected that it will be accepted by the Parliament in 2011. **Possible solution:** The currently emerging political will and drafted renewable energy resources law may bring positive perspectives for future RES developments. It is considered to be a step forward and it is likely to reduce the power of other competing public interests.

Environmental protection

Public interests in the area of environment protection have come across as a barrier in Latvia mainly in case of small hydropower plants but also to some extent in the case of wind farms.

Regarding **small hydropower plants**, the presence public attention to changing law proves competing interests with reference to environmental protection. Small-scale hydropower plants have come to a halt in expansion due to ecological reasons. The development of small-scale hydro energy in Latvia accelerated in the 1990s and has been stopped in 2002 when the Cabinet of Ministers issued a ban on hydroelectric dams and other mechanical barriers on a number of rivers in Latvia (Regulations of the Cabinet of Ministers of Latvia 2002). This regulation includes practically all rivers with hydropower potential in Latvia. It allows building and renovating hydropower stations in restricted cases when they are present downstream in the river and if a dam exists there already.

Regarding **wind farms**, environmental protection interests and protests are present in Latvia in minor degree. During a typical authorisation process of a wind farm, a public hearing procedure is undertaken. There have been cases when wind energy developments were objected in the public hearing procedure, however, these have not grown into protests.

Community concerns

Public interests in the area of community wellbeing have come across as a barrier in Latvia in case of a biogas installation.

Regarding **biogas** installations, a public hearing procedure is part of the authorisation process. There has been a case in Limbaži where the public hearing procedure has evolved into a protest campaign. A biogas project did not get the final permit due to local community protests. The community objected the development based on concerns over odour. The local inhabitants suffered from nuisance because of a potato processing facility in the area. The RES developer argued that the new biogas facility could have solved their discomforts however the project was not accepted (Dzene 2008).

Barrier 1.3 – Inexistent or insufficient spatial planning

Weak spatial planning management represents another barrier related with the administrative procedures issue in Latvia. The spatial planning process is associated with corruption, gaps in legislature, poor implementation and control.

Although some rules are specifically defined (e.g. the sanitary zone for wind farms defined as 2.5 times the height of the wind turbine), most of the spatial planning decisions are made on case by case basis. If the renewable energy development is proposed in Latvia in a location that is assigned under a different purpose/activity then the process of changing the purpose of the land is initiated by the developer. The spatial planning procedure in case of a wind farm usually takes 1 year in Latvia.

The spatial planning procedure has been considered by interviewees is excessively lengthy and posing a barrier. Many stakeholders find the authorisation procedures to be unclear and not transparent. **Possible solution:** This lengthy procedure could be avoided or reduced in time in some cases if renewable energy development potential would be incorporated into the general planning procedures. Potential areas for RES development should be decided in official spatial plans taking into account residential areas and environmental aspects. Currently spatial planning activities do not take into account the potential of renewable energy development. This is especially true for biomass, biogas

and wind energy development in Latvia. The Big East project has carried out a comprehensive assessment of biogas potential and biogas zoning (Big East 2009). The later is a step in the right direction and the same ought to be done for wind and biomass potential in Latvia.

1.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
1.1		Is one stop-shopping possible?	NO
1.2		Amount of money to be invested in the administrative process (including cost of work and costs like fees) (in €)	Not available
1.3		Time to be spent for the administrative process (duration to get all the main permits) (in months)	6-18
1.4		Estimated number of permits required (#)	0-8*

*0 permits are required for shallow geothermal – heat pump installations.

RES technology specific indicators:

1.3	Wind	Time to be spent for the administrative process (duration to get all the main permits) (in months)	18
1.4		Estimated number of permits required (#)	8

1.3	Biomass	Time to be spent for the administrative process (duration to get all the main permits) (in months)	6-12
1.4		Estimated number of permits required (#)	3

1.3 Literature

Dzene, Ilze. 2008. Barriers for biogas implementation in Latvia. Project Big-East. URL: http://www.big-east.eu/downloads/IR-reports/ANNEX%202-29_WP3_Task_3.2-Barrier-Latvia-EN.pdf.

Regulations of the Cabinet of Ministers of Latvia. 2002. A list of rivers (and river sections) to which the construction of hydroelectric dams or any other mechanical barriers is forbidden due to protection of fish resources. URL: <http://www.likumi.lv/doc.php?id=58603>.

(Big East Project (Biogas for Eastern Europe). 2009. Project website. URL: <http://www.big-east.eu/latvia/latvia.html> Ministry of Environment of Latvia. 2010. Climate Change Financial Instrument. (Klimata pārmaiņu finanšu instruments). URL: http://www.vidm.gov.lv/lat/darbibas_veidi/KPFI/merki/.

Renewable energy policy review.2004. European Renewable Energy Council and Ekodoma. URL:

http://www.erec.org/fileadmin/erec_docs/Projcet_Documents/RES_in_EU_and_CC/Latvia.pdf.

Tāfelberga, Daina. 2010. Green energy is still in a green stage (Zaļās enerģijas izmantošana joprojām ir zaļā stadijā). Kurzemnieks, February 1, 2010. URL: http://www.kurzemnieks.lv/index.php?option=com_content&task=view&id=43344.

Declaration of the Intended Activities of the Cabinet of Ministers headed by Valdis Dombrovskis (Declaration of Government). 2009. March 11. URL: <http://www.mk.gov.lv/en/mk/darbibu-reglamentejosie-dokumenti/deklaracija-dombrovskis/>.

Zauers, Alvis. 2009. Energy (Negribētā enerģija). [Kapitāls](#), January 6, 2009. <http://www.kapitals.lv/raksti/negribeta-enerģija>.

Stokenberga, Daiga. 2009. Alternative energy sources – with a view to the future ([Alternatīvie enerģijas resursi - ar skatu nākotnē](#)). April 3, 2010. Nra.lv. URL: <http://www.nra.lv/zinas/19973-alternativie-enerģijas-resursi-ar-skatu-nakotne.htm>.

Soros Foundation. 2010. Latvia's energy policy: on the road to a sustainable and transparent energy sector. Study in progress.

2 Issue 2 Technical Specifications

2.1 Introduction

This chapter analyses if the provisions of the renewables Directive 28/2009/EC concerning technical requirements are fulfilled in Latvia. Member States shall clearly define any technical specifications which must be met by renewable energy equipment and systems in order to benefit from support schemes.

Article 13 (2) of Directive 28/2009/EC states:

“Member States shall clearly define any technical specifications which must be met by renewable energy equipment and systems in order to benefit from support schemes. Where European standards exist, including eco-labels, energy labels and other technical reference systems established by the European standardisation bodies, such technical specifications shall be expressed in terms of those standards. Such technical specifications shall not prescribe where the equipment and systems are to be certified and should not impede the operation of the internal market.”

The main mechanism of state support for renewable energy is feed-in tariffs, which a developer must secure through a feed-in quota auction. In addition, the Ministry of Environment has a financial programme devoted to energy efficiency, renewable energy and emissions reduction. The funding for Climate Change Financial Instrument comes from International Emissions Trading (EU ETS) under the Kyoto protocol (note: Latvia meets the Kyoto reduction requirements and has a surplus of emission rights) (MoEoL 2010). Another support scheme is the programme offered by the European Economic Area and Norway Grants (EEA and Norway Grants).

For programmes supporting the development of RES in Latvia there are technical specifications on the equipment that may be used and is eligible for financing. In Latvia technical specifications generally do not create barriers in the internal market operations. The technical specifications are very broad and do not give definitions or reference to European standards.

Provisions applied in technical specifications were not identified as a barrier during the interviews with stakeholders. Legislation for renewable energy in Latvia is still in the process of being developed and does not impose technical specifications to financing schemes. It is likely that it will contain some detail on technical specifications in the future. Therefore, it is not considered as a barrier at the moment, but it may develop into one in the future.

2.2 Description of barriers & solutions

2.2.1 Detailed description of the barriers and solutions

Barrier 2.1 – Weak definitions

Technical specifications which must be met by renewable energy equipment and systems in order to benefit from support schemes are not clearly defined however this is not perceived as a barrier by support programme applicants.

The issue of weak definitions is not identified as a barriers during the interviews with stakeholders because definitions are rarely present. Support schemes for renewable energy in Latvia are still in the process of being developed, therefore, it is not considered as a barrier at the moment, but it may develop into one in the future. **Possible solution:** Future support schemes for energy from renewable sources should not prescribe national technical specifications which deviate from existing Community standards or require the supported equipment or systems to be certified or tested in a specified location or by a specified entity.

Barrier 2.2 – no EU standards applied

Technical specifications are usually not expressed in terms of European standards (including eco-labels, energy labels and other technical reference systems), though such European references exist however this is not perceived as a barrier by support programme applicants.

The stakeholders confirmed that the European Union labels and certificates of renewable technology are valid in Latvia, but also agreed that they are not really being used nor promoted.

Barrier 2.3 – Specified locations

These specifications prescribe, explicitly or de facto, where the equipment and systems are to be certified, for instance because that specific certification is de facto only available in that specific country. This barrier is not present in Latvia.

Technical specifications do not set a necessity of introducing certified equipment or systems however it is common in Latvia that investors choose to use certified systems because then the investor is more likely to get a grant from the support scheme.

Barrier 2.4 – Barriers to trade

These specifications generally do not impede the operation of the internal market in any other way. Technical specifications are generally not perceived as a barrier by support programme applicants.

2.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
2.1		Are specifications expressed in terms of European standards (including eco-labels, energy labels and other technical reference systems), though such European references exist?	No

2.3 Literature

Dzene, Ilze. 2008. Barriers for biogas implementation in Latvia. Project Big-East. URL: http://www.big-east.eu/downloads/IR-reports/ANNEX%202-29_WP3_Task_3.2-Barriers-Latvia-EN.pdf.

(Big East Project (Biogas for Eastern Europe). 2009. Project website. URL: <http://www.big-east.eu/latvia/latvia.html>.

Ministry of Environment of Latvia. 2010. Climate Change Financial Instrument. (Klimata pārmaiņu finanšu instruments). URL: http://www.vidm.gov.lv/lat/darbibas_veidi/KPFI/merki/.

Renewable energy policy review.2004. European Renewable Energy Council and Ekodoma. URL: http://www.erec.org/fileadmin/erec_docs/Projcet_Documents/RES_in_EU_and_CC/Latvia.pdf.

Zauers, Alvis. 2009. Energy (Negribētā enerģija). [Kapitāls](http://www.kapitals.lv/raksti/negribeta-enerģija), January 6, 2009. <http://www.kapitals.lv/raksti/negribeta-enerģija>.

Soros Foundation. 2010. Latvia's energy policy: on the road to a sustainable and transparent energy sector. Study in progress.

3 Issue 3 Building integrated technologies

3.1 Introduction

There are no legal regulations in Latvia on renewable energy in buildings so far and little financial support is allocated for their installation. Renewable energy in buildings is essentially a small-scale venture and the policy makers have not yet considered it in a systematic and structured way. The support scheme of the housing renovation programme e.g. Latvian multi-storey apartment renovation programme does not include support for renewable energy. Only energy efficiency measures are taken into account for renovation of buildings in Latvia.

Some financial support is allocated for installation of building integrated technologies, through which both private and public entities may receive support for renewable energy in buildings. The first one is the Climate Change Financial Instrument Managed by the Ministry of Environment (MoEoL 2010), where renewable energy projects are financed along with those of energy efficiency and emissions reduction. The second source of funding is the European Economic Area and Norway Grants (EEA and Norway Grants).

Installation of building integrated technologies is not common in Latvia. Only enthusiasts install small systems or private house owners in remote locations in some cases install autonomous electricity generation plants as an alternative to expensive connection to the national electricity grid. Public buildings generally do not have RES installations. This is the case for new and currently constructed public buildings e.g. the national library is currently being constructed in Riga however no building integrated technologies were included in the design.

The main barriers identified in this area are cost barriers and absence of support schemes for RES development on buildings. Without structured support, the RES development is lagging and is virtually non-existent in Latvia. Therefore the non-cost barriers are of little importance.

The main non-cost barriers identified are the following:

- Lack of structured control and guidance system within administrative procedures and spatial planning;
- Lack of exemplary public building installations;
- Absence of renewable obligations.

3.2 Description of barriers & solutions

3.2.1 Detailed description of the barriers and solutions

Barrier 3.1 – Inefficient general administrative procedures

There are no administrative procedures developed for renewable energy development in buildings and it includes all types of categories: new buildings, private houses, multi-storey apartments, private and public buildings. This is perceived as a problem in developing a structured support and control system for building integrated technologies however RES developers do not perceive this as a barrier because they do not have to undertake the lengthy process of administrative authorisation.

Barrier 3.2 – No/insufficient specific rules for building integrated/small scale RES installations

Official rules on building integrated RES technologies have not been developed in Latvia to date. Electricity created at building level is not fed into the grid system. The process of formulating official rules on building integrated technologies is at a initial stage and no information on this process is currently available.

Barrier 3.3 – Competing public interests

The RES equipment is rarely installed on any type of new or renovated buildings due to cost barriers. Generally competing public interest does not come across as a significant barrier in most cases.

Barrier 3.4 – Renewables obligations insufficient

Renewables obligations with regards to buildings are non-existent both on a national and on regional level. No concrete numbers for RO have been published or reported to date in Latvia. **Possible solution:** It would be beneficial to create and implement countrywide ROs with respect to new buildings, major refurbishments and historical and protected buildings.

Barrier 3.5 – Exemplary role of public buildings neglected

Public buildings generally do not have RES installations. This is the case for new and currently constructed public buildings e.g. the national library is currently being constructed in Riga however no building integrated technologies were included in the design.

Interviewed stakeholders identified a few examples of buildings that could be considered as demonstrational or exemplary in terms of RES installations e.g. the building of the Institute of Physical Energetics in Riga comprising solar panels. The media coverage on these exemplary buildings is still minimal and low interest of media has been identified as a barrier in information dissemination. **Possible solution:** The extension and/or creation of promotion and support schemes for public buildings could possibly encourage media coverage and general interest of the managers of public buildings.

Barrier 3.6 – RES deployment hindered by spatial planning matters

Spatial planning matters are not a barrier for RES installations on buildings because the spatial planning process is weak in its enforcement and because the procedure does not

take into consideration RES in general. This is not perceived as a barrier because a permit or/and communication with local authorities is not required prior to installation of RES on building.

RES are also not fully considered in case of newly designed buildings. New buildings are not designed for an integration of RES at a later point in time (e.g. optimal orientation for the use of solar technologies, roofs/buildings designed to support additional weight). This is due to limited interest of the public in RES and limited demand for such design e.g. newly designed national library in Riga.

Barrier 3.7 – Tenancy law and ownership law impedes development of Building Integrated RES technologies

This is not a significant barrier in Latvia yet.

In general the development of RES installations on buildings can affect other private parties e.g. neighbours and can therefore cause conflicts with other private stakeholders. In Latvia the number of buildings with RES installations is nearly non-existent and even solar panels are rarely observed. The tenant's approval for renovations which include the installation of building integrated RES systems is not a noticeable problem. The tenancy and ownership legal regulations are also not perceived as a barrier. There is no public discussion yet on distribution of costs in tenancy law relating to RES and similar topics.

3.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
3.1		Is this installation type in normal cases exempted from an authorization procedure (building permit)?	YES
3.2		Are legal-administrative requirements adequate for this installation type?	NO
3.3		Number of administrations that must be contacted (#)	NA

3.3 Literature

Ministry of Environment of Latvia. 2010. Climate Change Financial Instrument. (Klimata pārmaiņu finanšu instruments). URL: http://www.vidm.gov.lv/lat/darbibas_veidi/KPFI/merki/.

EEA and Norway Grant scheme for Latvia. URL: <http://www.eeagrants.lv/>.

4 Issue 4 – Promotion of energy efficient renewable energy equipment

4.1 Introduction

The issue of promotion of energy efficient renewable energy equipment is not present in current regulations in Latvia.

This issue is related to the provisions of article 13 (6) of the Directive:

“With respect to their building regulations and codes, Member States shall promote the use of renewable energy heating and cooling systems and equipment that achieve a significant reduction of energy consumption. Member States shall use energy or eco-labels or other appropriate certificates or standards developed at national or Community level, where these exist, as the basis for encouraging such systems and equipment.

In the case of biomass, Member States shall promote conversion technologies that achieve a conversion efficiency of at least 85 % for residential and commercial applications and at least 70 % for industrial applications.

In the case of heat pumps, Member States shall promote those that fulfil the minimum requirements of eco-labelling established in Commission Decision 2007/742/EC of 9 November 2007 establishing the ecological criteria for the award of the Community eco-label to electrically driven, gas driven or gas absorption heat pumps.

In the case of solar thermal energy, Member States shall promote certified equipment and systems based on European standards where these exist, including eco-labels, energy labels and other technical reference systems established by the European standardisation bodies.

In assessing the conversion efficiency and input/output ratio of systems and equipment for the purposes of this paragraph, Member States shall use Community or, in their absence, international procedures if such procedures exist.”

In Latvia the current legal regulations do not reflect the presented above provisions as set in the Directive 2009/28/EC. Currently (as of March 2010) there are attempts to implement the requirements imposed by Directive 2009/28 by means of the renewable energy law to be issued in 2011 however no concrete initiatives have yet been agreed on to date.

4.2 Description of barriers & solutions

4.2.1 Detailed description of the barriers and solutions

Barrier 4.1 – Non-compliant promotion schemes

Promotion schemes in Latvia are poorly developed and according to the interviewees, the insignificant number of existing support schemes does not fulfil the requirements of Art, 13(6). No major energy efficient renewable energy technology promotion schemes have been developed to date in Latvia. **Possible solution:** Financial support schemes ought to be tailored so that support can only be obtained by standardised, efficient and environmentally friendly technologies.

Barrier 4.2 – Lack of substitution of existing inefficient systems

In Western Europe there is, for historical reason, a wide use of RES installations that do not fulfil the requirements of Article 13(6). No barrier has been identified in this area in Latvia with the exception of biomass boilers and small hydropower plants.

Regarding **biomass** installations:

- In Latvia the existing biomass boilers are old and inefficient i.e. built in the 1970's. There are European Union funding schemes in Latvia that are devoted for modernisation of the district heating sector and solve this problem of inefficiency. The interviewed stakeholders report that there are no energy efficient technologies compliant with Art, 13(6) currently available on the market. Energy efficiency labels are also not common for the equipment available in Latvia.

Regarding **hydropower** installations:

- It is likely that the majority of small hydropower plants in Latvia have been constructed without the consideration of energy efficiency. There is no information available on any planned substitution of the existing inefficient systems. With the law of 2002 providing restrictions for building and renovating hydropower stations on a number of rivers in Latvia (Regulations of the Cabinet of Ministers of Latvia 2002) the hydropower sector is not exposed to modernisation. No investment is foreseen in this sector due to restrictive regulations. **Possible solution:** Scientific research and development in this field must be encouraged in energy efficiency, especially having in mind that Latvia's biomass potential is considered as the most promising among renewable energy types.

Barrier 4.3 – Use of national procedures

No information on assessing the conversion efficiency and input/output ratio of systems and equipment has been available at the time of this study for Latvia. The Member State should use Community or, in their absence, international procedures for assessing conversion efficiency and input/output ratio. **Possible solution:** Develop a national energy efficiency programme with procedures for assessing conversion efficiency and input/output ratio.

Barrier 4.4 – Insufficient information

In Latvia sufficient information about the availability of renewable energy equipment with different levels of efficiency is not provided to the relevant stakeholders or no information exists at all. This is perceived as a barrier.

Majority of interviewed stakeholder agreed that there is a lack of information in efficiency of renewable energy technologies. In Latvia there were no significant campaigns for renewable energy, therefore there is a lack of general information on renewable energy technologies. The current state of information and awareness on efficiency of renewable energy technologies can be described as nearly non-existent.

Possible solution: Provide sufficient information to the relevant stakeholders about the availability of renewable energy equipment with different levels of efficiency.

4.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
4.1	Are the requirements of Art 13 (6) of the Directive concerning the promotion of efficient bioheat and heat pumps fulfilled? (yes/no)	No

4.3 Literature

Regulations of the Cabinet of Ministers of Latvia. 2002. A list of rivers (and river sections) to which the construction of hydroelectric dams or any other mechanical barriers is forbidden due to protection of fish resources. URL:
<http://www.likumi.lv/doc.php?id=58603>.

Ministry of Environment of Latvia. 2010. Climate Change Financial Instrument. (Klimata pārmaiņu finanšu instruments). URL:
http://www.vidm.gov.lv/lat/darbibas_veidi/KPFI/merki/.

Renewable energy policy review.2004. European Renewable Energy Council and Ekodoma. URL:
http://www.erec.org/fileadmin/erec_docs/Projcet_Documents/RES_in_EU_and_CC/Latvia.pdf.

Zauers, Alvis. 2009. Energy (Negribētā enerģija). *Kapitāls*, January 6, 2009.
<http://www.kapitals.lv/raksti/negribeta-enerģija>.

5 Issue 5 Information/awareness raising

5.1 Introduction

Information and awareness campaigns on RES are organised to some extent however the financial support for such events is minimal. In general none of the interviewed stakeholders could identify any significant and wide reaching public campaigns for renewable energy promotion. State institutions are also reported not to be involved in a systematic promotion campaign. On the contrary, state institutions are rather known for declaring sceptical views on renewable energy.

In general all interviewed stakeholders agreed that the society is still not well aware of renewable energy options and benefits. The public opinion is ambivalent due to conflicts of various interest groups. However, the respondents claimed that in general the Latvian population is aware of the fact that their country is a leader among European Union nations with regards to the renewable energy share in the total energy balance (mainly due to a large hydropower plants).

The main barriers identified in this area are cost barriers and the lack of support schemes for RES development and promotion. Without a structured strategy for the support of RES development and information campaigns the awareness raising will not bring expected results. Therefore the non-cost barriers are of little relevance.

The main non-cost barriers identified are the following:

- absence of significant and wide-reaching information campaigns;
- lack of exemplary information campaigns design.

5.2 Description of barriers & solutions

5.2.1 Detailed description of the barriers and solutions

Barrier 5.1 – Insufficient availability of information on support measures

This is generally not perceived as a significant barrier. The information on support measures is available, however, it has been reported by interviewees that it is insufficiently promoted among the general population and RES potential investors.

Information on support measures on a national and/or regional level has been made available on internet and from contact points at the institutions. The prevailing opinion amongst interviewees was that if an investor wants to find information on a support scheme and its requirements he/she may easily obtain them. The later is an improvement as compared to historical information access in Latvia hence it is not perceived as a

significant barrier. However if one compares the availability of information on support measures in Latvia to other EU countries, Latvia's system still lags behind. For instance, it has been reported as a barrier in case of biogas development.

Regarding **biogas** installations:

- The majority of biogas potential exists in agricultural farms in Latvia however farmers often lack the necessary training for developing biomass projects. There is also a gap between potential biogas producers and biogas project developers/investors. Latvia's small-scale scattered agriculture makes biogas projects economically unviable due to lack of funding, training, networking and general awareness of opportunities.

There are also views that a lack of information on renewable energy support may easily translate into corruption (Kalns 2010). **Possible solutions:** There should be more efforts devoted to general information raising campaigns and also more possibilities should be opened up for small and medium renewable energy ventures.

Barrier 5.2 – Insufficient funding for campaigns/programmes

The prevailing opinion amongst interviewees was that there are too few campaigns and that there is insufficient funding provided for information platforms/media or awareness raising campaigns and programmes. Limited funding is a significant barrier for organizations interested in renewable energy promotion.

There are a few renewable energy associations in Latvia. The renewable energy associations hold various events, conferences, training courses and etc., but none of them is a far-reaching campaign due to limited resources.

All interviewed stakeholders have singled out the team of professionals at the Riga Technical University lead by prof. Dagnija Blumberga as the key campaigner for renewable energy in Latvia. This team has carried out multiple studies on renewable energy in Latvia. The group is perceived by the Latvian media as strongly supporting renewable energy and the efficient future of the Latvian energy sector. The same team is also associated with a consultancy; Ekodoma (RTU, Ekodoma).

Barrier 5.3 – Insufficient campaign-/programme-design

Due to the reasons explained below (absence of significant and wide-reaching information campaigns and limited funding), insufficient campaign-/programme-design is a significant barrier in Latvia.

5.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
5.1	Is sufficient information on support measures available?	NO

5.3 Literature

Riga Technical University (RTU), Environmental Protection and Energy Systems Institute. URL: <http://www.videszinatne.lv/>.

Ekodoma consultancy. URL: <http://www.ekodoma.lv/>.

Kalns, Janis. 2010. Green Energy Trend search (Zaļās enerģētikas attīstības virzienu meklējumos). URL: <http://www.business.lv/razosana-energetika/id/7952/zalas-energetikas-attistibas-virzienu-meklejums>.

6 Issue 6 Certification

6.1 Introduction

This issue has not come up during the interviews with stakeholders. In Latvia certification procedures are not in place and there is very limited information and activities in this field of certification as defined by Directive 2009/28/EC. None of the interviewed stakeholders were able to identify a relevant certification procedure for renewable energy specialists. The barriers identified in this section i.e. lack of a certification body, lack of guidelines and training for planners and architects are only described broadly below because there is a significant gap in this field and the process of eliminating this gap in Latvia is at its initial stage.

6.2 Description of barriers & solutions

6.2.1 Detailed description of the barriers and solutions

Barrier 7.1 – Lack of a Certification body

There is no certification body for renewable energy specialists established yet. This has been identified by the interviewed stakeholders as a considerable barrier for the area of certification but also a potential reference point for starting the implementation of a certification system in Latvia.

Barrier 7.2 - Lack of guidelines

There are no government guidelines on the certification of renewable energy specialists. The lack of guidelines for planners, architects, etc. on optimising the use of renewable energy and energy efficiency has been identified as a barrier. There are also no guidelines for planners and architects on how to use building integrated technologies in their designs.

Barrier 7.3 Lack of training

Another barrier in Latvia (which is actually a combination of the two barriers mentioned above) is the lack of sufficient training of RES during the education of installers, planners, architects, etc. There are no established training courses for certification of renewable energy specialists and no university departments specialised in renewable energy. The state of Latvia does not provide enough incentives neither obligations for architects to include RES in new buildings, especially in large public e.g. the newly designed national library in Riga could potentially benefit from RES inclusion.

6.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
7.1	Are certification schemes or equivalent qualification schemes available for installers?	NO
7.2	Is sufficient training on RES provided during the standard education curriculum of installers?	NO

6.3 Literature

Barons, Paulis. President, Latvian Association of Wind Energy. Telephone interview on March 2, 2010. <http://www.windenergy.lv>.

Morica, Ieva. Director of the Sustainable Development Programme at the Soros Foundation - Latvia. Telephone interview on March 3, 2010. www.sfl.lv.

Ozolina, Liga. Project manager at Ekodoma engineering consulting company. E-mail communication on March 4 and telephone interview on March 5, 2010. www.ekodoma.lv.

Bisters, Valdis. Head of Climate Policy and Technology department, Ministry of Environment of Latvia. Telephone interview on March 5, 2010. URL: <http://www.vdm.gov.lv>.

7 Issue 7 Infrastructure Development

7.1 Introduction

In Latvia the issue of infrastructure development has to be considered in two dimensions; national grid development and international grid connection development. The international dimension of the problem is emphasised to greater extent in Latvia as compared to internal grid development and more public pressure is placed on progress in this field. The reason behind this is noticeable energy supply isolation of the Baltic States from the rest of Europe and dependence on energy supply from Russia. The situation in Latvia is similar to that of Lithuania and Estonia, because all three form an energy deficient island in the European Union. All three countries are isolated from the European electricity grids and gas networks. The integration of the Baltic states into the European energy systems is one of the priorities in energy infrastructure development projects of the European Union. Latvia is the only electricity importer among the three member states, therefore, it has been the most preoccupied with solving the issue of electricity deficit.

The second dimension is the internal grid infrastructure in Latvia which is perceived as outdated and poses a barrier relevant to this study. With the EU drive for renewable energy an increased demand for connecting RES to the grid infrastructure is expected. Therefore optimisation and expansion of the grid in the short term will need to take place. The current infrastructure is mostly suited for a highly centralised system, therefore significant investments will need to be made to provide a suitable infrastructure for wider renewable energy development. Network optimisation or expansion planning in Latvia has either not yet begun, or is behind schedule. The technological issues, such as balancing power for solar and wind energy have not yet been solved and this is one of the reasons why these renewable energy sectors are not developing in Latvia. This chapter looks at the most common origins of delays in infrastructure development. The main barrier in the development of the grid infrastructure is inefficiency in the overall system management in Latvia.

7.2 Description of barriers & solutions

7.2.1 Detailed description of the barriers and solutions

Barrier 7.1 - Problems concerning connection to existing electricity networks

The current situation of the grid infrastructure in Latvia is poor. Existing electricity networks typically have insufficient grid capacity and are centralized. Renewable electricity generation is typically not situated in the same places as conventional

electricity production and has, in general, a different scale of generation. For instance Latvia Kurszeme region has a good potential for wind energy, but its electricity grid infrastructure is insufficient and limited. The infrastructure has not been modernised and hence it has the potential to be overloaded in the future when the RES sector expands.

In remote locations private house owners in some cases install autonomous electricity generation plants as an alternative to expensive connection to the national electricity grid. The cost of an autonomous solar and/or wind energy electricity plant was reported to be lower than grid connection, therefore, remote dwellers would choose this option (Dubovičienė 2010).

The development of the grid infrastructure is likely to become a pressing issue for wind farm operators in particular with the planned growth of renewables. To date due to instability in national regulations and high cost of connection bared in total by the RES developer there have been no new wind energy installations in the last 3 years hence the information presented below has been put together based on typical proceeding in the region.

The main barriers concerning connection to existing electricity networks are financial implications. At present very few developers actually apply for grid connection due to enormous cost. Main reasons for costly connection to existing electricity networks are the following:

- Existing electricity networks often have no storage facilities. The grid infrastructure in Latvia is old and overloaded and was mainly built when the electricity sector was publicly owned and has been designed without consideration of RES grid connection and energy storage;
- Insufficient grid capacity. The lack of grid access for the volumes of energy produced from renewable sources is foreseen in the future as a problem in Latvia. The existing condition of the transmission and distribution infrastructure is not sufficient to allow grid access for future RES applicants;
- Inadequate overall management system. There is no overall structured management system nor national legislation on allocation of existing capacity of the infrastructure in Latvia. **Possible solution:** The establishment of law that defines maximum costs of grid connection on the basis of plant size is generally perceived as a way forward. The fee for the connection of a RES unit specified in the terms and conditions for grid connection should be determined on the basis of actual expenditure incurred to construct the service line.

Barrier 7.2 - Problems concerning development of electricity network infrastructures according to a long-term strategy

Problems in grid reinforcement planning and overall management have been reported as barriers in Latvia. The development of electricity network infrastructures according to a long-term strategy is non-existent or at early stage of development in Latvia. There is no official concrete long-term strategy, in terms of an overall master plan that takes all priorities of grid development into account. The extension of existing electricity networks and their development into smart networks is a key element for achieving a better integration of renewable electricity generation projects.

Main reasons for problems concerning the development of electricity networks according to a long-term strategy, taking account of the integration of renewable energy resources are the following:

- Lack of national laws and codes: There is no overall structured management system nor national legislation on regulation and standardization covering grid issues. In Latvia insufficient long term strategic thinking and planning for grid development is a barrier in grid infrastructure development. Spatial planning documents exist on local level however they do not consider RES development and grid connection;
- Competing interests. In order to expand the grid infrastructure new overhead lines have to be constructed. These are opposed by owners of the land through which these lines are planned to pass. Some community representatives fear that the value of their real estate decreases due to grid expansions. Others require high indemnity. The land owner groups show the NIMBY attitude; in general they favour the expansion of the grid, however, at the same time they do not want to be the group, which has to suffer the disadvantages;
- Corruption in planning process. The planning process tends to be corrupted and non-transparent. This hinders setting priority areas and imposing the necessity to develop the grid infrastructure in particular localities and on individual land owners. As a result there is weak coordination between grid infrastructure approval and other administrative planning procedures. **Possible solution:** A long-term strategic plan for the transmission and distribution network development in Latvia should be developed and should be consistent with the national plan on use of RES.

Barrier 7.3 - Problems concerning development of a Trans-European Electricity Network

Slow and insufficient development of a Trans-European Electricity Network in Latvia is perceived as a significant barrier. Latvia is isolated in terms of energy supply from the European electricity grids and gas networks. In 2009 a memorandum of understanding was signed by eight Baltic Sea member states and the European Commission on Baltic Energy Market Interconnection Plan (BEMIP 2009). The three Baltic states have committed to further liberalization of their energy markets and removal of existing barriers for the creation of a regional Baltic energy market.

Latvia is the only electricity importer among the three Baltic states, therefore, it has been the most preoccupied with solving the issue of electricity deficit. There is currently only one energy link present that connects Latvia to the European energy network; a Trans-European Electricity Link flows from Estonia to Finland. Its capacity is planned to be expanded within the following years. The European Union provides partial financial support for this project as well as electricity infrastructure modernization projects (Gudavičius 2009).

7.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
7.1		Presence of an efficient (in terms of capability of achieving its stated objectives) plan for the reinforcement of the interconnection capacity with neighbouring countries.	YES
7.2		Presence of an efficient plan for the reinforcement of the connection capacity within the country.	NO

7.3 Literature

Gudavičius, Stasys. 2009. Latvians will receive a compensation (Latviai išpešē kompensacija). Diena, April 28. URL: <http://www.diena.lt/naujienos/lietuva/latviai-ispese-kompensacija-214673>.

Baltic Energy Market Interconnection Plan (BEMIP 2009). URL: http://ec.europa.eu/energy/infrastructure/bemip_en.htm.

Barons, Paulis. President, Latvian Association of Wind Energy. Telephone interview on March 2, 2010. <http://www.windenergy.lv>.

Morica, Ieva. Director of the Sustainable Development Programme at the Soros Foundation - Latvia. Telephone interview on March 3, 2010. www.sfl.lv.

Kudrenickis, Ivars. Institute for Physical Energetics, Riga Latvia. Telephone interview on March 5, 2010. <http://www.innovation.lv/fei/>.

Bisters, Valdis. Head of Climate Policy and Technology department, Ministry of Environment of Latvia. Telephone interview on March 5, 2010. URL: <http://www.vidm.gov.lv>.

8 Issue 8 Power Grid Issues

8.1 Introduction

The poor position of RES on the Latvian market results in limited efforts of RES developers for connecting RES to the power grid and hence limited discussions on the related barrier.

The facts presented below provide a background for the assessment of the position of RES on the Latvian energy market:

- there have been no new wind energy installations developed in the last 3 years due to national regulation instability;
- no investment in the area of hydropower installations has been taken forward since 2002 due to national legislation providing restrictions for building and renovating hydropower stations on a number of rivers in Latvia;
- solar energy is uncommon in Latvia and it is still a novelty. There are no solar energy installations connected to the electricity grid to date;
- biomass installations are relatively well developed in Latvia however in 2008 the reduction in taxes for biomass energy was abolished whilst energy taxes for natural gas were reduced.

The interviewees noted problems in connection to the power grid in Latvia. In Latvia problems of grid connection, grid access and problems concerning Transmission System Operators (TSOs) and Distribution System Operators (DSOs) linked to grid connection and access are slowly emerging. They are not well known and rarely present in major public discussions due to the fact that an insignificant number of RES installations has been connected to the grid in Latvia to date. At present very few developers actually apply for grid connection due to enormous cost.

The energy supply system in Latvia is still monopolised. Latvenergo, the Latvian state energy company is theoretically separated from the TSOs and DSOs however the company owns 100% of the shares of its subsidiaries.

The most significant barrier identified in this chapter are financial limitations of developers and high costs of grid connection. Additionally lack of structured market operational measures and legal framework regulating access to power grid have been identified as barriers.

8.2 Description of barriers & solutions

8.2.1 Detailed description of the barriers and solutions

Barrier 8.1 - Problems concerning grid connection

In general the RES industry indicates that the conditions for the connection to the grid are poor in Latvia. RES plants are not discriminated as compared to conventional energy sources however they come across several barriers. In Latvia the procedure of connection to the power grid is complicated, time consuming and costly. The authorities managing the electricity grid are reported to be slow or demanding additional information/documents of little relevance to the application process.

In Latvia there is no cost sharing for connection to the grid between RES investor and DSO. The developer covers the cost of connection to the grid fully and the cost has been reported to be approximately 300 000 Euro, however, each case is different due to the infrastructure available, distance to the infrastructure, grid capacity and ect. The cost of connection may exceed the cost of the actual renewable energy installation by a few times.

The difficult and lengthy procedure as well as the financial burden were perceived as a barrier by the stakeholders interviewed. Main reasons for problems concerning connection of RES to power networks are the following:

- Poor legal framework. The legal basis is poorly developed and poses barriers;
- Lack of guaranteed grid connection;
- The uncertainty and complexity of applying for the grid connection in Latvia often discourages developers to invest in RES installations:
 - Long lead time for getting grid connection;
 - The connection to the grid takes from 6 to 12 months when normally it should take 1-2 months maximum. The procedure is complex, in some cases reported as discriminatory and not transparent;
 - Costly procedure of grid connection;
 - In Latvia there are no public rules that define maximum costs of grid connection on the basis of plant size. **Possible solution:** The establishment of a national plan including practical solutions for minimising costs of grid connection is perceived as a possible solution.

Barrier 8.2 - Problems concerning grid access

The denial to get a connection to the grid is not reported to be a problem, because very few developers apply for this connection due to cost implications however, there are cases reported by media and interviewees on access denials in Latvia.

Grid access denials in Latvia is a barrier especially for small projects. The applicant cannot review procedures and requirements of the grid operator on access to the grid. These rules are mainly internal and based on discretionary regulations, which are set up by the grid operator. The uncertainty of future available access discourages developers to invest in both small and large-scale RES installations. RES plants face particular problems concerning grid issues as compared to conventional power plants due to the characteristics of some RES plants including for example the intermittency of power

output (Wind, PV), smaller plant sizes or decentralized character. Biogas facilities and hydropower plants have faced less difficulties in grid connection as compared to wind farms.

Main reasons for problems concerning access of RES to power networks are the following:

- Lack of guaranteed grid access;
- The uncertainty of receiving regular access to the power grid in Latvia often discourages developers to invest in small and large-scale RES installations;
- Grid and market operational measures do not minimise curtailment of electricity from renewable energy sources. **Possible solution:** The establishment of a national regulation imposing guaranteed grid access for RES operators is perceived as a possible solution.

Barrier 8.3 (former barrier 9) - Problems concerning TSOs and DSOs

The main issue concerning the transmission system and distribution system operators in Latvia is that the energy system is still highly centralized and monopolized. The operator does not prioritise RES specific grid development in strategic planning because of low awareness of their benefits.

The main barrier in this area is the highly monopolized system for energy supply itself. Officially Latvenergo, the Latvian state energy company, is separated from distribution system operators however, the respondents indicated that Latvenergo owns 100% of the shares of its subsidiaries – distribution and transmission companies (TSOs and DSOs). The renewable energy developers have to face a monopolistic regime whilst the energy market is slowly ongoing a liberalization program. Latvenergo's interest in renewable energy development is perceived by the interviewees as limited.

The interviewed stakeholders agreed that Latvenergo does not have enough incentives to promote renewable energy development. At the beginning of 2010 Latvenergo announced plans to build a new combined heat and power plant in Riga based on natural gas. This has been interpreted as the government's choice to maintain a centralised conventional energy system in Latvia. To some extent Latvenergo itself is perceived by interviewees as a barrier for renewable energy development in Latvia. (Soros Foundation 2010). **Possible solution:** The rules adopted by TSOs and DSOs on cost sharing and bearing of grid connection should be agreed on amongst on national level in Latvia.

Barrier 8.4 – Other Barriers

Speculative behaviour. Similar to the case of Lithuania, there appear to be renewable energy developers who bid for feed-in quotas, get them and eventually do not proceed with the actual investment. They might be looking for opportunities to resell the quota for higher price. In practice this results in delays and restrictions. Connection terms might not be issued for new applications due to the speculative behaviour (Soros Foundation 2010). **Possible solution:** Requiring advances for connection to grid might prevent speculative behaviour and limitations in connection approvals in the future when RES electricity production increases.

8.2.2 Best Practice Elements and Indicators

No.	Technology	Benchmark	Result
8.1		Are the rules on cost sharing and bearing of grid connection objective, transparent and non-discriminatory ?	NO
8.2		Is the denial of grid connection by TSOs and DSOs a common problem, constituting an important barrier for RES development?	NO
8.3		Number of months for getting grid connection (considering also approval of grid connection)	6-12
8.4		Estimated connection costs in Euros (in case producer pays)	300 000

8.3 Literature

Soros Foundation. 2010. Latvia's energy policy: on the road to a sustainable and transparent energy sector. Study in progress.

Barons, Paulis. President, Latvian Association of Wind Energy. Telephone interview on March 2, 2010. <http://www.windenergy.lv>.

Morica, Ieva. Director of the Sustainable Development Programme at the Soros Foundation - Latvia. Telephone interview on March 3, 2010. www.sfl.lv.

Kudrenickis, Ivars. Institute for Physical Energetics, Riga Latvia. Telephone interview on March 5, 2010. <http://www.innovation.lv/fei/>.

Bisters, Valdis. Head of Climate Policy and Technology department, Ministry of Environment of Latvia. Telephone interview on March 5, 2010. URL: <http://www.vidm.gov.lv>.

9 Issue 9 Gas Network Issues

9.1 Introduction

In Latvia the development of biogas for energy needs is still at the very initial state and only a small percentage of the total potential is currently being used. Injection of biogas into the natural gas network does not take place as there are no regulations developed for this area.

There are four biogas facilities in Latvia: the cogeneration plant of Riga's municipal water company, two cogeneration plants at landfills (Riga and Liepaja) and one agricultural biogas facility (Dzene and Rošā 2008, Dzene 2008). None of biogas facilities performs biogas insertion to the gas network. In general the resources for biogas production are located further away from cities and their district heating systems. This aspect causes difficulties for utilisation of biogas in district heating systems and the future connection to the gas networks.

Limited information on barriers in the area of gas network connections is available since the technology is at its initial stage of development. The natural gas network operators are not familiar with the problem. The single most important obstacle for the development of biogas energy is an incomplete legislative base.

9.2 Description of barriers & solutions

9.2.1 Detailed description of the barriers and solutions

Barrier 9.1 – Problems related to the upgrading process

This is not an identified barrier in Latvia yet.

Grid operators have not come across the problem of requiring technical minimum standards concerning the biogas quality as a prerequisite for grid injection. Specific regulations need to be developed.

Barrier 9.2 – Lack of information

A lack of information about multipurpose use and production of biogas energy has been identified as a barrier (Dzene and Rošā 2008, Dzene 2008). Currently the Ekodoma consultancy is the only institution actively engaged in the promotion of biogas use in Latvia. A project resulting in an analysis of biogas legislation in Latvia as well as an assessment of the potential and zoning of biogas in Latvia (i.e. the Big-East project carried out by Ekodoma) has contributed to the dissemination of information on biogas

potential in Latvia. As part of the initiative three training workshops on biogas utilization were carried out for farmers in January 2010 (Big East 2009). **Possible solution:** A long-term systematic awareness raising and research campaign similar to the Big-East project should be established in order to increase information availability.

Barrier 9.3 – Inefficient authorisation procedures

No information is available on the authorisation procedures due to absence of regulations and elaborated rules on the connection to the gas networks. There still are no regulations for biogas energy financial support programmes and for biogas insertion into the gas network. All existing biogas plants are not connected to the gas network. **Possible solution:** It is important to set up the necessary legislative base for biogas utilisation in Latvia and regulations on its insertion into the network of natural gas.

Barrier 9.4 – Insufficient cooperation of grid operators

The centralized Latvian gas network operator “Latvijas Gāze” has not received any applications for biogas injection to date (Dzene 2008).

No information is available on the authorisation procedures for grid access because local authorities are unfamiliar with this problem and Latvijas Gāze does not have experience in this area. There are no regulations and elaborated rules on the connection to the gas networks to date.

9.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
9.1	If green certificates and/or subsidies for biogas are in place, do they de facto make unattractive to feed green gas into the grid due to the high level of subsidy for biogas used for electricity generation?	NO
9.2	Are the costs of grid connection for producers of gas from renewable energy sources objective, transparent and non-discriminatory?	NA
9.3	Do transmission and distribution tariffs discriminate against gas from renewable energy sources?	NA
9.4	Average time needed for grid connection approval (from application for grid connection to formal approval) in months (#).	NA

9.3 Literature

Dzene, Ilze and Rošā, Marika. 2008. Assessment of biogas policies in Latvia. Project Big-East. URL: http://www.big-east.eu/downloads/IR-reports/ANNEX%202-20_WP3_Task_3.1-Policies-Latvia-EN.pdf.

Dzene, Ilze. 2008. Barriers for biogas implementation in Latvia. Project Big-East. URL: http://www.big-east.eu/downloads/IR-reports/ANNEX%202-29_WP3_Task_3.2-Barriers-Latvia-EN.pdf.

Big East Project (Biogas for Eastern Europe). 2009. Project website. URL:
<http://www.big-east.eu/latvia/latvia.html>.

10 Issue 10 District Heating

10.1 Introduction

Latvia has a well-developed infrastructure of district heating and is one of the leaders in Europe with reference to the share of district heating in total heat supply. Latvia has inherited a well-developed infrastructure of district heating from its Soviet past. More than 70% of heat is produced in district heating systems (Dzene 2008). Central heating is supplied for the majority of residential buildings. Most of them are multi storey apartment blocks in cities and towns.

District heating expansion happens incrementally with new buildings being built and connected to the centralized system, but there are no additional plans for extending this network. The DH sector is stable and difficulties encountered a few years ago involving the attempt of customers to break away from the district heating system due to high costs of services have been overcome.

The main barriers identified in this chapter is the absence of a national strategy with the aim of initiation and expansion of DH systems largely based on renewables and the insufficient awareness of consumers in the area of RES in district heating. If the awareness amongst consumers was higher then the support for development of RES in district heating systems would also be greater.

10.2 Description of barriers & solutions

10.2.1 Detailed description of the Barriers and solutions

Barrier 10.1 – Lack of positive conditions for the increase of the share of renewables in existing DHC systems

The Latvian government recently published targets to increase the share of renewables in district heating systems. This is perceived by the interviewees as a step in the right direction for positive conditions for renewables in existing DHC systems. The barrier identified by the interviewees in this area is the absence of specific objectives enabling positive conditions in practice. Relevant action plans have not been developed to date hence the practical dimension of increasing the share of renewables in district heating systems is missing. Although formally the goals to increase the share of renewables in district heating exist, there is a lack of specific means to make it happen.

In Latvia it is mainly the municipalities that are the owners of the district heating systems. The participation of private capital is currently minor and perceived as uncertain in the

future. Municipalities are typically not bound in the process of renewable energy promotion and implementation. The frontrunner municipalities in the process of renewable energy development for district heating (mainly biomass) are Tukums and Ludza. Smaller cities in Latvia tend to select renewable options due to the absence of the natural gas network rather than due to sustainability drivers. **Possible solution:** Municipalities, the key stakeholder in this area in Latvia, should be assigned more responsibilities in practice and targets for increasing the share of RES in DH.

Barrier 10.2 –Lack of positive conditions for the initiation and expansion of DH systems largely based on renewables

In Latvia there are no intentions of expansion of district heating systems, neither any plans to have them expanded largely on renewables. The share of district heating in the total stock of buildings is high and stable due to limitations imposed by disconnection regulations (mainly for multi-storey apartment buildings). The modernization of the district heating systems is planned and executed through the European Union structural funds support (Construction, Energy and Housing State Agency 2009).

Consumers are not sufficiently informed about the share of renewable energy in their district heat services and of its advantages.

10.2.2 Best Practice Elements and Indicators

No.	Benchmark	Result
10.1	Are there policies to promote the increase of the RES share in existing DH networks? (yes/no)	NO
10.2	Are there policies to promote the initiation / expansion of DH networks? (yes/no)	NO
10.3	Percentage present renewable share	31.4% in 2007 (biomass and peat) (LDHA)
10.4	Percentage CHP share (idem)	55% in 2006 (LDHA)

10.3 Literature

Latvian district heating association (LDHA). 2008. Latvian heat (Siltumapgāde Latvijā). URL:
http://www.lsua.lv/index.php?option=com_content&task=view&id=38&Itemid=47.

Construction, Energy and Housing State Agency. 2009. Measures for district heating system efficiency (Pasākumi centralizētās siltumapgādes sistēmu efektivitātes paaugstināšanai). URL:
http://esfondi.bema.gov.lv/aktivitates/akt_2.html.

Dzene, Ilze. 2008. Barriers for biogas implementation in Latvia. Project Big-East. URL:
http://www.big-east.eu/downloads/IR-reports/ANNEX%202-29_WP3_Task_3.2-Barrier-Latvia-EN.pdf.

11 List of interviewees

1. Barons, Paulis. President, Latvian Association of Wind Energy. Telephone interview on March 2, 2010. <http://www.windenergy.lv>;
2. Morica, Ieva. Director of the Sustainable Development Programme at the Soros Foundation - Latvia. Telephone interview on March 3, 2010. www.sfl.lv;
3. Palejs, Didzis. Member of the board of the Latvian Biomass association LATBIONRG. Telephone interview on March 4, 2010. www.latbionrg.lv;
4. Rutkis, Gints. Project manager at Geoterm private consulting and geological service company. Telephone interview on March 4, 2010. www.geoterm.lv;
5. Ozolina, Liga. Project manager at Ekodoma engineering consulting company. E-mail communication on March 4 and telephone interview on March 5, 2010. www.ekodoma.lv;
6. Kudrenickis, Ivars. Institute for Physical Energetics, Riga Latvia. Telephone interview on March 5, 2010. <http://www.innovation.lv/fei/>;
7. Bisters, Valdis. Head of Climate Policy and Technology department, Ministry of Environment of Latvia. Telephone interview on March 5, 2010. URL: <http://www.vidm.gov.lv>;
8. Zolnerovics, Linards. Member of the Latvian Small-Scale Hydropower Association. E-mail communication on March 8, 2010. URL: <http://www.mhea.lv>.