

### **Authorisation procedures (Q4.2.1):**

- *In your National Renewable Energy Action Plan the existence of various types of administrative obstacles has been recognised, but little information is provided on how the new draft law on renewables will solve these issues. More detailed information is required on the draft law, in particular referring to provisions which will help to eliminate the main barriers identified, such as complicated spatial planning, and the lack of coordination between authorities.*

Article 49 of the Draft Law of the Republic of Lithuania on Energy from Renewable Sources (No XIP-1749 (5)) (hereinafter referred to as the “Draft Law on Energy from Renewable Sources”) states that the Government or bodies authorised by the Government shall ensure that all arrangements and rules concerning the authorisation, certification and licensing procedures that are applied to installations for the production of electricity, heating or cooling from renewable energy sources and associated transmission and distribution network infrastructures, and to the process of transforming biomass into biofuels or other energy products, are objective, transparent, proportionate and necessary, and non-discriminatory as between applicants, and take fully into account the particularities of individual renewable energy technologies.

In order that comprehensive information on the processing of authorisation, certification and licensing applications for renewable energy installations and on the assistance available to applicants is provided at the appropriate level, Article 51 of the Draft Law on Energy from Renewable Sources provides that state and local government bodies, institutions and enterprises are, within their competence, to develop, provide and make public information on the processing of authorisation, certification and licensing applications for renewable energy installations and on the assistance available to applicants.

In order to simplify the administrative procedures for small-scale projects and, where appropriate, decentralised renewable energy producing devices, Article 14 of the Draft Law on Energy from Renewable Sources provides that power plants with an installed capacity of not more than 350 kW and not greater than the permissible capacity at the nearest distribution grid connection point (except for biogas power plants built near livestock- and poultry-farming establishments, landfills and sewage treatment plants, whose capacity is not limited) shall be connected to the electricity networks immediately if the Energy Producer conforms to the simplified design conditions issued by the Network Operator. These power plants shall be connected to the electricity distribution networks by installing production and consumption accounts.

Article 16 of the Draft Law on Energy from Renewable Sources states that permits to develop the potential for generating electricity from renewable energy sources, for power plants (except for hydroelectric dams) with an installed capacity of not more than 350 kW and not greater than the permissible capacity at the nearest distribution grid connection point, and for biogas power plants built near livestock- and poultry-farming establishments, landfills and sewage treatment plants with up to 1.2 MW of installed capacity, shall be issued under the simplified procedures in accordance with the Rules for Issuing Permits for Activities in the Electricity Sector approved by the Ministry of Energy and based on objective and non-discriminatory principles. It also provides that the Ministry of Energy, within 30 calendar days from the receipt of the necessary documentation, shall issue a permit for the Energy Producer to develop the potential for generating electricity from renewable energy sources or shall deliver a reasoned written refusal to issue such a permit. If not all information or documents are submitted, the time limit shall be calculated from the date of submission of all necessary information or documents.

Article 49 of the Draft Law on Energy from Renewable Sources provides that:

– given the limited size and potential impact of small power plants (installed capacity up to 350 kW) using renewable energy sources, and with the aim of avoiding a disproportionate financial and administrative burden, the responsible authorities shall ensure that simplified requirements are

applied to the design and construction of small power plants, except for hydroelectric dams, without the need to develop detailed plans and change the use for which the land is primarily intended.

– for the construction of wind power plants with an installed capacity of not more than 350 kW and/or photovoltaic plants in rural areas, it shall not be necessary to change the use for which the land is intended, to prepare detailed plans or to change the provisions of the general plan.

– wind power plants, photovoltaic plants, solar heat collectors, and heat pumps with an installed capacity of less than 30 kW shall be subject to the following simplified requirements: the land-use compliance requirements and environmental impact assessment procedure shall not apply to these devices; neither construction permits nor public health evaluations shall be required;

– solar power equipment, solar heat collectors and heat pumps on buildings or integrated into buildings shall be installed without need for a construction permit.

Pursuant to the Law amending Articles 2, 4, 15, 19, 20, 21, 22, 23, 24, 26, 31 and 37 of the Law on territorial planning (*Official Gazette*, 2009, No 169-7205), detailed plans need not be prepared for:

– the construction of single turbines with a capacity of not more than 250 kW in rural areas and small towns, where the distance from the location where the turbine is to be built to the boundary of the land parcel is not less than 1.5 times the maximum height of wind turbine;

– the construction of groups of wind turbines (two or more turbines), for which special plans should be drafted in accordance with statutory requirements;

– the construction of solar power installations with a total installed capacity not exceeding 100 kW;

– biogas production plants of up to 1 MW total capacity, to be built on land parcels occupied by existing buildings used for livestock farming.

Under the plan of measures for implementing the National Renewable Energy Development Strategy for 2010-2015, approved by Order No 1-180 of the Minister for Energy of the Republic of Lithuania of 23 June 2010 on the approval of the plan of measures for implementing the National Renewable Energy Development Strategy (*Official Gazette*, 2010, No 78-4030), a good practice guide to administrative procedures for facilities using renewable energy sources is to be prepared by the end of 2011, made publicly available (online) and continuously updated.

### **Buildings (Q4.2.3):**

- *Additional information is required on the national measures to reach the ambitious projections for increasing renewable energy use in buildings, from 44% in 2005 to 69% in 2020. No methodology or measures have been provided in the Lithuanian National Renewable Energy Action Plan to explain how this increase will be achieved.*

In 2005, total heat consumption in buildings was 1 237 ktoe (final district heating consumption in households was 531.7 ktoe; direct biomass use in households – 432 ktoe; final consumption in the service sector – 190.9 ktoe, in agriculture – 10.3 ktoe, in industry – 70 ktoe, in the construction sector – 2 ktoe). In 2005, renewables in buildings accounted for 548 ktoe (district heating – 116 ktoe; direct biomass use in households – 432 ktoe). The total share of energy from renewable sources in buildings is 44% ( $548 \div 1237 \times 100 = 44$ ).

It is predicted that in 2020, total heat consumption in buildings will amount to 1 365 ktoe (final district heating consumption in households – 536 ktoe; direct biomass use in households – 409 ktoe; final consumption in the service sector – 213 ktoe, in agriculture – 12 ktoe, in industry – 190 ktoe, in the construction sector – 5 ktoe). It is predicted that in 2020 renewables in buildings will account for 945 ktoe (district heating – 536 ktoe, direct biomass use in households – 409 ktoe). The total share of energy from renewable sources in buildings will amount to 69% ( $945 \div 1365 \times 100 = 69$ ).

### **Certification of Installers (Q4.2.5):**

- *More information on the new draft law on renewables is required in order to assess whether requirements for installer certification have been adequately addressed.*

Article 45 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) regulates the qualification and certification of specialists installing equipment for producing energy from renewable sources:

#### **“Article 45. Qualification and Certification of Specialists Installing Equipment for Producing Energy from Renewable Sources**

1. Specialists installing equipment for producing energy from renewable sources shall be qualified and properly trained to perform their assigned tasks. The procedure for training and certification of specialists installing equipment for producing energy from renewable sources shall be approved by the Government or its authorised body in accordance with these the general requirements set out in this Article.
2. The procedure for training and certification of specialists installing equipment for producing energy from renewable sources shall be established in accordance with the principles of transparency, proportionality and non-discrimination.
3. Professional training or in-service training programmes for specialists installing equipment for producing energy from renewable sources shall include matters concerning the benefits of technological and economic opportunities provided by renewable energy sources and their use.
4. Technicians shall be certified in accordance with the established procedure to install these equipment for producing energy from renewable sources:
  - 1) biomass boilers and non-brick furnaces;
  - 2) photovoltaic and solar thermal energy production equipment;
  - 3) geothermal systems and heat pumps.
5. Information regarding the procedure for training and certification of specialists installing plant for producing energy from renewable sources and the list of certified specialists shall be available to the public.
6. Certificates issued by other member states to the specialists referred to in Paragraph 4 of this Article which are consistent with the criteria established in the procedure referred to in Paragraph 1 of this Article, shall be recognised in the Republic of Lithuania.”

The plan of measures for implementing the National Renewable Energy Development Strategy for 2010-2015, approved by Order No 1-180 “Concerning the approval of the plan of measures for implementing the National Renewable Energy Development Strategy” of the Minister for Energy of the Republic of Lithuania of 23 June 2010 (*Official Gazette*, 2010, No 78-4030) provides that certification procedures for renewable energy plants and installers of systems as well as installers’ training programmes, which include the matters concerning the benefits of technological and economic opportunities provided by renewable energy sources and their use, shall be prepared and approved by the end of 2011.

### **Grid development (Q4.2.6):**

- *More detailed information and the respective timeframes for their implementation should be provided about the concrete steps foreseen concerning the development of intelligent networks, information technology tools and storage facilities [4.2.6 (c)].*

To develop transmission and distribution network infrastructure, intelligent networks, storage and electrical power systems, Paragraph 4 of Article 13 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) provides that if the installed capacity of power plants is in excess of the levels specified by law, the Government shall draw up

and approve, before 1 January 2015, procedures for the further development of power plants, transmission and distribution networks, intelligent networks and energy accumulation infrastructure; this would take into account the obligations of the Republic of Lithuania concerning reduction of environmental pollution, energy security and reliability as well as the requirements for the protection of consumer rights and legitimate interests.

Articles 41 and 42 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) indicate the creation of a special municipal programme for the development of renewable energy source and use of its funds, among other purposes, for establishing and further developing the network of stations to charge electric cars and refuel hydrogen-powered cars, and creating other necessary infrastructure.

The plan of measures for implementing the National Renewable Energy Development Strategy for 2010-2015, approved by Order No 1-180 “Concerning the approval of the plan of measures for implementing the National Renewable Energy Development Strategy” of the Minister for Energy of the Republic of Lithuania of 23 June 2010 (*Official Gazette*, 2010, No 78-4030) provides for the creation of financial assistance schemes in 2011–2015 for implementing projects to modernise electricity network operators, electricity transmission and distribution networks into the active smart power grid; and integrating renewable energy production into the electricity network. I.e. to provide financial support from European Union structural funds and to promote and support pilot projects for the production and use of renewable energy sources, as well as second-generation biofuels, related to the development of intelligent electricity networks.

A task force was set up by Order No 1-261 “Concerning the setting up of a task force for establishing development directions for the Smart Grid” of the Minister for Energy of the Republic of Lithuania of 28 December 2009 (*Official Gazette*, 2009, No 159-7255), which was entrusted with submission of proposals on revision of the National Energy Strategy and National Energy Strategy Implementation Plan, pertaining to smart grid development in the energy sector, and with coordination of the smart grid development process.

In compliance with the Law on Financial Instruments for Climate Change Management of the Republic of Lithuania (*Official Gazette*, 2009, No 87-3662, 2010, No 145-7427), the Special Programme for Climate Change (hereinafter referred to as the “Programme”) has been developed. The funds of the Programme are used in accordance with the Annual Estimate of the Use of Programme Funds, approved by order of the Minister of Environment of the Republic of Lithuania. The Estimate of the Use of the Special Climate Change Programme funds for 2001, approved by Order No DI-131 of the Minister of Environment of the Republic of Lithuania of 10 February 2011 (*Official Gazette*, 2011, No 23-1114) includes a measure on “Development of green public transport and infrastructure, implementation of environmentally friendly technologies and measures to reduce emissions of greenhouse gases in public spaces” in 2011. The funding to support this measure shall be LTL 80 million.

- *More information is required on the grid connection procedures: current state, average time and planned steps to accelerate it [4.2.6 (e)]; and on the coordination of grid infrastructure approval and administrative and planning procedures [4.2.6 (f)].*

The grid connection procedure is regulated by the Procedure of connecting facilities of consumers or energy producers (networks, equipment, systems) to existing facilities of energy production companies (networks, equipment, systems) (hereinafter referred to as the “Procedure”), approved by Order No 1-246 of the Minister of Environment of the Republic of Lithuania. Chapter IV of the Procedure describes the following procedure for connecting electrical equipment:

#### **IV. Procedure for Connecting Energy Producers' Electrical Equipment**

34. Energy Producers' electrical equipment shall be connected to the Network Operator's electrical network upon granting the Energy Producer a permit to expand power generation capacity and upon

its meeting the conditions and requirements set forth in design specifications issued by the Network Operator in accordance with a procedure established by the Law on Construction.

35. An Energy Producer that wishes to connect its devices to the Network Operator's electricity network shall submit a request to the Network Operator for preliminary design specifications. The preliminary design specifications set out the preliminary requirements for connecting the Energy Producer's electrical equipment to the Network Operator's electricity network. They shall be valid for a period of 6 months and are aimed at preliminary evaluation of future investment levels, so they shall not create any rights or obligations for the Energy Producer or Network Operator.

36. An Energy Producer who has decided on the expedience of investments shall submit, in accordance with a procedure specified by law, an application to the Ministry of Energy of the Republic of Lithuania (hereinafter referred to as the "Ministry of Energy") for a permit to expand power generation capacity; and a request to the Network Operator which issued the preliminary design specifications to provide information to the Ministry of Energy on the forecasted shortages of generated or transmitted power or any restrictions related to the permit application. The distribution Network Operator shall submit the requested information to the Ministry of Energy and to the Energy Producer within 20 working days of the request being submitted by the Energy Producer. In the event that data available to the *transmission* Network Operator are necessary for the submission of information requested by the Ministry of Energy and the Energy Producer, the transmission Network Operator shall submit such data to the distribution Network Operator within 10 working days of receiving the request from them.

37. The Energy Producer shall, upon receiving the permit referred to in Clause 36 of this Procedure, submit to the Director of municipal administration (or a municipal civil servant authorised by him/her) an application for a summary of design specifications in accordance with the procedure established by law. The Energy Producer's electrical equipment shall be connected in accordance with terms and conditions specified in Clauses 29, 30 and 31 of this Procedure. After the State Energy Inspectorate issues an electrical equipment technical state inspection report/certificate (for the start-up coordination work), the Network Operator shall, within five working days, temporarily connect the Energy Producer's electricity networks to the Network Operator's electricity networks for the coordination and testing period.

38. The Network Operator may connect electrical equipment of two or more Energy Producers to electricity networks under the same design specifications provided that such a connection is based on technically and economically rational network development. In this case, the Energy Producers connecting their electricity equipment to the Network Operator's electricity networks under the same design specifications shall be counted for the connection period as a single Energy Producer that is connected to the Network Operator's electricity networks in accordance with terms and conditions of this Procedure."

The following terms and requirements are laid down in Article 14 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) for connecting power plants to electricity networks:

**"Article 14. Connection of Power Plants to Electricity Networks**

1. The Network Operator shall, within 18 months or within the period during which the Energy Producer undertakes to build a power plant if that period is longer than 18 months, under the preference right, connect the Energy Producer's power plant to the networks managed by the Network Operator at the connection point which meets the required voltage level and is the closest to the Energy Producer's plant, if other electricity networks are not more technologically and economically suitable as the Energy Producer's point of connection. The afore-mentioned preference right of the Energy Producer to connect the power plant to the electricity networks shall be ensured in respect of other electricity Energy Producers using non-renewable energy sources. The period of connecting the power plant to the networks shall be calculated from the signing of the connection contract between the Energy Producer and Network Operator. The moment of connection shall be the connection of such a power plant for performing technological tests in the

electrical networks (for the start-up coordination work). The Network Operator shall, in accordance with statutory requirements, prepare and publish standard provisions of the connection contract, which apply equally on a non-discriminatory basis to all Energy Producers, after assessing the specific requirements of individual groups of Energy Producers.

2. The Network Operator must also connect the Energy Producer's power plant to electricity networks in the event that such a connection is only available when electricity networks are technically upgraded, optimised, expanded, increased in capacity or otherwise reconstructed. In this case, the Energy Producer's plant shall be connected to the electricity networks within a reasonable period agreed by the parties, after assessing the need for upgrading or expanding the networks, as far as it is reasonably necessary for the connection of a power plant.

3. The time limits referred to in Paragraphs 1 and 2 of this Article for the connection of a power plant to electricity networks may be extended in cases where the Network Operator is not capable of connecting the Energy Producer's power plant within the set time limit due to work delays in the section of the Energy Producer's electrical networks, or for any other reasons which are beyond the Network Operator's control. In each case, the time limit for the connection of a power plant to the networks may not be extended for a period exceeding six months. The time limit shall be extended by agreement between the Network Operator and the Energy Producer in accordance with a procedure laid down in the connection contract.

4. The connection point for the Energy Producer's power plant shall be selected and established in the design specifications by the contracted Network Operator at the Energy Producer's request and after assessing technological and economic criteria for selecting the point of connection in accordance with the Procedure for the Use of Electricity Networks referred to in Paragraph 7 of this Article.

5. The Energy Producer shall be entitled to choose another technologically and economically sound electrical connection point, taking into account the capacity of electricity networks specified by the Network Operator and the installed power of the power plant. The Network Operator shall in any case evaluate whether the point of connection chosen by the Energy Producer meets the specified technological and economic criteria. If connecting the power plant to the electricity networks in the point of connection proposed by the Energy Producer carries increased costs, such increased connectivity costs shall be covered in accordance with a procedure laid down in Paragraph 6 of Article 21 of this Law.

6. The Network Operator shall be entitled at its own discretion to designate a different electrical connection point, regardless of the Energy Producer's selected connection point as indicated in Paragraph 5 hereof. The additional costs arising from such a designation shall be covered in accordance with a procedure laid down in Paragraph 7 of Article 21 of this Law.

7. The Network Operator, under the conditions established by the National Control Commission for Prices and Energy, shall prepare and, upon coordination with the National Control Commission for Prices and Energy, publish the Procedure for the Use of Electricity Networks. The Procedure for the Use of Electricity Networks shall be based on objective, transparent and non-discriminatory principles taking into account all the benefits and costs associated with the connection of Energy Producer's plants to electricity networks.

8. The Network Operator must provide to the Energy Producer, within 30 calendar days from receipt of the Energy Producer's request for preliminary design specifications, all the information on the operations related to the connection of the power plant to be carried out by the Energy Producer, and the planned network expansion periods. If necessary, the Network Operator must also perform the actions referred to Article 18 before the connection of the power plant to the grid. At the Energy Producer's request, the Network Operator shall provide a full estimate of the costs pertaining to the connection of the power plant to the grid and a precise schedule for the submission and consideration of applications thereof, as well as a reference schedule of the proposed connection of the power plant to the grid. In all cases the Network Operator and the Energy Producer shall exchange all the necessary technical and other information. The preliminary

design specifications must comply with the Procedure for the Use of Electricity Networks referred to in Paragraph 7 hereof. The preliminary design specifications shall not contain any other requirements than those necessary to ensure reliable, safe and proper work in installing power systems. Preliminary design specifications shall be publicly available on the Network Operator's website.

9. The Energy Producer shall be entitled to lodge a complaint to the National Control Commission for Prices and Energy concerning the preliminary design specifications referred to in Paragraph 8 hereof and issued by the Network Operator, in accordance with the procedure laid down in Article 64 of this Law. If the National Control Commission for Prices and Energy determines, pursuant to the findings presented by the State Energy Inspectorate under the Ministry of Energy, that the preliminary design specifications do not meet the conditions laid down in the Procedure for the Use of Electricity Networks referred to in Paragraph 7 hereof, the Network Operator shall, within 30 calendar days, submit new preliminary design specifications.

10. An Energy Producer planning to develop the potential for producing energy from renewable energy sources, after having received the preliminary design specifications, shall prepare and submit to the Network Operator a request to sign a letter of intent.

11. A Network Operator must, within 30 calendar days from the receipt of a request from an Energy Producer planning to develop the potential for producing energy from renewable energy sources, as specified in Paragraph 10 hereof, sign a letter of intent with the Energy Producer.

The letter of intent shall include:

1) the capacity of the power plant intended to be built by the Energy Producer and the type of renewable energy source to be used;

2) the period within which the Energy Producer undertakes to construct a power plant, to complete the works in the related electricity network section, and to submit the required documents to receive an electrical equipment technical state inspection report/certificate issued by the State Energy Inspectorate under the Ministry of Energy (for the start-up coordination work);

3) a commitment by the Energy Producer to prepare and submit to the Network Operator, within the proposed time limit from the date of signing the Letter of Intent, the technical project for the installation and electrical connection of the power plant to the existing power grid (hereinafter referred to as the "Technical design"), if any is required;

4) a commitment by the Network Operator to prepare a draft contract on the connection of the power plant to electricity networks within four months from the submission of the technical project agreed upon with the Network Operator, or within two months from the date of signing the Letter of Intent, if such a technical project for the planned construction of a power plant is optional;

5) a commitment by the Energy Producer to sign the connection contract within a month from the Network Operator's submitting a draft connection contract conforming to the agreed technical project or design specifications issued by the Network Operator, if a technical project for the planned construction of a power plant is optional;

6) a commitment by the Energy Producer to cover the electric connectivity costs, the amount of which is specified in Paragraph 3 of Article 21 of this Law, within a month from the day of the performance of the connection contract,;

7) a commitment by the Network Operator to connect the power plant to the grid and ensure a reliable transmission of electricity produced, as well as its distribution over time, which may not exceed the time limits specified in Paragraphs 1 and 2 hereof;

8) the amount for guaranteeing the performance of the Energy Producer's obligations, the terms and procedures thereof;

9) documentation confirming the validity of the detailed plan, which allows the Energy Producer to build the power plant to the specified capacity and type, where such a document is required according to the laws for the construction of the afore-mentioned power plant.

12. A model form of the Letter of Intent has been approved by the National Control Commission for Prices and Energy.

13. The Energy Producer, having signed a letter of intent, shall submit to the Network Operator the guarantee of the performance of its obligations in the amount established in Paragraph 1 of Article 15 of this Law, guaranteeing to the Network Operator the performance of the Energy Producer's obligations to install (new) or expand (existing) energy production from renewable energy sources, at least 15 calendar days prior to the auction referred to in Paragraph 3 of Article 20 of this Law.

14. The time limit specified in Sub-paragraph 2 of Paragraph 11 hereof shall be extended in the following cases:

- 1) where there is state action, third-party action or in case of *force majeure*;
- 2) at the Energy Producer's request, after having submitted an additional guarantee for the performance of its obligations referred to in Paragraph 1 of Article 15 of this Law;
- 3) in the cases provided for in the connection contract and other legal acts.

15. The Network Operator, after the Energy Producer has signed the Letter of Intent and provided the guarantee for the performance of its obligations in accordance with a procedure established therein, shall ensure a preference right for the Energy Producer over other energy producers to connect its power plant to the connection point specified in the Letter of Intent.

16. Power plants with an installed capacity of not more than 350 kW and not greater than the permissible power in the nearest connection point of distribution networks (except for biogas power plants built near livestock- and poultry-farming establishments, landfills and sewage treatment plants, whose capacity is not limited) shall be connected to the electricity networks immediately after the Energy Producer fulfils the simplified design specifications issued by the Network Operator. These plants shall be connected to the electricity distribution networks by installing production and consumption accounts. The provisions set forth in Paragraphs 10-15, 17, and 15 hereof and Article 15 of this Law shall not apply to the afore-mentioned energy producers.

17. The connection contract shall not be signed if the Letter of Intent signed by the Energy Producer and the Network Operator is not in effect and the Energy Producer fails to provide the guarantee for the performance of its obligations in accordance with a procedure specified in the Letter of Intent, with the exception of the cases referred to in Paragraph 16 hereof.

18. The Network Operator shall submit each month, to the Ministry of Energy and the National Control Commission for Prices and Energy, information about the ongoing construction of power plants and the performance of conditions set forth in the Letters of Intent.

19. The procedure and conditions for the connection of power plants using renewable energy sources to the electricity networks, as far as it is not specified in this Law, shall be regulated by the implementing legislation of this Law.”

- *Additional information should be provided on the timetable for the adoption and publication of the Procedure for the Use of Electricity Networks [4.2.6 (i)].*

The conditions for the use of electricity networks are established in Paragraph 7 of Article 14 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749 (5)), which states that the Network Operator, under the conditions established by the National Control Commission for Prices and Energy, shall prepare and, upon coordination with the National Control Commission for Prices and Energy, publish the Procedure for the Use of Electricity Networks. The Procedure for the Use of Electricity Networks shall be based on objective, transparent and non-discriminatory principles, taking into account all the benefits and costs associated with the connection of Energy Producers' plants to electricity networks.

The adoption of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) is foreseen for the 2<sup>nd</sup> quarter of 2011. The adoption of the Procedure for the Use of Electricity Networks is foreseen for the 4<sup>th</sup> quarter of 2011.

#### **Grid operation (Q4.2.7):**



- *The timetable for the adoption of the legal acts [mentioned in 4.2.7(b)] related to renewable electricity dispatch should be specified.*

To ensure that transmission system operators give priority to energy generation installations using renewable energy sources when managing matters related to electricity dispatch, within the limits of safe operation of the national electricity system and based on transparent and non-discriminatory criteria, Article 17 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749 (5)) states the following:

**“Article 17. Electricity transmission and reception through electricity networks**

1. The Network Operator shall receive, transfer and/or distribute under the preference right the total quantity of energy proposed by the Energy Producer and generated by the renewable energy sources. Such a preference right for the reception, transfer and/or distribution of electricity shall be ensured to the Energy Producer in respect of electricity produced by other energy producers using renewable energy sources.
2. If the Network Operator receiving electricity is not a transmission system operator, the obligation to receive and transmit electric power under preference right through transmission networks shall apply to the transmission system operator as well.
3. Transmission of electricity produced from renewable energy sources through electricity networks in accordance with a procedure established by laws may be restricted or temporarily suspended in case of an emergency in the power system or for other technical reasons, where electricity transmission capacity is limited on a non-discriminatory basis. For such a restriction the losses incurred by the Energy Producer shall not be compensated, unless the appropriate circumstances determining such restrictions arise through the Network Operator’s fault or the right to damages is obtained on other statutory grounds.
4. If in the cases specified in Paragraph 3 hereof the Network Operators take measures to substantially limit the use of renewable energy sources in order to ensure the safe operation of the state power system and security of electricity supply, the responsible Network Operator shall immediately inform the competent authority of the relevant measures, the extent and the reasons for their application and indicate what corrective measures will be taken to prevent improper restrictions.”

The adoption of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) is foreseen for the 2<sup>nd</sup> quarter of 2011. The adoption of accompanying legal acts regulating respective matters is foreseen for the 4<sup>th</sup> quarter of 2011.

- *More detailed information concerning grid and market related operational measures to minimise curtailment of electricity from renewable energy sources [4.2.7 (c)] is required: which measures have already been taken, which measures are still under planning (smart grids, demand-side management, etc.); when is their implementation expected?*

Currently, Lithuania has sufficient transmission capacities to receive electricity produced from renewable sources.

Article 17 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749 (5)) states that all electricity produced from renewable energy sources and supplied to the grid shall be transmitted under the preference right (in case of network transmission restrictions), regardless of the scope of support or the period thereof. Transmission of electricity generated from renewable energy sources through electricity networks in accordance with a procedure established by law may be restricted or temporarily suspended in case of an emergency in the power system or for other technical reasons, where electricity transmission capacity is limited on a non-discriminatory basis. For more information see the response to Question 4.2.7 c.

Article 20 of the Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749 (5)) states that electricity production from renewable energy sources shall be promoted in accordance with a procedure established by the Government for the provision of services of public interest, by paying the difference of the fixed rate set for the Energy Producer and the price of electricity sold in the energy market by the Energy Producer in accordance with the Electricity Trading Rules. Fixed tariffs and support quotas shall be allocated by way of auction, in which energy producers compete with each other by submitting proposals concerning the fixed-rate preferred. The winner of the auction shall be a participant proposing the lowest fixed rate preferred.

Information on the measures to be taken for smart grids, demand-side management and other related issues is presented in the response to Question 4.2.6 c.

**Sustainability criteria of biofuels (Q4.2.10):**

- *Could more information be provided on how - in the absence of a national institution responsible for monitoring/verifying compliance with the sustainability criteria - it will be ensured that biofuels and bioliquids that are counted towards the national renewable target and towards national renewable energy obligations and/or are eligible for financial support comply with the sustainability criteria set down in Article 17(2) to (5) of Directive 2009/28/EC?*

Currently, a draft Resolution “Concerning the approval of the procedure for monitoring the compliance of biofuels and bioliquids with sustainability criteria” is being prepared by the Government of the Republic of Lithuania and contains provisions relating to monitoring and scrutiny of compliance:

The Ministry of Environment of the Republic of Lithuania shall authorise a respective authority to carry out monitoring of compliance of biofuels and bioliquids with sustainability criteria within its competence (Directive 2009/28/EC, Article 17, Paragraphs 2-5) and shall detail its monitoring and inspection procedures.

The Ministry of Agriculture of the Republic of Lithuania shall authorise a respective authority to carry out monitoring of compliance of biofuels and bioliquids with sustainability criteria within its competence (Directive 2009/28/EC, Article 17, Paragraph 6) and shall detail its monitoring and inspection procedures.

The Ministry of Agriculture of the Republic of Lithuania, in conjunction with the Ministry of Environment of the Republic of Lithuania and the Ministry of Energy of the Republic of Lithuania, shall prepare and adopt the procedure for the certification of compliance of biofuels and bioliquids with sustainability criteria before 1 January 2013.

**Heating support schemes (Q4.4):**

- *As Lithuania projects considerable growth in renewable heating, in particular in district heating, the planned support instruments to reach these objectives should be explained in greater detail, including the renewable energy obligations for buildings, and the amount of support that different funds will contribute to promote renewable heating.*

**1. Structural funds (2007–2013) Measure, “Use of Renewables in Energy Production”**

The intended European Union support amounts to LTL 239.93 million (pursuant to Resolutions No 530 (*Official Gazette*, 2009, No 68-2773) and No 712 (*Official Gazette*, 2010, No 68-3408) of the Government of the Republic of Lithuania). The activities supported under this measure shall be the following:

- modernisation of boilers that supply heat to the heat supply systems, i.e. replacing the fuel used with biomass;

- modernisation of cogeneration plants that supply heat to heat supply systems, i.e. replacing the fuel used with biomass;
- construction of new boilers using renewable energy sources and their connection to heat supply systems (“heat supply system” includes a system of heat consumption);
- construction of new cogeneration plants using renewable energy sources and their connection to heat supply systems (“heat supply system” includes a system of heat consumption).

26 applications have been received under the measure mentioned above. 24 projects have been accepted as eligible, with support requested totalling LTL 208.22 million. In 2009 and 2010 the amount of LTL 153.695 million has been allocated by orders of the Minister for Economy of the Republic of Lithuania.

Two projects have been completed in 2011:

- Biogas-fired cogeneration power plant (4.23 MW electric and 5.28 MW thermal power);
- Biofuel-fired boiler (10 MW and 2 boilers, 5 MW each).

Currently, 13 projects are being implemented:

- four projects by independent heat producers for LTL 29.79 million;
- seven projects by heating supply companies for LTL 71.78 million;
- two projects by industrial companies for LTL 19.44 million.

Upon completion of these projects the following plants will be installed:

- seven cogeneration power plants (total electric power is 22,6 MW, and thermal power is 51,8 MW);
- five hot water boilers (total capacity of 41 MW) and one 38 MW boiler would be adapted to burning biofuels;
- one steam boiler (15 MW);
- 2 economisers (total capacity of 21.3 MW); Nine units having the capacity to generate energy shall use wood waste, two units shall use biogas, and two units shall use landfill gas.

The amount of LTL 37.89 million was transferred by Resolution No 530 of the Government of the Republic of Lithuania of 3 June 2009 (*Official Gazette*, 2009, No 68-2773) from the facility “Increasing Energy Production Efficiency” to the facility “Using Renewable Energy Sources for Energy Production”.

The amount of LTL 75 million was transferred by Resolution No 712 of the Government of the Republic of Lithuania of 2 June 2010 (*Official Gazette*, 2010, No 68-3408) from the facility administered by the Ministry of Environment of the Republic of Lithuania “Installing Air Pollution Reduction and Monitoring Systems in Major Energy Facilities” to projects under the facility “Using Renewable Energy Sources for Energy Production”.

A total amount of  $(127.03 + 37.89 + 75 =)$  LTL 239.93 million has been allocated for the implementation of the facility for the production of energy from renewable energy sources. The residual amount of the support for this facility is  $(239.93 - 158.195 =)$  LTL 81.74 million.

## **2. Lithuanian Environmental Investment Fund**

The Lithuanian Environmental Investment Fund (LEIF) finances projects related to energy production from renewable energy sources such as geothermal energy and biomass to produce heat. The budget of the Lithuanian Environmental Investment Fund (LEIF) consists of funds received from the pollution tax. 30 percent of the pollution tax is paid to the state budget and the funds are used for their intended purpose: environmental investment projects provided for in the programme of the Lithuanian Environmental Investment Fund (LEIF).

The Lithuanian Environmental Investment Fund (LEIF) provides subsidies, which per single beneficiary may not exceed 690,000 dollars within three years or 70 percent of the total environmental investment project amount.

When implementing this measure in 2003–2009 the following plants were installed: 79 boilers to produce heat (with a total installed capacity of 144.68 MW) and two cogeneration power plants (with thermal power of 1.15 MW). The amount of funds allocated for heat boilers is LTL 16,417,498.85, and for cogeneration power plants LTL 695,280.

### 3. Allowances

The National Control Commission for Prices and Energy (hereinafter referred to as the “Commission”) approved by Resolution No 03-96 of 8 July 2009 the Heat Pricing Methodology (hereinafter referred to as the “Methodology”; *Official Gazette*, No 92-3959). According to the Methodology, heat supply companies must prepare a management plan of allowances as part of the investment plan. The plan must provide for carbon dioxide emission reduction measures, the use of income received from the sale of allowances, and the funds needed to purchase missing allowances. In the case where the heat supplier will use the income received from the sale of allowances not for the purpose intended, i.e. not for investments to reduce environmental pollution, the heat price of the company will be reduced accordingly (by the amount of income received from the sale of allowances but used not for the purposes intended).

Income received by heat supply companies for the sale of allowances and the use thereof for the 1st quarter within the period of 2005–2008 as specified in the management plans of allowances submitted by the companies shall be available at the following address: [http://www.regula.lt/lt/siluma/silumos-sektoriaus-rodikliai/tarsos\\_leidimai.php](http://www.regula.lt/lt/siluma/silumos-sektoriaus-rodikliai/tarsos_leidimai.php) Income received from the sale of allowances and the use thereof for 2009 shall be available at the following address: <http://www.am.lt/VI/index.php#a/9963>

### 4. Special Climate Change Programme

A special Climate Change Programme (hereinafter referred to as the “Programme”) has been set up in accordance with the Law on Financial Instruments for Climate Change Management of the Republic of Lithuania (*Official Gazette*, 2009, No 87-3662; 2010. No 145-7427). The sources of funding for the Programme are the following:

- 1) funds received for the transferred assigned amount units (AAUs);
- 2) funds received for the sale of allowances in the auction;
- 3) voluntary contributions by individuals and entities for the implementation of climate change mitigation measures;
- 4) any other legally obtained funds.

At least 40 percent of funds for the Programme (in the form of loans, subsidies and investments in corporate shares) shall be used to support the use of renewable energy sources and encourage the implementation of environmentally friendly technologies, including efficient cogeneration power production.

The Programme funds shall be used in compliance with the annual estimate of the use of the Programme funds, approved by Order of the Minister of Environment of the Republic of Lithuania.

The Estimate of the Use of Special Climate Change Programme funds for 2011, approved by Order No DI-131 of the Minister of Environment of the Republic of Lithuania of 10 February 2011 (*Official Gazette*, 2011, No 23-1114) is presented below (extract relates to renewable energy only).

#### Estimate of the Use of Special Climate Change Programme funds for 2011

No.	Purpose of Funds	Amount, mln. LTL	Distribution of Funds by Financing Methods, mln. LTL
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			Subsidy	Loan	Capital Investment
I	Income received for Special Climate Change Programme	500			
<b>II</b>	<b>Areas of the use of funds</b>				
<b>1.</b>	<b>Measures to achieve a quantitative reduction in greenhouse gas emissions</b>				
1.2	Support for the use of renewable energy sources, implementation of environmentally friendly technologies, including efficient cogeneration power production	240	48 percent		
1.2.1	Use of renewable energy sources (solar, wind, geothermal, biofuel, etc.) in public buildings	60	60*	–	–
1.2.2	Use of renewable energy sources (solar, wind, geothermal, biofuel, etc.) in individual residential buildings	20	20**	–	–
1.2.3	Implementation of environmentally friendly technologies reducing emissions of greenhouse gases at enterprises engaged in commercial economic activities	80	–	40	40
1.2.4	Development of green public transport and infrastructure, implementation of environmentally friendly technologies and measures reducing emissions of greenhouse gases in public spaces	80	80*	–	–

\* The subsidies for these measures is 100 percent of all eligible projects' costs.

\*\* The subsidies for these measures may be up to 30 percent of all eligible projects' costs.

## 5. Special national and local renewable energy sources development programmes

The Draft Law on Energy from Renewable Sources of the Republic of Lithuania (No XIP-1749(5)) provides for the following measures to support the use of renewable energy sources, including generation of heating and cooling:

1. Special national renewable energy sources development programme;
2. Special local renewable energy sources development programmes.

The following sources of funding for the Special national renewable energy sources development programme have been established:

- revenue from excise duty actually received from sales of liquid fuels (heating oil) used for the production of electricity and heat, Orimulsion, natural gas, coal, coke and lignite, heating gas oil (domestic heating oil) and electricity, in accordance with the Law on Excise Duty of the Republic of Lithuania;
- revenue from statistical energy transfers;
- state budget appropriations;
- voluntary contributions by individuals and entities as well as funds from foreign states for the development of the use of renewable energy sources;
- other funds obtained in compliance with the laws of the Republic of Lithuania.

The following directions for the use of the Special national renewable energy sources development programme funds in the heating and cooling sector have been planned:

- implementation of projects for the production of heating and/or cooling energy using solid biofuels supplied to heating (cooling) systems and also utilised in industrial, agricultural and commercial facilities;

- implementation of projects for the production of heating and/or cooling energy using biogas supplied to heating (cooling) systems and also utilised in industrial, agricultural and commercial facilities;
- implementation of projects for the production of heating and/or cooling energy using other renewable energy sources supplied to heating (cooling) systems and also utilised in industrial, agricultural and commercial facilities;
- implementation of projects for the production of energy using geothermal energy; support for biofuel production.

The following sources of funding for Special local renewable energy sources development programmes have been determined:

- revenue from excise duty actually received from sales of liquid fuels (heating oil) used for the production of electricity and heat, Orimulsion, natural gas, coal, coke and lignite, heating gas oil (domestic heating oil) and electricity, in accordance with the Law on Excise Duty of the Republic of Lithuania;
- municipal budget appropriations;
- assistance funds from the European Union;
- tax on environmental pollution from methane;
- voluntary contributions by individuals and entities as well as funds from foreign states for the development of renewable energy sources;
- other funds obtained in compliance with the laws of the Republic of Lithuania.

The following directions for the use of Special local renewable energy sources development programmes funds in the heating and cooling sector have been planned:

- support for the acquisition of equipment increasing the use of renewable energy sources for individual needs in residential and public sectors by compensating for the fixed amount of funds allocated per one installed unit of capacity in accordance with a procedure approved by the municipality.

## **6. Rural Development Programme for Lithuania 2007–2013**

Subsidies are provided under the Rural Development Programme for Lithuania 2007–2013. The level of support varies from 40 to 65 percent of eligible project costs. The maximum amount of support for a project depends on the facility and can vary from EUR 40,000 to EUR 2.8 million.

The following activities shall be funded in the heating sector according to the Rural Development Programme for Lithuania 2007–2013 (hereinafter referred to as the “Programme”):

The production of biogas from farm waste under Measure 6 “Modernisation of agricultural holdings” of Axis I, but note the biogas produced can be used only for holding purposes.

Non-hazardous waste disposal by incineration or other means, producing steam, alternate fuel (pellets), or biogas for its subsequent use; as well as hay and straw disposal when alternate fuel (pellets) is produced from the mixture, one of whose components is straw, hay or grass, under Measure 1 “Diversification of economic activities” and Measure 2 “Support for business creation and development” of Axis III.

Four projects were supported for biogas production from 2007 to 31 March 2011 according to the Measure “Support for business creation and development” of the Rural Development Programme for Lithuania 2007–2013. The promoters anticipate that the projects implemented will produce 6,612,628 m<sup>3</sup> of biogas per year for sale. The total amount of all four projects is LTL 12.327 million, of which LTL 6.905 million is received as assistance from the European Union (hereinafter referred to as the “EU”). Most of the investment is used for the acquisition and installation of equipment for biogas production.

35 contracts for production of pellets from straw were signed from 2007 to 31 March 2011 according to the Measures “Diversification of economic activities” and “Support for business creation and development” of the Rural Development Programme for Lithuania 2007–2013. The

project promoters predict that after the implementation of planned projects the annual sales revenue will reach LTL 41,877,612 in 2011 and LTL 88,158,350 in 2014. The total investments of 35 projects amount to LTL 60.054 million, whereof LTL 38.158 million is received as EU assistance.

Installation of geothermal power plants and solar collectors are supported under Measure 3 “Encouragement of Rural Tourism Services” of Axis III. The heat energy obtained from these plants should be used only for holding purposes.

#### **Biofuels support schemes (Q4.5):**

- *The concrete obligations/targets per year (per fuel or technology) should be provided. They should refer to the period until 2020 as the reference period for the action plan [4.5 (a)].*

As stated in the Lithuanian National Renewable Energy Action Plan (hereinafter referred to as the “Action Plan”) (p. 102), the concrete (i.e. annual) obligations (targets) were not set to ensure that by 31 December 2005 biofuels accounted for at least 2 percent of the total petrol and diesel in the domestic market, and by 31 December 2010 – 5.75 percent.

The concrete (i.e. annual) obligations (targets) have been set such that renewable energy used in all forms of transport will account for at least 10 percent of final energy consumption in the transport sector by 2020 as presented in Table 12 of the Action Plan. The target in 2020 and the expected trajectory of renewable energy in the transport sector is presented in Table 3 of the Action Plan. The summarised data from the afore-mentioned Action Plan are presented in the table below:

Year	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>ktoe</b>												
<b>Bio-ethanol/bio-ETBE</b>	0.8	13	14	22	25	26	30	32	33	34	35	36
<b>Bio-diesel</b>	2.8	42	43	53	65	67	79	91	104	119	128	131
<b>Renewable energy</b>	0	0.3	0.8	0.8	0.9	0.9	1.6	1.6	2.4	2.4	2.4	2.5
<b>TOTAL</b>	<b>3.6</b>	<b>56</b>	<b>59</b>	<b>77</b>	<b>92</b>	<b>95</b>	<b>113</b>	<b>127</b>	<b>143</b>	<b>159</b>	<b>196</b>	<b>173</b>
<b>Percent</b>												
<b>Target for 2020 and renewable energy trajectory in the transport sector</b>	<b>0.3</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>

#### **Biomass supply (Q4.6.1):**

- *The conversion factor/calculation methodology used for the conversion of the amount of biomass from agriculture and fisheries and from municipal solid waste should be provided.*
- The conversion factor used for the conversion of biomass from forestry to energy (ktoe): 1 thousand m<sup>3</sup> – 0.196 ktoe;
  - The conversion factor used for the conversion of bio-ethanol production from grain seeds to energy (ktoe): 1 thousand tonnes of threshed grain – 0.187 ktoe;
  - The conversion factor used for the conversion of biodiesel from rape seeds to energy (ktoe): 1 thousand tonnes of rape seeds – 0.300 ktoe;
  - The conversion factor used for the conversion of short rotation trees, used for the combustion process, to energy (ktoe): 1 thousand tonnes of dry mass trees – 0.416 ktoe;

- The conversion factor used for the conversion of straw used in the combustion process to energy (ktoe): 1 thousand tonnes of straw (20 percent moisture content) – 0,358 ktoe;
- The conversion factor used for the conversion of manure used for the production of biogas to energy (ktoe): 1 thousand tonnes of manure – 0.011 ktoe;
- The conversion factor used for the conversion of animal waste used for the production of biogas to energy (ktoe): 1 thousand tonnes of animal waste – 0.100 ktoe;
- The conversion factor used for the conversion of closed and regional municipal waste landfill for gas extraction to energy (ktoe): 1 thousand m<sup>3</sup> of waste – 0.011 ktoe;
- The conversion factor used for the conversion of partial sorting of municipal waste used for incineration to energy (ktoe): 1 thousand tonnes of municipal waste – 0.192 ktoe;

*Table 7a: The columns "expected amount of domestic resources" 2015 and 2020 should be filled in.*

The supplemented Table 10 is attached to Annex No 1.

- *Table 7a clarification: if agricultural biomass domestic supply is to be used for biofuels production, could it be indicated whether the data provided in the columns "primary energy production" (2015 and 2020) include the final energy contained in biofuels or the primary energy from raw feedstock used to produce such biofuels?*

Data presented in columns "primary energy production" (2015 and 2020) of Table 7a include the final energy contained in biofuels.

- *Table 7a gives projections of energy produced from municipal waste. In this respect, it should be specified on what basis the biodegradable fraction of municipal solid waste was calculated.*

According to the data of a study carried out by the Lithuanian Biomass Energy Association (LITBIOMA), the biodegradable fraction of municipal solid waste amounts to approximately 50-60 percent of the total municipal solid waste in Lithuania.

- *The question on biomass imports has not been sufficiently addressed. More specific answers are required on the estimated role of imported biomass up to 2020, while specifying the expected quantities (ktoe) and indicating possible source countries.*

Currently, Lithuania has no comprehensive data on estimated biomass imports until 2020. The plan of measures for implementing the National Renewable Energy Development Strategy for 2010-2015, approved by Order No 1-180 "Concerning the approval of the plan of measures for implementing the National Renewable Energy Development Strategy" of the Minister for Energy of the Republic of Lithuania of 23 June 2010 (*Official Gazette*, 2010, No 78-4030) provides that by the end of 2012 the use of biomass resources in the country will be forecast to the year 2020, taking into account biomass imports, exports and assessment of the effects of biomass use in energy production on other sectors (industry, agriculture and so on). By the same Order proposals for the development of an impact monitoring system will also be submitted.

**Table 10:**

- *Are the future estimations of hydro figures based on non-normalised figures? If yes, normalised figures should be used instead and Table 10 of the action plan should be corrected respectively.*



Table 10 contains normalised hydropower data.

- *The missing figures for pumping hydro should be indicated (according to Eurostat data there is pumping). The pumping figures should be included in total hydro for the installed capacity, but should be excluded from the total hydro for gross electricity generation).*

The supplemented Table 10 is attached to Annex No 2.

**Table 12:**

- *In table 12, no bioethanol and biodiesel imports are reported in 2020. It should be confirmed whether all biofuels needs will be covered with domestic production or whether there will be some biofuels imports. If imports will be required, table 12 should be completed with estimates for such imports.*

It is planned that domestic production will meet the biofuel demand, therefore imports of biofuels is not expected.

## Annex No 1

Table 7a. Predicted supply of biomass in the country in 2015 and 2020

Sector of origin		2015		2020	
		Predicted quantity of sources of the country	Primary energy production (ktoe)	Predicted quantity of sources of the country	Primary energy production (ktoe)
A) Biomass from forestry:	1. Direct supply of wood biomass from forests and other wooded land for energy production (in thousands, m <sup>3</sup> )	2327	456	2082	408
	2. Indirect supply of wood biomass for energy production (in thousands, m <sup>3</sup> )	1163	228	1040	204
B) Biomass from agriculture and fisheries:	1. Agricultural crops and fishery products supplied directly to produce energy crops:	514	130	1102	238
	– Cereals for bioethanol production (in kilotonnes);	214	40	642	120
	– Rape seed for biodiesel production (in kilotonnes).	300	90	460	138
	2. Agricultural by-products / processed residues and fishery by-products for energy production		29		97
	a) straw for combustion process (in kilotonnes);	60	21	150	61
b) manure for biogas production (in kilotonnes);	600	7	3000	33	
c) animal waste (in kilotonnes).	10	1	30	3	
C) Biomass from waste:	1. <b>Biodegradable fraction of municipal solid waste, including biological waste</b> (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, similar waste from food processing plants and landfill gas)		55		70
	a) closed municipal waste landfill for gas extraction (km <sup>3</sup> )	100	1	300	3
	b) partial sorting municipal waste for incineration process (in kilotonnes)	280	54	350	67
	2. Biodegradable fraction of industrial waste (including paper, cardboard, pallets)	-	-	-	-
3. Sewage sludge	-	-	-	-	

## Annex No 2

**Table 10a: Forecast of total contribution of each renewable energy technology (installed capacity, total electric energy production) in the Republic Lithuania to meet the mandatory targets of renewable energy share in the electricity sector for 2020 and achieve indicative temporary trajectory for the years 2010–2014**

	2005		2010		2011		2012		2013		2014	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
<b>Hydropower<sup>1</sup>:</b>	<b>887.8</b>	<b>451</b>	<b>887</b>	<b>432</b>	<b>887</b>	<b>432</b>	<b>888</b>	<b>433</b>	<b>890</b>	<b>437</b>	<b>891</b>	<b>441</b>
<10MW	27	66	26	79	26	79	27	80	29	84	30	89
>10MW	100.8	385	100.8	353	100.8	353	100.8	353	100.8	353	100.8	353
of which pumping	760	370	760	700	760	700	760	700	760	700	760	700
Geothermal	0	0	0	0	0	0	0	0	0	0	0	0
<b>Solar:</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>8</b>	<b>9</b>
photovoltaic	0	0	1	0	2	2	3	3	5	6	8	9
concentrated solar power	0	0	0	0	0	0	0	0	0	0	0	0
Tides, waves, oceans	0	0	0	0	0	0	0	0	0	0	0	0
<b>Wind:</b>	<b>1</b>	<b>2</b>	<b>179</b>	<b>297</b>	<b>200</b>	<b>473</b>	<b>250</b>	<b>563</b>	<b>300</b>	<b>688</b>	<b>350</b>	<b>813</b>
land	1	2	179	297	200	473	250	563	300	688	350	813
sea	0	0	0	0	0	0	0	0	0	0	0	0
<b>Biomass:</b>	<b>5</b>	<b>7</b>	<b>34</b>	<b>147</b>	<b>41</b>	<b>202</b>	<b>59</b>	<b>268</b>	<b>94</b>	<b>429</b>	<b>128</b>	<b>612</b>
solid	2	3	22	98	24	115	40	161	68	271	98	416
biogas	3	4	12	50	17	87	19	108	26	159	30	196
bioliquids	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>894</b>	<b>460</b>	<b>1101</b>	<b>876</b>	<b>1129</b>	<b>1109</b>	<b>1200</b>	<b>1267</b>	<b>1289</b>	<b>1560</b>	<b>1376</b>	<b>1875</b>
of which electricity and heat cogeneration	5	7	34	147	41	202	59	268	94	429	128	612

Note 1: Pumping data is not included in total hydropower generation and total electricity production.

**Table 10b: Forecast of total contribution of each renewable energy technology (installed capacity, total electric energy production) in the Republic Lithuania to meet the mandatory targets of renewable energy share in the electricity sector for 2020 and achieve indicative temporary trajectory for the years 2015–2020**

	2015		2016		2017		2018		2019		2020	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
<b>Hydropower<sup>1</sup>:</b>	<b>893</b>	<b>446</b>	<b>894</b>	<b>450</b>	<b>894</b>	<b>452</b>	<b>897</b>	<b>456</b>	<b>899</b>	<b>464</b>	<b>901</b>	<b>470</b>
<10MW	32	93	33	98	33	99	36	104	38	111	40	117
>10MW	100.8	353	100.8	353	100.8	353	100.8	353	100.8	353	100.8	353
of which pumping	760	700	760	700	760	700	760	700	760	700	760	700
Geothermal	0	0	0	0	0	0	0	0	0	0	0	0
<b>Solar:</b>	<b>10</b>	<b>13</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>15</b>
photovoltaic	10	13	10	15	10	15	10	15	10	15	10	15
concentrated solar power	0	0	0	0	0	0	0	0	0	0	0	0
Tides, waves, oceans	0	0	0	0	0	0	0	0	0	0	0	0
<b>Wind:</b>	<b>389</b>	<b>924</b>	<b>500</b>	<b>1111</b>	<b>5000</b>	<b>1250</b>	<b>500</b>	<b>1250</b>	<b>500</b>	<b>1250</b>	<b>500</b>	<b>1250</b>
land	389	924	500	1111	5000	1250	500	1250	500	1250	500	1250
sea	0	0	0	0	0	0	0	0	0	0	0	0
<b>Biomass:</b>	<b>150</b>	<b>761</b>	<b>175</b>	<b>888</b>	<b>207</b>	<b>1040</b>	<b>212</b>	<b>1143</b>	<b>218</b>	<b>1181</b>	<b>224</b>	<b>1223</b>
solid	115	533	135	626	162	743	162	810	162	810	162	810
biogas	35	228	40	263	45	298	50	333	56	371	62	413
bioliquids	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>1442</b>	<b>2143</b>	<b>1579</b>	<b>2465</b>	<b>1611</b>	<b>2757</b>	<b>1619</b>	<b>2864</b>	<b>1627</b>	<b>2910</b>	<b>1635</b>	<b>2958</b>
of which electricity and heat cogeneration	150	761	175	888	207	1040	212	1143	218	1181	224	1223

Note 1: Pumping data is not included in total hydropower generation and total electricity production.