

REPORT OF THE REPUBLIC OF LITHUANIA ON IMPLEMENTATION OF DIRECTIVE 2001/77/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 27 SEPTEMBER 2001 ON THE PROMOTION OF ELECTRICITY PRODUCED FROM RENEWABLE ENERGY SOURCES IN THE INTERNAL ELECTRICITY MARKET

1. Overview of the national electricity sector

The main legal acts that regulate the electricity sector are the National Energy Strategy, the Law on Energy and the Law on Electricity.

The electricity sector of Lithuania was restructured observing Directive 96/92/EC of the European Parliament and of the Council. From 1 January 2002 a vertically integrated company Lietuvos Energija was divided into five independent companies: two generation companies, one transmission company and two distribution companies, which resulted in separation of the activities of electricity generation, distribution and transmission.

A specific feature of the Lithuanian energy sector is considerable surplus of power generation. In 2004, the installed capacity in Lithuania totalled to 6000 MW. The largest share was taken by Ignalina Nuclear Power Plant (2600 MW), Lithuanian Power Plant (1800 MW) and cogeneration power plants (ca. 730 MW). Ignalina NPP accounts for 42% of the installed capacity and generates up to 80% of the total electricity output. According to Lithuania's commitments to the EU, operation of the 1st unit (installed capacity 1300 MW) of Ignalina NPP was stopped from 31 December 2004. The closure of the 2nd unit of Ignalina NPP is planned in 2009. The decommissioning of Ignalina Power Plant will have a tremendous impact on the energy sector of Lithuania resulting in reduction of electricity export and increase of generation in power plants using fossil fuel.

In addition, Lithuania has Kruonis Hydro Pump Storage Power Plant (Kruonis HPSP) with the installed capacity of 900 MW.

According to the data of the Department of Statistics under the Government of the Republic of Lithuania, the generated output of electricity in the country in 2004 totalled to 19.3 TWh.

Electricity export in 2004 amounted to 7.3 TWh, or 38% of the total generation in Lithuania.

The total electricity consumption (total generation – export + import) in Lithuania in 2004 was 12.1 TWh.

2. Electricity generation using renewable energy sources

By 2004, the largest share of the total electricity generated from renewables was produced using hydropower. Figure 1 below shows the planned development of power plants using other renewable energy sources, as provided for in the Procedure on Promotion of Generation and Purchase of Electricity Generated Using Renewable and Waste Energy Sources (hereinafter – the Promotion Procedure) approved by Government of the Republic of Lithuania Resolution No 1474 of 5 December 2001 (*Valstybės žinios*, 2001, No 104-3713; 2004, No 9-228).

* Official gazette

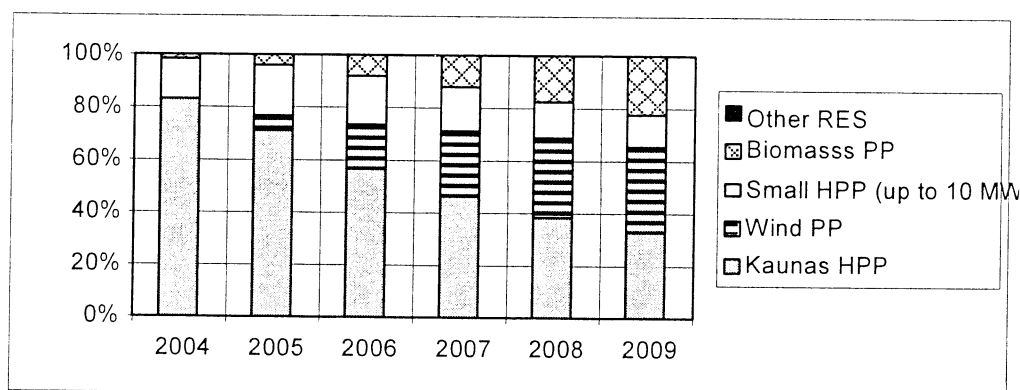


Figure 1. Forecast of the use of RES for electricity generation

Hydro power plants

Currently, green energy in Lithuania is generated using mainly hydro energy. In 2004, the generated output of such power plants amounted to 420.5 GWh, which is 98% of the total generation of green energy in the Republic of Lithuania.

The largest producer of electricity from hydro power is Kaunas Hydro Power Plant (100.8 MW), whose generated output in 2004 was 359 GWh. Generation of electricity in small (up to 10 MW) power plants continues to increase: the total generated output in 2004 amounted to 61.5 GWh, which is 50% more in comparison to the generation in 2003 (see Table 1 below). The aggregated installed capacity of small hydro power plants by 2004 totalled to 18.7 MW.

Table 1. Generation in hydro power plants

GWh	2000	2001	2002	2003	2004
In hydro power plants in total*	339.3	325.5	352.9	325.1	420.5
Kaunas HPP**	312.8	284.4	316.5	283.9	359.0
Small HPP**	26.6	41.1	36.4	41.2	61.5

* Lithuanian Statistics under the Government of the Republic of Lithuania

**Lithuanian Energy Institute

Construction of hydro power plants of small capacity (up to 10 MW) with the aggregated power up to 12 MW is planned in Lithuania for the period 2004-2010, and the total generated output of these power plants will total up to 122 GWh. The development of the forecast for the generation in Kaunas HPP until 2010 assumed that the annual generation in this power plant will be 330 GWh.

More extensive use of hydro power resources for electricity generation is limited by the List of Ecologically and Culturally Valuable Rivers or their Sections approved by a Resolution of the Government of the Republic of Lithuania (*Valstybės žinios*, 2004, No 137-4995). The list was drawn up in accordance with the Red Book of Lithuania, Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), HELCOM, Programme on Salmon Recovery and Protection of the International Baltic Sea Fishery Commission (IBSFC) and Lithuania, Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy.

Wind power plants

First wind power plants were constructed in Lithuania in 2004 and during that year the generated output in these power plants amounted to 1.2 GWh.

In 2004, the installed capacity of the operating wind power plants was 0.9 MW, and the aggregated capacity specified in permits issued during the 1st half year of 2005 for the expansion of power generation capacities constructing wind power plants totalled to 52 MW. The planned aggregated planned capacity to be constructed by 2010 is at least 200 MW.

Biomass power plants

There are several power plants in Lithuania which generate electricity using biogas. The total installed capacity of such power plants amounts to 2.14 MW. There is also one cogeneration power plant with the installed capacity of 1.5 MW which is fired with wood fuel.

The generated output of biomass power plants in 2004 was 7.4 GWh.

Lithuania has a potential for the development of biomass power plants. Part of district heating companies in the country are fired with biomass. The use of biomass resulted in creation of the biomass supply infrastructure. Currently, a number of district heating companies convert their boiler houses into cogeneration plants.

It is forecasted that by the year 2010 the aggregated capacity of newly constructed biomass power plants will amount to 56 MW.

Solar and geothermal power plants

No power plants operating on solar energy or geothermal energy have been constructed in Lithuania so far. However, generation in power plants of this type is promoted (see Section 5 for more detail) therefore it is expected that such plants will appear and that by 2010 their aggregated capacity will be 2 MW.

3. National indicators

Pursuant to the requirements of Directive 2001/77/EC and Accession Treaty, Lithuania has committed to double the amount of electricity generated from renewable energy sources in the balance of consumed electricity from 3.3% in 1999 to 7% in 2010 (Treaty of Accession: Annex II, Official Journal of the European Union L 236 Volume 46, 23 September 2003, available at: http://europa.eu.int/eur-lex/en/archive/2003/l_23620030923en.html).

The Procedure for Promotion of Generation and Purchase of Electricity Generated Using Renewable and Waste Energy Sources approved by Order No 1474 of Government of the Republic of Lithuania of 5 December 2001 (*Valsybės žinios*, 2001, No 104-3713; 2004, No 9-228) laid down forecasts of electricity generation from renewable energy sources.

Table 2. Planned electricity generation from renewable energy sources, %

	2004	2005	2006	2007	2008	2009
The share of electricity generated from renewable and waste energy sources in comparison to the total amount of consumed electricity in Lithuania, in percentage	3.8	4.0	4.9	5.9	6.9	7.7

4. Measures aimed at attainment of the national indicator

The legislation on the electricity sector consistently promotes the use of renewable energy sources.

The Law on Electricity (*Valsybės žinios*, 2000, No 66-1984; 2004, No 107-3964) provides for encouragement by the State of producers to generate electricity using renewable energy sources by setting forth public service obligations (Art. 9). In addition, it sets forth that the National Price and Energy Regulation Commission must control that connection conditions and feed-in tariffs for new electricity generators are objective, transparent and non-discriminating taking into account all costs and the benefit derived from the application of various RES technologies.

For the purpose of implementation of the provisions of the Law on Electricity, the Government of the Republic of Lithuania has approved a list of public service obligations in the electricity sector (*Valsybės žinios*, 2001, No 104-3713). This list includes the obligation for public and independent electricity suppliers and eligible customers which import electricity to purchase and sell electricity generated from renewable energy sources.

The Regulations for Public Service Obligations approved by Order No 380 of the Minister of Economy of the Republic of Lithuania of 18 December 2001 (*Valsybės žinios*, 2001, No 110-4010) (hereinafter - the Regulations) set forth general rules for provision of services related to generation of electricity from renewable energy sources and regulate requirements and obligations for holders of supply licenses, as well as market, transmission and distribution network operators and eligible customers to provide such services.

The Promotion Procedure has laid down measures for encouragement of producers of electricity which generate electricity from renewable energy sources.

The next sections provide an overview of the measures aimed at promotion of generation of electricity using renewable energy sources set forth in the Regulations and in the Promotion Procedure.

4.1. Purchasing obligation

Pursuant to the Regulations, holders of the supply licence and public supply licence are obliged to purchase all electricity generated using renewable energy sources from its producers at the established prices and sell it to their customers. This requirement is also applied to eligible customers which import electricity.

4.2. Transportation priority

The Regulations provide for the obligation for the supply network operator to ensure priority transportation of electricity generated from renewable energy sources via electricity transmission networks in the situations when the grid has limited conductivity. However, the networks are sufficiently developed and have sufficient conductivity. No obstacles are expected for transportation of electricity via power transmission network.

4.3. Feed-in tariffs

As from 2001, feed-in tariffs have been applied for the purchasing of electricity generated using renewable energy sources. The Promotion Procedure sets forth that these tariffs will be maintained until 31 December 2020.

Table 3. Feed-in tariffs for electricity generated from RES

	Tariff, LTL cents/kWh	Tariff*, EURO cents/kWh
Hydro power plants**	20	5.79
Wind power plants	22	6.37
Biomass power plants	20	5.79

* 1 LTL = 3.4528 EUR

** Only for hydro power plants with the capacity of less than 10 MW

4.4. Discount on the fee of connection of power plants to the network

Generators whose power plants are using renewable energy sources for electricity generation are subject to a 40% discount for the connection to the network of operating energy plants.

4.5. Origin guarantees

The Regulations on Provision of Origin Guarantees for Electricity Generated Using Renewable Energy Sources approved by Order No 4-346 of the Minister of Economy of the Republic of Lithuania (*Valstybės žinios*, 2005, No 122-4375) (hereinafter – the Regulations).

These Regulations set forth general criteria, conditions, requirements and the procedure for the provision of origin guarantees for electricity generated using renewable energy sources.

Pursuant to the Regulations, the responsibility for the provision of origin guarantees for electricity generated from renewable energy sources (hereinafter – origin guarantees) shall lie with the transmission system operator (hereinafter – origin guarantee issuer). The origin guarantee issuer shall by 31 December 2005 introduce an origin guarantee database for registration, accumulation, storage and handling of data on origin guarantees.

Generators using renewables for electricity generation shall prepare applications for registration in the database and submit these applications to the origin guarantee issuer by 31 December 2005. New generators shall apply to the origin guarantee issuer for registration in the database at least 40 calendar days before the beginning of the generation of electricity from renewable energy sources.

Origin guarantees shall be issued to the generator registered in the origin guarantee database. If electricity is purchased in accordance with the Promotion Procedure, the origin guarantees issued to the generator in question shall be marked as used, and if the Promotion Procedure is not applied, the origin guarantees issued to the generator shall be transferred to the supplier which purchased the electricity on the basis of bilateral agreements.

The origin guarantee shall be issued in the quantity equal to the volume of electricity supplied to the network which was generated using renewable energy sources (kWh) and in the quantity equal to the volume of electricity generated from renewables and consumed for the needs of the generator during the last month (kWh) when this amount is recorded with electricity recording instruments meeting the requirements of the legislation of the Republic of Lithuania.

The volume of electricity generated using renewable energy sources is the total output of electricity generated in power plants that use only renewable energy sources as well as part of electricity generated from renewables in mixed power plants that use both renewable and non-renewable energy sources. The share of electricity generated from renewables in these power plants is determined by deducting the amount generated from non-renewables from the total generated output. The share of electricity generated using non-renewable energy sources is determined on the basis of the consumed fuel balance and the normative consumption of conventional fuel for generation of 1 kWh of electricity established by the Minister of Economy of the Republic of Lithuania.

The generator shall at least 7 days after the end of the month shall provide information to the origin guarantee issuer on the amount of electricity (kWh) generated from renewables during the previous month when this amount is measured with electricity recording instruments meeting the requirements of the relevant legislation of the Republic of Lithuania, the amount of electricity generated from renewables and supplied to the network during the previous month (kWh), the amount of electricity marketed with origin guarantees which were not used (kWh), and the purchaser. Generators whose facilities are connected to the distribution network provide this information to the distribution network operators of their relevant regions and the distribution network operator forwards this information to the origin guarantee issuer.

On the basis of the said information, origin guarantees are issued within 8 days from the end of the month. Information on the issued origin guarantees is registered in the database.

At the request of the generator or supplier, the origin guarantee issuer issues a certificate of the electricity origin. Certificates may be issued only to the generator or supplier which own origin guarantees that were not used.

Origin guarantees are deemed used if:

1. Generation of electricity which was issued origin guarantees was promoted pursuant to the procedure set forth by the Government of the Republic of Lithuania or an institution authorised thereby;
2. An origin certificate was issued to the electricity which was issued origin guarantees.

Origin guarantees are used for the purpose of:

1. Determining volumes of electricity generation from renewable energy sources;

2. Determining volumes of electricity generated from renewable energy sources which is promoted pursuant to the procedure set forth by the Government of the Republic of Lithuania or an institution authorised thereby;
3. Proving the origin of electricity used by the end-user to that end-user;
4. Helping generators of electricity generated from renewables in showing that the electricity marketed by these generators is produced from renewable energy sources.

The origin guarantee issuer will provide general information on issued origin guarantees on its website and submit annual reports the Ministry of Economy.

For the purpose of ensuring reliability of the origin guarantee system, the following steps have been taken:

- The transmission system operator was appointed the institution to administer origin guarantees. The transmission system operator also controls the fulfilment of the public service obligation. Such arrangement ensures that origin guarantees of the generator whose electricity was purchased in accordance with the Promotion Procedure will be marked as used.
- An origin guarantee database will be introduced for administration of the origin guarantee system. The electronic database will facilitate registration of the used origin guarantees, i.e. the electricity which was purchased in accordance with the Promotion Procedure and the electricity for which a printed origin certificate was issued.
- It has been provided for that the information submitted by generators shall be checked by the State Energy Inspectorate under the Ministry of Economy of the Republic of Lithuania. The information shall be checked during scheduled inspections or at the request of the institution which administers origin guarantees.

4.6. System of green certificates

The Promotion Procedure sets forth that fixed feed-in tariffs will be applied until 31 December 2020. As from the year 2021, generation of electricity from renewable energy sources will be promoted by introduction of the green certificate system

4.7. Exemption from the pollution charge

For the purpose of promotion of electricity generation in biofuel power plants, an amendment of the Law on Environmental Pollution Charge was made (*Valstybės žinios*, 1999, No 47-1469; 2002, No 13-474) pursuant to which, as from April 2005, physical and legal persons, upon presentation of documents proving consumption of biofuel, shall be exempted from the payment of the pollution charge for emission of air pollutants which emerge during combustion of biofuel.

4.8. Financial support to investment

EU Structural Funds

EU Structural Funds provide support for investments into construction of power plants which generate electricity using renewable energy sources. Such activity corresponds to the activities listed under Measure 2 *Ensuring of Energy Stability, Accessibility and Increased Efficiency* of Priority 2 of the Single Programming Document of Lithuania for 2004-2006: *Boilers Upgrade*

and Fuel Conversion and Use of Local and Renewable Energy Sources for Electricity Generation.

Lithuanian Environmental Investment Fund

The public institution Lithuanian Environmental Investment Fund (hereinafter – LEIF) was founded in 1996. The founder of the LEIF is the Ministry of Environment of the Republic of Lithuania. The main fund source of the LEIF is 20%(from 1 January 2003 – 30%) of the pollution charge paid to the LEIF since the year 2000.

The LEIF provides soft loans for the financing of environmental projects the implementation of which reduces the negative impact of economic activities on the environment, and subsidies for the financing of renewable energy projects. The maximum amount of the loan extended by the LEIF is 1.5 mill for one project. The maximum payback period is 5 years. The amount of the subsidy for one beneficiary may not exceed 350,000 LTL in 3 years and 70% of the total investment amount.

During the period 2000-2005, the LEIF has financed 7 projects which provide for generation of electricity from renewables. 5 of these were hydro power plants construction projects (the aggregate installed capacity 974 kW), one wind power plant construction project (150 kW) and one biomass power plant project (750 kW). The total project value is 8.5 mill LTL (ca. 2.5 mill LTL), which included financial support by the LEIF in the amount of 1.71 mill LTL (ca. 0.5 mill EUR).

It is expected that the support from the LEIF funds to renewable projects will be continued in future.

Renewable energy projects can also receive indirect support from the Small and Medium-size Business Development Programme, Special Rural Development Programme, Rural Credit Guarantee Fund.

5. Success in attainment of the national indicators

Table 4 below provides factual amounts of electricity consumption and generation from renewable energy sources during 2000–2004.

Table 4. Electricity generation from RES

GWh	2000	2001	2002	2003	2004
Wind power*	0	0	0	0	1.2
Hydropower, in total*	339.3	325.5	352.9	325.1	420.5
Kaunas Hydro Power Plant**	312.8	284.4	316.5	283.9	359.0
Small hydro power plants (up to 10 MW)**	26.6	41.1	36.4	41.2	61.5
Biomass**	0.8	1.2	4.6	7.5	7.4
In total	340.1	326.7	357.5	332.6	429.1

Electricity consumption, excl. Kruonis HPS Plant*	9784	10398	10807	11298	11557
Share of electricity generated from RES in comparison with the total consumption in the country, excl. Kruonis HPS Power Plant	3.5%	3.1%	3.3%	2.9%	3.7%
Share of electricity generated from RES in comparison with the total consumption in the country in 2000, excl. Kruonis HPS Power Plant***	3.5%	3.3%	3.7%	3.4%	4.4%

* Data of the Department of Statistics under the Government of the Republic of Lithuania

** Data of the Lithuanian Energy Institute

*** Based on the methodology set forth in Directive 2001/77/EC

Electricity consumption is calculated by deducting electricity export from the total output of electricity generated in the country and adding electricity import. Electricity in the hydro pump storage power plant (hereinafter – HPSPP) is generated from electricity generated in other power plants. Therefore it would not be correct to calculate the output of the HPSPP as separate generation as the same electricity would be aggregated twice. Consequently, calculation of the total electricity consumption in the country is made by deducting the generation in Kruonis HPS Power Plant.

5.1. Potential obstacles

Increased wood fuel price

Wood demand in Lithuania has been increasing during the last years resulting in the increase of its price. The increasing wood fuel price had an impact on the return on investment into biomass power plants and this might slow down development of such power plants.

Figure 2 below shows fluctuation of prices of wood, heavy fuel oil and natural gas in Lithuanian district heating plants from 1996 to 2004. 1 toe is ca. 5 solid cubic meters of wood fuel.

One can see that the wood fuel price continues to be much lower than the natural gas price, however, the difference between the prices of natural gas and wood fuel during the last three years went diminished twice, i.e. went down from 104 LTL/toe in 2001 to 53 LTL/toe in 2004.

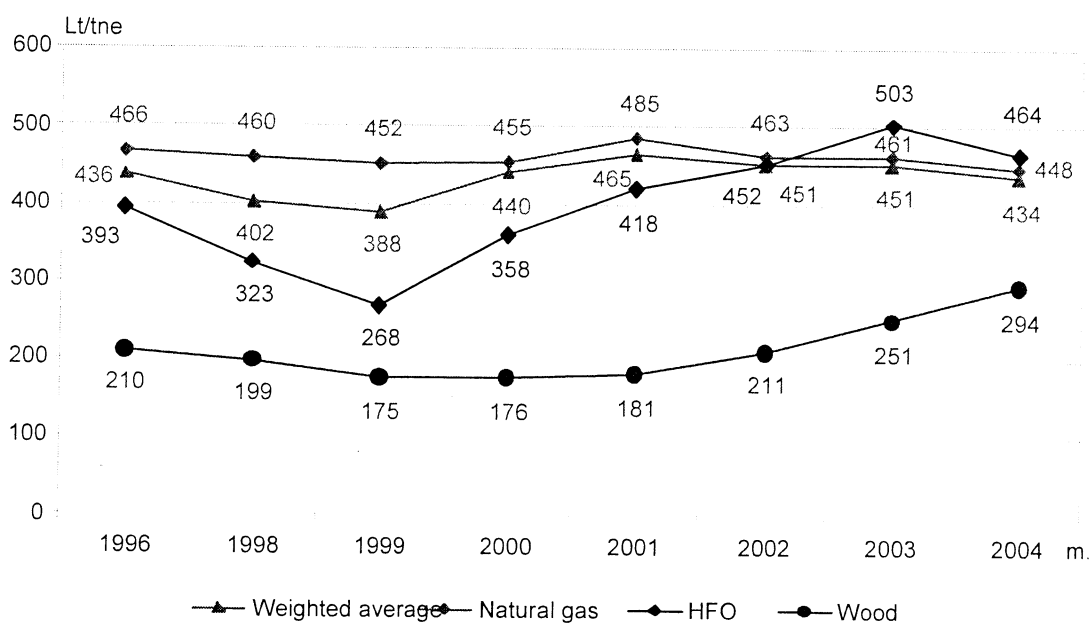


Figure 2. Fluctuation of fuel prices in district heating companies

Data of the State Prices and Energy Regulated Commission

6. Commitments in accordance with the Kyoto Protocol

The Seimas of the Republic of Lithuania ratified the Kyoto Protocol of the UN Framework Convention on Climate Change on 19 November 2002. The Kyoto Protocol sets forth that during the period 2008-2012 Lithuania will reduce greenhouse emissions by 8% as compared to the emission level in 1990.

Pursuant to the data given in the second Report of the Republic of Lithuania on Climate Change prepared by the Ministry of Environment of the Republic of Lithuania (<http://unfccc.int/resource/docs/natc/litnc2.pdf>), the amount of greenhouse gas emission in Lithuania in 1990 totalled to 54.35 Mt of CO₂e. Thus in the Kyoto Protocol Lithuania committed to reduce greenhouse gas emissions during the period 2008-2012 to 50.03 Mt CO₂e. According to the data given in the second Report of the Republic of Lithuania on Climate Change, the amount of greenhouse gas emission in Lithuania in 1998 amounted to 23.85 Mt of CO₂e. The said report shows that by 2010 Lithuania will not be able to reach the level of 1990 (taking into account the closure of Ignalina Nuclear Power Plant, growth of energy consumption and other factors).

For the purpose of promotion of electricity generation from renewable energy sources in Lithuania, the joint implementation (hereinafter – JI) mechanism of the Kyoto Protocol may be employed. Following the eligibility criteria set forth in the Strategic Directions for the Implementation of the Joint Implementation Mechanism for the Implementation of the UN FCCC Kyoto Protocol (*Valstybės žinios*, 2004, No 86-3146), introduction of technologies that use renewable energy sources for electricity generation and conversion to renewable or less polluting fuel in the electricity sector are eligible projects under the JI mechanism.

Among other energy efficiency measures, Project Design Documents under the Joint Implementation Mechanism are planned to be developed for projects which provide for conversion to biofuel in cogeneration plants, as well as analyses possibilities to develop JI projects on collection of biogas in old landfills and use of it for electricity generation and on construction of wind power plants. The number of JI projects in Lithuania is not large due to high costs of preparation of JI project documentation, which requires major savings in greenhouse gas emissions upon the implementation of the project in question in order to cover these costs. However, large energy objects (power plants with the capacity of more than 20 MW) participate in the EU scheme for greenhouse gas emission allowance trading.

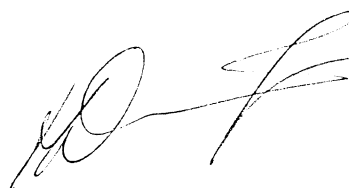
EU provisions on waste management which are currently under implementation will have an impact on greenhouse gas emissions and electricity generation from renewable energy sources. The National Strategic Waste Management Plan (*Valstybės žinios*, 2002, No 40-1499) provides for gradual prohibition of landfilling of biodegradable waste. Measures are needed for collection and recycling of biodegradable waste, including gas extraction in special industrial equipment and combustion of non-separated municipal waste for energy generation.

Aiming at reduction of the impact of the energy sector on climate change, the importance of the use of renewable energy sources for energy generation is emphasized in all major documents which lay down strategic directions. For example, the National Long-Term Strategy (*Valstybės žinios*, 2002, No 113-5029) reasserts the use of renewable energy sources and reduction of the impact on climate change as long-term environmental protection directions. The National Sustainable Development Strategy (*Valstybės žinios*, 2003, No 89-4029) defines climate change and reduction of its consequences as sustainable development priorities of Lithuania.

7. EU emission trading scheme

As from 2005, large energy generation plants of Lithuania (with the aggregated installed capacity exceeding 20 MW) take part in the EU emission trading scheme (when implementing the requirements of Directive of the European Parliament of the Council 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community and Amending Council Directive 96/61/EEC). Both new and the existing companies which are going to invest into biofuel consumption will save tradable emission permits and will be able to sell them on the tradable emission permit market, thus renewable energy projects are becoming more financially attractive.

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