REPORT OF THE REPUBLIC OF LITHUANIA ON THE IMPLEMENTATION OF THE REQUIREMENTS OF ARTICLE 3 AND ARTICLE 5 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. Introduction

In implementing the requirements set out in Article 3 and Article 5 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 (hereinafter – Directive 2001/77/EC) the Republic of Lithuania has prepared and hereby submits the European Commission a report on production of electricity from renewable energy sources and its production forecasts as well as measures promoting the production of electricity from renewable energy sources and the system of guarantees of origin in this country.

Pursuant to Article 3 (2) (3) and Article 5 (5) of Directive 2001/77/EC Member States shall:

1. Not later than by 27 October 2002 and every five years thereafter adopt and publish a report setting national indicative targets for future consumption of electricity produced from renewable energy sources in terms of a percentage of electricity consumption for the next 10 years. The report shall also outline the measures taken or planned, at the national level, to achieve these national indicative targets.
2. Publish for the first time not later than by 27 October 2003 and thereafter every two years, a report which includes an analysis of success in meeting the national indicative targets taking account, in particular, of climatic factors likely to affect the achievement of those targets and which indicates to what extent the measures taken are consistent with the national climate change commitment
3. Member States or competent bodies shall put in place appropriate mechanisms to ensure that guarantees of origin are both accurate and reliable and they shall outline in the report referred to in Article 3 (3) the measures taken to ensure the reliability of the guarantee system.

2. National indicative targets

2.1. *By 2010*

Under the requirements of Directive 2001/77/EC and the Accession Treaty Lithuania has committed to double the amount of electricity generated from renewable energy sources in the overall electricity consumption balance from 3,3% in 1999 to 7% in 2010.

Procedure on Promotion of Generation and Purchase of Electricity Generated Using Renewable Energy Sources approved by Resolution No 1474 of the Government of the Republic of Lithuania of 5 December 2001 (*Valstybės žinios*[1], No 104-3713, 2001; No 9-228, 2004) (hereinafter – the Promotion Procedure) sets quantities of predicted generation of electricity from renewable energy sources (see Table 1).

Table 1. Predicted generation of electricity from renewable energy sources.

	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Predicted gross consumption of electricity, in GWh	11 556	11 666	11 818	12 166	12 506	12 896
Predicted production quantity of electricity from renewable energy sources, in GWh	433,9	463,9	577,8	714,9	862,6	995,1
A share of electricity from renewable energy sources compared to national gross electricity consumption, in %	3,8	4,0	4,9	5,9	6,9	7,7

2.2. *By 2017*

In 2007 the Seimas of the Republic of Lithuania approved the revised National Energy Strategy, which is the main strategic document of the energy sector setting sector development directions by 2025. The National Energy Strategy was approved by Resolution No X-1046 of the Seimas of the Republic of Lithuania of 18 January 2007 (*Valstybės žinios*, No 11-430, 2007). The Strategy sets that the share of renewable energy sources in the total electricity generation balance should increase to 10%.

The National Energy Strategy provides for annual average increase in electricity demand in branches of economy by 3,7% during the period until 2025. According to the scenario at the end of the period the electricity consumption will double as compared to the consumption in 2004.

[1] Official Gazette.

Fig.1 shows dynamics of total gross production of electricity, inland gross consumption of electricity and renewable electricity production in the period from 2000 to 2017. The National Energy Strategy includes plans related to the start of operation of a new nuclear power plant what will result in major rise of electricity generation output in 2016.

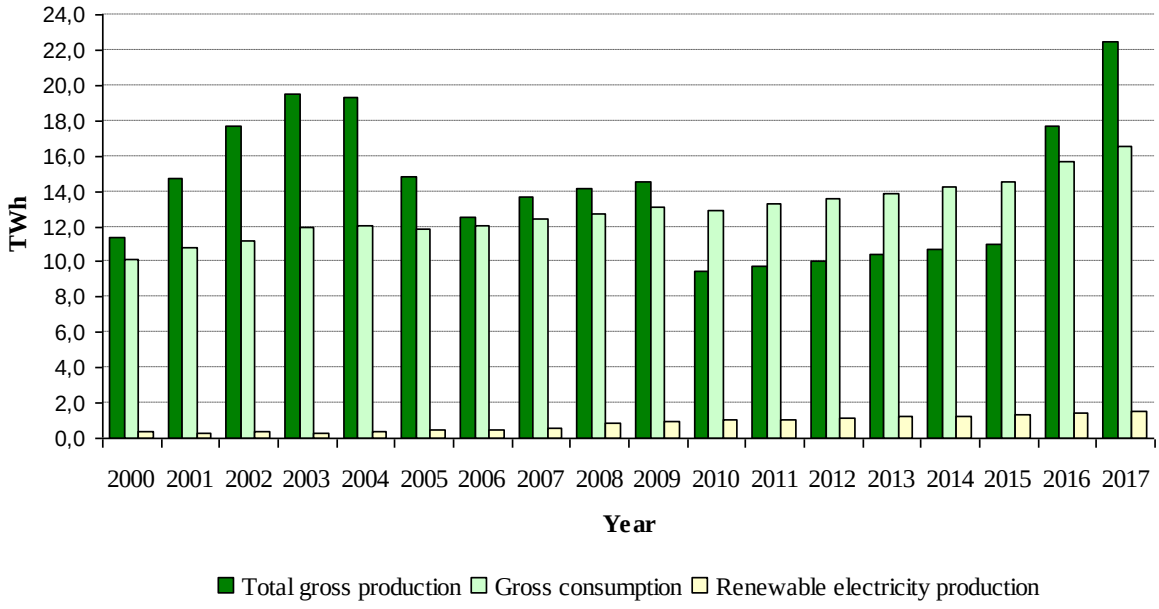

Fig. 1. Total gross electricity production, gross internal electricity consumption and renewable electricity production in the period from 2000 to 2017.

It is predicted that in 2017 renewable electricity will provide 1,5 TWh or 9% from the gross electricity consumption. For a comparison it is estimated that by 2010 renewable electricity will provide 1 TWh. Thus, renewable electricity generation would grow about 50%.

Fig. 2 shows dynamics of renewable electricity generation output by type of renewable energy source in the period from 2000 to 2017. The graph shows that the increase is predicted in the use of windpower and biomass for electricity production. Electricity from windpower is expected to rise about 54 times as compared to the output in 2006, and electricity generation output from biomass will increase nine fold. Electricity generation using hydropower shall rise about 26%, as compared to the output in 2006.

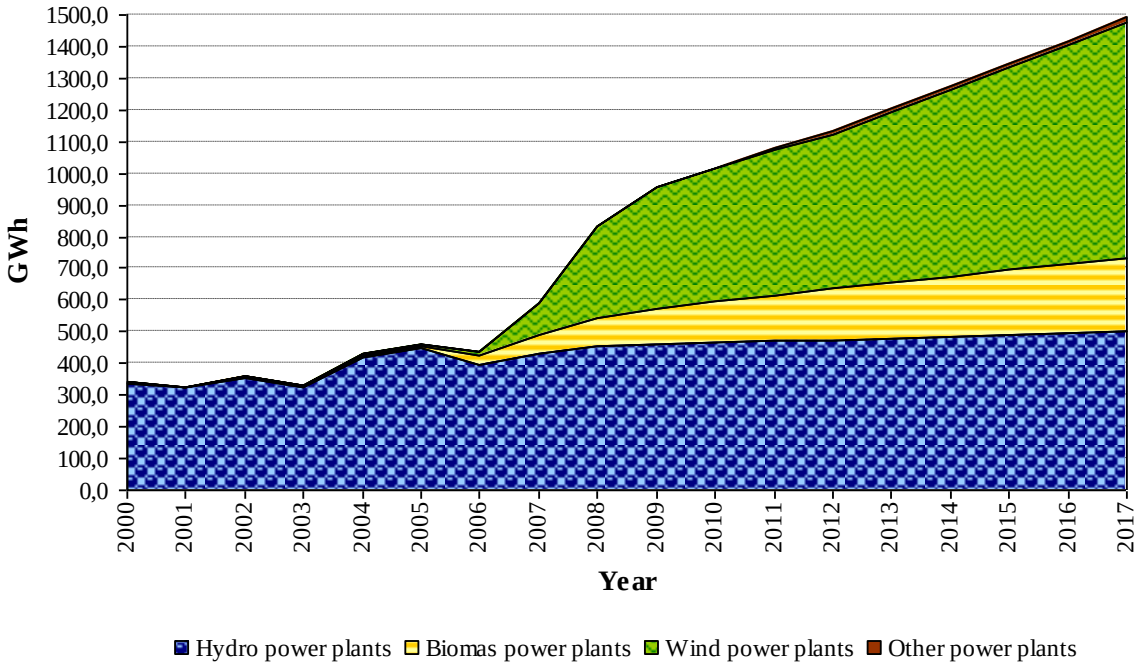

Fig. 2. Dynamics of renewable electricity by type of renewable energy source in the period from 2000 to 2017.

3. Measures taken to achieve the national indicative target

Electricity sector legislation consistently promotes the use of renewable enrgy sources.

Article 9 of the Law on Electricity (*Valstybės žinios*, No 66-1984, 2000; No. 107-3964, 2004) provides for the promotion by the State of producers to generate electricity from renewable energy sources by setting forth public service obligations.

In addition, the Law on Electricity sets forth that the National Price and Energy Regulation Commission must control that network connection conditions and tarrifs for new electricity producers are objective, transparent and non-discriminating taking into account all costs and benefit derived from the application of different renewable energy sources technologies.

Provisions of Resolution No 1474 on the approval of legislation necessary to implement the Law on Electricity of the Government of the Republic of Lithuania (*Valstybės žinios*, No 104-3713, 2001) of 5 December 2001 set that public and independent suppliers, market, transmission and distribution network operators holding activity licences and eligible customers importing electricity, shall provide services according to the list of public services obligation in the electricity sector.

Regulations for Public Services Obligations approved by Order No 380 of the Minister of Economy of 18 December 2001 (*Valstybės žinios*, No 110-4010 2001) (hereinafter – the Regulations) set forth general rules for provision of services related to renewable electricity production and regulate reuqirements and obligations for holders of supply licences, as well as market, transmission and distribution network operators and eligible customers to provide such services.

The Promotion procedure lays down measures for encouragement of renewable electricity porducers.

An overview of individual measures aimed at promoting renewables electricity production is given below.

3.1. *Purchase obligation and transportation priority*

The Government of the Republic of Lithuania by Resolution No 1462 on granting authorisation in implementing the Law on Electricity of the Republic of Lithuania (*Valstybės žinios*, No 170-6250, 2004) delegated the Ministry of Economy to list services related to public services obligation, service providers and procedures and conditions for provision of

the said services. The Minister of Economy by Order No 4-495 of 27 December 2006 on drawing up a list of public services in the electricity sector (*Valstybės žinios*, No 1-27, 2007) established electricity sector services related to public services obligation. Electricity production from renewable energy sources are among the listed services and include the following:

- Electricity production:

– From renewable energy sources;

– In combined heat and power plants when the plants provide heat to urban district heating networks;

- Connection of electricity generation facilities using windenergy, biomass, solar energy or hydroenergy to transmission or distribution networks.

Pursuant to the Regulations holders of the electricity supply licence are obliged to purchase renewable electricity and sell it to their customers. The transmission network operator shall ensure transportation priority for the renewable electricity when the network throughput is limited.

On 1 January 2008 new edition of the Regulations (*Valstybės žinios*, No 140-5374, 2006) will come into force. The Regulations have been developed pursuant to the provisions of both Directive 2003/54/EC of the European Parliament and of the Council concerning common rules for the internal market in electricity repealing Directive 96/92/EC (OJ, *2004, Special issue*, section 12, Volume 2, p. 211) and Law on Energy of the Republic of Lithuania (*Valstybės žinios*, No 56-2224, 2002). The Regulations set common rules for the provision of services related to public security, environment protection and renewable electricity production, electricity production in combined heat and power plants and regulate requirements as well as obligations of electricity suply licence holders, market, transmission and distribution network operators to provide the said services. The Regulations also indicate that funds for public services provided by producers of renewable electricity are determined with regard to the volume of the subsidized electricity. The volume of the subsidized electricity production is considered whole amount of renewable electricity actually produced and provided to the grid. The transmission network operator and distribution network operator shall ensure transportation priority for renewable electricity through transmission or distribution grid (when grid throughput is limited).

3.2. *Feed-in tariffs*

Feed-in tarrifs for renewable electricity were established in 2001. The table below shows the tariffs that were approved by Resolution No 7 of State Price and Energy Control Commission of 11 February 2002 (*Valstybės žinios*, No 16-648, 2002)

Table 2. Feed-in tarrifs for renewable electricity.

	Tariff, in LTL cents/kWh	Tariff, in Euro cents*/kWh
Hydropower plants**	20	5,79
Windpower plants	22	6,37
Biomass power plants	20	5,79

*1 LTL – 3,4528 EUR
**Only for hydropower plants of the capacity less than 10 MW

The tariffs are approximately three times higher than the average calculated sale price for electricity produced by Ignalina Nuclear Power Plant.

The Promotion Procedures provide for that the level of the prices will remain unchanged till 31 December 2020.

With regard to the level of inflation in the country and growing prices for biofuel the feed-in tariffs for electricity from biofuel shall increase from 1 January 2008. (See Section 4.4).

3.3. *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.

3.4. *Environment pollution tax reduction*

According to the Law on Pollution Tax (*Valstybės žinios*, No 47-1469, 1999; No 13-474, 2002), legal and natural persons, upon providing documents that prove the use of biofuel are exempted from the tax imposed for environment pollution from stationary sources of pollution.

3.5. *Financial supprot for investments*

Financial support for investments is among the most important measures promoting the use of renevable energy sources. This section contains information on domestic programmes and funds providing financial support for construction of power plants using renewable energy sources.

3.5.1. *Lithuanian Environmental Investment Fund*

In 1996 Public Company "Lithuanian Environmental Investment Fund" (hereinafter - LEIF) was established by the Ministry of Environment of the Republic of Lithuania. The main fund source of the LEIF is environment polution tax. On the basis of the Law on Pollution Tax, 20% of the total sum of the collected charges went to LEIF from 2000 and from 1 January 2003 the contribution is 30%.

LEIF provides soft loans for financing environmental projects the implementation of which is expected to reduce the adverse impact of economic activites on the environment as well as subsidies for financing renewable energy projects. The maximum amount of the loan extended by LEIF is 1.5 mio LTL for one project. The maximum payback period is 5 years. The amount of the subsidy for one beneficiary may not exceed 350,000 LTL (or 101367 EUR) in 3 years and 70% of the total investment amount.

In the period from 2000 to 2005 LEIF provided funds for 7 projects related to electricity production from renewable energy sources. Five of the projects are related to construction of hydropower plants (of aggregated installed capacity of 974 kW), one project – windpower plant construction (of 150 kW capacity) and one project of the construction of an electricity generation plant using biomass (of 750 kW capacity). The overall value of the projects amounted to 8,5 mio LTL (about 2,5 mio EUR), including LEIF support of 1,71 mio LTL (about 0,5 mio EUR).

In the period from 2006 to 2007 LEIF provided assistance for 4 projects, including, among others, 3 projects of a hydropower plant construction (of total installed capacity of 260 kW) and one project of construction of a windpower plant of 2 MW capacity. Total value of the projects is 13,8 mio LTL (about 4,0 mio EUR), where support is 10,0 mio LTL (about 2,9 mio EUR).

3.5.2. *EU Structural Funds*

In the period from 2004 to 2006 EU Structural Funds provided financial assistance for the construction and refurbishment of power plants using renewable energy sources. The

assistance for upgrading of Kaunas Hydropower Plant has been allocated in the amount of 30 mio LTL (about 8,7 mio EUR) and for the construction of a biofuel CHP plant – in the amount of 5,6 mio LTL (about 1,6 mio EUR).

4. Measures to be taken to attain the national indicative target

In order to achieve the national indicative target new measures have been planned to those already being implemented.

4.1. *System of Green certificates*

The National Energy Strategy provides for the improvement of the procedures for promotion and purchase of electricity from renewable energy sources to encourage competition among the producers and to introduce the system of green certificates or other systems beyond 2020.

4.2. *Development of hydroenergy use*

In order to use the energy generation potential of domestic rivers it is envisaged to examine possibilities of construction of hydropower plants complying with the environmental requirements while exploiting the potential of Neris river (second biggest river in Lithuania) and its watershed.

4.3. *Windpower use programme*

Further development of windpower use will require the development of a new long-term programme for windpower use.

4.4. *Revision of feed-in tariffs*

Growing fuel prices and rising level of inflation will result in revision of feed-in tarrifs for electricity from renewable energy sources.

On 1 January 2008 the feed-in tarrifs for electricity from renewable energy sources will level up. Pursuant to Resolution No O3-63 of the State Price and Energy Control Commission of 13 September 2007 (*Valstybės žinios*, No 73-1041, 2007), the plants started up before 1 January 2008 and using biofuel for electricity generation will be applied a feed-in tariff of 22 LTL cents/kWh (6,37 Euro cents/kWh), and the plants started up after 1 January 2008 and using the same fuel will be applied a feed-in tariff of 24 LTL cents/kWh (6,95 Euro

cents/kWh). By 1 January 2008 the purchase price for the electricity is 20 LTL cents/kWh (5,79 Euro cents/kWh).

4.5. *Financial assistance*

In the period from 2007 to 2013 the assistance in the amount of 127 mio LTL (about 36,8 mio EUR) is to be allocated for the construction of new boiler houses and CHP plants from EU Structural Funds. Additional funds will be allocated for the upgrading of existing facilities and construction of municipal waste incineration plants.

In order to encourage the farmers to install windpower plants the Ministry of Agriculture in its Rural Development Programme for 2007–2013 provided for the promotion of the farmers in the programme implementation measure "Agricultural holding modernisation". It is projected to promote the construction of windpower plants of the capacity not exceeding 250 kW, if the electricity will be used for agricultural production and/or its processing and preparation for sale.

According to the said measure the coverage of appropriate costs will not exceed 40% (for young farmers who meet the prescribed requirements, the coverage will not exceed 50%), and the total sum provided for one project will not exceed 400 thousand EUR.

5. Progress in attainment of the national indicative target

5.1. *Energy sector structure*

The installed capacity of the existing power plants in Lithuania provide 5000 MW where termal power plants account for 53% and nuclear – for 26%. Hydropower plants, including the pumped storage hydropower plant contribute 20% of all domestic installed capacity. Windpower plants account for 1% of the installed capacity.

The major share of the installed capacity consisted of the following plants: Ignalina Nuclear Power Plant provided 1300 MW, Lithuanian Power Plant – (1800 MW) and CHP plants – 734 MW. There is Kruonis Pumped Storage Hydropower Plant (Kruonis PSHP) of 900 MW installed capacity operated in Lithuania.

Ignalina Nuclear Power Plant provides up to 70% of total power output. In 2009 it is scheduled to shut down the plant what whould have a major effect on the energy sector of Lithuania. Closure of Ignalina Nuclear Power Plant would result in reduction of electricity export and increase in electricity production by plants using fossil fuel. However, the National Energy Strategy, among other national energy development objectives, includes the objective not later than in 2015 to start operation of a new regional nuclear power plant to meet the demand of the Baltic States and the region.

According to data provided by Statistics Department under the Government of the Republic of Lithuania electricity output in 2006 accounted for 12,5 TWh.

In 2006 the export of electricity accounted for 2,1 TWh what provided 17% of total domestic electricity output.

In 2006 overall electricity consumption (total production minus export plus import) in Lithuania accounted for 12,1 TWh.

5.2. *Installed capacities of renewable energy sources and their predicted development*

In late 2006 there were 95 domestic producers of electricity from renewable energy sources. Total installed capacity of power plants using renewable energy sources provided 190 MW. Electricity is generated from hydropower, windpower and biofuel (wood and wood waste, biogas).

5.2.1. *Hydropower plants*

In late 2006 there was only one operated domestic hydropower plant of more than 10 MW capacity – Kaunas Hydropower Plant the installed capacity of which was 100,8 MW. There were 80 hydropower plants of less than 10 MW capacity operated the total installed capacity of which was 24,5 MW.

It is expected that in 2010 the total installed capacity of hydropower plants of less than 10 MW capacity will reach 31 MW.

5.2.2. *Windpower plants*

In 2004 the installed capacity of the operated windpower plants accounted for 0,9 MW.

In late 2006 there were already 9 windpower farms the installed capacity of which was 49,3 MW.

By 2010 it is planned to install windpower plants the agregate capacity of which will be 200 MW.

5.2.3. *Biofuel plants*

In 2004 the overall installed capacity of domestic electricity generation plants using biogas accounted for 2,14 MW. There was operated one 1,5 MW capacity CHP plant using wood fuel.

In late 2006 there were operated 4 biogas plants of the overall installed capacity of 1,9 MW and 2 biomass (wood waste) power plants of overall installed capacity of 13,5 MW.

It is predicted that by 2010 the aggregate capacity of biofuel power plants will provide 56 MW.

5.3. *Electricity production from renewable energy resources*

Hydroenergy as a renewable energy source provides the most of electricity. Plants using hydropower provides 91% of all the electricity output (see fig. 3). Kaunas Hydropower Plant generation accounts for 79% of all renewable electricity production.

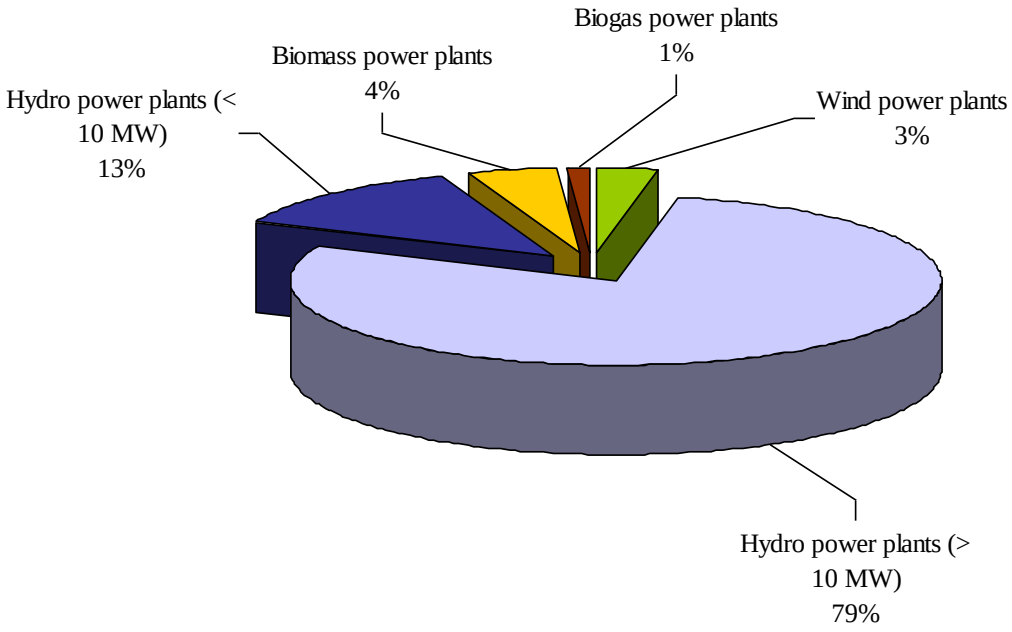

Fig. 3. Electricity generation by type of renewable energy sources in 2006.

The amount of electricity from biofuel in the market was modest till August of 2006 when a CHP plant of 12 MW capacity started up. During 2006 green electricity from biofuel supplied to the grid provided 5%.

The share of electricity generated using windpower is growing steadily: in January of 2006 electricity supplied to the grid accounted for 111 MWh and in December it already accounted for 8796 MWh.

Fig.4 shows dynamics of volumes of electricity production from renewable energy sources.

The overall volume of electricity generation output is mostly dependent on the generation volumes of hydropower plants. The electricity production increases in April when tidal waters are used. In summertime, when water level in rivers and ponds drops considerably, electricity porduction volumes are reduced or in certain cases completely terminated in order to comply with environment protection requirements. The seasonal variation is especially important for hydropower plants of the capacity exceeding 10 MW. Since September the volume of overall generation output increased considerably owing to connection of new generation capacities using biomass to the distribution grid.

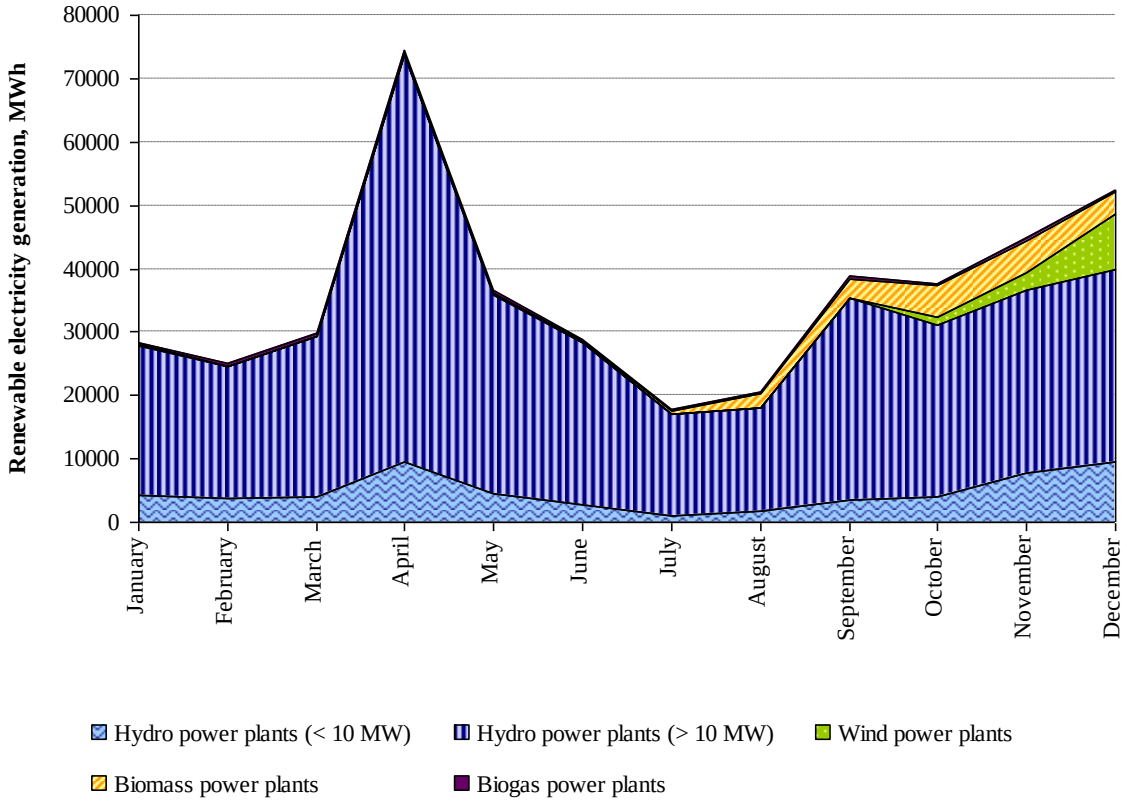

Fig. 4. Dynamics of quantities of renewable electricity generation in 2006.

5.4. *Analysis of the progress in attaining the national indicative target*

Table 3 below shows volumes of electricity generation from renewable energy sources in the period from 2000 to 2006 together with the calculated national indicative target.

The national indicative target is calculated using two methods. According to the first method the national indicative target is calculated by dividing the quantity of the produced electricity from renewable energy sources by overall electricity consumption.

The other method employs calculation where the quantity of electricity generated from renewable energy sources is divided by the amount of overall electricity consumption from which the quantity of hydro electricity is deducted. To produce electricity the pumped storage hydropower plant uses electricity generated by other power plants. Therefore, it would mean double counting if the quantity of generated electricity by the pumped storage hydropower plant is calculated.

Table 3 below shows that electricity production from renewable energy sources in 2006 rose by 22% and provided 434,8 GWh as compared to the production in 2000 providing 340,1 GWh. The major influence on the overall renewable electricity production output has the generation output in hydropower plants. Even though the installed capacity of hydropower

plants increases, the electricity production volume is mostly dependent on seasonal variations, as it has been mentioned in section 5.3.

Table 3. Electricity production from renewables in the period from 2000 to 2006.

Energy resource	GWh						
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Electricity generation from renewable energy sources							
Biomass**	0,8	1,2	4,6	7,5	7,4	5,5	24,0
Wind energy*	0	0	0	0	1,2	1,8	13,7
Hydroenergy*	339,3	325,5	353,2	325,1	420,5	450,7	397,1
*Hydropower plants > 10 MW**	*312,8*	*284,4*	*316,5*	*283,9*	*359,0*	*384,6*	*341,3*
*Hydropower plants < 10 MW**	*26,6*	*41,1*	*36,4*	*41,2*	*61,5*	*66,1*	*55,8*
Total:	**340,1**	**326,7**	**357,8**	**332,6**	**429,1**	**458,0**	**434,8**
Calculation of the national indicative target							
Gross electricity consumption (total gross production + import – export)*, GWh	10088,5	10772,6	11234,1	11958,3	12079,4	11818,1	12053,6
National indicative target, %	**3,4**	**3,0**	**3,2**	**2,8**	**3,6**	**3,9**	**3,6**
Electricity generation by Kruonis pumped storage hydropower plant*, GWh	303,9	375,0	427,3	660,1	522,4	369,1	405,0
Overall electricity consumption excluding Kruonis pumped storage hydropower plant, GWh	9784,6	10397,6	10806,8	11298,2	11557,0	11449,0	11648,6
National indicative target (electricity production by the pumped storage hydropower plant excluded)**, %**	**3,5**	**3,1**	**3,3**	**2,9**	**3,7**	**4,0**	**3,7**

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

** Period from 2000 to 2005: data of Lithuanian Energy Institute; 2006 : data of AB „Lietuvos energija“ (Authority granting guarantees of origin).

6. Guarantees of Origin

Rules on the issue of guarantees of origin for renewables electricity were approved by Order No 4-346 of Minister of Economy of 7 October 2005 (*Valstybės žinios*, No 122-4375, 2005) (further – Rules on issue of guarantees of origin).

Rules on issue of guarantees of origin set general criteria, conditions, requirements and procedures for issue of guarantees of origin for renewable electricity.

Under the Rules on issue of guarantees of origin an authority responsible for issue of the guarantees of origin (further – guarantees of origin) for renewable electricity shall be transmission system operator (further – authority issuing guarantees of origin). In implementing Order No 4-346 of Minister of Economy of 7 October 2005 on approval of Rules for issue guarantees of origin for renewable electricity (*Valstybės žinios*, No 122-4375, 2005), AB "Lietuvos energija" as a transmission system operator is responsible for issue of guarantees of origin and relevant database administration.

Producers of renewable electricity by 31 December 2005 should have submited a request to the authority issuing guarantees of origin to register in the database of guarantees of origin. New renewable electricity producers not later than 40 days before the start of renewable electricity production shall provide a request to the authority issuing guarantees of origin to registre in the database.

Guarantees of origin are issued to producers registered in the database of guarantees of origin. If electricity is purchased according to Promotion Porcedure, the guarantees of origin issued to the producer shall be marked as used, and if Promotion Porcedure is not applied, guarantees of origin issued to the producer shall be transferred to supplier that purchased the electricity on the basis of bilateral agreements.

A guarantee of origin shall be issued for the quantity in kWh, equal to the volume of renewable electricity supplied to the grid during the last month, and for the quantity in kWh, equal to the volume of renewable electricity generated during the last mont and used for the needs of the producer, when the quantity has been measured with electricity measuring devices complying with the requirements of the legislation of the Republic of Lithuania.

Quantity of renewable electricity is the total output electricity generated in power plants using only renewable energy sources as well as a part of electricity generated from renewables in mixed type power plants using also non-renewable energy sources. A share of renewable electricity in the power plants is determined by deducting the quantity generated using non-renewables from the total generated output. The above-mentioned calculations and

assessment shall be carried out following the procedures of Rules of issue of guarantees of origin.

A producer shall not later than seven days after the end of the month provide information to the authority issuing guarantees of origin (producers whose facilities are connected to the distribution networks provide the following information to the distribution networks operator of their relevant region) on each facility registered in the database of guarantees of origin about the following:

1. The quantity in kWh of renewable electricity generated during the last month, when the quantity is measured with metering devices complying with the requirements of both Law on Metrology (*Valstybės žinios*, No 74-1768, 1996; No 42-1188, 2000) and other legislation of the Republic of Lithuania while indicating the type of renewable energy sources;

2. The quantity in kWh of renewable electricity supplied during the last month, while indicating the type of renewable energy sources;

3. The quantity in kWh of electricity sold under the unused guarantees of origin and the purchaser.

Distribution networks operator shall, not later than within seven days after the end of the month, provide AB "Lietuvos energija" (authority issuing guarantees of origin) information by each producer separately on the following:

1. The quantities in kWh of renewable electricity supplied by the producers to the grid during the last month;

2. The quantities in kWh and price in LTL for the electricity purchased from the producers during the last month under the public services obligation.

The participant shall be liable for accuracy and reliability of the information provided.

Guarantees of origin shall be issued on the basis of the information within eight days after the end of the month.

Based on the request of a producer or supplier, Authority issuing guarantees of origin shall issue a certificate on the origin of the electricity. Certificates shall be issued only to such producer or supplier that has unused own guarantees of origin.

Guarantees of origin are deemed used when:

– The production of electricity for which guarantee of origin was issued, was promoted pursuant to the procedure set forth by the Government or a body authorised thereby;

– A certificate to prove the origin was issued for the electricity, which had been issued a guarantee of origin.

Guarantees of origin shall be used for the following:

1. To determine the amounts of renewable electricity production;

2. To determine volumes of renewable electricity production promoted according to the procedures prescribed by the Government or a body authorised thereby;

3. To give evidence to the end user related to the origin of the electricity consumed;

4. To assist renewable electricity producers in proving that the electricity they sell was produced from renewable energy sources.

Guarantees of origin issuing authority shall place general information on its Website about the gurantees of origin issued and provides annual reports to the Ministry of Economy of the Republic of Lithuania.

Actions taken to ensure reliability of the system of guarantees of origin:

1. Transmission system operator is appointed to be a body responsible for administration of guarantees of origin. The operator shall also be responsible for control of the implementation of public services obligation. Thus, the arrangements ensure the control related to guarantees of origin of renewable electricity that was purchased according to the Pormotion Procedure, marking as used.

2. A database of guarantees of origin to administer the system of guarantees of origin has been put in place. The database shall facilitate registration of guarantees of origin, i.e. electricity purchased according to the Promotion Procedure and electricity the origin of which was proved by issue of a printed certificate. The following information is registered, stored and retained at the Website of AB "Lietuvos energija" to the address http://www.lietuvosenergija.lt/lt/main/klm: a list of persons who have been issued guarantees of origin; data on the facilities owned by the participant; the produced renewable electricity, overall volume of electricity produced from renewables by type. The information shall be updated at least once a month. Participants-producers and/or suppliers registered in the database and given a code shall have a right to view their own data.

3. It is envisaged that the State Energy Inspectorate under the Ministry of Economy of the Republic of Lithuania shall verify the information submitted by the producers. The information shall be checked during scheduled audits or on the request of the authority issuing guarantees of origin.

7. Environment protection

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

Overall greenhouse emissions expressed in kilotonns of CO_2 equivalent (CO_2 emission removals and land use emissions and emissions related to the change of land use and forestry sector emissions excluded) from 1990 to 2005 fell about 53% (see Fig. 5) and emissions in the energy sector fell 61%.

The economic recession in 1990 caused sudden fall of greenhouse emissions. Sharp reduction of the emissions from 1990 to 2000 accounted for more than 60%. In the midst of 1990 the GDP in Lithuania started growing and the fall of emissions level slowed down. From 2000 to 2005 an average annual increase of emissions was 4%.

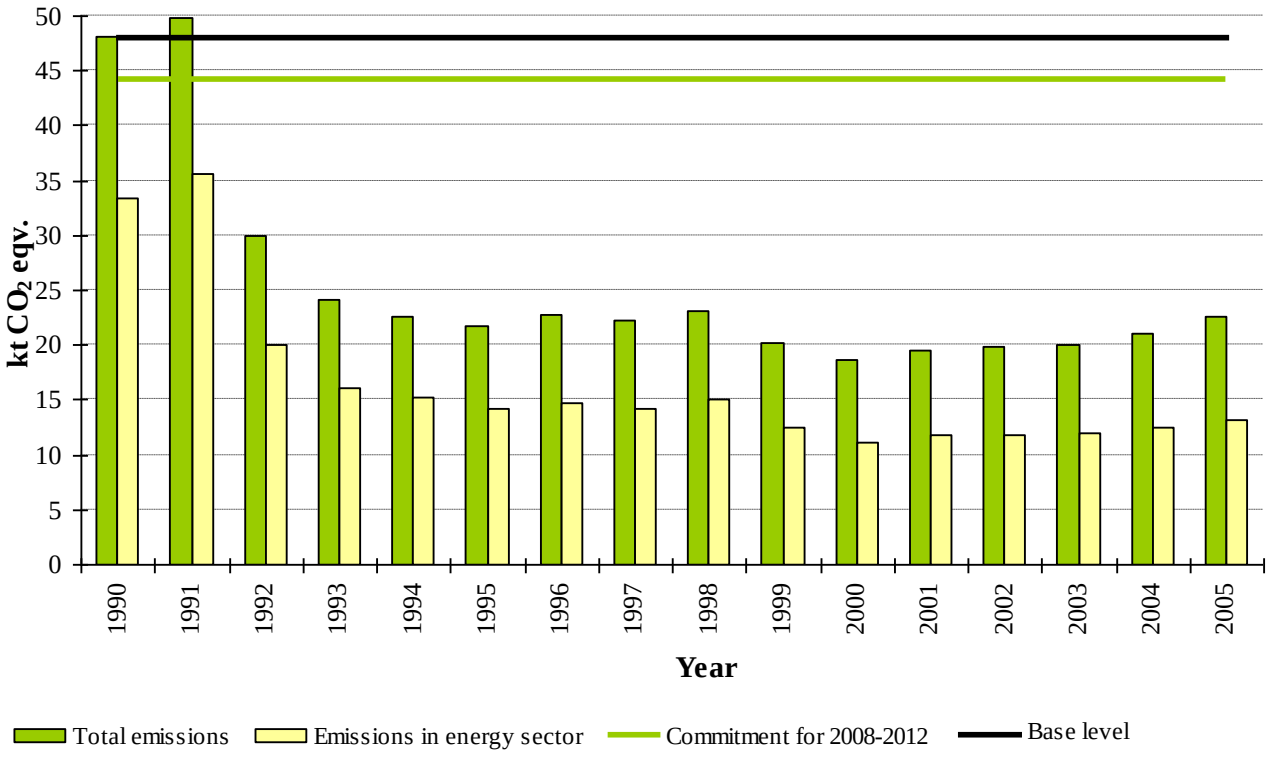

Fig. 5. Emissions of greenhouse gases in the period from 1990 to 2005.

The energy sector is the main source of greenhouse gases, which accounts for almost 60% of all the emissions. From 2000 to 2005 overall greenhouse gass emissions rose 21%,

and the increase of emissions in the energy sector was slower and acounted for 19%. Promotion of renewable electricity production could benefit from the Joint Implementation (hereinafter – JI) Mechanism of the Kyoto Protocol. According to the criteria of compliance set forth in the implementation strategic directions of JI of the Kyoto Protocol of the UN Framework Convention on Climate Change (*Valstybės žinios*, No 86-3146, 2004) the eligible JI projects are those related to the introduction of technologies using renewables to generate electricity and shift from fossil fuel to any type of renewable energy source or any other more environmentally friendly fuel.