Ministry of Economic Affairs and Communications

A Progress Report on the Promotion and Use of Energy from Renewable Sources from the Republic of Estonia to the European Commission

Tallinn 2013

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Introduction

This report has been drawn up in compliance with Article 22 of Directive 2009/28/EC, which requires Member States to submit a report to the Commission on progress in the promotion and use of energy from renewable sources not later than by 31 December 2011, and every two years thereafter.

According to Directive 2009/28/EC, Estonia must ensure that the share of energy from renewable sources amounts to 25% of the gross final consumption of energy, and 10% of the energy consumption of the transport sector in 2020. The activities designed to achieve this are described in the Estonian National Renewable Energy Action Plan up to 2020, which was approved in government order No 452 of 26 November 2010.

This report covers the progress regarding introduction of renewable energy in 2011 and 2012. The report indicates that the developments regarding renewable energy in Estonia have been much faster than planned while compiling the Estonian National Renewable Energy Action Plan up to 2020. The share of renewable energy considerably exceeded the expected gross final consumption of renewable energy in heating and cooling and electricity generation. A significant contribution to increasing the share of renewable energy was made by the support mechanisms stipulated in the Electricity Market Act for CHP plants that generate electricity from renewable sources, as well as the investments made with the support of the funds of the European Union budget period 2007–2013 for the transition from fossil fuels to renewable energy sources in the district heating sector.

The share of renewable energy in the amount of final consumption turned out to be 89 ktoe (1.04 TWh) in 2012, i.e. it was bigger than planned. The Estonian National Renewable Energy Action Plan up to 2020 predicted the share of renewable energy in final consumption to be 22% in 2012, but, in reality, it reached 24.8%.

The results of 2011 and 2012 indicate that the use of renewable energy in the transport sector needs closer attention in the coming years. It must be ensured that the share of renewable energy would be 90–100 ktoe in the transport sector. Even if, for the purpose of assessing the progress towards the transport targets, we do not take into account the fuel that does not meet the sustainability criteria but which was used in Estonia to a certain extent in 2011 and 2012, thorough changes are required to ensure the required use of renewable energy in the transport sector.

1. Sectoral and overall shares and actual consumption of energy from renewable sources in 2011 and 2012

Table 1: **The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources**

	2011	**2012**
RES-H&C (%)	48.4%	41.4%
RES-E (%)	12.2%	15.7%
RES-T (%)	0.1%	0.1%
Overall RES share (%)	25.9%	24.8%
Of which from cooperation mechanism	0	0
Surplus for cooperation mechanism (%)	0	0

Table 1a: **Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)**

	2011	**2012**
(A) Gross final consumption of RES for heating and cooling	667	655
(B) Gross final consumption of electricity from RES	97	130
(C) Gross final consumption of energy from RES in transport	1	1
(D) Gross total RES consumption	765	786
(E) Transfer of RES to other Member States	0	0
(F) Transfer of RES from other Member States and third countries	0	0
(G) RES consumption adjusted for target (D)-(E)+(F)	765	786
Gross final energy consumption	**3075**	**3169**

Table 1.b: **Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in Estonia to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in <u>electricity</u>**

	2011		**2012**	
	MW	**GWh**	**MW**	**GWh**
Hydro[1]:	5	13	8	23
non pumped	5	13	8	23
<1 MW	5	13	8	23
1 MW -10 MW	0	0	0	0
>10 MW	0	0	0	0
pumped	0	0	0	0
Geothermal	0	0	0	0
Solar:	0	0	0	0
photovoltaic	0	0	0	0
concentrated solar power	0	0	0	0
Tide, wave, ocean	0	0	0	0
Wind:	180	348	266	500
onshore	180	348	266	500
offshore	0	0	0	0
Biomass[2];	67	781	67	1001
solid biomass	63	766	63	985
biogas	4	15	4	16
bioliquids	0	0	0	0
TOTAL	**252**	**1159**	**341**	**1524**
of which in CHP	No data[3]	454	No data	597

[1] Normalised in accordance with Directive 2009/28/EC and Eurostat methodology.
[2] According to the last subparagraph of Article 5(1) of Directive 2009/28/EC, only those bioliquids complying with applicable sustainability criteria are taken into account.
[3] Within the meaning of this report the entry "No data" refers to the fact that at the time of preparing the report, there are no data available which are adequately reliable for making presumptions.

Table 1c: **total actual contribution (final energy consumption[4]) from each renewable energy technology (in the Member State) to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in <u>heating and cooling</u> (ktoe)**

	2011	**2012**
Geothermal (excluding low temperature geothermal heat in heat pump applications)	0	0
Solar	0	0
Biomass[5]:	667	655
solid biomass	666	654
biogas	1	1
bioliquids	0	0
Renewable energy from heat pumps:	0	0
- of which aerothermal	0	0
- of which geothermal	0	0
- of which hydrothermal	0	0
TOTAL	**667**	**655**
Of which DH	302 (45.3%)	268 (40.9%)
Of which biomass in households	365 (54.7%)	387 (59.1%)

[4] Direct use and district heat as defined in Article 5(4) of Directive 2009/28/EC.
[5] According to the last subparagraph of Article 5(1) of Directive 2009/28/EC, only those biofuels complying with applicable sustainability criteria are taken into account.

Table 1d: **total actual contribution from each renewable energy technology in [Member State] to meet the binding 2020 targets and follow the indicative interim trajectory for the shares of energy from renewable resources <u>in the transport sector</u> (ktoe)[6]**

	2011	**2012**
Bioethanol/ bio-ETBE	0	0
Of which biofuels[7] according to Article 21(2)	0	0
Of which imported[8]	0	0
Biodiesel	0	0
Of which biofuels[9] according to Article 21(2)	0	0
Of which imported[10]	0	0
Hydrogen from renewables	0	0
Renewable electricity	0.9	0.9
Of which road transport	0.4	0.4
Of which non-road transport	0.5	0.5
Others (as biogas, vegetable oils, etc.) – please specify	0	0
Of which biofuel[11] according to Article 21(2)	0	0
TOTAL	**0.9**	**0.9**

[6] According to the last subparagraph of Article 5(1) only those biofuels compliant with the sustainability criteria are taken into account.
[7] Biofuels that are included in Article 21(2) of Directive 2009/28/EC.
[8] From the whole amount of bioethanol / bio-ETBE.
[9] Biofuels that are included in Article 21(2) of Directive 2009/28/EC.
[10] From the whole amount of biodiesel
[11] Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

2. Measures taken in 2011 and 2012 and/or planned at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory for achieving the national RES targets as outlined in the National Renewable Energy Action Plan

Table 2: **Overview of all policies and measures**

Name and reference of the measure	Type of measure	Expected outcome	Target group and/or activity	Existing or planned	Start and end dates of the measure
1. Investment support "Broader use of renewable energy sources for power production"	Financial	Generation of energy from renewable sources has increased	District heating enterprises	Existing	From 24 March 2009 to 2012
2. Investment support for bioenergy generation	Financial	Generation of energy from renewable sources has increased	Farmers	Existing	From 9 May 2008 to 2013
3. Investment support for adding value to forestry products	Financial	Production of biofuels (pellets, wood briquettes, charcoal and wood chips) has increased	Microenterprises engaged in forestry and agriculture	Existing	From 12 April 2010 to 2013
4. Investment support for electricity producers who use wind as a source of energy	Financial	The installed capacity of wind farms and their production volumes have increased	Electricity enterprises	Existing (additional compared to the NREAP)	From 15 October 2010 to 2012
5. Support for the reconstruction of small residential buildings	Financial	Energy production from renewable sources has increased	Owners of small residential buildings	Existing (additional measure)	2012
6. Training sessions under activity 4.2.4 (NREAP) of the project to improve the administrative capacity of municipalities and their agencies with respect to coordination of energy efficiency activities	Soft	Administrative capacity of municipalities	Municipality employees	Ended	1.09.2008 - 31.01.2010

2.1. Progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy

When evaluating and improving the administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy, the main focus has been on wind energy, district heating, solar and wind-based micro-generation; there are also are on-going active preparations for the structural changes to the consumption of transport fuels. In addition, preparation of analyses for finding different innovative models for the financing of renewable energy (e.g. energy associations and companies) has been started.

With regard to wind energy, for the first time in Estonia, county-wide thematic spatial plans for using wind energy in four counties have been developed and adopted (one is in the final stage), covering the counties in Western Estonia that are the best for generating energy from wind. Thus, more favourable conditions for faster processing of projects will be created; in addition, the awareness of local inhabitants about wind energy and, more broadly, about renewable energy will be raised. In addition to the thematic spatial plans, the integral planning of marine areas has been started. This means that when planning marine areas, all potential resources are comprehensively taken into account and the interests of different interest groups, individually and as a whole, with regard to marine areas are mapped as far as possible. Within this framework, the potential locations of wind parks will be developed in cooperation with local communities, scientists, energy companies and relevant interest groups. This would, in turn, accelerate the development of these projects, as there will be a drastic decrease in the amount of questions and conflicts related to the low awareness of stakeholders, and in the developed regions there would be a lower probability for questions relating to the administrative procedure and arising from different procedural steps.

In the district heating sector, proposals have been developed in cooperation with district heating companies and other related organisations for the amendments to the District Heating Act, which would help to enhance the sustainability of district heating areas. In order to be eligible for the state investment support related to renewable energy, the draft amendment to the Act sets out that district heating companies shall in future be obliged to certify the sustainability of the area, which would ensure that the investment made with the support of the public sector is relevant and would have the best possible impact both on the socio-economic and natural environment, reducing environmental pollution and keeping the heating costs at a competitive level and ensuring they are affordable for consumers. In addition to the potential positive impacts for the consumer, it would also motivate district heating companies to plan their investments more carefully.

With regard to micro-generation, a common understanding has been developed in cooperation with distribution network operators under which private individuals are given the easiest, most economically viable and least time-consuming possibilities for connecting to the grid of micro-generation facilities. As a result of this work and with the support of the funds from the public sector, renewable energy equipment has been installed in small residential buildings in different regions in Estonia, which has provided valuable experience to the companies of that sector in Estonia. This holds true both for the operators manufacturing and installing production equipment, as well as for the distribution network operators and local governments. Issues are solved and legislation adapted in an ongoing and flexible manner, and frequent thematic meetings are held between the private and the public sector.

The development of the measures related to promoting alternative transport fuels has proceeded as far as possible. Amendments to the Liquid Fuel Act have been prepared, which would establish for fuel suppliers an obligation to supply biofuel corresponding to the biomass sustainability criteria. In addition, a significant amount has been allocated from public funds for the introduction of biomethane in the transport sector. In 2011 and 2012, meetings were held with representatives of the sector, and in cooperation with the Environmental Investment Centre, meetings have also been arranged with potential investors in Estonia and companies from other countries with very good competence in biogas and biomethane, in order to facilitate the exchange of best practices and experience. In addition,

progress has been made in different regions in cooperation with local authorities and state agencies for promoting the use of methane fuels in the transport sector. The development trends of alternative fuels have also been dealt with in the new adopted transport development plan, which would facilitate legislation.

As innovative financing models for developing renewable energy have been and are being created which will make it possible to involve even more investments in the development of the sector and increase the contribution of the local population in enhancing the use of renewable energy sources, the Ministry of Economic Affairs and Communications, the Development Fund and the Environmental Investment Centre have already analysed, and will continue to analyse in the future, different barriers that could hinder the use of those models for legislative or other reasons.

In addition to the above, the authorities (the Ministry of Economic Affairs and Communications, the Competition Authority) have participated in discussions to resolve disputes between market operators (e.g. disputes between developers and distribution network operators), and it does not appear from the discussions so far that there is an urgent need in Estonia to amend the existing legal acts with regard to administrative proceedings.

2.2. Measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements

In Estonia, a producer of electricity from renewable energy sources has been granted both priority as well as guaranteed access to the network. According to Section 108 of the Electricity Market Act, a producer who uses renewable energy for generating electricity shall be granted a 12-year support period, which forms a market advantage when compared to other producers, and thus priority access to the network.

According to the Electricity Market Act, a network operator provides network services, including connecting electrical installations to the network and transmission of electrical energy, to all market participants on an equal basis. Network operators have the right to refuse to provide network services only in cases stipulated in that act. Section 62(1)(1) of the Electricity Market Act sets forth that a network operator shall ensure, on the basis of a corresponding request, connection to the network of any electrical installation that conforms to the requirements. This is an obligation set forth in law and would apply to all electricity producers independent of the energy source used for the generation of electricity. In addition, Section 65(2) of the Electricity Market Act requires that all market participants are treated equally. It would also guarantee access of electricity produced from renewable sources to the grid system.

According to Article 16(2)(c), when dispatching generating installations, priority shall be given to generating installations using renewable energy sources. No order has yet been issued allowing generating installations to transmit their production to the grid. In particular, there are no intra-system bottlenecks in the Estonian electricity market system and all production sold on the free market would be transmitted to the grid. Thus, Estonia is of the opinion that we have no need to transpose this provision, and no limitations have been established on the generating installations producing electricity from renewable sources with regard to transmitting their production to the grid.

The terms and conditions for connecting to the network have been set forth in the regulation of the Republic of the Government "Grid Code" and the bases for the calculation of network charges and the coordination of standard terms and conditions thereof have been set forth in the Electricity Market Act. Network charges are established taking into account the principle of equal treatment.

Updating of the Grid Code and the parts of the Electricity Market Act specified in this section is one of the tasks of the Ministry of Economic Affairs and Communications and it will be performed in cooperation with market participants.

3. Support schemes and other measures currently in place that are applied to promote energy from renewable sources and developments in the measures used with respect to those set out in the national renewable energy action plan

The main support instrument for implementation of renewable sources of energy, making the energy sector more effective and ensuring the security/adequate capacity of domestic energy is the support granted in compliance with Section 59 of the Electricity Market Act. Support is granted for electricity that has been generated from renewable sources, from biomass in a cogeneration process, or in an efficient cogeneration process, and in accordance with the state aid rules. Pursuant to Section 59[1] of the Electricity Market Act, a producer who uses wind as the source of energy may receive support until the total amount of 600 GWh of electricity is generated from wind power in a calendar year. According to the Electricity Market Act, the expenditure arising in relation to funding the support specified therein shall be borne by consumers according to the volume of network services used and the amount of electricity consumed via a direct line.

In 2012, the total amount of renewable energy which received support amounted to 1.17 TWh. In financial terms, the amount of support for renewable energy increased by about one-tenth to EUR 62.7 million. Support for wind energy decreased over the year by 7%.

In 2012, the total support for efficient cogeneration amounted to EUR 4.2 million, which is 11% less when compared to 2011. The amount of electricity receiving support decreased from 147 GWh to 132 GWh. Major electricity producers using an efficient cogeneration process generated in this process 11% less energy on the average than the year before, whereas the use of biomass in their plants increased by about the same amount. It is presumed that in wind energy, in 2013 the level of 600 GWh would not be reached yet.[12]

In addition, Estonia is making significant progress towards increasing the proportion of renewable fuels in the transport sector. There are plans to establish an obligation for fuel suppliers to supply biofuels corresponding to the biomass sustainability criteria. When compared to the current renewable energy action plan, it is an additional measure, which has not yet taken effect as a law.

3.1. Specification on how supported electricity is allocated to final customers for the purposes of Article 3(6) of Directive 2003/54/EC *(Article 22(1)(b) of Directive 2009/28/EC)*

The renewable energy charge is the cost, as determined in compliance with the Electricity Market Act, on support to electricity generated from renewable sources or in an efficient cogeneration process and supplied to the network.

The renewable energy charge is paid by all final customers of electricity in Estonia, and is proportional to the volume of network services they use. The electricity bill for the final customer is composed of four components: cost of electricity, network charges, renewable energy charge, and national taxes, such as excise duty and VAT on electricity. The renewable energy charge is on a separate line of the electricity bill, so the customer can see exactly on each bill how much they pay for financing the support to electricity generated from renewable sources and in an effective cogeneration process.

The renewable energy charge is calculated by the transmission network operator in compliance with approved methodology and Section 59 of the Electricity Market Act. The charge is calculated on the basis of the estimated amount of the network services to be used and support to be paid for renewable energy in the following calendar year.

[12] http://elering.ee/taastuvenergia-osakaal-kasvas-kogutarbimises-mullu-ligi-15-protsendini/

By 1 December each year, the transmission network operator publishes the renewable energy charge for the following calendar year on its website. The amount of the renewable energy charge depends on the estimated volumes of network services to be sold by network operators and the estimated amounts of electricity to be generated from renewable sources or in an efficient cogeneration process in the following calendar year. Should the forecast of the amounts of electricity to be generated or sold change, the renewable energy charge will be changed as well.

Network operators pay the renewable energy charge received from electricity customers each month to the transmission network operator in full and do not ask for a service charge on this. The transmission network operator uses the renewable energy charge collected from all electricity customers to pay support to economic operators who generate electricity from renewable sources or in an efficient cogeneration process. Renewable energy support is paid to eligible producers on the basis of the amount of renewable energy generated and transmitted to the network.

4. Specification on the structure of the support schemes to take into account RES applications that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material

With respect to structuring of support schemes in Estonia, the following facts are worth mentioning:

1) The investment support that the Environmental Investment Centre offers under the support scheme for the wider use of renewable sources to produce energy are available to a narrower circle than the support offered under the Electricity Market Act. For example, in addition to the investment support, small CHP plants using biogas also receive operating support under the Electrical Market Act on electricity generated from renewable sources and supplied to the network;

2) Producers of wind power do not receive the support provided for in the Electricity Market Act if they have received investment support;

3) To use the electricity from renewable sources in the transport sector, Estonia has applied investment support for renewal of passenger trains and trams and the introduction of electric cars.

5. Information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system

According to the Electricity Market Act, at the request of a producer, the transmission network operator will issue to the producer a guarantee of origin certifying that the producer generated electricity from renewable sources.

Conditions for issuing guarantees of origin:

- Producers may not subsidise generation from renewable energy sources at the expense of generation from other sources and vice versa.
- By the third day of each calendar month, producers must submit to the network operators stipulated in Section 59 of the Electricity Market Act data on their production of electricity from renewable sources, by plant, in the previous calendar month and what part of the electricity was sold under the purchase obligation stipulated in Section 59.
- If electricity is generated from a combination of renewable energy sources and other sources, the producer may, under the purchase obligation stipulated in Section 59 of the Electricity Market Act, sell only the amounts of electricity generated from renewable sources.

- The system administrator verifies whether the data in the applications submitted complies with the above conditions and, within no more than 30 days from the day the application was registered, issues a guarantee of origin certifying that the producer generated electricity from renewable sources.
- Guarantees of origin of electricity generated from renewable sources set out:
- the name, address and contact details of the producer;
- the name of the energy source used for the generation of electricity and the place of generation;
- the amount of electricity generated in megawatt-hours, the period of generation, the time of generation in hours and the date of issue of the guarantee of origin;
- the amount of electricity, in megawatt-hours, sold during the period specified in clause 3 of this section of the Electricity Market Act by using the support or purchase obligation specified in Section 59 of that act;
- the capacity of generating installations if electricity is generated in a hydroelectric station;
- other information established by the transmission network operator.
- Guarantees of origin of electricity generated in an efficient cogeneration process set out the following:
- the name, address and contact details of the producer;
- the lower calorific value of the fuel used;
- the manner of use of the heat energy generated;
- the amount of electricity generated in megawatt-hours, the period of generation, the time for generation in hours, the location of generation and the date of issue of the guarantee of origin;
- the amount of electricity, in megawatt-hours, sold during the period specified in clause 4 of this section of the Electricity Market Act by using the support or purchase obligation specified in Section 59 of that act;
- other information established by the transmission network operator.
- The system manager publishes information on the issued guarantees of origin on its website.

In order to efficiently ensure and achieve the reliability and protection against fraud of the system of guarantees of origin, it is necessary to join an international organisation that assembles the countries issuing guarantees of origin (AIB or Association of Issuing Bodies[13]). The system of the guarantees of origin is now electronic and corresponds to the common protocol rules established by the AIB. In addition, the requirements applied to the guarantees of origin have been specified in the draft amendment act of the Electricity Market Act currently in the legislative proceeding of the Riigikogu.

[13] http://www.aib-net.org/portal/page/portal/AIB_HOME

6. Developments related to the availability and use of biomass resources required for generating energy in 2011 and 2012

Table 4: biomass supply for energy use*

	Amount of domestic raw material (thousands of m^3)		**Primary energy in domestic raw material (ktoe)**		**Amount of imported raw material from EU (*)**		**Primary energy in amount of imported raw material from EU (ktoe)**		**Amount of imported raw material from non EU(*)**		**Primary energy in amount of imported raw material from non EU (ktoe)**	
	2011	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land for energy generation (firewood)	3,612	3,332	652	601	No data	No data	No data	No data	No data	No data	No data	No data
- including chips	1,908	1,642	318	273	No data	No data	No data	No data	No data	No data	No data	No data
Indirect supply of wood biomass (residues and co-products from wood)	869	1,493	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Energy crops (grasses, etc.) and short rotation trees (please specify)												
Agricultural by-products / processed residues and fishery by-products												
Biomass from waste (municipal, industrial etc.)												
Others (please specify)												
Biomass supply for transport												
Common arable crops for biofuels (please specify main types)**												
Energy crops (grasses etc.) and short rotation trees for biofuels (please specify main types)**												
Others (please specify)**												

* The methodology of the underlying survey for preparing this report and of collection of data by the Statistics Estonia has changed, in particular with regard to timber, and therefore these data may be subject to changes in the future. At the moment, post-checking is carried out against available data, and the Commission will be notified of the updated data as soon as possible.

** According to the information available to the Ministry of Economic Affairs and Communications, no biofuels for transport are produced in Estonia.

Table 4a: **Current domestic agricultural land used for production of crops dedicated to energy production (ha)**

Land use	Surface (ha)	
	2011	2012
1. Land used for common arable crops (wheat, sugar beet, etc.) and oilseeds (rapeseed, sunflower, etc.) (Please specify main types)	No data	No data
2. Land used for short rotation trees (willows, poplars). (Please specify main types)	No data	No data
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus, sorghum).	No data	No data

7. Information on the changes in commodity prices and land use in Estonia in 2011 and 2012 associated with increased use of biomass and other forms of energy from renewable sources

In relation to increased use of biomass, different impacts on prices can certainly be noted. In particular, it is probable that partly due to the extended energetic use (e.g. wood pellets), the average producer price of sawdust has increased from about 6.30 €/pm^3 (in 2010) to 9.50 €/pm^3 (in 2013). In 2011 and 2012, the prices of chips also rose since the end of 2011 saw an increase in using chips for heating. In the years 2012–2013, a downward trend in the price can still be seen. The prices of firewood depend heavily on the temperatures in winter, and in 2011 and 2012, when there was a relatively cold winter, the price of firewood was also higher than in the previous years.

8. The development and share of biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material

In the period from 2011–2012, no fuels were produced from wastes, residues, non-food cellulosic materials and lignocellulosic materials.

Table 5: **production and consumption of Article 21(2) biofuels (ktoe)**

Article 21(2)[14] biofuels	2011	2012
Production – Fuel type X (Please specify)	0	0
Consumption – Fuel type X (Please specify)	0	0
Total production Art.21.2.biofuels	0	0
Total consumption Art.21.2. biofuels	0	0
% share of 21.2. fuels from total RES-T	0	0

9. Information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality in Estonia

According to the information available to the Ministry of Economic Affairs and Communications, no environmental impact assessments regarding production of biofuels and their raw materials have been conducted in Estonia. No biofuels are produced in Estonia, and other agricultural activities are not known to have become more environment-intensive than usual.

[14] Biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material.

10. Estimated net greenhouse gas emission savings due to the use of energy from renewable sources

Table 6: **Estimated GHG emission savings from the use of renewable energy (t CO_2eq)**

Environmental aspects	2011	2012
Total estimated net GHG emission saving from using renewable energy	*No data*	*No data*
- Estimated net GHG saving from the use of renewable electricity	*No data*	*No data*
- Estimated net GHG saving from the use of renewable energy in heating and cooling	*No data*	*No data*
- Estimated net GHG saving from the use of renewable energy in transport	*No data*	*No data*

* No data is available at the time of preparing the report; the Commission will be notified of any additional data received as soon as possible.

11. Estimated excess production of renewable energy compared to the indicative trajectory, which could be transferred to other Member States or third countries, as well as the estimated potential for joint projects until 2020

Table 7: **Estimated excess production of renewable energy in Estonia compared to the indicative trajectory which could be transferred to other Member States or third countries (ktoe)**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Estimated excess production	29*	89	95	100	110	110	125	135	135	140

* Real excess production during the year when compared to the goal of 2020

At the end of 2011, burning of biomass was reduced, and therefore in 2012 there was no real quantity that would have been an excess quantity by the end of the year with regard to the goal of 2020 (24.8% of renewable energy v. goal 25%). With regard to the trajectory described in the action plan and when compared to the proportion of renewable energy in 2012 in the final consumption, the excess amounted to 89 ktoe. The figures indicated in the table are rather conservative estimates based on national strategies and the fact that, although Estonia has in principle achieved the general goal of renewable energy, the transport fuels 10% goal is almost entirely not achieved. The table does not take into account any potential common projects, whose renewable energy may be distributed between the project countries.

11.1. Details of statistical transfers, joint projects and joint support scheme decision rules

So far, there are no detailed data on statistical transfers, joint projects and joint support scheme decision rules. However, Estonia has long-term established practices and experience in carrying out joint implementation projects under the Kyoto Protocol.

Procedural activities for the statistical transmission of renewable energy are in the final stage of preparing a draft legal act and would probably be adopted in the course of 2014. In addition, at the beginning of 2014 analyses for the development of legislative amendments required for the implementation of common projects and support schemes shall be started in cooperation with stakeholders. At the moment, the respective arrangements with Members States or third countries are governed by the Foreign Relations Act.

According to Section 63(1) of the Government of the Republic Act, energy-related issues are included in the area of government of the Ministry of Economic Affairs and Communications, which organises the respective activities in Estonia.

Any further procedural aspects will be revised when further improving the legislative acts of Estonia in compliance with Directive 2009/28/EC and recommendations published by the Commission.

12. Estimates on the share of biodegradable waste in waste used for producing energy and steps to improve and verify such estimates

12.1. Mixed municipal waste

The issue of estimating the share of biodegradable waste pertains mostly to the use of mixed municipal waste for generating energy. At the moment, mixed municipal waste is used for generating energy only in the waste-to-energy unit of Iru heat and power co-generation plant of Eesti Energia AS which services the Tallinn district heating system. At the end of 2012, a test period began in the company, which lasted until the middle of 2013 and the company now works within its scheduled capacity. The environmental report of 2012 of the plant indicates that they hold an integrated permit for the incineration of 220 thousand tons of waste per year. The heat and electricity generating capacities of the new energy block are 50 MW and 17 MW, respectively. It is estimated that the biodegradable content of the mixed municipal waste to be used in the Iru Power Plant is about 60% by weight.

Estonia regularly conducts studies on the sorting of mixed municipal waste (the Ministry of the Environment has commissioned such a study after each two or three years[15]), and these provide a good overview of the share of biodegradable waste, i.e. the changes in the share. These data are a good basis for making any forecasts/estimates. These studies have been conducted periodically by independent research institutions; thus, the data are a reliable basis for estimates.

So far, Estonia has followed the example of southern regions and established plants that use biological and mechanical processing of waste to produce waste-derived fuel, and only one waste incineration plant has been constructed. Once the waste incineration plan starts operating in full, in addition to the two waste-derived fuel plants that already operate, the amount of waste landfilled will diminish.

12.2. Waste wood and landfill gas

So far, the biomass of waste has been used for generating electricity in Estonia mainly through the collection of landfill gas from landfills to produce electricity and the use of waste wood (e.g. construction and demolition wood and railway sleepers under special permits) in boiler houses / CHP plants to produce electricity and heat (in the same way as ordinary firewood). As biogas is one of the results of decomposition of the biodegradable part of waste, the gas is considered to be fully generated from the biodegradable part of waste, i.e. landfill gas is a 100 % renewable source of energy. Boiler houses and CHP plants use only the wood that the waste contains, and this is also 100 % biodegradable and a renewable source of energy.

[15] The reports prepared are published at: http://www.envir.ee/1001