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MINISTRY OF EMPLOYMENT AND THE ECONOMY

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**FINLAND'S PROGRESS REPORT
ACCORDING TO ARTICLE 22 OF DIRECTIVE
2009/28/EC**

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding two years (n-1 and n-2, e.g. 2010 and 2009) (Article 22(1)(a) of Directive 2009/28).

Please fill in the actual shares and actual consumption of renewable energy **for the preceding two years** in the suggested tables.

Table 1: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources¹

	2009	2010
RES-H&C ² (%)	45.2	46.4
RES-E ³ (%)	27.2	27.6
RES-T ⁴ (%)	4.0	3.8
Overall RES share ⁵ (%)	32.0	33.1
<i>Of which from cooperation mechanism⁶ (%)</i>	0	0
<i>Surplus for cooperation mechanism⁷ (%)</i>	0	0

Table 1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)⁸

	2009	2010
(A) Gross final consumption RES for heating and cooling	5 623	6 480
(B) Gross final consumption of electricity from RES	1 969 1)	2 162 1)
(C) Gross final consumption of energy from RES in transport	166 1)	167 1)
(D) Gross total RES consumption ⁹	7 741 2)	8 788 2)
(E) Transfer of RES <u>to</u> other Member States	0	0
(F) Transfer of RES <u>from</u> other Member States and third countries	0	0
(G) RES consumption adjusted for target (D)-(E)+(F)	7 741 2)	8 788 2)

¹⁾ The figures contain the renewable electricity of trains (17 ktoe in 2009 and 18 ktoe in 2009).

²⁾ The figures only contain the renewable electricity of trains once.

¹ Facilitates comparison with Table 3 and Table 4a of the NREAPs.

² Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1)(b) and 5(4) of Directive 2009/28/EC) divided by gross final consumption of energy for heating and cooling. The same methodology as Table 3 of NREAPs applies.

³ Share of renewable energy in electricity: gross final consumption of energy from renewable sources for electricity (as defined in Articles 5(1)(a) and 5(3) of Directive 2009/28/EC) divided by total gross final consumption of electricity. The same methodology as in Table 3 of NREAPs applies.

⁴ Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Articles 5(1)(c) and 5(5) of Directive 2009/28/EC) divided by the consumption in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity used in land transport (as reflected in row 3 of Table 1). The same methodology as in Table 3 of NREAPs applies.

⁵ Share of renewable energy of gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.

⁶ In percentage point of overall RES share.

⁷ In percentage point of overall RES share.

⁸ Facilitates comparison with Table 4a of the NREAPs.

⁹ According to Article 5(1) of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources shall only be considered once. No double counting is allowed.

Table 1b: Total actual contribution (installed capacity, gross energy generation) from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable sources in electricity¹⁰

	2009		2010	
	MW	GWh	MW	GWh
Hydro ¹¹				
non-pumped	3 120	13 898	3 140	13 877
< 1 MW	31	138	31	137
1 MW – 10 MW	285	1 269	305	1 354
> 10 MW	2 804	12 490	2 804	12 392
pumped	0	0	0	0
mixed ¹²	0	0	0	0
Geothermal	0	0	0	0
Solar	6	4	7	5
photovoltaic	6	4	7	5
concentrated solar power	0	0	0	0
Tide, wave, ocean	0	0	0	0
Wind	147	279	188	314
onshore	147	279	188	314
offshore	0	0	0	0
Biomass ¹³	1 807	10 718	1 910	10 948
solid biomass	1 807	10 686	1 910	10 859
biogas	0	32	0	89
bioliquids	0		0	
TOTAL	5 080	22 899	5 245	25 144
of which in CHP	n.a.	7 949	n.a.	9 288

Table 1c: Total actual contribution (final energy consumption¹⁴) from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable sources in heating and cooling¹⁵

	2009	2010
Geothermal (excluding low temperature geothermal heat in heat pump applications)	0	0
Solar	0	0
Biomass ¹⁶ :	5 423	6 251
solid biomass	5 387	6 203
biogas	20	8
bioliquids	25	40
Renewable energy from heat pumps:	200	229
- of which aerothermal		
- of which geothermal		
- of which hydrothermal		
TOTAL	5 623	6 480
Of which DH ¹⁷	3 574	4 348
Of which biomass in	1 288	1 434

¹⁰ Facilitates comparison with Table 10a of the NREAPs.

¹¹ Normalised according to Directive 2009/28/EC and Eurostat methodology.

¹² In accordance with new Eurostat methodology.

¹³ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

¹⁴ Direct use and district heat as defined in Article 5(4) of Directive 2009/28/EC.

¹⁵ Facilitates comparison with Table 11 of the NREAPs.

¹⁶ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

¹⁷ District heating and/or cooling from total renewable heating and cooling consumption (RES-DH).

households ¹⁸		
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Table 1d: Total actual contribution from each renewable energy technology in [Member State] to meet of the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable sources in the transport sector (ktoe)^{19,20}

	2009	2010
Bioethanol/Bio-ETBE	75.3	71.5
<i>Of which biofuels²¹ (Article 21(2))</i>	-	-
<i>Of which imported²²</i>	75.3	71.5
Biodiesel	56.2	60.0
<i>Of which biofuels²³ (Article 21(2))</i>	-	-
<i>Of which imported²⁴</i>	1.7	3.7
Hydrogen from renewables		
Renewable electricity		
<i>Of which road transport</i>		
<i>Of which non-road transport</i>	16.0	17.2
Others (such as biogas, vegetable oils, etc.) – please specify		
<i>Of which biofuels²⁵ (Article 21(2))</i>		
TOTAL	150.0	151.1

2. Measures taken in the preceding two years and/or planned at national level to promote growth in the use of energy from renewable sources, taking into account the indicative trajectory for achieving the national RES targets as outlined in your National Renewable Energy Action Plan (Article 22(1)(a) of Directive 2009/28/EC).

Table 2: Overview of all policies and measures

Name and reference of the measure	Type of measure	Expected result**	Targeted group and/or activity****	Existing or planned*****	Start and end dates of the measure
Regulations of 2012	Regulatory		Public administration, planners, architects	Regulations issued on 30 March 2011	Energy regulations for buildings concerning new construction entered into force in 7/2012; parts D2 and D3 of the code of regulations
Amending the Land Use and Building Act	Regulatory		Production of wind power, taking wind power into account in land use planning	Existing	Amendment 134/2011 to the Act entered into force on 1 April 2011
Biofuel distribution obligation (Act on Promoting Use of Biofuels in Transport 446/2007)	Regulatory	Share of biofuels corresponding to the obligation	Use of biofuels in transport	Existing	Amendment 1420/2010 to the Act entered into force on 1 January 2011
Sustainability criteria for biofuels and bioliquids	Regulatory		Biofuel producers and distributors, bio-based fuels and	Preparation in progress	The autumn of 2012

¹⁸ From the total renewable heating and cooling consumption.

¹⁹ For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

²⁰ Facilitates comparison with Table 12 of the NREAPs.

²¹ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

²² From the whole amount of bioethanol/bio-ETBE.

²³ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

²⁴ From the whole amount of biodiesel.

²⁵ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

(Government Bill for an Act on Sustainability Criteria for Biofuels and Bioliquids)			liquid fuels		
Installer certification scheme	Guidance through information		Installers; end users ordering installations as an indirect target group	Planning in progress	Pilot training in 9/2010, certification scheme ready in 12/2012
Wind power production support (Act on Production Support to Electricity from Renewable Energy Sources, 1396/2010)	Financial	2 500 MVA and 6 TWh in 2020	Energy producers, wind power	Existing	The scheme entered into force on 25 March 2011
Biogas production support (Act on Production Support to Electricity from Renewable Energy Sources, 1396/2010)	Financial	19 MVA and 0.7 TWh in 2020	Energy producers, biogas electricity	Existing	The scheme entered into force on 25 March 2011
Production support to small-scale CHP (Act on Production Support to Electricity from Renewable Energy Sources, 1396/2010)	Financial	160–210 MVA and 1–1.5 TWh in 2020	Energy producers, wood fuels	Existing	The scheme entered into force on 25 March 2011
Production support to woodchips (Act on Production Support to Electricity from Renewable Energy Sources, 1396/2010)	Financial	5.3 TWh in 2020	Energy producers, woodchip electricity and indirectly woodchip CHP heat	Existing; an amendment is being prepared where the impact of the increase in peat tax on the need for support is taken into account	The scheme entered into force on 25 March 2011
Energy support (Government Decree on General Terms and Conditions for Granting Energy Support 1313/2007)	Financial		Energy producers and users, all measures that increase the production and use of renewable energy	Existing; a renewal of the support scheme is under preparation, state aid approval in force until the end of 2012.	The renewed scheme will be in force as of 2013
Fuel taxes (Act on the Excise Tax on Liquid Fuels 1472/1994 and Act on Excise Tax on Electricity and Certain Fuels 1260/1996)	Financial		Energy producers and end users	Existing; an increase in peat tax was agreed on in the gGovernment Programme.	The renewed tax structure entered into force through legislative amendments 1399/2010 and 1400/2011 in 2011. Increase in peat tax as of 2013 and 2015
Investment subsidies for farms	Financial		Farms' heat plants and biogas plants utilising renewable energy sources or waste heat	Existing	
Investment assistance for biogas plants (Government Decree on Assisting Bioenergy Production, 607/2008)	Financial		Promotion of the construction of biogas plants in connection with agriculture in regions where there are a great number of animals.	Existing	
Farms' energy programme	Financial and informative		Promotion of farms' energy efficiency	Existing	2009–2016

(sub-item 30.01.40, Government Decree on Support to Farms' Energy Plans, 1000/2009)			and the production and use of renewable energy through energy-efficiency agreements and supported energy plans		
Energy support to low-grade timber	Financial		Increasing the production of woodchips in management sites of young forests and first thinning forests	Act on Energy Support to Small-Dimensioned Wood passed (101/2011), to be implemented through a decree when the approval for state aid has been received.	Starting from the autumn of 2012
Support schemes: energy assistance, 1254/2010	Financial		Households; the aim is to increase the deployment of renewable energy, among other things, in connection with the renovation of detached houses' main heating systems; the support scheme is specifically directed at detached houses.	Existing; Government Decree Amending the Decree on Repair, Energy and Health Hazard Assistance for Housing (1255/2010)	A specific energy assistance directed at boosting the use of renewable energy could be applied for in 2011 for the first time. The amounts of assistance are decided on annually.
BioRefine – New Biomass Products 2007–2112 (Tekes programme)	Financial/research and development		Refining of biomass and second generation transport biofuels	Existing	2007–2012
Groove – Renewable Energy, Growth through Internationalisation 2010–2014 (Tekes programme)	Financial/research and development		Improving the business competencies of renewable energy undertakings	Existing	2010–2014
Concentrations of strategic excellence, Clean Ltd	Financial/research and development		Financial/research and development	Existing	
Sustainable Energy – SusEn (Finnish Academy programme)	Financial/research and development		Sustainable energy production	Terminated	2008–2011
Means-tested energy and repair assistance for detached houses (Act on Repair, Energy and Health Hazard Assistance for Housing, 1184/2005)	Financial		Households; promotion of renewable forms of energy in detached houses, repairs improving energy-efficiency; the support scheme is specifically directed at detached houses.	Existing	The assistance amounts are decided on annually through amendments to acts and decrees
Cyclical energy assistance (Act on Cyclical Assistance for Repairs of Certain Buildings 178/2009)	Financial		Deployment of renewable energy in residential buildings that comprise at least two dwellings	Terminated	2009–2010
Household deduction (Income Tax Act 1535/1992)	Financial		Households; deduction of costs incurred for, among other things, the deployment of renewable energy and heating method changes in taxation	Existing	
-Rural development programme for Continental Finland, sub-items 30.10.61-63 and	Financial		Micro enterprises in the countryside	Existing	2007–2013

30.20.43					
Guarantee of origin for electricity (Act on Verification and Notification of Origin of Electricity 1129/2003)	Informative and regulatory		Producers of electricity, promotion of access to the market for electricity from renewable sources	Existing; amendments required by the RES Directive are being prepared	2004-
Communication by Motiva	Guidance through information		Investors, end users, public administration, planners, architects, installers, citizens, etc.	Existing	Continuous operations
Energy offices	Informative		Undertakings and institutions, energy projects to promote use of renewable energy, etc.	Existing	
Wood energy advisers	Informative		Undertakings, institutions and consumers, advice related to the deployment of wood-based and other bioenergy	Existing	
Consumers' energy advice projects (a total of 15 projects financed by Sitra and the Ministry of Employment and the Economy)	Informative		Consumers, the entity of energy advice projects. The key target of the projects is to promote energy efficiency and to disseminate information on renewable energy and heating methods.	Existing	2009–2011
Wind atlas	Informative		Production of wind power; charting of the suitability of production sites	Completed in 2009	
	Guidance through information		Investors, end users, public administration, planners, architects, installers, citizens, etc.	Existing	Preparation of the 2010 action plan
Synergy Building	Guidance through information		Planners, architects	Existing	2009–2013

* Indicate if the measure is (predominantly) regulatory, financial or soft (i.e. information campaign).

** Is the expected result behavioural change, installed capacity (MW, t/year), energy generated (ktoe)?

*** Who are the targeted persons: investors, end users, public administration, planners, architects, installers, etc.? or what is the targeted activity/sector: biofuel production, energetic use of animal manure, etc.?)

**** Does this measure replace or complement measures contained in Table 5 of the NREAP?

2.a Please describe the progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy (Article 22(1)(e) of Directive 2009/28/EC).

The Land Use and Building Act has been amended (Act 134/2011) so that it is now possible to use local master planning more extensively as a basis for granting building permits for wind power plants. The legislative amendment entered into force on 1 April 2011.

On 14 December 2011, the Finnish Transport Safety Agency Trafi approved an amendment concerning the mitigation of height restrictions in flight obstacle statements to be introduced on 15 December 2011. The associated new location databases were published by Finavia on 15 December. The purpose of the mitigation of statements is to enable additional construction of wind power as the number of new power plant projects and the

height of power plants increase. With the new flight obstacle maps, areas in which it is possible to construct high structures are identified, which helps to release new areas for wind power construction.

VTT Technical Research Centre of Finland has developed an effective tool for assessing the radar impact of wind power construction. It allows assessing the impact of wind power plants on the surveillance sensors used in the statutory area control duty of the defence forces. It also allows ensuring that the construction of wind power does not deteriorate the performance of the defence forces' surveillance systems. With the help of the new information, it is possible to make justified, case-by-case decisions to diminish areas where wind power plants cannot be constructed due to the defence forces' activities.

2.b Please describe the 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 (*Article 22(1)(f) of Directive 2009/28/EC*).

The Electricity Market Act sets out a grid development obligation for operators of transmission and distribution grids, according to which a system operator must maintain, use and develop its electricity grid and connections to other grids according to the reasonable needs of customers and to secure, for its part, the supply of high-quality electricity to customers. In addition, an operator of an electricity transmission grid is responsible for the technical functionality and operational reliability of the entire electricity system (system responsibility). A transmission grid operator with system responsibility must maintain and develop its functions and services falling within the scope of the system responsibility and maintain, use and develop its electricity grid and other equipment needed for managing the system responsibility and connections to other grids so that the preconditions for an efficiently functioning electricity market can be secured. The sales terms and conditions of grid services and their determination bases must be equal and non-discriminatory for all users of the grid. They may only be deviated from for special reasons.

Finland applies a secured grid access procedure. Equal rules that are the same for everybody apply to the electricity production plants connected to the grid; in other words, all those connecting to the grid must be treated equally in accordance with the Electricity Market Act. Primary connection rights or separately reserved connection capacity is not in use.

A system operator must, on request and against reasonable compensation, connect to its grid the places of electricity use and electricity production plants meeting the technical requirements in its operating area. The conditions and technical requirements set by the system operator for connection must be equal and non-discriminatory.

One of the obligations of the system operator is that the payment charged for the service is reasonable and that the measurement of the supplied energy is organised in an appropriate manner.

The development obligation of the system operator requires that, if necessary, in order to enable more production to be connected to the grid, the system operator must increase the transmission capacity of its grid in accordance with a reasonable request of the customer connecting to the grid.

The costs incurred for developing the electricity grid are covered by transmission fees, and the extension of the grid and the resulting reinforcement are covered by connection fees. With regard to connections to the grid, system operators prepare written terms and conditions concerning connection pricing methods and principles for their own use. These principles must comply with the methods confirmed by the Energy Market Authority for determining the pricing of connections. The content of the methods confirmed by the Energy Market Authority are uniform for all electricity grid operators.

The distribution grid operator charges a connection fee according to the valid connection fee criteria (connection terms and conditions) concerning its own distribution area. These terms and conditions also determine the rules concerning the bearing and sharing of costs due to the technical adaptations of the grid. The connection terms and conditions must be approved by the Energy Market Authority before they are adopted, and the Energy Market Authority also supervises the equal and non-discriminatory nature of the terms and conditions. The general criteria for transmission and connection fees are laid down in the Electricity Market Act.

In 2011, the Energy Market Authority introduced nationally uniform methods to determine the fees charged for the connection of production applicable to the distribution grid and the high-voltage distribution grid. The most

significant change related to pricing concerns the use of the capacity reservation fee in the distribution grid: for this fee, a uniform definition method had not been in use before, but the system operators themselves decided the manner of determination of the capacity reservation fee. When the determination methods of fees charged for connection of production were introduced, the determination principles of fees charged for connecting consumption were also updated so that they are now uniform with the determination principles of fees charged for connection of production.

3. Please describe the support schemes and other measures currently in place that are applied to promote energy from renewable sources and report on any developments in the measures used with respect to those set out in your National Renewable Energy Action Plan (Article 22(1)(b) of Directive 2009/28/EC).

The Commission reminds Member States that all national support schemes must respect the state aid rules as foreseen in Articles 107 and 108 of the Treaty on the Functioning of the EU. The notification of the report in accordance with Article 22 of Directive 2009/28/EC does not replace a state aid notification in accordance with Articles 107 and 108 of the Treaty on the Functioning of the EU.

*It is suggested that **Table 3** is used to provide more detailed information on the support schemes in place and the support levels applied to various renewable energy technologies. Member States are encouraged to provide information on the methodology used to determine the level and design of support schemes for renewable energy.*

Table 3: Support schemes for renewable energy

RES support schemes year n (e.g. 2011)		Per unit support	Total (M€)*
Instrument (provide data as relevant)	Obligation/quota of biofuels (%) 6% in 2011-> 20% in 2020	Not applicable	-
	Penalty/Buy out option/Buy out price (€/unit)	-	-
	Average certificate price	-	-
	Tax exemption/refund	-	-
	Investment subsidies (capital grants or loans) (€/unit) Energy support		In 2012, investment subsidies were as follows: €34 million for renewable energy, €100 million for a demo plant of transport biofuels, €7 million for the development programme of biofuels, and €15 million for energy-efficiency.
	Production incentives		
	Feed-in tariff starting from 3/2011 for wind power, for biogas electricity and small-scale CHP from wood sliding scale premium feed-in tariff	Target price of €33.5/MWh; for wind power: a target price of €105.3/MWh until the end of 2015; for biogas electricity heat: a premium of €50/MWh; and for small-scale CHP, a premium of €20/MWh	€7 million reserved for the feed-in tariff in the state budget for 2012
	Supply fees		
	Tendering		
Total annual estimated support in the electricity sector			€100 million (the feed-in tariff is allocated to electricity production, but indirectly it also promotes renewable heat production)
Total annual estimated support in the heating sector			€1 million
Total annual estimated support in the transport sector			€07 million

* The quantity of energy supported by the per unit support gives and indication of the effectiveness of the support for each type of technology.

Use of biomass in electricity and heat production

The use of biomass in electricity and heat production has progressed faster than foreseen in the National Renewable Energy Action Plan (in the NREAP for 2010, the electricity production based on biomass was 8 090 ktoe and heating and cooling was 4 990 ktoe, while the actual figures were 10 718 ktoe in electricity production

was and 5 243 ktoe in heating and cooling). The variable production support to electricity produced from woodchips introduced in March 2011 has continued to increase the use of woodchips.

In 2009 and 2010, the energy support (investment subsidy for investments in renewable energy) has enabled a significant provision of support to biofuel heat boilers, which have replaced oil boilers.

Wind power

The construction of wind power progressed as expected in 2009 and 2010. The wind power production support adopted in March 2011 is sufficient for onshore wind power, but projects have not progressed as expected due to barriers other than financial. The barriers related to flight obstacle permits and radar effects have been resolved (see section 2a). With regard to other barriers, the Ministry of Employment and the Economy has appointed a one-man committee to make proposals for improving the situation. The report of the one-man committee is due on 31 March 2011.

Biofuels and bioliquids

Distribution obligation

The most important promotion measure for transport biofuels is the distribution obligation, which has been in force since 2008. In 2010, the act concerning the distribution obligation (Act 446/2007) was amended to include annual distribution obligations for 2011–2020. The extent of the distribution obligation is defined as the share of biofuel energy content of the total energy of supplied petrol, diesel and biofuels. The annual distribution obligation is as follows:

Year	Obligation
2011-2014	6%
2015	8%
2016	10%
2017	12%
2018	15%
2019	18%
2020->	20%

The double counting of the RES Directive for biofuels produced from waste, residues, non-food cellulosic material and ligno-cellulosic material is applied to the distribution obligation. The act concerning the distribution obligation also requires that biofuels accepted to belong to the scope of the distribution obligation must meet the sustainability criteria set in the RES Directive and the parties concerned must prove sustainability according to the Directive.

Fuel taxation

In 2010, an energy tax reform was prepared, which entered into force at the beginning of 2011. The most important element of the reform is that the taxation of all fuels, including transport fuels, is now based on their energy content and carbon dioxide emissions.

Compared with the earlier scheme, where the tax per litre for biofuels was the same as for fossil fuels, the position of biofuels is improved in the new tax structure, as it takes into account the lower energy content of biofuels, particularly ethanol.

Taking the carbon dioxide emissions into account also benefits biofuels. The carbon dioxide tax for biofuels is based on the life-cycle emissions of CO₂ compared with their fossil counterparts. The Fuel Tax Act defines that the same carbon dioxide tax is levied on unsustainable biofuels as on fossil fuels, 50% of the carbon dioxide tax on a comparable fossil fuel is levied on sustainable biofuels, and no carbon dioxide tax is levied on double counted biofuels as defined in the RES Directive. At the beginning of 2011, €50/t CO₂ was adopted as the counting basis for carbon dioxide tax, and from the beginning of 2012, it will rise to €60/t CO₂.

The primary aim of the new tax structure is to guide the use of biofuels to second generation alternatives. A comparable tax structure is also applied to bioliquids, but with heating fuels both the energy content tax and the carbon dioxide tax are clearly lower than with transport fuels.

Other measures

In addition, attempts have been made to promote the production of biofuels by strongly increasing appropriations to investment subsidies for biofuel technologies and to research and development operations.

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

The electricity market has been liberated and electricity from renewable energy sources does not have any special position in electricity trade. The profitability of renewable production is supported through support schemes. As is the case with regular energy, also electricity from renewable energy sources is sold to the electricity exchange, electricity retailers and directly to end users.

Only small volumes of electricity with an indication of origin are sold, and supported and unsupported electricity have not been distinguished. Companies sell electricity from renewable energy sources using different brands (Ringed Seal Electricity, Utility Electricity, etc.); the share of supported energy in these electricity products is also not known.

4. Please provide information on how, where applicable, the support schemes have been structured 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 ligno-cellulosic material (Article 22(1)(c) of Directive 2009/28/EC).

As stated in the reply to section 3, attempts are made to promote the adoption of more advanced but more expensive biofuels by using the double counting method of the RES Directive and by means of the new fuel tax structure.

5. Please provide 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 (Article 22(1)(d) of Directive 2009/28/EC).

In Finland, the guarantee-of-origin system is only applied to the guarantees of origin for electricity, including electricity produced from effective combined production. The system works well, and amendments to the existing system required by the RES Directive are being implemented in legislation.

The reliability of the system has been ensured by assigning the granting of guarantees of origin to the grid operator in charge of the system. The granted guarantees of origin are based on the verification of the production method of the power plant and the energy sources used by it and the measurement of the electricity produced.

The Energy Market Authority supervises compliance with the Act on Production Support to Electricity from Renewable Energy Sources.

The reliability of the measurement of electricity is, for their part, guaranteed by the measurement provisions valid in Finland, which require remote reading and hourly measurement of electricity production and large consumption sites. In addition, a decree was issued in 2009, which obligates distribution grid operators to adopt hourly measurement so that by the end of 2014 at least 80 per cent of the places of electricity use are covered by remotely read hourly measurements and a load control possibility.

6. Please describe the developments in the preceding two years in the availability and use of biomass resources for energy purposes (Article 22(1)(g) of Directive 2009/28/EC).

It is suggested that **Tables 4 and 4a** are used to provide more detailed information on the biomass supply.

Table 4: Biomass supply for energy use

	Amount of domestic raw material (*)		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)	
	Year 2009	Year 2010	Year 2009	Year 2010	Year 2009	Year 2010	Year 2009	Year 2010	Year 2009	Year 2010	Year 2009	Year 2010
Biomass supply for heating and electricity												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings, etc.)**	10.785 million solid cubic metres . Covers wood chips used by heat and power plants and raw firewood for detached houses . Also includes imported wood.	11.602 million solid cubic metres . Covers wood chips used by heat and power plants and raw firewood for detached houses . Also includes imported wood.	86.745 PJ = 2 071.9 ktoe. Also includes imported wood.	95.101 PJ = 2 271.4 ktoe. Also includes imported wood.								
Indirect supply of wood biomass (residues and co-products from wood industry, etc.)**	9.372 million solid cubic metres . Covers the forest industry co-product wood used in heat and power plants (wood residue chips, sawdust, bark), wood pellets and briquettes and	11.117 million solid cubic metres . Covers the forest industry co-product wood used in heat and power plants (wood residue chips, sawdust, bark), wood pellets and briquettes and recycled	67.118 PJ = 1 603.1 ktoe. Also includes imported wood.	78.270 PJ = 1 869.5 ktoe. Also includes imported wood.								

	recycled wood, as well as waste firewood for detached houses . Also includes imported wood.	wood, as well as waste firewood for detached houses . Also includes imported wood.										
Energy crops (grasses, etc.) and short-rotation trees (please specify)	51 326	n.a.	22	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Agricultural by-products/processed residues and fishery by-products **	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Biomass from waste (municipal, industrial, etc.)**												
Others (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels (please specify main types)	270	n.a.	0.092	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Energy crops (grasses, etc.) and short rotation trees for biofuels (please specify main types)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Others (please specify)												

* Amount of raw material if possible in m³ for biomass from forestry and in tonnes for biomass from agriculture and fishery and biomass from waste.

** The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC of the European Parliament and the Council.

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

Land use	Surface (ha)	
	2009	2010
1. Land used for common arable crops (wheat, sugar beet, etc.) and oilseeds (rapeseed, sunflower, etc.) (Main types: rapeseed and oat)	n.a.	332
2. Land used for short rotation trees (willows, poplars) (Main types: willows)	30	18
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum (Main types: reed canary grass)	16 640	16 894

7. Please provide information on any changes in commodity prices and land use within Finland in the preceding two years associated with increased use of biomass and other forms of energy from renewable sources. Please provide where available references to relevant documentation on these impacts in Finland (Article 22(1)(h) of Directive 2009/28/EC).

When assessing commodity price impacts, it is suggested to consider at least the following commodities: common food and feed crops, energy wood, pellets.

Figure 1 shows the price trend in woodchips in the place of use, and Figure 2 shows the price trend in pellets. Increased use of renewable energy sources has not had an impact on the price trend in woodchips or pellets. The utilisation of arable biomasses is not extensive in Finland, which means that the increased use of renewable energy sources has not affected the prices of food or feed crops.

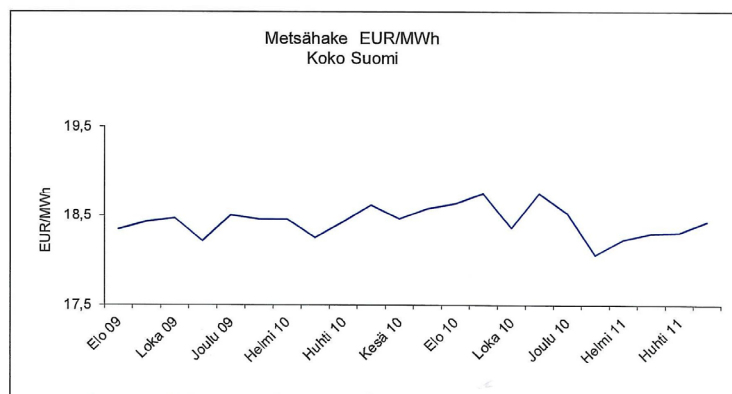


Figure captions:

Metsähake: Woodchips

Koko Suomi: The whole of Finland

Elo: August

Loka: October

Joulu: December

Helmi: February

Huhti: April

Kesä: June
 EUR/MWh: EUR/MWh
 17,5, 18,5, 19,5: 17,5, 18,5, 19,5

Figure 1: Price trend in woodchips between August 2009 and April 2011, €/MWh

Grade	Index Value	Change	Confidence Interval
Pellet Nordic CIF	EUR/MWh 29.89	- 0.26	29.22 – 30.56
	SEK/MWh 273.16	- 1.62	

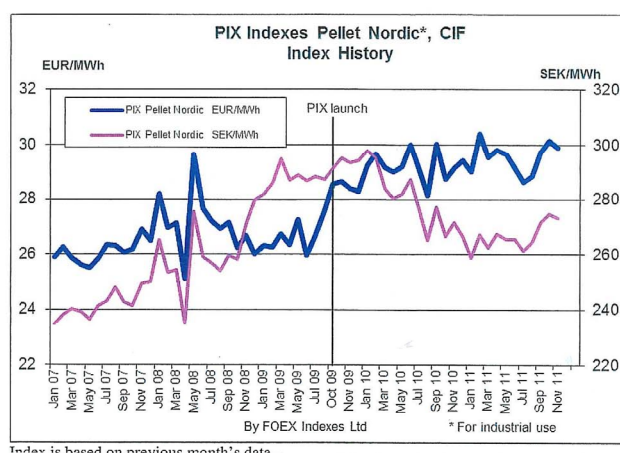


Figure 2: Price trend in pellets between January 2007 and November 2011, €/MWh

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material and ligno-cellulosic material (Article 22(1)(i) of Directive 2009/28/EC).

The production and use of biofuels according to Article 21(2) of the RES Directive was not significant before 2011, and the biofuels in question had not been defined at a national level. Therefore, no statistics concerning their production and use are available for 2009 and 2010.

Table 5: Production and consumption of Article 21(2) biofuels (Ktoe)

Article 21(2) biofuels ²⁶	Year n-2	Year n-1
Production – Fuel type X (Please specify)		
Consumption – Fuel type X (Please specify)		
Total production Article 21(2) biofuels		
Total consumption Article 21(2) biofuels		
% share of Article 21(2) fuels from total RES-T		

9. Please provide information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within Finland in the preceding two years. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within Finland (Article 22(1)(h) of Directive 2009/28/EC).

So far, the production of biofuels and bioliquids in Finland is mainly based on imported raw material and, to some extent, domestic waste and residue raw materials. For this reason, it can be estimated that in Finland, the production of biofuels has not had an impact on any of the above-mentioned issues.

²⁶ Biofuels made from wastes, residues, non-food cellulosic material and ligno-cellulosic material.

10. Please estimate the net greenhouse gas emission savings due to the use of energy from renewable sources (Article 22(1)(k) of Directive 2009/28/EC).

For the calculation of net greenhouse gas emission savings from the use of renewable energy, the following methodology is suggested:

- *For biofuels: In accordance with Article 22(2) of Directive 2009/28/EC.*
- *For electricity and heat it is suggested to use the EU wide fossil fuel comparators for electricity and heat as set out in the report on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling²⁷, if no later estimates are available.*

If Finland chooses not to use the suggested methodology for estimating the net greenhouse gas emission savings, please describe what other methodology has been used to estimate these savings.

The estimate of the net greenhouse gas emission savings presented below is theoretical. The electricity and heat production of the forest industry is based on biomass created as a secondary flow of industrial processes. Particularly with regard to the forest industry, it is essentially incorrect to assume that the electricity and heat needed by the industry would be produced from fossil fuels or peat. If the use of biomass in the production of the electricity and heat by the forest industry were not possible, no forest industry would have arisen in Finland.

In the estimates of net greenhouse gas emission savings due to the use of renewable energy, the following have been assumed:

- For biofuels: In accordance with Article 22(2) of Directive 2009/28/EC.
- With regard to separate electricity production (hydro power, wind power, photovoltaic electricity and separate electricity production from bioenergy), the net savings have been estimated using an emission coefficient of 0.0951 Mt CO₂/PJ. The emission coefficient corresponds to the average emission coefficient of Finland's separate condensate production based on fossil fuels and peat. The consumption ratio of hydro power, wind power and photovoltaic electricity is assumed to be 2.4.
- With regard to the separate heat production based on bioenergy, the net savings have been estimated using an emission coefficient of 0.0746 Mt CO₂/PJ. The emission coefficient corresponds to the average emission coefficient of Finland's separate heat production based on fossil fuels and peat.
- With regard to combined electricity and heat production, the net savings have been estimated using an emission coefficient of 0.0776 Mt CO₂/PJ. The emission coefficient corresponds to the average emission coefficient of Finland's combined electricity and heat production based on fossil fuels and peat.
- In the aforementioned coefficients, the default values according to Annex II of the Commission's report for emissions from biomass have been taken into account.

Table 6: Estimated GHG emission savings from the use of renewable energy (t CO₂ eq.)

Environmental aspects	2009	2010
<i>Total estimated net GHG emission savings from using renewable energy²⁸</i>		
- Estimated net GHG savings from the use of renewable electricity	16.5 Mt	16.0 Mt
- Estimated net GHG savings from the use of renewable energy in heating and cooling	20.4 Mt	23.5 Mt
- Estimated net GHG savings from the use of renewable energy in transport	0.3 Mt	0.3 Mt

11. Please report on (for the preceding two years) and estimate (for the following years up to 2020) the excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/imported from other Member

²⁷ Report available on:

http://ec.europa.eu/energy/renewables/transparency_platform/doc/2010_report/com_2010_0011_3_report.pdf.

²⁸ The contribution of gas, electricity and hydrogen from renewable energy sources should be reported depending on the final use (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

States and/or third countries, as well as estimated potential for joint projects until 2020 (Article 22(1)(l, m) of Directive 2009/28/EC).

The Government is preparing an update of the energy and climate strategy to be adopted by the end of 2012. The strategy updates the scenario reviews and proposes means to promote renewable energy sources. According to the scenario review conducted in the summer of 2010, Finland will not obtain renewable energy from other countries or supply it to other countries through cooperation mechanisms.

Table 7: Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Member States and/or third countries in [Member State] (ktoe)^{29,30}

	Year n-2 (200 9)	Year n-1 (201 0)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual/estimated excess or deficit production (Please distinguish per type of renewable energy and per origin/destination of import/export)	0	0	0	0	0	0	0	0	0	0	0	0

11.1. Please provide details of statistical transfers, joint projects and joint support scheme decision rules.

Finland has not implemented statistical transfers, joint projects or joint support schemes with other countries in 2009 and 2010, and neither has it concluded such agreements concerning future years.

12. Please provide information on how the share of biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates (Article 22(1)(n) of Directive 2009/28/EC).

The share of biodegradable waste in waste used for energy production is estimated to be 60 per cent. The estimate is based on sample surveys.

Please note that in the first progress report (2011 report) Member States are invited to outline their intentions with regard to the questions addressed in Article 22(3)(a–c). In addition, Member States are also welcome to provide any other information considered relevant to the specific situation of developing renewable energy of each Member State.

Questions of Article 22(3):

Does Finland intend to

establish a single administrative body responsible for the processing of authorisation, certification and licence applications of renewable energy installations and providing assistance to the applicants;

No. Finland does not have any licences for energy production other than licences related to land use and the environment. The authorities responsible for these permits are also responsible for operations with regard to

²⁹ Please use actual figures to report on the production exceeding the indicative trajectory in the two years preceding submission of the report, and estimates for the following years up to 2020. In each report Member State may correct the data of the previous reports.

³⁰ When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g. -x ktoe).

renewable energy. With regard to the support to renewable energy sources, assistance to the applicants is provided by the authorities granting the support.

provide for automatic approval of planning and permit applications for renewable energy installations where the authorising body has not responded within the set time limits; or

No. If a permit is required according to the law, a permit application requires permit processing as laid down in the Act in question and a decision by the competent authority. A planning application is not recognised in national legislation.

indicate geographical locations suitable for exploitation of energy from renewable sources in land use planning and for the establishment of district heating and cooling.

To organise and control the land use in municipalities, local master plans and local detailed plans are prepared. The local master plan sets out the main characteristics of the use of a certain area in the municipality. The local detailed plan sets out the organisation of the land use and construction in the subareas of a municipality. A regional land use plan contains an outline plan for the use of areas in a province or its subarea. The Government may approve national objectives concerning the use of areas or the area structure. In land use plans, areas may be indicated as suitable for wind power or energy production.