

Template for Member State progress reports under Directive 2009/28/EC.

Article 22 of Directive 2009/28/EC requires Member States to submit a report to the Commission on progress in the promotion and use of energy from renewable sources by 31 December 2011, and every two years thereafter. The sixth report, to be submitted by 31 December 2021, shall be the last report required.

Member State reports will be important for monitoring overall renewable energy policy developments and Member State compliance with the measures set out in the Directive 2009/28/EC and the National Renewable Energy Action Plans of each Member State. The data included in these reports will also serve to measure the impacts referred to in Article 23 of Directive 2009/28/EC. Consistency in Member State data and reporting would be useful.

The purpose of the template is to help ensure that Member State reports are complete, cover all the requirements laid down in the Article 22 of Directive and are comparable with each other, over time and with National Renewable Energy Action Plans submitted by Member States in 2010. Much of the template draws on the template for the National Renewable Energy Action Plans¹.

When filling in the template, Member States should comply with the definitions, calculation rules and terminology laid down in Directive 2009/28/EC and those of Regulation (EC) No. 1099/2008 of the European Parliament and the Council².

Additional information can be provided either in the prescribed structure of the report or by including annexes.

Passages in italics aim to guide Member States in the preparation of their reports. Member States may delete these passages in the version of the report which they submit to the Commission.

¹ C(2009)5174

² OJ L 304, 14.11.2008, p. 1.

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (Article 22 (1) a of Directive 2009/28/EC)).

Please fill in the actual shares and actual consumption of renewable energy **for the preceding 2 years** in the suggested tables.

Table 1: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources³

	2011	2012
RES-H&C ⁴ (%)	36.2	36.0
RES-E ⁵ (%)	104.7	103.4
RES-T ⁶ (%)	4.1	4.6
Overall RES share ⁷ (%)	64.8	66.1
<i>Of which from cooperation mechanism⁸ (%)</i>	0	0.1
<i>Surplus for cooperation mechanism⁹ (%)</i>	0	0

The renewables share has increased in Norway over the past two years, among other things owing to new hydropower production capacity. This is in line with the Action Plan.

However, the increase was even higher than that forecast in the baseline set out in the National Renewable Energy Action Plan (NREAP). Given the particularities of the Norwegian energy system, such year-on-year variations are to be expected. Renewable power generation in Norway relies mainly on hydropower and production levels therefore vary with the hydrological conditions. Similarly, energy consumption in Norway is to a large extent correlated with outdoor temperatures and thus varies from year to year. This is described in points 3.1. and 3.2 of the Action Plan.

In 2012 hydropower generation levels were high, and considerable new hydropower production capacity was installed. Under the normalisation rules this resulted in particularly high normalised electricity generation from hydropower, with the result that in the renewables calculation the numerator increased. Total national energy consumption was below estimates in both 2011 and 2012, which resulted in a lower denominator and thus a higher renewables share.

Part of the increase is accounted for by changes in the calculation methodology to be used under the Directive. The revised method for calculating generation from mixed pumped storage has led to changes in relation to earlier calculations. This also helps explain why the reported hydropower generation is higher than the NREAP estimate.

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

⁴ 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 in Table 3 of NREAPs applies.

⁵ Share of renewable energy in electricity: gross final consumption of electricity 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.

⁶ Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 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 in land transport (as reflected in row 3 of Table 1). The same methodology as in Table 3 of NREAPs applies.

⁷ Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.

⁸ In percentage point of overall RES share.

⁹ In percentage point of overall RES share.

Energy consumption and generation in Norway varies from year to year, and it is expected that for the next reporting period the renewables share will be closer to the baseline drawn up in the national action plan.

Table 1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)¹⁰

	2011	2012
(A) Gross final consumption of RES for heating and cooling	1646	1602
(B) Gross final consumption of electricity from RES	11213	11564
(C) Gross final consumption of energy from RES in transport	120	139
(D) Gross total RES consumption ¹¹	12979	13305
(E) Transfer of RES <u>to</u> other Member States	0	
(F) Transfer of RES <u>from</u> other Member States and 3rd countries	0	30*
(G) RES consumption adjusted for target (D)-(E)+(F)	12979	13335

*Transfer from Sweden to Norway under the electricity certificate scheme (joint support scheme). See points 3 and 11.1.

Table 1.b: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in Norway to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity¹²

	2011		2012	
	MW	GWh	MW	GWh
Hydro¹³:	29 969	128 763	30 469	132 522
non pumped				
<1MW	61	330	62	340
1MW-10 MW	1 606	7 564	1 632	7 781
>10MW	26 991	119 031	27 431	122 445
pumped				
mixed ¹⁴	1 311	1 838	1 344	1 956
Geothermal				
Solar:	-	-	-	-
Photovoltaic				
concentrated solar power				
Tide, wave, ocean				
Wind:	512	1 278	704	1 720
onshore	512	1 278	704	1 720
offshore	-	-	-	-
Biomass¹⁵:	174	367	147	252
solid biomass	158	305	131	182
biogas	16	62	16	70
bioliquids	-	-	-	-
TOTAL	30 655	130 408	31 320	134 494
of which in CHP				

¹⁰ Facilitates comparison with Table 4a of the NREAPs

¹¹ According to Art. 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.

¹² Facilitates comparison with Table 10a of the NREAPs.

¹³ Normalised in accordance with Directive 2009/28/EC and Eurostat methodology.

¹⁴ In accordance with new Eurostat methodology.

¹⁵ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

Table 1c: Total actual contribution (final energy consumption¹⁶) from each renewable energy technology in Norway to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (ktoe)¹⁷

	2011	2012
Geothermal (excluding low temperature geothermal heat in heat pump applications)	-	-
Solar	-	-
Biomass¹⁸:	1 324	1 253
<i>solid biomass</i>		
<i>biogas</i>		
<i>bioliquids</i>		
Renewable energy from heat pumps¹⁹:	322	349
- of which aerothermal	191	206
- of which geothermal	105	114
- of which hydrothermal	26	29
TOTAL	1 646	1 602
<i>Of which DH²⁰</i>	189	187
<i>Of which biomass in households²¹</i>	628	655

Table 1d: Total actual contribution from each renewable energy technology in Norway to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)^{22, 23}

	2011	2012
Bioethanol/ bio-ETBE	8	10
<i>Of which Biofuels²⁴ Article 21.2</i>	0.5	0.9
<i>Of which imported²⁵</i>	7.5	9.1
Biodiesel	109	126
<i>Of which Biofuels²⁶ Article 21.2</i>		
<i>Of which imported²⁷</i>	109	126
Hydrogen from renewable	-	-
Renewable electricity	58	59
<i>Of which road transport</i>	1	2
<i>Of which non-road transport</i>	57	57
Others (as biogas, vegetable oils, etc.) – please specify	3	3
<i>Of which Biofuels²⁸ Article 21.2</i>		
TOTAL	179	198

¹⁶ Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.

¹⁷ Facilitates comparison with Table 11 of the NREAPs.

¹⁸ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

¹⁹ For heat pumps the calculations have been made under the new rules laid down in Decision 2013/114/EU establishing guidelines on calculating renewable energy from heat pumps (ref. Article 5 of the RES Directive)". These guidelines have yet to be incorporated into the EEA Agreement.

²⁰ District heating and / or cooling from total renewable heating and cooling consumption (RES- DH).

²¹ From the total renewable heating and cooling consumption.

²² For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.

²³ Facilitates comparison with Table 12 of the NREAPs.

²⁴ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

²⁵ From the whole amount of bioethanol / bio-ETBE.

²⁶ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

²⁷ From the whole amount of biodiesel.

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

2. Measures taken in the preceding 2 years 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 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
Planning and Building Act; Construction Technology Regulation (TEK). Requirements regarding energy needs and energy supply in new and renovated buildings.	Regulatory	More energy-effective buildings where renewable energy accounts for a larger share of the energy consumption	Construction industry	Existing and planned	TEK revised in 2007 and amended in 2010, but already contained energy-related requirements. <i>Changes:</i> Planned upgrade of TEK in 2015 to passive house standards. Currently under examination.
Ban on oil boilers as from 2020.	Regulatory	Reduced oil combustion for heating, increased use of renewable heat.	Construction industry	Planned	A ban is under consideration.
Competence-building programmes in the construction industry, e.g. Cities of the Future/Buildings of the Future, Low Energy Programme, Ecobox, Build up skills. <i>New addition:</i> Building 21 – a long-term programme aimed at competence building in the construction industry.	Information	Increased knowledge of energy solutions in the construction industry	Construction industry and municipalities	Existing	The programmes involved have different start and end dates.
Changes in weighting of components included in the one-off levy on cars, by strengthening the components intended as an incentive to purchase cars with low CO ₂ and NO _x emissions but with no increase in the amount the of levy as a result.	Financial				From 1 January 2013
Increased deduction for weight in one-off levy on rechargeable hybrid cars (from 10 to 15%)	Financial				From 1 July 2013
Exemption from CO ₂ levy on mineral oil for fishing and	Financial				From 1 January 2013, with further restrictions

hunting in local waters repealed and replaced with a low rate of NOK 0.13 per litre. This corresponds to NOK 49 per tonne CO ₂ . Rate to increase to NOK 0.26 per litre, i.e. NOK 98 per tonne CO ₂ from 1 January 2014					to apply from 1 January 2014
Increase in basic rates of CO ₂ levy on mineral oil and gas and levy on climate gases (HFC and PFC), by about NOK 100 to around NOK 330 per tonne CO ₂ equivalents. For mineral oils subject to the basic rate, this corresponds to a real increase of NOK 0.26 per litre. Diesel oil subject to road use charges on fuel is exempt from the increase. For domestic aviation the rates increase by around NOK 50 per tonne CO ₂ .	Financial				From 1 January 2014
Increase in basic levy on mineral oil, etc. of NOK 0.52 per litre above rate of inflation	Financial				From 1 January 2014
Increase in electricity levy of NOK 0.56/kWh after price adjustments	Financial				From 1 January 2014
From 1 January 2013 the weighting of the components making up the one-off levy on cars has changed. The changes aimed to strengthen the parts of the levy intended as an incentive to purchase cars with low CO ₂ and NOx emissions. The total amount of levy has not increased as a result.					
From 1 July 2013 the deduction for weight in the one-off levy on rechargeable hybrid cars increased from 10 to 15%.					
From 1 January 2013 the exemption from the CO ₂ levy on mineral oil for fishing and hunting in local waters was repealed and replaced with a low					

rate of NOK 0.13 per litre. This corresponds to NOK 49 per tonne CO ₂ .					
Enova support scheme for new technology	Financial	Higher investments in new energy and climate technologies and innovative technologies for buildings of the future; new technologies brought to market at higher rate.	Businesses	Existing. Addition to table 5 of Action Plan.	Enova has managed support scheme for bringing new technology to market since 2002. The scheme was extended and reinforced in 2012. In 2012 Enova also stepped up its support for new energy and climate technology.
Enova support schemes for households	Financial	Higher investments in renewable heating solutions conducive to phasing out of fossil oil and to energy savings. Higher investments in energy upgrades of homes.	Households	Existing. Amendment to "Enova subsidy scheme for households" in table 5 of Action Plan.	Enova has managed support scheme for households since 2006. The scheme was revised and extended in 2013.
Joint electricity certificate scheme with Sweden launched on 1 January 2012. The scheme promotes increased renewable power generation.	Financial	Increased generation of electrical power from renewable energy sources in Norway and Sweden, with total generation forecast at 24.6 TWh in 2020	Operators of plants with new power generation capacity based on renewable energy sources	Existing	1.1.2012 - 1.4.2036

* 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).

No new measures; see Action Plan.

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).

No new measures; see Action Plan.

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 MNOK	Total (M€)*
<i>Renewable power</i>				
Electricity certificate scheme** 2012	Obligation/quota (%):3% mandatory quota Penalty/Buy out option/ Buy out price (€unit)	NOK 267.80 Amount of levy varies with price of electricity certificates ***	0.22	0.026
	Average certificate price	NOK 181 per MWh Average price, weighted by volume, of electricity certificates registered in Norway and Sweden.	434.4	52.2
	Tax exemption/refund	N/A	N/A	N/A
	Investment subsidies (capital grants or loans) (€unit)	N/A	N/A	N/A
	Production incentives	N/A	N/A	N/A
	Feed-in tariff	N/A	N/A	N/A
	Feed-in premiums			
	Tendering			
Total annual estimated support in the electricity sector				
Total annual estimated support in the heating sector				
Total annual estimated support in the transport sector				

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

** Source of figures: Annual report on electricity certificates, http://webby.nve.no/publikasjoner/rapport/2013/rapport2013_59.pdf

*** Failure to revoke electricity certificates is subject to a fee of 150% of the average price, weighted by volume, of electricity certificates registered in Norway and Sweden in the period from 1 April in the previous calendar year to 31 March in the current calendar year.

Electricity certificate scheme: Launched on 1 January 2012, this scheme promotes new power generation from renewable energy sources in Norway.

Additional information on the electricity certificate scheme can be found on the website of the Norwegian Water Resources and Energy Directorate (*Norges vassdrags- og energidirektorat*, NVE): <http://www.nve.no/no/Kraftmarked/Elsertifikater/>

Enova SF

The objective of Enova and the Energy Fund (*Energifondet*) is to promote environment-friendly changes in energy use and power generation and the development of advanced energy and climate technologies. Enova manages the Energy Fund, which provides long-term financing for energy conversion measures and the development of energy and climate technologies. Enova's objectives translate into six specific main targets identifying the areas in which Enova will grant support. As a manager of the Energy Fund Enova aims to contribute to:

- new energy and climate technologies being developed and brought on the market;
- more effective and flexible energy use;
- increased use of energy carriers other than electricity, natural gas and oil for heating;
- increased use of new energy resources, including energy recovery and bioenergy;
- better-functioning markets for effective and more environment and climate-friendly energy solutions;
- raising public awareness of the availability of energy-effective solutions that are environment and climate-friendly.

On 28 June 2012 the Norwegian Ministry of Petroleum and Energy (*Olje- og energidepartementet*) entered into a four-year agreement with Enova on its management of Energy Fund resources until the end of 2015. The parties agreed that the energy and climate results to be achieved by Enova in the period from 2012 to 2015 are the equivalent of at least 6.25 TWh. In reporting the results the company will present both results stipulated in award contracts and any such results achieved under projects having received a commitment for support. Enova is also to manage new funds specifically aimed at promoting energy and climate technologies that help curb climate gas emissions and bring about a lasting energy transformation.

Enova has at its disposal a broad range of measures developed thanks to its in-depth knowledge of the functioning of the various markets. An overview of Enova's programmes is provided in Table 5 of the Action Plan and later additions and changes are shown in Table 2 above.

Transport

Transnova manages grants provided by the Norwegian Ministry of Transport and Communications (*Samferdselsdepartementet*) to projects that contribute to a more effective implementation of new and more environment-friendly transport technologies, transport practices and modal shifts. Appropriations are set on an annual basis in the national budget. Projects receiving support are generally at the pilot or demonstration phase, aim to dismantle solution implementation barriers and contribute to learning, knowledge transfer and competence building. Transnova's remit was extended in spring 2013 to include, among other things, infrastructure for various alternative fuels and energy efficiency in the maritime sector.

Norway has set itself a national sales target under which biofuels must account for at least 3.5% of total fuel sales for road traffic purposes. The sustainability criteria for biofuels (Articles 17-21 of the Sustainability Directive) are enacted in a national regulation which entered into force on 1 January 2014. Biofuels taken into account for measuring compliance with the renewables target or the sales target must satisfy the sustainability criteria.

3.1. Please provide 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).

There is no mechanism in place to ensure that power generation covered by electricity certificates is allocated to final consumers as provided for in Article 3(6) of Directive 2003/54/EC.

Norwegian power producers may be issued with guarantees of origin. Such guarantees are provided under a voluntary scheme designed to allow documentation of the sources from which a given amount of power was generated.

Power producers must inform customers of the origin of their power supplies during the previous year in promotional material and invoices (product declaration). This requirement is laid down in a new NVE metering and accounting regulation.

Power producers that do not make use of guarantees of origin must refer to the product declaration as calculated by the NVE or, as a minimum, refer to the NVE's website. End users requiring documented proof that they are buying power generated from renewable energy sources must buy guarantees of origin.

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).

In Norway there are no such support schemes.

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).

The guarantees of origin scheme is governed by the Guarantees of Origin Regulation (FOR-2007-12-14-1652). Norway participated in the Concerted Action on the Renewable Energy Sources Directive and contributed to drawing up a common template for a form presenting such schemes in detail. The enclosed form describes the introduction of the guarantees of origin scheme in Norway. The form has been submitted to CA-RES and will be made available on the NVE website (*link to be provided*). We would therefore refer you to the information given in the form (enclosed).

6. Please describe the developments in the preceding 2 years in the availability and use of biomass resources for energy purposes. (Article 22(1)g) of Directive 2009/28/EC).

Currently, biomass used for energy purposes in Norway is mainly made up of firewood used for heating in private households, for industrial purposes in the forest industry and for district heating.

The past two-year period saw few changes in the availability and use of biomass for energy purposes. The supply of biofuels, mainly from the forests, largely depends on logging activities, which in turn depend on prices and demand in international markets.

The woodchips energy scheme, a support scheme for the production of woodchips and energy from forest fuels, has had a favourable impact over the two-year period. In total, some 824 000 m² lv (loose volume) woodchips were produced with support from the scheme in 2011 and some 880 000 m² lv in 2012. Around 60-70% of the production went to domestic bioenergy generation while the remaining amount was exported.

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)	
	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 energy generation (fellings etc.)**	3.65 million m3s	Na	627	Na	Na	Na	Na	Na	Na	Na	Na	Na
Indirect supply of wood biomass (residues and co-products from wood industry etc.)**	3.55 million m3s	Na	610	Na	Na	Na	Na	Na	Na	Na	Na	Na
Energy crops (grasses, etc.) and short rotation trees (please specify)			0									
Agricultural by-products / processed residues and fishery by-products **			0									
Biomass from waste (municipal, industrial etc.) **	2 826 million tonnes		Na									
Others (please specify)			0									
Biomass supply for transport:												
Common arable crops for biofuels (please specify main types)			0									
Energy crops (grasses, etc.) and short rotation trees for biofuels (please specify main types)			0									
Others (byproducts forest industry - bioethanol) Biodiesel	Na											

* 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

Table 4a. Current domestic agricultural land use 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)	0	0
2. Land used for short rotation trees (willows, poplars). (Please specify main types)	0	0
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum. (Please specify main types)	0	0

7. Please provide information on any changes in commodity prices and land use within your Member State in the preceding 2 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 your country. (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.

The price of bioenergy largely reflects the price of alternative sources of heating. The generation and use of bioenergy has not had any considerable impact on the value and use of land.

Official price statistics for various types of biofuels are currently not available.

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

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

Article 21(2) biofuels ²⁹	Year 2011	Year 2012
Production –		
Bioethanol	2.31	3.36
Consumption –		
Bioethanol	0.45	0.85
Total production Art.21.2.biofuels	2.31	3.36
Total consumption Art.21.2. biofuels	0.45	0.85
% share of 21.2. fuels from total RES-T	0	0

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 your country in the preceding 2 years. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within your country. (Article 22 (1) j) of Directive 2009/28/EC).

²⁹ Biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material.

There have been no substantial changes in this area over the past two years. The production of biomass, mainly from forests, for energy purposes may affect the forest ecosystem, cultural heritage sites and outdoor life in various ways and a number of factors are at play in determining the exact effects. All production and removal of biomass from the forests, including for energy purposes, must be carried out in a sustainable manner in accordance with the relevant legislation and comply with the Norwegian PEFC forest management standard. Research is being carried out to establish the impact of increased biomass production in Norway.

From 1 January 2014 biomass produced for biofuel purposes must meet the sustainability criteria for biofuels and bioliquids, see Chapter 3.

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 cooling³⁰, if no later estimates are available.*

If a Member State 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.

Table 6: Estimated GHG emission savings from the use of renewable energy (t CO₂eq)

Environmental aspects	2011	2012
<i>Total estimated net GHG emission saving from using renewable energy³¹</i>		
- Estimated net GHG saving from the use of renewable electricity		
- Estimated net GHG saving from the use of renewable energy in heating and cooling		
- Estimated net GHG saving from the use of renewable energy in transport		

Hydropower accounts for a large part of Norway's stationary energy consumption. Climate gas emissions from domestic energy consumption are therefore relatively low in comparison to other countries. Increased use of renewable energy, particularly as regards electrical power, will have only a limited direct effect on emissions in Norway.

Increased exports from Norway could help expand the use of renewables in other countries. Norwegian hydropower generation is a flexible energy resource which, to a large extent, can be exploited in response to demand. In the context of increased phasing-in of wind power and other variable renewable energy sources in Europe, the flexibility of the Norwegian hydropower system could help balance energy inputs in countries to which we are connected via a transmission grid.

³⁰ Report available on: http://ec.europa.eu/energy/renewables/transparency_platform/doc/2010_report/com_2010_0011_3_report.pdf .

³¹ 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.

Emissions from energy generation are subject to the European allowance trading scheme. Under the allowance scheme, total emissions were initially set for the commitment period ending in 2020. If increased generation of renewable power leads to a decline in fossil power generation, the price of the allowances may fall as a result. This would lessen the incentives to carry out emission-reducing measures in other sectors. On the other hand, lower allowance prices could have an impact politically in terms of the decisions to be made on future allowance limits.

In the transport sector, climate gas emissions have not changed much over the period in question. The share of biofuels in road traffic has remained stable, and the same applies to the renewables share in the railway sector. There is a clear trend towards cars with a lower fuel consumption. Emissions from cars with petrol and diesel engines have decreased, and at the same time cars equipped with electrical engines make up a larger share of new car sales. As a result the consumption of fossil energy in road traffic has remained relatively stable despite an overall traffic increase.

11. Please report on (for the preceding 2 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 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).

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)^{32, 33}

	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

Norway's renewables share in 2011 and 2012 was above the estimated NREAP baseline, see Question 1. This is mainly due to yearly variations, and it is expected that for the next reporting period the renewables share will be closer to the baseline drawn up in the Action Plan. There are no plans to transfer the 2011 and 2012 excess production to other countries.

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

As the first countries in Europe, Norway and Sweden have implemented a *joint support scheme* as a cooperation mechanism under Article 11 of the Renewables Directive and established a common electricity certificate market to promote the expansion of power generation from renewable energy sources.

The two countries have set up a distribution rule pursuant to Article 11(1)(b) of the Directive establishing how renewable power generation in the electricity certificate market is to be distributed between them. In a letter dated 25 March 2013 the Ministry of Petroleum and

³² Please use actual figures to report on the excess production 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.

³³ When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g. -x ktoe).

Energy informed the EFTA Surveillance Authority on the distribution rule for the Norwegian-Swedish electricity certificate scheme.

Under the rules of the Renewables Directive, Norway produced 40 GWh renewable power covered by the joint Norwegian-Swedish electricity certificate scheme in 2012, whereas Sweden produced 743 GWh renewable power covered by the scheme. In accordance with the distribution key established for the joint certification scheme this means that 351.5 GWh renewable power was transferred from Sweden to Norway for 2012 with respect to the reporting of target achievements under the Renewables Directive.

12. Please provide information on how the share for 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)).

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.

A calculation has been made of the renewables share of waste delivered to Norwegian incineration plants in 2009. The project is an update of a project carried out in 2006. The calculation methods used are the same as those used in 2006 with some changes, such as a more detailed analysis of the share of renewable, fossil and inert content of each fraction of waste.

In this project the renewables share was calculated in both weight and energy terms. The calculations were made on the basis of available waste statistics, sample analysis of household and industrial waste and data from relevant publications. The project involved new sample analyses of various types of industrial waste delivered to incineration plants in Norway. The calculation of the renewables share in energy terms was based on a model developed by PROFU, which has also checked and approved the quality of the calculations. The renewables share was calculated as follows:

- 60% in weight terms
- 52% in energy terms

According to the calculations made the renewables share of the waste, based on actual net calorific value, was 52%. There was no significant change compared to the results obtained in 2006, where the renewables share was calculated at 50%.

Heat value (entire volume of waste): 11.5 MJ/kg (SSB: 10.5 MJ/kg)

Fossil energy share: 48%. Renewable energy share: 52%.

The total energy content of waste delivered to Norwegian incineration plants has been calculated at some 3.5 TWh/year.