

National renewable energy action plan

(NREAP)

PORTUGAL

Second progress report

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1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (n-1; n-2 e.g. 2012 and 2011) (Article 22 (1) (a) of Directive 2009/28/EC).

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

	2011	2012
RES-H&C ² (%)	35.0	33.0
RES-E ³ (%)	45.9	47.6
RES-T ⁴ (%)	0.4	0.4
Overall RES share ⁵ (%)	24.5	24.6
<i>Of which from cooperation mechanism⁶ (%)</i>	-	-
<i>Surplus for cooperation mechanism⁷ (%)</i>	-	-

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

	2011	2012
A) Gross final consumption of RES for heating and cooling	2 210	1 905
B) Gross final consumption of electricity from RES (a)	2 144	2 174
C) Gross final consumption of energy from RES in transport	17	18
D) Gross total RES consumption ⁹	4 371	4 098
E) Transfer of RES to other Member States	-	-
F) Transfer of RES from other Member States and 3rd countries	-	-
G) RES consumption adjusted for target (D)-(E)+(F)	4 371	4 098

(a) Electricity production from RES harmonising hydro and wind power in accordance with Directive 2009/28/EC

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 in Table 3 of NREAPs applies

³ 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 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 Article 5(1)(c) and 5(5) of Directive 2009/28/EC divided by 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

⁵ Share of renewable energy in 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 In accordance with 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.

Table 1b: Total actual contribution (installed capacity, gross electricity 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 resources in the electricity sector¹⁰

	2011		2012	
	MW	GWh	MW	GWh
Hydro-electric ¹¹ :	5 551	12 114	5 717	6 660
<1MW	34	88	32	73
1MW–10 MW	343	849	348	553
<10 MW	5 174	11 177	5 337	6 034
Pumped	1 029	575	1 274	1 038
Geothermal	25	210	25	146
Solar:	172	280	238	393
Photovoltaic	172	280	238	393
Concentrated solar power	0	0	0	0
Tide, wave, ocean	0	0	0.33	0.003
Wind ¹² :	4 256	9 162	4 414	10 260
Onshore	4 256	9 162	4 412	10 260
Offshore	0	0	2	0.023
Biomass ¹³ :	598	3 219	606	3 195
Solid biomass	554	3 058	555	2 986
Biogas	44	161	51	209
Bioliquids	0	0	0	0
TOTAL¹⁴	10 602	24 985	11 000	20 654
Of which in CHP	383	1 734	376	1 721

N.B. The capacity indicated above is the maximum for the corresponding years

¹⁰ Facilitates comparison with Table 10 a of the NREAPs.

¹¹ Standardised production in accordance with Directive 2009/28/EC and Eurostat methodology.

¹² Standardised production in accordance with Directive 2009/28/EC.

¹³ Only considers those meeting the applicable sustainability criteria (see the final paragraph of Art. 5(1) of Directive 2009/28/EC).

¹⁴ Standardised production in accordance with Directive 2009/28/EC and Eurostat methodology.

Table 1c: Total actual contribution (final energy consumption¹⁵) 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 resources in heating and cooling(ktoe)¹⁶

	2011	2012
Geothermal (excluding low temperature geothermal heat in heat pump applications)	1.6	1.6
Solar	59.5	67.4
Biomass ¹⁷ :	2 148.7	1 836.5
<i>Solid biomass</i>	2 148.7	1 836.5
<i>Biogas</i>	0	0
<i>Bioliquids</i>	0	0
<i>Renewable energy from heat pumps:</i>		
- of which <i>aerothermal</i>	n.a.	n.a.
- of which <i>geothermal</i>	n.a.	n.a.
- of which <i>hydrothermal</i>	n.a.	n.a.
TOTAL	2 209.7	1 905.4
Of which DH ¹⁸	-	-
Of which biomass in households ¹⁹	711.9	767.0

*n.a. – not available

¹⁵ Direct use and district heat as defined in Article 5(4) of Directive 2009/28/EC.

¹⁶ Facilitates comparison with Table 11 a of the NREAPs.

¹⁷ Only considers those meeting the applicable sustainability criteria (see the final paragraph of Art. 5(1) of Directive 2009/28/EC).

¹⁸ District heating and/or cooling as share of total consumption of heating and cooling from renewable energy sources (RES-DH).

¹⁹ Of the total consumption for heating and cooling from renewable energies

Table 1d: Total actual contribution 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 resources in the transport sector(ktoe)^{20 21}

	2011	2012
Bioethanol/bio-EBTE	-	-
<i>Of which biofuels,²² Article 21(2)</i>	-	-
<i>Of which imported²³</i>	-	-
Biodiesel	4.1	4.2
<i>Of which biofuels,²⁴ Article 21(2)</i>	4.1	4.2
<i>Of which imported²⁵</i>	-	-
Hydrogen from renewables	-	-
RES electricity	13.5	14.6
<i>Of which road transport</i>	0	0
<i>Of which non- road transport</i>	13.1	14.0
Others (biogas, vegetable oils, etc.) – please specify	0	0
<i>Of which biofuels,²⁶ Article 21(2)</i>	0	0
TOTAL	17.1	18.2

²⁰ For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last paragraph.

²¹ Facilitates comparison with Table 12 of the NREAPs.

²² Biofuels that are included in Article 21(2) of Directive 2009/28/EC

²³ From the whole amount of bioethanol/bio-ETBE.

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

²⁵ From the whole amount of biodiesel.

²⁶ 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 (Art. 22(1)(a) of Directive 2009/28/EC)

Table 2: Overview of all policies and measures

Measures completed at 31 December 2012

Name and reference of the measure	Type of measure	Expected result	Targeted group and/or activity	E/P	Start and end dates of the measure	
					Start	End
1. Set up a pilot Project on Évora as a <i>smart city</i>		Promote the integrated management of decentralised energy production, the intelligent charging of electric vehicles and consumption management, using smart meters, and a more efficient management of network operations.	End clients/Operator of the low voltage distribution network/ Évora municipality	E	2010	2012
2. Improvements in the capacity of existing hydro-electric plants (Picote, Bemposta e Alqueva).	Financial	575 MW of installed capacity (hydro power)	Renewable Energy Producers	E	2007	2012
3. Electrical mobility programme	Regulatory and financial	2010: 300 slow-charging points and 20 fast-charging points 2011: 1 300 slow-charging points and 50 fast-charging points	End user	E	2009	2011
4. MOBLE programme to promote electric vehicles	Voluntary	Introduction of electric vehicles as an alternative in road transport. Development of a pilot network covering 25 municipalities by 2012	End user	E	2010	2012
5. Appliances, machines and other equipment, wholly or mainly intended for harnessing and using the sun's rays, wind, geothermal energy or other alternative energy sources will be subject to the middle VAT rate of 12%.	Regulatory/ Financial	Increase in the use of renewable energies	End user/Enterprises	E		2011
6. Creation of co-ordinating body for monitoring compliance with sustainability criteria for biofuels	Regulatory	Creation of process for monitoring compliance with sustainability criteria	Portuguese State/ Operators in the biofuels and fuels sector	E	2010	2012
7. Special rates for electrical energy produced from RES	Regulatory	Increase in amount of electricity produced from RES	Renewable Energy Producers	E	2007	2012

Measures ongoing at 31 December 2012

Name and reference of the measure	Type of measure	Expected result	Targeted group and/or activity	E/P	Start and end dates of the measure	
					Start	End
1. Ensure that capacity allotted at the time of writing to the various technologies (hydro, wind, biomass and other) is built and installed		The capacity allotted at the time of writing via PIP and/or tender must be installed by defined deadlines, and the implementation, control and execution of contracts must be rigorously monitored.	Renewable electricity producers		Continuous	
2. Electrical mobility programme	Regulatory and financial	Rationalisation of the charging infrastructure to meet current needs, in particular in areas with a high demand, which are provided with preferential cover and monitoring.	End user	E	2010	2020
3. Transposition and application in Portugal of directives and best practice in the area of biofuels and in particular the setting of sustainability criteria and high quality standards	Regulatory	Ensure sustainable production of biofuels	Operators in the biofuels sector	E	2010	2020
4. Promote the use of indigenous resources in the production of biofuels, increasing the link with Portuguese agriculture and solutions founded on second-generation biofuels	Voluntary	Increase in the use of indigenous resources in biofuels production and the promotion of the production of biofuels from residues, waste, non-food cellulosic material, and ligno-cellulosic material	Operators in the biofuels sector	E	2010	2020
5. Creating specifications permitting the marketing of fuels with a biofuel content higher than those laid down in the current rules, with maximum levels of 20% starting in 2008 for vehicles for which such specifications are compatible.	Regulatory	Increase in the consumption of biofuels	Operators placing diesel on the consumer market/Fuel companies	E	2008	
6. Strengthening the Biomass Energy Centre	Voluntary	Setting up a centre for research, certification and general coordination in the biomass sector. Increase in sustainable biomass use.	Biomass Energy Centre Forestry sector	E	2011	2015
7. Launch programmes to co-finance space heating and waste water equipment by using heat recuperators and boilers powered by biomass.	Financial	Promote the introduction and use of small biomass plant for space heating and producing hot water in homes and in suitably equipped public services.	Municipal buildings, schools, IPSS	P	Applications on/off	
8. Promote the installation in buildings of more efficient environmentally friendly energy systems run on biomass for heating/air conditioning	Regulatory/ Financial	157 354 toe in 2020.	End user (Residential and Services)	P	2010	2020

9. Enhancing capacity by using surplus equipment from existing windfarms.	Regulatory	Increase installed production capacity from RES by 400MW in an economically efficient manner and by improving the electricity generating system management and the security of the supply.	Renewable Energy Producers	E	2010	2020
10. Redesigning and merging current micro- and mini-generating programmes.	Regulatory/Financial	Streamline and harmonise administrative procedures. Rationalisation of support granted.	End user (Residential, services and industry)	E	2012	2013
11. Investment in hydro-electric power using pumps; this investment is important so as to ensure proper meshing with wind resources	Financial	Strengthening the hydro-capacity and increasing the installed reversible capacity, whilst promoting improved management of the electricity generating system and the security of the supply.	Renewable Energy Producers	E	2008	2020
12. Development of the PNBEPH for the new hydro operations in progress, and strengthening planned capacity and the installation of pumping systems.	Voluntary Financial		Renewable Energy Producers	E	2007	2020
13. Introduction of a general remuneration system which enables producers of electricity from RES to carry out their activity in accordance with the terms included in the PRO	Regulatory	Stimulate investment in mature technologies with an order of merit which enables it to be carried out under market conditions	PRE	P	2012	2020
14. One-Stop Shop for Electricity - Streamlining licensing procedures for renewable energy electricity plants.	Regulatory	Reduce periods for obtaining a licence by creating a one-stop shop (DGEG), to act as a 'project manager' and an electronic platform in order to facilitate the handling of requests for licences and information on licences.	Portuguese State	E	2007	2013
15. Creation of a decentralised network of biomass plants (some 12 new plants)	Regulatory	86 MW of installed capacity Creation of a decentralised network of biomass plants further to the invitation to tender for the attribution of capacity which was launched in 2006.	Renewable Energy Producers	E	2006	2015
16. Allocation of incentives to be applied to plants using forestry biomass subject to certain conditions, through voluntary agreements with the plant promoters.	Financial	Create a framework for commitment with the promoters of biomass plants thus enabling projects to be carried out and committing promoters to supporting the implementation of forestry policy measures, organising the logistical chain, enhancing the local economy, being socially responsible and complying with deadlines for the construction and implementation of projects.	Renewable energy producers	E	2011	2017
17. Making the pilot area operational (S. Pedro de Moel)	Regulatory/Financial	Creating logistical conditions and linking the network for further project promoters demonstrating marine energy (250 MW planned)	Renewable energy producers	E	2008	2020
18. Defining the national territory in terms of geothermal resources and promoting the evaluation of the capacity of high-enthalpy geothermal energy and depth and of low-enthalpy geothermal energy in order to use the energy associated with aquifers (energy hydrogeology) or in geological formations.	Study	Mapping the capacity of the national geothermal resource and promoting its use. Obtaining a tool for selecting the locations which are most suitable for installing projects for the use of geothermal resources.	Portuguese State and SCT	E	2012	2014
19. Assess the capacity of bio-methane and its application in Portugal. Lay down the necessary specifications for injecting bio-methane into the Natural Gas Network (NG).	Study	Enable bio-methane to be used for purposes other than generating electricity.	Portuguese State and SCT	E	2012	2015

20. Draw up the Hydrogen Roadmap	Study	Identify the capacity for hydrogen and define the roadmap for its respective development and use.	Portuguese State and SCT	E	2011	2014
21. Promote the installation of thermal solar systems in the residential sector and in swimming pools and sports areas, and the renewal of thermal solar systems at the end of their useful life.		Residential: 76 200 toe in 2020 and Services: 31 776 toe in 2020.	End user (Residential, Services and the Portuguese State)	E	2003	2020
22. Amortisation over a four-year period of investments in solar energy equipment, with a ceiling of 25% in respect of the repayment rate and applicable amortisation).	Regulatory/Financial	Increase in the use of renewable energies	Enterprises	E	2010	
23. Creation of the Innovation Support Fund (IAF)	Regulatory/Financial	Promote the development of and investigation in the area of renewable energies and energy efficiency	Renewable energies sector	E	2008	-
24. QREN (National Strategic Framework Reference - Financing of innovative pilot initiatives (using renewable sources) and the rational use of energy	Financial	Increasing energy efficiency and use of renewable energies.	Public Sector and Private Sector	E	2007	2013
25. Community Support Framework 2014-2020: identify financing needs and suitable instruments to support RES and energy efficiency projects.	Financial	Increasing energy efficiency and use of renewable energies.	Public Sector and Private Sector	E	2014	2020
26. Set up system to assess and certify sustainable forestry management.	Regulatory	Ensure the sustainability of the biomass used.	Owners/forestry producers/AFN [National Forestry Authority]	E	2009	2014

These measures prompt the following comments:

The National Plan on Dams with High Hydro-Electric Power Potential (PNBEPH) which was submitted in the National Renewable Energy Action Plan (PNAER) has been modified to reflect a number of environmental and financial questions. The PNBEPH thus now includes the construction of four dams with a power capacity of 834 MW by 2020, with a further three dams planned for the post-2020 period with a power capacity of 1154 MW. Of these dams, four are reversible.

As regards the 15 forest biomass power plants, awards were made in the case of 11 plants (76 MW) of which four are already licensed (19MW). Construction of these is expected to be completed in 2014; two are already in operation (5 MW) and two have been shelved (4 MW). Financial and legal issues have blocked the signing of contracts in the case of two plants (20 MW).

* Indicate whether the measure is (principally) regulatory, financial or voluntary (for example, information campaign).

** The expected result regarding a change in behaviour, a capacity of (MW; t/year, the energy generated (ktoe)?

*** The target-public: investors, end users, public administration, planners, architects, installers, etc.?; What is the target activity/sector: production of biofuels; use of animal manure for energy purposes, 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/CE).

The licensing of renewable electricity generating installations is essentially governed by Decree-Law No 189/88 of 27 May 1988 laying down rules for electrical energy production by natural persons or by legal persons governed by public or private law, and by Decree-Law No 312/2001 of 10 December 2001, which lays down the detailed rules for the management of reception capacity in public service electricity grids. Decree-Law No 189/88 of 27 May 1988 has since been republished in Decree-Law No 168/99 of 18 May 1999, and amended by Decrees-Law No 312/2001, of 10 December 2001, No 339-C/2001 of 29 December 2001, No 33-A/2005 of 16 February 2005, and No 225/2007 of 31 May 2007. Decree-Law No 312/2001 of 10 December 2001 was amended by Decrees-Law No 22-A/2005 of 16 February 2005, No 172/2006 of 23 August 2006, No 118-A/2010 of 25 October 2010 and No 25/2012 of 6 February 2012.

Installation and establishment licences and operating licences for electricity generating plants issued under the above Decrees-Law will be governed by the rules applicable to generating and operating licences provided for under Chapter III of Decree-Law No 172/2006 of 23 August 2006, in accordance with Decree-Law 215-B/2012, notwithstanding the provisions of paragraphs 3 to 8 of Article 15 of the Decree-Law.

In addition to this basic legislation there is a set of provisions allowing for the planning of the development of renewable energies and simplification of procedures for granting licences to connect generating installations to the national grid, for example Decree-Law No 288/2007 of 15 July 2007, which allows the allocation of a production licence prior to the environmental compliance report for the draft implementation plan (RECAPE).

The planning instruments for electricity transmission and distribution networks are the *Planos de Desenvolvimento e Investimento da Rede de Transporte (PDIRT - Plans for the Development of and Investment in the Transmission Network)* and the *Planos de Desenvolvimento e Investimento da Rede de Distribuição (PDIRD - Plans for the Development of and Investment in the Distribution Network)*. These are medium-term plans red by system operators demonstrating the future development of networks to meet the needs not only in terms of consumption and generation but also of installed capacity in production centres using renewable energy sources (RES).

The Directorate-General for Energy and Geology (DGEG) is the body responsible for connections to the network and for approving projects for producing electrical energy based on RES and is a one-stop-shop for non-hydro projects.

The PIP (Pedido de Informação Previa – request for prior information) procedure for the attribution of the reception point for electricity has been used less and less in view of the limitations of the electricity reception capacity and in recent years allocation has preferentially been by tender under Article 14 of Decree Law No 312/2001 of 10 December 2001. Available network reception capacity in the country has been identified from the outset, thus making it possible to overcome any doubt as to whether there is any available spare capacity for the purposes of prior information.

However, recently, in view of market changes due to the drop in demand, and the implementation of the measures contained in the Memorandum of Understanding drawn up with the International Monetary Fund, the European Commission and the European Central Bank, it has been necessary to consider and reassess the legal framework for electricity generation under a special regime, in particular using indigenous renewable resources and generating technologies which combine heat and electricity. Therefore Decree-Law No 25/2012 of 6 February 2012 was published to respond to the need to moderate the intentions of new investors who were lining up to submit requests for prior

information in order to allow the reception and delivery of electricity from the new electricity generating plants, suspending the allocation of injection capacity into the public service electricity grid under or further to the provision of Articles 4 and 10 of Decree-Law No 312/2001 of 10 December 2001, as amended by Decrees-Law No 33 - A/2005 of 16 February 2005, No 172/2006 of 23 August 2006 and No 118-A/2010 of 25 October 2010.

Simplified licensing regimes

- Micro-generation

Micro-generation is governed by Decree-Law No 363/2007 of 2 November 2007, amended and republished by Decree-Law No 118-A/2010 of 25 October 2010, and by an Order of the SEEI of 26 November 2010 which laid down the procedure for applications for registration.

Micro-generation concerns the bringing into line of low-power RES electricity generation installations up to 3.68 kW or 11.04 kW (for blocks of flats) and to promote solar hot water, with clear rules laid down in the legislation and in the website for authorising such installations.

The main features of this scheme are:

- Annual programme with dates fixed in advance and made public in order to harmonise the implementation and entry into operation of the installations across the year;
- Simplification of the entire process;
- Licensing through the Sistema de Registo de Microprodução (SRM – micro-generation registration system), an electronic platform where public authorities and producers may interact, accessible via the renewable industry portal Portal Renováveis na Hora: <http://www.renovaveisnahaora.pt> ;
- Automatic allocation of power;
- Inspection of installations requests by SMS.
- Installation operation certificate issued within 120 days, and interconnection to a network within a further 30 days; and
- a fixed cost for the whole process.

These production facilities linked with consumption installations entail energy efficiency measures, with the resulting benefits reducing the need for new network investment and avoiding losses in the distribution network as a result of decentralised production.

- Mini-generation

Mini-generation is governed by Decree-Law No 34/2011 of 8 March 2011 and by an Order of the SEEI of 21 April 2011, which laid down the procedure for applications for registration.

Mini-generation concerns the bringing into line of low-power RES electricity generation installations from 3.68 kW or 11.04 kW (for blocks of flats) to 250 kW associated with the implementation of energy efficiency measures.

As for micro-production, licensing is carried out through a Sistema de Registo de Miniprodução (SRMini), accessible via the Renováveis na Hora portal at: <http://www.renovaveisnahaora.pt>

With this measure operators may request the issue of the operating licence within the period of 190 days for low-voltage (LV) installations, and 250 days for medium-voltage (MV) installations, with the latter being connected to a network within a further 30 days.

– Offshore RES projects

In 2008 the Government established, by Decree-Law No 5/2008 of 8 January 2008, a pilot zone with capacity to receive about 250 MW from wave energy, with the aim of contributing to the development of this technology, simplifying administrative barriers, easing burdens and reducing the length of time for decisions through a simplified procedure. This type of energy may be produced under one of three schemes: as a concept demonstration scheme, as a pre commercial scheme or as a commercial scheme.

A managing body was also set up entrusted with running the pilot area, charged with kick-starting the process, allocating licences and authorisations, including the authorisation to use the corridor for the deployment of infrastructure for connection to the associated public grid, and putting in place the appropriate means to publicise and promote the pilot area nationally and internationally.

It should be noted that, before the pilot area was set up, a number of opinions from bodies with responsibility for the sea coast were needed to set up a project of this type, namely from: IH – Instituto Hidrográfico, INAG – Instituto da Água, ICNB – Instituto de Conservação da Natureza, IPTM – Instituto Portuário e dos Transportes Marítimos, IPIMAR – Instituto de Investigação das Pescas e do Mar, DGEg – Direção Geral de Energia e Geologia, REN - Rede Elétrica Nacional e EDP - Eletricidade de Portugal.

At present, it is not necessary, when granting concessions for hydroelectricity, for operators to seek a licence for the private use of public-domain water resources when they pursue their activity relating to the production of electricity within the pilot area.

– Mini-hydro schemes

The current process for establishing mini-hydroelectric generating installations as referred to above requires permission to use water resources, as provided for in Law No 58/2005 of 29 December 2005 (Lei da Água – Water Law) and Decree-Law No 226-A/2007 of 31 May 2007, and the allocation of capacity to feed power into the public service electricity grid and identification of the relevant reception points for the production of electricity from RES.

Obtaining such rights and administrative authorisations involves dealing with different authorities and different legal schemes, so it became essential to simplify those procedures so that one step was all that was required in order to obtain the necessary authorisations to operate mini-hydro installations and make full use of their potential.

To that end, the Decision of the Council of Ministers (RCM – Resolução de Conselho de Ministros) No 72/2010 of 2 September 2010 launched a public procurement procedure ensuring that the various licensing authorities' procedures are co-ordinated.

These regionally-based joint initiatives made it possible to authorise two things at once: use of water resources (títulos de utilização dos recursos hídricos – TURH) for certain sections of river; and the proper level of power to be fed into the relevant area of the grid in order to produce energy, thus contributing to strengthening coordination of the licensing bodies involved.

Pursuant to that Decision, Decree-Law No 126/2010 of 23 November 2010 introduced detailed rules for the establishment of hydroelectric installations of up to 20 MW installed capacity.

The definition of zones where these operations were to be established took into account the studies already drawn up or in preparation by the ARHs, in particular as regards water resource planning at sub-basin level, to ensure the necessary balance between the economic development furthered by such uses and preservation of the water resources and the environment, in particular as regards avoiding

significant impact in environmentally sensitive areas, without prejudice to the requirement for environmental impact assessments or assessments of effects on the environment in accordance with the applicable legislation.

ARH therefore defined the sections of rivers where such hydroelectric installations were feasible and set the power level for interconnection to the public electricity grid for each section while at the same time ensuring connection capacity to the public grid for the power to be tendered for, which was examined by DGEG and defined by network operators.

This tendering exercise resulted in the award of 78 MW distributed among various lots drawn up by the ARHs of the North, the Centre and Lisbon and Vale do Tejo.

Moreover, RCM No 72/2010 laid down special rules governing the expropriations necessary for such hydroelectric installations with the aim of ensuring their completion and operation as soon as possible, thus ensuring swift expropriation procedures, whilst observing private rights in accordance with the law.

Decree-Law No 126/2010 of 23 November 2010 was enacted in order to achieve the abovementioned objectives.

Action to improve current procedures:

A working group comprising the following bodies was set up by the Secretary of State for the Environment and Land-Use Planning and the Secretary of State for Energy: Agência Portuguesa do Ambiente (Portuguese Environment Agency – APA), the water catchment authorities for the regions Lisboa and Vale do Tejo (ARH-LVT), Instituto da Água (the water authority – INAG), Comissão de Coordenação e Desenvolvimento Regional (the Commission for coordination and regional development – CCDR), Direção Geral de Energia e Geologia (DGEG) and the Portuguese National Engineering and Geological Laboratory (Laboratório Nacional de Engenharia e Geologia – LNEG).

This working group made the following recommendations:

General:

- Strengthen DGEG's role as interlocutor in all licensing procedures, coordinating the interactions between the various actors involved.
- MEE/DGEG to examine first the economic viability and interconnection to the public grid.
- MAMAOT (Ministry of Agriculture, Sea, Environment and Regional Planning)/APA to examine only those applications which meet network interconnection conditions and economic viability criteria.
- Creation of an electronic platform to provide support for the operation of the one-stop shop for monitoring each process application.
- Optimisation and simplification of procedures.

Hydroelectricity licensing procedures:

- Creation of regulations for the environmental impact assessment procedure and issue of the environmental impact declaration by CCDRs, with the exception of environmental impact analysis for the Natura 2000 network.

Licensing procedure for hydroelectric plants:

- Proposal to link the environmental impact assessment procedures with the issue of public-domain water resource use permits (Títulos de Utilização do Domínio Hídrico -TUDH) to consider whether the procedures might be merged.
- Although the improved model licence has brought improvements to the procedure, there are still a number of aspects which require an immediate practical solution (transitional arrangements) – these concern earlier TUDH applications which are still in the ARHs' hands. It is necessary to define the procedure to be followed.
- Need for a planned ex-ante analysis of installation/authorisation of mini-hydro schemes (particularly in the North and Centre regions); the management plans for river basins should be the starting point when taking into account the needs of production, the availability of network connection, the management of water resources and the integrity of river and freshwater ecosystems.
- Creation of a simplified TUDH scheme for situations to be defined and determined by the MAMAOT.
- Creation of simplified scheme for granting TUDH for micro and mini-generation (with its own simplified set of rules)

2.b Please describe the measures taken 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 (Art. 22(1)f) of Directive 2009/28/EC)

In a effort to give some definition to national energy guidelines and ensure that the Portuguese electricity grid is managed efficiently, the REN - Portugal's national energy transmitter - has devised and applied a strategy to expand and strengthen the MAT electricity transmission network as a whole including its interconnectivity with the distribution network, in line with the European Energy Strategy.

With this in mind the REN is in very close contact not only with the potential promoters of such schemes but also with other bodies, the competent government bodies in particular, in order to identify those regions with the greatest energy potential (especially where hydro and wind power are concerned). A plan to extend and strengthen the network was devised in line with the needs that were identified. One of the outcomes of this plan was a significant increase in the REN's investment needs; around EUR 30 million per year has been allotted for the inclusion of renewable energy sources over the last few years.

At the same time efforts have been made in the area of research and development so as to ensure the necessary technical conditions for maintaining the security and quality of consumption, in light of the high level of volatility and irregular nature of this type of production. An important part of this work is the creation of technical requirements for irregular producers so they may connect to the grid.

The rules on assuming and dividing up the costs for connections to the grid are laid down in the Regulation on commercial relations in the electricity sector. The commercial rules on establishing

connections to grids for producing or consuming electrical energy are set out in chapter X of this Regulation, and in particular:

- Grid operators must provide connections from plant producing electricity, in line with the reception capacity of the electricity grids, and in accordance with applicable legislation;
- Identification of electricity production plant (by output) that must be connected to distribution or transport grids;
- Responsibility for connection charges:
 - private connections are to be paid for by the applicant; and
 - global development of a grid to ensure that energy policy guidelines which are the responsibility of the operators of the grid are followed, with the charges being passed on within the wider operation of the system.

In addition, the implementation of connection projects is supervised by the grid operator, which must also provide the necessary technical support.

The division of costs associated with access to the electricity distribution grid is also subject to the Regulation on commercial relations in the electricity sector. In the specific cases of micro-production and mini-production, the connection is made at the associated client's connection point, with the costs of the client's connection divided as laid down in Article 91 of the Regulation.

The costs arising from connections to the electricity production centres planned for the pilot area, created by Decree-Law No 5/2008, are an exception to the rules described above.

The Regulation also provides for producers with installed capacity of less than or equal to 50 MVA to connect to the grid with the only condition being the reception capacity in the upstream transport network.

The operator of the distribution grid launched the Inovgrid project in the city of Évora. This project provides the electricity grid with information and intelligent equipment capable of automating energy management and thus improving the quality of the service.

The Smartgrids concept has the potential to help further integrate RES producers in the grid given that information provided quickly on the status of the grid helps to attract a larger number of connected producers compared to today's limited numbers that are the result of conservative criteria.

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 (Art. 22(1)b) of Directive 2009/28/EC).

Figures from the years covered by the report (2011 and 2012) are required to properly understand changes in schemes to promote energy from renewable sources.

Table 3a: Support schemes for renewable energy in 2011

RES support schemes year n (e.g. 2010)		Per unit support	Total (M€)*
Biofuels		€/m ³	
	Obligation/quota (5% energy content)	-	-
	Penalty (€/toe of biofuel missing)	2000 €/toe	
	Tax exemption (small specialist producers)	364.41	1.6
RES electricity		€/MWh **	
	Production incentives – feed-in tariff (additional cost above market rates)		
	Micro-generation (up to 5.75 kw)	337.2	25.3
	Photovoltaic	290.8	54.4
	Biomass:	61.1	42.0
	Biogas	58.7	8.9
	Renewable co-generation	43.3	78.2
	Wind	41.7	380.3
	Mini-hydro (up to 10 MW)	39.6	40.2
	Municipal solid waste	32.2	15.6
Total annual estimated support in the electricity sector		52.6	619.7
Total annual estimated support in the heating sector		n/a	n/a
Total annual estimated support in the transport sector			1.6

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

Table 3b: Support schemes for renewable energy in 2012

RES support schemes year n (e.g. 2010)		Per unit support	Total (M€)*
Biofuels (biodiesel)		€/m ³	
	Obligation/quota (5% energy content)	-	-
	Penalty (€/toe of biofuel missing)	2000 €/toe	0
	Tax exemption (small specialist producers)	366.39	1.8
RES electricity		€/MWh **	
	Production incentives – feed-in tariff (additional cost above market rates)		
	Micro-generation (up to 5.75 kw)	326.9	43.0
	Mini-generation (up to 250 kw)	170.9	2.7
	Photovoltaic	302.2	67.1
	Biomass:	72.0	51.7
	Biogas	67.4	13.6
	Renewable co-generation	55.6	93.9
	Wind	52.5	525.4
	Mini-hydro (up to 10 MW)	49.8	22.9
	Municipal solid waste	41.7	16.5
Total annual estimated support in the electricity sector		65.7	836.7
Total annual estimated support in the heating sector		n/a	n/a
Total annual estimated support in the transport sector			1.8

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

A study of tables 3a and 3b demonstrates the following:

- ISP exemptions were granted to biofuels used in fossil fuels in Portugal in the transport sector. This support scheme was rescinded by Decree-Law No 117/2010 of 25 October 2010 in the case of major producers after a number of energy content targets were set for the 2011-2020 period (see Article 11

of Decree-Law No 117/2010). Tax exemption was only maintained for small specialist producers as laid down in the Portuguese Code on Special Taxes on Consumption.

- In the case of electricity consumption from renewable sources, FITs are established according to which technology is used; subsequently the value of the additional cost of these FITs over and above market prices is entered in the tables.

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 (Art. 22(1)b) of Directive 2009/28/EC)

ERSE, the national regulator, drew up a document on the principles of, and good practice in, electrical energy labelling with the aim of harmonising the calculation and presentation of information on the energy sources used in the production of electrical energy for the consumer and the corresponding environmental impact.

Law 51/2008 of 27 August 2008 and the Regulation on Commercial Relations (RRC) make it mandatory for all electrical energy suppliers to include information on the following in their invoices:

- the origin (mix) of the electrical energy that they acquire for sale to their customers; and
- the environmental impact associated with the supply of their electrical energy.

Electrical energy labelling has two basic objectives:

- Inform the consumer about the product with a view to making consumption a more conscious act and in particular as regards the primary energy resources used in electrical energy production and the environmental impact associated with its supply. The customer is thus made responsible for his choice of energy; and -
- help suppliers differentiate themselves from each other so as to promote competition in the retail market.

The document drawn up by ERSE, ERSE's Recommendation No 2/2011 contains a minimum set of rules and does not prevent any energy supplier from taking extra steps with a view to differentiating itself from its competitors.

For more information on energy labelling please see the following link:

<http://www.erse.pt/pt/desempenhoambiental/rotulagemenergetica/Paginas/default.aspx>

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?) (Art. 22(1)c) of Directive 2009/28/EC)

In the case of biofuels produced from residues, wastes, non-food cellulosic material and ligno cellulosic material, the system in place in Portugal provides for double counting when biofuels vouchers (BVs) are issued as laid down in Article 21(2) of Directive No 2009/28/EC.

However, as mentioned above, ISP exemption for small specialised biofuels producers was maintained but without any right to biofuels vouchers issued in respect of the biofuel that they introduced for consumption. It should be noted that such producers must use more than 60% of residues in the production of biofuels.

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 (Art. 22(1)d) of Directive 2009/28/EC)

Decree-Law No 141/2010 of 31 December 2010 created the body responsible for issuing guarantees of origin (EEGO) for renewable energy (electricity and heating).

In accordance with this Decree-Law, guarantees of origin may be issued for electricity and heating at the producer's request as long as the production unit has not been granted any support for either investment or production.

A handbook of procedures for the EEGO is currently being drawn up ahead of the body being set up.

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

Table 4: Biomass supply for energy use

	Amount of domestic raw material (*) (kton)		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 countries (ktoe)		Primary energy in amount of imported raw material from non-EU countries (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 (fellings etc.)**	265	317	61	72	-	-	-	-	-	-	-	-
Indirect supply of wood biomass (residues and co-products from the wood industry etc.)**	1 050	1 067	243	251	-	-	-	-	-	-	-	-
Energy crops (grasses, etc.) and short rotation trees (please specify)	0	0	0	0	-	-	-	-	-	-	-	-
Agricultural by-products / processed residues and fishery by-products**	0	0	0	0	-	-	-	-	-	-	-	-
Biomass from waste (municipal, industrial etc.)**	3 825	3 816	1 006	1 039	-	-	-	-	-	-	-	-
Other (specify)	0	0	0	0	-	-	-	-	-	-	-	-
Biomass supply for transport:												
Common arable crops for biofuels (please specify main types)	-	-	-	-	-	-	-	-	-	-	-	-
Energy crops (grasses, etc.) and short rotation trees of biofuels (please specify main types)***	5.3 (kton)	2.2 (kton)	4.6	2.0	-	-	-	-	253.3	321.5	223.9	284.2
Others (used oils)	5.5 (kton)	4.8 (kton)	4.4	3.8	1.5 (kton)	-	1.4	-	-	-	-	-

*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 4 a: 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 oil seeds (rapeseed, sunflower etc.)	426	4 357
2. Land used for short rotation trees (willows, poplars) (please specify main types).	-	-
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum (please specify main types).	-	-

*MAMAOT data for oilseed crops

It should be noted that oilseeds grown on agricultural land in Portugal, as set out in table 4, is not intended exclusively for the production of biofuels. The main purpose of agriculture on this land is the production of oils (such as sunflower oil) for the food industry. Essentially the indigenous raw material used in the production of biofuels in 2011 and 2012 was of animal origin, such as used food oils and animal fat.

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 links to relevant documents describing this impact in your country where these are available (Article 22(1)h of Directive 2009/28/EC)

There is no evidence of price movement resulting from the hike in the consumption of biomass (forest residual or woody) for energy purposes.

The hike in consumption in this sector has been compensated by the decreased consumption of the same raw materials in other sectors and in particular in the wood panel sector and at sawmills treating wood, both areas that are working at rates a great deal below their productive capacity.

Meanwhile the health problem associated with pine wood nematode has resulted in an increased number of trees of this species being felled which, in turn, has increased supply of the raw material on the market.

As regards the price of cultivating land in Portugal, energy crops are only used experimentally, which means that the data available is insufficient to draw any conclusions.

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 ²⁷	2011	2012
Production — Biodiesel	2.6	3.4
Consumption — Biodiesel	2.6	3.4
Production — PPD biofuel	3.9	4.0
Consumption — PPD biofuel*	3.8	3.9
Total production Art. 21.2 biofuels	6.5	7.3
Total consumption Art. 21.2 biofuels	6.4	7.2
% share of Art. 21.2 fuels from total RES-T	0.11%	0.13%

*Corresponds to the sterification of cooking oil and animal fat

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 links to relevant documents describing this impact in your country where these are available (Article 22(1)j) of Directive 2009/28/EC).

Given that the quantity of Portuguese agricultural material used in biofuel production is not mentioned it would appear that biofuel production in Portugal has no impact at all on biodiversity, water resources or soil quality.

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)

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

Environmental aspects	2011	2012
Total estimated net GHG emission saving from using renewable energies²⁸	7 498	6 907
Estimated net GHG saving from the use of renewable electricity*	2 874	2 914
Estimated net GHG saving from the use of renewable energy in heating and cooling**	4 593	3 961
Estimated net GHG saving from the use of renewable energy in transport***	30	32

*The GN conversion factor was used rather than that recommended by the Commission (56.1 g CO₂eq/MJ)

**The conversion factor recommended by the Commission was used (87 g CO₂eq/MJ)

***The diesel conversion factor was used (74.1 g CO₂eq/MJ)

²⁷ Biofuels made from wastes, residues, non-food cellulosic material, and lingo cellulosic material

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.

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) and (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)²⁹³⁰

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual and estimated excess and/or deficit production (differentiated by type of renewable energy and by origin/destination of import/export)												

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

Portugal thus argues that flexibility mechanisms should prioritise the physical transfer of the energy by supporting the development of connections and network infrastructures between the Member States and the complete development of the internal European market. Therefore, taking into account the fact that a significant electrical connection between the Iberian Peninsula and France has not yet been made, it is not possible to predict whether Portugal will make use of these mechanisms in the near future.

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).

As regards municipal urban waste, the information presented took account of the Community recommendation that 50% of the raw materials should be considered renewable, with the data used that which is supplied annually directly by the electricity producers.

However, regarding the proportion of biofuels coming from used oils, the data presented comes from information provided directly by producers.

²⁹ 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 States 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 toe).

Reply to pursuant to Article 22(3) a) to c) of Directive 2009/28/EC

In their first report, Member States shall outline whether they intend to:

- a) establish a single administrative body responsible for processing authorisation, certification and licensing applications for renewable energy installations and providing assistance to applicants;

The DGEG (which reports to the Ministry for the Economy and Employment) is the only organisation that grants licences to operators for power plants, except in the case of hydro schemes which require a hydro use permit from the competent body (which reports to the Ministry for the Environment and Land-use Planning) before the licence from the DGEG is sought.

A web page for registering requests, consulting the status of such requests and licensing procedures, is being developed in an effort to make the process more transparent and more accessible to the interested parties. The web page is currently in its test phase.

- b) 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;

Not planned.

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

Given Portugal's prevailing climate, the use/creation of a municipal heating grid is not considered a viable option from an economic perspective. In specific areas with geo-thermal potential, this power could be harnessed in small heat distribution grids by agricultural, industrial or service-sector facilities.

Other information relevant to the NREAP

In view of the current state of Portugal's economy the likely macro-economic trends from now until 2020 have been revised. This downward revision of Portugal's economic growth has as a consequence a sharp contraction in energy consumption compared to that which was estimated when the NREAP was drafted.

Work on revising the Portuguese NREAP which was initiated with a view to bringing it into line with this new reality has now been completed (in 2013). The final version was submitted to the Commission for its approval.