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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT AND THE COUNCIL**

**Renewable Energy: Progressing towards the 2020 target**

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# COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

## Renewable Energy: Progressing towards the 2020 target

### 1. INTRODUCTION

Renewable energy is crucial to any move towards a low carbon economy. It is also a key component of the EU energy strategy. The European industry leads global renewable energy technology development employs 1.5 million people and by 2020 could employ a further 3 million<sup>1</sup>. The promotion of renewable energy also develops a diverse range of mostly indigenous energy resources.

EU renewable energy policy is relatively young, having started with the adoption of the 1997 White Paper. It has been driven by the need to de-carbonise the energy sector and address growing dependency on fossil fuel imports from politically unstable regions outside the EU. Over that period the focus has shifted from the promotion of renewable energy through indicative targets for the electricity and transport sectors to the definition of legally binding targets supported by a comprehensive legislative framework, and most recently, by a reorientation of European energy infrastructure policy that facilitates renewable energy growth. The new Renewable Energy Directive provides a strong and stable regulatory framework for the development of the renewable energy in Europe. With the transposition of the directive by all Member States by the deadline of 5<sup>th</sup> December 2010 and the adoption of National Renewable Energy Action Plans, the foundations for determined EU action on renewable energy have been laid.

The Commission's Energy 2020 Strategy<sup>2</sup> highlights how EU infrastructure and innovation policies are supporting the renewable energy sector's development, ensuring that renewable energy sources and technologies become economically competitive as soon as possible, thus supporting the growth of renewable energy to achieve our goals. However, as a young and developing industry, these important challenges as well as the dimension of financing will have to be addressed in the coming years.

This Communication presents an overview of the renewable energy industry in Europe, its prospects to 2020 and addresses the outstanding challenges for the development of the sector. The background analysis underpinning this Communication is provided in three reports reviewing the European and national financing of renewable energy, the recent progress in the development of renewable energy sources and the use of biofuels and other renewables in transport as well as the operation of the mass balance verification method for the biofuels and bioliquid sustainability scheme. Taken together, these four documents form the Commission's response to the reporting requirements set out in the relevant EU legislation.<sup>3</sup>

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<sup>1</sup> Commission (ECOFYS) EmployRES study, gross employment effects.

<sup>2</sup> COM(2010)639/3 Energy 2020: A strategy for competitive, sustainable and secure energy

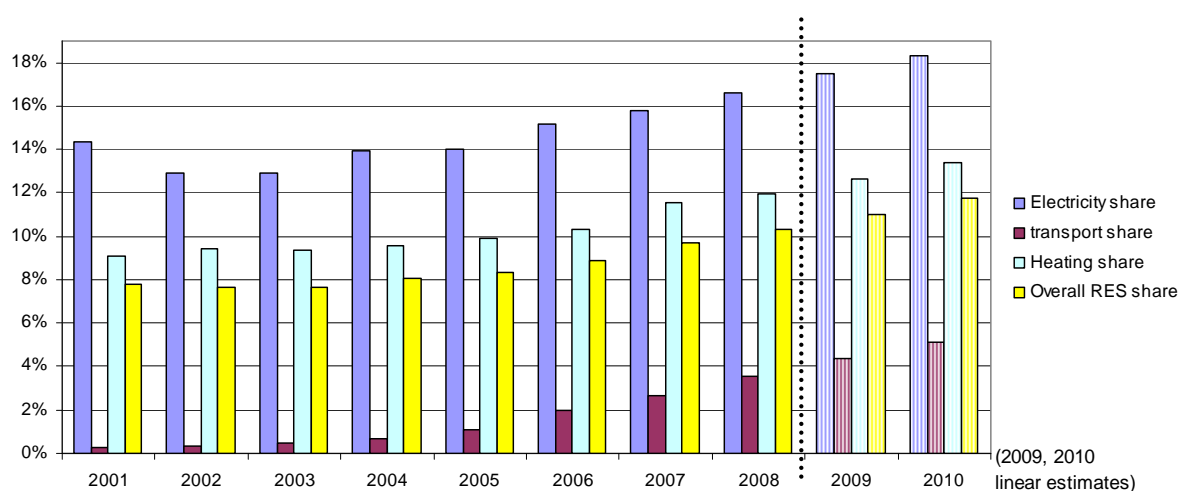
<sup>3</sup> SEC xx *Recent progress in developing energy from renewable sources and technical evaluation of the use of biofuels and other renewable fuels in transport*. Commission report in accordance with Article 3 of Directive 2001/77/EC and Article 4(2) of Directive 2003/30/EC; SEC xx *Review of European and national financing of renewable energy*. Commission Report in accordance with Article 23 (7) of Directive 2009/28/EC; SEC xx *Commission report on the operation of the mass balance verification*

## 2. ACHIEVING THE 20% TARGET

Until 2008, the development of renewable energy was driven by a loose legislative framework, which set non-binding targets. The "Renewable Electricity Directive"<sup>4</sup> and the "Biofuels Directive"<sup>5</sup> set national indicative targets such that the EU would reach a share of renewable energy in electricity generation of 21% by 2010<sup>6</sup> and a share of renewable energy replacing petrol and diesel in transport of 5,75% by 2010.

The review presented in the annexed progress report shows that neither of these targets are likely to be met, even though, as set out below, both sectors have experienced continued growth:

*Sectoral and overall growth of renewable energy in the EU<sup>7</sup>*



Only a few Member States, namely Denmark, Germany, Hungary, Ireland, Lithuania, Poland and Portugal expect to achieve their 2010 targets for renewable energy in electricity generation; likewise, only Austria, Finland, Germany, Malta, Netherlands, Poland, Romania, Spain and Sweden expect to achieve their targets for renewable energy in transport.

The inadequate rate of progress towards agreed targets, and the need to foster renewable energy development in *all* Member States and not only in a few, were among the reasons that prompted a change in policy approach marked by the adoption of the Renewable Energy Directive in 2009<sup>8</sup>. The new Directive covers energy consumption as a whole, including for heating and cooling, and lays down legally binding rather than indicative national targets such

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*method for the biofuels and bioliquids sustainability scheme.* Commission Report in accordance with Article 18 (2) of Directive 2009/28/EC.

<sup>4</sup> Directive 2001/77/EC of 27 September 2001 on the promotion of electricity produced from renewable energy sources

<sup>5</sup> Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels

<sup>6</sup> The EU share of renewable energy in electricity generation included in the Annex of Directive 2001/77/EC is 22%, but following subsequent accessions has since then been amended to 21%.

<sup>7</sup> The shares referred to in this figure refer to the shares of energy from renewable sources in the three energy consuming sectors and the overall share of energy from renewable sources in the final energy consumption.

<sup>8</sup> Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources

that the EU achieves a 20% share of renewable energy by 2020. It also contains a much-reinforced set of provisions to facilitate the development of renewable energy, such as a legal requirement for the Member States to prepare National Renewable Energy Action Plans, reform planning regimes, and develop electricity grids. The need to improve planning regimes (whilst respecting the precautionary principle and mitigating environmental impacts) was another element also discussed in the Commission's Communication on infrastructure priorities. Further efforts are needed both for renewable energy infrastructure and for energy infrastructure overall.

The review of Member States plans shows that the new approach is starting to pay off. A comprehensive and binding regulatory framework is proving catalytic in driving forward renewable energy development to achieve the ambitious targets that the EU has set itself.<sup>9</sup> The recent high growth rates have resulted in renewable energy constituting 62% of 2009 energy generation investments.

### *....higher growth rates....*

Member States projections show that renewable energy will grow at a faster pace in the years up to 2020 than in the past. Almost half of the Member States (Austria, Bulgaria, Czech Republic, Denmark, Germany, Greece, Spain, France, Lithuania, Malta, Netherlands, Slovenia and Sweden) are planning to exceed their own targets and be able to provide surpluses for other Member States. For two Member States (Italy and Luxembourg), a small part of the renewable energy needed to reach their target is planned to come from “imports” in the form of statistical transfers from Member States with surpluses or third countries (see the annexed progress report for details). If all these production forecasts are fulfilled, the overall share of renewable energy in the EU will exceed the 20% target in 2020.

The plans also provide important information regarding energy efficiency. EU energy consumption in 2020 is projected to be 95% of the 2005 level. National energy consumption estimates range from increases on 2005 of more than 20% in Cyprus, Lithuania and Malta to reductions of 14% in Germany and 9% in the UK.

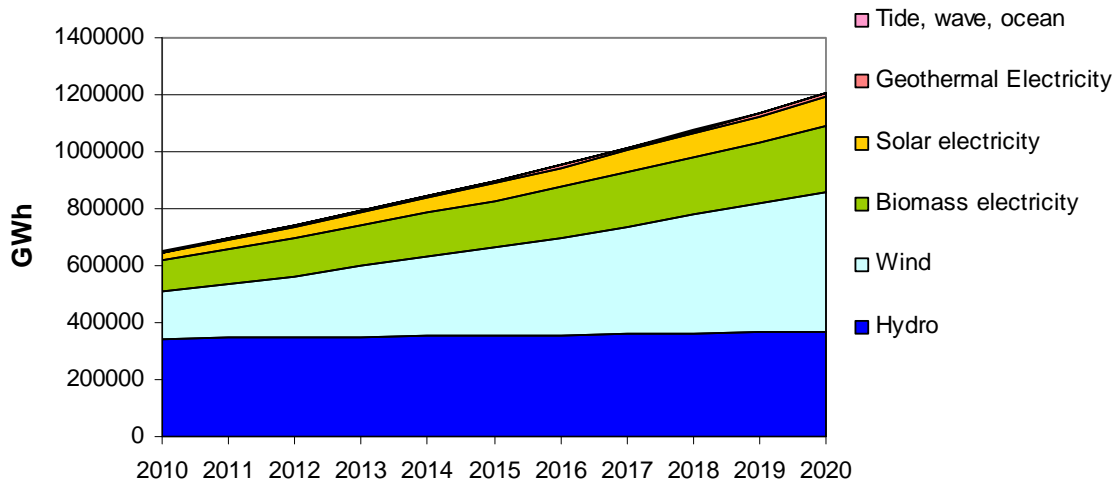
Combined Member States expect to more than double their total renewable energy consumption from 103 Mtoe in 2005 to 217 Mtoe in 2020 (gross final energy consumption). The electricity sector is expected to account for 45% of the increase, heating 37% and transport 18%. The expected developments in the EU in the 3 sectors are illustrated in the Figures below<sup>10</sup>. Following biomass, wind power will account for 27% projected increase in renewable energy consumption (two-thirds onshore, one-third offshore), which will generate demand for Europe's wind turbine manufacturers and associated support industries. Similarly, the solar energy industry will grow, notably for photovoltaics. Other technologies where quantities are currently small face even higher growth rates. Thus Europe's industrial players must be ready to respond to this growing demand.

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<sup>9</sup> The National Renewable Energy Action Plans can be found on the Commission's transparency platform: [http://ec.europa.eu/energy/renewables/transparency\\_platform/action\\_plan\\_en.htm](http://ec.europa.eu/energy/renewables/transparency_platform/action_plan_en.htm). Source of the following data on the National Renewable Energy Action Plans except where shown otherwise are *Renewable Energy Projections as Published in the National Renewable Energy Action Plans of the European Member States*, ECN/EEA report.

<sup>10</sup> Based on preliminary analysis of National Renewable Energy Action Plans.

## EU development of renewable energy in electricity



### ....more electricity....

Based on Member States' plans, renewable energy should constitute 37% of Europe's electricity mix by 2020. The projected expansion of electricity from renewable sources carries a number of implications. First, it highlights the need to accelerate the modernisation of the electricity grid. The Communication on Energy infrastructure highlighted that urgent action is necessary to prepare the grid for the integration of significant volumes of electricity produced from renewable sources, facilitating grid balancing, flexibility and distributed generation. Electricity systems have to become more interconnected and flexible, and new infrastructure development and reinforcement will be necessary, including the deployment of smart grid technologies<sup>11</sup>. One of the greatest challenges regarding the grid infrastructure is to connect the offshore potentials, mainly wind, foreseen in the Northern Seas of Europe, developing the electricity network both off- and onshore.

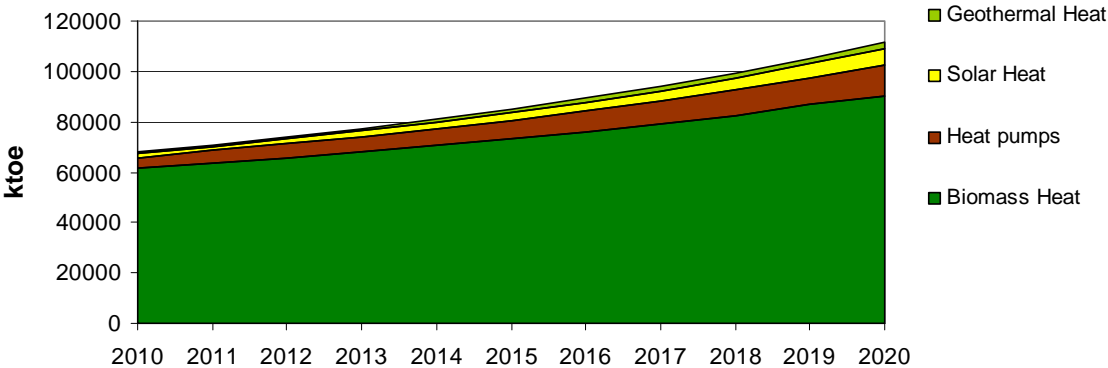
The Energy 2020 Strategy highlighted how the rise of electricity produced from renewable sources also has implications for the electricity market as a whole. Multiple, flexible, smaller scale distributed forms of electricity generation need different grid and market design rules compared to traditional large, centralised power sources. The market integration of renewable energy should ideally occur in a manner that ensures resources are developed where it makes most economic and environmental sense. Factors such as distance to consumption centres, implied grid needs and issues related to public acceptance and job creation clearly also play a role and cannot be ignored. In any event, support schemes should over time be adapted to apply best practice so as to avoid undue market distortions and excessive costs.

### ....heating and cooling....

<sup>11</sup> COM(2010) 677 Energy infrastructure priorities for 2020 and beyond - A Blueprint for an integrated European energy network.

As for the heating and cooling sector, the graph below gives an indication of the expected growth of technologies in the next decade. Biomass will remain the dominant technology, with 50% of the growth up to 2020 occurring in energy produced from this source (half of that in heating, a third in transport and the rest in electricity).

**EU development of renewable energy in heating & cooling**



In the past, there was only modest market development in the heating sector due to the lack of an adequate support framework in most Member States. However this will clearly change in the next years following the inclusion of the heating and cooling sector in the new EU renewable energy framework. Member States are already planning reforms to their grants, feed in tariff regimes or other instruments in the heating sector. Thus development and investments in Europe's biomass pellet industry, in biomass boiler technology, co-firing power plant technology and biofuels refining can be expected.

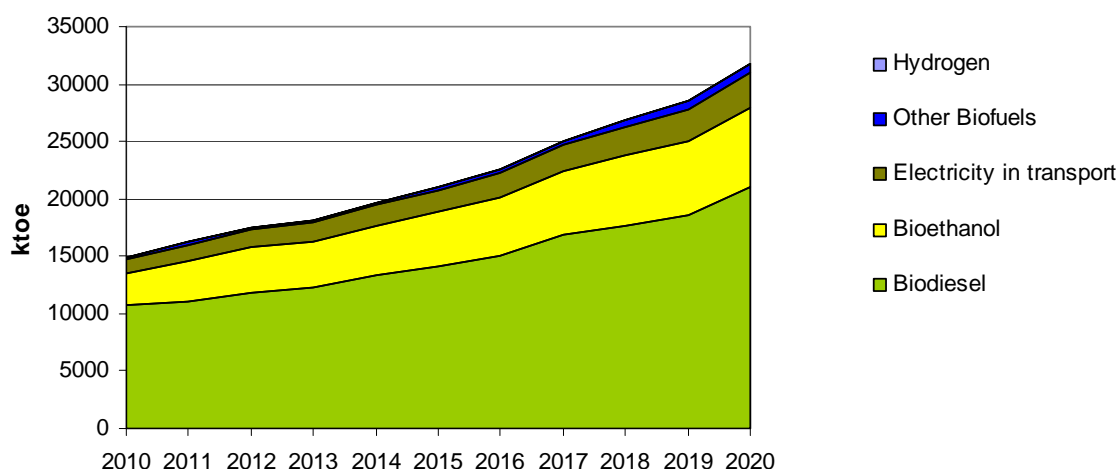
**...and transport....**

The plans also indicate how Member States expect to meet their 10% renewable energy in transport target. First generation biofuels will be the predominant energy source over the period to 2020. Europe has the strictest criteria in the world for biofuel sustainability and the Commission has provided guidelines for their application in June 2010<sup>12</sup>. An assessment of the operation of the verification method for compliance with the sustainability criteria (referred to as mass balance system) is contained in the relevant annexed report<sup>13</sup>. Second generation biofuels and electric vehicles are expected to make only a small contribution by 2020.

<sup>12</sup> COM (2010) Communication from the Commission on the practical implementation of the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels

<sup>13</sup> SEC xx Commission report on the operation of the mass balance verification method for the biofuels and bioliquids sustainability scheme. Commission Report in accordance with Article 18 (2) of Directive 2009/28/EC.

## EU development of renewable energy in transport



Source: Commission's analysis based on NREAPs.

To achieve the 2020 targets in an economical and resource efficient manner, and to pave the way for much bigger shares of renewable energy in the years after, the EU needs to continue to invest in research for advanced renewable energy technologies, and needs to continue to bring down the costs of offshore wind; photovoltaic power; electric cars; and second-generation biofuels. Win-win solutions to develop renewable energy projects that bring wider environmental benefits will be promoted through research programmes such as the SET Plan<sup>14</sup>. Building up the mass deployment and roll out of current technologies to reach the EU 2020 targets and developing and deploying advanced technologies for a decarbonised energy sector will require major effort and significant investments. For this reason it is essential that there is a stable and predictable environment for the financing of renewable energy.

Furthermore, beyond the technological and regulatory aspects, Member States, regions and cities need to step up their efforts to strengthen skills, knowledge and capacities, in particular within the relevant administrations and agencies (such as through the EU Covenant of Mayors), to ensure adequate governance for the efficient delivery of renewable energy investment programmes and projects.

### 3. CLOSING THE INVESTMENT GAP: BETTER AND MORE INTEGRATED FINANCING OF RENEWABLE ENERGY

The Commission's Communication on infrastructure priorities has signalled that European investment of more than one trillion euros is needed between today and 2020 to achieve the EU energy policy goals. Of this, approximately half is needed for replacing or investing in new electricity generation capacity. As the new EU Energy Strategy notes<sup>15</sup>, priority should be given to renewable electricity investments – achieving levels higher than the 62% of all new power

<sup>14</sup> COM(2007)723 A European Strategic Energy Technology Plan

<sup>15</sup> COM(2010)639/3 Energy 2020: a strategy for competitive sustainable and secure energy, p6

installations in 2009. Further analysis undertaken for the Commission suggests that whilst **annual capital investment in renewable energy today averages €35bn**, this would need to rapidly double to €70bn to ensure we achieve our goals<sup>16</sup>. Such outlays must be funded, as they are today, chiefly through private sector investment, financed finally by energy consumers.

The benefits of encouraging the renewables industry were widely acknowledged as the global financial crisis took hold in 2009, when "clean tech" stimulus packages worth billions were implemented in the United States and China, as well as across the EU<sup>17</sup>. Indeed the growth of the sector in the US, China other Asian countries shows that, around the world, it is seen as a crucial industry for the future to achieve innovation, energy security and deliver on a low carbon economy. As noted in the new EU Energy Strategy<sup>18</sup>, the challenge facing Europe is to stay at the forefront of this industry, to ensure it grows, at a time when governments are simultaneously faced with the need to curtail spending.

Climate policies that set a carbon price, such as the EU Emission Trading System, to achieve the 20% greenhouse gas reduction target by 2020 compared to 1990, are important drivers to promote renewable energy.

Likewise, much can be done to streamline complex authorisation and planning procedures and to remove non-cost barriers to the growth of renewable energy, simply making planning regimes more transparent and faster while respecting existing environmental legislation can improve uptake of renewable energy<sup>19</sup>. Ensuring that installers are qualified, and providing more product information to consumers can also improve deployment rates<sup>20</sup>.

But at this time of major fiscal constraint, more can also be done to ensure that the money spent on renewable energy is used cost effectively. Effective selection and coordination of financing tools at national and EU level is essential in this respect. The choice of a financing instrument to support renewable energy development depends on the state of technology and project development<sup>21</sup>. Instruments include grants, loans and loan guarantees, equity funds, feed in tariffs, premiums, quota/certificate schemes, fiscal incentives and tenders. All of these instruments can play a role in the right circumstances without altering the competitiveness of the market. They alleviate different forms of project risk – technology, construction, regulatory – and depend in particular on the maturity of a project or technology. R&D funding for instance traditionally consists of grants for significant portions of project **capital costs**, as the cost and uncertainty surrounding the technology render them too risky for the private sector to finance alone. Once a technology is more established, grants can still be useful to finance demonstration projects, with a move to venture capital – bearing high risks – when technology is nearly established. Results can already be seen: wind production costs have declined by 20% over the 9 years to 2006 and solar PV by 57%<sup>22</sup>. For wind energy, low

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<sup>16</sup> ECOFYS, Ernst & Young, Fraunhofer ISI, TU Vienna, 2010. The least cost electricity investment component of this, consistent with the analysis of COM(2010)677 ranges from €310bn-370bn.

<sup>17</sup> European Economic Recover Package: [http://ec.europa.eu/energy/eepr/index\\_en.htm](http://ec.europa.eu/energy/eepr/index_en.htm)

<sup>18</sup> COM(2010)639/3 Energy 2020: a strategy for competitive sustainable and secure energy

<sup>19</sup> See ECORYS: Assessment of non-cost barriers to renewable energy growth in EU Member States, [http://ec.europa.eu/energy/renewables/studies/renewables\\_en.htm](http://ec.europa.eu/energy/renewables/studies/renewables_en.htm)

<sup>20</sup> See ECORYS: Assessment of non-cost barriers to renewable energy growth in EU Member States, [http://ec.europa.eu/energy/renewables/studies/renewables\\_en.htm](http://ec.europa.eu/energy/renewables/studies/renewables_en.htm)

<sup>21</sup> See "Support schemes for renewable electricity in the EU" European Commission Economic Papers 408, April 2010 and "Financing Renewable energy in the European Energy market", ECOFYS et al, October 2010 for details.

<sup>22</sup> EWEA "The economics of wind energy" and EPIA "Set for 2020"



operating costs increasingly lead to falling market prices (the so-called "merit order effect"). This entails cost savings for all electricity consumers and may to a significant extent compensate for the extra costs of support schemes.

Once a technology is capable of being deployed but not yet competitive, support tends to shift from capital to **operating support** and here again there is a continuum of instruments, depending on circumstances. Whatever the instrument, it is important that it has a predictable and transparent way of adapting support levels so as to avoid "stop and go" policies or political calls for retroactive changes to conditions (such as in certain photovoltaics markets recently) allowing adjustments to reflect the falling production costs of renewables thus avoiding excessive returns on capital. It is also important to note that operating support is more commonly financed by energy consumers rather than from taxation.

The costs of developing our energy sector vary, depending on a wide variety of factors, including technology costs, oil and gas prices, technological progress, grid and transport costs and administrative barriers. Yet, due to the still-fragmented single European energy market, traditional infrastructure, and with fossil fuels still receiving four times the level of subsidies<sup>23</sup>, renewable energy is still often more expensive than traditional sources. This is unfortunate and efforts should be pursued to provide incentives to allow Member States to reach the renewable energy targets. Until such market conditions are met and the barriers are reduced, continued support for renewable energy will be needed. **Clearly, financial support for renewable energy can be phased out only when renewable energy costs have further declined, market failures have been corrected and they can operate in a competitive market.**

*....Member State support systems....*

Whilst some EU financing is applied, the bulk of support for renewable energy is delivered at Member State level.

The table shows how a range of different instruments are used by Member States to provide financial support. This reflects the fact that the use of multiple instruments can be appropriate, given the different status of all the different technologies, in terms of maturity, users, and markets. The choice of instruments should however be clearly framed in order not to create confusion and engender negative consequences for investors. Indeed in all sectors, but particularly in the electricity sector, there has been significant reform and adaptation of instruments as circumstances have changed. As production costs have declined, tariffs have been reduced. As technologies develop, they have been incorporated into quota or tariff support schemes. As technology risks have been reduced, producers are exposed to greater market price risk (and market integration) by switching support from feed in tariffs to premiums. **It is essential that such costs are "off budget" i.e. are borne by energy consumers rather than tax payers (see associated staff working document for more details) to avoid "stop-start" interruptions as government budgets become more constrained.**

**Member States' use of different instruments for electricity, heating and transport (biofuels).**

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<sup>23</sup> Globally, the IEA has recently estimated fossil fuel subsidies at \$312bn (<http://www.worldenergyoutlook.org/subsidies.asp>), and the most recent figures (2004) for the EU 15 had put fossil fuel subsidies at €1.7bn compared to €5.3bn for renewable energy (EEA Technical report 1/2004).

		AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	
Electricity	FIT	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x			x			x	x	x	
	Premium					x		x	x	x												x					x		
	Quota obligation		x														x						x		x			x	
	Investment grants		x		x	x						x		x	x			x	x	x	x								
	Tax exemptions		x								x	x		x						x		x	x			x		x	x
	Fiscal incentives				x			x		x											x	x	x				x		
Heating	Investment grants	x	x	x	x	x	x		x		x	x	x	x	x		x	x	x	x	x	x	x		x	x	x	x	
	Tax exemptions	x	x					x				x	x			x	x					x				x		x	
	Financial incentives			x			x		x			x											x						
Transport	Quota obligation	x		x	x	x	x	x		x	x	x			x		x	x	x			x	x	x	x		x	x	x
	Tax exemptions	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x

A further element of reform in some Member State has been to develop private financing mechanisms that both attract capital and **increase local acceptance** of renewable energy projects (thus helping to overcome other barriers such as planning permission). The most common instrument used for this is "local ownership" whereby local communities can take a financial share in the investment of the project in return for cheaper electricity or a share in the profit of the project<sup>24</sup>. The development of local public-private partnerships can also be an effective means of reducing the cost of projects and achieving greater public acceptance while contributing to local and regional socio-economic development.

Such reforms work when they are planned and anticipated by investors in accordance with a clear government strategy. Sudden changes are disruptive and undermine all renewable energy investment strategies. These have to be avoided as they undermine investor confidence and efforts to achieve the targets. Retroactive changes to support schemes in particular must be avoided given the negative effect such changes have on investor confidence. The Commission has already expressed concern about recent developments in certain Member States in this respect and will continue monitoring this issue closely with a view to consider further action from or at EU level if necessary.

*....cooperation mechanisms....*

<sup>24</sup> More information about benefit sharing mechanisms can be found in the RESHARE report, available on [www.resshare.eu](http://www.resshare.eu)

These changes improve the efficiency of the instruments, but **more needs to be done**. Most Member States have continued to focus on national resources to achieve their 2020 targets on their own. They have not sought to reduce costs by developing cheaper resources in other parts of the single market. Commission analysis<sup>25</sup> estimates that up to 10 billion Euro annually could be saved if Member States treated renewable energy as a commodity in a single European market rather than in national markets. Thus the move to market integration, in particular the evolution to feed in premiums is too slow, too fragmented and needs to be reinforced.

As the EU Energy Strategy notes, a **greater convergence** of national support schemes to facilitate trade and move towards a more pan-European approach to development of renewable energy sources must be pursued<sup>26</sup>. This repeated call for convergence is not new, and is to flag up the need to start adjusting to a European *electricity* market in particular, where over a third of power will come from renewable energy. In some situations, such as offshore wind development, the need for an integrated strategy is imminent. In this instance, the relevant Member States and the Commission are acting, having just signed the Memorandum of Understanding of the North Seas Countries Offshore Grid Initiative. The Commission will closely follow this development and will report on the offshore wind and grid developments in 2012. The Commission is also examining the parameters for the import of renewable energy from the Southern Mediterranean arising from initiatives such as Desertec and the Solar Mediterranean Plan.

Beyond this priority, a medium to long term EU strategy should be developed in order to make the energy sector function cost effectively. One first step in integrating renewable energy is the development of the new cooperation mechanisms created by the Directive.

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<sup>25</sup> SEC xx *Review of European and national financing of renewable energy*. Commission Report in accordance with Article 23 (7) of Directive 2009/28/EC.

<sup>26</sup> COM(2010)639/3 *Energy 2020: a strategy for competitive sustainable and secure energy*, p10

## The Renewable Energy Directive's "cooperation mechanisms"

The Renewable Energy Directive establishes "cooperation mechanisms" by which Member States can join together to develop renewable energy sources. These include:

- "statistical transfers" whereby one Member State with a surplus of renewable energy can "sell" it statistically to another Member State, whose renewable energy sources may be more expensive. One Member State gains a revenue, at least covering the cost of developing the energy, the other gains a contribution towards their target at low cost.
- "joint projects" whereby a new renewable energy project in one Member State can be co-financed by another Member State and the production shared statistically between the two. Again, there is a mutual benefit and cost saving from such cooperation. Joint projects can also occur between a Member State and a third country, if the electricity produced is imported into the EU, e.g. from North Africa.
- "joint support schemes" whereby two or more Member States agree to harmonise all or part of their support schemes for developing renewable energy, to clearly integrate the energy into the single market, and share out the production according to a rule such as where the financial support is coming from.

Using such mechanisms will generate a European rather than a national perspective to the development of renewable energy, ensuring that Europe reaches its renewable energy target cost effectively. In addition, the scope for trade, joint projects and common support schemes constitute clear steps towards integrating renewable energy into the European energy market.

Member States created the cooperation mechanisms of the new Renewable Energy Directive, allowing them to control how their renewable energy resources are jointly developed, co-financed, and their support schemes joined or harmonised. Thus when the level playing field of a single energy market is created and renewable energy producers are able to compete fairly, Member States should be more prepared for renewable energy to be promoted in a pan European approach, exploited efficiently across the Union in Member States where it is feasible and makes most economic sense.

The forums and projects established by the Commission to help Member States develop the cooperation mechanisms<sup>27</sup> can also be used to steer other aspects and reforms of national support schemes. Other initiatives could include common technology banding, annual revision dates, cost calculation methodologies/indices, more coherent conversion of feed in tariffs to feed in premiums as technologies mature and ongoing work on the creation of regional clusters for joint support schemes, such as the joint green certificate regime just agreed between Norway and Sweden. The mechanisms also provide scope for supporting the development of renewable energy production in third countries. Thus these mechanisms can facilitate real progress in the convergence of European support schemes, ensuring greater coherence with a single market.

The Commission will be assessing the effective functioning of support schemes and cooperation mechanisms in the light of the 2014 review foreseen by the Directive. It will prepare guidelines for more harmonised reforms, facilitate the development of cooperation mechanisms and prepare the ground for the development of renewable energy in the southern Mediterranean. These actions will provide a platform for exchanges on the reforms on going in Member States and help to avoid a subsidy race.

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<sup>27</sup> These include the Concerted Action on the Implementation of the Renewable Energy Directive, Member States' "International feed in cooperation group" and numerous projects under the Intelligent Energy Europe Programme.

....*heating sector*....

**In the heating sector**, the predominance of Member States' investment grants focuses on household installations of small solar thermal or solar photovoltaic units. Given the cost reductions that have occurred in micro units in recent years, Member States could start to consider regulatory rather than financial solutions at the household level. For example, Article 13(4) of the Renewable Energy Directive includes rules for building regulations or codes to include minimum levels of renewable energy in buildings, ensuring growth and major savings, through regulatory rather than financial means<sup>28</sup>. Given its local nature, support for micro heating systems can exploit distributed forms of energy that develop a local community's biomass, solar or geothermal resources.

The scope for any large scale heating from renewable energy sources is only now beginning to be explored in most Member States, partly because it is only now included in the European regulatory framework (the 20% target). As the Communication on infrastructure priorities has noted<sup>26</sup>, district heating networks should be promoted as a matter of priority in all larger agglomerations where local or regional conditions justify it. The Commission will continue to assess the development of this sector.

**At EU level**, despite the strong political support, policy and legal framework, the financial support given to renewables is relatively low. For the period 2007-2009, funds spent on renewable energy amounted to roughly €0.8bn, (€3.26bn/a), the bulk of which in the form of loans from the European Investment Bank.

The EU instruments used directly by the Commission for financing renewable energy projects (the European Economic Recovery Package, RTD, SET Plan expenditure), those jointly managed with Member States (structural and cohesion funds), and those managed with other institutions (EBRD, EIB) will all be the subject of review in light of the forthcoming planning of the next European Financial Framework, covering EU expenditure from 2014<sup>29</sup>. In this respect, the ambition to back up the political commitment of the EU to renewables needs to be underpinned with the adequate funding. In particular, the Commission will examine opportunities for using EU and national funds to leverage private capital into energy projects of European interest on local, regional, national and European levels. Further efforts are needed to facilitate the uptake of the Renewable Energy Directive's cooperation mechanisms, and so improve regional cooperation and begin the harmonised reform of support schemes.

A major new source of financial support for renewables at the EU level is the "NER 300 programme", established under the Emissions Trading Directive 2003/87/EC. This will support the demonstration of CCS and innovative renewables at commercial scale and aims to co-fund at least 34 innovative renewable energy projects in the EU. The programme will provide around €4.5 billion of co-funding (matching funding from industry and Member States).<sup>30</sup> The Commission has launched the first Call for Proposals comprising 200 million allowances under the NER300 programme in November 2010.<sup>31</sup>

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<sup>28</sup> See SEC(2008)85-2 Annex to the Commission's impact assessment on the energy and climate package, p122

<sup>29</sup> See COM(2010)700 Final.

<sup>30</sup> See Commission Decision 2010/670/EU of 6.11.2010, OJ L 290, p. 39.

<sup>31</sup> OJ C 302, 9.11.2010, p. 4, further information is available at: [http://ec.europa.eu/clima/funding/ner300/index\\_en.htm](http://ec.europa.eu/clima/funding/ner300/index_en.htm)

The Commission also intends to come forward with a proposal to revise the Energy Taxation Directive<sup>32</sup>.

**For both Member State and European financing of renewable energy, it is clear that the existing framework must be improved, if the EU is to reach its 2020 targets at the lowest possible cost.**

#### 4. CONCLUSION

The limited and fragmented growth of Europe's renewable energy industry in the decade to 2008 resulted partly from the limited EU regulatory framework. Recognising that renewable energy will form the heart of any future low carbon energy sector, the EU introduced a comprehensive and robust supportive legislative framework. The challenge is now to move from policy design to implementation at national level, with concrete action on the ground. The implementation of the Directive and the presentation of plans are encouraging signs of progress that need to be sustained.

In the current context of macro-economic fragility and fiscal consolidation, it is important to recognise the financing for renewable energy as growth-enhancing expenditure that will provide greater return in the future. It is equally important to ensure the quality of the expenditure, applying the most efficient and cost effective financing instruments. As with energy infrastructure, there is a need for European action, to speed up the efficient delivery of renewable energy production and its integration into the single European market.

At national level, any revision of financing instruments should be pursued in a way that avoids creating investor uncertainty and takes into account other Member States' policies to ensure an approach coherent with the creation of a genuine European market. The Commission will actively support national cooperation on financing renewables, based on the new framework for Member State cooperation contained in the Renewable Energy Directive and promote the integration of renewable energy into the European market. At European level, EU funds should be directed to ensure cost effective renewable energy development and providing technical assistance while ensuring the most effective means of lowering the cost of capital investments in the sector, including in collaboration with the EIB and provision of technical assistance.

The Commission therefore invites Member States to

- implement the National Renewable Energy Action Plans;
- streamline infrastructure planning regimes while respecting existing EU environmental legislation and strive to conform to best practice;
- make faster progress in developing the electricity grid to balance higher shares of renewable energy;
- develop cooperation mechanisms and start integrating renewable energy into the European market;

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<sup>32</sup> Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for taxation of energy products and electricity (OJ L 283 of 31.10.2003 p. 51); Directive last amended by Directives 2004/74/EC and 2004/75/EC (OJ L 157 of 30 April 2004, p. 87 and p.100).

- ensure that any reforms of existing national support schemes will guarantee the stability for investors, avoiding retroactive changes.

To support such efforts the Commission will continue to work in partnership with Member States on the implementation of the Directive, to review and improve the effectiveness of EU funding for renewable energy projects and facilitate the convergence of national support schemes in order to ensure the best conditions for the development of renewable energy in Europe.