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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

Renewable Energy: a major player in the European energy market

(Text with EEA relevance)

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1. INTRODUCTION

Renewable energy enables us to diversify our energy supply. This increases our security of supply and improves European competitiveness creating new industries, jobs, economic growth and export opportunities, whilst also reducing our greenhouse gas emissions. Strong renewables growth to 2030 could generate over 3 million jobs¹, including in small and medium sized enterprises. Maintaining Europe's leadership in renewable energy will also increase our global competitiveness, as "clean tech" industries become increasingly important around the world. In 2007 the European Union set the ambitious goal of achieving a 20% share of renewable energy and a 10% share of renewable energy in transport by 2020 and has flanked these objectives by a series of supporting policies². The renewable energy goal is a headline target of the Europe 2020 strategy for smart, sustainable and inclusive growth. At the start of 2012, these policies are beginning to work and the EU is currently on track to achieve its goals³ (see Chapter 1 of Staff Working Document).

However, the economic crisis has made investors cautious about the energy sector. In Europe's liberalised energy markets, the growth of renewable energy depends on private sector investment, which in turn relies on the stability of renewable energy policy. Investment in infrastructure, manufacturing and logistics also requires related investment - in testing facilities, cable production, factories and ships to build offshore wind installations. In parallel to a rigorous implementation and enforcement of the Renewable Energy Directive⁴, clarity on longer term policy is needed to ensure that the necessary investment is made.

¹ See DG Employment Staff Working Document on "Exploiting the employment potential of green growth" accompanying the Employment package COM (2012) 173, p. 8. and Ragwitz et al (2009), EmployRES, Fraunhofer ISI Germany et al. http://ec.europa.eu/energy/renewables/studies/doc/renewables/2009_employ_res_report.pdf. More ambitious RES policy targets trigger investments and hence employment in knowledge intensive generation technologies. Capital-intensive technologies such as photovoltaic and wind off- and on-shore, solar thermal and heat pumps dominate in absolute terms under a strong RES promoting policy. For many of these technologies, the construction phase is the most labour intensive one.

² These include administrative reforms, grid rules and 10 year national renewable energy action plans.

³ In 2009 and 2010 renewable energy growth increased significantly. Indeed, the EU had already reached its first interim target for 2011/2012 in 2010.

⁴ Directive 2009/28/EC

The Energy Roadmap 2050⁵ builds on the single energy market⁶, the implementation of the energy infrastructure package and climate objectives as outlined in the 2050 low carbon economy roadmap⁷. Regardless of scenario choice, the biggest share of energy supply in 2050 will come from renewable energy. Strong growth in renewables is the so-called 'no regrets' option. However, despite the strong framework to 2020, the Roadmap suggests that growth of renewable energy will drop after 2020 without further intervention due to their higher costs and barriers compared to fossil fuels. Early policy clarity on the post 2020 regime will generate real benefits for investors in industry and infrastructure as well as for renewable energy investors directly.

As currently framed, the Renewable Energy Directive 2009/28/EC is designed to ensure the achievement of the 2020 renewable energy targets. It foresees a post-2020 roadmap in 2018. However, stakeholders have already been asking for clarity regarding policy developments after 2020. This is why the Commission believes it is important to start preparing now for the period beyond 2020. **This Communication explains how renewable energy is being integrated into the single market. It gives some guidance on the current framework until 2020 and outlines possible policy options for beyond 2020, to ensure continuity and stability, enabling Europe's renewable energy production to continue to grow to 2030 and beyond. It is accompanied by a Staff Working Document and an Impact Assessment.**

2. INTEGRATING RENEWABLE ENERGY INTO THE INTERNAL MARKET

To achieve the 20% target, the Renewable Energy Directive⁸ set mandatory national targets. In order to reach these targets, Member States may operate support schemes and apply measures of cooperation (Articles 3, 6 to 9). Building on the national renewable energy action plans, the support systems put in place by Member States and the continuous investment in R&D, Europe's renewable energy sector has developed much faster than foreseen at the time of drafting the Directive. Renewable energy producers are becoming significant players in the energy market.

Market developments and costs

Strong growth in renewable energy markets suggest that significant "maturing" of technologies is occurring. In the five years to 2010 average photovoltaic system costs have declined by 48% and module costs by 41%. Industry expects costs to fall further based on the growth driven by current government support policies, reforms and removal of market barriers. Onshore wind investment costs fell by 10% between 2008 and 2012. Photovoltaic systems and onshore wind production are expected to be competitive in several markets by 2020. Achieving competitiveness, however, requires political commitment to regulatory frameworks that support industrial policy, technology development and removal of market distortions. Other technologies follow different maturity paths but their capital costs are in general also expected to fall.

⁵ COM(2011) 885/2

⁶ The Commission is also preparing a communication on progress in implementing the single energy market to follow later this year.

⁷ COM(2011)112

⁸ Directive 2009/28/EC

It is important that we continue to use every tool at our disposal to drive down costs, to ensure renewable energy technologies become competitive and ultimately market driven. Policies which hinder investment in renewables should be revised and in particular, fossil fuel subsidies should be phased out. In view of the complementarity of climate and renewable energy policies, a well-functioning carbon market is necessary together with properly designed energy taxes to give investors clear and strong incentives to invest in low carbon technologies and their development. At the same time renewable energy should be gradually integrated into the market with reduced or no support, and should over time contribute to the stability and security of the grid on a level footing with conventional electricity generators and competitive electricity prices. In the longer term, a level playing field needs to be ensured.

Improving support schemes

The cost of renewable energy is not determined solely by wind, solar, biomass or water resources; project costs are also driven by administrative costs⁹ and capital costs. Complicated authorisation procedures, the lack of one-stop-shops, the creation of registration procedures, planning processes that may take months or years and fear of retroactive changes to support schemes, increase project risk (See Chapter 2 of the Staff Working Document). Such high risks, particularly, in countries with stressed capital markets, result in a very high cost of capital, raising the cost of renewable energy projects and undermining their competitiveness. Thus simple administrative regimes, stable and reliable support schemes and easier access to capital (for example through public supports schemes) will contribute to the competitiveness of renewable energy. In that context, the European Investment Bank and national public institutions can play a key role. Today, most renewable energy technologies benefit from national support schemes¹⁰, but only a small share of the energy market is affected: less than a third of the 19% of our electricity from renewable energy is sheltered from market prices. In the transport sector, all forms of alternative fuels from renewable energy sources can count towards the 10% transport target, although development is held back by high prices of related transport systems and insufficient fuel infrastructure¹¹. Biofuel blending obligations are common and biofuels constitute around 4% of transport fuels. The costs are in principle passed on to consumers by fuel suppliers. In the heating and cooling sector (some 13% of which is from renewable energy sources), support for some mature markets and technologies (e.g. solar thermal) has been abolished.

Mature technologies operating in competitive markets, with a well-functioning carbon market should ultimately no longer need support. On the way, in every Member State, support schemes are being adjusted (15 Member States now offer support schemes which expose producers to market prices – see Chapter 2 of the Staff Working Document). Support schemes need such reforms to ensure their cost effectiveness. Moving as rapidly as possible towards schemes that expose producers to market price risk encourages technology competitiveness. However, some form of R&D and other financial or administrative support may continue to be needed for newer, less mature technologies. Thus certain cost effective and well-targeted support schemes may still be necessary beyond 2020. A good example of such a support

⁹ See Ecorys, 2008, Assessment of non-cost barriers to renewable energy, report TREN/D1/48 – 2008.

¹⁰ Exceptions, or partial exceptions include hydropower, some geothermal and biomass sources, heat pumps and solar heating in some markets.

¹¹ White Paper, Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system. COM(2011)144 final

scheme is the "NER 300" which uses auction revenues from the EU emissions trading scheme to trigger demonstration and early deployment of innovative renewables technologies.

Recent changes to support schemes have in some cases been triggered by unexpectedly high growth rapidly increasing expenditure on renewable energy which is not sustainable in the short term. In some Member States, changes to support schemes have lacked transparency, have been introduced suddenly and at times have even been imposed retroactively or have introduced moratoriums. For new technologies and investment still dependant on support, such practices undermine investor confidence in the sector. Moreover diverging national support schemes, based on differing incentives may create barriers to entry and prevent market operators from deploying cross-border business models, possibly hindering business development. Such a risk of impairing the single market must be avoided and more action is also needed to ensure consistency of approach across Member States, to remove distortions and develop renewable energy resources cost effectively. To encourage this, **the Commission plans to prepare guidance on best practice and experience gained in these matters and, if needed, on support scheme reform, to help ensure greater consistency in national approaches and avoid fragmentation of the internal market.** The principles thereof are outlined in chapters 3 and 4 of the attached Staff Working Document. Principles for support schemes need to be established that minimise market distortions, avoid over compensation and ensure consistency across Member States. These will address transparency, predictability and the need to stimulate innovation¹².

Boosting cooperation and trade

Historically, Member States have developed their own renewable energy resources, contributing to their own emissions reductions, reducing fossil fuel imports and generating jobs on their territory. However, the creation of a European energy market, and the ongoing desire to reduce costs wherever possible, should result in greater trade in all forms of renewable energy. To facilitate this, the Renewable Energy Directive created cooperation mechanisms to enable renewable energy produced in one Member State to count towards the target of another (see Chapter 4 of Staff Working Document). These have not yet been widely exploited despite the potential economic benefits for both parties¹³. Only two Member States¹⁴ have indicated that they would use cooperation mechanisms to achieve their 2020 targets. On the "supply side", ten Member States¹⁵ are expected to have a "surplus" available for other Member States. This picture could however change up to 2020 and the Commission will continue to monitor the situation closely.

Projects under development that could use cooperation mechanisms include the "Helios" solar power project of Greece, common projects or support schemes in the Northern Seas, and similar initiatives in the Southern Mediterranean and in the European Neighbourhood Policy area more broadly. Such initiatives are already being discussed with a number of third countries¹⁶. Cooperation in developing solar power both for domestic consumption and for

¹² This will elaborate on suggestions contained in COM(2011)31 and SEC(2001)131.

¹³ The Commission calculated that optimal trade in renewables could save up to €8bn per year (SEC(2008)85 Vol. II)

¹⁴ LU and IT, the latter, however, recently indicated that it may finally not need to use the mechanisms.

¹⁵ BU, EE, DE, EL, LT, PO PL, SK, ES, SW.

¹⁶ Norway and Iceland adopt much European legislation to participate in the same market; the Energy Community is in the process of adopting similar arrangements; the Commission is working with

export can be a key element of an overall agenda for substantial growth in a viable renewable energy sector and unfold its potential for economic growth and employment. To further encourage the development of renewable energy production in and with our neighbouring countries, the Commission will:

- a) facilitate international cooperation on renewable energy development by both enabling full use of the cooperation mechanisms which could develop renewables in the Southern Mediterranean and, in the context of strengthening EU-Southern Mediterranean policy dialogue on climate change, seek a mandate for the negotiation of bilateral/multilateral agreement(s) to allow for the use of credits from renewable energy projects in the Southern Mediterranean,
- b) propose specific measures aiming at encouraging trade of electricity from renewable sources in the framework of a future agreement with Northern African partners, e.g. on the basis of specific negotiating mandates, paving the way towards an EU-Southern Mediterranean Energy Community,
- c) propose the extension of the framework of Directive 2009/28/EC to the countries of the ENP region and in particular to the Southern Mediterranean countries.

Building on the experience so far, **the Commission will prepare guidelines** to facilitate trade in renewable energy (see Chapters 3 and 4 of Staff Working Document), reducing complexity, such that post-2020 cooperation mechanisms are a simple means of trading renewable energy across and beyond the EU. More convergence, including common joint support schemes, would ensure more cost-effective exploitation of renewable energy as well as a more single market-compatible approach.

Another aspect of international trade and renewable energy relates to the **trade of products and the openness of markets**. In the relatively new global market for renewable energy equipment, we see clear evidence that the market is growing and international competition is having a beneficial effect on innovation and cost. Moreover in this globally competitive market, European industry continues to compete and must strengthen its competitive edge. As can be seen in the photovoltaics industry, EU value added dominates, and generates jobs and growth¹⁷. Given the benefits of expanding global trade, it is important that barriers to trade such as "local content rules" or partial closure of public procurement markets are eliminated. Consequently, the Commission will continue to foster fair and liberalised trade in the renewable energy sector.

3. ELECTRICITY MARKET OPENING AND RENEWABLES

The heating and cooling sector is a very local market, needing local reforms and infrastructure. The development of renewable energy in the transport sector occurs in a fuel market open across Europe, which will be enhanced by the clarity provided by forthcoming

Switzerland to improve policy coherence; and EU development aid, cooperation and forthcoming free trade agreements are being used to improve coherence with Europe's Balkan and southern Mediterranean neighbours.

¹⁷ EPIA (EUPVSEC 2011) estimate that despite competition, 55% of module and 70% of PV system value added occurs in Europe.

fuel labelling requirements. The electricity sector, however, is in the process of being turned into a single European market.

In response to the call by heads of state and government to complete the internal energy market by 2014 in the electricity sector, the Commission is working with regulators and stakeholders to harmonise market and network operation rules. This, along with the implementation of the third package, should open up national markets, increasing competition, market efficiency and consumer choice. This should also facilitate market entry and integration for new players, including small and medium enterprises and other producers of renewable energy.

As new rules are developed, they need to take account of the changing nature of our electricity sector based on a competitive market with multiple power producers, including more variable power production from wind and solar energy. Bringing such rules into place that will reflect the specificities of the new forms of generation, e.g. by allowing trading closer to real time, as well as by removing remaining obstacles to a truly integrated market will enable producers of renewable energy to participate fully in a truly competitive market and to progressively take on the same responsibilities as conventional generators, including as regards balancing.

The liberalised electricity market should also ensure that operators earn sufficient returns to cover their investment costs for new generation to maintain system adequacy (ensuring adequate investment to guarantee uninterrupted electricity supplies). However, wholesale electricity prices, based on short run marginal costs, may face downward pressure due to the rise of wind and solar power (with near zero marginal costs). The market should be able to respond, reducing supply when prices are low and increasing it when prices are high. Changes in market prices need to encourage **flexibility**, including storage facilities, flexible generation, demand-side management (as consumers respond to changing price patterns).

Some Member States, however, fear that investment in power generation capacity will not be adequate. As a result, they have developed "**capacity payments**", where governments determine the required levels of generation capacity. Such an approach may encourage investment, but it also separates investment decisions from market price signals. Moreover, if poorly designed, it could "lock in" solutions focused on generation that frustrate the introduction of new forms of **flexibility**. Aggregated distributed generation, demand response and expanded balancing areas would also be impaired. It would also segment national markets, undermining the cross border trade necessary for an efficient European electricity market and for the deployment of renewable energy.

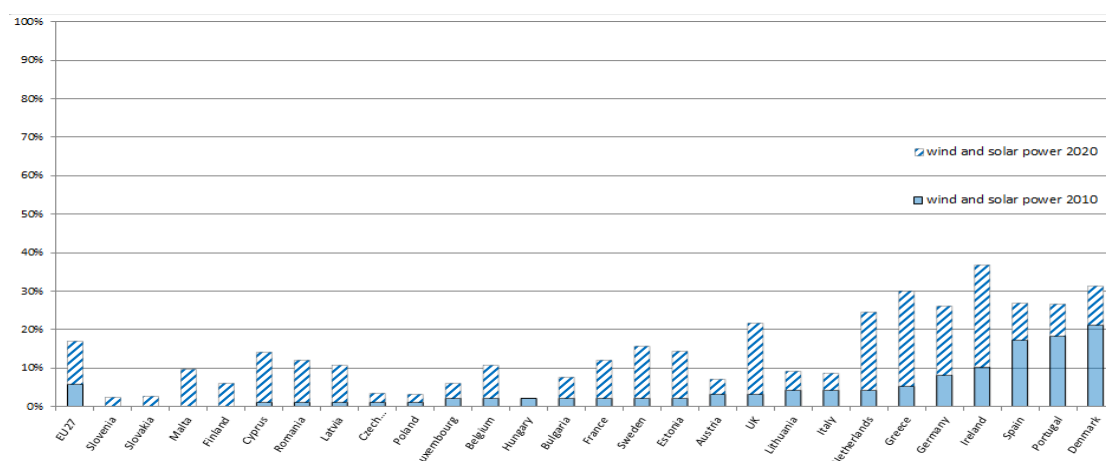
For market arrangements to deliver the necessary investment in flexibility, we need to ensure they are suitable for bringing in many more market players, new products and technologies, through a broadening of balancing markets. **Market arrangements must be consistent with the single market and thus developed and improved. This will be the subject of further discussion and analysis in the Commission's forthcoming Communication on the Internal Energy Market.**

4. TRANSFORMING OUR INFRASTRUCTURE

The EU's proposed **energy infrastructure package**¹⁸ identifies 12 priority energy infrastructure corridors, proposes accelerated permit granting procedures, cost sharing rules and the provision, where needed, of EU funding under the Connecting Europe Facility (€9.12bn for energy, 2014-2020)¹⁹. It does this not only because of the need to integrate more wind and solar electricity (5% of EU electricity supply today), but also to create an integrated EU market and to replace outdated assets. The energy infrastructure package estimated that about €100bn is needed for new electricity transmission lines alone.

The energy infrastructure package complements the **internal energy market** directives²⁰, which, through measures to better coordinate infrastructure planning, development and operation and to roll-out smart meters have paved the way towards integrated European energy infrastructure. Both initiatives are crucial for the transformation of our electricity sector. The creation of the single market, new technologies, new market players, new ancillary service providers – all hinge on the need for new infrastructure.

Electricity shares of wind and solar power. Source: Eurostat 2010, national plans 2020.



In the 21 Member States with less than 5% variable renewable energy in their electricity system, renewable energy generation linked to infrastructure limitations is causing no or only local balancing problems. However, in the six Member States with over 5% wind and solar power levels, measures have already been taken to create more flexibility, even in isolated systems, to ensure balancing and grid stability²¹. The challenge of meeting future infrastructure needs will very much depend on our capacity to develop renewables, grid infrastructure and better operational solutions together in a single market.

¹⁸ COM(2011)658

¹⁹ The infrastructure needs of renewable energy transport fuels, covering alternative fuels refuelling stations, common standards and policies and, in case of electromobility, improved management of systems are examined in depth in the 2011 Transport White Paper's alternative fuels strategy (White Paper, Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system. COM(2011)144 final) and are addressed in the revised TEN-T guidelines (COM(2011)650).

²⁰ Directives 2009/72/EC and 2009/73/EC

²¹ See IEA 2011, 'Harnessing variable renewables: a guide to the balancing challenge'.

The increase in distributed (renewable) generation and demand response will require further investment in distribution grids, which have been designed to transmit electricity *to* final consumers, but not to absorb generation *from* small producers. Widespread distributed generation displaces grid-sourced electricity and turns consumers into consumer-producers. So whilst some new generation capacity is further from traditional consumption centres and requires upgrades to transmission infrastructure (particularly in areas where "loop flows"²² are causing concerns), significant distributed generation could reduce the need for transmission infrastructure in other areas. The third way in which infrastructure can transform the system is the development of smart grids. Producers, including new micro-producers, consumers and grid operators will all have to be able to communicate in real time to ensure optimal matching of demand and supply. This will require developing appropriate standards, market and regulatory models. **Infrastructure development is urgent and critical for the success of the single market and for the integration of renewable energy. Early adoption of the legislative proposals of the energy infrastructure package is crucial in that respect, in particular for speeding up the construction of new infrastructure with a cross-border impact. The Commission will continue to work with distribution and transmission system operators, regulators, Member States and industry to ensure the development of energy infrastructure is accelerated to complete the process of integrating Europe's networks and markets.**

5. EMPOWERING CONSUMERS

Consumer choice and competition in energy varies across sector. In transport, there is a degree of choice of fuel supplier, but not yet an EU wide market for alternative fuels. In the heating sector, consumers are able to enjoy some independence by using solar thermal or local geothermal energy sources. And whilst market opening has begun in both gas and electricity sectors, limited supplier choices and regulated prices are still quite common. All this is about to change with full opening of retail markets and increased scope for buying "green electricity".

The greatest benefits should come with the combination of "smart metering" and micro generation. Smart meters will show consumers how much they are paying for electricity in real time and help them reduce their energy consumption. This, together with developments in "smart products" which can respond to price signals sent electronically, allows consumers to alter their consumption to take advantage of low prices. In addition, individual "demand response" can be aggregated by new market players to offer significant consumption savings when prices are high. As discussed in the accompanying impact assessment, this "peak shaving" can generate major financial savings by reducing the need for peak generation capacity.

The introduction of micro *generation* creates a degree of independence for consumers as is the case in the heating sector. Photovoltaic, micro wind, biomass and geothermal power and combined heat and power systems can reduce the need for power from the grid significantly, for households, office and industrial buildings. As consumers become "consumer-producers" they will also gain a stronger sense of ownership and control over their energy use. This

²²

"Loop flows" occur when electricity follows an unscheduled path as a result of a lack of infrastructure. Flows from northern to southern Germany via Poland or Benelux are the classic example, resulting from inadequate north-south infrastructure in Germany.

increases understanding and acceptance of renewable energy²³. Poor public acceptance of certain renewable energy projects blocks or delays development, undermining our policy goals. Thus, empowering consumers as micro producers and improving planning and permitting processes are an important way to tackle a significant barrier to renewable energy growth.

6. DRIVING TECHNOLOGY INNOVATION

Research and development (R&D) funding continues to be crucial to support technology innovation and development. Resources are scarce and must be well targeted to the appropriate research phase, of precompetitive, industrial or applications. Member States have spent €4.5bn on renewable energy R&D over the last 10 years with the EU spending, €1.7bn from the FP6, FP7 & EERP and allocates €4.7bn in EU Cohesion policy funds (2007-2013). The "push" of such measures, complemented by the "pull" of market deployment such as support schemes or carbon pricing have generated major advances, brought some key technologies (wind and solar power) to maturity and contributed to achieving today's 12% share for renewable energy. This approach should be enhanced.

Other technologies are still young and may need support for renewable energy to play its expected, expanded role in the future. Floating and other deep-sea offshore wind, wave and tidal power, certain biofuels, advances in concentrated solar power and photovoltaic novel applications, development of new materials, electricity storage technology (including batteries) are all on a long list of strategic energy technologies which need to be developed. (see Chapter 6 of the Staff working Document). It would appear that notably ocean technologies, energy storage, advanced materials and manufacturing for renewable energy technologies need to be given higher priority in future research.

The Strategic Energy Technology (SET) plan²⁴ and the forthcoming Horizon 2020 research programme are the EU's main contribution to driving developments in key energy technologies. Moreover, for 2014-2020 the Commission has proposed a significant concentration of EU Cohesion Policy efforts on renewable energy and energy efficiency, as well as a strong focus on R&D and innovation. Other instruments include revenues from auctioning EU ETS emissions allowances. With such a coordinated approach to technology development, Europe can continue to lead the race developing new generations of technologies and high tech manufacturing. The measures in place are expected to help develop new renewable energy technologies that can play a significant role in diversifying our energy mix.

The post 2020 legal framework should see a better application of the SET plan complemented by targeted actions. It should drive further integration of national research and innovation capacities and risk-sharing financing and enhance current industrial and academic cooperation on innovation in energy technology. **The Commission's 2013 Communication on energy technology policy will identify future R&D needs and challenges in line with the priorities identified in Horizon 2020. It will develop plans to ensure Europe will compete globally to drive innovation forward on a broad range of renewable energy technologies,**

²³ See Rebel, 2011, Reshare: benefit sharing mechanisms in renewable energy, www.reshare.eu.

²⁴ 'Investing in the Development of Low Carbon Technologies (SET-Plan) - A technology roadmap' SEC(2009) 1295; 'Materials Roadmap Enabling Low Carbon Energy Technologies' SEC(2011) 1609.

including new ones, as well as explore further scope for action in promoting existing SET Plan technologies.

7. ENSURING THE SUSTAINABILITY OF RENEWABLE ENERGY

The Commission's analysis shows that an increased share of renewable energy together with energy efficiency in the EU has the potential to reduce significantly greenhouse gas emissions and improve air quality²⁵. Moreover, Europe's well managed forestry and agriculture sectors will benefit greatly from new market opportunities as the bioenergy market develops, together with other sectors of the whole bio-economy. Despite such benefits, the increased use of renewables may still raise sustainability concerns, regarding both generation and infrastructure, in terms of direct or indirect impacts on biodiversity and the environment as a whole. This requires particular attention and vigilance. In general, such concerns are addressed by cross-cutting EU legislation²⁶. In other cases, the EU has developed energy-specific rules, namely the biofuels sustainability criteria introduced by the Renewable Energy and Fuel Quality Directives. The Commission shortly expects to address *indirect* land use change impacts too. Reducing emissions from the transport sector will be helped by the transition to biofuels with no or limited indirect land use change impacts.

The expected rise in the use of biomass after 2020 heightens the need to use existing biomass resources more efficiently and to accelerate productivity growth in agriculture and forestry in a sustainable manner, in the EU and globally. At the same time it is important to take strong global action to reduce deforestation and forest degradation and help ensure the availability of biomass at competitive prices. This will be addressed through the implementation of the Renewable Energy Directive and the EU bio-economy strategy, the proposed reform of the Common Agriculture Policy, the forthcoming EU Forest Strategy, and EU action on climate change and on development cooperation. Increases in the use of biofuels in aviation and heavy road transport (where electric power is not deemed feasible) reinforce the need for developing advanced biofuels. However, significant further use of biomass requires additional measures to ensure its sustainability. For this reason the Commission will evaluate the effectiveness of current sustainability criteria by 2014 as required by the Renewable Energy Directive. **In addition, the Commission will shortly produce reports and proposals to further develop the EU's sustainability framework. It will also investigate the most appropriate use of bioenergy after 2020 in a way that is consistent with the EU energy and climate ambition to 2030 while fully taking into account environmental, social and economic considerations.**

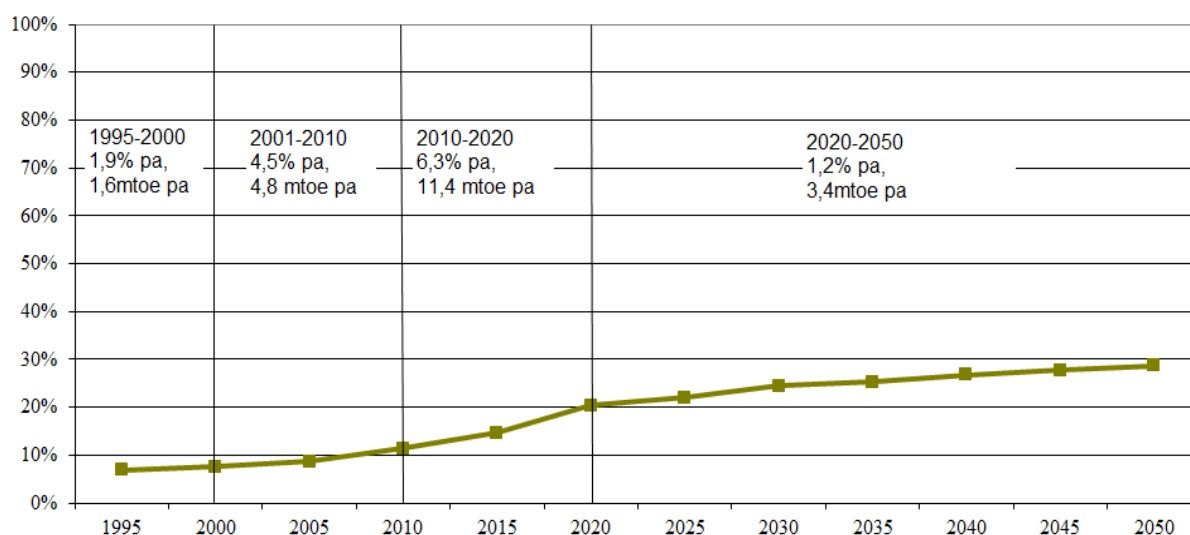
²⁵ See chapter 5.2 of the Impact Assessment of this Communication

²⁶ For instance hydro and wind power development must comply with Directives on SEA (2001/42/EC), EIA (85/337/EEC), Habitats (92/43/EEC), Birds (79/409/EEC), Water Framework (2000/60/EC) and the Biodiversity Strategy (COM(2011) 244), elements of photovoltaic power is to become subject to waste disposal rules for electronic equipment, and local air pollution risks from household biomass use are subject to EU emission standards for small-scale energy installations.

8. RENEWABLE ENERGY POLICY POST 2020

The current renewable energy framework, of legally binding targets, national plans, administrative reform, simplification, better development and infrastructure planning appears to work well. According to Member State plans, the rate of growth of the sector will increase to 6.3% p.a.²⁷, boosting confidence in the future of the European renewable energy industry.

Historical and projected trend of renewable energy growth in the EU (% of total energy). Source: Eurostat and Roadmap 2050 data, business as usual scenario.



Effective though the current European renewable energy legal framework seems today, its key driver – binding targets – expires in 2020. The chapters above explore how current policy initiatives of market opening, trade, infrastructure development, institutional and operational market reforms and innovation will evolve. **In a competitive market, the renewable energy industry can indeed be a major player in the European energy market.** The creation of the single European market is at the heart of Europe's prosperity and should be the driving force of change in Europe's energy sector. In an open and competitive European market the renewable energy industry created under the current regulatory framework should be able to prosper.

If, however, current policy initiatives are *not* adequate to achieve our long-term energy and climate policy objectives, as the 2050 Roadmap suggests, renewable energy annual growth would slump from 6% to 1%. To maintain robust growth of renewable energy beyond 2020, which is a "no regrets" conclusion of the 2050 analysis, a supportive policy framework will be needed to address remaining market or infrastructure inadequacies. As the Roadmap 2050 states, it is crucial to consider the options for concrete 2030 milestones. To begin this process, the accompanying impact assessment explores three policy options. These are a decarbonisation without renewable energy targets option, relying on the carbon market and a revised ETS (Directive 2009/29/EC); the continuation of the current regime, with binding renewable energy, emissions reductions and energy efficiency targets; and an enhanced, more harmonised management of our whole energy sector with an EU renewable energy target.

²⁷ Up from 1.9% and 4.5% under the earlier indicative targets regime.

The Impact Assessment explores how effective the different options are at addressing the multiple objectives. It is clear that specific 2030 renewables milestones can only be designed after reflection on the state of post-2020 climate policy, the degree of competition in Europe's electricity, heating and cooling and transport fuel markets, and the degree of energy diversity and technology innovation expected by 2020.

9. NEXT STEPS

Building on the current set up, action in a number of areas is under way to further enhance the contribution of renewable energy to the EU's energy mix, to strengthen the single European energy market, remove market barriers and regulatory obstacles, enhance the effectiveness of renewable energy support schemes, advance energy infrastructure development, increase consumer involvement in energy markets and ensure sustainability. In its 2012 Annual Growth Survey, the Commission already highlighted the growth potential of the widespread use of renewable energies. It followed up on this in its country specific recommendations adopted on 30 May 2012. The Commission will also continue to discourage policies that hinder the investment in renewables, in particular by phasing out fossil fuel subsidies, promote a well-functioning carbon market and properly designed energy taxes. This will open up new possibilities, increase the integration of renewable energy in the internal market by exposing producers to market prices, i.e. through exchange of best practice on support scheme reform. It will also facilitate international cooperation on renewable energy development by enabling full use of the cooperation mechanisms which could also help to develop renewables in the Southern Mediterranean..

To ensure all these steps are taken, the Commission is taking four main actions following this Communication. It will:

- continue to drive forward the integration of renewable energies into the internal energy market and address power generation investment incentives in the market
- prepare guidance on best practices and experience gained on support schemes to encourage greater predictability, cost-effectiveness, avoid over compensation when proven and develop greater consistency across Member States
- promote and guide the increased use of the cooperation mechanisms, allowing Member States to achieve their national binding targets by trading renewable energy and so lowering their costs
- ensure improvements to the regulatory framework for energy cooperation in the Mediterranean, noting that an integrated regional market in the Maghreb would facilitate large-scale investments in the region and enable Europe to import additional renewable electricity.

Whatever form the *post 2020* renewable energy milestones take, they must ensure that renewable energy is part of the European energy market, with limited but effective support where necessary and substantial trade. They must also ensure that Europe maintains its research and industrial leadership globally. Only in this way can we continue to develop our renewable energy resources in a cost effective, indeed, affordable manner and grasp the associated competitiveness, economic and job

opportunities. For this reason, the Commission will also launch proposals for a renewable energy policy regime for the post 2020 period.