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Green Paper – a 2030 framework for Climate and Energy policies

1. GENERAL

Which lessons from the 2020 framework and the present state of the EU energy system are most important when designing policies for 2030?

Renewable energy targets have unambiguously been the key success-factor of the EU's energy policy, and this should continue post-2020.

The lesson is that a stable long-term market and legislative framework is key. Headline targets for GHGs, renewable energy and energy efficiency have proven effective. The 2001 Renewable Electricity Directive achieved around 21% renewable electricity by 2010, including 6.3% from wind energy, in line with the target set. Early indications are that the EU is on target to achieve its 2020 renewable energy target, although for wind energy, eighteen Member States are falling behind, including Slovakia, Greece, Czech Republic, Hungary, France and Portugal and abrupt changes in support, in particular retroactive, are considerably undermining investors' confidence and could put the achievement of the targets at risk.

Due to the early adoption of binding national and EU renewable energy targets, European companies are world leaders in wind power technology, and have a leading share of the world market. Renewables energy targets have been successful in driving investments and cost-reductions in renewable energy technologies such as onshore wind. If the right framework for 2030 is set, the success of onshore wind in bringing down costs will be replicated offshore. Up to 2030, renewable energy targets will continue to be the most efficient way to promote investments in renewables, a "no-regrets" option for decarbonisation of the power sector by 2050. This should be backed by a strong ETS that ensures a stable carbon price reflecting the cost of emissions.

Targets should not be confused with support mechanisms. In some Member States, fast cost decreases in technology costs, regulated electricity prices and unflexible support mechanisms have lead to overcompensation. It is essential that the Member States keep control of their support mechanism for renewables. In this context, post-2020 legislation could incentivise Member States to implement support mechanisms which are stable and flexible to adjust to decreasing costs, market evolutions etc. In particular, retroactive changes should be the object of specific provisions and singled-out as they hamper the necessary investments.

An important lesson from the 2020 framework is that in addition to headline targets for renewable energy, GHG and efficiency, the post-2020 framework should ensure the timely development of key enabling factors:

- 2020 implementation: a stable regulatory framework to 2020 is a pre-condition for the success of a 2030 climate and energy framework. Member States must implement stable policies in order to meet their trajectory up to 2020, and the Commission must carefully monitor implementation of the Renewable Energy Directive and take swift action where necessary.
- Electrification is important for decarbonisation of the energy sector. The EU should increase the electrification of its economy in order to reduce exposure to high fossil fuel prices and take full advantage of its significant renewable electricity potential, for example electric vehicles powered by renewable electricity
- Infrastructure: “More and smarter infrastructure” is a “no regrets option” of the energy roadmap 2050, and will be critical to the success of the 2030 climate and energy framework. Any 2030 climate and energy package should therefore consider ways to ensure that the necessary infrastructure and grid investment are in place in a timely manner in order to ensure the most cost-effective integration of the 2030 energy mix.
- Electricity markets: While EWEA welcomes the 2014 target model and its benefits for wind power’s integration, much more will have to be done on the way to a single market for electricity integrating most cost-efficiently large shares of wind power. EWEA therefore calls on the Commission, when designing a 2030 climate and energy framework, to propose an ambitious timetable for implementing a future electricity market allowing the cost-efficient integration of large shares of wind power in order to move to a fully decarbonised power sector.
- R&D and innovation: while an ambitious 2030 renewable energy target will be a key driver for private sector R&D and innovation in the wind industry, ambitious EU and national R&D and innovation policies will remain critical for the period after 2020.

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2. TARGETS

Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?

a. A combination of renewable energy, GHG, and efficiency targets will be most effective in driving the objectives of climate and energy policy. They should be legally binding and with an overall EU target, with the Member States being given legally binding targets in order to ensure the EU is met.

A package approach, based on mutually reinforcing GHG emissions reductions, renewable energy and efficiency targets, should therefore be proposed by the European Commission. In such a framework, carbon pricing mediates the economy-wide action, renewables deployment targets reduce long-term costs and enable the timely scale-up of a broad range of technologies, particularly onshore and offshore wind, and efficiency policy unlocks the energy efficiency potential blocked by non-economic barriers.

In particular, a suitably ambitious and binding 2030 target for renewable energy would be particularly cost-efficient in delivering the EU’s energy and climate objectives. Investments made possible by these long-term targets will help drive down costs – both capital expenditure and the cost of capital – and will enable on-going reduction, and ultimately remove the need

for specific support. This will therefore decrease the cost of renewable energy promotion and support mechanisms in the mid-term. Indeed a renewable energy target does not mean a continuation of support mechanisms for all renewable technologies.

Long-term costs of decarbonisation will be lower as targets will drive innovation and deployment of a sufficiently broad portfolio of renewable energy technologies in the timeframe to 2050. Today onshore wind energy is well placed as one of the cheaper renewable electricity technologies. If the right framework for 2030 is set, the success of onshore wind in bringing down costs will be replicated offshore. By allowing more recently developed technologies, such as offshore wind, to continue the reduction in the emissions trajectory after 2030, it will also avoid a fossil fuel lock in, which would put at risk the achievement of the ETS cap at lowest cost.

Furthermore, renewable energy targets will promote energy security, green growth and jobs and industrial and technology leadership in technologies in which Europe excels and needs to keep a competitive edge, such as onshore and offshore wind power.

Renewable energy targets should be set at EU level and be made binding upon Member States under an effort sharing calculation which takes into account economic conditions and renewable energy penetration levels.

Member States would therefore continue to be given the flexibility to meet their targets with the renewable energy technologies they prefer. Resources and renewable energy potentials could be given more importance than in 2008 in the effort sharing calculation. Additional cooperation mechanisms between Member States, such as joint projects, should also be envisaged.

The 2030 renewable energy target should not be seen as aspirational, and should therefore be legally binding. EU energy efficiency and automotive targets have shown the importance of setting binding targets. The 2030 renewables target should also be suitably ambitious otherwise no targets are needed as one would be in a business as usual framework. A target's credibility and integrity is critical.

Binding targets are more robust than indicative targets. When binding upon Member States, they foster greater awareness and political action in Member States. The legal requirement to reach a target largely determines its credibility, as robust legally binding targets mean that Member States will make every effort in a timely manner to ensure that the target is met in order to avoid infringement procedures and penalties. Binding targets give a direction which is non-negotiable. This in turn means that the market has greater certainty for planning and investment: binding targets are trusted by private investors and are bankable. Indicative targets may give a direction, but signals that the direction could change and be vulnerable to economic and political downturns.

If the EU target was indicative, not all Member States would necessarily share the effort to meet the target. Binding targets ensure the effort is spread fairly across the EU, with all Member States contributing according to their national situation through differentiated national targets. The 2010 renewable electricity target of 21% was almost met at the EU level. However, national results were uneven.

A binding EU target with a differentiated effort sharing between Member States, and an in-build trajectory, is the best way to encourage all Member States commit to a sufficient level of renewable energy, in particular in emerging and developing markets. A suitably ambitious target binding Member States to ambitious progress will push all Member States to put in place all the necessary efforts to its achievement. The binding nature of a suitably ambitious target encourages Member States to introduce policies in a timely manner and maintain stable legislative frameworks. If the target is too low, neither policies nor substantial changes will be implemented.

Finally, a binding target allows for the European Commission to implement its role as enforcing EU legislation in a timely manner and to encourage any Member State to take action early enough to reach its target.

An ambitious and binding 2030 greenhouse gas emission reduction target should continue to be divided in ETS and non-ETS sectors. As with any policy involving pricing, the ETS target must be binding to ensure full bankability of the ETS scheme. A functioning ETS is an essential part of the package, as a high carbon price is critical to price emissions at their real cost to society and create a level playing field. It will be beneficial to the development of wind power and minimise the support level for wind power.

The European Commission should present a comprehensive impact assessment, based on high levels of efficiency and renewables and achieving the 2050 decarbonisation objectives, and set mutually reinforcing target levels for 2030. The impact assessment should also assess the development of key enablers, such as the level of infrastructure needed to meet the targets levels proposed, and the means to implement those levels most effectively.

[Have there been inconsistencies in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?](#)

While the target for GHG reduction was set too low and should all the more be increased following the economic crisis, there is no inconsistency between the current policies composing the 2020 package. As made clear in the 2008 impact assessment to the climate and energy package¹, RES and ETS policies are mutually reinforcing.

The crisis, not renewables deployment undermined the carbon price.

Renewable electricity development in 2012 was slightly higher than foreseen (1.74% above trajectory) but this represents only about 39 Mt in additional avoided/reduced emissions. Compared with a 2,000 Mt surplus, it is clear that RES are not a relevant factor behind the low carbon price.

A similar approach should hence be taken to 2030, setting 3 targets supporting each other. The GHG target should be defined ambitiously enough to take the emissions reductions of the

¹ 2008-01-23 Impact assessment accompanying the package of implementation measures for the EU's objectives on climate change and renewable energy for 2020

separate 2030 renewable energy and efficiency targets into account and provide additional incentives for emissions reductions beyond efficiency and renewable energy. In that way the three targets would work in a coherent and concerted way, underpinning and mutually supportive. To ensure a stable investor framework an (automatic) ETS cap adjustment could be introduced to guarantee the health of the carbon price to respond to a fall in demand for EUAs.

If only a GHG target was set, national renewable energy targets would interfere with the ETS/carbon price because the equivalent in emissions reductions may not be properly forecasted. Setting an EU renewable energy target is therefore also necessary for the best possible interaction between the different targets.

Are targets for sub-sectors such as transport, agriculture, industry appropriate and, if so, which ones? For example, is a renewables target necessary for transport, given the targets for CO₂ reductions for passenger cars and light commercial vehicles?

Energy sub-sector targets at the EU level are not appropriate. Member States should be set an overall energy target and decide themselves how that target is divided between sub-sectors, based on their resources, geographical and technological differences. Renewable targets covering the whole energy sector would provide more flexibility to Member States than sectoral targets.

How can targets reflect better the economic viability and degree of maturity of technologies in the 2030 framework?

Targets should not be confused with support mechanisms. Already today renewable energy technologies count towards renewable energy targets without receiving support mechanisms. The 2009 renewable energy directive does not prescribe the means used by Member States to meet their national targets, including whether and which support mechanisms should be used. This approach should continue post-2020, with appropriate refinement.

A 2030 renewable energy target should continue to provide direction and clarity on volumes for investors in renewable energy. However, the objective of the wind industry is to be competitive in a fully liberalised electricity market, and to deliver the benefits of wind energy in the most affordable way. Long-term stable market and legislative frameworks delivered with targets will allow renewable technologies to reduce their costs faster. Investments made possible by long term volume targets (supported where necessary by well-designed support mechanisms) help drive down costs – both capital costs and the cost of capital – and will enable on-going reduction, and ultimately remove the need for specific support. Post-2020 an increasing number of renewable energy technologies, including onshore wind, will be able to move away from support mechanisms into a properly functioning electricity market adapted to their intrinsic characteristics. Until then, while penetration levels increase, support mechanisms should encourage greater market responsiveness.

How should progress be assessed for other aspects of EU energy policy, such as security of supply, which may not be captured by the headline targets?

Security of supply can be captured by the headline targets: while a greenhouse gas target cannot alone ensure increased independence from imports, renewable energy targets, as well

as efficiency targets, improve security of supply and reduce fossil fuel imports, which are the main reason for Europe's energy import dependency. Wind energy displaces electricity generated using costly fossil fuels with electricity generated by the wind. For the 2007 to 2010 period wind energy avoided fuel costs of €20.18 bn. By replacing electricity which is mostly based on imported fossil fuels, wind energy considerably improves Europe's energy independence.

The EU has a competitive advantage in renewable energy, particularly wind energy: by setting a renewable energy target for 2030, Europe would also increase its competitive edge, by continuing to promote those technologies in which Europe excels and needs to keep global leadership, such as onshore and offshore wind.

A 2030 renewable energy target would also promote investments green growth and jobs. The wind energy industry is a proven recession-busting industry and investment in the wind power sector should be seen as a way to restore Europe's economy to health. Because wind energy is capital intensive with low operating cost, more jobs up front than conventional energy. 400GW of wind would provide 440,000 direct and 340,000 indirect jobs by 2030.²

Finally, renewable energy policy promotes environmental protection. In particular, wind has many environmental advantages, , such as:

- No NOx emissions (precursors for ground level ozone causing health impacts and GHG warming).
- No other air pollutants like sulphur dioxide (causing acid rain) or particles which have carcinogenic effects and severely affect human health.
- No long-term storage of waste needed and simple decommissioning process.
- Minimal water use during operation, and zero fuel extraction.

When assessing the next 2030 climate and energy framework, the European Commission should not only model the achievement of emissions reductions, system security and costs, but also look at, and when possible model and set minimum levels of security of supply/import dependence levels as well as macroeconomic costs and benefits provided by the different options.

3. INSTRUMENTS

Are changes necessary to other policy instruments and how they interact with one another, including between the EU and national levels?

While it is important that Member States maintain some control on their support mechanisms for renewables, minimum criteria for their design could be put in place. This would give guidance for Member States to put in place support mechanisms that avoid over-compensation and are more compatible. Ultimately this would favour the convergence of national support mechanisms in the post-2020 period. With increasing penetration levels, support mechanisms should also be made more market responsive, and markets and the grid should be developed in order to increase wind energy integration in the market.

² http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Green_Growth.pdf

The legislation should also allow for more flexibility in the modalities of cooperation between the Member States. The cooperation mechanisms in the 2009 Renewable Energy Directive which have facilitated the Swedish-Norwegian joint support mechanism as well as the Memorandum of Understanding between the UK and Ireland allowing for the export of Irish wind power to the UK market, should be the basis of this effort. Despite these encouraging examples, cooperation mechanisms are under-used. The Commission should strive to foster their greater use for the post-2020 period by addressing the main hurdles to their implementation (including issues like price discovery, risk distribution, tracking of physical electricity flows and public acceptance). Progress with interconnections, as well as the existence of ambitious and binding post-2020 renewable energy targets, will also encourage Member States to cooperate more.

How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?

The key to ensuring that the targets are met in a cost effective way is the stability of long-term market and legislative frameworks. Stop-go policies, and retroactive changes, significantly undermine investor confidence and needlessly increase the cost of capital for capital-intensive technologies, such as most renewables.

Investments made possible by long-term renewable energy targets will help drive down costs – both capital expenditure and the cost of capital – and will enable on-going reduction, and ultimately remove the need for specific support. This will therefore decrease the cost of renewable energy promotion and support mechanisms in the mid-term. Indeed a renewable energy target does not mean a continuation of support mechanisms for all renewable technologies.

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Cooperation mechanisms between the Member States can be considered as a tool to enhance the cost-effectiveness of meeting the climate and energy objectives. It is critical that this remains a bottom-up approach led by the Member States, with guidance from the Commission if required. Cooperation mechanisms should be developed for the post-2020 period. It has been demonstrated that a scenario with reinforced national measures with better use of cooperation mechanisms would be more effective in limiting the cost of renewable target implementation than having an EU-wide technology neutral support mechanism.³

³ EWI “European RES-E Policy Analysis 2009” and “futures-e deriving a future European Policy for renewable Electricity” (Resch, Ragwitz 2010).

How can fragmentation of the internal energy market best be avoided particularly in relation to the need to encourage and mobilise investment?

Fragmentation of the internal energy market can be avoided by the European Union, and in particular the European Commission, adopting a leadership position in setting suitably ambitious renewable energy, GHG and efficiency targets, and driving forward the creation of an internal energy market together with progressing on developing cross-border grid infrastructure.

A stable long-term market and legislative framework at the EU level is the best way to mobilise investment in the wind power sector.

If implementing national capacity mechanisms governments should prevent further and lasting fragmentation of the energy market, and the European Union should rather strive for European solutions in the least discriminatory and distortive manner.

Which measures could be envisaged to make further energy savings most cost-effectively?

As with renewable energy targets, long term targets on energy efficiency would stabilise the market and provide the sector with clarity and certainty, thereby easing the achievement of the and facilitate the achievement of the existing 2020 targets by confirming to investors that energy savings are considered a long-term priority for the EU, as highlighted in the European Commission's 2050 Energy Roadmap. Investments would be fostered and costs decrease most effectively, thereby decreasing the level of public finance necessary.

Electrification of heating, cooling and transport should also be promoted as efficient tools to ensure cost-efficient energy savings.

How can EU research and innovation policies best support the achievement of the 2030 framework?

Ambitious renewable energy targets are a key driver for wind sector R&D and innovation, providing a demand pull for wind energy innovations and enabling large scale market deployment, which is essential for economies of scale and cost reductions. However, alongside the targets, post 2020 research and innovation policies at EU and member state levels together with dedicated financial mechanisms will be critical to support the achievement of the 2030 framework.

According to the European Commission's energy roadmap 2050, wind energy will be the key technology in 2050 providing between 33 and 49% of the EU's electricity in the various decarbonisation scenarios. While the industry is confident that this can be achieved, public R&D will be critical in making this happen. The EU research and innovation programme Horizon 2020 should achieve serve for the financial aims of technological R&D&I of the SET-Plan technologies.

To support the achievement of the 2030 framework the SET-plan needs to be extended post-2020 and to be part of a comprehensive new long term energy technology and innovation strategy. This strategy should address the energy system integration and incentivize private

investments in innovation in all segments of the value chain from R&D to market deployment. It should aim at allocating funds not only to research, but also significantly to demonstration and market validation and should focus on the most promising energy technologies such as onshore and offshore wind. In line with the no regrets options of the energy roadmap, the R&D and innovation policy of the future should concentrate on variable renewables such as wind energy and their integration in the broader energy system by means of increased research for those technologies and their enablers, in particular grids, including smart grids.

4. COMPETITIVENESS AND SECURITY OF SUPPLY

Which elements of the framework for climate and energy policies could be strengthened to better promote job creation, growth and competitiveness?

Renewable energy targets promote the development and deployment of wind energy which in turn creates growth and jobs. A greenhouse gas only approach would not be sufficient to make the huge job potential in wind energy a reality. The renewables element of the framework should therefore be strengthened, allowing the European Union to replace fossil fuel imports with technology exports. The EU should aim at investing today in wind energy jobs in Europe, rather than sending 1.1 billion Euros per day to fossil fuel exporting nations.

The wind energy industry is a recession-busting industry and a capital intensive industry which can provide a safe haven for investments in European growth: the targets-driven installation and operation of wind turbines has resulted in economic growth since the financial and economic crisis. For example, in 2010 the increase in the wind industry's contribution to GDP, at 4.1%, was twice as high as the growth of GDP itself. Between 2007 and 2010 the wind energy sector increased its contribution to GDP by 33%, and more than 30,000 direct jobs were created by the sector, a growth of 30%, while EU unemployment was rising by 9.6%⁴.

European wind energy technology is a world leader. China and other countries are making very significant investments today in renewable energy, in particular wind power. But, the EU has been the cradle of renewable energy innovation, particularly wind power, and the European wind industry continues to represent a growing number of jobs, significant and growing export opportunities, as well as increased energy security and competitiveness. Europe remains the world's biggest wind market and the European wind industry is a net exporter: in 2010 the sector exported for €8.8Bn, and that positive trade balance has increased since 2007. Europe has a significant first mover advantage in the technology, and can and must maintain its technology leadership and competitive edge in technologies in which it excels such as onshore and offshore wind power. By continuing to lead in and export wind energy technology, Europe will create green growth and jobs. And for Europe to keep its first mover advantage, and leadership of the global wind power industry, the EU needs to expand its R&D and deployment momentum in support of its wind industry, both onshore and offshore, and to avoid boom and bust by implementing stable frameworks up to 2030.

Stable frameworks by means of ambitious and binding 2030 targets, and stable but dynamic market and regulatory frameworks for wind energy, will enhance investors' confidence and minimizes the risk premium for financial investors. This is critical for capital intensive

⁴ http://www.ewea.org/uploads/tx_err/Green_Growth.pdf

technologies such as wind energy; investments enabled by stable frameworks will also help drive down capital costs of technologies and thereby improve Europe's competitiveness.

What evidence is there for carbon leakage under the current framework and can this be quantified? How could this problem be addressed in the 2030 framework?

EWEA promoted auctioning as the only way to ensure proper carbon pricing. Free allocation has been used to avoid carbon leakage, but there is little evidence that carbon leakage has happened, with most companies passing all or most of the carbon price onto their customers⁵⁶.

Revising the carbon leakage list to take account of lower than expected carbon prices could mean only 33% of sectors accounting for just 10% of industry's greenhouse gas emissions would fit the criteria, a CE Delft study indicates. At present, 60% of sectors representing 95% of industry emissions are on this list.

In the power sector, carbon leakage is currently limited, as physical power lines are a bottleneck for importing electricity from outside Europe. If existing plans to build power stations outside the EU (eg in the Balkans) for electricity import are realised, there would be a need to include CO₂-emitting plants outside the EU from which electricity is imported to the EU in the EU ETS to avoid carbon leakage. This should prove easy as the source of emission is well identified and quantifiable.

What are the specific drivers in observed trends in energy costs and to what extent can the EU influence them?

Investments in new capacity always have an effect on energy *prices*. The novelty with renewable energy support mechanisms is their transparency and accountability. The effect of support mechanisms for wind energy on energy prices therefore needs to be put in a context. Energy price increases in the EU in the past years were mostly driven by fossil fuel increases, in particular gas prices.

Analysis by the UK Committee on Climate Change published in December 2011, focuses on energy bill impacts for the 84% of typical households and a 75% increase between 2004 and 2010. Overall, over 80% of the increase in fuel bills since 2004 was unrelated to low-carbon measures, with funding for renewables accounting for less than 7% of rises.⁷

In Germany, while the renewables surcharge will represent 19% of the German electricity price in 2013, this will still remain only 5% of the overall energy price paid by final consumers. Gas prices have increased steadily in the past years, and by 50% in 2012⁸.

In Denmark, with almost 30% wind penetration, support mechanisms (= the "PSO", mostly wind) only constitute 3.5% of the final electricity price paid by consumers (=4.4% of the price

⁵ CE Delft Report, 2011

⁶ <http://www.theccc.org.uk/wp-content/uploads/2013/04/CF-C-Summary-Rep-web1.pdf>

⁷ http://downloads.theccc.org.uk/s3.amazonaws.com/Household%20Energy%20Bills/CCC_Energy%20Note%20Bill_bookmarked_1.pdf

⁸ BMWi German Economics Ministry

excluding VAT, and 9% of the overall taxes excluding VAT, which themselves represent more than 40% of the final price).^[2]

Wind energy has rather smoothened the increase of electricity prices via the merit order effect: because wholesale market power prices are solely determined by marginal costs and because wind power has almost zero marginal costs, when the wind blows, it pushes out from the market the power plants which use the most expensive primary energy resources, namely gas, coal and oil, thus decreasing the overall electricity price.

Progress on the IEM and infrastructure will also enable a much more efficient operation of the power system and cost-effective integration of wind power (thereby reducing the need for back-up, storage etc.) and decreasing overall energy system costs.

Fossil fuel subsidies continue to prevail, including in the EU: in 2011 the total amount of fossil fuel subsidies in the 21 EU Member States of the OECD was €26.5bn, €10.1bn (38%) more than global support to wind energy €16.4bn (IEA). Phasing out fossil fuel subsidies can help decrease energy costs, increase the competitiveness of wind and reduce the need or level of support mechanisms

Finally, stable legislative frameworks reduce energy costs, because they enable lower capital costs and cost of capital: political stability by the means of long term, stable but dynamic policies enhances investors' confidence and minimizes the risk premium for financial investors which is critical for capital intensive technologies such as wind energy; investments enabled by stable frameworks will also help drive down capital costs of technologies and will enable on-going reduction, and ultimately remove the need for specific support.

How should uncertainty about efforts and the level of commitments that other developed countries and economically important developing nations will make in the on-going international negotiations be taken into account?

Discussions and decisions about the EU climate and energy framework can be decoupled from the international climate negotiations. The EU climate framework helps to price technologies at their true cost for society, a benefit in and of itself, disconnected from any international framework.

Also, the UNFCCC debate no longer reflects investments and policies put in place in most countries. Despite the lack of agreement, action is being taken outside the EU and the EU should not see itself left behind. Over 100 countries now have renewable targets⁹, including some very ambitious ones as e.g. in China – 100GW wind energy by 2015. Most countries have emissions reductions targets in place, e.g. China committed to set a cap on greenhouse gas emissions by 2016, and Australia has an ambitious and effective carbon pricing system.

The EU holds a competitive advantage in technologies like wind energy: EU manufacturers will continue to benefit from an ambitious climate and energy framework that supports or helps these technologies independently from any international commitments.

^[2] Danish Ministry for Climate and Energy

⁹ RES21 Annual Report 2012

Pushing for an ambitious 2030 climate and energy package will ease the EU's negotiating position in international climate negotiations.

How to increase regulatory certainty for business while building in flexibility to adapt to changing circumstances (e.g. progress in international climate negotiations and changes in energy markets)?

A long-term stable market and regulatory framework for renewable energy will increase regulatory certainty for business.

Choosing a renewables pathway will enable Europe to become less vulnerable to changing circumstances in energy markets. While Europe can have no influence on fossil fuel markets, it still is today the main market for renewables and wind energy and a technology leader. Europe can continue to dominate trends for renewable energy, while becoming more resilient to fossil fuel trends. Choosing a renewables pathway will also clarify which electricity market and which grid will be needed to accompany to enable the 2030 framework. As such stability by means of ambitious and binding long term targets is the best way to achieve certainty for business while leaving flexibility to Member States and businesses to achieve the targets. An approach based on instruments and measures rather than targets would leave less flexibility.

Another example is the need for a high and stable carbon price. An automatic adjustment mechanism could therefore be envisaged, or a floor price could be considered.

How can the EU increase the innovation capacity of manufacturing industry? Is there a role for the revenues from the auctioning of allowances?

In 2010 the wind energy sector – both directly and indirectly – contributed €32.43 billion (bn) to the EU's GDP, 0.26% of the EU's total GDP for that year. The contribution of the wind energy sector is higher than the contribution of the footwear industry (0.21%). Wind energy's contribution can also be compared to the furniture sector, which contributed 0.99% of EU GDP in 2010, to the civil aviation sector, which contributed 1.5% of EU GDP in 2010, to the automotive industry at 6.5% and to construction at 9.9%.

In 2010 the increase in the wind industry's contribution to GDP, at 4.1%, was twice as high as the growth of GDP itself. Between 2007 and 2010 the wind energy sector increased its contribution to GDP by 33%. The wind industry is growing faster than the EU's economy as a whole and this will remain the case over the next two decades.

As such the wind industry will continue to be a driver for economic growth over the next twenty years. In 10 years' time the wind industry's contribution to GDP will increase almost three-fold, with the sector expected to generate 0.59% of the EU's GDP whilst having doubled employment. In twenty years' time the wind industry's contribution to GDP will increase fivefold to reach €174 bn, almost 1% of total EU GDP, and employment will have increased by a factor of three.

The wind industry buys and sells products and services from and to other economic sectors. This interdependence between sectors means that the wind industry is a driving force for many other industries – including metals, electric and electronic equipment, IT, construction,

transport, and financial services. As a result the growing wind industry has helped other industrial and economic sectors weather the economic crisis.

The wind industry spent more than 5% of its total turnover on research and development (R&D) in 2010. Since 2007, R&D spending has consistently represented over 5% of the sector's turnover, almost three times higher than the economy-wide average, and well above the EU's objective of 3% of GDP being invested in R&D. Wind turbine manufacturers commit the most to R&D – around 10% of their total turnover – highlighting how well placed European wind power companies are to take on the challenge emerging from China, the US, India, South Korea and Japan. The 2030 Climate and Energy framework should aim at stimulating even further the innovation capacity of the manufacturing wind energy industry by developing and implementing an industrial strategy for the sector, aiming at drive forward its development and build a world class industrial leadership for Europe.

Reinforced by the industrial strategies developed at national and regional levels, the European industrial strategy for offshore wind should:

- Provide a comprehensive vision of the sector's development and ensure its deployment;
- Be articulated around four work streams: technology innovation, supply chain expansion, skills and financing;
- Focus on delivering cost reduction.

The ETS should be used as much as possible for spurring innovation in renewable energy, in particular wind. EWEA called early on for 100% mandatory earmarking of ETS revenues for climate mitigation. The current commitment by EU Member States to use 50% of that revenue for climate mitigation and adaptation, including financing research, demonstration and deployment of renewable energies, is welcome, but doesn't go far enough. It integrates several loopholes, not least its non-mandatory nature.

Revenues channelled through e.g. the "NER300" scheme are a good example of how revenues can benefit the EU at large, rather than single Member States. NER300 financed demonstration of "innovative renewable technologies close to, but not yet at commercial stage" which will benefit all EU Member States. Renewables and wind power in particular have already shown their innovative character by winning most of the first calls. A repetition of such a programme should certainly be considered. EWEA recommends that the guiding principles of the implementation of the scheme be closer to economic realities, costs and timings for the technologies considered.

How can the EU best exploit the development of indigenous conventional and unconventional energy sources within the EU to contribute to reduced energy prices and import dependency?

The EU should invest in the indigenous technologies in which it has a competitive advantage such as onshore and offshore wind power. Wind energy reduces both energy prices (through the merit order effect), and import dependency

The UK CCC published an analysis which showed that household energy bills would be about £600 higher per year in the 2020s if the UK relied increasingly on gas, while bills would only be £100 higher than today's average dual fuel bill of about £1,300, if the country concentrated on renewable power generation, mostly wind power. Indeed relying on renewables allows to hedge against fossil fuels increases.

How can the EU best improve security of energy supply internally by ensuring the full and effective functioning of the internal energy market (e.g. through the development of necessary interconnections), and externally by diversifying energy supply routes?

Developing infrastructure and energy markets are key to improving security of supply internally.

In EWEA's view, two key market developments will contribute to security of supply, while simultaneously ensuring the most cost-effective integration of low marginal cost generation in the system, such as wind power:

1) moving away from predictive transmission capacity calculation and static capacity allocation and implementing the flow-based capacity allocation method as soon as possible as foreseen in the EU-wide target model to maximise the use of existing assets.

2) markets closer to real time, i.e. the uptake and regional integration of intraday markets.

In order to reap the full benefits of an integrated system, including security of supply, it is necessary to make the best use of available transmission capacity, improve system operation routines and to extend the grid.

Moreover, next to EU-wide market integration, power markets in the EU must be transparent and liquid in order to increase investor confidence. The EU should improve market transparency and monitoring by providing further incentives for the extensive use of commercial power exchanges for trading. This will ensure transparent price formation signalling investment needs and opportunities. In this sense, the EU should embrace flexibility as the main feature of tomorrow's power system and markets.

Grid infrastructure reinforcements within and between EU Member States are also of critical importance, not only in view of increasing penetration levels of RES, but also to enable the Internal Energy Market while ensuring current levels of security of supply. The 2030 climate and energy framework should consider ways to ensure that a sufficient level of necessary infrastructure and grid investment are in place in a timely manner in order to ensure the most cost-effective integration of the 2030 energy mix. To this end, the grid reinforcement plans on both national and European level must be based on the wider EU energy policy goals for 2030 and according scenarios on RES deployment, in particular for wind energy for the 2030 timeframe and beyond must be considered.

The EU should develop future market forms such as grid supports services markets, which will foster investments in all forms flexibility, from demand side management including smart meters, demand aggregation, interruptible demand, to storage, back-up and ancillary

services, in the least discriminatory manner. Together with the reinforcement of the grid, this would enable the best integration in the market of renewable energy.

5. CAPACITY AND DISTRIBUTIONAL ASPECTS

How should the new framework ensure an equitable distribution of effort among Member States? What concrete steps can be taken to reflect their different abilities to implement climate and energy measures?

The 2020 target put in place by the 2009 Renewables directive was based on a distribution between the Member States which was both differentiated and equitable. This allowed for each of the Member States to plan the development of renewables to the fullest of their potential. In order to maximise the potential of renewables development by 2030, a similar approach should be adopted, together with more encouragement for cooperation.

What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?

The Renewables Directive includes a number of cooperation mechanisms that are open to the Member States to enable a cost-effective delivery of the 2020 targets: statistical transfers, joint projects and joint support mechanisms. This has opened the door to a joint support mechanism between Sweden and Norway which is an example of bottom-up regional integration that the industry would like to see replicated. Despite these encouraging examples, cooperation mechanisms are under-used. The Commission should strive to foster their greater use for the post-2020 period by addressing the main hurdles to their implementation (including issues like price discovery, risk distribution, tracking of physical electricity flows and public acceptance). Progress with interconnections, as well as the existence of ambitious and binding post-2020 renewable energy targets, will also encourage Member States to cooperate more.

Are new financing instruments or arrangements required to support the new 2030 framework?

A stable long-term market and regulatory framework is critical to attracting a sufficient volume of appropriately priced financing,

Financial tools and arrangements should be adapted to the 2030 objectives and the no-regrets option of the Energy Roadmap 2050. Instruments such as the NER300 and other financing tools (loans, guarantees, project bonds) should be developed to support the deployment of innovative large-scale renewable energy projects.

New financing instruments that reduce the cost of capital and reflect the transition to a system of more front-loaded investments will be necessary and require the full engagement from the finance community. Governments should facilitate programmes for entry of new capital in the wind sector, as retail-backed green project bonds or semi-governmental investment banks, such as the Green Investment Bank in the UK and KfW in Germany. The European Investment Bank has already provided significant support to wind sector development, through non-recourse lending and corporate refinancing, and this should be

continued and expanded, in particular for the offshore wind projects which carry on average higher technological risks. Finally, as borrowing costs in Southern Europe will continue to be higher, economic recovery programmes and project bonds should be developed. Other instruments such as the Connecting Europe facility to finance investments in cross-border infrastructure will be critical to enable the necessary infrastructure to be built in time for the targets to be met. The Commission should ensure that a similar instrument will be developed for the post-2020 period, with sufficient funds targeted primarily at electricity infrastructure, where the needs are already much higher today, and will be even higher post-2020.