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APPA's response to the European Commission Green paper - A 2030 framework Climate and Energy policies

2nd of July 2013

Key points of the reply

The costs of inaction with regard to climate change will be much higher than the costs of decisive action. The deployment of renewable energy and the promotion of energy savings are the most sensible ways of reducing emissions, improving the security of supply, reducing our growing energy important dependency[1] promoting competitiveness and thus achieving the much-desired transition to a clean energy supply.

A 2030 "package" approach with legally binding RES, energy efficiency and climate goals will be a major driver for success until and after 2020. Especially binding renewable energy targets would prove effective and cost-efficient in achieving the strategic objectives of the European Union, such as climate protection, technology development, energy security and green jobs.

APPA calls on the European Commission to prepare a legislative proposal to:

- Propose three mutually reinforcing 2030 targets for RES (including a RES in transport target), Energy Efficiency and GHG emissions.
- The targets should be ambitious, legally binding, set up at national level and broken down into nationally binding targets.
- Guarantee the continuation of the priority access for RES.
- Give the possibility for the Commission to impose direct penalties on the Member States which do not fully and timely implement the post-2030 framework.
- Resolve some of the malfunctioning of the EU ETS on short term (through the EU ETS allowances back-loading) and medium-term (through a structural reform of the system).
- Ensure a level playing field by making a thorough analysis of subsidies given to the energy sector and push the EU Member States to phase out subsidies to fossil fuels and nuclear energy.
- Encourage EU Member States to adopt flexible and evolving support frameworks for RES to avoid retrospective changes.
- Develop in parallel to the 2030 framework an industrial policy, a better financing framework for RES and a comprehensive and ambitious R&D policy.

[1] According to the European Commission Europe's import dependence has increased in the last two decades and is set to grow to more than 80% in the case of oil and gas by 2035, http://ec.europa.eu/europe2020/pdf/energy2_en.pdf

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4.1. General

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

Success of the 2020 binding RES target

The first 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. For example, the 2001 Renewable Electricity Directive achieved around 21% renewable electricity by 2010.

The experience from the 2020 framework also indicates that the three targets need to be sufficiently ambitious and consistent, to allow for their mutual reinforcement. A thorough and consistent impact assessment can help ensure this.

The 20% RES binding targets have shown how long term legally binding targets are successful in giving the necessary incentive to Member States to develop a RES industry. Since the adoption of the RES Directive, the European renewable industry has grown dramatically, creating a very large amount of green jobs in Europe, increasing by 30% since 2009 to reach 1.2 million people in 2011. The binding targets have helped the EU reach a share of 13% RES in final energy consumption in 2011.

In the light of the current disturbances in many EU Member States, the economic crisis is used to justify retroactive and damaging changes for support mechanisms to RES, like for example in Spain.

Since 2010, the Spanish renewable electricity sector has been confronted with a series of retroactive changes of the support scheme, starting with a reduction of the remuneration period for PV, an annual limitation of production hours for wind, CSP and PV and a reduction of wind premiums by 35% for the years 2011/2012. This was followed by a suspension of support for any new RES-E installation since end January 2012. This sudden stop to Feed-in Tariff (FiT) programs unlimited in time led to loss of investors' confidence in the sector and to the bankruptcy of many companies and massive employment destruction.

At the beginning of 2013 a new fiscal measure has been applied to all types of energy sources used for electricity production in the form of a 7% flat rate tax on the gross revenues of electricity sales. This tax is applied retroactively to already existing plants and is discriminatory against RES benefiting from the FiT who cannot pass it on to the consumers like conventional power producers participating in the wholesale electricity market.

On top of that, in February 2013, the Spanish Government, approved without any former notice a Royal Decree-Law that retroactively abolished one of the two remuneration options within the Spanish RES-E support scheme. RES producers can no longer choose the option of participating in the power market, receiving the hourly wholesale electricity market price with a green premium, which mainly affected wind power producers who mostly participated in the pool market. Furthermore, it retroactively changed the indexation mechanism of the RES-E remuneration to the consumer price index (inflation) decoupling it from the real evolution of the energy costs with the result that the FiT for existing RES-E installations becomes a digressive one, which strongly negatively affects all RES-E producers, but even stronger for those highly exposed to inflation impacts like for example biomass installations. Besides, it also abolished the additional premium of up to 0.7 €ct/kWh for repowered wind farms which originally where put into operation before 2002.

This Spanish u-turn policy is also very damaging as far as biofuels are concerned. The Spanish Government approved last February the *Royal Decree-Law 4/2013 to support entrepreneurship,*

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estimulate economic growth and create jobs, including a severe reduction in the biofuels consumption mandates from the year 2013 onwards. Without any previous consultation with the National Energy Commission (CNE) or interested parties, global biofuels mandate was axed to 4.1% from 6.5%, whereas biodiesel and bioethanol targets were reduced to 4.1% (from 7%) and 3.9% (from 4.1%), respectively. It is obvious that this sudden and retroactive decision will not give any certainty to the sector nor will approximate Spain towards the 10% goal of renewables in tranport by 2020. On the contrary, with such a move the Spanish Government has put another nail in the coffin of the Spanish biodiesel sector after several years of massive disloyal imports that have disrupted the domestic market.

APPA is convinced that without binding targets under the RE Directive, we may have seen even more negative actions and the Commission would not have the authority to bring Member States back in the right way.

The 2020 energy and climate framework has made the renewable energy sector one of the most recession-resistant areas of European economy; renewable energy, energy efficiency and Information and Communication Technologies (ICT) are those sectors which have shown positive growth in the face of the crisis. The renewable energy industry contributed 1% of the EU´s GDP. This holds also true for the case of Spain, were in a national economy confronted with a strong recession, the domestic renewables sector contributed with 0.95% to the Spanish GDP in 2011.

The binding 20% renewable energy target will lead to a net GDP increase of 0.25% in comparison to a scenario with no renewables policies. By 2030 this could further increase to a minimum net GDP growth of 0.45%.

Success of the comprehensive package

One of the key success factor of the 2020 Climate and Energy policy is that it links the different sectors to ensure that the European Union achieve its ambitious 2050 agenda. In order to reach many objectives (i.e. competitiveness, decarbonisation, security of supply, economic and social growth…), many instruments are needed. The EU 2050 agenda cannot be reached with a single CO2 reduction tool.

Elements to be kept in the 2030 framework

In terms of RES policy, the binding character of the targets makes their achievement possible. In addition, the National Renewable Energy Action Plans drafted by the 27 Member States provided the renewable energy industry with a very clear direction up until 2020.

One of the key elements from the 2020 Climate and Energy framework that should remain for 2030 is the grid priority access for RES. Until a change of the market structure and until RES are the dominant sources of energy, continued priority access to the grid will be needed.

Flexibility of support schemes needed

Another lesson learnt is that the design of the renewable energy supports schemes is crucial to adapt to the maturity but also to the changing costs of renewable energy technologies and further efforts are needed in terms of streamlining administrative barriers, clarity of planning and permitting procedures.

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

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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.

- 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: APPA calls on the European Commission, when designing a 2030 climate and energy framework, to propose an ambitious timetable for implementing a future European electricity market allowing the cost-efficient integration of large shares of variable renewable energies like wind or solar in order to move to a fully decarbonised power sector.
- Ambitious EU and national R&D and innovation policies will remain critical for the achievement of any ambitious 2030 renewables, energy-efficiency and GHG reduction target.

The 2020 climate and energy package was built on the assumptions that reducing carbon emissions in the power sector was the cheapest option and for this reason the burden of the EU ETS sector was set higher than the one for the non-EU ETS sector, including buildings. Against this background, APPA would like to stress how efficient renewable heating and cooling technologies can provide a cost-effective contribution to the decarbonisation of the EU economies. The heating sector currently represents 47% of the EU final energy consumption and remains largely dominated by fossil fuels (80%) and by small-scale installations. Given that:

- the EU ETS does apply only to combustion installations above 20 MW;
- no EU-wide CO_2 tax directed at small scale installations is in place;
- non- binding targets in the field of energy savings have shown their limitations;
- the GHG emissions savings potential in non-ETS sectors (the Effort Sharing Decision) was underestimated and targets were set too low*;* it is possible to draw the conclusion that a GHG-only approach beyond 2020 would be far from covering the entire energy sector in the most cost-efficient way. Hence, a three target approach, including a 2030 EU binding renewable energy target covering electricity, heating and cooling, and transport is needed.

In the power sector, impact assessment and decisions should not be taken on the basis of LCOE of single generation technologies only. Instead, all externalities and system costs (including expansion of grid infrastructures and back up required) should be fully taken into consideration.
Further efforts are needed in terms of information and training, streamlining administrative procedures, clarity of planning and permitting procedures.
The EU needs to better address energy in existing buildings: More than 70% of today's buildings will still exist in 2030. The EU should draft retrofitting plans and targets.

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4.2. 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?

An integrated climate and energy framework

To achieve the multiple objectives of the European Climate and Energy policy, the European Union should adopt an integrated climate and energy framework for 2030 with ambitious and legally binding targets, thereby continuing with the successful package approach based on mutually reinforcing GHG emissions reductions, renewable energy and efficiency targets being most effective in driving the objectives of climate and energy policy. They should consist in an overall EU target, with the Member States being given legally binding targets as well in order to ensure the EU target is met.

The key drivers of the current renewable energy policy are binding targets. In its Energy Roadmap 2050 the European Commission recognizes the importance of binding targets for the deployment of renewable energy technologies. Without binding targets the growth rate of renewable energy is projected to slump from currently 6% per year to only 1%[2]. Binding targets will achieve what a greenhouse gas reduction target alone cannot achieve: providing the energy sector with the necessary stability and predictability that allow renewable energies to grow successfully.

Furthermore, the European Parliament, in its resolution of May 21, 2013 regarding the current challenges and opportunities for renewable energy in the European internal energy market calls on the Commission to propose a mandatory EU-wide RES target for 2030.

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, and efficiency policy unlocks the energy efficiency potential blocked by non-economic barriers.

As shown in the European Commission's 2050 Energy Roadmap, these three targets represent the no-regrets options necessary for a cost-effective and sustainable energy supply in any given scenario. They also represent the correct level of certainty for investments in renewable energy. As has been shown e.g. in a recent study[3] by Imperial College London, an approach based on a emissions-reduction target only would not be enough to drive investments in clean energy solutions. An ambitious emission-reduction target is important to put a price on pollution, but it cannot provide the necessary certainty for investment-intensive solutions like renewable energy in a cost effective manner.

Although the cost of most renewables technology is decreasing very rapidly, the industry is still not yet competitive. Therefore, European governments need to give a clear investment signal to the industry by making a long term commitment. Energy market price signals remain distorted in favor of non-RES. Although external costs are partially internalized through the EU's ETS, fiscal instruments or support frameworks for RES, current market prices are still far from reflecting true cost. According to IEA, at global level fossil and nuclear energy are still receiving six times the level of subsidies of RES.

[2] European Commission, Energy Roadmap 2050, 2011.
[3] Imperial College London, On picking winners – The need for targeted support for renewable energy, 2012.

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Requisites for the 2030 RES targets

In order to be efficient, these targets should be:

- Legally binding: The current difficulties to reach the indicative energy efficiency targets (and even to set up policies which would foster achievement) show the importance of binding targets. A binding target is the best way to encourage all Member States to commit to a sufficient level of renewable energy, particularly in emerging and developing markets. The market will have greater certainty for planning and investments: binding targets are trusted by private investors and are bankable. A binding renewables target will - by providing the long-term direction- decrease the costs of uncertainty, and facilitate the achievement of the 2030 targets in the most cost-efficient way. 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. Furthermore, a clear and binding direction allows for infringement procedures and eventual sanctions, which are assumed to increase the likelihood of achieving the target.

  The meaning of "binding" may also need to be strengthened. The legal consequences of non-compliance with the EU legislation and targets must represent a real incentive for the MS to address their policies in the right direction.

  - The fact that the framework and targets be established for a long-term period cannot mean that MS do not have any legal obligations until the end such period or that in the meantime they are free to make abrupt changes to their policies which irreparably affect and deter investments. Several interim binding targets (and periodic review of compliance thereof) are required to guarantee the consistency and stability of the policies throughout the term of such legal framework.
  - An independent supervisory body at national level could be a useful instrument for ensuring control and compliance. This supervisory body should be given the tools to detect and correct deviations or breaches of the EU framework.
  - Penalties associated to nonfulfillment of the targets should be seen by the MS as a real risk. In practice, it sometimes appears that a fine after a long proceeding is not sufficiently effective and that some different form of penalties may need to be thought of: for instance, a penalty consisting of preventing the MS from accessing to certain financial support from the EU, could be a motivation for meeting certain non-negotiable criteria.

- Ambitious: A share of 30% - as envisaged by the Commission in the Energy 2050 Roadmap – is definitely not ambitious enough. APPA supports the European Renewable industry call for a legally binding renewable energy target of a minimum 45% of final energy consumption in the EU by 2030. This would entail an annual reduction in fossil fuel demand of 556 Mtoe from 2030 onwards. According to the European Renewable Energy Council (EREC), a minimum target of 45% by 2030 would provide gross employment of about 4.4 million in the renewable energy sector. The impact would also be of qualitative nature, revitalizing industrial areas and improving social cohesion. It would also improve Europe's security of supply, lower Europe's dependency on fossil fuel imports and massively reduce European energy bill.

- European and national: RES targets should be set at European level and declined in national legally binding targets. Having an EU target only would lift Member States from the legal responsibility to meet their target. Furthermore, renewable energy developments would be

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concentrated in the most mature markets leading to disproportionate costs and public acceptance issues in these countries. National binding targets are also necessary to provide Member States with the flexibility they need to meet the target and allow for a fair effort sharing among Member States taking into account economic conditions and renewable energy penetration levels. Resources and renewable energy potentials could be given more importance than in 2008 in the effort sharing calculation.

Moreover, Member States should continue setting binding targets for the power, heating and cooling and transport sector in their national action plans. National targets and support schemes have increased the importance of renewable energy for regional and local administrations, the market and the broader public. Having national sectoral targets according to an indicative trajectory emphasizes this importance and closeness. Furthermore, they represent certainty for a broad range of investors and ensure that the development of renewables is consistent throughout the sectors.

In addition to the regular infringement procedures for violating the European treaties, the Commission should have the possibility to impose direct penalties on the Member States which do not fully and timely implement the targets and policies of a post-2020 framework.

The European Commission could also assess the necessity of interim binding targets on Member States. That would avoid the ongoing retroactive changes to national legislations as the Member States would not be able to wait for the end of the period to start their investments, as criticized by the European Commission in its progress report.

That the target approach is also much more than just a European phenomena, is proven by the fact that all throughout the world, renewable energy targets and policies have been a main driver of renewable energy deployment. In 2012, 138 countries had renewable energy targets and 127 countries had some type of renewable energy policy in place, with feed-in tariffs being the most widely used policy type in the electricity sector.[4]

The EU transport sector is highly dependent on imported fossil fuels, which puts the EU's energy security at risk. At the same time the GHG emissions from transport are steadily increasing, counter to the overall trend of reducing emissions. Sustainable biofuels are therefore crucial to any responsible energy framework. A specific RES target for transport combined with a minimum GHG emission saving requirement and more ambitious decarbonization targets for transport fuels, is the right way forward. To create long-term visibility the EU should set itself a binding target of at least 20% renewable energy in transport by 2030 with interim binding targets until then.

Both ILUC factors and caps for biofuels from agricultural products are not the solution to tackle greenhouse gas emissions. We encourage the European Commission to start bilateral negotiations with third countries to directly address deforestation and other land use change issues.

GHG target only would fail to achieve the EU objectives

A GHG target only – which with its current level even lacks ambition – has a broad economic impact, but bears the risk of incentivizing the harvest of low-hanging fruits and the re-introduction of old and polluting technologies such as coal and nuclear, thus negatively impacting the strong drive needed for a fundamental energy transition.

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

[4] REN21, Renewables 2013 Global Status Report, 2013.

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package, as a high carbon price is critical to price emissions at their real cost to society and create a level playing field.

A GHG target is well complemented by a RES target, which stimulates technological innovation, thus speeding up the technological learning process and lowering the costs of the technology. The EU ETS, the technology neutral instrument meant to reduce emissions at European level, failed to achieve its objectives, with multiple causes for this failure (such as the impact of the economic crisis and a high influx of CDM credits).

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.

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?**

Several instruments for several objectives

The Climate and Energy policy has several objectives, therefore several instruments are needed to achieve these objectives. APPA does not believe that there is inconsistency between the RES and GHG targets. However, we believe that the mutual reinforcement should be deepened by setting the RES goal first, then an energy efficiency target, then addressing the remaining emissions with a GHG target.

RES policy not responsible for the failure of the EU Emissions Trading Scheme (EU ETS)

The assumption according to which RES development undermined the carbon price is false; other reasons have led to the low carbon prices, such as: the over-allocation of allowances due to grandfathering and the continued impact of the economic crisis (currently a surplus of almost 1 billion allowances).

The impact assessment of the 2007 Climate and Energy package was accurately modeled taking into account various aspects and potential interactions of the different policies. The deployment of RES and its indirect impact on the GHG target for instance was intended. The 2007 impact assessment expected a carbon price of 25-30€/t by 2020 assuming that:

- The RES target of 20% by 2020 would be met, translating into an indicative 34% target for RES-Electricity, 25% for RES-heat and a binding target of 10% for RES in transport
- Electricity consumption and production would grow significantly
- The EU economy, including heavy industry sectors, would grow

However, with the economic downturn, the situation that led to the inefficiency of the EU ETS is that:

- Electricity consumption has gone down by 3% since 2008, instead of increasing as expected
- Heavy industry emissions decreased by over 30% in the last 5 years, due to reduced production
- Renewable electricity production is 1.74% above trajectory, reducing emissions approximately by an additional 39Mt beyond the RES Directive objective.

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The European Commission estimates the EU ETS surplus to be around 2000Mt by the end of 2013, making clear that an additional 39 Mt reduction from RES is not to blame. Having over-achieved the RES-E targets is a great achievement in difficult times. This RES-E development represents lasting emission reductions, unlike most of the 2000Mt surplus. This surplus reflects the economic downturn – which has not been foreseen- and the (free) allocation methodology.

2020 targets: mutually reinforcing objectives to be continued

The existing targets, EE, RES and GHG, are delivering mutually reinforcing objectives and have to be continued. To further ensure that they work in a coherent and concerted way and be mutually supportive, we would suggest that priority should be given to a binding renewable energy target –including a specific one for transport– and a binding energy efficiency target, given their strategic long-term climate mitigation role and multiple benefits for European citizens and the economy. The GHG emissions target should then be defined ambitiously enough to take the resulting emission reduction 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.

Besides, to avoid any inconsistencies in the future, a thorough impact assessment for 2030 should take into account sufficiently ambitious trajectories for renewable energy and energy efficiency, backed-up by mandatory intermediary targets.

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 EU renewable energy targets 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?**

Targets for sub-sectors can certainly be effective, in particular if a sub-sector lags behind in terms of overall development or if a desired change is more challenging to pursue. Therefore, Member States should continue to set binding targets for the power, heating and cooling and transport sector in their national action plans.

However at the same time Member States should be encouraged to exploit their respective total potential and to address non-economic barriers in those subsectors which seem to be the most appropriate.

As mentioned before, taking into account the high dependency of the EU transport sector on imported fossil fuels and the need to improve the energy security, helping at the same time to reduce the GHG emissions from transport, the establishment of renewable energy binding targets in transport is crucial.

Besides, as for the whole energy sector, binding targets for the transport sector will achieve what a greenhouse gas reduction target alone cannot achieve: providing the biofuels industry and other renewable energy for transport sectors with the necessary stability and predictability that allow their successful growth.

Although the existence of targets for CO2 reductions for passenger cars and light commercial vehicles are also desirable, they are intended to be achieved by the reduction of fuel

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consumption of the vehicles with an increasing efficiency of their engines, but they are not related to the type of fuel that they use. Therefore, the targets for CO2 reductions for passenger cars and light commercial vehicles are not an alternative to renewable energy targets in the transport sector, but a complement of them within the EU climate policy. Specific renewables targets in the transport sector are essential.

In the specific case of the transport sector, the establishment of biofuel targets at national level with the purpose to achieve the 10% target of renewable electricity in transport in 2020 has been the key factor to develop the important biofuel industry in the EU. Therefore, in order to create long-term visibility the EU should set itself a binding target of at least 20% renewable energy in transport by 2030.

Special attention should be paid to biofuels produced from feedstocks materials with more environmental advantages. Therefore, a dedicated sub-target for these more advanced biofuels should be also set. This target must be flanked by dedicated auxiliary measures for first-of-its-kind plants such as loan guarantees or direct support for investments earmarked within NER300.

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

Support for RES will be gradually phased out

It is important to stress that increasing the share of renewable energy by setting a 2030 target does not mean a continuation of existing support mechanisms for all renewable energy technologies over the whole duration of a framework until 2030. A coherent, stable and predictable 2030 framework, including an ambitious binding renewables target, will significantly minimise the costs of uncertainty, lowering the investment risk, reducing the costs of capital and hence the level of support needed. Post-2020 an increasing number of renewable energy technologies will be able to move away from existing support mechanisms into a fair and properly functioning energy market for electricity, heating & cooling and transport.

Evolving national frameworks are the key to efficiency

Experience has shown that incentives for RES technologies require evolving frameworks, which should be tailored to national specificities and differing levels of market maturity.

The renewable energy sector has proven to be a very dynamic sector, with fast learning curve and effects of scale leading to rapid price decrease of the technologies. To ensure the cost-effectiveness of support, some flexibility clauses should be integrated to the design of support schemes, from the outset, e.g. digressive support, regular revisions, use transitional periods etc.

While some exchanges of best practices could bring added value, harmonisation at EU level of support schemes' parameters and especially the nature and level of financial support would actually not deliver an adequate portfolio of renewable technologies. Support should be properly designed in order to reflect a whole set of country-dependent parameters and ensure a sustainable rate of return for potential investors.

Targets should not be confused with support schemes. Targets give a political direction, thus providing the necessary certainty to investors.

In order to secure the achievement of the targets, they should be complemented with a regulatory framework to remove barriers and allow for appropriate remuneration, depending on the nature and maturity of the different technologies and the markets they are operating in.

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The 2009 renewable energy directive does not prescript 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.

- **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 for RES and EE. While a greenhouse gas target cannot ensure increased independence from imports, renewable energy targets, as well as efficiency targets, reduce Europe's use of fossil fuels, which are the main reason for Europe's energy import dependency.

Indeed, security of supply can be ensured by increasing the share of indigenous energy sources and decreasing energy import. In 2011, the EU's combined trade deficit was €150 billion. At the same time the net import bill for fossil fuels to the EU amounted to €388 billion, more than 3% of EU GDP, and more than twice the trade deficit. Analysis shows that the EU´s fossil fuel demand can be reduced by about 550 Mtoe by 2030, representing approximately €370 billion. This is equivalent to the total combined energy consumption of Belgium, Germany, Latvia, Poland, the UK and Spain.

Another aspect to consider to ensure the security of supply is the technical diversity of energy sources. Renewable energy technologies include a large number of different technical options that would foster the security of supply.

The EU has a competitive advantage in several renewable energy technologies: 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.

Finally, renewable energy policy promotes environmental protection. In particular, renewable energies have many environmental advantages in contrast to fossil and nuclear energy, such as:

- No CO_2 emissions or CO_2 neutral (in the case of biomass)
- 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.

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.

4.3. Instruments

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

An EU industrial policy

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EU Climate and Energy policy in the future should be addressed in conjunction with EU industrial policy and should recognise and support both current and future opportunities for the industry to provide low carbon technologies and solutions. To keep its front-runner advantage in developing RES on a commercial scale, a real industrial policy would strengthen further local investments. Such a policy should be based on:

- Implementing a transparent and efficient European Energy market that provides an attractive investment climate while respecting general competition rules, through the use of low interest loans and easy access to capital.
- Ensuring investment security through a stable and favorable policy framework with long term 2030 binding renewable targets.
- Phasing out subsidies and R&D support to fossil fuel and nuclear as it distorts competition in the energy market.
- Promoting incentives at EU level to attract manufacturing investment.
- Simplifying administrative rules by developing sustainable support schemes, streamlining administrative procedures and implementing efficient grid connection processes. All current electricity grid plans should be implemented.

Effective financing instruments

- Creating a European Renewable Energy fund that could provide guarantees to renewable energy projects.
- Refocusing the European Investment Bank (EIB) investment policy as in contradiction with the EU policy on climate change, the EIB still finances fossil fuel power plants. The EIB's energy policy should be aligned with the EU's own 2020 and 2050 targets so as to focus energy finance to renewable energy, smart electricity infrastructure and efficiency.

Efficient Research and Development policy

- Developing a strong R&D and innovation policy for RES in line with a fast-paced RES industry. Focus on innovation that can be applied quickly in the market.
- Developing education skills for RES jobs.
- Implementing and financing the Strategic Energy Technology Plan (SET-Plan), and extended to other technologies such as renewable heating and cooling technologies. It should be extended post-2020 and be part of a comprehensive industrial strategy for renewable energy technologies.

Energy research funding within the overall EU R&D funding has declined from 34% in FP1 to 7% in FP7: Future EU research and innovation policy should reflect the importance of Europe's climate and energy objectives by increasing the share of energy funding in the overall EU research programme. The funding should be focused on the no-regrets options of renewables, smart electricity infrastructure and efficiency, as identified in the EU 2050 Roadmap for Energy.

<u>Heating and cooling:</u>

The Commission announced its intention to publish an EU heating and cooling strategy in the autumn. This strategy could be, among others, boost the development of RES in this sector. Collecting robust information and statistics will allow better assessment of the obstacles and shortcomings presented by current instruments, foster the exchange of best practices leading to European guidelines on RES heat policy and create synergies among existing instruments. It is of

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utmost importance that this exercise is in line with the next steps taken by the Commission in the 2030 climate and energy framework. Likewise, it is important that the National Renewable Energy Action Plans (the heating and cooling part), the requirements regarding heat supply in the implementation of the EPBD and the upcoming heating and cooling assessment in the Energy Efficiency Directive are coherent.

Infrastructure and system integration:

Europe's climate and energy objectives, including 2030 renewable energy targets, should be factored in the ENTSO-E Ten Year's Net Development Plan (TYNDP).

The Renewable Energy Directive requires Member States to upgrade their electricity infrastructure in time to allow for the large-scale integration of renewable power. The European Commission should systematically control the effective implementation of this requirement. As decentralised generation will have to become a key component of the energy system, a stronger focus on the distribution grid system as well as heating and cooling networks will be required to allow for the cost-effective integration of renewable energy sources.

Finally, grid access conditions, including network codes, need to be updated to secure the implementation of priority grid connection and access for renewables and to adequately take into account the specific characteristics, benefits and challenges of renewable energy integration. For example, RES experience in Spain has proven that the introduction of new forecasting methods, remote control centres, adequacy to voltage dips and control of reactive energy make renewable energy able of gaining weight in the energy mix without affecting the security of the system.

Removal of administrative barriers for renewables uptake and market integration

Administrative barriers still hinder the installation and grid connection of renewable energy installations in many countries. These should be reduced as soon as possible to reduce costs and allow for the successful growth of renewable energy generation. At the same time, full transparency and adequate reporting schemes should be developed to streamline technical specifications and requirements for installations.

We believe that the European Commission could play an important role in encouraging the Member States to remove a number of non-economic barriers that hamper renewable energy deployment. The Keep-on-track! project, supported by the European Commission through the Intelligent Energy – Europe programme, of which we are a partner, will offer a close-to-market monitoring of the fulfillment of the RES trajectory. The results of the project can serve as a knowledge base for further policy action.

Simultaneously, market access conditions, power products and operations should be revised to reflect the characteristics of more decentralized and variable renewable energy sources.

- **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

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ultimately remove the need for specific support. This will therefore decrease the cost of renewable energy promotion and support mechanisms in the mid-term.

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. It will also avoid a fossil fuel lock in, which would put at risk the achievement of the ETS cap at lowest cost.

Besides, national support mechanisms need to be differentiated per technology to ensure the cost effective deployment of a broad portfolio of renewable energy technologies, be it in the electricity or in the heating sector.

Promoting a convergence of support schemes but no harmonization

Harmonisation of national support schemes is often referred to as a cost-efficient way of integrating RES, since energy would be produced "where it makes sense" from a resource point of view. Such an approach could even lead to sub-optimal solutions in terms of overall systems costs. As shown in the recent Greenpeace report *Battle of the Grids*[5], a more centralised deployment of renewables leads to higher infrastructures costs. The particular benefit of most RES-E technologies is their ability to join electricity generation and demand in a decentralized system. Therefore, while a convergence of support schemes is welcome in Europe, harmonising the type and the level of financial support would not deliver policy effectiveness. Although it is vital that Member States maintain control over their support systems, they can learn from each other in designing effective and cost-efficient systems that avoid overcompensation and maximize the benefits of the transition to a clean energy system. APPA therefore welcomes the European Commissions' support towards developing a set of general design criteria which promote convergence as announced for the guidance paper on support schemes to be published in 2013.

Avoid abrupt and retroactive changes to support schemes

The European renewable energy sector has been suffering for a few years from abrupt retroactive changes introduced to legislations in several EU Member States - with Spain as a prominent example as described above - harming the industry and shattering investors' confidence. These changes have the characteristic of impacting already existing investments.

Those retroactive changes are altering the revenue streams expected by renewable producers which they based their investments on. As a consequence, investors and producers are unable to pay back their bank loans. This has led renewable energy projects to bankruptcy in the past, thereby further destroying the trust and investment climate in the sector. Introducing retroactive changes immediately increases risk premium for new projects. Investors become reluctant to invest in the sector, seeing renewable energy projects as a risky investment. In the same way, banks become more cautious before financing such projects, lend money at higher interest rates and therefore increase the cost of capital, making renewable energy projects "artificially" more expensive. Furthermore, as for example in Spain, due to the series of retroactive cutbacks of RES support and biofuels mandates and suspension of support for any new RES-E plant and in consequence the inability of the plant owners to pay back their bank loans, transforms this fact also in a serious problem for the banks who issued these loans amounting to 20-30 billion €, financed at 2/3 by Spanish and 1/3 by foreign banks.

For certain segments of distributed generation like PV or small-wind, self-consumption is increasingly becoming economically attractive as they transform into "prosumers" to make

[5] Battle of the Grids, report 2011 Greenpeace, based on research by EnergyNautics GmbH.

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savings on their electricity bill. Such developments should be accompanied by a supportive regulatory framework to remove barriers and to provide the right signals and incentives for self-consumption to play a positive role in the overall power system operation.

Amongst others the participation in a net metering regime should not be limited to a certain installed capacity – like in a draft net metering regulation presented in Spain in late November 2011 (with a limitation to installations until 100 kW of installed capacity only) - to allow bigger consumers like industrial clusters, shopping centres, communities of (flat) owners, to make use of the scheme as well. Besides, possible grid access fees and a certain net balance service charge (as vaguely announced in the Spanish draft) should be known from the beginning and be fair enough to attract investments, i.e. by only applying such fees/charges on the net difference of energy consumption in one billing period and offset/cleared with the RES-E exported/fed into the grid during former billing periods. Besides, self-consumption of various consumers using one single installation should also be allowed in such a scheme. Furthermore it should be possible that the owner of the installation and the one of the site where such a facility is located could be different to allow new business models for Energy Service Companies (ESCOs) and to increase the competition within the electricity system. To allow for a controlled and sustained growth of self-consumption systems annual capacity caps for new installations could be an adequate solution.

According to sector figures, an ambitious net-metering scheme in Spain could lead to nearly 1.5 GW of PV capacity until 2016, with an aggregated investment of 2.8 billion €, 10,900 direct jobs created, direct fiscal returns to the state budget of 555 million € and 122 million of € of avoided fossil fuel imports.

Until 2021 these figure could even raise up to aggregated investments of 4.55 billion €, 21,500 of direct jobs, 1,217 millions of fiscal returns to the state budget and 808 million € of avoided fossil fuel imports. In the case of small wind power, up to 300 MW could be installed until 2020 in Spain, leading to 4,000 direct & indirect jobs, nearly 140 million € of aggregated investment, almost 130 million € fiscal returns to the state budget and avoided unemployment costs and nearly 50 million € of avoided fossil fuel imports.

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

A distorted internal energy market, designed for conventional energies

The current EU energy markets and infrastructures have been developed during state-owned times with centralized, incumbent energy monopolies/oligopolies. Renewable energy cannot be fully integrated into the existing distorted market, where market prices do not account for any negative externalities of conventional energy. While targets unlock private investments, national support for renewables compensates for the flawed market designs and grid codes, which were tailored for centralized conventional power stations. RES targets and support schemes enjoy a broad legitimacy, which has strayed out of focus due to the continuous discussion about energy system transformation costs.

Concentrated markets, powerful incumbents and regulated prices are only a few of the impediments to the realization of a fully functioning European market. The objective of the renewable energy industry is to be competitive and cost-efficient in a market designed with regard to variable energy at its heart.

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A failing EU ETS

In the absence of a functioning EU ETS which can internalize environmental costs and because of existing fossil fuel subsidies and governmental aid for nuclear energy, support for renewables is necessary to counteract market failures and to create a level playing field.

The EU ETS has not had significant impacts on the investments in the power sector in the last few years. With prices of less than €4/ton CO2[6], it is far from the 2020 price spread desired by the European Commission, which ranges from €16.5 to €25/ton CO2. Priority should be given to the short-term rescue of the EU ETS through the back-loading of allowances, as well as a medium term response through a structural reform, so that it can play a role in creating a relevant carbon price and promoting investments.

Massive hidden subsidies to the conventional energy industry

According to Dr. Fatih Birol, chief economist at the International Energy Agency (IEA), fossil fuel subsidies amounted to more than 500bn US$ worldwide in 2011. They are, according to him "public enemy number one to sustainable energy development"[7].

Apart from fossil fuel subsidies, subsidies for nuclear power are another major distortion of market functioning and the level playing field, and they should certainly not be accepted by the European Union. The transition towards a low carbon economy must not become a pretext for further support of this unsustainable technology which – despite decades of operation and experience – could not prove economic viability. In the contrary, investment in nuclear technology today will result in tremendous future cost burden for tax- and/or rate-payers for waste storage and dismantling of old power plants. And this goes even without taking into account the fact of no or much too low insurance responsibility of nuclear power plant operators.

APPA is therefore calling on the European Union to agree on a binding timetable for the phase out of subsidies to the conventional energy (fossil and nuclear). An important asset in this context would be a public database (transparency platform) which contains reliable information about all forms of support for the energy sector.

In addition, new public support for nuclear power should no longer be permitted, neither under the state aid regime nor for environmental and climate protection reasons. The envisaged United Kingdom's contracts for difference including support for nuclear power with a guarantee for more than 40 years of support should therefore be ruled unlawful in the EU.

Besides, to enable the better integration of the internal energy market, the EU should realize the implementation of the target model as soon as possible. The provision of integrated intraday and balancing markets, a revision of market access conditions, gate closure times and power products, as well as adequate network codes reflecting the capacities and needs of decentralized variable renewable energy generation should be a priority.

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 power sector.

[6] EEX, Emissionsrechte, 2013

[7] http://www.ewea.org/blog/2013/02/fossil-fuel-subsidies-are-public-enemy-number-one/

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A minimum set of parameters could also be taken into account by Member States when defining and updating their support mechanisms, which must include storage, back up and grid infrastructure requirements and job creation rate of each technology. This will allow the progressive convergence of support policies, while maintaining the necessary flexibility to reflect specific context of the national markets.

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

Like for renewable energy, long term targets on energy efficiency will stabilize the market and provide the sector with certainty, thereby facilitating the achievement of both 2020 targets and long term ambitions. Investments would be fostered and costs decrease most effectively.

Both renewable energy and energy efficiency have been identified in the EC Energy Roadmap 2050 as no-regret options. Combining renewable energy and energy efficiency measures provide the double benefit of increasing the renewable energy output and reducing primary energy use e.g. in buildings.

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 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.

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

Successful innovation and decarbonisation policy needs to focus on no-regret options and provide both a "demand pull" (via markets created) and a "supply push" (via R&D) to develop a broad portfolio of technologies.

Innovation driven only by carbon pricing would narrow the focus of technology deployment to the lowest cost, i.e. closest to market technologies, at the expense of the broad range of critical renewable energy technologies - which could be competitive in the midterm and which are necessary for the long-term cost-effective decarbonisation of the energy sector.

Post 2020 research and innovation policies at EU and member state levels

They will be critical to support the achievement of the 2030 framework. This means at the EU level:

- The EU should implement and finance in an adequate manner the Strategic energy technology plan (SET-Plan).
- The SET-Plan should be extended to renewable heating and cooling technologies.
- The SET-plan should be extended post-2020 and be part of a comprehensive industrial strategy for renewable energy technologies.
- Energy research funding within the overall EU R&D funding has declined from 34% in FP1 to 7% in FP7. Future EU research and innovation policy should increase the share of energy in the overall EU research funding programme.
- Scarce public resources should be focused on no-regret options.

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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 system integration of growing amounts of (variable) renewable energies 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 renewable energy technologies.

4.4. 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?**

Competitiveness should not be narrowed only to electricity and fuels prices: Europe can only become competitive if its economy grows again, if new opportunities for investment are created, if it creates new jobs and promotes its technology exports. The final objective of EU energy policy should be to replace fossil fuel imports with technology exports.

Investments, growth and jobs: The renewable energy industry is a recession-busting industry and a capital intensive industry which can provide a safe haven for investments in European growth. The EU renewables sector directly and indirectly employs more than 1.2 million people constituting an increase of 30% on the 2009 figure. By 2020, 2.7 million people in the EU will be employed by the renewables sector. Ambitious 2030 renewable energy targets could result in 4.4 million jobs in the EU.

Renewable energy is not only as a solution to climate change and a way to improve energy security, but also a way to boost economic growth and competitiveness; investment in the sector is a way to restore Europe's economy to health and stable legislative frameworks to promote the development of the renewable industry should be maintained and enhanced, even in times of austerity.

Energy Independence: In 2011, the EU imported 54% of its energy and this could increase to 70% by 2030. In 2012 Europe imported fossil fuels at a cost of €470Bn. Investments in renewable energy reduce the need to import fuels. The EU should aim at reinvesting energy import bills into the European economy. Investing in renewable energy can considerably contribute to improving Europe's energy independence.

Technology exports: Europe remains one of the world's biggest renewable markets. But China is now the biggest national market and the U.S., South Korea, Japan, India, are also increasing investments. Europe needs to keep its competitive edge in technologies in which it excels.

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 prices and increase the competitiveness of renewable energy.

Europe's competitiveness, our capacity to create jobs in the climate and energy sector, depends on our ability to trigger innovation and drive it to the market with high quality and affordable products. Alongside a strong market pull, the EU needs to fully implement and fill some gaps in its research, development and innovation policies. In particular, supporting the step "from lab to fab" would contribute to turning excellence in science into more and more successful products.

At the same, Europe should aim for a forward-looking power system design, as well as product standards for components like i.e. PV inverters.

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Finally, the definition of specialised renewable energy job titles (e.g. PV installer) that include specific requirements can facilitate system quality and market development. A certification scheme could also enhance the reliability of renewable energy technologies and the quality of installations, while increasing customers' satisfaction. These measures can increase the downstream value chain and green jobs.

- **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?**

There is little proof that carbon leakage happened at all for the following reasons:

- Free allocation has been used to avoid carbon leakage.
- Most companies passed all or most of the carbon price onto their customers

As a consequence, the list of economic sectors considered as high risk of carbon leakage should be updated: Indeed, the list established by the European Commission assumed a carbon price of 30 euros a tonne while the carbon price is currently about 3 euros a tonne. The list features 60% of sectors representing 95% of industry emissions. Revising the list to take account of lower than expected carbon prices could mean that only 33% of sectors accounting for just 10% of industry's greenhouse gas emissions would fit the criteria, a CE Delft study[8] indicates.

There may be exceptional cases of carbon leakage limited to new investments in power plants made in countries bordering the EU (e.g. Bosnia) and not in EU Member States (e.g. Italy) producing electricity outside of the EU but importing it in the EU. However, such cases are limited by the fact that physical power lines are a bottleneck for importing electricity from outside Europe.

If such plans to build power stations in the Balkan for electricity imports materialise, there will be a need to include CO2-emitting plants 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?**

Energy costs bound to raise as the EU is at the end of an investment cycle

Investments in new capacity always have an effect on energy prices. With many of the EU's power plants due to be decommissioned in the coming decade, Europe needs to replace its ageing power system and this has a cost, whatever the technologies installed are.

The novelty with RES support mechanisms is their transparency and accountability. The effect of support mechanisms for renewable energy on energy prices therefore needs be put in a context.

Fossil fuels as main drivers of energy price increases

Until today, fossil fuels have been the main drivers of energy price increases the EU. The EU has little margin for manoeuvre to influence world trends in energy costs: It is a price-taker, not a price-maker. Hence, the EU should further reduce its import dependency on fossil fuels, which will – without further action- reach more than 70% by 2030. The EU can become more resilient to energy prices through further investments in renewable energy sources.

[8] CE Delft Report, 2011

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Energy price increases in the EU in the past years were mostly driven by fossil fuel increases, in particular gas prices:

- According to an analysis by the UK Committee on Climate Change published in December 2011, 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.[9]
- In Germany, while the renewables surcharge will represent 19% of the German electricity price in 2013, this will still signify only 5% of the overall energy price paid by final consumers. Gas prices have increased steadily in the past years, and by 50% in 2012[10]
- In Denmark, with almost 30% wind penetration, support mechanisms only constitute 3.5% of the final electricity price paid by consumers[11]

Renewable energy limits the increase of electricity prices via the merit order effect

Because wholesale market power prices are solely determined by marginal costs and because renewable power from solar and wind has almost zero marginal costs, when the wind blows and the sun shines, 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. Nevertheless, this has often not been reflected in retail prices. Decreased wholesale prices should be passed on to the retail market. For example in the case of Spain, according to a study of APPA[12], in 2011 due to the merit order effect by RES-E participating in the wholesale electricity market, the marginal pool market price was reduced by 3,352 million € or 15.67 € per MWh purchased in the market. Due to the same effect, during the period 2005-2011 the savings in the Spanish wholesale electricity market have been 7,606 million € higher than the overall RES-E remuneration received by RES-E plants during the same period.

When analyzing the (cost) competitiveness of the electricity system these avoided costs (through the merit order effect) should also be taken into account.

Stable legislative frameworks reduce energy prices

By enabling lower capital costs, stable legislative frameworks reduce energy prices. 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 renewable 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.

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

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

[10] BMWi German Economics Ministry

[11] Danish Ministry for Climate and Energy

[12] APPA, Study of the Macroeconomic Impact of Renewable energies in Spain – Year 2011, http://www.appa.es/descargas/InformeAPPA2011_eng.pdf

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- **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?**

EU benefits from climate and energy agenda unlinked to international agreement

There is a need to decouple discussions and decisions about the EU climate and energy framework from the international climate negotiations. The EU climate framework helps to price technologies at their true cost for society and to limit the EU dependency for fuel imports, benefits that are disconnected from any international framework. HEAL recently estimated that cost for EU coal fired plants at €43bn/year. It is not linked to any international commitment.

Investments in climate protection, and notably the development of renewable energy technologies, pay off for Europe economically and socially for multiple reasons. Benefits arise from reduced economic risk from a decreasing fuel dependency, positive health impacts, as well as improved local value creation compared with fossil fuels, among many others. Besides, pushing for an ambitious 2030 climate and energy package will ease the EU's negotiating position in international climate negotiations.

Competition for technology leadership

Dedicated and binding policies for renewable energy helped the EU to establish a first-mover advantage in global markets and made it a front runner in renewable technology innovation. Europe used to be and still remains one of the world's biggest renewable markets. But actions of other countries should not be underestimated. China already has a CO2 reduction target, the US is talking about it. In 2012, 118 countries had renewable energy targets in place (in 2010 only 109 countries) and engaged in a competition for technology leadership in tomorrow's markets. European policy-makers should ensure that the EU is fully equipped for this competition, even in times of austerity. Europe needs to keep its competitive edge in technologies in which it excels.

It should be noted also that countries around the world have joined the race for renewable energy technologies, independent of the lack of progress in the 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)?**

By providing the necessary long-term predictability of market volumes and direction, binding 2030 renewables targets (including effective provisions for its timely enforcement) will decrease the costs of uncertainty while at the same time facilitating the achievement of the existing 2020 targets in the most efficient way.

Investments in the energy sector have become significantly more difficult due to the uncertainty about the mid and long-term policy perspectives. Policies which ensure stability and predictability mitigate risk and increase the confidence of market actors. This in turn reduces the cost of capital and helps to unlock private investments.

With respect to a supporting framework for renewables, any sudden, disruptive or even retroactive changes must be prevented. To ensure this, regulatory framework conditions should be transparent and predictable. Any financial support and remuneration should be reviewed regularly on the basis of transparent parameters to allow for a smooth adaptation to the respective renewable energy technology development.

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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.

Another example is the need for a predictable carbon price. An automatic adjustment mechanism, or a minimum carbon price, should therefore be envisaged: In case of economic downturn and if the carbon price goes below a certain level, the emission reduction cap should be automatically reduced further. This would provide investors with more certainty. However, in case of unexpected economic growth, there should not be an automatic upward adjustment of the emission reduction cap as this goes against the idea of a cap on emissions, which is crucial to the EU's decarbonisation goals.

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

Necessity of an industrial strategy

The EU should stimulate the innovation capacity of the renewable energy manufacturing industry by developing and implementing an industrial strategy. The EU should bridge market and innovation by looking at the whole supply chain for each sector and focusing on manufacturing. As part of this industrial strategy, the EU should develop flagship projects of European manufacturing based on Member States cooperation on industrial policy e.g. similar to the development of Airbus, hereby providing international visibility for the EU on the sectors of tomorrow.

EU ETS auctioning revenues to support climate investments

100% of the EU ETS auctioning revenues should be earmarked to climate mitigation and if needed, adaptation. It is the only way to ensure that this revenue stream will be used to price CO2 and reduce emissions. The EU ETS should use all its intrinsic tools to reach that objective. Auctioning revenue is one of these tools. The current commitment by EU Member States to use 50% of that auctioning revenue for climate mitigation and adaptation is welcome, but does not go far enough. It integrates several loopholes, not least its non-mandatory nature.

At least part of this revenue should be used and managed at EU level. This would ensure a better traceability of used funds and transparency of allocation process. The "NER300" scheme is a good example of how revenues can benefit the EU at large, instead of a single Member State. A repetition of such a programme, albeit with some modifications to ensure a closer reflection of current technologies, should certainly be considered.

The European renewable energy sector currently has a first mover advantage in many industry areas, which is the result of successful EU policy frameworks for renewables and binding renewable energy targets. Binding targets have provided the renewable energy sector with a direction up to 2020 enabling investments in R&D and innovation: 2030 renewable energy targets and EU commitment to dedicate public funding for technological development are crucial to increase the innovation capacity of the industry.

Reinforced by the industrial strategies developed at national and regional levels, such a European industrial strategy for renewable energy technologies should:

- Provide a comprehensive vision of the sector's development and ensure its deployment;

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- Be articulated around four work streams: technology innovation, supply chain expansion, skills and financing;
- Focus on delivering cost reduction.

- **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 Green Paper rightly stresses the role of Europe's indigenous energy resources. It however, fails to acknowledge that energy saving and renewable energy are our only significant and long-term indigenous energy resources, to achieve greater energy independence and realise major macroeconomic benefits, including new local jobs, reduced sovereign debts and EU industrial leadership. Moreover, renewable energy sources are the only indigenous sources in which the EU has a competitive advantage.

- **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?**

Security of supply will be improved if the EU:

- Increasingly invest in renewable energy and energy efficiency: this will help ensure a diversified portfolio of technologies and hence improve security of supply.
- Ensure that a sufficient infrastructure, grid and interconnectors are in place. This increased grid and interconnection capacity (amongst others the very needed new connections between Spain and France) could be used for balancing purposes. Greater balancing areas will help ensuring better security of supply.
- Move away from national generation adequacy assessments to an EU integrated system adequacy assessment that comprises all forms of flexibility: generation, demand, interconnection capacity and, in the future, storage is required.
- Promote demand response and storage.

In APPA's view, two key market developments will contribute to security of supply, while simultaneously ensuring the most cost-effective integration of low marginal cost renewable energy generation in the system:

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.

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

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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 of flexibility, from demand side management to storage 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.

4.5. 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 global RES 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. This means that global targets should be set at EU level, broken down at national level and be binding upon Member States under an effort sharing calculation. Member States are thus given the flexibility to meet their targets with the technologies they prefer and in the sectors they prefer according to their renewable energy potentials, except for the need to fulfill an specific target for renewable in transport of at least 20% by 2030 at EU and national levels. Cooperation mechanisms should be reinforced to facilitate target achievements while ensuring a fair distribution of efforts among Member States.

- **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 cooperation mechanisms available to the Member States: statistical transfers, joint projects and joint support mechanisms. Norway and Sweden implemented their joint support mechanism over several years. This was made possible by the fact that these two countries have very similar and integrated electricity markets. The industry would welcome an approach building on this bottom-up regional integration.

Based on the experience gained until 2020, the EU will be able to draw lessons and develop further these cooperation mechanisms post-2020. Cooperation mechanisms together with a target-sharing (based on efforts by all Member States and taking GDP into account hence based on a fair-effort sharing) will promote cooperation among Member States in the most cost-efficient way.

The Commission should strive to foster greater use of cooperation mechanisms 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

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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?**

Creating a European Renewable Energy fund could provide guarantees to renewable energy projects.
In addition, it is necessary to refocus the European Investment Bank (EIB) investment policy as in contradiction with the EU policy on climate change the EIB still finances fossil fuel power plants. The EIB's energy policy should be aligned with the EU's own 2020 and 2050 targets.

The European Commission should fully explore with the European Investment Bank and national public institutions possibilities to dedicate funds and innovative financial instruments within the EU budget towards the financing of energy and climate priorities for 2030. National green public banks should provide additional loans to the renewable energy sector possibly i.e. based on the model of the German Kreditanstalt für Wiederaufbau (KfW).
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 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. The European Investment Bank has already provided significant support for the development of different renewable energy technologies, through non-recourse lending and corporate refinancing, and this should be continued and expanded. 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 European 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.

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