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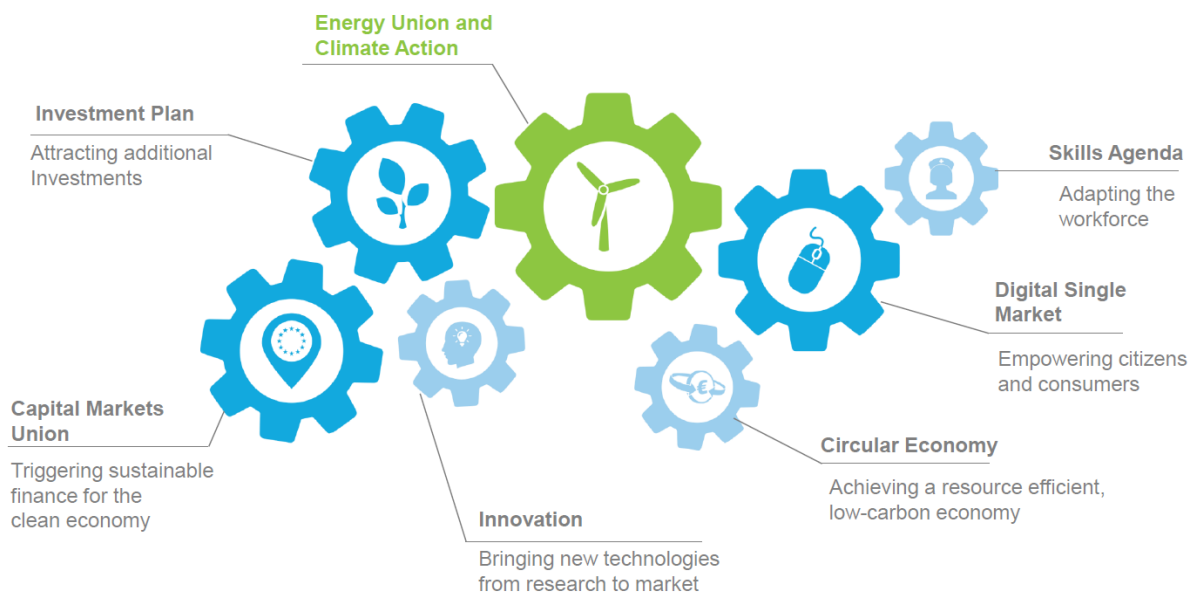
Clean Energy For All Europeans

1. INTRODUCTION

The Energy Union is one of the ten priorities of the Juncker Commission. With the aim to modernise the EU's economy, it works hand in hand with other flagship initiatives such as the Digital Single Market, the Capital Markets Union and the Investment Plan for Europe in order to deliver on jobs, growth and investments for Europe.

This package presents an opportunity to speed both the clean energy transition and growth and job creation. By mobilising up to an additional 177 billion euro of public and private investment per year from 2021, this package can generate up to 1% increase in GDP over the next decade and create 900.000 new jobs¹. It will also mean that on the average the carbon intensity of the EU's economy will be 43% lower in 2030 than now², with renewable electricity representing about half of the EU's electricity generation mix³.

Figure 1: Modernisation of the economy – Role of the Energy Union and Climate Action



The Paris Agreement is the first of its kind and it would not have been possible were it not for the European Union. Today we continued to show leadership and prove that, together, the European Union can deliver. – **Jean-Claude Juncker**, on the EU ratification of the Paris Agreement, 4 October 2016

The energy sector is important for the European economy: energy prices affect the competitiveness of the whole economy and represent on average 6% of annual household expenditure.⁴ It employs close to 2.2 million people, spread over 90,000 enterprises across Europe⁵, representing 2% of total added value⁶. Behind it stands a prosperous manufacturing industry delivering the necessary equipment and services, not only in Europe, but worldwide. The development of renewable energy sources and energy efficiency products and services

¹ Impact Assessment for the amendment of the Energy Efficiency Directive, SWD(2016) 405.

² Underlying results of the Impact Assessment for the amendment of the Energy Efficiency Directive, SWD(2016) 405.

³ Impact Assessment for the recast of the Renewables Directive, SWD(2016) 418.

⁴ COM(2016) 769.

⁵ EU energy in figures, Statistical Pocketbook 2016.

⁶ Eurostat – national accounts.

has led to the creation of new businesses throughout Europe providing new sources of jobs and growth for Europeans. The employment impacts of the Energy Union go well beyond the energy supply industry. For instance, more than one million workers are employed, directly or indirectly, in renewable energy related sectors⁷ and around one million in the energy efficiency-related sector⁸.

The Energy Union is the EU's major vector for and contribution to a global and comprehensive transition towards a low carbon economy. The EU has brokered the Paris Agreement last December and thanks to EU's swift ratification, this first global agreement on climate change mitigation entered into force not even a year later on 4 November 2016. The Paris Agreement gives a clear and ambitious direction of travel for investment into low carbon innovation. The implementation of the EU's ambitious Paris climate change commitments is now the priority and depends to a large extent on the successful transition to a clean energy system as two thirds of greenhouse gas emissions result from energy production and use.

It is equally important to ensure that the transition to a clean energy system will benefit all Europeans. All consumers - not forgetting the vulnerable or energy poor - should feel involved and reap the tangible benefits of access to more secure, clean and competitive energy, which are the Energy Union's key objectives. The Commission has already presented the Energy Union Framework Strategy⁹, proposals on security of gas supply¹⁰, the EU emissions trading system¹¹ and related rules on effort-sharing¹² and land use and forestry¹³ as well as a strategy on low-emission mobility¹⁴.

As announced in the Commission's Work Programme for 2017¹⁵, the Commission today presents regulatory proposals and facilitating measures that aim to modernise the economy and boost investments in clean energy related sectors.

The regulatory proposals and facilitating measures presented in the package aim at accelerating, transforming and consolidating the EU economy's clean energy transition thereby creating jobs and growth in new economic sectors and business models.

The legislative proposals cover energy efficiency, renewable energy, the design of the electricity market, security of supply and governance rules for the Energy Union.

The tabled package pursues three main goals:

- **Putting energy efficiency first**
- **Achieving global leadership in renewable energies**
- **Providing a fair deal for consumers**

⁷ EurObserv'ER, The State of Renewable Energies in Europe, 15th edition, 2015 (2014 figures).

⁸ Study on Assessing the Employment and Social Impact of Energy Efficiency.

⁹ COM (2015) 80

¹⁰ COM (2016) 52

¹¹ COM (2015) 337

¹² COM (2016) 482

¹³ COM (2016) 479

¹⁴ COM (2016) 501

¹⁵ COM (2016) 710

The facilitating actions include initiatives to accelerate clean energy innovation and to renovate Europe's buildings as well as measures to: encourage public and private investment and make the most of the available EU budget; promote industry-led initiatives to foster competitiveness; mitigate the societal impact of the clean energy transition; involve multiple players including on the one hand Member States authorities, local and city authorities and on the other hand businesses, social partners and investors, and maximise Europe's leadership in clean energy technology and services to help third countries achieve their policy goals.

This package should be seen in the context of the EU leading the way towards a smarter and cleaner energy for all, to implement the Paris agreement, fuel economic growth, spur investment and technological leadership, create new employment opportunities and enhance citizen's welfare.

In order to reach the EU's 2030 climate and energy targets, about €379 billion investments are needed annually over the 2020-2030 period¹⁶: mostly in energy efficiency, renewable energy sources and infrastructure. EU companies should be at the forefront of these investments. In this context much depends on the ability of EU companies to innovate. With €27 billion per year devoted to public and private research, development and innovation in Energy Union related areas¹⁷, the EU is well placed to turn this transition into a concrete industrial and economic opportunity.

Thanks to the policies proposed today by the Commission, industrial production could increase in the construction sector by up to 5%, in the engineering, iron and steel sectors by up to 3.8 and 3.5% respectively, translating into 700.000 additional jobs in construction, 230,000 in engineering and 27,000 in the iron and steel sectors.¹⁸

2. PUTTING ENERGY EFFICIENCY FIRST

Energy efficiency is the most universally available source of energy. Putting energy efficiency first reflects the fact that the cheapest and cleanest source of energy is the energy that does not need to be produced or used. This means making sure that energy efficiency is taken into account throughout the energy system, i.e. actively managing demand so as to optimise energy consumption, reduce costs for consumers and import dependency, while treating investment in energy efficiency infrastructure as a cost-effective pathway towards a low-carbon and circular economy. This will enable retiring generation over-capacity from the market, especially fossil fuel generation.

The Commission has reviewed the EU's **energy efficiency target**, in line with the request by the European Council of October 2014, and considers that the EU should set a target binding at the EU level of 30% by 2030. Compared to the at least 27% target agreed in 2014, this increase is expected to translate into up to €70 billion of additional gross domestic product and 400.000 more jobs as well as a further reduction of the EU's fossil fuel import bill.¹⁹ The increased target will also help meeting the EU's 2030 greenhouse gas emission reduction and the renewables targets.

¹⁶ Impact Assessment for the amendment of the Energy Efficiency Directive, SWD(2016) 405 (investment figures excluding transport sector).

¹⁷ JRC-SETIS, forthcoming.

¹⁸ Source: Impact Assessment for the amendment of the Energy Efficiency Directive, SWD(2016) 405 (detailed results derived from the macroeconomic analysis).

¹⁹ Impact Assessment for the amendment of the Energy Efficiency Directive, SWD(2016) 405.

The Commission proposes to extend beyond 2020 the **energy saving obligations** set in the Energy Efficiency Directive²⁰ requiring energy suppliers and distributors to save 1.5% of energy per year. This measure has shown first effects in attracting private investment and supporting the emergence of new market actors, such as energy service providers, including aggregators, and should therefore be driving these developments beyond 2020. The new electricity market design will further create a level-playing field for demand-side participation in the market.

Buildings account for 40% of total energy consumption and around 75% of them are energy inefficient.²¹ Energy efficiency in buildings suffers from underinvestment and numerous barriers. Whereas buildings are regularly maintained or improved, energy saving investments are often disregarded because they face a competition for scarce capital, a lack of trustworthy information, lack of skilled workers or doubts on the possible benefits. At today's rate of renovating around 1% of buildings each year, it would take a century to upgrade the building stock to modern, near-zero energy levels.²² Clean energy buildings are about much more than saving energy: they increase living comfort and quality of life, have the potential to integrate renewables, storage, digital technologies and to link buildings with the transport system. Investment in a clean energy building stock can drive the transition to a low-carbon economy.

Upscaling investment in public buildings, such as hospitals, schools and offices, also depends on availability of private finance and private energy service companies offering innovative mechanisms, such as energy performance contracting. Energy saving can also have a positive impact on public budgets, as about one billion euro is spent each year on energy in such public buildings. However, rules for public sector investments and for statistical treatment of assets renovation should be transparent and clear in order to facilitate energy efficiency investment in public assets. The Commission is analysing, in close cooperation with the Member States, the impact of public accounting rules on the market for energy performance contracting and will update its guidance on the statistical treatment of such partnerships before late spring 2017.

The amendment of the Energy Performance of Buildings Directive²³ will accelerate building **renovation rates** by reinforcing provisions on long-term building renovation strategies, with a view to decarbonising the building stock by mid-century. The proposal will also improve information for project promoters and investors by reinforcing energy performance certificates, making available information on operational energy consumption of public buildings and linking the intensity of public support to the level of energy savings achieved. The proposal calls on Member States to focus investments also on the energy poor, since energy efficiency is one of the best ways to address the root causes of energy poverty.

To support the **delivery of the EU's low-emission mobility strategy** and the increasing use of electricity in transport, the Energy Performance of Buildings Directive will require the installation of electric recharging points. For existing building, this provision will apply only to commercial ones with more than 10 parking spaces as of 2025. For new buildings or buildings undergoing major renovations, the provision will apply to residential buildings with more than 10 parking spaces in the forms of an obligation to include pre-cabling and to

²⁰ COM(2016) 761.

²¹ Impact Assessment for the amendment of the Energy Performance of Buildings Directive, SWD(2016) 414.

²² Impact Assessment for the amendment of the Energy Performance of Buildings Directive, SWD(2016) 414.

²³ COM(2016) 765.

commercial building with more than 10 parking spaces in the forms of an obligation to install recharging points. SMEs and public authorities can be excluded from the scope of application, the latter due to the fact that they are already covered under the Alternative Fuels Directive, as far as their charging points are publically accessible. To increase efficiency of transport and promote digital mobility solutions, this package also contains an EU deployment strategy for Cooperative Intelligent Transport Systems.²⁴

In order to further accelerate the renovation of buildings and support the transition to a clean energy building stock, the Commission is launching a **European Buildings Initiative** (Annex I) with a "smart financing for smart buildings" component. This new initiative, in close co-operation with the European Investment Bank (EIB) and the Member States, can **unlock additional 10 billion euro of public and private funds until 2020** for energy efficiency and renewables in buildings, help develop a large-scale pipeline of bankable projects and establish an energy efficiency platform in every Member State. The initiative also aims at building trust in the market for clean energy buildings, by making available to investors and other stakeholders technical and financial performance data on over 7,000 European industrial and buildings energy efficiency projects as well as working with the financial sector on a consensual framework for the underwriting of clean energy building investments to enable more targeted and standardised market financing for such projects. This will bring major improvements in living and working conditions, climate and energy saving benefits as well as jobs and investment. The European buildings initiative offers a boost for the European construction industry, confronted by a number of economic and societal challenges. Energy efficiency of buildings can be one of the drivers for modernisation of the sector and its work force.

Energy intensive industries (e.g. steel and car industries) will need to maintain their efforts towards energy efficiency improvements. Such investments generally pay off in terms of reduced energy costs. New sectors, like the defence sector has further – so far untapped – energy efficiency potential, and thus cost savings will lead to a direct positive impact on public budgets.

Ecodesign and energy labelling will continue to play an important role in delivering energy and resource savings for consumers and creating business opportunities for European industry. Following careful consideration, the Commission decided to reinforce the focus of the policy on products with the highest savings potential in terms of energy and circular economy.

The Commission is adopting a package consisting of the Ecodesign Working Plan 2016-2019 and a number of product-specific measures²⁵. The Ecodesign Working Plan sets out the Commission's priorities for the next three years, including reviews of existing product-specific measures to keep them up-to-date with new technological developments as well as new products to be studied with a view to possible regulation to reap untapped potential. Taken together, all measures identified in the Ecodesign Working Plan have a potential to deliver a total of more than 600 TWh of annual primary energy savings in 2030, which is comparable to the annual primary energy consumption of a mid-sized Member State. This will ensure that Europe maintains its global leadership with regard to product efficiency

²⁴ COM(2016) 766.

²⁵ COM(2016) 773; C(2016) 7764, 7765, 7767, 7769, 7770 and 7772.

standards and continues to deliver economic and environmental benefits for consumers and businesses.

3. ACHIEVING GLOBAL LEADERSHIP IN RENEWABLE ENERGIES

The renewable energy sector in Europe employed more than 1,100,000 persons²⁶, and Europe still is the global leader in wind energy. 43% of all wind turbines installed in the world are produced by a few major European manufacturers. The cost reductions in solar and wind technologies have been driven by EU's ambitious policies. This has made renewables cheaper and more easily available for the whole world. Although Europe has lost its leading role in the production of solar panel modules to imports, most of the added value of the installation of a solar panel (> 85%) is generated in Europe.²⁷

In Europe, the largest employers in the renewables sector are the wind, solar photovoltaic (PV) and solid biomass industries. However, the photovoltaic industry did experience job losses: employment within the photovoltaic sector in 2014 was just above one third of the 2011 level due to loss of manufacturing capabilities in the sector.²⁸ The wind energy sector accounted for the majority of renewable energy jobs in the EU. In the period between 2005 and 2013, the turnover of the wind energy sector in Europe has increased eightfold, with its revenue in the EU estimated to be around €48 billion.²⁹ In the same period, wind energy employment in the EU has increased fivefold from 2005 to 2013, with total associated employment numbers of about 320,000 in 2014.³⁰ The Commission will also engage in industry-led initiatives that aim at supporting the EU's global leadership role in renewables and clean technologies in general.

The European Council set a **target of at least 27% for the share of renewable energy** consumed in the EU in 2030. This minimum target is binding at the EU level, but will not be translated into nationally binding targets. Instead, Member States will pledge contributions through the integrated national energy and climate plans³¹ that form part of the governance proposal to collectively achieve the EU target. The peer pressure provided by regional consultations on the plans and the possibility of the Commission to make recommendations, together with the overall policy framework set by the other pieces of legislation in this package, should encourage Member States to pledge high, without allowing any free-riding. In case the Commission detects that there could be a gap, both on the ambition and implementation levels, in particular as regards renewables and energy efficiency, it can take the necessary measures to avoid and fill any such emerging gap. The target level will be reviewed in the future in line with the EU's international commitments.

Growth in renewable energy should be driven by the most innovative technologies that deliver substantial greenhouse gas savings. Global market projections for renewable energy solutions in line with the long term decarbonisation objectives have been estimated at about €6,800 billion for the 2014-2035 period³², with high growth potential especially outside Europe. In

²⁶ EurObserv'ER, 15th edition, 2015.

²⁷ Impact Assessment for the recast of the Renewables Directive, SWD(2016) 418. See also the following study: http://gramzielone.pl/uploads/files/Solar_Photosoltaics_Jobs_Value_Added_in_Europe.pdf.

²⁸ EurObserv'ER, 15th edition, 2015.

²⁹ EurObserv'ER, 15th edition, 2015.

³⁰ EurObserv'ER, 15th edition, 2015.

³¹ This will be addressed in the new Regulation on the Governance of the Energy Union, COM(2016) 759.

³² International Energy Agency, World Energy Investment Outlook Special Report 2014.

recent years, investments in renewable generation assets represented over 85% of generation investments, most of them at lower voltage levels, notably at the level of distribution grids. The new proposals aim to further consolidate this trend, for example by removing obstacles to self-generation.

The Renewable Energy Directive³³, together with the proposals on the new electricity Market Design³⁴, will set a regulatory framework that allows a **level playing field** for all technologies without jeopardising our climate and energy targets. Electricity will play a major role in the transition to a clean energy system. The share of renewable electricity has soared to 29% of electricity generation and will reach about half of the EU's electricity generation mix, mainly from variable sources like wind and sun. Much of it will be connected in a decentralised manner at distribution level. The **market rules** must be adapted to facilitate this development, to manage variability and ensure security of electricity supply. The new regulatory framework will therefore ensure that renewables can participate fully in the electricity market, but also that the market related provisions do not discriminate against renewables.

In order to better accommodate the rising share of – mostly variable – renewables, wholesale markets have to further develop and in particular provide adequate rules allowing shorter term trading to reflect the necessities of variable generation. By allowing trading closer to the time of delivery well-integrated short-term electricity markets will also **reward flexibility** in the market both for generation, demand or storage. Moreover market rules will be adapted to allow renewable producers to fully participate and earn revenue in all market segments, including system services markets.

Priority dispatch will remain in place for existing installations, small-scale renewable installations, demonstration projects. Other installations, independent from the technology applied, will be subject to non-discriminatory third-party access rules. In addition, curtailment of renewables should be kept to a strict minimum.

These new rules will allow renewable electricity generators to earn increasing shares of their revenues from the market. However, market revenues may not fully cover the high capital expenditure of renewables, especially of new emerging technologies. Investors need policy predictability. The renewables directive therefore contains principles that will apply to support to renewables after 2020 to ensure that where subsidies are needed they are cost-effective and minimise market distortions.

Successful renewables integration will also continue to require robust transmission and distribution infrastructures and a **well-interconnected European network**. Europe has the most secure electricity grid in the world, but significant investments will be needed until 2030. The Commission is closely working with Member States in the regional context (Baltic Energy Market Interconnection Plan, Central and South-Eastern European Gas Connectivity Group, South-West Europe and the Northern Seas) to facilitate the development of key infrastructures. It has also set up an expert group to advise on the formulation and achievement of interconnection targets for 2030.

³³ COM(2016) 767.

³⁴ The market design initiative consists of a recast of the Electricity Directive (COM(2016) 864), a recast of the Electricity Regulation (COM(2016) 861), a recast of the ACER Regulation (COM(2016) 863), and a new Regulation on risk-preparedness in the electricity sector (COM(2016) 862).

The potential of **heating and cooling** to contribute to the overall renewables target has been underused. The Heating and Cooling Strategy³⁵ set out the general approach. The current proposals will encourage Member States to increase their share of renewable fuels in heating and cooling, district heating and cooling operators to open up their network to competition and encourage the take-up of for instance heat pumps.

Bioenergy represents a large proportion of our renewable energy mix, and will continue to do so in the future. It brings employment and economic development in rural areas, replaces fossil fuels and contributes to energy security.

The development of **advanced alternative fuels for transport** will be encouraged through a blending mandate on fuel suppliers, while food-based biofuels will progressively reduce their contribution to the EU's renewables target. Supporting the electrification of transport is another new key objective of the electricity market framework and will be strengthened by provisions related to retail electricity markets.

Solid biomass currently used for heat and power in the EU is mainly local and regional and based on side-streams from the forest industry, and, at current levels, is overall climate friendly. However there are concerns that if the level of use continues to increase, the climate effects might deteriorate. Ensuring climate benefits in the long term will require in particular limiting additional pressure on forests.

There is need for greater **synergies between the circular economy** and various biomass uses, particularly given the fact that wood can be used for a range of products with higher added value than just energy. To promote these synergies to the fullest, only efficient conversion of biomass to energy should receive public support, be it in the form of financial support or preferential access to the grid, except under duly justified reasons of security of electricity supply.

Today, most of the biomass used for heat and power comes from forests. Across the EU and beyond, forests and their management practices vary widely. EU Member States have developed national legislation on **sustainable forest management** and cooperate for example under the Forest Europe process. A number of Member States which import large quantities of biomass for energy have also put in place dedicated sustainability schemes for biomass, they will be able to continue to do so under the Commission proposal. The European Commission will also continue to support sustainable wood mobilisation through the EU Rural Development Policy. These levels of action are complementary in supporting sustainable forest management practices.

The Commission therefore proposes to extend the existing EU sustainability criteria to cover all types of bioenergy. A new approach for forest biomass is proposed, which builds upon existing legislation on sustainable forest management and adequate accounting of greenhouse gas emissions from the land use and forest sector in the country of origin of the biomass. Developments in biomass production and use for energy will be monitored and reviewed through the Energy Union Governance.

4. PROVIDING A FAIR DEAL FOR CONSUMERS

³⁵ COM(2016)51.

Consumers are at the centre of the Energy Union. Energy is a critical good, absolutely essential for full participation in modern society.

The clean energy transition also needs to be fair for those sectors, regions or vulnerable parts of society affected by the energy transition.

The Commission proposes to reform the energy market to **empower consumers** and enable them to be more in control of their choices when it comes to energy. For businesses, this translates into greater competitiveness. For citizens, it means better information, possibilities to become more active on the energy market and be more in control of their energy costs.

The first step in the direction of putting consumers at the centre of the Energy Union is to provide them with better **information** about their energy consumption and their costs. The proposals will entitle consumers to smart meters, clear bills and easier switching conditions. The proposals will also make it cheaper to switch through the elimination of termination fees. Certified comparison tools will provide consumers with reliable information about the offers available to them. The proposals will provide for more reliable energy performance certificates with a 'smartness' indicator.

As part of this package, the Commission is increasing transparency with its **second biennial report on energy costs and prices**.³⁶ The cost of energy impacts on our choice of energy mix, our household spending, and on Europe's competitiveness. With import dependency at 74%, the EU continues to be exposed to volatile globally-set fossil fuel prices. In recent years, the global developments have reduced the EU's "energy import bill" by 35% and boosted economic growth. Wholesale electricity prices are at their lowest for 12 years and gas prices have fallen 50% since 2013 and oil prices by almost 60% since 2014. Price differences have diminished compared to other world economies.

For household end-user prices, the trends are different. Falling energy prices have been countered by rising network costs and governments' taxes and levies as energy is a frequently used tax base for sorely needed government revenues. Retail electricity prices have risen about 3% a year since 2008 and retail gas prices by 2%. As a consequence, energy costs have risen slightly, to almost 6% of household expenditure.

The regulatory changes introduced by the current package and the shift from centralised conventional generation to decentralised, smart and interconnected markets will also make it easier for consumers to generate their own energy, store it, share it, consume it or sell it back to the market – directly or as energy cooperatives. Consumers will be able to offer demand response directly or through energy aggregators. New smart technologies will make it possible for consumers – if they chose to do so – to control and actively manage their energy consumption while improving their comfort. These changes will make it easier for households and businesses to become more involved in the energy system and respond to price signals. This also necessitates the removal of wholesale and retail price caps, while ensuring the full and appropriate protection of vulnerable household consumers. The new regulatory proposals will also create opportunities for new and innovative companies to offer consumers more and better services. This will facilitate innovation and digitalisation, and help European companies to deliver energy efficiency and low carbon technologies.

³⁶ COM(2016) 769.

Energy poverty is a major challenge across the EU, and has its root in low incomes and energy inefficient housing. In 2014, the lowest-income households in the EU spent close to 9% of their total expenditure on energy.³⁷ This is a 50% increase compared to 10 years before, much more than for an average household. This package sets out a new approach to protecting vulnerable consumers, which also includes helping Member States reduce the costs of energy for consumers by supporting energy efficiency investments. The Commission's energy efficiency proposals ask Member States to take energy poverty into account, by requiring a share of energy efficiency measures to be implemented as a priority in households affected by energy poverty and in social housing. Their long-term building renovation strategies should also contribute to the alleviation of energy poverty. Also, as part of the Energy Union Governance process, Member States will have to monitor and report on energy poverty while the Commission will facilitate the exchange of best practices. Moreover, in line with its efforts to empower and protect consumers, the Commission proposes certain procedural safeguards before a consumer can be disconnected. The Commission is also setting up an Energy Poverty Observatory to provide better data on the problem and its solutions as well as to help Member States in their efforts to combat energy poverty.

5. FACILITATING MEASURES

The EU is already doing a lot to support the clean energy transition and delivery of the three key priorities: energy efficiency first, EU global leadership in renewables and a fair deal for consumers. But more has to be done.

Partly, this means setting the EU's regulatory framework for after 2020 – hence the proposals on market design, energy efficiency, renewables and governance, which complement the initiatives that the Commission already presented on climate action and on low-emission mobility³⁸.

The EU also needs to facilitate the clean energy transition through other instruments in its toolbox. These include making use of a wide range of EU policies: effective enforcement of EU regulation, applying EU financing in an effective, coherent way and encouraging partnerships with stakeholders.

The clean energy transition will not happen without **multi-stakeholder action** from civil society and regional and local level. Cities, regions, business, social partners and other stakeholders need to get actively involved in the discussions on energy transition, in particular in the context of the Integrated Energy and Climate Plans so that these respond adequately to the needs of the different territories.

The actions required will evolve over time. In the framework of the annual State of the Energy Union, the Commission will report on implementation of the actions to boost clean energy transition presented together with this package and add new actions as needed.

To boost Europe's competitiveness and the deployment of clean energy technologies, the Commission is presenting, as part of this package, an **initiative on accelerating clean energy innovation**³⁹. This initiative sets out a range of specific measures to improve the regulatory,

³⁷ See Working Paper on Energy Poverty (footnote 4 above).

³⁸ See Communication "Accelerating Europe's transition to a low-carbon economy" (COM(2016) 500) and the Communication on a European Strategy for low-emission mobility (COM(2016) 501).

³⁹ COM(2016) 763.

economic and investment environment for innovation in clean-energy technologies and systems. Building on the European Strategic Energy Technology (SET)-Plan and the ongoing work on the Strategic Transport Research and Innovation Agenda (STRIA), it also includes a limited number of integrated research, innovation and competitiveness driven priorities in support of this package's strategic objectives. This stronger prioritisation will contribute to refocussing a significant share of resources from Horizon 2020 (at least 2 billion euro) and guide public support and private investments across the EU. In addition the Commission will test a new funding approach to support high risk, high impact innovation in the field of clean energy and scale up activities of the European Institute of Innovation and Technology and in particular of the relevant Knowledge and Innovation Communities (KICs) to promote entrepreneurship and market uptake of innovative low-carbon and energy efficient solutions.

To create growth and jobs, the EU industry must be at the forefront the clean energy transition. The Commission will support **industry-led initiatives** to promote EU global leadership in clean energy and low-carbon technological solutions. These initiatives should aim to strengthen industrial linkages in the entire value chain and integrate non-economic actors such as social partners and consumers organisations. The Commission will also discuss with relevant stakeholders the need to set up a "clean energy industrial forum" that could bring together different strands (energy-transport-manufacturing-digital, etc.) and collectively discuss how to optimize the benefits of the clean energy transition for the EU industry, and how to promote our global competitiveness and international collaboration.

Member States also need to address the social, skills and industrial impact of the clean energy transition and reflect this impact in their National Energy and Climate Plans. The Commission will examine how to better **support the transition in coal and carbon-intensive regions**. To this end, it will work in partnership with the actors of these regions, provide guidance, in particular for the access to and use of available funds and programmes, and encourage exchange of good practices, including discussions on industrial roadmaps and re-skilling needs, through targeted platforms.

More generally, the Commission will provide platforms for sectors and workers to adapt **skills** to the needs of clean energy transition. Based on the experience with first pilot schemes under the Skills Agenda for Europe⁴⁰ for the automotive and maritime technology sectors, in 2017 the Commission will roll out new Blueprints for Sectoral Cooperation on Skills within the area of renewable energy and for the construction sector with a focus on low carbon technologies.

This package is also stepping up EU's action in removing **inefficient fossil fuel subsidies** in line with international commitments under G7 and G20 and in the Paris Agreement. The remaining but still significant public support for oil, coal and other carbon-intensive fuels continues to distort the energy market, creates economic inefficiency and inhibits investment in the clean energy transition and innovation. The market design reform is removing priority dispatch for coal, gas and peat and will limit the need for capacity mechanisms which often relied on coal. The Commission will also establish regular monitoring of fossil fuel subsidies in the EU and expects Member States to use their energy and climate plans to monitor the phase-out of fossil fuel subsidies. The Commission will carry out a REFIT evaluation of the

⁴⁰ See Communication "*A New Skills Agenda for Europe: Working together to strengthen human capital, employability and competitiveness*", COM (2016) 381.

EU framework for energy taxation in order to define possible next steps also in the context of the efforts to remove fossil fuel subsidies.

EU's **external and development co-operation** policies are important tools to support clean energy transition globally and help our partners in neighbourhood countries and developing world in this process⁴¹.

The EU is strengthening cooperation with the Western Balkans, Turkey and the Southern and Eastern Neighbours on energy efficiency. The first four pilot projects to scale up energy efficiency investments in the building sector were launched and will possibly be extended in 2017 to a wider range of partner countries. The EU will also strengthen funding for energy efficiency in buildings in the relevant funding instruments for Neighbourhood and Pre-accession.

Africa is a privileged partner for the EU and the Africa-EU Energy Partnership provides the frame for joint energy co-operation. The EU is also supportive of the African Renewable Energy Initiative.

European business can use these opportunities to offer its excellence in exporting and investing in energy efficiency and renewable energy across global competitive markets. The EU aims at concluding an ambitious environmental goods agreement under the World Trade Organisation and pursues liberalisation of environmental goods and services and facilitation of trade and investment in renewable energy generation in its bilateral trade agreements.

Annex II "**Boosting the clean energy transition**" highlights some of the areas where concrete action can be strengthened in the short term, refocused or the synergies improved to support jobs, growth and investment in Europe. This should also help Member States to fulfil their energy and climate commitments for 2020 and allow them to be ambitious in their pledges when setting their 2030 targets cost-effectively and at the same time encourage other public and private sector stakeholders to engage more fully in the clean energy transition.

6. CONCLUSIONS

All the Energy Union related legislative proposals presented by the Commission in 2015 and 2016 need to be addressed as a priority by the Parliament and Council. This has also been underlined by the European Council in March 2016 and supported by the European Parliament. Progress will be reviewed at the 2017 Spring European Council.

The European Parliament and the Council should maintain the overall coherence of this package and the Commission's earlier proposals on e.g. the emissions trading system, effort sharing, land use and low-emission mobility.

⁴¹ See Communication on a Proposal for a new European Consensus on Development – Our World, our Dignity, our Future, COM(2016) 740; and the reposed European External Investment Plan.