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

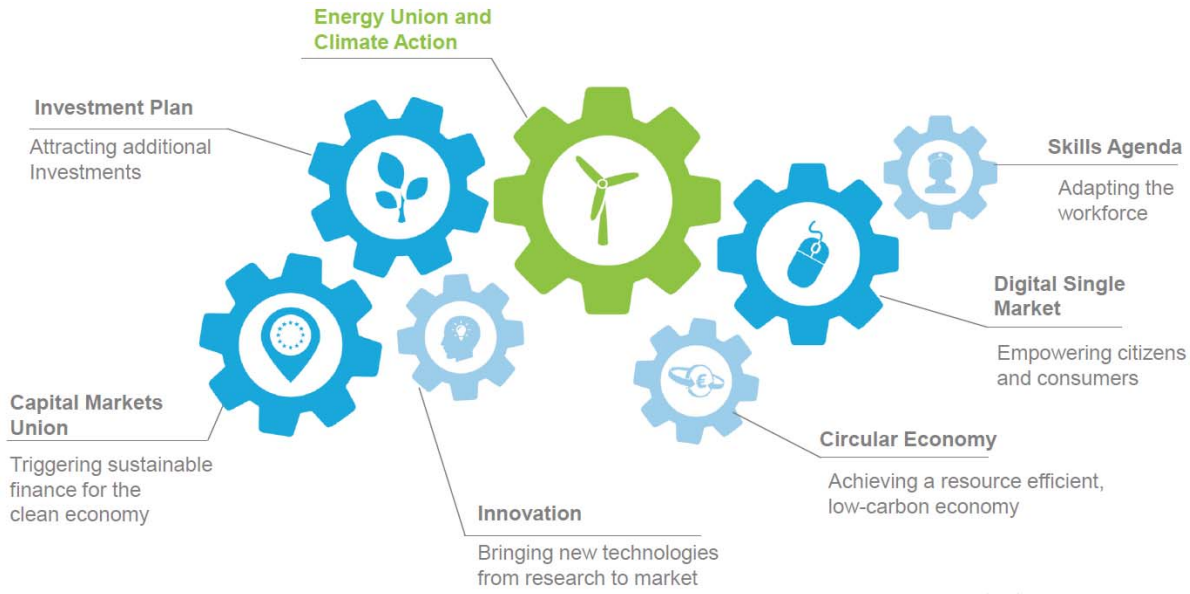
Clean Energy For All Europeans

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 jobs[1]. It will also mean that on the average the carbon intensity of the EU's economy will be 43% lower in 2030 than now[2], with renewable electricity representing about half of the EU's electricity generation mix[3].

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 Europe[5], representing 2% of total added value[6]. 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 sectors[7] and around one million in the energy efficiency-related sector[8].

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 Strategy[9], proposals on security of gas supply[10], the EU emissions trading system[11] and related rules on effort-sharing[12] and land use and forestry[13] as well as a strategy on low-emission mobility[14].

As announced in the Commission's Work Programme for 2017[15], 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 period[16]: 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 areas[17], 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.

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[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 Directive[20] 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 Directive[23] 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 measures[25]. 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 persons[26], 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 plans[31] 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 period[32], 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://gramwzielone.pl/uploads/files/Solar_Photovoltaics_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 Directive[33], together with the proposals on the new electricity Market Design[34], 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 Strategy[35] 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 mobility[38].

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, he 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 Europe[40] 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 process[41].

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.

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ANNEX 1

ANNEX

Accelerating clean energy in buildings

to the

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

Clean Energy For All Europeans

The initiative launched today by the Commission treats buildings as an essential part of Europe's clean energy transition.

Focusing on the places where we live and work, the goal is develop a comprehensive, integrated approach that puts energy efficiency first, contributes to the EU's global leadership in renewables and delivers a fair deal to consumers in a way that helps Member States to deliver their energy and climate targets for 2020 and 2030.

The benefits of such an integrated approach are clear:

- mobilizing investments, at national, regional and local level, and driving growth and jobs, while promoting innovation and skills;
- energy savings, leading to lower running costs, a healthier living and working environment for citizens;
- alleviating energy poverty, with a special focus on tackling energy-inefficient social housing and public buildings;
- gradual decentralisation of Europe's energy system through the use of sustainable energy in buildings;
- plugging buildings into a connected energy, storage, digital and transport system that will contribute to Europe's low-emission mobility strategy;
- empowering households, businesses and energy communities; and
- contributing to the circular economy.

The construction industry alone provides 18 million direct jobs in Europe and creates 9% of GDP.[1]

The European construction industry has the potential to respond to a number of economic and societal challenges such as jobs and growth, greater urbanisation, social network and digitized communication, demographic changes and globalised value chains, ecological pressures and, at the same time, energy and climate change challenges. Buildings can be one of the drivers for modernisation of the sector and its work force.

The EU is already a global leader in innovation systems for buildings. Integrating energy efficiency, renewables, storage and connecting to digital and transport systems through buildings allows further expanding on this leadership and making the most of the favourable regulatory framework.

Today, buildings account for 40% of Europe's total energy consumption. Around 75% of the building stock is energy inefficient. At the current 1% annual renovation rate it would take around a century to decarbonise the building stock to modern, low-carbon levels.[2]

To realise the sustainable energy potential in buildings, a number of **social, financial, technical barriers or administrative challenges** need to be overcome. For instance, whereas buildings are regularly maintained or improved, sustainable energy investments are often

[1] European Commission, The European construction sector – A global partner, 2016.

[2] Impact Assessment for the amendment of the Energy Performance of Buildings Directive, SWD(2016) 414; see also the JRC's report "Energy Renovation: The Trump Card for the New Start for Europe" available at http://iet.jrc.ec.europa.eu/energyefficiency/publication/energy-renovation-trump-card-new-start-europe

disregarded because they face a competition for scarce capital, a lack of trustworthy information, lack of skilled workers or doubts on the possible benefits.

In addition, many project developers still face obstacles in raising the necessary up-front costs for their projects and lack access to attractive and adequate financing products from the market. This market failure is mainly due to a lack of understanding of the risks, multiple benefits and business case of sustainable energy investments, especially energy efficiency, by financiers and investors. In addition, the small-size of investments and the lack of turnkey solutions increase implementation cost; and the lack of capacity and skills to structure bankable projects keep finance demand low.

It is the role of sustainable energy policy to help consumers undertake these investments more easily and to create more favourable investment conditions. When renovating their homes, consumers should be enabled to choose the more efficient solutions relying on transparent, clear and timely information on consumption and related costs. When refurbishing public buildings such as hospitals, schools, social housings or offices, public authorities should have the possibility to access attractive financing solutions and benefit from innovative energy services in the form of e.g. energy performance contracting.

Next to setting the right regulatory framework, in particular with the proposed revision of the Energy Efficiency Directive and the European Performance of Buildings Directive, there is a need for complementing actions to support rapid changes in the real economy and to address the question of financing now.

1. Smart financing for smart buildings

Sustainable energy renovation in buildings is an area where pooling of projects and public guarantees can make a huge difference. As part of the Investment Plan for Europe, the European Fund for Strategic Investments (EFSI) 2.0[3] is key to unlock private financing for **energy efficiency and renewables in buildings at a greater scale**.

Already now, energy efficiency and renewables are prominent in EFSI projects. For instance, the vast majority of energy projects approved for financing so far (accounting for 22% of €154 billion worth of overall investment) concerns energy efficiency and the renewable energy sector. Building on the success of EFSI, the Commission has proposed to extend its duration until the end of 2020 and to require that **at least 40% of projects in the EFSI** infrastructure and innovation window should contribute to climate, energy and environment action in line with the **COP21 objectives**. This is a major opportunity and a concrete contribution to leverage public and private money to support the transition to the low-carbon circular economy. The support from the European Fund for Strategic Investments can complement, or be combined with support, in the form of **grants or financial products**, from other EU funds, including the European Structural and Investment Funds.

Over the period 2014-2020, the **European Regional Development Fund and the Cohesion Fund** will invest EUR 17 billion in energy efficiency in public and residential buildings and in enterprises, with a focus on SMEs[4]. This is three times more than in the previous period,

[3] Communication "Europe investing again – Taking stock of the Investment Plan for Europe and next steps", COM(2016) 359.

[4] Note: In addition, there are allocations of EUR 870 million and EUR 113 million respectively from the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF), also part of the ESIF.

and it confirms the commitment and the importance Member States and regions attach to energy efficiency. It has a potential to leverage a much larger amount of national public and private co-financing, reaching an estimated total of around EUR 27 billion[5]. One of the objectives of the Investment Plan for Europe is to at least double the use of financial instruments under the European Structural and Investment Funds to mobilise additional private financing and to help establishing viable markets. Member States and regions already plan to invest almost EUR 6.4 billion[6] via financial instruments for low-carbon objectives, mainly for energy efficiency; this is a more than eight-fold increase compared to the 2007-2013 period.[7]

Building upon the Investment Plan for Europe and the European Structural and Investment Funds, the Commission will launch an initiative to further boost investments by public sector entities, energy services companies, SMEs/midcaps and households in energy efficiency and smart buildings. This new initiative, in close cooperation with the European Investment Bank (EIB) and the Member States, can **unlock an additional EUR 10 billion** of public and private funds[8] until 2020 for energy efficiency and renewables. This should be done through financial intermediaries and national energy efficiency investment platforms to aggregate projects, de-risk energy efficiency investments and optimise the use of public funds, including in particular European Structural and Investment Funds in combination with funding through the European Fund for Strategic Investments. Such combinations, which are already possible today, will be further facilitated through the proposed amendments to the Financial Regulation and the Common Provisions Regulation[9]. Member States, especially those with higher energy intensity and external energy dependency, are encouraged to participate in and contribute to this initiative. The sharing of risk between EU and national public and private funds will make available more attractive financing options to final beneficiaries. In addition, several regulatory and administrative advantages will be connected to the use of an EU solution, for example regarding state aid, public procurement, co-financing obligations, as well as reporting and ex-ante assessments. Importantly, in the context of the assessment of public finances under the Stability and Growth Pact, the Commission will also take a favourable position towards Member States' contributions to one-off contributions into thematic or multi-country investment platforms in the context of the EFSI[10].

A significant part of these funds will be implemented in cities and regions: local and regional actors play a crucial role in supporting clean energy buildings, through decisions in areas like building codes and urban planning. Through initiatives like the Covenant of Mayors for Climate and Energy[11], cities and regions are encouraged to implement actions towards reducing emissions of greenhouse gases, increasing resilience, and ensuring access to clean and affordable energy for all.

Pillar I: More effective use of public funding

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5 Estimate based on financial tables of the operational programmes 2014-2020 for the thematic objective "supporting the shift towards a low-carbon economy" overall.

6 Including national co-financing.

7 The first annual summary of progress of ESIF FIs under 2014-2020 will be produced by end November 2016.

8 The EIB provided EUR 10.5bn to the energy efficiency sector over the last 5 years.

9 COM(2016) 605 of 14 September 2016.

10 See the Statement of the Commission on its assessment of one-off contributions within the context of the EFSI initiative for the purpose of implementing the Stability and Growth Pact, OJ 1.7.2015; L 169, p. 38 as well as See the Communication 'Making the best use of the flexibility within the existing rules of the Stability and Growth Pact', COM (2015) 12.

11 http://www.covenantofmayors.eu/index_en.html

The aim is to maximise the use of available public funding via financial instruments addressing identified market failures and by better targeting grants towards vulnerable consumers. To this end, the Commission will:

a. Develop sustainable energy financing models based on national investment platforms (with a possible regional dimension) to attract additional private financing for building renovation, designed as foreseen in the EFSI Regulation and in line with EU state aid rules.

In the EU, more so than in other developed economies, banks play a central role in financing investments of consumers and enterprises. While they are increasingly active in the new energy markets, especially large scale renewables, banks seldom consider energy efficiency as a distinct market segment. This results in a lack of adequate and affordable commercial financing products for energy efficiency or renewables energies investments in buildings[12]. In order to address this shortcoming, the Commission has developed a pioneering financing scheme, the Private Finance for Energy Efficiency (PF4EE) facility, funded by the LIFE Programme and managed by the EIB. The success of this pilot scheme, as exemplified by a significantly higher leverage than originally planned, shows the potential of driving efficiency investments through risk-sharing, technical assistance and credit lines from the EIB to participating financial institutions. Lessons learnt from the Private Finance for Energy Efficiency (PF4EE) will help further boost the combination of European Fund for Strategic Investments and other sources of public funding, including European Structural and Investment Funds, where appropriate, through investment platforms.[13]

Building on this experience, the Commission will support the development of **flexible energy efficiency and renewable financing platforms** at national or regional level. These platforms can offer a full service solution enabling local banks, financial intermediaries, energy service companies or other entities pooling investments to deploy attractive sustainable energy financing products to a large number of final recipients in the area covered by the platform[14]. In particular, three mutually reinforcing elements can be delivered to the entities willing to finance portfolios of sustainable energy investments:

- Up-scaled EIB debt financing via the European Fund for Strategic Investments to increase their financing capacity (contributing thus to a reinforced focus on sustainable energy buildings under European Fund for Strategic Investments 2.0);
- A risk-sharing mechanism to mitigate the risk of sustainable energy building investments portfolios and to enable more attractive lending conditions to final recipients. This feature could be deployed together with locally available funds, including the European Structural and Investment Funds;

[12] In particular heating and Cooling solutions, solar panels in rooftops, and heat pumps.

[13] In its recently adopted "Omnibus Regulation" proposal (COM (2016) 605), the Commission proposes simplified rules applicable to combining ESIF with EFSI which could enable the development of further easy-to-use models and templates.

[14] These platforms will also provide better visibility to the projects financed there in for the purposes of applying the relevant regulatory and administrative advantages provided by EFSI.

- Technical expertise and assistance for rolling out lending programmes developed in cooperation with the European Investment Advisory Hub – including through the facilities such as ELENA, JASPERS, fi-compass[15] - and other sources of national or regional funding.

To support the deployment of this model and other associated sustainable energy instruments, the Commission will investigate opportunities to redeploy existing EU funds, e.g. for technical assistance.

b. Energy Performance Contracting: The role of energy performance contracting in driving the efficiency of public buildings must increase as they offer a holistic approach to renovations, including financing, carrying out the works and energy management. They also can, under certain conditions, allow investing in efficiency without increasing public debt, which is of key importance for governments as well as local and regional authorities facing budgetary constraints, especially when it comes to social housing, hospitals or schools. 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. Eurostat will explore how to address the impact of energy efficiency-related investments on the debt and deficit of governments. 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, as appropriate, will update its guidance on the statistical treatment of such partnerships before late spring 2017.

c. Deliver assistance to public fund managers with the structuring and deployment of financial instruments: in addition to the support provided under the European Investment Advisory Hub, fi-compass or the Energy and Managing Authorities network, the Commission will organise a series of regional capacity building events involving key decision-makers and stakeholders. The first workshop took place in November this year in Riga covering the Baltic region.

d. In addition, the Commission has developed a readily-available **template for increasing the share of financial instruments under the European Structural and Investment Funds**: the off-the-shelf instrument for energy efficiency. Member States have been active in setting up financial instruments for energy efficiency, notably in order to reach the target of channelling 20% of ESIF for the low-carbon economy investments through financial instruments. However, some Member States are facing delays in that respect and more use of off-the shelf instruments can help to address this gap.

In parallel, the legislative proposal on the Energy Performance of Buildings Directive includes measures to **link the financial incentives** provided by public funds with the energy savings achieved.

Pillar II: Aggregation and assistance for project development

[15] fi-compass is a platform for advisory services on financial instruments under the European Structural and Investment funds (ESIF), designed to support ESIF managing authorities and other interested parties, by providing practical know-how and learning tools on financial instruments. https://www.fi-compass.eu/

The availability of a large-scale pipeline of bankable projects to feed investment platforms and financial instruments is essential for the success of this initiative. However, many project promoters – public authorities, individuals or businesses – lack the skills and capacity to set up, implement and finance ambitious clean energy building projects. The Commission will therefore:

a. **Reinforce existing Project Development Assistance facilities[16] at the EU level** such as ELENA in cooperation with the European Investment Advisory Hub. The aim is to increase the investment pipeline, support the deployment of financial instruments, get closer to project promoters, especially from Eastern and Central Europe, further engage cities and local actors and stimulate aggregation and the market uptake of promising solutions, including innovative technologies, financing and organisational strategies. The Commission will increase the budget of the EU Project Development Assistance from €23 million in 2015 to €38 million per year as of 2017. The budget of the EU Project Development Assistance for 2016-2017 is expected to trigger up to €3bn[17] of sustainable energy building investments.

b. **Encourage Member States to develop dedicated local or regional one-stop-shops** for project developers, covering the whole customer journey from information, technical assistance, structuring and provision of financial support, to the monitoring of savings. These facilities should lead to more locally-developed project pipelines and strong and trustworthy partnerships with local actors (e.g. SMEs, financial institutions, and energy agencies), the key being to connect the supply of finance with demand for it. The development and replication of these one-stop-shops will be supported at the EU level by an exchange of good practices through Manag'Energy[18], funding through Horizon 2020[19], the EU Project Development Assistance facilities, or funding from the European Structural and Investment Funds when relevant.

In parallel, the proposed continuation of energy saving obligations for Member States in Article 7 of the Energy Efficiency Directive will provide a further boost to bundling small-scale projects.

Pillar III: De-risking

As called for by financial institutions[20], investors and financiers need to better understand the real risks and benefits of sustainable energy building investments based on market evidence and performance track record. Fundamentals such as the lower probability of default in the case of energy saving loans or an increased value of assets due to higher energy performance need to be progressively recognised by banks and reflected in the pricing of their financing products. The development of dedicated sustainable energy building financing products is

[16] ELENA Facility and the PDA call under the Horizon 2020 Programme.
[17] Based on past leverage ratio achieved in the ELENA and PDA EASME facilities.
[18] Manag'Energy will be the focal point for capacity building for the 400+ local and regional energy agencies in Europe to increase their capacity on finance of energy efficiency and empower agencies to develop structures in view of holistic, integrated local/regional approaches.
[19] H2020, EE-23-2017, on innovative financing schemes, namely on schemes based on project aggregators or clearing houses at regional or national level.
[20] www.eefig.com

also important to support the creation of a secondary (re-financing) market and increase private capital participation. To underpin this market transformation, the Commission:

a. Launches the De-risking Energy Efficiency Platform disclosing the technical and financial performance of over 5,000 European industrial and buildings energy efficiency projects. Project developers, financiers, and investors are invited to further populate this open-source database and benefit from its benchmarking features and peer-to-peer learning.

b. Will closely work with public and private financial institutions, industry representatives and sector experts on a **consensual framework for the underwriting of sustainable energy building investments.** Co-produced by the Energy Efficiency Financial Institutions Group[11] and scheduled for 2017, this initiative will help financial institutions incorporate the key energy benefits into their business practice while reducing transaction costs and increasing investors' confidence. This action will also help unlock the green mortgage market.

In parallel, the legislative proposal on the Energy Performance of Buildings Directive includes measures to provide private sector investors with access to more and better information, including more reliable building Energy Performance Certificates, the collection of actual energy consumption data of public buildings and the further development of long-term renovation roadmaps to guide investment decisions.

The Commission also launches the **EU building Stock Observatory** to centrally collect all relevant information regarding EU buildings and energy renovation. This will enable the support for designing, implementing, monitoring and evaluation of policies and related financial instruments.

2. Construction sector

The Commission will invite stakeholders of the construction sector to discuss the challenges and opportunities that sustainable energy building investments represent for the sector, and how this can be further promoted. This complements the work of the High-Level Tripartite Forum for Sustainable Construction of the Construction 2020 Strategy.

Under its Skills Agenda for Europe[21] the Commission launched effort to help tackle skills challenges. Based on the experience with the pilot schemes launched this year, in 2017 the Commission will roll out new sets of so called "Blueprints for Sectoral Cooperation on Skills" and one of them will also concern the construction sector with focus on energy efficiency and digital skills. In that context, synergies will be developed with the Commission "BUILD UP Skills" initiative, which looks into the upskilling of construction sector workers on energy efficiency and renewable energy technologies, their installation and management.[22]

Construction of new buildings or retrofitting buildings to render them more energy-efficient provides an opportunity to rethink construction and demolition practices to take into account broader resource efficiency aspects. Under the circular economy package, the European Commission will present next year an EU framework to assess the overall environmental

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

[22] Initiative funded under the programmes: Intelligent Energy Europe and Horizon 2020 Societal Challenge 3.

performance of buildings. Such framework should be used to promote circular economy in the built environment, including by being used as a reference in large scale application projects, in European Structural and Investment Funds and in national policy and legislation. Moreover, the European Commission is exploring options to support initiatives to foster investments in new and/or innovative construction and demolition waste recycling infrastructure in regions lagging behind with respect to the 70% target for the re-use, recovery and recycling to be achieved by 2020 under the Waste Framework Directive. Such investments could be supported by the European Fund for Strategic Investments. A specific platform for circular economy projects is in the process of being established. In addition, the Commission has prepared a Construction and Demolition Waste Management Protocol to help stakeholders treat waste in an environmentally sound way and increasing its potential for recycling. Looking ahead, the European Commission is also working on principles and rules for the sustainable design of buildings in order to generate less construction and demolition waste and facilitate materials recycling. All these initiatives will in turn help reduce energy consumption and costs related to construction materials.

The construction sector's growth and jobs potential needs to be unlocked by improving the functioning of markets. The results of the fitness check on construction will be used to ensure better coherence of related internal market and energy efficiency legislation. For instance, requirements stemming from Ecodesign regulations should be incorporated, where relevant, into the harmonised standards under the Construction Products Regulation applicable to the same products to provide manufacturers with one single framework for the testing of products. As the internal market for construction products is still fragmented, a consultation process with stakeholders is ongoing[23], possibly leading to a revision of the Construction Products Regulation within the mandate of this Commission.

The European Commission will continue to support innovation through stimulating the development of advanced technological products and processes in the frame of the contractual public private partnership (cPPP) *energy-efficient Buildings* (*EeB*). This PPP is expected to deliver the technologies needed to increase sustainability and competitiveness of the European construction industry.[24]

The initiative could be supported by a smart approach to public procurement promoting innovative low-carbon solutions via industry-led standardisation initiatives, such as SustSteel[25]. Once these standards are finalised, they can be used by the construction sector for fulfilling their sustainability objectives. This approach could potentially be replicated for other construction products and would empower the sector to valorise their efforts and to market more efficiently their products.

The new public procurement directives (in force since spring 2016) consolidate and optimize all existing innovation instruments: functional criteria, variants, quality considerations in technical specifications and award criteria. The EU also contributes to innovation procurement through the European Structural and Investment Funds and the Horizon 2020 programme. This has led to a series of ground-breaking projects. An interesting example is the cross-border PAPIRUS project (covering Germany, Spain, Italy and Norway) which aims to promote, implement and validate innovative solutions for sustainable construction through

[23] As foreseen in the Report on the Implementation of the Construction Products Regulation (add reference)

[24] http://ec.europa.eu/research/industrial_technologies/energy-efficient-buildings_en.html.

[25] The steel industry is working on European standards on sustainable steel (SustSteel), which would enable companies to certify that their steel products for the construction sector comply with the defined requirements for the economic, environmental and social aspects of sustainability.

public procurement, focusing on Nearly Zero Energy Buildings. In addition, the Commission has published voluntary Green Public Procurement criteria for Office Building Design, Construction and Management which include a series of recommendations on how to procure a green, energy-efficient office building[26].

Digital technologies have the potential to raise efficiency of construction processes and the operation of buildings, thus contributing to our energy saving objectives. The Commission therefore supports the definition of common principles and rules in public procurement to digitalise the characteristics of buildings, including their energy performance (Building Information Modelling). Together with the development of a common framework for a digital building logbook and specific actions targeting SMEs, this makes it much easier to exchange information and support decision-making before, during and after construction projects, avoid a fragmentation of competing national strategies and cut the costs for SMEs. Moreover, under the Government Procurement Agreement of the WTO and in the context of bilateral agreements, the EU ensures that public procurement is carried out in a transparent and competitive manner that does not discriminate against EU goods, services or suppliers.

[26] SWD(2016) 180 final EU GPP Criteria for Office Building Design, Construction and Management

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ANNEX 2

ANNEX

Action to boost the clean energy transition

to the

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

Clean Energy For All Europeans

Most of the actions of this paper are those that will have an impact over the short to medium term. In the framework of the annual State of the Energy Union, the Commission will report on implementation of these actions and set out the course for new actions as needed.

1. Socially fair transition and new skills

Energy is a critical good and service, absolutely essential for full participation in modern society. A number of instruments already exist and will need to be deployed to ensure that the clean energy transition is fair and takes into account its transformative impact on sectors, regions or vulnerable members of society negatively affected by the transition.

The key tools in this respect are the **European Structural and Investment Funds**, including the European Social Fund, that support adjustment in affected sectors and regions and the transition to new business models and job profiles. At least EUR 1.1 billion from the European Social Fund will be dedicated in the period 2014 – 2020 to improving education and training systems necessary for the adaptation of skills and qualifications and for the creation of new jobs in sectors related to energy and the environment. The European Social Fund is also used by some Member States to alleviate energy poverty, as a complement to the EUR 5.2 billion allocated from the European Regional Development Fund and the Cohesion Fund for energy efficiency investments in housing. Within these allocations, a number of Member States have chosen to target social housing and households in need, thus contributing to long-term solutions addressing energy poverty for almost 1 million households. Improving the energy efficiency of buildings is one of the major tools to make energy more affordable and fight against energy poverty. In addition to the measures proposed in the legislation[1], the Commission will also set up an Energy Poverty Observatory to produce reliable statistics on the number of energy poor households in each Member State and contribute to the dissemination of good practices.

Dedicated actions in terms of knowledge transfer, skill acquisition and promotion of innovative solutions in relation to efficient energy use and production are funded under Rural Development policy. For example, 99,000 beneficiaries (mainly farmers and forestry holders) are expected to be trained in relation to energy related issues in period 2014 – 2020.

Specifically to support solidarity in the clean energy transition, the Commission proposed, as part of the revision of the **EU Emission Trading System**[2] to allocate resources to address the particularly high additional investment needs in lower income Member States. The new Modernisation Fund aims to facilitate investments in modernising the energy systems and improve energy efficiency. Moreover it is also proposed that 10% of the allowances to be auctioned by the Member States will continue to be distributed to the benefit of certain lower-income Member States. Finally, the Commission proposes that Member States also use revenues from emission trading to promote skill formation and reallocation of labour affected by the transition of jobs in a decarbonising economy, in close coordination with social partners.

This should be complemented by a dedicated initiative which will provide further and more tailor-made **support for the transition in the coal and carbon-intensive industrial regions**. The aim is to kick-start and/or further boost the region's planning process for the structural changes linked to the energy transition and exchange with other regions presenting similar

[1] See the proposal to amend the Directive on the Energy Performance of Buildings, COM(2016) 765.
[2] Proposal amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, COM (2015) 337.

situations. As a first step, the Commission will bring these regions together to discuss possible planning processes, facilitate the sharing of best practices and examine which support instruments are available.

The Smart specialisation approach under the EU Cohesion policy, in particular the dedicated platforms[3], can provide relevant assistance to regions. As a bottom-up process engaging especially industry, the research, development and innovation community and public authorities, it can enable regions to develop and implement their energy transition strategy.

Clean energy transition offers durable job creation opportunities. However, the successful transition requires re-skilling of workers, better planning and anticipation of changes and skills and a better skills matching. The European Social Fund can support these efforts at all stages of life from raising children's awareness at schools, to supporting training for relevant skills and clean energy-related entrepreneurship and also social inclusions through relevant careers. Under its **Skills Agenda for Europe**[4] the Commission launched effort to help tackle such skills challenges and address skills shortages in specific economic sectors (the so called "Blueprints for Sectoral Cooperation on Skills"). Based on the experience with the pilot Blueprints launched this year (notably the automotive and maritime technology sectors), such schemes represent an opportunity to address skill needs for the clean energy transition. The ongoing Blueprint for sectoral skills cooperation in the maritime sector already involves off-shore wind and ocean energy and can be a particularly relevant test-case for the second wave in sectors like renewables or construction.

The social partners play a crucial role in mapping skills needs and anticipating and managing changes. They are already associated to the work on the Energy Union at EU level and need to be closely involved in the process but also in the discussions on the integrated national energy and climate plans.

In order to support a socially fair clean energy transition and new skills:

- *The Commission will examine how to better support coal and carbon-intensive regions going through the clean energy transition. 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.*
- *Member States should use their integrated national energy and climate plans to reflect on the social, skills and industrial impact of the clean energy transition.*
- *Based on the experience with the pilot schemes, in 2017 the Commission will roll out two new Blueprints for Sectoral Cooperation on Skills for new technologies - within the area of renewable energy at large and for the construction sector with a focus on low carbon technologies.*
- *The Commission calls on the Member States to closely involve social partners in the discussions on energy transition, in particular in the context of the integrated national energy and climate plans.*

[3] http://s3platform.jrc.ec.europa.eu.

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

2. EU financing to deliver for the real economy

Financing of the energy transition will have to combine private investments with public financing that leverages private investments and addresses market failures. Private investments will be facilitated by the legislative proposals in this package and the proposal to reform the EU Emission Trading System. Functioning energy and carbon markets will be the key facilitator in meeting the investment challenge, as will regulatory stability and policy transparency.

In addition, the EU's financial instruments are making a significant contribution to support the clean energy transition, as demonstrated by the **European Fund for Strategic Investments**. The Fund is firmly on track to deliver on mobilising at least EUR 315 billion in additional investment in the real economy by mid-2018. The latest figures reached EUR 154 billion. With the launch of the second phase of the European Fund for Strategic Investments the Commission proposed to strengthen and extend the European Fund for Strategic Investments. It is proposed that at least 40% of the investments in the infrastructure and innovation window should be climate, energy and environment relevant and contribute to the achievement of the objectives of the Paris Agreement.

In line with the EU objective to spend at least 20% on climate action in the **EU budget in the period 2014 – 2020**, the reformed Cohesion policy[5] also plays a crucial role in delivering the Energy Union objectives, with relevant financial allocations of EUR 68.8 billion. This will be complemented by national public and private co-financing, reaching an estimated total of EUR 92 billion[6]. In addition, rural development programmes provide support for targeted investments in renewable energy and energy efficiency (almost EUR 6 billion). While early indications for Cohesion policy funds show progress in implementation in 2016[7], urgent action is now needed to accelerate the implementation of these funds in a number of Member States. The Commission will continue to offer technical support to Member States with implementation issues.

Simpler and more flexible rules, as proposed by the Commission in the mid-term review of the Multiannual Financial Framework 2014-2020, will also contribute to accelerating the implementation of this funding. As part of the review, the Commission launched a broader simplification agenda on the rules governing EU funds. This includes facilitating the combination of the European Fund for Strategic Investments with other sources of Union funding, including the European Structural and Investment Funds. One objective is to reinforce the take-up of the European Fund for Strategic Investments in less developed and transition regions. Under European Structural and Investment Funds, Member States and regions already plan to invest almost EUR 6.4 billion via **financial instruments** in the area of low-carbon, mainly for energy efficiency. This is a more than eight-fold increase of allocations compared to the 2007-2013 period, and first indications are that progress is already well underway[8]. In order to encourage a higher uptake of financial instruments, the Commission is also providing Member States with support via the fi-compass platform for

[5] Cohesion policy is delivered through the European Regional Development Fund, the Cohesion Fund and the European Social Fund, which are all part of the European Structural and Investment Funds.

[6] Estimate based on weighted average co-financing from financial tables of the operational programmes 2014-2020 for the thematic objectives "supporting the shift towards a low-carbon economy" and "promoting sustainable transport and removing bottlenecks in key network infrastructures".

[7] Project selection data by end 2016 will be available in early 2017.

[8] The first annual summary of progress of financial instruments under European Structural and Investment Funds 2014-2020 will be produced by end November 2016.

advisory services, and off-the-shelf instruments providing standard terms and conditions which are compatible with European Structural and Investment Funds regulations and State aid rules and seek to combine public and private resources.

One example of a successful project under the European Fund for Strategic Investments in combination with the European Structural and Investment Funds is the investment platform in the French region of Hauts-de-France, exemplifying how a wide range of public and private actors can pool their knowledge and expertise and how different funds can be combined to trigger significant private sector investment in low-carbon energy projects. Another example is Private Finance for Energy Efficiency (PF4EE)[9] which provides risk-protected debt financing via local commercial banks, enabling the banks to provide better financing conditions for energy efficiency projects in buildings and SMEs. It also provides specific expert support enabling local banks to develop and market new energy efficiency financing products tailored to customer needs.

The **Cleaner Transport Facility** will make use of financial instruments and blending to deploy innovative low carbon technologies to accelerate the shift to low-emission mobility. The possible market potential for the renewal of buses and coaches is around 3500 vehicles or EUR 875 million added investment per year.

In order to further scale up and shift investment in support of the clean energy transition:

- *The Commission is today launching a smart financing for smart buildings initiative (see Annex I) to support investment in clean energy buildings. This initiative will support the development of investment platforms enabling the combination of public funds and the deployment of attractive financing products for market actors in all Member States in 2017. It will also reinforce technical assistance to further develop and aggregate small scale projects and will rollout de-risking activities for energy efficiency investments.*
- *In the context of the Investment Plan for Europe, the Commission has recently t launched pilot projects to pursue, at EU level, a stronger convergence of the timelines of the different procedures regarding strategic infrastructure investment projects. The pilot covers, in a first stage, Belgium and Slovakia. Based on an assessment of these projects, the Commission will extend this experience to other Member States, in the course of 2017, with the ambition to create an effective "one-stop-shop" for all Member States, bringing together all responsible Commission services – including its Representation offices in the Member States – in a single investment policy team.*
- *The Commission calls on the Member States to speed up the deployment of European Structural and Investment Funds to support clean energy transition.*
- *The Commission is launching on 1 December 2016 a Cleaner Transport Facility together with the European Investment Bank to support investment into clean, energy efficient transport and integrated energy and transport infrastructures.*

3. Setting the right incentives for investment in the clean energy transition

[9] Private Finance for Energy Efficiency is an EU financial instrument, developed by the Commission, funded under the LIFE Programme and deployed by the European Investment Bank.

Deploying renewable energy sources or energy efficiency measures is capital intensive. It requires up-front investments in the form of savings from households, equity from businesses, or debt financing from lending institutions, in order to benefit from reduced energy bills or revenues in the future.

The current economic context with a low cost of capital is favourable to unlock private investment at a larger scale and channel capital expenditure into clean energy, energy efficient solutions and sustainable assets. This is an opportunity for citizens, companies, pubic authorities and investors to get a higher return on capital than from savings.

To support this major shift in investment towards the clean energy transition, Member States' **integrated national energy and climate plans** - part of the Energy Union Governance on which the Commission presents a proposal today[10] - will also serve as "investment roadmaps", identifying the required public and private investments for the clean energy transition.

A favourable and coherent structure of economic incentives is also key to drive private investments in the clean energy transition. Effective **carbon pricing and a phase-out of fossil fuel subsidies** are both very important to remove harmful market distortions, internalise the environmental and societal costs of a "business as usual" scenario and help price the associated risks for different investment opportunities.

The Commission already proposed a reform of the EU Emission Trading Scheme for the post-2020 period.[11] The EU is also supporting setting up emissions trading systems through bilateral cooperation[12] and participation and funding of multilateral initiatives with our international partners[13].

In line with commitments made under the Paris Agreement on climate change and within G7 and G20, the EU has already taken a number of concrete steps to remove **fossil fuel subsidies**, however, 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.

According to the latest Commission's report on energy prices and costs, issued today as part of this package, EU direct fossil fuel subsidies for electricity and heating stood at 17.2 billion euros in 2012, while fossil fuel subsidies in transport were separately estimated at 24.7 billion euros[14]. According to the 2015 estimates of the International Monetary Fund, EU fossil fuel subsidies reach 300 billion euros when external costs are included. While this is still a relatively small proportion of the global amount of more than 4.8 trillion euros[15], it is a significant economic burden for the EU. Current low oil and gas prices provide a window of opportunity for phasing out fossil fuel subsidies, including tax exemptions, without adverse effects on social welfare.

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[10] COM (2016) 759.
[11] COM (2015) 337.
[12] For example with China and Korea.
[13] Under the Paris Agreement, around half of countries have indicated that they will use market mechanisms for delivery of their emission reduction pledges.
[14] This includes subsidies for coal €9.7bn and gas 6.6bn; the subsidies came from the legacy of historical investment subsidies, fossil fuel investment grants, feed in tariffs, fuel tax exemptions, electricity production, and decommissioning and waste disposal. (Source: 2014 study on energy costs and subsidies. For transport (petroleum subsidies), the source is OECD inventory 2013).
[15] International Monetary Fund, 2015.

In order to help redirect financial flows towards the clean energy transition:

- *To ensure that the financial system can finance growth in a sustainable manner over the long term and avoid "lock-in" to high emissions infrastructure and assets, the Commission has established a high level expert group that will provide advice by the end of 2017 to develop sustainable finance.*
- *Building on the Report on energy prices and costs published today, the Commission will reinforce transparency. It will continue to closely monitor energy prices and costs every two years and will reinforce its monitoring of fossil fuel subsidies in line with the EU's G7 and G20 commitment to eliminate inefficient fossil fuel subsidies.*
- *In 2017, the Commission will carry out a REFIT evaluation of the EU legal framework for energy taxation in order to define possible next steps also in the context of the efforts to remove fossil fuel subsidies.*
- *Member States' integrated national energy and climate plans will enable them to identify the investments needed for the clean energy transition. Member States should also use these plans to monitor the phase-out of fossil fuel subsidies.*
- *The Commission will also examine, when reviewing the guidelines on State aid for environmental protection and energy 2014-2020 how those rules, together with the State aid rules for R&I investments, enable Member States to stimulate innovation in renewable energy technologies and solutions.*

4. Research, innovation and competitiveness

Research and innovation are key to support Europe's global competitiveness and leadership in advanced renewable energy technologies[16] and energy efficiency solutions and enable their successful integration throughout the economy. The European Union participates in the Mission Innovation initiative launched at the 2015 Paris Climate Conference, bringing together countries committed to doubling their investment in clean energy research over 5 years.

Together with this package, the Commission is putting forward a dedicated **strategy on accelerating clean energy innovation**[17]. This Strategy brings stronger prioritisation and concrete actions to ensure that low-carbon innovation is deployed more widely and brought to market more rapidly. In doing so, the initiative will serve as test-bed for future new horizontal approaches on innovation and competitiveness.

By accelerating clean energy innovation, Europe can make the most out of the transition to a low-carbon economy: it can create opportunities for growth and job creation through increased exports and business creation and empower citizens through the integration of digital solutions.

Industrial initiatives also have an important role to play in driving EU innovation and global competitiveness. They are already an important element in the established Strategic Energy Technologies Plan (SET). Some good examples of these industry-led initiatives can be found for solar energy[18] and in smart grids and storage[19] sectors. Another good example is the

[16] See also the proposal for a recast of the Renewables Directive, COM(2016) 767.
[17] COM (2016) 763.
[18] This initiative seeks to improve competitiveness and sustainability of the sector, facilitate large-scale and affordable expansion and integration into the electricity grid.

Ocean Energy Strategic Roadmap that aims at maximising private and public investment in ocean energy development by de-risking technology as much as possible.

In the Energy Union strategy[20], the European Commission announced an initiative on the pooling and making accessible of relevant **data, analysis and intelligence**. This should first and foremost enable the Commission to make a robust assessment of the global performance of EU clean energy technologies, not only in terms of research and innovation but also market share, imports/exports, employment, growth and investment. This competitive assessment should be periodically updated at the time of adoption of the State of the Energy Union and key priorities and actions reviewed accordingly.

To boost Europe's competitiveness and the deployment of clean energy technologies:

- *The Commission presents today an initiative on accelerating clean energy innovation, with a range of specific measures to improve the regulatory, economic and investment environment for innovation in clean-energy technologies and systems, and which defines key priorities for the use of EU financial instruments and programme, including Horizon 2020.*
- *The Commission will support industry-led initiatives to promote EU global leadership in clean energy technologies, 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", to bring together different sectors (energy-transport-manufacturing-digital) and optimize the benefits of the clean energy transition for the EU industry.*
- *The Commission will work with the industry, the research community and other key stakeholders to provide robust strategic intelligence on the EU global performance and its competitive position in low carbon energy and energy-efficient solutions. This competitive assessment will be updated periodically.*

5. Building the necessary physical infrastructure to support the free flow of energy and the clean energy transition

Today the European energy system is in transition. Energy networks must be upgraded and modernised to meet increasing electricity demand due to a major shift in the overall energy value chain and mix with increased integration of variable renewables. Dedicated infrastructure is also needed to support low-emission mobility.

Whilst the short term priority is to ensure proper functioning of the internal energy market by developing the missing interconnectors to achieve the existing **10% interconnections target for 2020**, by ending the isolation of a number of Member States and by removing internal bottlenecks, the energy infrastructure planned today must, at the same time, be compatible with longer term policy choices, including the transition towards low emission mobility.

[19] The so-called "European Electricity Grid Initiative" which has recently transformed into the "European Technology and Innovation Platform for Smart Networks for the Energy Transition.
[20] COM (2015) 80.

This also means making sure that **energy efficiency**[21] is taken into account in the planning of the overall energy system: actively managing demand so as to reduce energy consumption, costs for consumers, import dependency and treat investment in energy efficiency infrastructure as a cost-effective pathway towards a low-carbon and circular economy. Investment in increasingly smart and flexible infrastructures has been identified as one of the no-regret options.

In order to support the development of the necessary physical infrastructure to ensure clean energy transition and free flow of energy:

- *In the framework of the annual State of the Energy Union, the Commission will take stock of Projects of Common Interest which are delayed or postponed in view of facilitating their implementation. It may also address these issues in its recommendations to Member States, in particular as regards Projects of Common Interest identified in the framework of the high level groups on energy.*
- *The Commission, under the upcoming review of the TEN-E regulation in 2017, will look into improving the regulatory framework to further incentivise the completion of Projects of Common Interest.*
- *The Commission has established an expert group in order to provide the technical advice on how to break down cost-effectively the 15% electricity interconnection target into regional, country and/or border interconnection levels. The Commission will report on this in autumn 2017, together with adoption of the 3rd Union list of Projects of Common Interest.*

6. Digitalisation

The Commission's Digital Single Market Strategy of May 2015[22] aims at creating the right environment and conditions for the deployment of advanced digital networks and services including in the Energy sector.

Delivery on a **fair deal for consumers** will require innovative companies combining new energy technologies with digital technology (big data, cloud computing) and mobile communication technology (5G) to offer new products and services (decentralised electricity generation, energy management systems, smart appliances and smart controls; small scale storage including electric cars) that support active consumers and help to optimise energy consumption (reduction and shifting) and thus save money. In September 2016 the Commission proposed a review of EU telecoms rules to meet Europeans' growing connectivity needs by encouraging investment in very high-capacity networks. The Commission also presented a 5G Action Plan[23], which foresees a common EU calendar for a coordinated 5G commercial launch in 2020.

At the same time, the question about access to data, privacy and data protection must be pursued, as well as cybersecurity and issues of open standards and interoperability. Work on the later has been launched with the Commission communication of April 2016 on digitisation

[21] See the proposal to amend the Energy Efficiency Directive, COM (2016) 761.
[22] COM (2015) 192.
[23] COM (2016) 588.

of European industry.[24] This communication also launched a new European Cloud Initiative which has the potential to become the backbone for the new energy data system.

Ensuring resilience of the energy supply systems against **cyber risk and threats** becomes increasingly important as wide-spread use of information and communications technology and data traffic is becoming the foundation for the functioning of infrastructures underlying the energy systems. An Energy Expert Cyber Security Platform is currently analysing the specific needs for the security of energy infrastructure and will advise the Commission in this regard.

As part of the delivery on the Digital Single Market Strategy:

- *The Commission is preparing an initiative to advance a European data economy. This initiative, together with the proposal on Energy Market Design[25], will address the issues of data localisation as well as emerging issues such as ownership and liability, (re)usability, access and interoperability, and will be particularly relevant for data needed for energy processes and new energy services.*
- *The Commission is working on a review of the ePrivacy Directive to align it with the newly adopted rules on data protection. This will be relevant for handling of data from smart energy consumption.*
- *Based on the successful development of smart grids standards, the Commission will launch in 2017 a two years project to develop common secure communication standards which will ensure a free flow of energy-related data to relevant interested parties. The Commission will publish the results by the end of 2018.*
- *In 2017 the Commission will establish stakeholder working groups under the Smart Grids Task Force to prepare the ground for network codes on demand response, energy-specific cybersecurity and common consumer's data format. The Commission will report on the structure, scope and planning of the groups in spring 2017 and final results by the end of 2018.*
- *Based on the work of the Energy Cybersecurity Expert Group, the Commission will launch a consultation platform with stakeholders during 2017 and, if necessary, propose appropriate actions by the end of 2017.*
- *As follow up to the low-emission mobility strategy, the Commission is adopting an EU deployment strategy for Cooperative Intelligent Transport Systems, to enable EU-wide deployment of such systems by 2019 and accelerate the transition towards cooperative, connected and automated road transport.*

7. External dimension

External and development policies are important tools to support clean energy transition globally and help our partner countries, also in the EU neighbourhood, achieve their commitments under the Paris Agreement and the objectives of the 2030 Agenda for sustainable development.

[24] COM (2016) 180.

[25] The proposed 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).

This means increased EU engagement in multilateral initiatives and the promotion of a more robust and inclusive energy architecture worldwide - in line with the **EU's Energy Diplomacy Action Plan**.[26] The EU is an active member of the multilateral Clean Energy Ministerial, which is a high level global forum to promote policies and programmes that advance clean energy technology, to share lessons learned and best practices, and to encourage the transition to a global clean energy economy. The Commission will ensure that the transition to a low-carbon economy continues to be an integral part of the energy dialogue and cooperation in EU's bilateral and multilateral relations.

The Commission has identified sustainable energy and climate action as key drivers in its proposal for the **new European Consensus on Development**[27]. Energy is a critically important development enabler and central to solutions for a sustainable planet, as recognised in the 2030 Agenda and in particular Sustainable Development Goals (SDGs) 7 "Affordable and clean energy" and 13 "Climate action".[28] The EU's strategic approach to energy in development cooperation policy is centred on three key priorities: i) addressing the lack of energy access, ii) increasing renewable energy generation, and, iii) contribution to the fight against climate change. Given the scale of investment needed, the EU will increase cooperation with public and private sector partners, to deliver on energy access, energy efficiency and renewable energy generation. This will go hand in hand with the EU's support to third countries for tackling climate change and developing low-carbon and climate-resilient economies in line with the EU's global leadership on reducing greenhouse gas emissions.

The Commission has proposed a **European External Investment Plan**[29] to provide an integrated financial package to finance investments outside the EU. The Plan would include a European Fund for Sustainable Development; technical assistance to develop sustainable projects and attract investors; and a set of development technical assistance programmes to improve the investment and policy environments in the countries concerned, in particular scale up private and public investments in low-carbon economy.

Energy is a major focus of **EU co-operation with its neighbours**, with a focus on regulatory reforms, promoting the use of renewable energies and energy efficiency. This is the case in the Energy Community, where the EU is helping to create a regional energy market in line with EU regulatory standards. In the Southern Neighbourhood the process of establishment of a Euro-Mediterranean market for electricity and gas is ongoing, and in the Eastern Neighbourhood the EU4Energy project offers support for reforms in the energy sector. These are in each case designed to create a favourable environment for investments in renewable energies and energy efficiency. In particular EU support helps create the regulatory framework for renewable power to be traded across borders.

[26] Council conclusions on energy diplomacy adopted by the Foreign Affairs Council on 20 July 2015 (10995/15).
[27] Communication on a Proposal for a new European Consensus on Development – Our World, our Dignity, our Future, COM (2016) 740.
[28] See also Communication "Next steps for a sustainable European future – European action for sustainability", COM (2016) 739.
[29] Communication " Communication: "Strengthening European Investments for jobs and growth: Towards a second phase of the European Fund for Strategic Investments and a new European External Investment Plan", COM (2016) 581.

One example of a successful project is the world's largest solar plant in Ourzazate, which will provide half of the Morocco's renewable energy demand by 2030, and possibly export electricity to the EU and towards the East[30].

The EU is strengthening cooperation with the Western Balkans, Turkey and the Southern and Eastern Neighbours on energy efficiency. In co-operation with the international financial institutions, the Commission will scale up energy efficiency investments in the building sector, starting with four pilot countries, Ukraine, Georgia, Serbia and Tunisia.

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, an Africa-led initiative with the objective to increase Africa's renewable energy capacity by 10GW by 2020 and mobilise Africa's 300GW renewable energy potential by 2030. In order to unlock Africa's sustainable energy potential, emphasis will be on increasing generation capacity from renewable resources, improving cross-border interconnections and the governance of the energy sector.

As a member of the **World Trade Organisation**, the EU also actively promotes liberalisation of goods and services, which can deliver environmental benefits. It has been working closely together with sixteen other members of the World Trade Organisation representing the bulk of world trade in environmental goods, with the aim of concluding an ambitious environmental goods agreement. Also in its bilateral trade agreements, the EU pursues early liberalisation of environmental goods and services and facilitation of trade and investment in renewable energy generation.

Increased trade flows are expected to help the rapid spread of environmental goods, services and technologies around the world and the shift to a low-carbon economy. The EU is a world leader in exports and imports of environmental goods. In 2013, EU exports of the green listed products amounted to EUR 146 billion (around 8% of the EU's total) and imports to EUR 70 billion European companies should aim to continue developing and exporting their innovation ingenuity and know-how.

Finally, the Communication on **ocean governance**[31] sets out actions that will help create a global level playing field for the European ocean energy sector.

In the context of the commitment to make clean energy transition an essential element of the EU contribution to the implementation of the 2030 Agenda for sustainable development and of the Paris Agreement:

- *The Commission calls on the co-legislators to adopt the External Investment Plan legislative package as soon as possible.*
- *The Commission will privilege energy as one of the key topics of the 2017 Africa-EU Summit in Abidjan in November 2017.*
- *The Commission will organise a High Level Round Table Business Forum on Renewables Energies Investments in Africa in spring 2017 to increase understanding and awareness of the Commission's efforts and the private sector needs for*

[31] International ocean governance: an agenda for the future of our oceans. Joint Communication by the Commission and High Representative of the Union for Foreign Affairs and security policy (JOIN(2016) 49 of 10 November 2016).

investments in renewable energies in Africa.

- *In spring 2017, the Commission, in co-operation with the international financial institutions will take stock of the pilot exercise to scale up energy efficiency investments in the building sector in the four pilots with a view to extending it to other countries in due course.*
- *The 2017 mid-term review of the strategic Neighbourhood multiannual programming of the European Neighbourhood and Pre-accession Assistance Instruments in order to integrate increased funding for energy efficiency in buildings as part of energy, climate and job creation investments.*
- *The Commission will continue its efforts towards the conclusion of an environmental goods and services agreement (WTO) to reduce the costs of climate mitigation efforts.*

8. Governance and partnerships for effective delivery

The energy transition cannot be top-down. It needs policy action by **different levels of government** (local, regional, national, EU, international) **and other stakeholders**. The Governance of the Energy Union will help to ensure policy alignment and to ensure that the EU as a whole meets its energy and climate objectives, notably the 2030 targets.

The clean energy transition will not happen without multi-stakeholder action from civil society and regional and local level. The EU is uniquely placed to mainstream the clean energy transition through all sectors and levels of governance. It will, therefore, be important that cities, regions, business, social partners and other stakeholders become engaged in the design and implementation of the integrated national energy and climate plans.

Regional cooperation between Member States will help them meet the EU energy and climate objectives in an effective and cost-efficient way. The legislative proposals in this package will facilitate regional co-operation. The Commission will prepare Guidance to Member States on regional co-operation building on existing cooperation structures and mainstreaming regional cooperation across the five dimensions of the Energy Union.

Given that **cities and urban communities** are the place where a major part of the transformation will actually happen, the EU has been paying particular attention to these drivers of change. Work on facilitating city level action intensified in 2016, with the adoption of the "Pact of Amsterdam establishing the Urban Agenda for the EU", the creation of the Global Covenant of Mayors and the launch by the Commission of a web-based "one stop shop" for local authorities seeking customised information on EU urban initiatives, including on clean energy transition. The Covenant of Mayors for Climate and Energy, as the EU flagship initiative for city action against climate change, is gaining further momentum with a broader scope now including climate change mitigation, adaption and access to clean and affordable energy. The Commission is currently replicating this successful model to North America and Mexico; Latin America and Caribbean; Japan; China; India; South-East Asia; and sub-Saharan Africa under the Global Covenant of Mayors. Ambitious clean energy transition projects at city and regional level should be made more visible and could be replicated across the Union, including through the 2017 Energy Union Tour.

Rural areas also have an important potential to contribute to this transition, for example in terms of energy efficiency and renewable energy, including sustainable bioenergy.

Islands and island regions provide platforms for pilot initiatives on clean energy transition and can serve as showcases at international level, as, for instance, in the EU's outermost regions with the case of El Hierro (Canary Islands), 100% renewable energy island. The Commission would like to help accelerate the development and adoption of best available technologies on islands and island regions, including exchange of best practice in financing and legal and regulatory regimes, and in energy for transport. The first step is to bring the islands themselves together, regardless of their size, geography or their location.

To support the mainstreaming of clean energy transition:

- *The Commission calls on the cities, regions, business, social partners and other stakeholders to be actively involved in the discussions on energy transition, in particular in the context of the integrated national energy and climate plans to develop solutions which respond adequately to the needs of the different territories.*
- *In 2017 the Commission will come forward with Guidance to Member States on Regional cooperation to facilitate effective and efficient achievement of the Energy Union objectives.*
- *In the first half of 2017, the Commission will hold a high level meeting in Valletta on the clean energy opportunities and challenges for islands. This will launch a process to support islands in their clean energy transition.*