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

**2020 report on the State of the Energy Union pursuant to Regulation (EU) 2018/1999 on
Governance of the Energy Union and Climate Action**

1. INTRODUCTION

From the onset of the COVID-19 crisis, the European Commission has worked to help navigate Europe through an extraordinary situation. The 2020 State of the Energy Union report therefore takes into account the challenge of recovery. In the context of the EU's Recovery Plan, our goal is to build back our economy better by embracing the green and digital transitions as part of the process. Energy, climate and environment policies will be critical in driving the recovery and resilience of the European Union's economy towards sustainable growth.

This report is issued against the background of the EU's renewed ambition in the context of the European Green Deal. The Green Deal is Europe's new growth strategy that aims to transform the EU into a fair and prosperous society and combines policies to tackle climate change, to protect and restore biodiversity, eliminate pollution, to move to a circular economy, and to ensure that no one is left behind in the green transition.

In the first 10 months of its mandate, the current Commission has proposed a European Climate Law¹ that will enshrine the goal of EU 2050 climate neutrality into legislation, provide predictability and make the transition towards a climate-neutral economy irreversible. It has turned the European Green Deal into an investment and reform plan for Europe that offers a double dividend, as the reforms and investments needed for the green transition can also boost the recovery. To start the process of steering Europe's policy and regulatory framework towards the EU's renewed ambition, the Commission has presented new strategies to better prepare for the challenges ahead, for instance by energy system integration and by increasing the use of hydrogen.

Member States have worked tirelessly with the Commission to finalise national energy and climate plans. Detailed assessments of these 27 national plans and related guidance on their implementation in a recovery context complement this report, while the EU-wide assessment of national plans was presented already in September this year².

The progress achieved underlines the EU's determination to play a leading role on the international stage in fighting climate change and environmental degradation and in accelerating the clean energy transition. This is a continuous process. While the EU has already made significant progress on decoupling economic growth from greenhouse gas emissions, more action is required within the Union for Europe to achieve climate neutrality by 2050 while grasping the opportunities of the clean energy transition and internationally.

The Commission has therefore proposed to step up Europe's 2030 climate ambition³ by reducing greenhouse gas emissions by at least 55%. This increased 2030 target is ambitious but achievable and, above all, beneficial for Europe. It will require changes to our legislation. To this end, the Commission intends to present proposals to revise key climate and energy-related legislation in mid-2021. In parallel, Member States must implement their national plans fully and update them in 2023 in light of more ambitious EU climate and energy targets for 2030.

¹ COM(2020)80 and COM(2020)563.

² COM(2020) 564 final.

³ COM(2020) 562.

This 2020 State of the Energy Union report presents the many initiatives that the EU and its Member States have taken in the last months to shape a better Europe⁴. It is the first to be issued under the governance framework of the Energy Union and climate action⁵. It is accompanied by several thematic reports (see Box 1) and a Commission recommendation on energy poverty⁶; it also provides an overview of the state of progress of the Energy Union in the broader context of the EU climate action and sustainability objectives.

Box 1. Reports and annexes presented together with the 2020 State of the Energy Union

Progress report on improving energy efficiency (COM(2020)954);

Progress report on renewable energy sources (COM(2020)952);

Progress report on competitiveness (COM(2020)953);

Report on energy prices and costs (COM(2020)951);

Progress on energy subsidies, in particular for fossil fuels (Annex to this Communication);

Progress report on the internal energy market (Annex to this Communication);

Individual assessments of final national energy and climate plans (SWD(2020)900 to 926).

2. THE ENERGY UNION – A SOLID FOUNDATION

2.1. Decarbonisation

Greenhouse gas emissions

The EU has set itself the objective of becoming the first climate-neutral continent by 2050⁷, and the Commission has proposed a European Climate Law to anchor this goal in legislation and to provide means to ensure that the EU remains on the pathway to do so.

The EU has already overachieved its target of reducing greenhouse gas emissions by 20% below 1990 levels by 2020 under the United Nations Framework Convention for Climate Change. Total EU-27 greenhouse gas emissions are at their lowest level since 1990. Emissions have decreased significantly, mainly driven by emissions from energy supply. This is reflected in a strong drop in emissions from activities covered by the EU emissions trading system (EU ETS), whereas emissions from activities not covered by the EU ETS have generally remained on a sideways trend in general for several years.

At the same time, emissions from international aviation⁸ have continued to increase over the past 5 years (until the outbreak of the COVID-19 crisis). After a decrease in emissions between 2007 and 2013, overall transport emissions have also increased in each of the last 5 years.

The average greenhouse gas intensity of fuels supplied in the EU has improved since 2010, but further action is needed to ensure that the 6% reduction target set by the Fuel Quality Directive is met by 2020.

⁴ In the areas of greenhouse gas emissions reduction (including renewable energy sources), energy efficiency, energy security, energy markets, research and innovation, and competitiveness.

⁵ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action; OJ L 328, 21.12.2018, pp. 1–77.

⁶ C(2020) 9600.

⁷ European Council conclusions of 12 December 2019, EUCO 29/19.

⁸ In principle covered by the EU ETS, but currently limited to flights in the European Economic Area.

Over the past 5 years, emissions from stationary installations performing activities covered by **the EU ETS** have decreased significantly. This development reflects in particular changes in the fuels used to produce electricity, including the increasing use of renewable energy sources. In 2019, overall emissions from industry and power covered by the EU ETS continued to decline (by 9.1% compared to 2018). The power sector was the main driver of this trend, with a substantial decrease in greenhouse gas emissions of almost 15%. Emissions from industry decreased by 2%, marking their strongest decrease in phase 3 of the EU ETS (2013-2020) so far. Intra-European Economic Area aviation emissions grew modestly by almost 1%.

The **Market Stability Reserve**, which started operating in January 2019, has substantially lowered the surplus of emission allowances. The carbon market surplus indicator⁹ was published in May 2020 for the fourth time and showed that the surplus has decreased to around 1.39 billion allowances. Based on the surplus and the revised EU ETS legislation for phase 4 of the EU ETS (2021-2030), the number of allowances auctioned was reduced by around 375 million in 2020. Auction volumes in 2021 will be reduced under the same legal basis. The Market Stability Reserve will be reviewed for the first time in 2021 within the wider context of EU ETS revision to achieve the proposed greenhouse gas emission reduction objective of at least 55%.

With the exception of a temporary price drop due to the COVID-19 crisis at the beginning of 2020, the **carbon price** signal remained stable at around EUR 24¹⁰ on average between January 2019 and June 2020. The total revenues generated by the EU ETS from the auctions between 2012 and 30 June 2020 exceeded EUR 57 billion.

The Commission will soon publish a package of climate reports as a follow-up and linked to this report¹¹. The package will contain detailed information on greenhouse gas emissions, the EU's carbon market and on fuel quality.

Renewable energy

Overall, the EU is on track to achieve the 2020 renewables targets, but greater progress is still needed in some Member States¹². The share of renewables in gross final energy consumption increased to 18% in 2018 in the EU¹³. In 2018, 12 Member States were above their 2020 national binding targets, but five Member States remained below the indicative 2017-2018 trajectories to achieve the targets.

⁹ C(2020) 2835.

¹⁰ Source: InterContinental Exchange.

¹¹ The necessary data to underpin these analyses will be available at the end of October 2020.

¹² For a detailed assessment, see COM(2020)952.

¹³ The figures include the UK, an EU Member State in the 2018 reporting period.

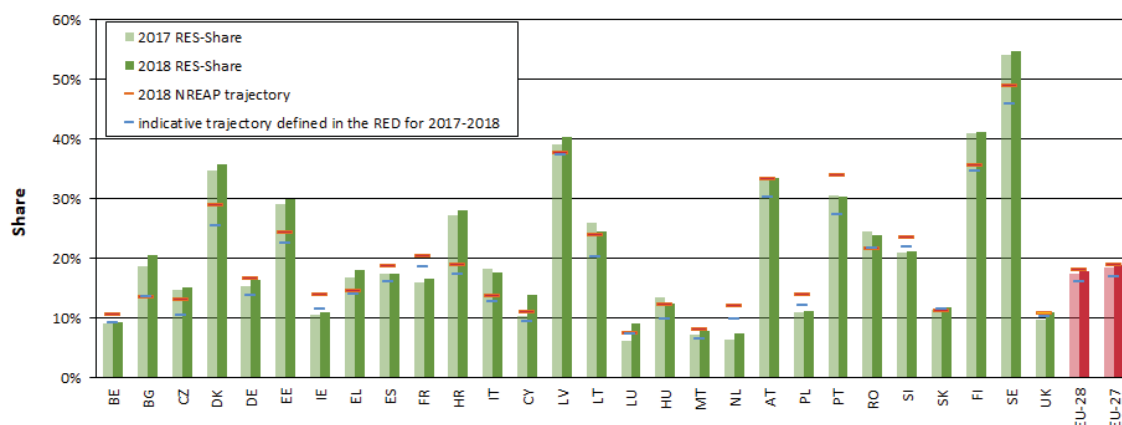


Figure 1. Actual renewable energy shares in 2017 and 2018 compared to indicative trajectories set in the Renewables Directive and national renewable energy action plans.¹⁴

The renewable energy progress report¹⁵ projects that the EU will reach 22.8% to 23.1% in gross final energy consumption in 2020. Investments in renewable energy are increasingly driven by market decisions. Member States increasingly grant support for renewable energy through competitive tenders and ensure that renewable energy installations are integrated in the electricity market, as required by State aid¹⁶ and internal energy market rules. Although the majority of Member States will meet their targets, three Member States are at severe risk and two Member States are at moderate risk of not meeting their targets. This analysis takes into account the likely impact of COVID-19 on higher shares of renewables in consumption due to lower consumption.

Member States are encouraged to explore all options to use cooperation mechanisms, including statistical transfers, to ensure they achieve their national binding targets for 2020. The Commission is ready to support the process and dialogue among Member States to conclude statistical agreements, including through the EU Renewable Development Platform¹⁷, that is being prepared.

Beyond 2020, all efforts should be on achieving the national contributions towards the 2030 target. This includes making use of the 2021 Annual Sustainable Growth Strategy and its European ‘Power up’¹⁸ flagship to frontload future-proof clean technologies and accelerate the development and use of renewables as part of our efforts to recover from the impact of the COVID-19 crisis¹⁹. The deployment of renewable energy entails numerous benefits: reducing emissions, boosting energy independency, creating jobs and growth and reducing pollution, together with maintaining the EU’s leadership position in the sector worldwide. To help achieve the national contributions, the recently agreed EU renewable energy financing mechanism²⁰ allows Member States

¹⁴ Eurostat.

¹⁵ COM(2020)952; this includes an assessment of the sustainability of biofuels.

¹⁶ Guidelines on State aid for environment and energy 2014-2020, OJ C 200, 28.6.2014, p.1.

¹⁷ In accordance with Article 8 of Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources

¹⁸ COM(2020) 575 final.

¹⁹ ‘Power up’ also lays the foundation for hydrogen lead markets in Europe and the related infrastructure, aiming to support 6 GW of electrolyser capacity and the production and transportation of 1 million tonnes of renewable hydrogen across the EU by 2025

²⁰ C(2020) 6123 final.

to invest in renewable projects in exchange for a statistical attribution to the participating Member State. The accelerated deployment of renewables will be underpinned by the revision of the relevant State aid guidelines, in particular the Guidelines on State aid for environment and energy to reflect the objectives of the Green Deal.

2.2. Energy efficiency

Member States need to step up their efforts to increase energy efficiency. The Energy Union has recognised the key role of energy efficiency in achieving all climate and energy targets and has enshrined the ‘energy efficiency first’ principle in legislation²¹. In 2018, final energy consumption in the EU fell by 5.9% compared to 2005, to 1124 million tonnes of oil equivalent (Mtoe). This is 3.5% above the 2020 final energy consumption target of 1086 Mtoe²² and an increase of 0.2% compared to 2017. Primary energy consumption in the EU decreased by 9.8% to 1552 Mtoe; down from 1721 Mtoe in 2005. This is 4.6% above the 2020 target of 1483 Mtoe. Following 3 years of increases, a year-on-year drop of 0.6% was recorded in 2018²³. Growth in economic activity continued to push energy consumption up in 2018 to the point where new policies and measures that Member States implemented were not sufficient to reduce energy consumption and get it back on track towards the 2020 target. Direct jobs in energy efficiency have increased steadily from 244,000 in 2000 to 964,000 in 2017, and their growth has outpaced the rest of the economy, with an annual average growth of 17.4%; at a time where the rest of the economy, has had an average annual growth of 0.5%²⁴.

Partial data for 2020 indicate that the COVID-19 crisis has had a significant impact on energy demand. Even if this might help meet the 2020 energy efficiency targets, it would not lead to a structural reduction in energy consumption. Rebound effects are expected as soon as the economy recovers.

Making additional long-lasting efforts to achieve the 2030 targets on energy efficiency is therefore of utmost importance, also in the context of the 2021 Annual Sustainable Growth Strategy and its European flagship ‘Renovate’²⁵. The flagship aims to improve the energy and resource efficiency of public and private buildings and to boost digital development through smart living and metering, thus helping to recover from the COVID-19 crisis. The Commission is developing additional guidance and is anchoring the ‘energy efficiency first’ principle in all relevant policy proposals, such as the EU strategy on energy system integration, the ‘renovation wave’ initiative and the upcoming revision of the Trans-European Networks for Energy. Member States also need to consider energy efficiency measures in planning, policy and investment decisions across the economy.

²¹ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action.

²² As the rights and obligations of a Member State apply to the UK until the end of the transition period on 31 December 2020, this target refers to the energy consumption of the EU plus the UK.

²³ <https://ec.europa.eu/eurostat/documents/38154/4956218/Energy-Balances-April-2020-edition.zip/69da6e9f-bf8f-cd8e-f4ad-50b52f8ce616>. The figures include the UK, an EU Member State in the 2018 reporting period. The UK is bound by the 2020 energy efficiency target.

²⁴ COM(2020)953.

²⁵ COM(2020) 575 final.

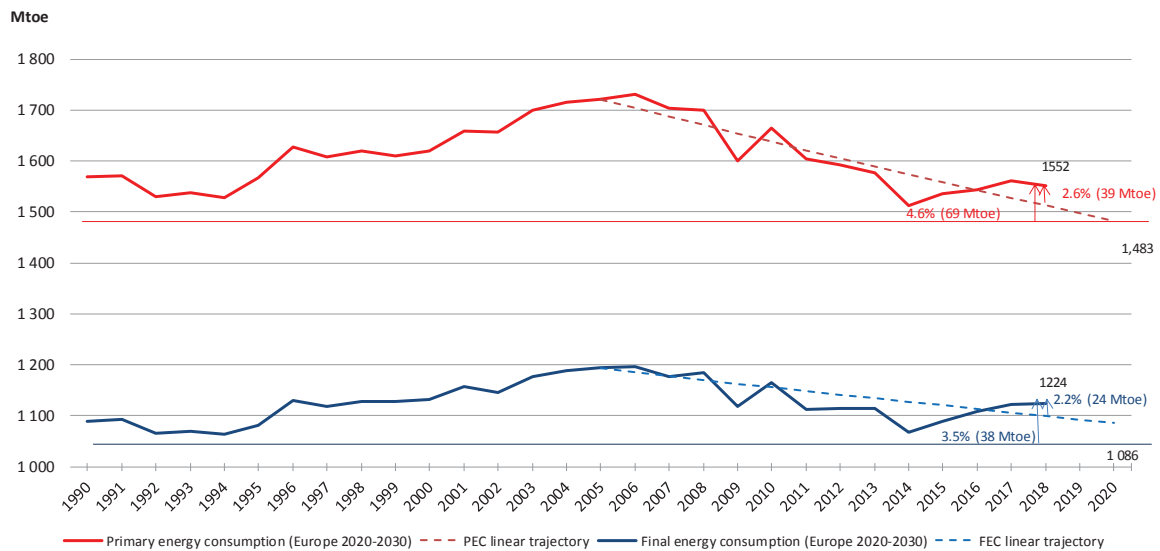


Figure 2. Energy efficiency – progress on 2020 targets²⁶ (in Mtoe)

2.3. Energy security

Despite the considerable stress that the COVID-19 crisis has exerted on energy demand in terms of wide departures from the normal consumption patterns for this period, **Member States' preparedness has proved robust** and ensures continuity of essential operations. The Energy Union legislative framework on energy security – in particular, the Regulation on Risk Preparedness in the electricity sector and the Regulation on Gas Security of Supply – has been instrumental in managing the impacts of the crisis in the energy sector.

In the midst of the COVID-19 pandemic, the Commission published **good practices and lessons learned** for the energy sector in June 2020. The expert groups created by EU legislation²⁷ played a key role to facilitate cross-border coordination alongside the extensive cooperation and information sharing between the Member States, system operators and relevant agents in the energy sector. As a follow-up, the Commission is assessing potential vulnerabilities and options for improving the resilience of critical supply chains for energy technologies.

The EU Security Union Strategy²⁸ includes a proposal to strengthen the resilience and cybersecurity of critical energy infrastructure, whose importance has been highlighted by the pandemic. The Commission has also started work on a network code to ensure the cybersecurity of cross-border electricity flows²⁹.

²⁶ In line with the methodology used for defining the energy efficiency targets and with the nomenclature used by Eurostat, PEC stands for primary energy consumption (Europe 2020-2030) and FEC for final energy consumption (Europe 2020-2030).

²⁷ SWD(2020) 104 final. The document is a valuable guide to ensuring resilience in the face of pandemic risks and builds on the input of the Electricity, Gas, and Oil Coordination Groups, the European Nuclear Safety Regulators Group, and the European Offshore Authorities Group.

²⁸ COM(2020) 605 final.

²⁹ In line with the requirement of the recast Regulation on the internal electricity market (Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity).

In the electricity sector, implementation of the Risk Preparedness Regulation³⁰ ensures that Member States have tools to cooperate with each other in order to prevent, prepare for and mitigate electricity crises. In addition, two new methodologies³¹ have allowed the European Network of Transmission System Operators for Electricity (ENTSO-E) to identify, for the first time, the most relevant regional electricity crisis scenarios and carry out the first seasonal adequacy assessment for the past summer based on a new methodological approach (the Summer Outlook 2020). This will serve as a basis for preparing national scenarios and Member States' risks preparedness plans. The Commission also adopted a recommendation on fair compensation³² for Member States when they provide each other with assistance to prevent and manage crises.

Infrastructure is key for a market to function properly and efficiently. The EU has therefore set electricity interconnection capacity targets. Eight Member States³³ have not yet met the 10% interconnection target for 2020³⁴. Projects of common interest can also boost Member States' decarbonisation efforts and lay the foundation for hydrogen lead markets in Europe. These may involve support from the Connecting Europe Facility and actions in the framework of the Recovery and Resilience Facility's flagship 'power up' in view of integrating clean technologies and renewables through modernised networks and enhanced interconnectivity.

Efforts are also being made to ensure full use of existing interconnectors and operational digital platforms. Implementing the provisions related to internal electricity market design and, in particular, the rollout of market coupling has seen a large increase in the efficiency of electricity trading in Europe^{35, 36}.

On the security of gas supply, Member States have prepared preventive action and emergency plans^{37, 38}. These contain measures for mitigating the impact of a gas supply disruption and risks identified at national and regional level.

The Commission continues to help Member States implement the solidarity principle³⁹; this is also to ensure uninterrupted gas supplies to the most vulnerable consumers even in severe gas crisis situations.

The Commission has assessed experiences with current legislation on **the safety of offshore oil and gas operations** and will submit its report to the European Parliament and Council this autumn.

³⁰ Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector.

³¹ Developed and implemented by the European Network of Transmission System Operators for Electricity.

³² Commission Recommendation (EU) 2020/775 also covers technical, legal and financial elements.

³³ Ireland, Spain, France, Italy, Cyprus, Poland, Portugal and Romania.

³⁴ The agreed cross-border capacity ratio corresponds to the import capacity over installed generation capacity for Member States.

³⁵ ACER market monitoring report 2018 of 11 November 2019.

³⁶ Of final electricity trades, market coupling contributed to an increase from 60% in 2010 to 87% in 2018 of the amount of trades going in the right direction i.e. from lower to higher priced areas. This delivers an affordable model for the energy transition ensuring that least-cost electricity can be dispatched around Europe for the benefit of consumers.

³⁷ https://ec.europa.eu/energy/topics/energy-security/secure-gas-supplies/commissions-opinions-preventive-action-plans-and-emergency-plans-submitted-member-states-2019_en?redir=1

³⁸ These plans are developed within the framework of Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010.

³⁹ Article 13 of Regulation (EU) 2017/1938.

On **nuclear safety and security**, the EU has a comprehensive framework that covers the full nuclear life cycle, including the safe and responsible management of spent fuel and radioactive waste⁴⁰. The Commission has continued to carefully monitor the implementation of this framework in Member States. **The EU has also continued to promote high levels of nuclear safety outside the EU**, particularly in neighbouring countries that operate or plan to build nuclear power plants. This includes support in conducting stress tests and follow up to promote proper and transparent implementation of recommendations. The European Council has underlined in particular the importance of ensuring nuclear and environmental safety of the Belarusian Nuclear Power Plant in Ostrovet.

2.4. Internal energy markets

A fully integrated and well-functioning internal energy market is the most efficient means of ensuring affordable energy prices, necessary price signals for investments in green energy, securing energy supplies and enabling the least cost path to climate neutrality. Important initiatives have strengthened the internal electricity and gas markets. Despite good progress, more work is needed to ensure that electricity and gas markets are further integrated.

On electricity, the ‘Clean energy for all Europeans’ package, and in particular the new electricity market design rules adopted in 2019⁴¹, have paved the way to better cope with the new realities of energy markets, dominated by renewable energy production. These rules have created better conditions to foster consumer participation in energy markets and a level playing field for new market entrants. Planned implementing acts on data interoperability are expected to help operationalise this and to assist customers together with new service providers to get more actively involved in the market. The Electricity Regulation⁴² aims to ensure further integration of electricity markets by strengthening in particular the rules on maximal utilisation of electricity interconnectors. These rules will enhance cross-border trade, enabling energy resources to be used more efficiently in the EU as a whole. Progress is being made on implementing a comprehensive set of technical EU regulations (network codes), with positive results⁴³.

⁴⁰ Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation; Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, as amended by Council Directive 2014/87/Euratom of 8 July 2014; Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste.

⁴¹ Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity OJ L 158, 14.6.2019; Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU; Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators OJ L 158, 14.6.2019, p. 22–53.

⁴² Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity OJ L 158, 14.6.2019.

⁴³ In addition, the implementation of EU-wide electricity trading (‘market coupling’) has advanced, in particular with the move towards intraday trading. At retail level, Electricity Directive 2019/944 empowers consumers by helping them to switch suppliers and by rolling out smart meters quickly. In 2018, there were around 99 million smart electricity meters across the EU or 34% of all electricity metering points, compared to around 12 million smart meters for gas.

Since 2016, total **retail electricity prices** have been converging across Member States, but there are still sizeable differences. Electricity prices for household consumers in 2019 ranged from EUR 98/MWh in Bulgaria to EUR 295/MWh in Denmark. The average price for the EU was EUR 216/MWh. Overall, retail prices are still dominated by components that are not the result of competition but are set by regulators (e.g. regulated network charges and taxes/levies).

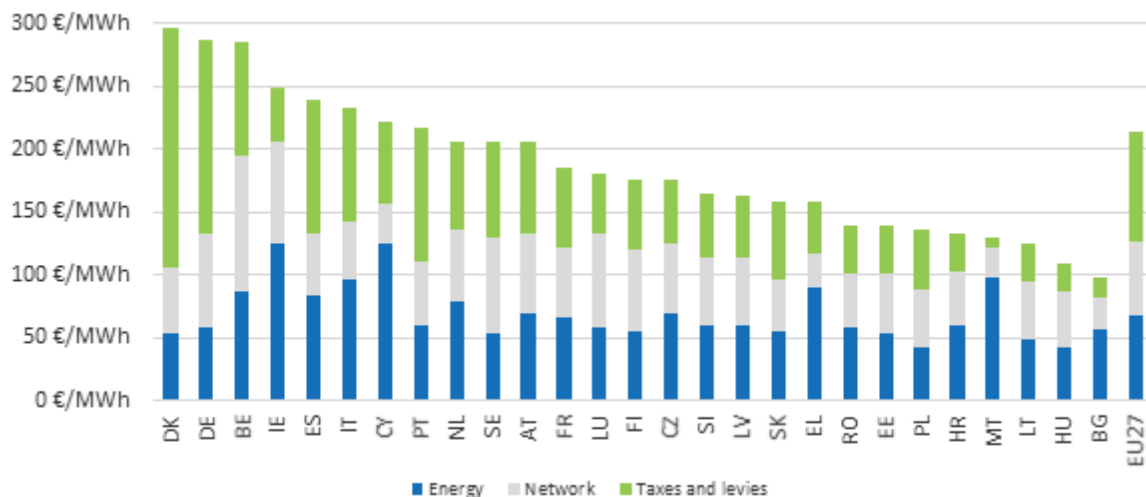


Figure 3. Household electricity prices in the EU in 2019 (DC band)⁴⁴

At wholesale level, incumbents still hold a dominant position in a majority of Member States more than 20 years after the start of market liberalisation. In some countries, they even hold market shares above 80%, coming close to a monopoly. The tendency to regulate prices in these countries has often proved to be an additional barrier for market entrants to enter into competition with established incumbents⁴⁵.

Over the last decade, **retail electricity prices** have risen above inflation. However, industrial electricity prices have risen below industrial price indexes, and even have fallen for larger consumers. In recent years, network charges, taxes and levies have been stable or have risen only slightly. Moreover, lower pressure of renewable levies on prices is observed at the same time as the wider use of market-based instruments that promote renewables and as the gradual phase-out of old support schemes. As a result, the end user prices were driven mainly by changes in generation and supply costs. However, these changes were not enough to provide sufficient market signals. This is due, inter alia, to the fact that the regulated component in the end use price still constituted a relatively big share of the end use price. Therefore, the fact that the main electricity retailers across the EU lost market shares and, as a consequence, the retail electricity market concentration decreased, has not always fully translated into sufficiently effective price signals.

The combined impact of all **taxes and levies** has a significant effect on the final energy price, in particular for electricity. As highlighted by the EU strategy on energy system integration⁴⁶, this can create distortions in the use of specific energy carriers. Member

⁴⁴ COM(2020)951 based on Eurostat [nrg_pc_204_c].

⁴⁵ End-user electricity price regulation is still applied to households in nine Member States, and end-user gas price regulation in eight. In the non-household sector, end-user electricity price regulation existed in six Member States and gas price regulation in four Member States.

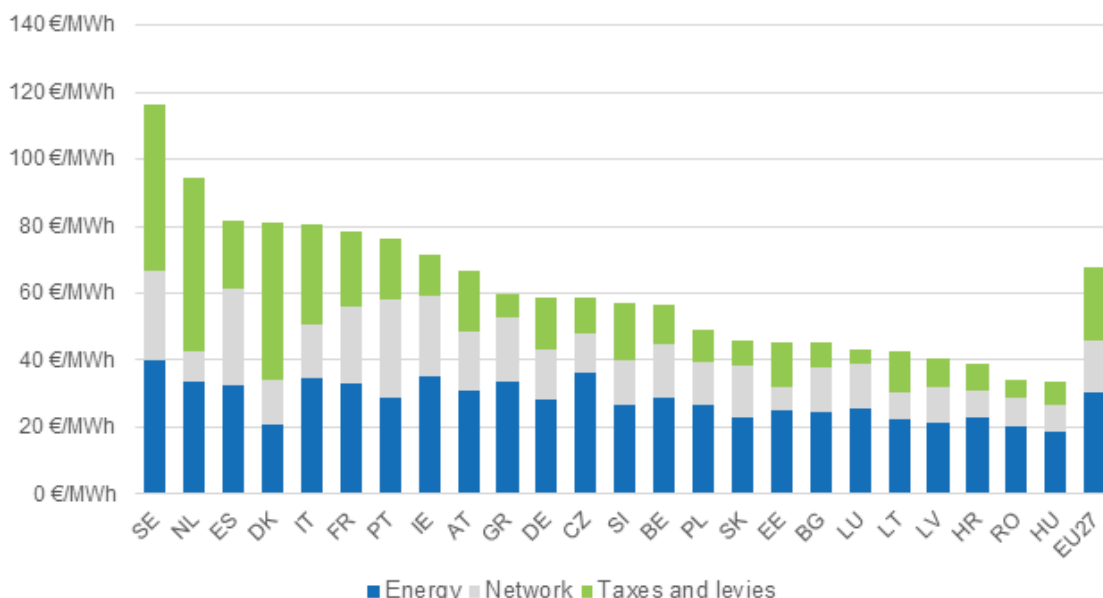
⁴⁶ COM(2020) 299 final.

States could consider the impact of taxes and levies on final energy prices to ensure that reforms and changes to price signals lead to a clean and fair energy transition in line with Green Deal objectives. Addressing distributional effects of final energy prices and, related, concerns on energy poverty will be instrumental in ensuring that the green transition is also socially fair.

The Energy Taxation Directive⁴⁷ does not achieve anymore its primary objective related to the proper functioning of the internal market. Minimum tax rates have lost their effect and divergent national rates are applied in combination with a wide range of tax reliefs. These exemptions and reductions are, de facto, forms of fossil fuel subsidies, and not in line with the objectives of the European Green Deal. The revision of the Directive aims to overcome those shortcomings.

The internal market has made good progress on completion in the **area of gas**. The rise in traded volumes on natural gas hubs continued into 2020, with traded volumes on European gas hubs recording a 32% year-on-year increase in Q1-2020 (up to 5010 TWh). Connectivity and access to different sources of gas also continue to improve. Only three markets in the EU had access to less than three sources of supply. Price convergence has improved in recent years and was highest in north-west Europe. However, at European level it declined in 2019, showing higher price differences between markets on more days during the year.

Overall, **retail gas prices** increased in 2019 compared to 2018. However, since they follow the evolution of wholesale prices with a slight time lag, they are likely to drop again in the near future. Gas prices for household consumers ranged from EUR 33/MWh in Hungary to EUR 116/MWh in Sweden. The average price for the EU was EUR 68/MWh. Consumers in Luxembourg spent the least on taxes and levies. In Denmark, the share of generation and supply costs was the lowest, while the taxation share was the highest. As for electricity markets, taxes/levies and network charges were stable or rose slightly, resulting in prices been driven by generation and supply costs changes.



⁴⁷ Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity (OJ L 283, 31.10.2003, pp. 51-70).

Figure 4. Household gas prices in 2019 (D2 band)⁴⁸

The EU's **energy import bill** highlights its reliance on fossil fuel imports and its exposure to volatile international markets. The import bill rose between 2016 and 2018, reaching over EUR 330 billion per year. This reverses the downward trend from the highest peak of 2013 (EUR 400 billion). The impact of the COVID-19 pandemic on energy prices will reduce the energy import bill in 2020. Prices are expected to rise as the economy picks up, but may need until 2021 to recover to 2019 levels.

Energy poverty

With nearly 34 million Europeans unable to afford to heat their homes adequately in 2018⁴⁹, energy poverty remains a major challenge in the EU. While this indicator evolved favourably on average in 2010-2018, there were significant differences in the pace of change across the EU. In Bulgaria, Latvia, Poland, Portugal and Romania, energy poverty has fallen significantly. On the other hand, Greece recorded a significant increase. While European **households' energy expenditure** fell in recent years, there are still sizeable differences between Member States in terms of both absolute expenditure and the share of energy in total household expenditure. In 2018, the poorest European households still spent 8.3% of their total expenditure on energy (up to 15-22% in some central and eastern European countries).

Adequate warmth, cooling, lighting and the energy to power appliances are essential for ensuring a decent standard of living and health.⁵⁰ The EU's policy efforts will continue in this field as the economic impact of COVID-19 may make the situation worse, especially for the poorest. Most Member States have presented an overview of energy poverty in their national energy and climate plans, with many providing indicators to analyse its impact. However, most of them have not yet adopted a systematic approach to addressing energy poverty. To support their efforts, the Commission has issued **a recommendation on energy poverty**⁵¹ together with this Communication. It also continues to support the EU Energy Poverty Observatory, which collects data, develops indicators and disseminates best practices for tackling energy poverty.

2.5. Research & innovation and competitiveness

Research & innovation

On **research & innovation (R&I)**, public and private spending trends in the EU are not encouraging. Member States are spending slightly less on clean energy R&I compared to previous years, while the EU's overall public R&I investment in clean energy technologies as a share of GDP is the lowest among major economies (see Figure 5). This mirrors a global trend. The International Energy Agency observes that public sector spending on low-carbon energy technologies was lower in 2019 than in 2012.

⁴⁸ COM(2020)951 based on Eurostat [nrg_pc_202_c].

⁴⁹ Eurostat, SILC [ilc_mdcs01].

⁵⁰ Related services also enhance social inclusion. The European Pillar of Social Rights places energy among the essential services to which everyone has the right to access.

⁵¹ C(2020) 9600.

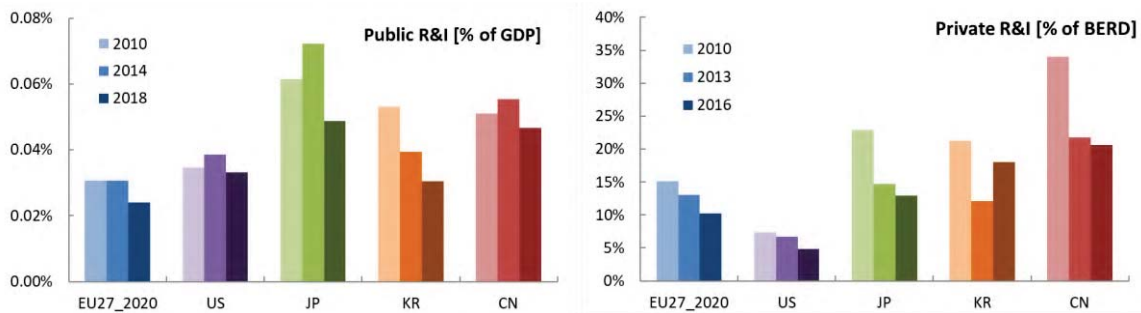


Figure 5. Estimated public⁵² and private⁵³ R&I financing in the Energy Union priorities. BERD = business expenditure on R&D. Source: JRC⁵⁴ based on International Energy Agency, Mission Innovation, Eurostat/OECD.

In line with these results, the overall patenting activity in clean energy technologies has also been declining since 2012, while patenting in high value technologies such as batteries and smart applications has been increasing.

The estimated private investment in Energy Union R&I priorities (spanning a number of business sectors) has been decreasing in recent years. Moreover, R&I investment in the activities set out in the European Strategic Energy Technology Plan, agreed between Member States, industry, the research community and the Commission, represents only 15% of the estimated needs up to 2030⁵⁵. In addition, few Member States have **national objectives** that would show appropriate pathways to 2030 and 2050⁵⁶. A range of support instruments is available to Member States, such as Horizon Europe, the Innovation Fund and Invest EU. The Green Deal call under Horizon 2020, with a budget of EUR 1 billion, is addressing key energy and system integration challenges. This includes the production of offshore and onshore energy, support for large-scale electrolyzers, and the use of clean energy in ports, airports a carbon-neutral industry, and energy and resource efficient building and renovation.

Competitiveness

The first competitiveness progress report⁵⁷ shows that EU industry has been successful in grasping the opportunity created by increased demand for clean energy technologies. The competitiveness of the sector is outperforming conventional energy source technologies with regard to value added, labour productivity, employment growth and penetration rates. Moreover, in terms of GDP, the clean energy sector is gaining importance in the EU economy, whereas the importance of conventional energy sources is decreasing.

⁵² This excludes EU funds. 2018 value; partly estimated for the EU-27.

⁵³ Private R&I estimates for China are particularly difficult to estimate due to differences in intellectual property protection and the difficulty in mapping the corporate structure (e.g. state-backed companies) and financial reporting.

⁵⁴ JRC SETIS <https://setis.ec.europa.eu/publications/setis-research-innovation-data>; JRC(112127) SETIS Research & Innovation country dashboards [Dataset] PID: <http://data.europa.eu/89h/jrc-10115-10001>, according to JRC(105642) Monitoring R&I in Low-Carbon Energy Technologies, and JRC(117092) Monitoring R&I in Low-Carbon Energy Technologies, Revised methodology and additional indicators.

⁵⁵ Source: Implementing the SET Plan, Publications Office of the European Union, 2019.

⁵⁶ COM(2020) 564 final.

⁵⁷ COM(2020) 953.

EU industry benefits from **a first mover advantage in wind, renewable hydrogen and ocean energy technologies**. However, the expected increase in capacity in these segments suggests that its structure will inevitably change.

Sustained efforts to catch up and build a competitive edge are also needed in areas where the EU does not have (or has lost) a first mover advantage. Solar and lithium ion batteries are particularly relevant given the projected increase in demand for them, their modularity and spillover potential to other applications such as the integration of solar power systems in buildings, vehicles or other infrastructure.

The Battery Alliance, as a showcase for industrial alliances, has proven how greater coordination between Member States, the research community and industry can provide the necessary impetus for industrial stakeholders to invest in producing clean technologies in the EU. It is time to extend this idea to other key technologies and business areas. Building on this successful blueprint, the Commission has launched a **European Clean Hydrogen Alliance** and a **European Raw Materials Alliance**.

Similarly, other key technologies such as smart grids are important as they create value for everything connected to the grid. The EU smart grid industry is expected to experience significant growth over the next decade.

Sustained efforts to ensure undistorted trade and investment in third countries are necessary, also in areas where the EU is strong in terms of competitiveness but increasingly confronted with distortions such as local content requirements and discriminatory domestic procedures. Considering that the vast majority of investments in green technologies will be outside the European Union, it is necessary to ensure the EU industry can compete on a level playing field and harness the jobs and growth potential of the European Green Deal.

Subsidies

There is a clear need to step up efforts to reduce subsidies from wasteful energy consumption and to promote the energy transition. Better data on energy subsidies are key to monitor this. Data on energy subsidies remains fragmented, with reporting in the national energy and climate plans largely incomplete. The Report on energy subsidies in the EU⁵⁸ indicates that **energy subsidies amounted to EUR 159 billion in 2018**, up by 5% compared to 2015. More than half of the subsidies support the clean energy transition.

As further detailed in the annex on energy subsidies, fossil fuel subsidies amounted to EUR 50 billion in the EU in 2018 (representing one-third of all EU energy subsidies), have been relatively stable over the past decade, with a peak of EUR 53 billion in 2012. They started to increase again in 2015, growing by 6% until 2018. However, some Member States such as Austria, Denmark, Estonia and Hungary went against this overall trend and reduced their fossil fuel subsidies significantly.

⁵⁸ See annex to this report.

2.6. The Energy Union in a broader Green Deal perspective

Just transition

The Energy Union objectives are clearly intertwined with the broader objectives of the Green Deal. This is the case for the ‘just transition’ and the principle of making sure no one is left behind.

To this end, the Commission proposed the **Just Transition Mechanism, including the Just Transition Fund**, which addresses economic and social costs of the climate **transition** in the most vulnerable coal, lignite, oil shale, peat and carbon-intensive regions. A **dedicated just transition scheme under InvestEU** programme is available under the Just Transition Mechanism and a **public sector loan facility** also will support public sector investments relevant for a just transition. As a precondition for unlocking these funds, for example to support economic modernisation and diversification, reskilling and upskilling⁵⁹ or small-scale investments in clean energy transition, Member States need to prepare territorial just transition plans aligned, among other, with their national energy and climate plans.

Territorial just transition plans are also relevant in the context of the Recovery and Resilience Facility. To assist stakeholders, the Commission has created the **Just Transition Platform** to provide information on the funding opportunities, updates on regulations, and facilitate the exchange of best practices and sector-specific initiatives. It will build on and expand the work of the existing initiative for coal regions in transition⁶⁰ offering tailored, needs-oriented assistance and capacity building. The initiative for coal regions in transition will keep its role in advising the fossil fuel regions as one of the two workstreams under the platform.

Air quality

Air quality continues to improve, but is still a concern in several regions and cities.

Joint efforts by the EU and Member States have led to decreases in air pollutant emissions in the EU in recent decades, with the notable exception of ammonia. This has led to a decrease in the number of air quality zones exceeding EU limit values for particulate matter, and a decrease in the estimated number of premature deaths caused by air pollution from around 1 million per year in 1990 to around 400,000 per year in the latest estimates⁶¹.

Air pollution also brings social costs as those with lower incomes tend to be more affected because of both greater exposure and higher vulnerability. In general, EU regions with the lowest GDP per capita experience higher exposure to concentrations of fine particulate matter than other regions⁶². Furthermore, energy poverty is linked to the

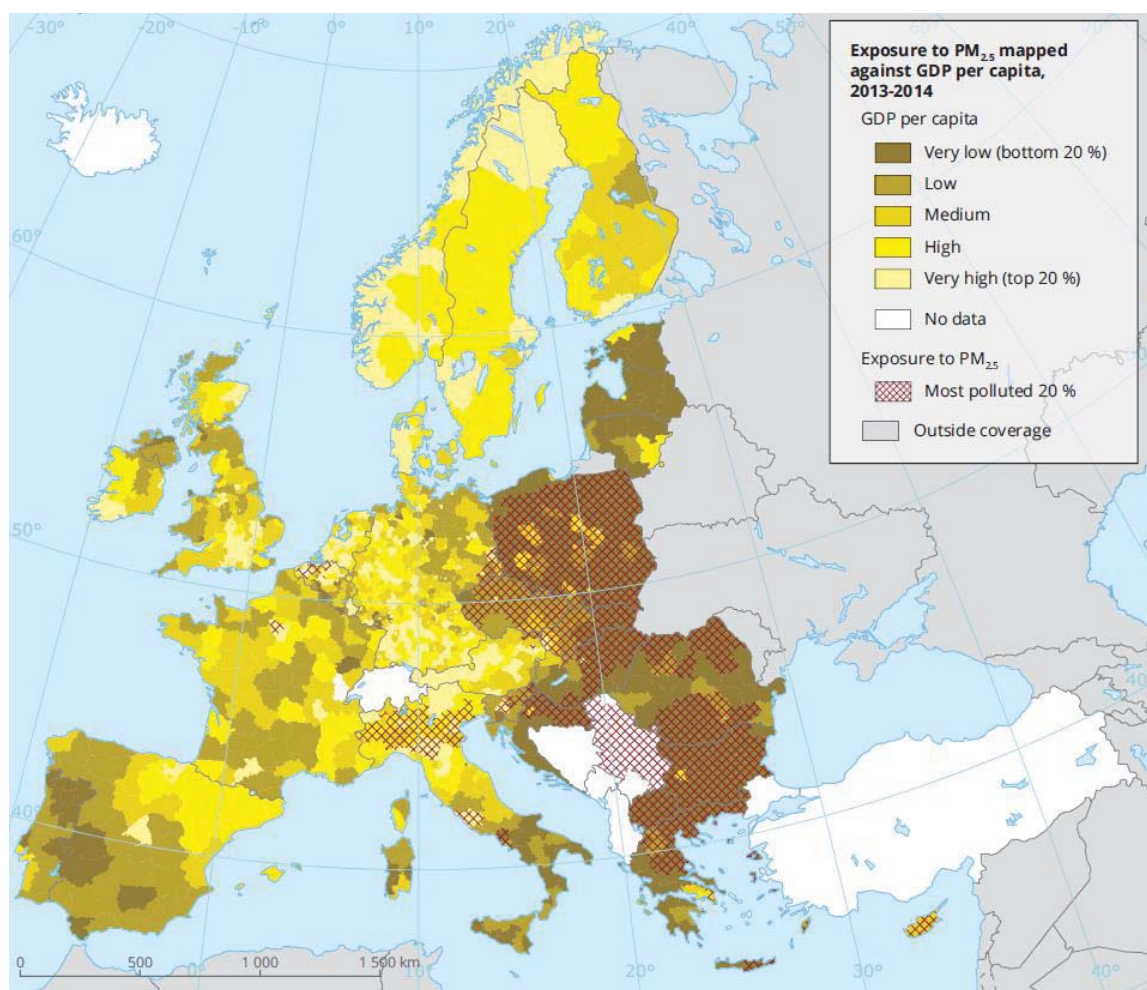
⁵⁹ Related, the updated European Skills Agenda (COM(2020) 274 final) addresses the skilling needs of the green transition. Youth Employment Support (COM(2020) 276 final) addresses help for young people to harness opportunities arising from the green transition. The European Social Fund (ESF+) will remain an important funding source for up- and reskilling activities.

⁶⁰ https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/initiative-for-coal-regions-in-transition_en

⁶¹ European Environment Agency, 2020. ‘Air Quality in Europe – 2020 Report’, EEA Report (forthcoming).

⁶² SWD(2019) 427 final.

use of solid fuels for residential heating and cooking, leading to poor indoor and ambient air quality⁶³.



Map 1. European Environment Agency, 2018. *Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe. Report 22/2018.*

Structural changes induced by Energy Union policies have helped reduce the sector's air pollutant emissions: in particular, through increased energy efficiency in buildings, steps towards the phasing-out of coal and the development of non-combustible renewable energy and more sustainable means of transport⁶⁴. The European Green Deal also sets out a zero-pollution ambition for a toxic-free environment, with the objective to remedy pollution better.

⁶³ European Environment Agency, 2020. 'Healthy environment, healthy lives: how the environment influences health and well-being in Europe', EEA Report 21/2019

⁶⁴ COM(2018) 446 final/2 and 'Renewable energy in Europe 2019 - Recent growth and knock-on effects', Eionet Report ETC/CME 2019/8.

International dimension

Despite global efforts, the latest scientific evidence shows that greenhouse gas emissions continue to increase. While the next United Nations Climate Change Conference has been postponed until 2021⁶⁵, 2020 remains a crucial year for raising climate ambition across the globe.

Thanks to strategic partnerships to implement the Paris Agreement, the EU helps its partners translate their vision for a low-emission and climate-resilient economy into actionable policies and measures, including in the field of energy. On the diplomatic front, the EU has organised ministerial meetings with China and Canada on climate action and carried out several targeted demarches through the EU Delegations in non-EU countries. It is also working closely with G7 and G20 presidencies and partners to promote the global climate agenda and is placing increased emphasis on supporting the efforts of the EU's immediate neighbours in the Western Balkans, in the context of the Eastern Partnership, the Southern neighbourhood and Africa. Some progress has also been made in recent years at international level on addressing aviation and maritime emissions. Action on emissions from maritime and aviation is urgently needed considering their respective growing contributions to greenhouse gas emissions, in the EU and globally.

The EU also promotes clean energy investments in partner countries, constituting business opportunities for pioneering European low-carbon industries. These investments also strengthen the EU's global leading role in clean energy technology, promoting exports, and boosting growth and jobs in the EU.

Multilaterally, the EU promoted international cooperation on renewables in the framework of the International Renewable Energy Agency and on clean technology development and deployment in the framework of the Clean Energy Ministerial and Mission Innovation⁶⁶. The EU is actively involved in the negotiations to modernise the Energy Charter Treaty and has tabled substantive, comprehensive and ambitious proposals that aim at updating the Treaty's provisions on investment protection and aligning the Treaty with the long-term objectives of the Paris Agreement and EU's energy transition policies.

The EU's international engagement has contributed to diversifying Europe's sources of energy and ensuring energy security. The EU maintains a regular energy dialogue with key energy suppliers and partners bilaterally⁶⁷ and through multilateral platforms⁶⁸ seeking also to ensure a liquid and flexible global liquefied natural gas (LNG) market. At the end of 2019, the European Commission has facilitated the successful conclusion of talks between Ukraine and the Russian Federation, allowing the continuation of transit of natural gas from Russia via Ukraine.

⁶⁵ https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_20_583

⁶⁶ EU Member States that have joined the Mission Innovation initiative (Austria, Denmark, Finland, France, Germany, Italy, Netherlands, Sweden) and the European Commission have increased their funding in the mission innovation clean energy research and development focus areas by EUR 1 Billion between 2016 and 2019.

⁶⁷ e.g. with Norway, the U.S., Algeria, Egypt, Azerbaijan, Gulf countries, Japan, Canada, Korea, Eastern Mediterranean countries.

⁶⁸ e.g. G7, G20, IEA, OPEC, Union for the Mediterranean.

Through the Energy Community, the EU has continued to assist contracting parties to adopt key elements of the EU's energy and climate acquis and to allow for further market integration with the EU. Work is continuing on the development, by Contracting Parties, of National Energy and Climate Plans and on the identification of 2030 energy and climate targets.

Ensuring nuclear safety beyond the European Union's borders has been a key area of attention for the European Commission. Technical experts from the European Nuclear Regulators Group and the Commission carried out a peer review of the implementation of Armenia's and Belarus' nuclear stress test action plans.

The EU has demonstrated its continued commitment to the implementation of Annex III of the Joint Comprehensive Plan of Action on civil nuclear cooperation with Iran. The EU has implemented a number of activities focusing on safety and integration of Iran into the international nuclear legal framework and aims to enhance also clean energy and climate cooperation.

3. PURSUING GREEN RECOVERY AND A SUSTAINABLE ECONOMY

The Green Deal, adopted in December 2019⁶⁹, supports the EU's transition to a fair and prosperous society that responds to the challenges posed by climate change and environmental degradation, improving the quality of life for current and future generations and pursuing a just transition.

From the outset of the COVID-19 crisis, the Commission has put the green transition at the core of the EU's Recovery Plan. Accelerating the green transition will strengthen Europe's competitiveness, resilience and position as a global player. In the context of the European Green Deal, dedicated measures are taking shape in energy, industry, farming, food and biodiversity (box 2). Other important initiatives to steer Europe's decarbonisation in energy and transport are expected by the end of 2020.

Box 2. Sample of initiatives since 1 December 2019

- Communication on the European Green Deal (COM(2019) 640)
- Proposal for a European Climate Law (COM(2020) 80)
- European Green Deal Investment Plan (COM(2020) 21)
- Proposal for a regulation establishing the Just Transition Fund (COM(2020) 22)
- A European strategy for data (COM/2020/66 final)
- Circular Economy Action Plan (COM(2020) 98)
- Farm to Fork Strategy (COM(2020) 381)
- EU Biodiversity Strategy for 2030 (COM(2020) 380)
- Proposal for a regulation establishing the InvestEU programme (COM(2020) 403)
- Communication on stepping up Europe's 2030 climate ambition (COM(2020) 562)
- EU-wide assessment of final national energy and climate plans (COM(2020) 564)
- Amended proposal for a European Climate Law (COM(2020) 563)
- Communication on energy system integration (COM(2020) 299)
- A hydrogen strategy for a climate-neutral Europe (COM(2020) 301).

⁶⁹ COM(2019)640 final.

- Communication on an EU strategy to reduce methane emissions (COM(2020) 633)
- A renovation wave for Europe (COM(2020) 662, SWD(2020) 550)
- Strategy for sustainable and smart mobility (forthcoming)

Alongside this State of the Energy Union report and the EU-level assessment of national energy and climate plans⁷⁰, the Commission is publishing the **country-specific assessment** of the 27 integrated final national energy and climate plans. These documents⁷¹ assess whether and how the national objectives, targets and contributions will help collectively achieve the goals of the Energy Union strategic framework. The assessment also focuses on the extent to which Member States have taken account of the recommendations that the Commission issued in June 2019⁷². **The national energy and climate plans are the basis for a continued iterative process** between the EU and its Member States. As such, the assessment invites Member States to take further action in several domains. The shortcomings and remaining gaps will have to be addressed through a collective effort both by Member States and at EU level. EU-level policy measures will strengthen and complement actions at national level.

3.1. Transforming the EU's energy system

To achieve deep decarbonisation in all sectors of the economy, the EU needs to ensure that its energy system undergoes a profound transformation. To this end, the Commission adopted an **EU strategy on energy system integration** in July 2020⁷³. It outlines the Commission's vision to accelerate the transition towards a more integrated energy system and to ensure coordinated system planning and operation. In July 2020, the Commission also adopted a **hydrogen strategy**, setting out its vision to significantly increase the role of clean hydrogen as an energy carrier⁷⁴. This includes the path towards ensuring that renewable and low-carbon hydrogen and hydrogen-derived synthetic fuels becomes cost-competitive. Together with the hydrogen strategy, the Commission also launched the European Clean Hydrogen Alliance.

The new climate ambition and the profound changes necessary in the functioning of the EU's energy system also require a new vision for the EU's energy infrastructure. The Commission is therefore revising the guidelines for the **Trans-European Networks for Energy**⁷⁵. While the focus will remain on electricity infrastructure that is necessary to integrate renewable energy, it will also set up a framework to further improve the deployment of innovative technologies and infrastructure, such as smart grids, hydrogen networks or integrated offshore grids. This will play also an important role for the transition to sustainable and smart mobility in the EU.

⁷⁰ COM(2020) 564 final.

⁷¹ SWD(2020) 900 to 926.

⁷² C(2019) 4401 to C(2019) 4428.

⁷³ COM(2020) 299 final.

⁷⁴ COM(2020) 301 final.

⁷⁵ Regulation (EU) 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure. The public consultations closed on 13 July 2020, and the Commission is currently working on the proposal.

3.2. Stepping up climate ambition

Updating the policy framework

In view of the EU's ambition to become climate neutral by 2050, the Commission adopted a Communication in September 2020 on stepping up Europe's 2030 climate ambition⁷⁶ and an amended proposal on the European Climate Law⁷⁷ to increase the EU's climate ambition for 2030 from at least 40% of greenhouse gas emission reductions compared to 1990 to at least 55% including emissions and removals. The Communication also outlines the actions required across all sectors of the economy and launches the process of reviewing the key legislative instruments by June 2021 in order to achieve this increased ambition. It is also working on new rules for fluorinated greenhouse gases and for ozone depleting substances, to be presented by the end of 2021.

The Green Deal also announced the adoption of a new, more ambitious **EU strategy on adaptation to climate change**. Climate change impacts are already felt in the energy sector, e.g. the less predictable production of hydropower or even the closing of certain nuclear power plants due to low availability of cooling water during severe droughts⁷⁸. There are massive challenges ahead⁷⁹.

Moreover, the Green Deal includes the **European Climate Pact**. It aims to engage individuals and communities in climate action. Building on existing initiatives, the Climate Pact will provide a space to design new climate action, share information, launch grassroots activities and to present solutions that others can follow.

The Commission has also adopted a Communication on an **EU strategy to reduce methane-related emissions**. The strategy will deliver proposals to help achieve reductions in methane emissions in the EU as well as promote and support similar action across the globe. It covers all the main methane-emitting sectors of agriculture, energy and waste. On the energy side, the strategy focuses on improved measurement, robust and transparent reporting and credible verification of methane emissions.

The increased climate ambition requires unprecedented growth of renewable energy production. As announced in the Green Deal, offshore renewables will play a key role in this. To facilitate this process, the Commission will adopt its strategic vision for **offshore energy** produced from natural and clean sources such as wind, solar, wave and tidal in autumn 2020.

Sustainable alternative fuels also will contribute to the transition to a more sustainable transport system. The Commission will soon put forward a strategy for sustainable and smart mobility and is working on initiatives to boost the supply and uptake of sustainable alternative fuels, notably in airborne and waterborne transport.

Overview of Member States' submissions for long-term decarbonisation strategies

All parties to the Paris Agreement were invited to communicate, by 2020, their mid-century, long-term low greenhouse gas emission development strategies. Setting out a process for the Member States to prepare these strategies, the Governance Regulation

⁷⁶ COM(2020) 562.

⁷⁷ COM(2020) 563.

⁷⁸ <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/water-energy-nexus-europe>

⁷⁹ <https://ec.europa.eu/jrc/en/peseta-iv/energy-supply>

requires them to prepare and submit to the Commission, by 1 January 2020, their long-term strategy with a perspective of at least 30 years.

Only 16 Member States⁸⁰ have submitted a long-term strategy so far. Thirteen of those refer explicitly or implicitly to climate neutrality⁸¹, while the other three aim to cut their emissions from 80% to 95% compared to 1990. However, a clear definition of the term used for the overall goal is often lacking, and it is often not clear whether the targets that Member States set are legally binding. Mandatory content reporting also varies between Member States. As a result, the Commission cannot yet provide a detailed assessment of whether the national long-term strategies will be enough for the collective achievement of the EU climate neutrality objective, or provide information on any collective gap.

3.3. Energy and climate policies critical to recovery

The COVID-19 crisis has had a significant impact on the EU economy. However, it has not changed, in a structural way, the **investments** and reforms needed to achieve our increased climate ambition. The challenge of mobilising significant additional investments and promoting a just transition is real. In the context of the COVID-19 recovery, Europe faces a unique opportunity for investments that can support the recovery of the EU economy, while accelerating the green and digital transitions. Relaunching our economies on any other path, which would result in lock-in into unsustainable practices, is simply not an option.

The **EU recovery plan** and the Recovery and Resilience Facility as its key instrument will play a crucial role in these investments and reforms. It will provide financial support through EU financing programmes to reforms and investments undertaken by Member States to mitigate the economic and social impacts of the pandemic and to make the EU economies more sustainable, resilient and better prepared for the challenges posed by the green and digital transitions. In addition, cohesion policy will be crucial for a balanced recovery and making sure no one is left behind.

Member States will identify and report on reforms and priority investments. In view of the 30% climate mainstreaming target agreed at the European Council's meeting of July 2020⁸², the Commission invited Member States to ensure, for each recovery and resilience plan, that a minimum of 37% of climate-related expenditure is included. In the 2021 Annual Sustainable Growth Strategy⁸³ the Commission strongly encourages Member States to include, in their plans, reforms and investment in a limited number of flagship areas in order to address common challenges through a coordinated approach and reap tangible benefits for the economy and citizens. These include the '**Power up**' flagship frontloading future-proof clean technologies and in particular renewables and hydrogen; the '**Renovate**' flagship to improve the energy and resource efficiency of buildings; and the '**Recharge and refuel**' flagship to accelerate the use of sustainable,

⁸⁰ Austria, Czechia, Denmark, Estonia, the Netherlands, Sweden, Belgium, Finland, France, Germany, Greece, Hungary, Latvia, Lithuania, Portugal and Slovakia, available at: https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/long-term-strategies_en.

⁸¹ A few Member States refer to carbon neutrality instead of climate neutrality, but include non-CO₂ greenhouse gases in their objective.

⁸² European Council conclusions of 21 July 2020, EUCO 10/20.

accessible and smart transport, charging and refuelling stations and the extension of public transport.

In doing so, Member States should build on their national energy and climate plans. They should provide early indications in their recovery and resilience plans on how they will ensure consistency and complementarity and how specific investments or policies and measures set out in national energy and climate plans could be fast-tracked with the help of the recovery and resilience plans.

In support of this, the individual assessments of the national energy and climate plans provide important guidance for Member States on **key energy and climate-related investments and reforms** that could contribute to a sustainable and green recovery across the EU. The Commission invites Member States to consider such guidance. The Commission is engaging in a dialogue on these priority areas with Member States in the context of discussions on recovery and resilience.

Buildings are responsible for around 40% of energy consumption and 36% of greenhouse gas emissions in the EU. Most existing buildings are likely to still be in use in 2050. We therefore have no time to lose in renovating them and making them more energy efficient to become climate neutral by 2050. This is why the Commission has adopted a Communication on the **renovation wave for Europe**⁸⁴, aiming to at least double the annual energy renovation rate of residential and non-residential buildings by 2030 and to foster deep energy renovations. Investing in energy-efficient buildings will reduce energy poverty and increase well-being. It will also create a much needed stimulus for the construction and renovation ecosystem, which has been hard-hit by the COVID-19 crisis.

Making it easier to renovate buildings, in particular for low-income households, is key to ensuring a just transition. **Cohesion policy** will remain an important EU funding source for direct investments into the energy efficiency of buildings and their renovation to better energy performance levels. However, more will be needed. The Just Transition Fund described above will mobilise funds in EU regions where extra effort will be needed to transition to a climate-neutral economy by 2050.

Furthermore, the new ETS financing mechanisms (Innovation Fund and Modernisation Fund) will provide an additional EUR 24 billion for the demonstration of innovative low-carbon technologies across the EU and the modernisation of energy systems in beneficiary Member States. The Commission has already launched the first call for the Innovation Fund, while the Modernisation Fund will start operation in 2021.

National recovery and resilience plans are a once-in-a-generation opportunity to ‘build back better’ and invest in an economic model that is fit for the 21st century. Beyond the EU, governments around the world will also seek to invest heavily in order to support economic recovery⁸⁵. The investment needed to kick-start their economies must relieve the burden on future generations, not make it heavier. The EU is fully engaged with its international partners to put in place green recovery strategies and direct investment in environmentally sustainable economic activities.

⁸⁴ COM(2020) 662, SWD(2020) 550.

⁸⁵ The International Monetary Fund estimated in April 2020 that governments around the world would spend around EUR 10 trillion in the next 2 years just to support recovery. <https://www.imf.org/en/Publications/FM/Issues/2020/04/06/fiscal-monitor-april-2020>

4. CONCLUSION AND OUTLOOK

The Energy Union is, more than ever, an essential pillar for achieving the Green Deal objectives. **The integrated planning framework set out in the Governance Regulation, overall, has been implemented well.** The Energy Union framework has proven to be robust in the face of the significant stress caused by the COVID-19 crisis, with wide departures from normal consumption patterns testing the resilience of our energy system. Overall, this can support the EU's transition to climate neutrality by 2050.

And yet there is no room for complacency. The following months will be crucial, and the Commission will support Member States fully in **developing robust and future-proof national recovery and resilience plans to propel Europe forward in a sustainable and socially fair way.** Its support will **build on the guidance issued to Member States as part of its assessment of the individual national energy and climate plans** and rely on the **European flagships identified as part of the 2021 Annual Sustainable Growth Strategy** in the context of the Recovery and Resilience Facility.

Against this background, efforts to reduce support for wasteful energy consumption and redirect it towards measures that promote the clean energy transition need to be stepped up without delay. **As outlined in the European Green Deal, fossil fuel subsidies should end.** To foster action and promote the efficient use of allocations under the Recovery and Resilience Facility, the Commission will cooperate with Member States to **reinforce action to reduce fossil fuel consumption and to phase out fossil fuel subsidies.** This includes actions announced in the Communication “An EU-wide assessment of National Energy and Climate Plans”⁸⁶.

Moreover, the Commission will **initiate efforts to counter the observed decrease in research and innovation investments at national level** in order to strengthen the long-term sustainable growth potential. This includes combining **public and private funding across the value chain through industrial alliances**, such as on batteries or hydrogen. In the upcoming discussions with Member States, industry and stakeholders, the Commission will **focus on industries and innovators in the EU that will develop the clean technologies** needed and can promote them worldwide.

The **Commission will continue to work closely with Member States and propose specific solutions** where efforts are still needed to implement agreed legislation. This includes, for instance, the EU Renewable Development Platform and the EU renewable energy financing mechanism. Beyond the already agreed legislation, the **initiatives being launched today on buildings and methane complement our efforts to step up Europe's 2030 climate ambition.** They will be followed by initiatives on offshore energy and trans-European energy infrastructure later this year.

Drawing on broad public debate and consultation process, the Commission will prepare the **key legislative proposals by June 2021.** This will pave the way for swift adoption in order to achieve the increased climate and energy ambition for 2030 and to contribute to the objectives of the European Green Deal.

The Governance Regulation conceived the State of the Energy Union report as the **basis for the European Parliament and the Council to address the progress achieved and**

⁸⁶ COM(2020) 564 final.

for discussions with all interested parties. More than ever, this dialogue is crucial this year.