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

**Stepping up Europe's 2030 climate ambition**

**Investing in a climate-neutral future for the benefit of our people**

{SEC(2020) 301 final} - {SWD(2020) 176 final} - {SWD(2020) 177 final} -  
{SWD(2020) 178 final}

# The 2030 Climate target plan

## 1. ADDRESSING THE CLIMATE CRISIS WITH INCREASED RESOLVE

The climate crisis remains the defining challenge of our time. The past five years were the warmest on record. Global average temperature increased by 1.1°C above pre-industrial levels by 2019. The impacts of global warming are beyond dispute, with droughts, storms, and other weather extremes on the rise. We must take urgent and sustained action to preserve the health, prosperity, and well-being of people in Europe and all over the world. The recent reports of the IPCC on climate change and 1.5°C global warming, land, ocean and cryosphere underlined the dire impacts if climate change would not be halted. EU citizens are increasingly, and rightly, worried. Nine out of ten see climate change as a serious concern. The EU leads the global fight against climate change and the Commission is determined that the EU takes further action now.

The President of the Commission has made the European Green Deal<sup>1</sup> the top political priority, with the aim of transforming the EU into a fair and prosperous society with a modern, resource-efficient and competitive economy. We need to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from climate- and environment-related risks and impacts and ensure an inclusive transformation based on a just transition so as to leave no one behind. Today, the Commission sets our continent on a sustainable path to make this a reality and achieve climate neutrality by 2050.

The world is currently experiencing a health crisis with an unprecedented socio-economic impact. This requires urgent attention, but our efforts to tackle one crisis must not hasten or worsen another. Postponing climate action or rolling back measures is not an option for the European Union. If left unchecked, the unfolding climate crisis will have existential consequences for our natural environment, our health, and our livelihoods way beyond the scale of the current health crisis. The long-term economic disruptions and adverse social consequences resulting from inaction would far outweigh the costs of investing in ambitious climate action today.

The unprecedented European economic response to COVID-19 offers a unique opportunity to accelerate the transition to a climate-neutral economy investing in the necessary transformation and ensure it takes place in a just and socially fair manner. Next Generation EU and the Multiannual Financial Framework for 2021-2027, with their combined weight of over 1.8 trillion euros, provide significant firepower to help deliver the twin green and digital transitions that Europe aspires to. Effectively addressing the economic crisis while reaping the gains from accelerating the shift to a clean and sustainable economy requires that these ambitions are also fully transcribed in Member States' Recovery and Resilience Plans.

In the coming decade, the EU will continue building on a strong track record of climate action and parallel economic growth. In 2019, EU emissions, including removals, were down by an estimated 25% compared to 1990, while over the same period the economy has grown by 62%. This proves that we can tackle climate change and ensure sustained economic growth and job creation at the same time. The Impact Assessment accompanying this Communication demonstrates that an emissions reduction of 55% by

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<sup>1</sup> COM(2019) 640 final

2030, compared to 1990 levels, is both economically feasible and beneficial for Europe, with proper policies in place.

The EU's current policy framework alone would not allow us to reach our 2050 goals and meet our commitments under the Paris Agreement. Projections show that simply continuing to implement the legislation currently in force would see the EU achieving a 60% reduction of greenhouse gas emissions by 2050. The EU needs to raise its ambitions for this decade now and avoid leaving a heavier workload for future generations. The less action the EU takes in the next ten years, the steeper and more challenging the reduction path after 2030.

The Commission therefore proposes to change the current emissions reduction pathway to reach climate neutrality by 2050 and reflect this in the proposal for the European Climate Law.

In the Impact Assessment and a broad consultation process conducted over the past year, the Commission has thoroughly examined the effects on our economy, society and environment of reducing emissions by 50% to 55% by 2030, compared to 1990 levels. The Impact Assessment has carefully considered the mix of policy instruments available and how each sector of the economy can contribute to these targets. A balanced, realistic, and prudent pathway to climate neutrality by 2050 requires an emissions reduction target of 55% by 2030.

The present Communication therefore:

1. Presents an EU-wide, economy-wide greenhouse gas emissions reduction target by 2030 compared to 1990 of at least 55% including emissions and removals.
2. Previews a set of actions required across all sectors of the economy and the launch of revisions of the key legislative instruments to achieve this increased ambition.
3. Prepares the ground for a public debate in autumn 2020 to increase the EU's contribution to the Paris Agreement before the end of the year and set the stage for the Commission to make detailed legislative proposals by June 2021.

The EU can and should set itself a 55% target based on the following three key considerations.

First, large emissions reductions have come from closing coal power stations and cleaning up of energy-intensive industry, while it proved harder to reduce emissions from transport and agriculture and in buildings, where particular challenges exist. Yet, reaching climate neutrality requires to significantly step up EU action in all sectors. Long lead-times in crucial sectors such as land use and transport require action to be stepped up already over the coming decade, otherwise the changes required after 2030 would have to happen unrealistically fast.

Secondly, risks of carbon lock-in in the coming decade are too high. This is due to the current legislative set-up as well as a natural short-termism in economic decisions in the midst of the COVID-19 crisis. Clearer and stronger investment signals are urgently needed for today's investment planning and decisions to be coherent with the transition to climate neutrality.

Finally, science indicates that climate risks are firmly on the downside. Recent IPCC special reports found greater risks at lower temperatures of Earth system tipping points than in its 5<sup>th</sup> assessment report, such as a slowdown of the Gulf Stream or instability of the Greenland and West Antarctic ice sheets. The climate crisis is also intrinsically linked with the global loss of biodiversity and solutions must address consistently both challenges. The only responsible course of action is therefore to move now when we still have the freedom to choose how, instead of inching forward until it may be too late.

We have a responsibility to act decisively in the interest of future generations. If the EU shows that it can be done, many governments and citizens around the world will see that growing prosperity can be combined with a pathway that limits global climate change to well below 2 °C and pursues efforts to limit it to 1.5 °C, safeguarding the future of our planet. Yet, even with global action, some of the adverse effects of climate change will continue. That is why the EU is also pursuing its efforts on climate change adaptation, in Europe and globally. Finally, achieving climate neutrality in Europe requires investing in technologies, business models, skills, infrastructures and changes in behaviour. The green transition will modernise our economy, make it more innovative, circular and resilient and sustain its global competitiveness and prosperity in the years to come.

## **2. THE ECONOMIC AND SOCIAL BENEFITS OF INCREASED CLIMATE AMBITION**

On the basis of the analysis carried out in its Impact assessment, the Commission concludes that achieving 55% greenhouse gas emissions reductions by 2030 would not only put the EU firmly on track to achieve climate neutrality, but would also make EU business and industry global trailblazers. The analysis also confirms that this increase of greenhouse gas emissions reductions target is possible in a responsible and socially fair manner. It can spur sustainable economic growth and accelerate the clean energy transition, while adverse social consequences need to be addressed and adequate policies be deployed both at EU and Member State level. Achieving 55% greenhouse gas emissions reductions by 2030 would also improve the wellbeing of EU citizens by delivering significant co-benefits in terms of health, improved air quality and reduced environmental degradation, and it would strongly support the COVID-19 recovery and the longer-term competitiveness and resilience of the European economy.

Reaching a 55% emissions reductions target will be a significant investment challenge for EU industry, services, transport, and energy sectors. However, the return on investment from meeting this challenge is nothing less than the ability for EU businesses to compete and our citizens to prosper. The COVID-19 crisis has severely hit the EU economy. It has not significantly altered the investments needed to reach an increased 2030 greenhouse gas emissions reduction target, but, likely, worsened the conditions for such investments to take place, which has to be countered by strong policy initiatives on EU and national level. The EU recovery plan, with its recovery and resilience facility, is critical for these investments underpinning the green transition to happen. Despite net greenhouse gas emissions in 2020 being estimated to drop to 30 to 35% below 1990 levels, the economic rebound from the COVID-19 crisis is also estimated to bring emissions back to previous levels, unless additional action is taken. The dial has not been reset on global warming. To achieve climate neutrality by 2050, over the coming decade we will still need to construct new wind turbines, clean our industries and renovate buildings to make them energy- and resource-efficient. For this purpose, we will need to enable EU companies to get into the pole position developing, deploying and commercialising low-carbon solutions. Mobility will still have to be made substantially cleaner, with zero emissions vehicles well on their way to replace conventional ones, strong development of public transport and greater use of sustainable transport modes

and multi-modal solutions through a large and well-integrated range of clean mobility options. Digital technologies will be key part of making sure the EU reaches climate neutrality and strengthens its competitiveness globally. The digital and green transitions must be made mutually reinforcing.

The EU multiannual budget, together with the Next Generation – EU, will dedicate at least 30% of its firepower to climate-relevant spending, and all expenses will be consistent with the Paris Agreement and respect the “do no harm” principle. National recovery and resilience plans and related spending will have to effectively contribute to the green and the digital transitions or to addressing the challenges resulting from them. Targeted use of these funds can trigger significant private sector investments. We must combine recovery spending with ambitious climate action to avoid wasted money and stranded assets, leading to additional resource needs later on. In short, in times of increasingly scarce liquidity, we should not invest in the old carbon-fuelled economy by reflex, but encourage investment in innovative and low-carbon technologies, making Europe a modern and green economy. We must save and create new jobs and incomes not only for months or years but for decades.

The recovery as well as the greening of our economy can also benefit from structural policies and policy reforms that incentivise competition in product markets, address the matching of skills and deliver the necessary education and training.

A key feature of the green transition is upgrading the EU’s capital stock, requiring higher upfront investments, with associated fuel savings that over time will pay back the initial investments. Energy-related investments need to increase. Annually in the period 2021-2030 the EU will need to invest € 350 billion more than it did in the period 2011-2020, an increase of around € 90 billion per annum compared to the investments needed to achieve current 2030 climate and energy targets. In addition to public support, the sustainable finance initiative will guide private investments towards green recovery. The EU taxonomy the EU Green Bond Standard and climate benchmarks will be essential tools to bring finance closer to the needs of the real economy.

Considering our large domestic market, accelerating the transition will help modernise the whole EU economy, increasing the opportunities for our clean technologies leadership and for gaining competitive advantage on the world markets. Developing new value chains and expanding others will also improve the open strategic autonomy of Europe’s industrial ecosystems. This will contribute to moving to a truly circular economy, which together with digitalisation, will be at the heart of the modernisation required to improve the overall efficiency and resilience of the European economy.

Our citizens want to live in a modern, sustainable, fair and resilient Europe. They are crucial partners in the fight against climate change, and can support it through political mobilisation and consumer choices. They can greatly contribute to decarbonisation by making more sustainable purchase decisions and lifestyle choices, but need to be assisted by actionable and reliable information.

Buildings and transport are, alongside industry, the main energy users and source of emissions. Decarbonising both energy supply and demand is key to becoming climate-neutral and can actually be achieved while enhancing the well-being of our citizens drawn from transport and housing

Increasing our 2030 climate ambition in the buildings sector can and should be socially just and fair. For example, low-income households bear a higher burden of heating

expenses compared to wealthier households. The use of highly polluting fuels like coal is also more common among lower income households and particularly high in specific regions in Europe. They may thus be more negatively impacted by the transition, in particular if emitting carbon becomes more costly and low-carbon solutions are not available to them. In order to avoid negative impacts on vulnerable consumers, social and energy efficiency policies are important to target the renovation of their houses and keep the impact on their heating and electricity bills in check.

Renovating Europe's buildings not only lowers energy bills and greenhouse gas emissions, but it also improves living conditions and creates local jobs. The forthcoming Renovation Wave will address the twin challenge of energy efficiency and affordability in the building sector. It will focus on the worst performing buildings and tackle the energy poverty as well as on public buildings, notably schools, hospitals and care facilities. When renovating, particular attention will be required as regards financing the up-front investments and the capacity of households to manage them. In particular, targeted support for energy efficiency investments of lower-income households and for social housing will be needed. We must therefore devise policies, earmark budgets, and propose different and innovative ways to organise the greening of houses and mobility, whilst helping vulnerable social groups. The Commission's Impact Assessment shows that a 55% cut in emissions achieved through increased use of carbon pricing, while recycling revenues to low income households can address income impacts for these households and at the same time still stimulate a switch to low-carbon technologies. Clean and efficient private and public transport will bring major benefits to individual citizens and communities. Increasing the modal shares of public transport and active mobility, namely walking and cycling, as well as automated, connected and multimodal mobility, combined with more stringent air pollutant and CO<sub>2</sub> emissions standards for vehicles, will drastically lower pollution from transport, especially in cities.

Our citizens have a lot to gain through ambitious and decisive climate action. Reducing greenhouse gas emissions improves living conditions and health, can create employment, and lowers energy bills.

Climate change and energy policies supports clean air policy in improving the health of EU citizens. This matters particularly in a number of Central and Eastern European Member States suffering from relatively high pollution levels. Achieving 55% greenhouse gas emissions reductions could contribute to further decrease air pollution, reaching a total reduction of 60% by 2030 compared to 2015. This would reduce health damages compared to 2015 levels by at least € 110 billion. Increased climate action would additionally reduce air pollution control costs by at least € 5 billion in 2030 and contribute to mitigating other environmental concerns like acidification.

In relation to food and agriculture, the Impact Assessment shows that by 2030 emissions reductions stemming from changing consumer choices towards healthy diets could be of the same order of magnitude as technical options available to reduce emissions in the sector<sup>2</sup>. In line with the Farm to Fork Strategy<sup>3</sup>, consumers should be facilitated to choose sustainable and healthy food and diets. This would not only help the agricultural and food sector to reduce emissions, but also improve consumers' health and reduce health-related costs for society and food waste.

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<sup>2</sup> A strong decrease of consumption of animal products for nutrition could potentially reduce emissions by more than 30 million tonnes by 2030.

<sup>3</sup> COM(2020) 381 final

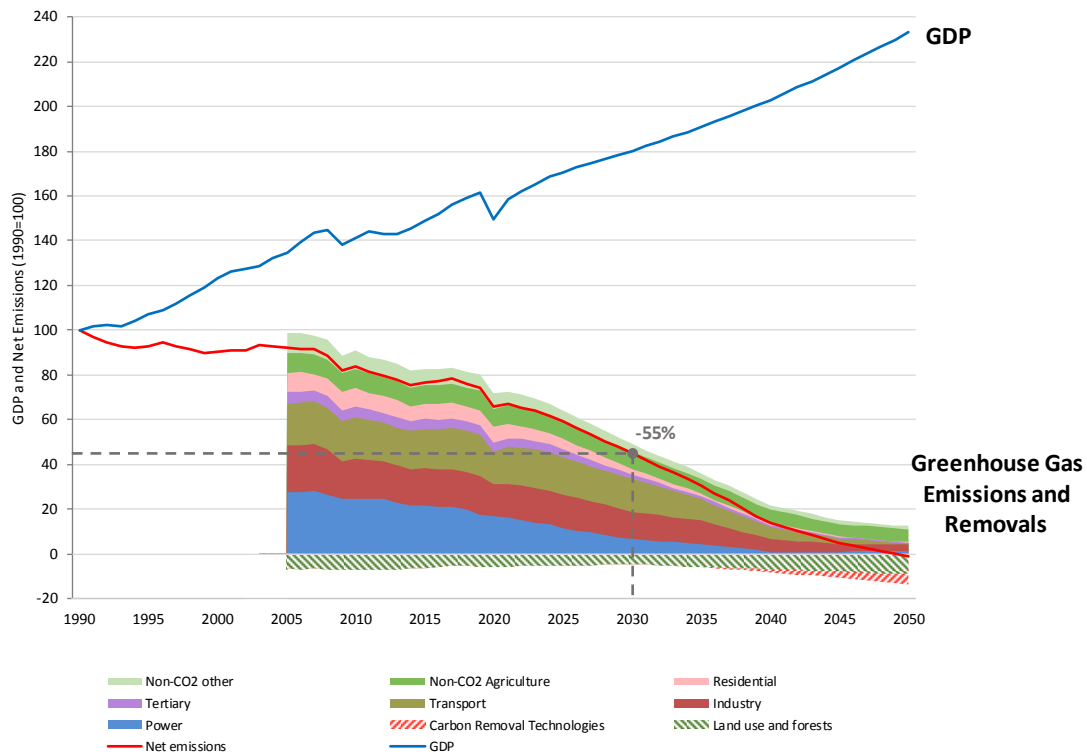
The increased climate ambition in the above areas can have positive impacts on GDP and total employment in the EU. The Impact Assessment indicates that in particular in situations where the economy is performing below capacity, GDP will increase due to the investment stemming from increased climate ambition. Similarly, the use of carbon revenues in general could lead to a reduction of labour taxation with positive effects on employment. Investing in a modern, circular economy will help provide durable and new green jobs in a climate constrained world.

Not all Member States, sectors and households start the transition towards climate-neutrality from the same point or have the same capacity to respond to the challenges of the transition. A more ambitious climate target is likely to be more challenging in Member States and regions with a higher share of fossil fuels in the energy mix, higher greenhouse gas emissions, energy intensity and lower GDP per capita. Certain carbon-intensive sectors and regions with a significant share of their economies depending on these will see substantial transformations. Distributional aspects will need to be addressed in order to ensure that nobody is left behind. New and upgraded skills will be needed underlining the need to keep investing in lifelong learning using all possible instruments and ensuring a diverse and inclusive workforce. In regions where carbon-intensive industries are currently of greater importance, focused policies and investments are needed, supported by the Just Transition Mechanism.

As a result of these transitions, the EU's energy system will be much more secure and resilient. Fossil fuels, while so engrained in our way of life for over 150 years, are exposed to volatile fuel prices and supply disruption. More than half of EU energy needs are covered by imports. Renewable energy generated in the EU reduces this exposure, thereby increasing security of supply. Net energy imports are projected to decrease by more than a quarter in the period 2015-2030. Increasing the climate ambition from the current 2030 target to 55% and achieving climate neutrality by 2050 would save on the EU's import bill EUR 100 billion over the period 2021-2030 and up to 3 trillion by 2050.

In short, increasing the EU's climate ambition for 2030 generates both economic opportunity and a cleaner and healthier environment for our citizens as we steadily move towards climate neutrality by 2050. It matches desires of citizens and stakeholders, according to the replies to the public consultation process organised by the Commission for this initiative and empowers regional and local authorities to participate and benefit from the green transition. It ensures durable jobs, improves the EU's energy security, resilience and independence, stimulates innovation and lays a solid foundation for economic prosperity.

Figure 1: The EU's pathway to sustained economic prosperity and climate neutrality, 1990-2050



While any structural changes will pose challenges, the analysis shows that overall the economy and citizens will benefit from these investments, especially considering the dire consequences of non-action. For instance, for those lower income households and fossil fuel dependent and energy-intensive sectors, which will be particularly challenged, targeted policies will need to promote just transition head on. In this way, Europe will set a practical example for all other regions around the world on how accomplishing the Paris Agreement objectives will lead to a more prosperous, fair, resilient and healthy world. In this respect, economic impacts will be more positive if the regulatory tools allow for appropriate price signals and a tax shift, with carbon pricing revenues being used to reduce distorting taxes or to invest in innovation and modernisation towards a green economy.

### 3. AMBITIOUS ACTION IN ALL SECTORS OF THE EU ECONOMY

Achieving 55% greenhouse gas emissions reductions will require actions in all sectors as illustrated in the graph above. A climate-neutral transition can only be accomplished with contributions from everyone.

CO<sub>2</sub> emissions from the burning of fossil fuels are the largest source of greenhouse gas emissions in the EU. Together with fugitive non-CO<sub>2</sub> emissions in the energy system, they are responsible for just over 75% of EU greenhouse gas emissions. This underlines the energy system’s central role in the transition to a climate neutral economy. It will need to be fully decarbonised, while respecting technological neutrality.

Most other emissions are process CO<sub>2</sub> emissions from industry and non-CO<sub>2</sub> emissions from agriculture and waste. Reducing all emissions as much as possible will be crucial to limit the need to balance any remaining emissions to become climate neutral. In this context, the EU land use sector is of particular importance, given that it presently



provides for the largest source of net removals of CO<sub>2</sub> from the atmosphere that humans can impact. Much more is now also possible with widespread use of digital technologies, which could help reduce overall emissions considerably.<sup>4</sup>

Based on the analysis in the Impact Assessment, the Commission has reached the view that the following contributions by different sectors would enable us to reach a 55% emissions reduction by 2030 in a responsible way.

#### *Energy system transformation including buildings, transport and industry*

In order to reach the 55% greenhouse gas emissions reduction target, buildings and power generation can make the largest and most cost-efficient emissions reductions, in the order of 60% and more compared to 2015. Rapid penetration of renewable energy, which is becoming the most cost-effective electric power source, the application of the energy efficiency first principle, electrification and energy system integration will drive the change in both sectors.

By 2030, the share of EU renewable electricity production is set to at least double from today's levels of 32% of renewable electricity to around 65% or more. The expansion in renewable electricity production will provide many opportunities for European renewable energy sources to be fully harnessed, for instance offshore wind energy. Renewables will lead to a high degree of decentralisation providing opportunities for consumers to get engaged, for prosumers to generate, use and share energy themselves, and for local and notably rural communities to encourage local investments in renewables. It will also trigger new employment locally.

The deployment of renewable electricity provides a major opportunity for the decarbonisation of other sectors such as heating and cooling in buildings and industry. The impact assessment highlights that renewables in heating and cooling would achieve around 40% penetration in 2030. Beyond the direct use of renewable energy and electrification, renewable hydrogen will also be required to replace fossil fuels in some carbon-intensive industrial processes, for example as a feedstock for certain chemical processes, and to deliver high-temperature heat.

The building sector, currently responsible for 40% of final energy and 36% of greenhouse gas emissions in the EU, has a large cost-effective potential to reduce emissions. Today, 75% of the EU's building stock is energy inefficient<sup>5</sup>. Many homes are still heated with outdated systems that use polluting fossil fuels such as coal and oil. To fully tap into this potential for improvement would require the renovation rate, which is around 1% today, to double and more in the period up to 2030. In particular, deep renovations addressing building shells, smart digitalisation and the integration of renewable energy together need to increase strongly.

The transport sector had the lowest share of renewable energy in 2015, with only 6%<sup>6</sup>. By 2030, this has to increase to around 24% through further development and deployment of electric vehicles, advanced biofuels and other renewable and low carbon fuels as part of a holistic and integrated approach. Secure access to batteries will be critical to rolling out electric vehicles, while clean hydrogen will be crucial for

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<sup>4</sup> <https://www.weforum.org/agenda/2019/01/why-digitalization-is-the-key-to-exponential-climate-action/>

<sup>5</sup> New buildings today consume only half as much as typical buildings from the 1980s. About 35% of the EU's buildings are over 50 years old.

<sup>6</sup> Calculated according to the methodology as set out in Directive 2018/2001/EC.

decarbonising heavy-duty transport and, through its derivatives, in the aviation and maritime sector. The decarbonisation of the transport fuel mix by 2050 will also be supported by greater use of rail and other sustainable transport modes such as inland waterways and short sea shipping, in particular for freight transport.

Projected increases in bioenergy use by 2030 are limited compared to today. To ensure the land use sink can continue to strengthen and improve, biomass for energy use in the EU should be produced sustainably, and environmental impacts should be minimised. To limit impact on biodiversity, the use of whole trees and food and feed crops for energy production – produced in the EU or imported – should be minimised. Any unsustainable intensification of forest harvesting for bioenergy purposes should be avoided. Instead, bioenergy production should come from better use of biomass wastes and residues and a sustainable cultivation of energy crops, rather replacing the production of first generation food-crop-based biofuels and be in line with the sustainability criteria of the Renewable Energy Directive. The promotion of sustainable forest management, a strong enforcement of the existing legislation and a quicker implementation of the sustainability criteria in the Renewable Energy Directive can play a key role in this regard alongside the foreseen review and potential revision of the latter Directive.

The Commission's Impact Assessment indicates that final and primary energy consumption would further reduce in 2030, achieving savings of 36-37% for final energy consumption (total energy consumed by end users) and 39-41% for primary energy consumption (total energy used to meet final energy needs, e.g. gas used to produce electricity). This reduction will require policies that address non-economic and local barriers. For instance, EU product efficiency standards have already reduced energy needs for the products in question by about 15% and cut total EU greenhouse gas emissions by 7% while creating hundreds of thousands additional jobs<sup>7</sup>. Actions of this kind will need to be intensified.

Achieving 55% greenhouse gas emissions reductions would result in a new and greener energy mix. By 2030, coal consumption would be reduced by more than 70% compared to 2015, and oil and gas by more than 30% and 25%, respectively. Renewable energy instead would see its share increase. By 2030, it would reach 38% to 40% of gross final consumption. Overall, this would lead to a balanced path towards climate neutrality by 2050.

Some sectors have a smaller, yet still significant, cost-effective emissions reduction potential by 2030. Today, road transport accounts for a fifth of the EU's greenhouse gas emissions and increased its emissions by over a quarter since 1990. It may see a decrease in emissions of only around 20% between 2015 and 2030, underlining the increased focus the sector will require to achieve increased decarbonisation.

All transport sectors - road, rail, aviation and waterborne transport - will have to contribute to the 55% reduction effort. A smart combination of vehicle/vessels/aircraft efficiency improvements, fuel mix changes, greater use of sustainable transport modes and multi-modal solutions, digitalisation for smart traffic and mobility management, road pricing and other incentives can reduce greenhouse gas emissions and at the same time significantly address noise pollution and improve air quality. In addition, new sustainable mobility services and increased use of the existing urban bus and rail services can reduce emissions, congestion and pollution while improving road safety, especially in urban

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<sup>7</sup> Report on Ecodesign Impact Accounting, forthcoming

areas. The upcoming Strategy for a Sustainable and Smart Mobility will set a pathway for the sector to master the twin green and digital transitions building a resilient and sustainable transport system for generations to come.

To achieve climate neutrality and ensure that sectors with emissions that are more difficult to abate have access to sufficient quantities of renewable and low carbon fuels, conventional cars will need to gradually be displaced by zero emissions vehicles and greater use should be made of sustainable collective transport services. The Impact Assessment projects reduction levels in 2030 corresponding to a decrease of around 50% of the CO<sub>2</sub> emissions per kilometre for passenger cars, as compared to the 2021 targets. The production and sales of electric vehicles are already taking off, and hydrogen promises new ways of propulsion, particularly for heavy duty trucks, indicating that this is a realistic scenario.

Both the aviation and maritime sectors will need to scale up efforts to improve the efficiency of aircraft, ships and their operations and to increase the use of sustainably produced renewable and low-carbon fuels. This will be assessed in greater detail in the context of the ReFuelEU Aviation and FuelEU Maritime initiatives that aim to increase the production and the uptake of sustainable alternative fuels for these sectors. The necessary technology development and deployment has to happen already by 2030 to prepare for much more rapid change thereafter.

Similarly, industry may see emissions reductions of up to around 25% by 2030 compared to 2015. Best practices can further reduce greenhouse gas emissions, thus improving overall efficiency, by using waste heat and increasing electrification through continued incremental improvements. However, to allow industry to truly decarbonise after 2030, zero or very low carbon technologies and business concepts, including system integration, access to sustainable resources and increased circularity, medium and high heat electrification, hydrogen and carbon capture, utilisation and storage, will need to be developed and tested at scale in this decade. To kick-start this and facilitate the development of appropriate supply and demand based support for zero or very low-carbon technologies and create markets for low-carbon products, EU certification systems based on the greenhouse gas performance for low-carbon basic materials and for carbon removals should be developed<sup>8</sup>. In addition, changes in corporate governance rules and practices, including on sustainable finance, will make company owners and managers prioritise sustainability objectives in their actions and strategies.

Appropriate infrastructure to maximise the benefits of the clean energy transition and to deploy alternative emissions-free fuel and feedstock is critical for both sectors. Heat networks, hydrogen pipelines, electric recharging and hydrogen refuelling infrastructure are all examples of infrastructure that will need to be developed and will require careful planning.

#### *Non-CO<sub>2</sub> emissions*

Non-CO<sub>2</sub> emissions of methane, nitrous oxide and so-called F-gases represent almost 20% of the EU's greenhouse gas emissions. By 2030, these can be reduced effectively by up to 35% compared to 2015.

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<sup>8</sup> See also the Circular Economy Action Plan (COM (2020) 98 final).

The energy sector shows the largest potential in low-cost additional reductions beyond existing policies, notably by avoiding fugitive methane emissions from oil, gas and coal production and transport. These will be addressed among others in the upcoming Methane Strategy.

The waste sector is expected to strongly reduce its emissions already under existing policies, notably due to the obligation to separately collect bio-waste as of 2024 and ban of bio-waste landfilling. Reductions will depend strongly on fully enforcing existing legislation. In addition, there is a further cost-effective reduction potential in wastewater treatment, notably through a better management of sewage sludge. Finally turning waste into a resource is an essential part of closing the loop towards a circular economy, reducing emissions across the entire industrial value chain.

The majority of these emissions comes from the agriculture sector. Over the past years, the decline of these emissions has stagnated and in some cases emissions have even increased. In a business as usual situation, they are projected at best to slowly decrease by 2030. While these emissions can never be fully eliminated under existing technology and management options, they can be significantly reduced while ensuring food security is maintained in the EU. Efficient use of fertilisers, adopting precision farming, a healthier herd and the deployment of anaerobic digestion producing biogas and valorising organic waste are examples of existing technologies. Alternative options accelerating growth of sustainable shellfish and algae production could produce protein with a low greenhouse gas emissions footprint. Furthermore, by adapting its land use management and cultivating perennials on cropland in a sustainable manner for use of the harvested biomass in buildings, industry and energy, agriculture can greatly contribute to decarbonise other sectors.

#### *The land use sector*

Nature is a vital ally in the fight against climate change and halting the loss of biodiversity. It regulates the climate, and nature-based solutions will be essential for emissions reductions and adaptation to climate change. Restoring and growing our land carbon sink – the ability to absorb CO<sub>2</sub> by our natural environment such as trees - is crucial to our climate goals.

The EU land use, land use change and forestry (LULUCF) sector both emits greenhouse gases and absorbs CO<sub>2</sub> in its soil and biomass. In total, it has been a significant net sink in the past. However, over recent years the EU's sink has come under pressure from increased economic use and the adverse effects of climate change. While it expanded in the two decades from 1990 to 2010 from a net sink of around 250 million CO<sub>2eq</sub> to above 300 million tons CO<sub>2eq</sub>, it has seen significant losses over the last five years. This resulted in a sink reduced to 263 million tons CO<sub>2eq</sub> in 2018. This underlines the risks for the magnitude of the sink, which is of crucial importance to achieve net zero greenhouse gas emissions by 2050.

Unchanged land use practices and further increases in harvesting, in part driven by age class impacts of maturing managed forests, could see the sink potentially further decline to 225 million tons CO<sub>2eq</sub> by 2030. There are significant risks for the sink of rising negative impacts from natural hazards such as fires and pests due to a changing climate as well as increasing economic demand for forest biomass, which also negatively affect biodiversity.

We need a growing sink in order for the EU to achieve climate neutrality by 2050. Reversing the current trend requires significant short-term action due to long lead times, especially in forestry. This includes improved and enforced forest protection and more sustainable forest management as well as sustainable re- and afforestation and improved soil management including through the restoration of wetlands, peatlands and degraded land in line with the Biodiversity Strategy<sup>9</sup> and contributing to its aims. Furthermore, a shift towards growing woody biomass on cropland in a sustainable manner, including as a feedstock for advanced biogas and biofuels, could alleviate the situation. The Impact Assessment estimates that, if implemented swiftly in the coming years, this could already reverse the current trend of a diminishing EU land carbon sink by 2030, increasing it again to levels above 300 million tons CO<sub>2eq</sub>.

#### 4. UPDATING THE 2030 CLIMATE AND ENERGY POLICY FRAMEWORK

The analysis in the Impact Assessment has looked at the broad changes, which, if any, would be required in the current policy framework to trigger the sectoral contributions identified above, and that can only be delivered through a whole of government approach. Key elements are summarised in the following pages. Specific impact assessments and public consultations will be carried out in the coming months to precisely determine the legislative changes the Commission intends to propose in June 2021 to support the enhanced 2030 climate and energy framework and their cumulative impacts on the European economy. These will have to further assess sector specific distributional and competitiveness impacts by exploring feasible targeted solutions.

The EU is implementing its current 2030 climate target of at least 40% greenhouse gas emissions reductions through three key pieces of climate legislation:

- the Emissions Trading System Directive<sup>10</sup>, which sets up a cap and trade system for large industrial and power sector installations and the aviation sector to reduce emissions by 43% by 2030 compared to 2005;
- the Effort Sharing Regulation (ESR)<sup>11</sup>, with binding greenhouse gas emissions pathways at Member State level for the remaining emissions, adding up to a reduction of 30% by 2030 compared to 2005;
- the Land Use, Land Use Change and Forestry (LULUCF) Regulation<sup>12</sup> that obliges Member States to ensure that the net carbon sink from land use does not deteriorate compared to how it would have evolved continuing existing land use management practices.

Energy legislation and policies are also essential instruments contributing to the achievement of this target with the 2030 EU binding targets of at least 32% of renewable energy sources in the EU's energy mix and at least 32.5% energy efficiency. The Renewable Energy Directive (RED II)<sup>13</sup> and the Energy Efficiency Directive<sup>14</sup> and the Regulation on the Governance of the Energy Union and Climate Action<sup>15</sup> capture these

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<sup>9</sup> COM(2020) 380 final

<sup>10</sup> Directive (EU) 2018/410 amending Directive 2003/87/EC

<sup>11</sup> Regulation (EU) 2018/842

<sup>12</sup> Regulation (EU) 2018/841

<sup>13</sup> Directive (EU) 2018/2001

<sup>14</sup> Directive (EU) 2018/844

<sup>15</sup> Regulation (EU) 2018/1999

targets in legislation, supported through sectoral legislation such as the Ecodesign directive<sup>16</sup> and the Energy Performance of Buildings Directive<sup>17</sup>. A comprehensive set of notably transport and other sectoral policies also contribute to the achievement of the target.

Current projections indicate that, if current policies are fully implemented, greenhouse gas emissions reductions<sup>18</sup> by 2030 would be around 45% compared to 1990 levels when excluding land use emissions and absorptions, and around 47% when including land use. However, it is clear that, while current energy targets should allow us to surpass our current greenhouse gas emissions reduction target, this would not be sufficient to achieve a 55% greenhouse gas emissions reduction target. To achieve this, both the climate legislation as well as the energy policies need to be reviewed to deliver this ambition increase.

This is also confirmed by the assessment of Member States' final National Energy and Climate Plans (NECPs) under the Governance Regulation<sup>19</sup>. The Governance of the Energy Union and Climate Action establishes an iterative process for close cooperation between the Union and Member States, relying on draft and final NECPs. As set out in the Communication on an EU-wide assessment of National Energy and Climate Plans<sup>20</sup>, Member States have been ambitious when developing their national plans for the first time. The Commission's analysis indicates that aggregated final national plans would surpass the renewable energy target at EU level by 1.7 percentage points while underachieving on the energy efficiency target by around 3 percentage points. Combined, this would result in around 41% greenhouse gas emissions reductions (excluding land use emissions and absorptions) by 2030 for the EU<sup>21</sup>.

Higher ambition, therefore, requires adjustments to the current policy framework, and this in turn would offer a more balanced pathway towards climate-neutrality over the next 30 years, avoiding the need for sharp reductions after 2030 and reaping earlier the opportunities for sustainable growth and investment.

#### *An increasing role for emissions trading and energy taxation*

The EU Emissions Trading System (ETS) has proven to be an effective tool in reducing greenhouse gas emissions. Emissions from stationary sources declined by 33% between 2005 and 2018. With carbon prices increasing, following the introduction of the Market Stability Reserve and the market anticipating the impact of the reinforcement of the system, these emissions saw a further drop by almost 9% year on year in 2019.

Other policies, most notably renewable energy and energy efficiency policies, have contributed to the reductions in power sector emissions. However, it is clear that when the carbon price is sufficiently robust, it becomes a strong driver for immediate change (e.g. change of fuel used for electricity generation), and a strong signal for low carbon investments, and thus contributes decisively to the deployment of renewable energy and energy efficiency technologies.

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<sup>16</sup> Directive (2009/125/EC)

<sup>17</sup> Directive 2010/31/EU and amendment 2018/844/EU

<sup>18</sup> Including intra EU aviation and navigation

<sup>19</sup> Regulation (EU) 2018/1999

<sup>20</sup> [add reference]

<sup>21</sup> Including intra EU and extra EU aviation, not including maritime navigation

The Commission has assessed carefully the possibility of reinforcing and expanding emissions trading as a tool to achieve greenhouse gas emissions reductions at the EU level.

The Commission sees important benefits in expanding the use of emissions trading in the EU, to deliver in an economically efficient manner an increased climate ambition of 55% greenhouse gas emissions reductions. Emissions trading can achieve greenhouse gas emissions reductions cost-effectively. Its resulting carbon price internalises the climate externalities and gives consumers incentives to reduce greenhouse gas emissions. It guarantees environmental integrity in the form of the emissions cap and provides a strong price signal that influences daily operational and strategic investment decisions. At the same time, emissions trading raises revenues that can be re-invested in the economy leading to better overall economic outcomes.

As already announced in the European Green Deal, a further expansion of the system could include emissions from road transport and buildings. Already now, the EU ETS directly or indirectly covers around 30% of buildings emissions from heating<sup>22</sup>. Covering all emissions of fossil fuel combustion and integrating them in the EU ETS would present important benefits in terms of effectiveness and administrative feasibility. The Commission therefore intends to pursue such an integrated approach and will look into incorporating it in its legal proposal by next year June.

Next to extending the use of emissions trading also the revision of Energy Taxation Directive could contribute to putting a price on carbon and reducing emissions. Well-designed tax reforms can promote economic growth, job creation and resilience and foster a just transition. At present, a wide range of sectoral tax exemptions and reductions are de facto forms of fossil fuel subsidies, which are not in line with the objectives of the European Green Deal.

The Commission is aware that carbon pricing does not address all barriers to the deployment of low and zero emissions solutions. Other complementary policy actions are needed to ensure that the incentives align and to trigger further investments in clean energy technologies and infrastructure or to overcome financing difficulties for low-income households. In road transport, emissions trading has the advantage of capturing fleet emissions under the cap and simultaneously incentivising behavioural change with lasting effects on mobility solutions through the price signal. At the same time, the CO<sub>2</sub> emissions performance standards for cars are the main driver to ensure the supply of modern and innovative clean vehicles, including electric cars. Ambitious CO<sub>2</sub> emissions standards for cars and vans will be needed to ensure a clear pathway towards zero emissions mobility.

Therefore, the existing regulatory and enabling framework will be further developed in parallel. Renewable energy, energy efficiency and transport policies and standards will be revised and, where needed, new policies will be introduced. Sectoral ambitions will be set in light of the 55% economy wide greenhouse gas emissions reduction target. The Commission will underpin these ambitions with policies fostering a just transition, research and development and sustainable finance and ensure an effective use of the Union's budget and recovery funds to support the transition.

#### *Next steps on emissions trading*

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<sup>22</sup> This is related to the system's coverage of district heating and due to electric heating.

An expanded emissions trading system could be developed as an upstream trading system regulating at the point of fuel distributors or tax warehouses and would need to appropriately address any risk of double counting, evasion or loopholes in relation to entities covered by the existing downstream system for the aviation, power and industrial sectors.

As the existing EU ETS has shown, the development of a new market requires setting up functioning monitoring, reporting and verification and can benefit from transitional arrangements or a pilot period before being gradually integrated into the existing system.

Low-income households bear a higher burden of heating and fuels expenses compared to wealthier households. This underlines that any expansion of emissions trading will need to address distributional impacts, e.g. by using part of the corresponding auction revenues. This will depend on the revenue allocation between the EU and national level and on its well-targeted use (e.g. Modernisation Fund and Innovation Fund).<sup>23</sup>

Increasing the EU's 2030 climate ambition will also require a strengthened cap of the EU ETS to create the necessary long-term carbon price signal and drive further decarbonisation.

This will require revisiting the linear reduction factor that defines the annual reduction of the cap beyond its current level of 2.2% to guarantee that the sectors covered by the EU ETS deliver the necessary emissions reductions. Considering that the nominal cap is currently higher than actual emissions, a change in the linear reduction factor could potentially be combined with a one-off reduction of the cap that would put it closer to the actual emissions level. The Commission will further assess how to strengthen the cap in the context of an extension of the system and next year's review of the functioning of the Market Stability Reserve. Similarly, the Commission will further assess the combined impact of an expanded system and a strengthened cap on the free allocation available for industry to effectively address the risk of carbon leakage. The Impact Assessment already estimates that, at first sight, a significant amount of free allocation would still be available, even with the necessary strengthening of the cap.

Furthermore as the EU is increasing its climate ambition, the Commission is working on introducing a carbon border adjustment mechanism in certain sectors to address the risk of carbon leakage. It is considering several options as an alternative to the current measures addressing that risk as part of an on-going impact assessment with a view to table a legislative proposal in the first half of 2021.

#### *Emissions trading: maritime and aviation*

EU international emissions from navigation and aviation have grown by more than 50% since 1990. Action in these sectors is urgently needed, including as they recover from the current crisis. The EU has a legislative framework in place that covers all greenhouse gas emissions except from maritime transport, for which the current regulation focuses solely on monitoring, reporting and verification of emissions. For aviation, the application of the EU ETS is currently suspended in relation to flights to countries outside the European Economic Area to allow for the development of corresponding international instruments.

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<sup>23</sup> The European Council Conclusions, 17-21 July 2020, recognised the need to work towards reforming the own resources system and introduce new own resources for the Union. In this context, the European Council invited the Commission to put forward a proposal on a revised emissions trading system, possibly extending it to maritime and reducing the allowances allocated for free to airlines.



For both sectors, in accordance with its international commitment to economy-wide action under the Paris Agreement, the EU should continue to regulate at least intra-EU aviation emissions in the EU ETS and include at least intra-EU maritime transport in the EU ETS<sup>24</sup>. For aviation, the Commission will propose to reduce the free allocation of allowances, increasing the effectiveness of the carbon price signal in this sector, while taking into account other policy measures such as energy taxation and the ReFuelEU initiatives.

International cooperation on maritime transport and aviation is desirable. International instruments negotiated or under negotiation in the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO), such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), should promote effective action in this context. In the light of progress at global level, the Commission will give fresh political consideration to the international aspects of the EU ETS, taxation and fuel policies for aviation and maritime to ensure the gradual decarbonisation of all fuel use from transport relating to the EU with the ambition to include international emissions from aviation and navigation into the EU ETS.

#### *Agriculture, Land Use, Land Use Change and Forestry sector*

The Land Use, Land Use Change and Forestry sector's emissions and removals will be fully integrated into the proposed 2030 EU greenhouse gas target as reported under the UNFCCC inventory.

This will be the starting point of the pathway between 2030 and 2050 for achieving climate neutrality and allow monitoring progress towards net zero greenhouse gas emissions by 2050 in a fully coherent manner. Corresponding targets need to be set in the Effort Sharing Regulation and under the EU ETS, to ensure that in total, at least the economy wide 2030 greenhouse gas emissions reduction target of 55% will be met.

The Land Use, Land Use Change and Forestry Regulation currently requires EU Member States to maintain their natural carbon sink according to existing land use practices. It covers the activities of both the forestry and agriculture sectors.

Over time, the sector should do more. The current trend of a decreasing land carbon sink needs to be stopped and reversed. The Biodiversity Strategy, the Farm to Fork Strategy, the forthcoming Forest Strategy, EU Nature Restoration Plan and the new Adaptation Strategy will all put strong policies in place to protect and enhance the natural sink and resilience of the EU's forests to climate change, restore degraded land and ecosystems, rewet wetlands and promote the bio-economy, including the use of durable harvested wood products, in full respect of ecological principles fostering biodiversity.

The sector will have to provide for food, feed and materials for a growing world population in a climate-neutral economy. Strong synergies and trade-offs with biodiversity aspects exist. The direction should be to increase the use of sustainably produced biomass and minimise the use of whole trees and food and feed-based crops to produce energy. Addressing this includes reviewing and revisiting, as appropriate the

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<sup>24</sup> On average, including all extra EU navigation and aviation emissions, i.e. the assumed scope as reported in the greenhouse gas inventory of the United Nations Framework Convention on Climate Change as memo item, in the EU greenhouse gas emissions reduction target would require additional reductions of up to 3 percentage points by 2030 compared to 1990 in other sectors to achieve the overall EU reduction target.

biomass sustainability criteria in the Renewable Energy Directive, which are also used in the EU ETS, following the ongoing Commission's assessment of the EU and global biomass supply and demand and related sustainability.

Biomass-related aspects will need to be assessed in a coherent manner with other fuel initiatives, e.g. the Renewable Energy Directive, the Fuel Quality Directive and the upcoming initiatives promoting sustainable aviation and maritime fuels. A fuel policy coherent with the overall climate and energy policy will be essential for those sectors with hard to abate emissions, be it to produce biogas and biofuels or hydrogen or e-fuels.

Land Use, Land Use Change and Forestry presently removes more CO<sub>2</sub> by storing it in biomass or in soil carbon than it releases to the atmosphere. This sink needs to be maintained and even enhanced to balance any remaining emissions in the economy with carbon dioxide removals and to achieve net zero GHG emissions by 2050. Increased flexibility between the Land Use, Land Use Change and Forestry Regulation and the Effort Sharing Regulation could be a way to strengthen incentives for removals in the land use sector itself. An ambition increase in the Land use, Land use change and Forestry sector beyond the current requirements needs to be assessed carefully given the diverse situation across Member States. This would benefit from the detailed analysis and elaboration of policies implementing the biodiversity and forestry strategies, which in principle will drive some of the additional actions reducing emissions in the sector. The Commission will reflect upon these options when coming forward with a legislative proposal to update the Land Use, Land Use Change and Forestry Regulation and the Effort Sharing Regulation next year.

To make removals happen in practice, individual farmers or forest managers need to be directly incentivised to store more carbon on their land and their forests. Currently this depends strongly on Member States action but carbon farming and certification of carbon removals should increasingly be deployed in the run up to 2030.

A further step to enhance removals could be to integrate agriculture non-CO<sub>2</sub> greenhouse gas emissions into the land use, land use change and forestry sector and to create a new regulated sector covering agriculture, forestry and land use. Such a sector would have the potential to become rapidly climate-neutral by around 2035 in a cost-effective manner, and subsequently generate more removals than greenhouse gas emissions. This would require a novel policy approach that would (i) set national and sub-sectoral targets and benchmarks, (ii) create flexibility across the EU ensuring cost-effective incentives and mobilise the necessary financial resources, as well as (iii) develop the certification of carbon removals. An EU carbon farming initiative under the Climate Pact will demonstrate and promote such new business models.

Over time, the Commission clearly sees merit in the creation of an Agriculture, Forestry and Land Use sector with its own specific policy framework covering all emissions and removals of these sectors and to become the first sector to deliver net zero greenhouse gas emissions. Subsequently, this sector would generate carbon removals to balance remaining emissions in other sectors induced by a robust carbon removal certification system.

### *Effort Sharing Regulation*

Introducing emissions trading for a significant share of the existing Effort Sharing Regulation sectors and eventually folding agricultural non-CO<sub>2</sub> emissions into the land use sector would have consequences for this Regulation. The Commission will give

consideration to different options in light of an expansion of emissions trading to all fossil fuel use.

If, on one hand, the scope of the Regulation were to be maintained creating overlap between the sectors covered by the EU ETS and the Effort Sharing Regulation, this would provide an incentive for Member States to take subsidiary action strengthening the regulatory framework for sectors such as buildings and road transport. If, on the other hand, the scope were to be reduced, and in case of a full transition to an EU ETS covering all fossil fuel combustion emissions, the Regulation would predominantly cover non-CO<sub>2</sub> emissions. Its role and purpose would be further reduced in case of a move of agriculture non-CO<sub>2</sub> emissions towards an agriculture and land use sector. If all other objectives of the Regulation were sufficiently targeted by other legislative instruments, the Regulation could even be repealed as a whole in the future.

Considering the need to maintain strong incentives and accountability for Member States to ensure action at national level, the Commission will use the upcoming impact assessment for both the review of the Emissions Trading System and the Effort Sharing Regulation to further consult the public on the role of the Effort Sharing Regulation and the related Governance Regulation. At the same time, Member States have different capabilities to reduce greenhouse gas emissions. The EU budget together with the Next Generation EU package can be a strong driver for transformation and leverage sustainable private and public investment, if resources are well-deployed. It will remain essential to address distributional concerns between Member States in order to ensure a fair transition.

### *Renewable energy policies*

Renewable energy plays a fundamental role for delivering the European Green Deal and for achieving climate neutrality by 2050.

Based on the assessment carried out, it is clear that the EU needs to transit from today's energy system to an integrated energy system largely based on renewables already by 2030. The greenhouse gas emissions reduction target of 55% achieved through the combination of intensified policies and the extension of the EU ETS is assessed to reach a share of renewables of around 38.5%.

Renewables will need to be deployed at larger scale to contribute to the higher climate ambition and to promote the Union's industrial leadership on renewable technologies. An increased renewables target will provide the necessary predictability and investment certainty for further renewable energy deployment across all sectors.

The transition to climate neutrality requires a competitive, secure and sustainable energy system and a robust internal market framework. The existing framework and recent EU strategies on Energy System Integration, on Hydrogen and on Batteries set important enabling conditions for the uptake of renewable energy carriers. To go further, relevant legislation will be reinforced and supported by the forthcoming Commission initiatives on a Renovation Wave, an Offshore Energy strategy, alternative fuels for aviation and maritime as well as a Sustainable and Smart Mobility Strategy.

EU action will focus on cost-effective planning and development of renewable energy technologies, eliminating market barriers and providing sufficient incentives for demand for renewable energy, particularly for end-use sectors such as heating and cooling or transport either through electrification or via the use of renewable and low-carbon fuels

such as advanced biofuels or other sustainable alternative fuels. The Commission will look into capacity building schemes to implement citizen-driven renewable energy communities financed by the EU and self-consumption models enabling higher consumer uptake and faster development of decentralised renewable energy technologies. Continuous support for corporate sourcing of renewable energy, and establishing minimum mandatory green public procurement criteria and targets in relation to renewable energy may also be needed.

Specifically in the fossil fuel dominated heating and cooling sector, the Commission intends to assess the nature and the level of the existing, indicative heating and cooling target, including the target for district heating and cooling, as well as the necessary measures and calculation framework to mainstream further renewable and low carbon based solutions, including electricity, in buildings and industry.

For transport, the Impact Assessment demonstrates that there is a clear role for electrification as a key avenue for decarbonisation. However, some transport sectors heavily depend on high energy density fuels, such as the aviation and maritime. Alongside the sustainable alternative fuels initiatives for these sectors, ReFuelEU Aviation and FuelEU Maritime, the Commission will propose an updated methodology to promote, in accordance with their greenhouse gas performance, the use of renewable and low-carbon fuels in the transport sector set out in the Renewable Energy Directive.

In addition, a comprehensive terminology for all renewable and low-carbon fuels and a European system of certification of such fuels, based notably on full life cycle greenhouse gas emissions savings and sustainability criteria, and existing provisions for instance in the Renewable Energy Directive would support the further development of renewables. Large-scale deployment of renewables also requires the necessary infrastructure. A holistic approach to large-scale and local infrastructure planning, protecting and enhancing the resilience of critical infrastructures is needed and will guide the forthcoming revisions of the TEN-E and TEN-T regulations, and of the Alternative Fuels Infrastructure Directive. Modern low-temperature district heating systems should be promoted, as they can connect local demand with renewable and waste energy sources, as well as the wider electric and gas grid in order to optimise supply and demand across energy carriers.

### *Energy Efficiency policies*

The EU has a comprehensive framework for a wide range of energy efficiency measures across different sectors<sup>25</sup>. A rigorous enforcement of existing legislation on energy efficiency is necessary but insufficient to reach the increased climate target. The Impact Assessment shows that energy efficiency improvements will need to be significantly stepped up to around 36% in terms of final energy consumption<sup>26</sup>.

Achievement of a more ambitious energy efficiency target and closure of the collective ambition gap of the national energy efficiency contributions in the NECPs will require actions on a variety of fronts, largely through the legislative policy initiatives already

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<sup>25</sup>2012 Energy Efficiency Directive together with the Energy Performance for Buildings Directive, the Ecodesign Directive and the Energy and Tyre Labelling Regulations

<sup>26</sup>The Impact Assessment identifies a range of 35.5 % - 36.7 depending on the overall design of policy measures underpinning the new 2030 target. This would correspond to a range of 39.2%- 40.6% in terms of primary energy consumption.

announced by the European Green Deal for June 2021. Therefore these initiatives will identify the precise policy options available as well as the exact level of new targets.

However, the analysis accompanying this Communication already indicates that most savings would need to come from buildings. The forthcoming Renovation Wave will therefore launch a set of actions to increase the depth and the rate of renovations at single building and at district level, switch fuels towards renewable heating solutions, diffuse the most efficient products and appliances, uptake smart systems and building-related infrastructure for charging e-vehicles, and improve the building envelope (insulation and windows). Action will be taken not only to better enforce the Energy Performance of Buildings Directive, but also to identify any need for targeted revisions. The possibility of establishing mandatory requirements for the worst performing buildings and gradually tightening the minimum energy performance requirements will also be considered as a means to ensure a suitable minimum pace for the improvement of the building stock.

Building on the existing framework and the long-term renovation strategies, other measures will be identified to remove the main barriers to building renovation and reinforce the pull factors for faster and deeper renovations. The Renovation Wave will address the necessary elements to achieve and sustain higher renovation rates, including regulatory strengthening. It will foresee adequate financial instruments, for instance to facilitate de-risking and incentivising the measurement of actual energy savings, and other facilitating measures, such as fostering training in the required skills. Indicative milestones for 2030, 2040 and 2050 and with measurable progress indicators will be set up.

Over and beyond the contribution from the building sector, other efforts will be needed to achieve a more ambitious energy efficiency target.

The existing energy efficiency requirements and product standards will be reviewed in the first half of 2021. In addition, the forthcoming Sustainable Product Legislative initiative announced in the Circular Economy Action<sup>27</sup> Plan will look into widening the Ecodesign approach to other product categories.

The higher ambition level will also require to better promote energy efficiency wherever cost-effective in all areas of the entire energy system as well as in all relevant sectors where activity affects demand for energy, such as transport and the agriculture sectors. In this context, the Commission will present dedicated guidelines in the first quarter of 2021. Considering that the Information and Communication Technologies (ICT) sector accounts for between 5 and 9% of global electricity consumption and more than 2% of global greenhouse gas emissions, the EU Digital Strategy<sup>28</sup> announced a commitment to make data centres climate-neutral by 2030, with actions to be put in place in 2021 to 2022.

### *Road transport CO<sub>2</sub> vehicle standards*

For road transport, CO<sub>2</sub> and vehicle standards have proven to be an effective policy tool. In parallel to applying emissions trading to road transport at the level of the fuel supplier and road pricing in line with the ongoing revision of the Eurovignette Directive, only stringent CO<sub>2</sub> emissions performance standards ensure the supply of modern and innovative clean vehicles, including vehicles that see strong reductions in fuel

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<sup>27</sup> COM (2020) 98 final

<sup>28</sup> COM/2020/67 final

consumption and drive trains such as battery or fuel cell electric vehicles with no tank to wheel emissions at all. By June 2021, the Commission will therefore revisit and strengthen the CO<sub>2</sub> standards for cars and vans for 2030.

This work has to look beyond 2030. The Impact Assessment indicates that to reach the overall climate neutrality target in 2050, nearly all cars on the roads must be zero emissions by that time. This transition needs to be flanked by the appropriate roll out of infrastructure for recharging and refuelling of those vehicles. The upcoming revision of the Alternative Fuels Infrastructure Directive is a key initiative in this regard. The development and testing of new automotive technologies have long lead times and cars are on the roads between 10 and 15 years. The Commission will also assess in the coming months what would be required in practice for this sector to contribute to achieving climate neutrality by 2050 and at what point in time internal combustion engines in cars should stop coming to the market.

### *Mainstreaming of climate action across all policies*

Many other EU policies have been put in place, or are being reoriented to contribute to the ‘do no harm’ principle and the transition to climate neutrality. Mainstreaming of climate policy objectives into other EU policies is a key enabler and will allow for an inclusive transformation based on a just transition.

The Sustainable Europe Investment Plan aims at boosting sustainable investments. Its Just Transition Fund (the first pillar of the Just Transition Mechanism) addresses head on the acceleration of the transition in coal, peat, oil shale and carbon-intensive regions. The InvestEU programme focuses on attracting private investments, and it has been proposed to use at least 30% of its overall financial envelope to contribute directly to achieving the climate objectives. The Modernisation Fund will support the transition of the energy system in lower income Member States. The European Regional Development Fund and the Cohesion Fund will support complementary investments in energy efficiency, renewables, innovation and research. The European Social Fund Plus will provide comprehensive support for up- and re-skilling of workers. Moreover, the Commission will propose in May 2021 an Action Plan for the implementation of the European Pillar of Social Rights promoting just transitions, access to training and essential services including energy, mobility and housing for all. The Commission’s Long-term Vision on rural areas to be launched next year will pay specific attention to promoting sustainability for citizens living in remote, rural areas.

Horizon Europe, the new research and innovation framework programme, with inter alia a dedicated Climate, Energy and Mobility cluster, will see at least 35% of its funds supporting the achievement of the climate goals. The Innovation Fund will support the demonstration of breakthrough technologies at commercial scale in the energy and industry sectors.

The Renewed Sustainable Finance Strategy with its envisaged legislative and non-legislative initiatives will guide private investments more towards green recovery and sustainable economic activities. Among other initiatives, the EU sustainable finance taxonomy, the EU Green Bond Standard and climate benchmarks will play a crucial role in fostering investment closer to the needs of the real economy for the benefit of the planet and society.

To achieve climate neutrality, a 90% reduction in overall transport emissions by 2050 compared to 1990 levels will be one main objective of the forthcoming Sustainable and Smart Mobility Strategy while addressing recovery of the sector.

Industry must lead change as Europe embarks on its transition towards climate neutrality and digital leadership, while leveraging the impact of its single market to set global standards. Both the European Industrial Strategy<sup>29</sup> and the EU Circular Economy Action Plan point towards increased resource efficiency and the circular economy as indispensable pathways for a modernisation of EU industry contributing to greenhouse gas emissions reductions.

Secure supply of batteries in line with the strategic action plan for batteries under the European Battery Alliance will be indispensable for decarbonising the EU's energy system by enabling integration of increasing amounts of renewable energy, and our transport sector by catalysing the shift to electric vehicles.

The forthcoming Zero Pollution Action Plan for air, water and soil will look at how to further address pollution from large industrial installations fully consistent with climate, energy, as well as circular economy policies. The EU's Digital Strategy supports digital technologies that can help achieve climate-neutrality across all sectors of the EU economy, and aims at greening the ICT sector itself.

The CAP strategic plans to be developed by Member States are a key opportunity to direct more resources to reduce emissions in the agriculture sector in a durable manner, while enhancing the economic and environmental sustainability and resilience of the sector.

Preparing a more ambitious EU strategy on adaptation to climate change will be essential for all sectors, as climate change will continue to create increasing stress on the Europe economic and social fabric, in spite of the mitigation efforts.

Both mitigation and adaptation will in turn benefit from the EU Space programmes such as Copernicus with ever improving monitoring capabilities.

Overall, higher ambition by 2030 and the transition to climate neutrality and recovery from the COVID-19 crisis will be both a challenging task and an opportunity to build a better future for all. A Technical Support Instrument ensures that the Member States can benefit from tailor-made expertise for developing sustainable and growth enhancing reforms.

Alongside government policies and regulation, citizens, communities and organisations have their part to play. Regions, cities and towns are key centres of transformative and sustainable solutions that lead the way forward through movements such as the Covenant of Mayors. To this end, the Commission will launch the European Climate Pact to give everyone a voice and space to design climate action, share information, launch grassroots activities and showcase solutions that others can follow.

### *International dimension*

As an advanced economy, with a proven track record in successful implementation of ambitious climate policy, the EU has the possibility – as well as the moral obligation – to

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<sup>29</sup> COM(2020) 102 final

influence global greenhouse gas emissions trends and increase resource efficiency, within and beyond the international climate negotiations. Raising the EU ambition from the current level to 55% within the next ten years will double the ambition of the EU's nationally determined contribution and set the stage for the upcoming UN climate change negotiations in 2021, thereby reinforcing the EU's global leadership position.

The Commission invites the European Parliament and the Council to consider this as the EU's new contribution to the Paris Agreement. This should be submitted to the UNFCCC as the updated EU's Nationally Determined Contribution before the end of the year. This would give an early boost to the UN's preparations of the next meeting of the Parties of the Paris Agreement in late 2021, as well as the UN's Decade for Action (2030 Agenda).

By setting a higher target for 2030, and thereby increasing its ambition under the Paris Agreement, the EU would set a positive example for the rest of the world of how climate change can be effectively tackled, while pursuing a modern and competitive economy and a prosperous, inclusive and resilient society. It would also provide momentum for next year's multilateral discussions in the context of the G7 and the G20, which will be presided by the UK and Italy, respectively. Through its external assistance the EU will be able to support third countries in their effort to raise their climate ambitions.

The EU should continue leading by example, but it must also use its leverage to promote a global change in economic incentives in support of the low-carbon transition taking into account changing geopolitical and geoeconomic realities. The EU will continue to foster multilateral rule-based cooperation, using its green, climate and energy diplomacy – and the full spectrum of its external policy instruments to enhance the ambition level of its partners, and in particular the largest and upcoming emitters, and accelerate the global transition to climate neutrality. This means using the EU's strategic partnerships, external financing, trade and other cooperation platforms including through the deployment of international environmental standards and promotion of clean technologies through trade. The private sector should play an important role and EU leadership on sustainable finance, in particular through the EU taxonomy as a tool to help investors in the transition to a low-carbon, resilient and resource-efficient economy as well as through the International Platform on Sustainable Finance with our international partners will be instrumental. The EU will seek mutually beneficial alliances and ensure an international level playing field around new sustainable technologies, such as renewable hydrogen, advanced solar and wind, batteries, and carbon capture, as well as around critical raw materials for these technologies, such as rare earths. The EU's position as the world's largest trading block provides significant opportunities in this respect.

At the same time, to effectively contain global climate change and achieve the UN Sustainable Development Goals, all countries and notably G20 members will need to come forward with much more ambitious actions to prevent catastrophic consequences.

In the absence of comparable increases in ambition by our partners, as the EU increases its climate ambition, the Commission will propose a carbon border adjustment mechanism, for selected sectors, to reduce the risk of carbon leakage as an alternative to measures currently in place to address that same risk. Hence, the Commission is looking into the options for setting up an effective carbon border adjustment mechanism, compliant with World Trade Organization rules.



## 5. CONCLUSIONS AND NEXT STEPS

Raising the EU's ambition of greenhouse gas emissions reductions to 55% by 2030 is feasible and beneficial for the health, prosperity, and wellbeing of our citizens. Without underestimating the challenge of mobilising significant additional investments in the coming decade and promoting a just transition, it offers the opportunity for sustainable growth, and, in the context of the COVID-19 recovery, an opportunity for durable investments that can kick-start the EU economy.

Higher ambition for 2030 will contribute to a more gradual emissions reduction path and a more balanced economic and social transition towards climate neutrality in the next 30 years. Therefore, it will be more credible, more prudent and fairer with respect to future generations.

Pressure on natural resources, general uncertainty around global developments, and the growing climate concerns of the global population will increase pressure on all governments to act swiftly. Acting ambitiously will provide the EU and its businesses and industries a first-mover advantage in the international economic arena, increasing its competitiveness in the growing global markets for sustainable and green technologies.

Equally important, enhancing ambition will deliver very important benefits alongside the fight against climate change, like a reduced fossil fuel import bill, higher energy security, reduced air pollution, better health, improved biodiversity, lower dependence on imported raw materials, and less hazards from waste. Paired with intensified renewables and energy efficiency policies, it will cut energy costs for households and companies, and provided that social impacts are addressed help alleviate energy poverty and contribute to growth and jobs.

EU citizens, businesses and social partners require increased certainty and predictability on the pathway towards climate neutrality. Therefore, the Commission is amending its proposal for the first European Climate Law<sup>30</sup> today, adding a 2030 target of at least 55% net greenhouse gas emissions reductions compared to 1990. This will be the starting point for a smooth pathway for the EU to become climate-neutral by 2050. The Commission invites the European Parliament and the Council to swiftly reach agreement on and adopt the European Climate Law Regulation.

Over the course of the coming nine months, the Commission will review its key climate and energy legislation. This Communication already identifies key options to amend it. The Commission is convinced that all policy instruments relevant for the decarbonisation of our economy must work in coherence in order to achieve our objectives. A reinforced and expanded use of emissions trading at EU level, energy efficiency and renewable energy policies, instruments supporting sustainable mobility and transport, circular economy, environmental, agricultural, financial, research and innovation, and industrial policies will all have important roles in achieving the objectives of the European Green Deal in general and an increased climate target for 2030 and climate neutrality by 2050 in particular.

Drawing on a broad public debate and a process of consultation with the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, as well as national Parliaments, and all citizens and stakeholders - namely through the European Climate Pact, but also the upcoming Conference on the Future of

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<sup>30</sup> COM(2020) 80 final

Europe - the Commission will prepare the key necessary legislative proposals by June 2021. This process should pave the way for their subsequent rapid adoption, and leave sufficient lead-time for all actors to achieve the increased 2030 climate and energy ambition.