# The EU Climate and Energy Policy:

# Targets, strategies and tools towards a net-zero 2050

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# The emergence and addressing of the climate change issue in the European Union.

Art. 191 TFEU establishes, as one of the aims of EU environmental policy, the fight to climate change. To combat climate change means to reduce anthropogenic interference with the climate, such that an increase in the stock of greenhouses gases (*GHGs*), and the sequential increment in global temperature could be averted.
The development of EU climate policy is closely related to the international negotiations organized under the United Nations (UN). It was in 1990 that climate change was discussed by the European Council for the first time, in light of the first summary report of the Intergovernmental Panel on Climate Change and in advance of the planned negotiations on the United Nations Framework Convention on Climate Change. EU leaders concurred in the same year.. In the same year, EU leaders agreed to implement the first European climate target, to stabilize greenhouse gas emissions of the European Community at 1990 levels by 2000. This target was mainly intended as a signal to the international community about the ambitions of Europe, as EU decision-makers did not determine at that time how the target should be reached or who would do what among its Member States.

Climate change only recently became an object of the EU environmental policy, appearing in a very superficial way in the 4$^{th}$ EU Environmental Action Program (1987-1992) and in 1999, in a communication from the Commission to the Council in which climate change and its impact were described, bringing to the adoption of a non-binding resolution to stabilize $CO_2$ emissions by the year 2000 at their 1990 level.
During the '90s the issue of climate change acquired a new momentum. The 5$^{th}$ EU Environmental Action Program contained a dedicated section on the topic and in 1994 the EU adhered to the UN Climate Change Convention. In 1992, the Commission issued a Communication on measures to combat global warming, indicating three kind of measures, i.e. energy conservation and improved energy technology, monitoring mechanisms for emissions and fiscal measures.
In 1997 the Kyoto Protocol was signed, leading to the establishment of the European Climate Change Programme (ECCP) in 2000, which aims were to identify and develop the instruments needed for the implementation of the Kyoto Protocol.
The 6$^{th}$ EU Environment Action Program (2002) set the aim for climate change policy to strive to respect the objective of 2°C over pre-industrial levels

In March 2007, as a means of helping to stimulate the UN negotiations on targets for the period after 2012, EU Heads of State agreed on a set of three targets referred to as "20-20-20 by 2020", which came into force with the directive 2009/29/CE. It includes:

- A reduction of greenhouse gas emissions by at least 20% in comparison to 1990 levels,
- A 20% share of renewable energies in final energy consumption (as well as a 10% target for renewable fuels) and
- 20% of savings on the projected EU final energy consumption in 2020.

Furthermore, the EU included the possibility of a 30% GHG reduction in case there would be a comprehensive and comparable global agreement with similar efforts undertaken by other major developed and developing countries, but since there was no new international agreement agreed at the 2009 Copenhagen Climate Change Conference for 2020, the EU did not extend the target to 30%.

To implement these targets the EU introduced a set of policies in 2009, known as the "Climate and Energy Package", which included four main parts:

- a reviewed Directive on emissions trading (ETS Directive): Directive 2009/29/EC
- the Effort-Sharing Decision (ESD): Decision 406/2009/EC
- the Renewable Energy Directive (RED): Directive 2009/28/EC
- a Directive on carbon capture and storage (CCS Directive): Directive 2009/31/EC

The "20-20-20 for 2020" was then the object of the Report No 13/2021 by the EEA, that confirmed that the EU had reached its climate and energy target.

In October 2016, the EU ratified the Paris Agreement, which major points include:

- a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels;
- the aim to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change;
- the need for global emissions to peak as soon as possible, recognizing that this will take longer for developing countries;
- the rapid reduction of emissions in accordance with the best available science.

The EU was the first major economy to submit its emissions reduction goal under the Paris agreement, promising to reduce its CO2 emissions by 40% by 2030, compared to 1990 levels, but this target was soon revised. New reduction goal have been set after the Parliament's approval of the Resolution 2019/2930, which declared the climate emergency and also asked the European Commission to adapt all its proposals in line with a 1.5 °C target for limiting global warming and ensure that greenhouse gas emissions are significantly reduced. Subsequently, in December 2019, with the communication COM/2019/640, the European Commission presented the European Green Deal, which aims "to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use".

The goals of the European Green Deal became legally binding in July 2021, with the adoption of the European Climate Law, with regulation 2021/1119.
The Climate Law also indicates the steps needed to reach the target of net zero GHGs emissions by 2050, of which the most representative one is the new aim for 2030 of reducing net greenhouse gas emissions by at least 55% compared to levels in 1990.
Following the Climate Law, a more concrete action has been taken by the Commission with the presentation of the "Fit for 55" (COM/2021/550 ), which proposes the legislative measures needed to achieve the 2030 Green Deal's targets.
As the recommendations in the Fit for 55 package are first presented and considered at a technical level inside the Council's several working groups in charge of the relevant policy area before being delivered to the various Council of Europe permanent representatives, the Council is seen as co-legislator. The 27 member states have discussions to lay the groundwork for a consensus on the ideas. Then, in various Council configurations, EU ministers discuss the proposals and try to come to an understanding on a shared stance. Using this as a starting point, the Council presidency negotiates with the European Parliament to reach a consensus in preparation for the legislation's eventual approval. The Fit for 55 package was submitted to the Council in July 2021 and it is now being discussed across several policy areas, such as environment, energy, transport and economic and financial affairs.

Finally, in order to describe the legal framework of climate policies, it is important to mention that the measures addressing climate change have a legal base which depends on the nature of the matter, so they would rely on ART 44 (agriculture), 91 or 100 (transport), 113 (taxation), 114 (internal market), 207 (trade), 194 (energy) or 192 (environment) TFEU.

# The Kyoto Protocol:

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets. The Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh, Morocco, in 2001, and are referred to as the "Marrakesh Accords." Its first commitment period started in 2008 and ended in 2012.

The main target of the first commitment period was the reduction of developed countries' GHG emissions by at least 5 percent below 1990 levels. These countries, called Annex I countries, belong to the OECD and also include twelve countries from Central and Eastern Europe with 'economies in transition'. The most controversial issue of the Kyoto Protocol was the adoption of the principle of 'common but differentiated responsibilities' which limited the application of quantitative targets to developed countries, based on the fact that they were the source of most past and current GHG emissions.
The Kyoto Protocol sets emissions targets for developed countries which are binding under international law and as the EU approved it with the Decision 2002/358, it legally bonded itself to reduce greenhouse gas emissions by 8% by 2012 the latest.
In 2009, the second commitment period was agreed, for the period 2013-2020, setting the reduction of GHGs in a linear manner, in a fixed percentage, and considering as base year the 1990 and not the 2005 anymore. In case of not compliance with the required emissions, corrective measures were applied.

The Kyoto Protocol, in order to make its aims achievable, highlights the following market-based mechanisms, *de facto* creating the carbon market:

- International Emissions Trading (IET)
- Clean Development Mechanism (CDM), which allows for collaborative projects with carbon credit trading between industrialized and developing countries. So, it allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one ton of CO2, which can be counted towards meeting Kyoto targets.
- Joint implementation (JI): The mechanism known as joint implementation (JI), defined in Article 6 of the Kyoto Protocol, allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another Annex B Party, each equivalent to one ton of CO2, which can be counted towards meeting its Kyoto target. JI offers Parties a flexible and cost-efficient means of fulfilling a part of their Kyoto commitments, while the host Party benefits from foreign investment and technology transfer.

Ultimately, these mechanisms help to stimulate green investment and help parties meet their emission targets in a cost-effective way.

# The EU ETS and its evolution:

When the EU (then consisting of only 15 Member States) agreed jointly under the Kyoto Protocol to an 8% reduction of GHG emissions from 1990 levels in the period 2008 to 2012, it lacked, at that point in time of the policy instruments to make this reduction possible. Internal debates on plans to introduce a carbon or energy tax were not fruitful and several countries were moving ahead with national emission reduction policies (such as support for renewable energy), but others were waiting for common and coordinated policies and measures to be introduced EU wide. In this general context, the European Commission started elaborating a proposal for an EU emission trading system to tackle the emissions from key economic sectors (especially energy and industry). As a result of these deliberations, the EU ETS was instituted as one of the key policy measures to reach the Kyoto targets. Currently, it covers the 28 member states and since 2008, the neighbouring countries of Iceland, Lichtenstein and Norway. There EU ETS is organised in trading periods (or phases), currently being in its fourth phase.
In March 2000, the Commission adopted a Green Paper about GHG emissions trading and one year later this market-based mechanism became the object of a proposal for a Directive setting a framework for the trading and exchange of greenhouse gas allowance within the European Union. The directive was then adopted in 2003 as Directive 2003/87.
The scheme was at time limited to installations that were mentioned in the annex I, which had to receive a permit for the emissions of GHGs.

In practical terms, the EU ETS works as follow, being based on the cap-and-trade principle:

- A cap is set on the total amount of certain greenhouse gases that can be emitted by installations covered by the system. The cap is reduced over time so that total emissions will fall.
- Within the cap, companies receive or buy emission allowances which they can trade with one another as needed. They can also buy limited amounts of international credits from emission-saving projects around the world. The limit on the total number of allowances available ensures that they have a value.
- After each year, a company must surrender enough allowances to cover all its emissions, otherwise heavy fines are imposed. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or else sell them to another company that is short of allowances.
- Trading brings flexibility that ensures emissions are cut where it costs least to do so. A robust carbon price also promotes investment in clean, low-carbon technologies.

## EU ETS – Phase 1 (2005-2007):

Phase one of the ETS, which ran from 2005 to 2007, was a pilot phase designed to test the technology and collect data. The program had a national cap on allowances and was only available to EU nations. By creating national allocation plans, the Member States were allowed to choose how many emission allowances to allot to each site on their territory (NAPs). In this phase, CO2 emissions from facilities for generating power and heat as well

as from energy-intensive industrial sectors like iron, steel, cement, and oil refining were covered. Nearly all emission allowances were distributed for free and were based on historic emissions. The companies were fined 40 Euros per tonne of CO2 for non-compliance. With the help of this initial phase, a price for emission permits, free commerce within the EU, and the infrastructure for tracking, disclosing, and confirming real emissions from the covered sites were all able to be established.Approximately 3% of total verified emissions were reduced due to the ETS at nominal transaction costs. However, after the first year of operation, when real world emission data started to be published for the first time, it became obvious that too many emission allowances had been allocated to businesses, so the problem in this first phase was that the supply exceeded demand and consequently market price for carbon was close to zero

## EU ETS – Phase 2 (2008-2012):

The EU ETS program was updated in 2008. This modification, which marked the beginning of Phase 2 (2008–2012) of the carbon trading system, fell within the first Kyoto Protocol commitment period. The most significant innovation of this period was the tightening of the emission cap by the EU, which was accomplished by cutting the total number of emission allowances by 6.5% from 2005. In this phase, other nations, including Iceland, Norway, and Liechtenstein, joined the system, and the scope was expanded to include new GHG types. A new proposal which met a strong opposition was the introduction of including emissions from airplanes in the scheme. Non-EU Flight company and their relative states threatened legal measures and economic sanctions and so the EU had to suspend the measure for Extra-EU flights.

The 2009 amendment mandated that 10% of the allowances be subject to auction and no longer be attributable for free, resulting in a structural shift to the system. Additionally, the fine for non-compliance was increased from 40 Euro to 100 Euro per tonne with reference to sanctions.

Businesses were permitted to use credits from the Clean Development Mechanism (CDM) and Joint Implementation (JI) of the Kyoto Protocol, which boosted the overall number of carbon credits that were available on the market. This was another innovative introduction of the second phase.The countereffect of the introduction of the additional credits, coupled with the economic crisis of 2008, which reduced emissions from EU companies, resulted in a large surplus of emission allowances, causing the drop of the price from 30 Euro to less than 7 Euro.

## EU ETS – Phase 3 (2013-2020):

The third revision of the EU ETS arrived quite early, with Directive 2009/29, which set up the framework for the Phase three (2013-2020). The final text was included in the Climate and Energy Package, aimed at meeting the EU's goal of reducing greenhouse gas (GHG) emissions by 20% by 2020. The reasons which justified this revision were many. Firstly, the fall in the price of the allowances during phase two damaged the reliability of the EU ETS. Secondly, and most importantly, the EU ETS did not push relevant transformations or movement towards renewable energy industries or low carbon technologies, as instead it was hoped. Also, it was not as cost-effective as expected and finally, frauds and scams were very common in the system. Other than enlarging the number of sectors admitted to

the ETS, the first response to these problems was the introduction in this phase of a EU wide emission cap, so applying uniformly over the EU, without Member States being required to prepare NAPs, in order to achieve the GHG reduction target more effectively. The cap had a decreasing mechanism by 1.74% per year, functional to the reduction of emissions by 21% in 2020 compared to 2005.
The main allocation method of the emission allowances finally became the auctioning, then regulated by the Commission regulation No 1031/2010, but some remaining free allocation were still present, in particular for industrial installations considered to be at significant risk of carbon leakage (which will be described below).

The main challenge in the third trading period was the large surplus of emission allowances transferred from the second to the third trading period leading to a price of only 3-7 Euro. This problem was addressed through two strategies. "Backloading" was implemented as a measure aimed at rebalancing the supply and demand of allowances in the short term. The proposal foresaw a postponement of the auctioning of 900 million allowances, reducing 2014 auction volumes by 400 million allowances, 2015 volumes by 300 million, and 2016 volumes by 200 million. This measure was implemented through an amendment to the EU ETS Auctioning Regulation and entered into force in February 2014. In addition, a market stability reserve (MSR) was implemented with Directive 2019/1814, in order to balance demand and supply by adjusting auctioning volumes. The MRS is a long-term solution aimed at addressing the surplus of allowances and at improving the system's resilience to major shocks by adjusting the supply of allowances to be auctioned. Instead of auctioning the 900 million allowances, these were transferred into the reserve, as well as unactioned allowances and then, every year, the Commission publishes the number of allowances in circulation, in order to understand if some of them will go into the reserve or released into the auctioning scheme.

## EU ETS – Phase 4 (2021-2030):

The aim of phase IV is to increase the pace of emissions cuts, to set up better-targeted carbon leakage rules, and to fund low-carbon innovation and energy sector modernization. The realization of the European Green Deal also includes the revision of the EU ETS, which main changes were proposed by the commission within the "Fit for 55" package of legislative proposals. This last revision is particularly important as the ETS has to be reinforced in order to be functional to the more ambitious emission reduction target set in the European Climate Law, the net zero emissions by 2050.
The first aim of Phase four, the current phase, is to reduce the emissions of the sectors covered by 43% with respect to 2005, through a mechanism of yearly cuts of the allowed emission allowances of 2.2% from 2021. Actually, the Commission proposal contained in the Fit-for-55 package, and that still has to be adopted, wants to increase the linear emissions reduction factor from 2.2% per year to 4.2 % (see Briefing EU Legislation in Progress: "Review of the EU ETS – 'Fit for 55' Package).
Some main novel elements of this last revision include:

- Revised rules for the free allocation of allowances and the Market Stability Reserve: From 2023, allowances above the level of auction volumes of the previous year will be invalidated, and the number of allowances in the MSR would be limited to 400 million.
- Extension of the ETS to the maritime transport
- A new ETS for buildings and road transports

- The launch of a Carbon Border Adjustment Mechanism (CBAM)

At the current moment (just to have an idea of the point of evolution of the EC's proposal about the ETS in the framework of the Fit for 55 package), the European Parliament has referred the proposal to the Committee on Environment, Public Health and Food Safety. The Parliament adopted its position in the June 2022, and the Council adopted its general approach on 29 June 2022, enabling the launch of trilogue negotiations.

# Carbon leakage and the European Carbon Adjustment Mechanism (CBAM)

The European Commission defines Carbon Leakage as "the situation that may occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries with laxer emission constraints. This could lead to an increase in their total emissions". An official list of sectors and sub-sectors considered at high risk of carbon leakage exists, being drawn by the European Commission with the agreement of the Member States and the European Parliament, following an impact assessment and consultations with various stakeholders. With Phase four of the EU ETS a new list has been published

In order to avoid carbon leakage, the Commission presented its proposal for a regulation establishing a Carbon Border Adjustment Mechanism on 14 July 2021. The aim is to address the risk of carbon leakage caused by weak climate policies of non-EU countries (where policies applied to fight climate change are less ambitious than those of the EU). The CBAM is needed in order to prevent that the emissions reduction efforts of the European Union will be offset by increasing emissions outside the Union, because of the delocalization of production site, which initially were located in Europe, to non-EU countries or increased imports of carbon-intensive products. Hence, the first point of the CBAM is to tax GHGs emissions during the production process of the products covered. CBAM is designed to function in parallel with the EU's Emissions Trading System (EU ETS), such that to reflect and complement its functioning on imported goods. The CBAM will gradually replace the existing European Union mechanisms to address the risk of carbon leakage, which today consist of the free allocation of EU ETS allowances. More in detail, EU importers will buy carbon certificates corresponding to the carbon price that would have been paid, had the goods been produced under the EU's carbon pricing rules. If non-EU producer can show that they have already paid a price for the carbon used in the production of the imported goods in a third country, the corresponding cost can be fully deducted for the EU importer, in order to avoid a double CO2 taxation, while the price of CBAM certification should mirror price of EU ETS allowances

The sectors covered will be the one with a high risk of carbon leakage and high carbon emissions, so initially it will be cement, iron and steel, aluminium, fertilisers, electricity
The implementation will go through a gradual phase:

- In 2023–2025 there will be a transitional period to collect information on carbon emissions from imported products;
- importers will start paying a financial adjustment in 2026;
- starting 2026, corresponding reduction over time of free allowances in the EU-ETS in sectors covered by the CBAM and the free allowances will be expected to phase out 2035 (importers should be treated the same as EU producers).

The embedded emissions will be determined thanks to information that should be communicated to importers registered in the EU by their non-EU producers, but if those will not be available, EU importers will be able to use default values on CO2 emissions for each product to determine the number of certificates they need to purchase. Successively, importers will nevertheless be able to demonstrate actual emissions during a reconciliation procedure.
Progress on a number of issues which are closely related to CBAM are still needed and the work is in progress, in particular this concern the phase-out of the free allowances allocated to industry sectors covered by the CBAM, established by the EU ETS directive, and appropriate solutions on the issue of limiting potential carbon leakage from exports, so that economic efficiency, environmental integrity and WTO compatibility of the CBAM are ensured.

## Renewable sources of energy:

The decarbonization of the entire European Union, needed to slow down and hopefully stop the current climate crisis, must pass also through the mix of energies adopted in our economy, especially if the source of the energy that we daily use is not clean.

The first act that suggested to increase the share of renewable sources of energy was the White Paper of 1997, indicating to pass from 6 to 12% by 2010. In order to go in a more concrete direction, the Council and the European Parliament urged the Commission to make effective proposals and in fact, in 2000, it proposed a Directive on the promotion of electricity from renewable sources of energy, then adopted an year later. The Directive 2001/77 then was based on Art.192(1) TFEU and it was intended to encourage Member States in fostering greater consumption of energy from renewable sources and it also fixed national indicative targets.
To achieve their objectives, Member States were allowed to financially support producers of electricity, which in turn had to guarantee the origin of the electricity if requested.

In 2009, Directive 2009/28, i.e. the aforementioned RED, was adopted. It set obligatory national targets for the overall share of energy from renewable sources in gross final consumption of energy and also for the share of renewables in the transport sector.
An important point is the definition of the concept of renewable sources, being it defined as "energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases". As already mentioned, this Directive was functional in achieving the target of 20% share of renewable energies in final energy consumption (as well as a 10% target for renewable fuels).
Member states had to design national renewable energy action plans indicating an annual trajectory to follow, with the choice of means set almost as free of choice to the states.
The report on compliance of the Commission (Commission COM(2013) 175), reporting on data until 2010, indicated that Member States struggled in reaching the objectives, in particular for wind and biomass energy, while the photovoltaic sector developed positively.

The EU Energy policy successively significantly evolved since 2019. The European Commission published a roadmap to 2050 in 2013 and later it also published a green paper on an energy and climate strategy for 2030 ("A 2030 framework for climate and energy policies", COM(2013) 169 final). Following, considering the expected results of the 2020 Package, the European Council adopted a clear set of goals and policy choices in October 2014. In

particular, it was established that the 27% of final energy consumption in the EU should have came from by 2030. However, the possibility to define individual and binding targets for each Member States was explicitly excluded.
Later, the political decisions made in October 2014 were transformed into legislative proposals and put through the regular legislative process. The Renewable Energy Directive (EU) 2018/2001 (RED II), which was implemented as part of the Clean Energy Package for All Europeans, following protracted political talks, amended the 2030 climate and energy framework by raising the objective for RES in 2030 from 27% of final energy consumption to 32%. Nationally binding targets were still lacking, however the RES national targets for 2020 should represent each Member State's minimum 2030 contribution. In addition, Member States are obliged to define integrated national energy and climate plans (NECPs), where they explain in detail how they plan to contribute to the common European targets and what measures they expect to put in place.
To put Directive 2018/2001 in its proper context, the Clean Energy Package was a collection of different policies pertaining to renewable energy, energy efficiency, governance, and electric market design. The Commission first put up the idea in November 2016, and it was finally finished in June 2019. The Clean Energy Package specifically included targets for 2030, including a 40% reduction in greenhouse gas (GHG) emissions compared to 1990 levels, a 32% increase in the share of renewable energy sources in the EU's energy mix, and a 32.5% target for energy efficiency. Apart from Directive 2018/2001, the Clean Energy Package included four regulations and four directives that addressed the following issues:

- Energy Performance in Buildings Directive (EU) 2018/844: for better and more energy–efficient buildings.
- Energy Efficiency Directive (EU) 2018/2002: The Directive sets a target of 32.5% for energy efficiency for 2030.
- Governance of the Energy Union Regulation (EU) 2018/1999: The Regulation sets a new governance system for the Energy Union. Each Member State is to establish an integrated 10-year National Energy and Climate Plan (NECP) for 2021 to 2030, with a longer-term view towards 2050. The plan is to outline how the Member State will achieve its respective targets.
- Electricity Regulation (EU) 2019/943: The Regulation sets principles for the internal EU electricity market. It focuses mainly on the wholesale market as well as network operation.
- Electricity Directive (EU) 2019/944; The Directive sets rules for the generation, transmission, distribution, supply and storage of electricity. It also includes consumer empowerment and protection aspects.
- Risk Preparedness Regulation (EU) 2019/941: The Regulation requires the Member States to prepare plans on how to deal with potential future electricity crises.
- ACER Regulation (EU) 2019/942: The Regulation updates the role and functioning of the European Union Agency for the Cooperation of Energy Regulators (ACER).

With the European Green Deal, which set the more ambitious targets in terms of emission reductions, aiming at cutting 55% of them, the targeted share of renewable energy furtherly rose, being set at 40%, as specified in the ‘Fit for 55’ package. In fact, in June 2022, on the basis of the Commission’s proposal of the 14th of July 2021, the Council agreed to set a binding EU-level target of 40% of energy from renewable sources in the overall energy mix by 2030. Member states will need to increase their national contributions set in their integrated national energy and climate plans (NECPs), to be updated in 2023 and 2024, in order to collectively achieve the new target.

To achieve that minimum share, the proposed amendments foresee a series of sectors specific sub-targets:

- Buildings: the proposal sets a new renewable energy source target of 49% to be achieved by 2030. Member States would have to introduce new requirements for minimum levels of renewable energy, in line with the Energy Performance of Buildings Directive.
- Industry: the proposal sets an indicative target of an average increase of at least 1.1 percentage point (ppt) per year, from 2021 to 2030, in the use of renewable energy as a share of energy used for final energy and non-energy purposes.
- Heating and Cooling: the proposal makes binding the target of the minimum increase of 1.1 ppts per year in the share of energy from renewable sources, until 2030.
- Regarding the sub-targets for transport, the Council introduced the possibility for member states to choose between:
    - a binding target of 13% greenhouse gas intensity reduction in transport by 2030. More options will be available for member states to reach this objective, such as a possibility to set a differentiated goal for maritime transport as long as the overall goal is met;
    - or a binding target of at least 29 % renewable energy within the final consumption of energy in the transport sector by 2030

The target on which the Council has just agreed, which set the share of renewable energy can already be seen as obsolete, considered that its proposal was based on geopolitical, political and economical scenario which was totally different compared to the actual one.
With the Communication COM(2022) 108 of May 2022, the European Commission introduced the RePower EU plan, which is aimed at overcoming the EU's energy dependence on russian natural gas and at tackling the climate crisis. A massive commitment toward renewable energy in power generation, industry, buildings and transport will accelerate our independence is now needed, in order to give a boost to the green transition, and reduce prices over time. The Commission proposes to increase the headline 2030 target for renewables from 40 to 45 per cent under the Fit for 55 package and by doing so, the Commission will also set the framework for new initiatives, including a solar strategy to double photovoltaic capacity by 2025 with 600 GW over the next eight years, a gradual legal obligation to install solar panels on new public, commercial and residential buildings, a doubling of the use of heat pumps, and measures to integrate geothermal and solar energy into heating systems.

# Limiting Emissions of greenhouse gases with Carbon Capture & Storage:

European commission has stated that "In the long run, direct air carbon capture and storage technologies has a real potential for technological development and could become the predominant technological option to remove CO2 from the atmosphere in an energy system dominated by cheap renewable energy and batteries" (European Commission, Communication COM(2018) 773)
To eliminate CO2 from our atmosphere, the European Union adopted Directive 2009/31, about the geological storage of CO2. This directive sets a legal framework for the stocking of underground storage of CO2, but it considers the CCS technology as a "bridging technology". Member states had the possibility to allow or not the storage of CO2 underground in their

territory, but each storage site has to follow specific rules. Every storage site needs a specific permit, which requires an environmental impact assessment to be carried out before. The storage sites have to be inspected regularly and in case of CO2 leaks, an action plan has to be executed, in order to stop the leak.
The directive also mandates what must be done once the storage site will be closed. The operator who had been managing the site remains responsible for it for the following 20 years, after which the responsibility shifts to the State.

Carbon removal techniques gained new relevance in 2021, when the Commission adopted the Communication COM(2021) 800, about Sustainable Carbon Cycles. The communication highlights that in order to fulfill the carbon reduction and climate targets of the EU, Carbon removals will need to play a growing role, and become the main focus of action after climate neutrality is achieved and when negative emissions will be needed to stabilize the world's temperature increase. For the Commission, available solutions based on resilient natural ecosystems and industrial carbon capture and storage (CCS) should be deployed in an efficient and sustainable way that takes into account their specific characteristics. Carbon removals from both ecosystems and industrial solutions should comply with strong requirements on monitoring, reporting and verification to be recognized as contributing to EU climate and environmental objectives. Irrespective of their origins, all carbon removals need to be accounted in full transparency and by considering criteria such as the duration of the storage, the risk of reversal, the uncertainty of the measurement or the risk of carbon leakages increasing GHG emissions elsewhere.

# EU Climate adaptation policy

Despite our efforts to limit climate change and the results of our program and plans until 2050, in the meantime we will anyway experience the effects and damages caused this thread.
For this reason, the EU Commission adopted its new climate adaptation strategy in February 2021 (COM(2021) 82), as part of the EU Green Plan, in order to better adapt to the unavoidable impacts of climate change and to become climate resilient by 2050. The strategy has as principle objectives to make adaptation smarter, swifter and more systemic, and to step up international action on adaptation to climate change.
Smarter adaptation will be pursued by robust data and risk assessment tools that are available to all, to families, to businesses in coastal regions and to farmers planning their crops. To make the adaptation systemic, the EU will support the further development and implementation of adaptation strategies and plans at all levels of governance with three cross-cutting priorities:

- integrating adaptation into macro-fiscal policy
- nature-based solutions for adaptation: defined by the Commission as "Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions." Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services.
- local adaptation action.

Finally, international action on adaptation on climate change will be mainly focused on international climate finance and engagement and exchanges with different countries.

Furthermore, international climate finance is also a point connected with the Paris agreement, as parties committed on making finance flows consistent with a low-emission, climate-resilient pathway, to help achieve the long-term climate goals.
One of the main instruments for the external action of the European Union, representative of the international commitment of the EU in dealing with regional or worldwide environmental problems, and in particular combating climate change (as mandated by ART 191 TFUE), is the European Fund for Sustainable Development Plus (EFSD+), aimed at the promoting sustainable development in particular in developing countries.
The EFSD+ raises financial resources for sustainable development from the private sector for inclusive economic development in third countries and it will support investment in partner countries to promote decent job creation, strengthen public and private infrastructure, foster renewable energy and sustainable agriculture, and support the digital economy.
More in general, the EFSD+ is part of the Global Europe: Neighbourhood, Development and International Cooperation Instrument (Global Europe NDICI), proposed in 2018 by the Commission (COM(2018) 460), with the aim of foster cooperation with all third countries and support those countries most in need to overcome long-term developmental challenges, contributing to achieving the international commitments and objectives that the Union has agreed to, in particular the 2030 Agenda and its Sustainable Development Goals and the Paris Agreement.

# From plans to action: financing the climate transition

All the policies, plans and program hitherto described need *ad-hoc* financial intervention and programs in order to make them possible. Sustainable finance gained substantial relevance with the Commission's Proposal of March 2018 (COM 2018/097 ) of a package which in particular promoted, i.e. the Sustainable Finance Action Plan:

- the establishment of a unified EU classification system of sustainable economic activities (a taxonomy)
- improving disclosure requirements on how institutional investors integrate environmental, social and governance (ESG) factors in their risk processes
- creating a new category of benchmarks which will help investors compare the carbon footprint of their investments.

Following, the Council adopted the regulation 2019/2088 and regulation 2019/2089. The first regulation introduced disclosure obligations on how financial companies integrate environmental, social and governance factors in their investment decisions, while the second text created new types of benchmarks aimed at giving greater information on an investment portfolio's carbon footprint.
The EU Taxonomy was introduced with Regulation (EU) 2020/852, which defines the objectives, the scope of application and the criteria to be used to define an activity as environmentally sustainable, so this is the actual legal framework of the taxonomy.

Specifically, the regulation defines six environmental objectives

- climate change mitigation;
- adaptation to climate change;
- sustainable use and protection of water and marine resources;
- transition to a circular economy;

- prevention and control of pollution;
- protection of biodiversity and ecosystem health.

According to the regulation, to be included in the Taxonomy, an activity must fulfil the following criteria:

- contribute positively to at least one of the six environmental targets;
- not produce negative impacts on any other target ("do no significant harm", abbreviated as DNSH);
- be carried out in compliance with minimum social guarantees (e.g. the UN Guidelines on Business and Human Rights).

Having defined the general legal framework, the legislators referred the technical details to two delegated acts. The first commission delegated regulation (2021/2139) has already been approved in December 2021 and it contains 170 economic activities in various sectors, including energy, transport, construction and manufacturing, which account for about 40 per cent of the listed companies in the EU, and account for almost 80 per cent of direct climate gas emissions. In relation to activities in the energy sector, the document sets an upper limit on CO2 emissions of 100 grams CO2e/kWh (considering direct and indirect emissions). Typical renewable sectors (photovoltaic, wind, hydroelectric) are classified, leaving the decision on gas and nuclear to a second delegated act. The second delegated act still has to be adopted, but in July 2022 the The European Parliament did not object to the Commission's Taxonomy Delegated Act to include specific nuclear and gas energy activities, under certain conditions, in the list of environmentally sustainable economic activities covered by the so-called EU Taxonomy. Hence, if the Council will not reject the Commission's Taxonomy Delegated Act, the act will be adopted at the beginning of 2023.

Finally, the most important financing tool for realizing the Green Deal are the green bonds, in particular after the Covid-19 pandemic, as with the NextGeneration Eu many billions worth of bonds, just targeted at sustainable and green investment, have been issued for financing the economical recovery.
With the 2018 Commission's introduction of the Sustainable Finance Action Plan, also a European Green Bond Standard (EGBS) was proposed. The legislative proposal from the Commission on the EGBS arrived in July 2021 (COM(2021) 391) and its key elements include that:

- The funds raised by the bond should be allocated fully to projects aligned with the EU Taxonomy;
- There must be full transparency on how bond proceeds are allocated through detailed reporting requirements;
- All EU green bonds must be checked by an external reviewer to ensure compliance with the Regulation and that funded projects are aligned with the Taxonomy.
- External reviewers providing services to issuers of EU green bonds must be registered with and supervised by the European Securities Markets Authority.

## References:


- “EU Environmental law” Seventh edition, Ludwig Kramer, Sweet and Maxwell edition;
- https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/
- https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2021)698781
- https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en
- https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en
- https://climate.ec.europa.eu/eu-action/european-green-deal/european-climate-law_en
- https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3541
- https://www.eea.europa.eu/publications/the-eu-emissions-trading-system-2
- https://climate.ec.europa.eu/eu-action/funding-climate-action/innovation-fund/legal-framework_en
- https://climate.ec.europa.eu/eu-action/european-green-deal/delivering-european-green-deal/increasing-ambition-eu-emissions-trading_en
- https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/revision-phase-4-2021-2030_it
- https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/market-stability-reserve_en
- https://www.iea.org/
- https://ec.europa.eu/info/strategy/recovery-plan-europe_en#documents
- https://ec.europa.eu/commission/presscorner/detail/en/ip_21_5207
- https://finance.ec.europa.eu/publications/eu-taxonomy-complementary-climate-delegated-act-accelerate-decarbonisation_en
- https://finance.ec.europa.eu/publications/renewed-sustainable-finance-strategy-and-implementation-action-plan-financing-sustainable-growth_en#action-plan