

## EU Domestic Climate Policy – Looking Back

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The European dimension to climate policies during the 1990s was modest and has been strengthened over time. This process has been gradual, inspired by policy-learning of what works best, what optimises economic efficiency and what ensures greater fairness of treatment between economic actors and between EU Member States.

### The monitoring of EU's emissions

The ability to monitor greenhouse gas emissions is a fundamental foundation for policy development. Even before the UN Framework Convention on Climate Change (UNFCCC) had come into force, the EU decided in 1993 to systematically track the greenhouse gases of EU Member States. It based its approach on the methodologies of the Intergovernmental Panel on Climate Change (IPCC)(EC, 1993).

EU Member States were enjoined to “*devise, publish, and implement national programmes for limiting their anthropogenic emissions of CO<sub>2</sub>*”. The European Commission had a limited role to evaluate these programmes to determine whether the EU as a whole was on track to meet its international commitments, and otherwise served as a kind of ‘secretariat’ in consolidating data and forwarding national inventories to other Member States. The mentioning of there being European climate policies only emerged in response to

the binding quantitative legal commitments of the Kyoto Protocol<sup>1</sup>, agreed in 1997. The Monitoring Decision, renewed and expanded in 2004 “*for implementing the Kyoto Protocol*”(EC, 2004), was changed again in 2013 (EC, 2013), incorporating new commitments agreed at consecutive meetings of Conference of the Parties (COPs) to the UNFCCC.

### Pillar 1: The EU Emissions Trading System (EU ETS)

Also in the 1990s, the EU started to develop its internal market establishing policies to allow the free movement of goods, people, services and capital. In the field of the environment a debate was taking shape on the use of market-based instruments. In 1992 the Commission made a proposal for a carbon/energy tax (EC, 1992): the tax would have been partially modulated according to the energy content of a product, and partially according to the carbon content. Tax policies require unanimity, and even though the EU only had 12 Member States, that proved too difficult to reach and the proposal was eventually withdrawn (EC, 2001).

Soon after the Kyoto Protocol was agreed the European Commission floated the idea of developing a European-wide system of ‘emissions trading’, a concept mentioned in Article 17 of the Kyoto Protocol (EC, 1998, pages 17-21 in

1 Kyoto Protocol available at: <https://unfccc.int/documents/2409>

particular ; EC, 1999, Section 5 in particular). Such a system seemed justified not only on the basis of cost-efficiency but also to make all large installations emitting CO<sub>2</sub> subject to the same cost of carbon wherever located in the EU. It is a fact that inspiration came in part from the Acid Rain Program in the U.S. that introduced a sulphur dioxide (SO<sub>2</sub>) trading mechanism<sup>2</sup>. A Green Paper on an EU greenhouse gas emissions trading system was published in 2000 (EC, 2000), and a legal proposal for a Directive in 2001 (EC, 2002). In remarkably short time for such an innovative instrument, the Directive was adopted in 2003 (EC, 2003) and the emissions trading system started initially in the form of a pilot phase on 1 January 2005.

The Emissions Trading System became not only the major instrument of EU climate policy, by virtue of the fact that it covered then some 45% of CO<sub>2</sub> emissions, but also because it embodied the ‘polluter-pays principle’ as mentioned in the Treaty governing the EU<sup>3</sup>. It constituted the world’s first significant attempt to internalise the external costs of pollution across a continent. Looking back, it was a bold initiative that happened so rapidly because it was evident that

if several Member States introduced emissions trading at the national level, as was already beginning to happen before 2005<sup>4</sup>, the EU’s ‘single’ market would be fragmented, which was contrary to the logic of greater European economic integration. Furthermore, the economic benefits of a larger system encompassing many countries were compelling and of benefit to all.

The Emissions Trading System constitutes a first basic pillar of the EU’s climate response. It gradually evolved into a fully harmonised system applicable to the EU Member States as well as to Norway, Iceland and Liechtenstein. Today it is fully linked to the Swiss Emissions Trading System but no longer applies to the United Kingdom. It covers some 10,000 large installations in the sectors of energy and manufacturing industry, as well as airlines. Further extension of the scope is expected to be proposed by the European Commission in mid-2021.

Since the EU ETS started, the greenhouse gas emissions of the covered installations have fallen by 35% between 2005 and 2019<sup>5</sup>, and the EU ETS is one of the main drivers behind the decoupling of the EU’s emissions from economic

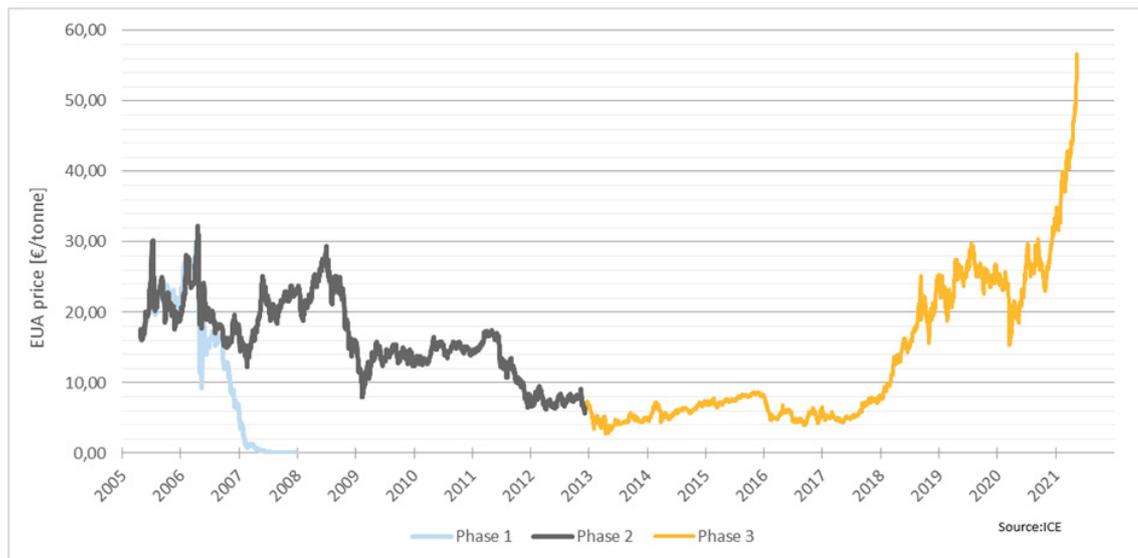


Figure 1. EU ETS allowance prices 2005-2021 (for phases 1-3). Source: European Commission and ICE

2 For more details see: <https://www.epa.gov/acidrain/acid-rain-program>

3 Article 191(2) of Treaty on the Functioning of the European Union.

4 In particular, the UK and Denmark had domestic emissions trading systems that pre-dated the EU’s.

5 See EEA (2020) page 15: “By 2019, EU ETS emissions from EU-27 Member States’ stationary installations had already fallen by 33 % since 2005. If the emissions of all countries that take part in the EU ETS (EU-27, United Kingdom, Iceland, Liechtenstein and Norway) are considered, stationary ETS emissions declined by 35 %.”

activity. Prices have fluctuated quite significantly. It took a considerable time to absorb the negative effects of the financial crisis of 2008-2010 and its economic consequences, but the creation of the Market Stability Reserve, that began operation from the beginning of 2019, redressed the situation. Since 2018 prices have been steadily increasing and they are currently around €50 per tonne of CO<sub>2</sub>. That is within the range that economists such as Stern and Stiglitz have indicated as necessary (High-Level Commission on Carbon Prices, 2017).

Today's higher EU ETS price, coupled with the expectation of greater stringency in the future, has brought the question of carbon leakage to the fore. More than half of the EU allowances are auctioned and give rise to significant revenues that Member States report are predominantly used for climate purposes. Less than half of the allowances are being allocated for free to producers of industrial goods such as cement, steel and chemicals on the basis of technological benchmarks, in view of countering carbon leakage due to the carbon price. The EU intends to develop an external correction mechanism in the form of a 'Carbon Border Adjustment Mechanism'. The Commission made very clear that this needs to be in line with WTO rules.

### **Pillar 2: The Effort Sharing Regulation**

Since 2013, the second pillar of the EU's climate policy is that of the 'Effort Sharing Regulation' (EC, 2018d) that covers emissions from sectors for which emissions have not been covered by emissions trading, such as transport, buildings, agriculture, waste, small and medium-size businesses. Several EU regulations with climate relevance exist for these sectors, such as those governing excise duties, waste disposal, and the Common Agricultural Policy, but these are sectors for which Member States retained considerable discretionary powers, and where they therefore retained primary responsibility for introducing climate policies. There were some areas, in particular with respect to product standards, where internal market considerations did justify EU action given that manufactured goods could freely be sold across the EU. The technical performance of new cars sold had to be accept-

ed across the internal market. This link with the free movement of goods explains why EU regulations have developed in particular with regard to standard setting, including the opening of energy markets across the EU.

The Kyoto Protocol's target of 8% reduction for the EU as a whole for the period 2008-2012 was an economy-wide commitment, including the EU ETS sectors. A burden-sharing exercise (now referred to as 'effort-sharing') was organised between the Member States to differentiate national targets, as was already understood as necessary to ensure fairness between Member States even before attending the climate conference in Kyoto, hence the EU's insistence on its 'bubble' arrangement under Article 4 of the Kyoto Protocol. After the Protocol's agreement, the burden sharing was agreed as a Council Decision (EC, 2009a). In retrospect this differentiation for the 1<sup>st</sup> Kyoto commitment period was not seen as equitable by all Member States, hence the Commission played a much more central role in establishing future effort-sharing targets.

For the second Kyoto commitment period (2013-2020) specific national targets for sectors outside of the EU ETS were set. This differentiation was based primarily on relative GDP *per capita*. It had to be revised for the EU's first Nationally Determined Contribution under the Paris agreement (2021-2030), also taking cost-efficiency into account and adding new flexibilities between the Effort Sharing sectors and the EU ETS and Land Use, Land Use Change and Forestry sectors, as illustrated in Figure 2. The effort-sharing process, once again, is one of incremental evolution of differentiation between Member States, reflecting the comparative wealth between Member States<sup>6</sup>. In some regard, it could be seen as the intra-European translation of the UNFCCC's concept of 'common but differentiated responsibilities and respective capabilities'.

6 For more about the modelling behind the effort-sharing exercises see: Chapters 3 and 5 of Delbeke & Vis (2019).

## ESR targets and maximum one-off ETS/non-ETS and land use flexibilities

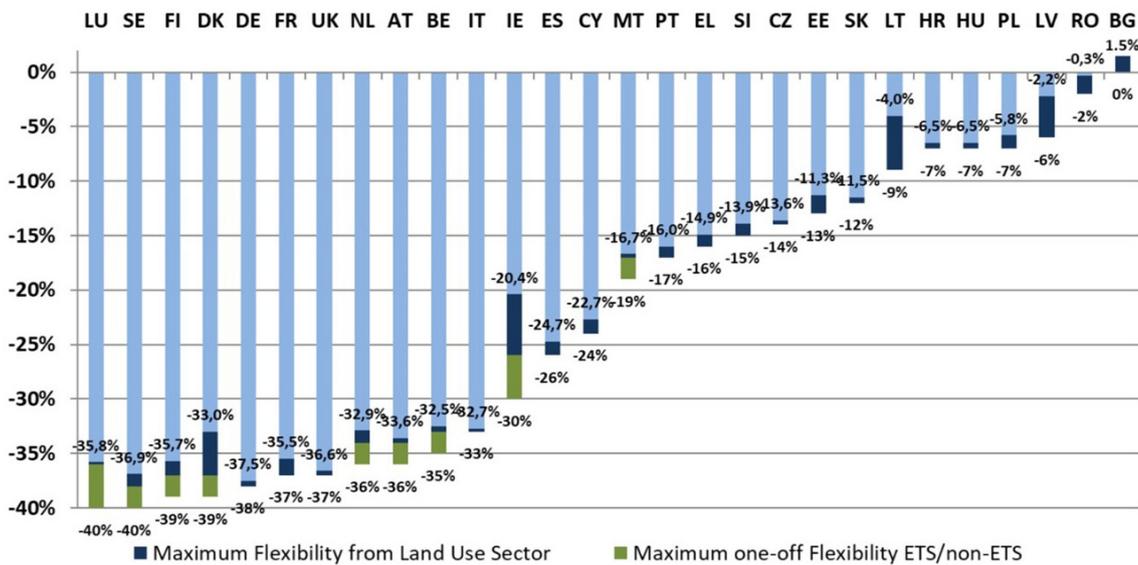


Figure 2. ETS Effort sharing 2030 targets per Member State (2030 = 40% reduction compared to 1990). Source: European Commission

### Pillar 3: The Land Use, Land Use Change and Forestry (LULUCF) Regulation

As of 2020, the third and newest pillar of EU regulation regarding climate action is the Land Use, Land Use Change and Forestry (LULUCF) Regulation (EC, 2018c). The land areas used by agriculture and forestry in the EU represent a significant net removal of emissions that could be taken into account when reporting overall emissions to the UN. The LULUCF Regulation of 2018 provides for Member States to monitor emissions and removals from the land use categories covered for two accounting periods of 5-years (2021-2025, and 2026-2030), and to account for them still using the rules developed under the Kyoto Protocol. The bottom line is that EU Member States committed to ensure that accounted emissions will not exceed accounted removals of greenhouse gases over the decade, the so called ‘no debit rule’.

Special rules for Land Use, Land Use Change and Forestry reflect the fact that biomass can remove carbon from the atmosphere, storing it

for a certain time, and then give rise to emissions when harvested. When trees are cut, they are accounted as an emission. If, however, the cutting of a tree does not necessarily give rise to emissions immediately, such as if a tree is incorporated as timber in buildings or furniture, the wood may continue to store carbon for some time, and the stored carbon will be temporarily accounted for as a removal under the category of harvested wood product. On the contrary, in the case that biomass is combusted, emissions do occur, but these are assumed to equal the carbon absorbed by the biomass when growing<sup>7</sup>. Under the monitoring rules of the EU ETS, sustainable biomass or sustainable biofuels are deemed to have ‘zero-emissions’ when combusted because emissions are being fully accounted for when the biomass is harvested<sup>8</sup>.

The reporting requirements for Land Use, Land Use Change and Forestry are essentially ‘net’ quantities of ‘stored’ carbon, taking into account both removals and emissions. The net removal that well-managed forest and land use sectors provide are referred to as ‘sinks’. It is true that

<sup>7</sup> Subject to biomass sustainability criteria being observed, as laid down in Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (EC, 2018a).

<sup>8</sup> See Camia et al. (2021) page 9: “Bioenergy is not accounted for in the energy sector because these emissions are already counted in the LULUCF sector (Regulation 2018/841) as a change in carbon stocks.”

an implementation mechanism that works to deliver emissions reductions and carbon dioxide removals at scale have still not been developed at either EU or Member State level. It is thought by many that increased harvesting of biomass for renewable energy purposes has contributed to a depletion of the forest ‘sink’, even if it could be assumed that increase demand for biomass would trigger increased supply and incentivise better forest management. Future legislation is likely to strengthen this ambition, as already envisaged in the recently adopted European Climate Law, in order to ensure the enhancement of removals by forest and land use sinks.

The monitoring and reporting of emissions is therefore different between the EU ETS and Effort Sharing ‘pillars’ on the one hand, and the LULUCF Regulation’s approach on the other: the former is about emissions released into the atmosphere<sup>9</sup>, the latter about the net greenhouse gas emissions and removals of carbon in sinks. The important thing is to note the consistency of this method of reporting with the UN methodology for national inventories.

### Energy policies

Despite the history of the European Union having its roots in the 1952 Treaty establishing the European Coal and Steel Community, only in the late 1990s did an alignment begin between energy and environmental policies. Given that fossil fuels are the primary source of greenhouse gas emissions, energy policies have obviously played a crucial role in addressing climate change. This contribution extends not only to the promotion of renewable energy, but also to the ‘liberalisation’ of energy markets, that have removed price controls, opened grid access, and have enabled price differentiation between different fuels in accordance with their greenhouse gas emissions. The EU ETS would never have been as important as it has been without carbon pricing being reflected in relative prices of electricity and passed through to consumers.

Because markets have been liberalised, renewable energy has benefitted from the fact that it is not covered by the EU ETS. While this may seem obvious in Europe, it is not to be overlooked how important it has been to have liberalised energy markets for carbon pricing to be effective.

### Renewable Energy

As late as 2007<sup>10</sup>, the European Council agreed the 2020 renewable energy target of 20% for the EU as a whole would be differentiated between Member States and also be legally binding. These were embodied in the Renewable Energy Directive of 2009 that represented a step-change in the deployment of renewable energy in the EU. Led by Germany in particular, subsidies were put in place across Europe that increased deployment and brought technology costs down. In a matter of 10 years, renewable energy evolved from being mostly based on hydropower, to seeing rapid growth of both wind and solar. What had previously been prohibitively expensive technologies, such as offshore wind, became normalised in seas around Europe.

For the period 2021-2030, a new renewable energy target of 32% has been set at the EU level. Member States in their National Energy and Climate Plans are clarifying their national contributions (EC, 2020, pg. 2).

Preliminary estimates by the EEA indicate that a renewable energy share of 19.5 % was reached in the EU-27 in 2019, and the share in electricity specifically is estimated to have been 34% of electricity consumed<sup>11</sup>. As renewable energy supplied an ever-increasing share of the electricity mix, the emissions from the power sector fell steadily, also due to the EU ETS. It is difficult to apportion the contribution of the EU ETS and that of renewable energy to the reduction of greenhouse emissions from the power sector. Both have been instrumental, and they needed each other. Success was down to the combina-

<sup>9</sup> Burned fossil CO<sub>2</sub> that is safely and permanently removed through carbon capture and storage technologies does not reach the atmosphere and is therefore not counted as an emission.

<sup>10</sup> See European Council Conclusions of 8-9 March 2007, in particular Annex 1: [https://ec.europa.eu/growth/content/presidency-conclusions-spring-european-council-8-9-march-2007-0\\_is](https://ec.europa.eu/growth/content/presidency-conclusions-spring-european-council-8-9-march-2007-0_is)

<sup>11</sup> The EEA considers that the EU is on-track to meet its 20% renewable energy share in 2020. For more details see Chapter 3 of ‘Trends and projections in Europe 2020’ (EEA, 2020).

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tion of two powerful drivers that were aligned.

### *Energy Efficiency*

Europe has set itself energy efficiency goals of a 20% and 32.5% reduction in energy consumption in 2020 and 2030 respectively<sup>12</sup>. Despite efforts at both national and European levels, the EU as a whole is not on track to meet these objectives, although meeting the 2020 target may have been helped by the temporary effects of the COVID-19 epidemic<sup>13</sup>. The EEA concludes that “to meet the 2030 target, annual reductions in energy consumption will have to more than double the average rate of reductions achieved between 2005 and 2018” (EEA, 2020). The Energy Efficiency Directive (EC, 2018b), combined with other efficiency instruments such as the Energy Performance of Buildings Directive (EC, 2010) or the Ecodesign Directive (EC, 2009b) are so important as the energy mix is still inextricably linked to greenhouse gas emissions. Using less energy will reduce greenhouse gas emissions, as well as provide co-benefits in terms of energy cost savings and air quality improvements. Even in a ‘net-zero’ world, minimising the resources needed for supplying emissions-free energy, including from renewable energy and nuclear, are worthwhile.

### *Integrated National Energy and Climate Plans*

This interplay between climate and energy policies is clear, with enormous potential benefit in terms of reducing greenhouse gas emissions. Coherence between policies is crucial, and in recognition of this, Integrated National Energy and Climate Plans are now required<sup>14</sup> to be prepared by Member States every 10 years, with revisions every 5 years. These plans require the integration of climate policies not only into the energy sector but also cover non-energy related

greenhouse gas emissions from industry, agriculture, forestry, and waste. The Commission is mandated to evaluate these to ensure sufficient ambition and coherence. More is said on this in the separate article on Climate Policy Architecture in the European Union in this same issue. However, the close interlinkages between energy and climate policies are now well understood at the European level, and the only surprise is how long it took to put integration at the heart of Europe’s climate ambitions.

In fact, the mainstreaming of climate policies is also mandatory into other planning instruments like the EU’s annual budget, the Strategic Plans foreseen under the Common Agricultural Policy<sup>15</sup>, the programming of the Cohesion Policy Funds<sup>16</sup>, the National Recovery and Resilience Plans as part of the EU’s COVID-19 response<sup>17</sup>. These include minimum spending targets for climate actions, such as earmarking at least 30% of the entire EU budget between 2021-2027.

### **Keeping the metrics right**

The coherent and comprehensive tracking of emissions is a critical and fundamental challenge. As a Party, the EU implemented the detailed provisions of Articles 5, 7 and 8 of the Kyoto Protocol, based on the IPCC’s methodology. This methodology is a ‘direct’ emissions approach whereby Parties are responsible for combustion and process emissions originating on their territory. This is not only the most feasible monitoring methodology to implement, but it also runs the lowest risk of double-counting emissions across sectors of one Party or by more than one Party. The Paris Agreement re-confirmed the

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12 The 2020 EU-28 target represents energy savings of 20 % from levels projected for 2020 in the Commission’s 2007 energy baseline scenario. The EU-27 energy efficiency target for 2030 represents an improved energy efficiency of at least 32.5 % compared with 2030 projections using the same energy baseline scenario.

13 Quotation from EEA (2020) “Trends and projections in Europe 2020: “Although not yet quantified, there are strong indications that the economic downturn in 2020 has sharply reduced emissions and overall energy consumption this year...””.

14 See Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action (EC, 2018e).

15 [https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/key\\_policies/documents/cap-specific-objectives-brief-4-agriculture-and-climate-mitigation\\_en.pdf](https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/key_policies/documents/cap-specific-objectives-brief-4-agriculture-and-climate-mitigation_en.pdf)

16 [https://ec.europa.eu/regional\\_policy/en/2021\\_2027/](https://ec.europa.eu/regional_policy/en/2021_2027/)

17 [https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility\\_en#national-recovery-and-resilience-plans](https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en#national-recovery-and-resilience-plans)

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IPCC methodology.

The direct emissions approach does not monitor the flow of carbon between national jurisdictions. However, the cooperative approaches of Article 6 of the Paris Agreement, like the flexible mechanisms of the Kyoto Protocol, allow for reductions of emissions in one territory to be paid for by emitters in other territories, thereby enabling and framing extra-territorial collaboration between States in order to implement their Nationally Determined Contributions (NDCs)<sup>18</sup>. Corresponding adjustments ought then be made to national carbon accounts, to record the transfer of reductions or removals between national jurisdictions<sup>19</sup>. Such corrections are being made by the EU for cross-border transfers of emission reductions between its Member States as part of its ‘EU bubble’ arrangements under the Kyoto Protocol and Paris Agreement.

The UN’s monitoring methodologies for national inventories basically do not follow a ‘life-cycle approach’. However, there are a number of initiatives being developed by Member States and the Commission, such as the European framework for sustainable buildings<sup>20</sup>, that advocate the use of life-cycle analysis. Life-cycle analysis works out the carbon balance of goods from the stage of extraction of raw materials, through the production and consumption or use phases, to the end-of-life emissions of products that are disposed of or recycled. Not only are life-cycle analyses intrinsically much more complex, but they are also prone to double-counting, as many emissions will have been or will be monitored and reported at earlier or later stages in the production and consumption chain.

The UN methodology for measuring greenhouse gases has been criticised as not accurately reflecting the flows of emissions attributed to goods that cross national boundaries. As part of its European Green Deal, the European Commission is likely to propose a Carbon Border Adjustment Mechanism (CBAM) based on the flow of carbon into the EU via certain categories of imported goods, notwithstanding that emissions related to the production of these

goods would normally be attributable to the country of production. Europe’s CBAM would not assume that inventories need to be adjusted, but that the costs of climate regulation in different jurisdictions do need to be approximated in order to mitigate the risk of ‘carbon leakage’.

New climate policy instruments are now emerging, such as CBAM or approaches based on Life-Cycle Analysis methodologies for the purposes of standard setting. Such specific instruments have merit in their own right but in so far as they take a different approach to accountability implied by the IPCC’s ‘direct’ emissions method of carbon accounting, careful consideration should be given to avoid duplication, omission or perverse effects. Mitigation efforts cannot be weakened by the loss of clear responsibility for emissions and by over-complicated carbon accounting for both countries and companies.

## Conclusion

Since the 1990s European climate policy has developed in a gradual and coherent manner (Delbeke & Vis, 2019). Not only have policies multiplied, but their effectiveness has been improved over time, in the light of experience and rising ambition. Integration between policy instruments has been strengthened, and tools put in place to closely monitor performance in terms of results.

The role of the European Union has increased significantly, reflecting both the depth of the EU’s internal market, but also recognition of the need for fairness and solidarity between Member States. The European Commission’s role has become central to this process, though ultimately power rests in the hands of Member States and the European Parliament, without whom legislation cannot be decided.

The overall result is that the EU has reduced its emissions by 24% compared to 1990 not accounting for carbon removals from land use, land use change and forestry. When these removals are included, the overall reduction

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18 See Article 6 of the Paris Agreement: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

19 The implementing rules for Article 6 of the Paris Agreement have not yet been finalised and will be the subject of further negotiations at COP-26 in November 2021.

20 For more information see: [https://ec.europa.eu/environment/topics/circular-economy/levels\\_en](https://ec.europa.eu/environment/topics/circular-economy/levels_en)

amounts to 25.9% (EEA, 2020). Over the same period, the EU has grown its economy by more than 60%. This was achieved through a successful combination of policies based on carbon pricing, the deployment of new low-carbon technologies such as renewables, technical standards and information provision. Clearly, a great deal remains to be done to bring Europe into line with the goals of the Paris Agreement and to ensure a truly sustainable, climate-neutral economy. The next round of policy revision is now underway to meet much higher ambition levels in 2030 and beyond. Enormous challenges lie ahead, but there are sound foundations on which to build.

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