CLIMATE ACTION TRACKER

EU

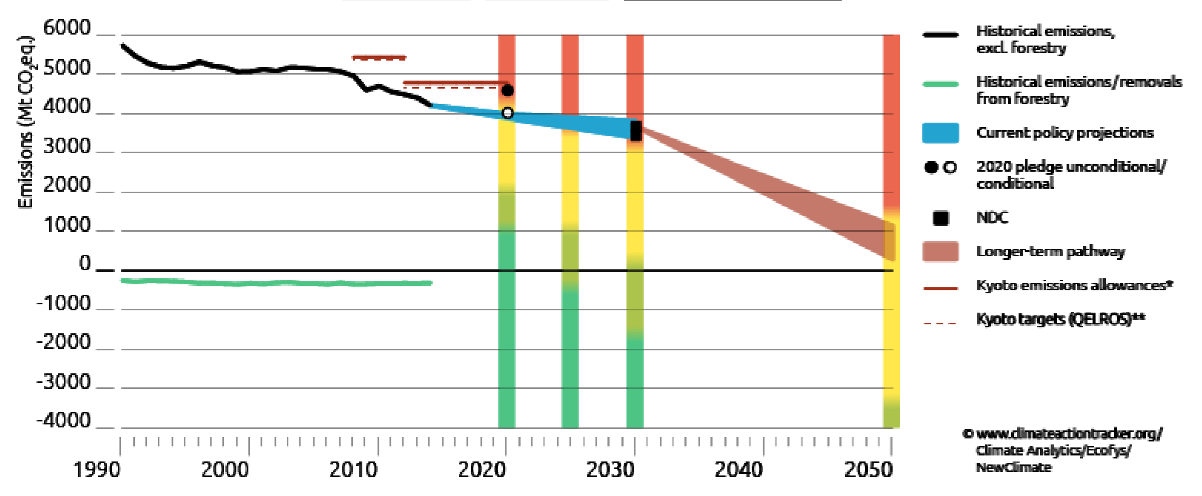
History: 2017 2016 2015 2014 2013 2012 2011

Page last updated: 2nd November 2016

Rating

Inadequate — Medium — Sufficient — Role Model

Basic view | + Pledges | + Kyoto accounting



Note: Hover over the coloured bars for a pop-up with the fair emissions range per effort sharing category. More information here.

* Emissions level in 2020 resulting from conditional/unconditional pledge. This differs from the Kyoto pathways as it depicts final 2020 levels whereas the Kyoto emissions allowances consider the average level of emissions over the second commitment period (2013-2020).

** Incl. LULUCF credits and debits, incl. LULUCF base year emissions accounting rules and application of historical threshold on emissions allowances in 2020 under the Doha decision.

***Excl. LULUCF credits and debits, excl. LULUCF base year emissions accounting rules and without application of historical threshold on emissions allowances in 2020 under the Doha decision.

Assessment

The overall 40% reduction in GHG emissions by 2030 from 1990 levels proposed in the EU's NDC is not consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit. Currently implemented policies are projected to reduce the EU's domestic emissions by between 34–40% below 1990 levels and thus put the EU on a trajectory close to meeting its 2030 target. Indeed, the European Union's 2030 target represents a slight slowdown in the rate of climate action compared to the preceding quarter-century at exactly the time when there needs to be an acceleration - to at least three times the historical rate of reduction—if decarbonisation by mid-century is to be achieved. However, the failure to increase the effectiveness of the EU Emissions Trading Scheme (EU ETS), and the slowdown in the development of renewable sources of energy, threaten the achievement of the 2030 target. In addition, there are increasing concerns over the accounting of land-use, land-use change and forestry activities which could be used to limit action on reducing emissions from the consumption of fossil fuels and other industrial greenhouse gas emissions, in a similar way in which Australia and New Zealand have essentially avoided substantial action.

On 6 March 2015, the EU submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC (UNFCCC 2015a, 2015b) formally putting forward a binding, economy-wide target of at least 40% domestic greenhouse gas emissions reduction below 1990 levels by 2030. The European Union ratified the Paris Agreement on 5 October following the completion of its fast-track procedure. As a result, its INDC became the EU's NDC with the same emissions reduction target. We rate this target "medium." Individual EU countries are also in the process of completing their ratification (as of 5 October 2016, nine member states have ratified the Agreement).

A positive element of the EU's NDC is the specification that it includes economy-wide emission reduction goals. Less positive is the statement that the target includes emissions/removals from land use, land-use change and forestry (LULUCF), which were not included in the 2020 target. The accounting rules for the LULUCF calculation were defined in the proposal for a regulation presented by the European Commission in July 2016 (European Commission, 2016a).

The 40% emissions reduction target is significantly behind what is achievable and necessary by the EU. Between 1990 and 2014 the EU's emissions decreased by 27%, or approximately 1.3% per year. As a result, from now until 2030, emissions only need to decrease by about 1.2% annually to achieve the 2030 emissions reduction goal. In other words, rather than accelerating climate action, the 2030 target represents a slight slowdown when the rate of action needs to be increasing—essentially at least tripling over this period—to meet the EU's own long-term 2050 emission reduction goals, as well as the Paris Agreement temperature goal. By going slower now this only creates a need for much faster —and therefore more costly—action than would otherwise be necessary after 2030 to achieve the EU's long-term emissions reduction goal of 80–95% below 1990 by 2050. Failure to increase the effectiveness of the EU Emissions Trading Scheme (EU ETS) and the slowdown in the development of renewable sources of energy, may threaten the achievement of the unambitious 2030 target.

In relation to 2020, the EU has signed up to the second commitment period of the Kyoto Protocol (2013–2020) with a QELRO equivalent to a 20% reduction from base year emissions, averaged over the second commitment period. Currently implemented policies are estimated to lead to a 30–32% reduction below 1990 levels by 2020, meaning that the EU is on track to both meet its second commitment period target, as well as its conditional Copenhagen pledge of reducing emissions by 30% below 1990 levels by 2020.

Pledges and targets

Paris Agreement targets

In October 2014 EU leaders agreed on a 2030 climate and energy policy framework, putting forward a legally binding EU target of at least 40% reduction in domestic emissions by 2030 in comparison to 1990 (European Council, 2014). On 6 March 2015, the EU submitted its INDC to the UNFCCC committing to a target of "at least 40%" domestic emissions reductions below 1990 by 2030 (UNFCCC, 2015). Parallel to this, the European Commission (one of the three decision-making bodies of the EU next to the Council of Ministers and the European Parliament) issued a statement, which differed from the INDC in respect of the contribution of LULUCF to the emissions reduction (see below under "Uncertainty in effect of LULUCF accounting").

Kyoto Protocol	
Member of KP CP1 (2008-2012)	yes
Member of KP CP2 (2013-2020)	yes
KP CP1 target (below base year)	-8%
KP CP2 target (below base year)	-20%
Copenhagen pledge	
2020 target	-20%/-30% by 2020
Reference year for pledge	1990
Conditions (for higher pledge level)	
Developed countries commit to comparable efforts and developing countries contribute according to capabilities.	
Paris Agreement target	
Ratified	**yes**
Domestic reduction of at least 40% by 2030	
Reference year for INDC	1990
Economy wide GHG coverage	
Long term goal(s)	
Long-term goal(s)	80-95% by 2050

The NDC text also provides further information on the EU's views on its fair share and its emissions reduction targets. First, the EU states that "the target represents a significant progression beyond its current undertaking of a 20% emissions reduction commitment by 2020 compared to 1990." Indeed, the proposed NDC target for

2030 is more ambitious than the target for 2020, but it will—in contrast to the period before 2020—make no use of international credits, as it refers to domestic emission reductions.

Transparency of accounting and reporting of emissions

Quantitative assessments of any emissions reduction target necessitate that the stated target is clear and quantifiable regarding any reference emissions levels, sectors and gases included, and that the accounting rules to be applied are clear. While the EU NDC does state the gas and sector coverage and reference year, the lack of clarity about the LULUCF accounting does not provide sufficient detail to ensure full transparency on these issues.

The NDC includes the following additional rules compared to the Kyoto Protocol, rendering the NDC more robust:

- A single 1990 base-year for all parties and gases;
- It does not recognise surplus AAUs (Assigned Amount Units) from the Kyoto Protocol's first commitment period;
- Emissions from international aviation are included in the target, and the legislation foresees the need to include international maritime emissions, even if no progress is achieved to include these at the international level.[1]

The target may be weakened by the inclusion of emissions and removals from LULUCF (Land Use, Land-Use Change and Forestry) in the achievement of the reduction target. How and to what degree these emissions and/or removals will be included is to be decided at a later stage.[2]

The uncertainty around LULUCF accounting

Although the NDC confirmed the inclusion of LULUCF accounting in the 2030 GHG mitigation target, it lacked transparency to what degree emissions from land use, land use change and forestry (LULUCF) were to be included in its emissions accounting in the base year (1990), as well as for the period 2021 to 2030, and the extent and modality of including this in the 40% emissions reduction goal for 203. It remains unclear whether this target is set with a fossil fuel and industrial greenhouse gas emissions baseline in 1990, as under the Kyoto protocol, or whether LULUCF emissions and/or removals are to be included in the base year, and if so, how. The choices here have substantial implications for the environmental integrity of greenhouse gas reduction targets, due to the significant uncertainties associated with monitoring of LULUCF emissions and sinks, and the risk of asymmetric accounting when the base year includes LULUCF, but the target year does not.

In July 2016 the European Commission published a proposal for a regulation that was designed to clarify the inclusion of emissions or removals from the LULUCF sector in the 2030 emissions targets (European Commission, 2016a). While the regulation does spell out which categories are included in the LULUCF sector, it does not specify whether or not potential emissions sinks would be included in the 40% emissions reduction target. Based on estimates for the pre-2020 period and projections for the whole LULUCF sector in 2030 (EC, 2014b), we could envisage an impact of including LULUCF accounting on reductions of industrial greenhouse gas emissions in the range of 1–4% of 1990 emissions, depending on the exact accounting rules applied (see Pledge Data sources and assumptions).

2020 pledge and Kyoto target

Under the Copenhagen Accord, the EU proposed decreasing emissions by 20%–30% below 1990 by 2020 and by 80%–95% below 1990 by 2050. The more ambitious 30% emissions reduction target was made conditional on other developed countries committing to comparable efforts and developing countries contributing according to their capabilities.

In May 2012, the EU submitted a provisional QELRO[3] (Quantified Emission Limitation or Reduction Objective) level equivalent to 20% reduction from base year over the second commitment period. This approximates a 21% reduction in Kyoto Protocol Annex A emissions[4] from 1990 levels by 2020. This target is to be fulfilled jointly by the EU and its Member States.[5] But as, by 2014, emissions of industrial GHGs were already approximately 27% below 1990 levels, it wasn't considered an ambitious target.

In February 2011 EU leaders endorsed the objective of reducing Europe's GHG emissions by 80–95% below 1990 levels by 2050 (European Council, 2011) conditional on necessary reductions to be collectively achieved by developed countries in line with the Intergovernmental Panel on Climate Change (IPCC). An attempt to adopt an unconditional European target failed in October 2012.

Footnotes

[1] The EU's inclusion of international aviation into the European emissions trading scheme was the first effort to regulate emissions from this sector globally. We did not evaluate the impact of this on EU28's 2020 target.

[2] Of concern in this area is the EU support for proposals to remove emissions from natural disturbances and to count removals from harvested wood products. We have not yet included these two aspects in our accounting calculations for the second commitment period, but inclusion could lead to higher credits (or lower debits), due to asymmetric accounting.

[3] The QELRO, expressed as a percentage in relation to a base year, denotes the average level of emissions that an Annex B Party could emit on an annual basis during a given commitment period.

[4] Annex A covers GHG emissions from the energy, industrial processes, solvent and other product use, agriculture and waste sectors

[5] This QELRO is inscribed in the amendments agreed in Doha in December 2012. The EU has yet to ratify these amendments.

Fair share

We rate the European Union's NDC "medium". This means that the EU is within the upper and least ambitious end of the range of what would be a fair contribution. It is not consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort. For the EU, proposals based on equality and capability/cost lead to higher emissions allowances whereas approaches that focus on capability only and equal cumulative/equal per capita emission would require more stringent reductions. The rating for the 2020 pledge is "inadequate", as it is in line only with the very least stringent of categories (capability/costs).

Current policy projections

Emissions in the EU28 have been on a decreasing trend since 1990. In 2014, emissions (excl. LULUCF) were 27% below 1990 levels. After a steep decline in 2009 due to the recession, and an upward spike following the recovery in 2010, they dropped continuously until 2014.

According to our analysis, the future emissions projections under the EU's currently implemented policies continue the past downward trend with similar - or slightly decreasing - reduction rates each year, depending on the effectiveness of the policies adopted. While emissions decreased by an average of 1.3% per year between 1990 and 2014, they are projected to decrease between 0.9% and 1.4% per year up to 2020, and between 0.6% and 1.4% per year until 2030. Emissions are estimated to be between 3.9 and 4 tCO_2e (a 30–32% reduction below 1990) in 2020 and between 3.4 $GtCO_2e$ and 3.8 $GtCO_2e$ (34–41% below 1990) in 2030. The more recent emissions projections are lower than the previous estimates mainly due to lower energy consumption (decrease by almost 4% in comparison to earlier projections). At the same time the share of renewables (slightly over 24% in 2030) is consistent with earlier projections, but below the EU target of 27%.

Current policy projections include all major EU policies already implemented by the EU or the EU member states by the end of 2015. This includes the EU ETS, the Effort Sharing Directive, the Energy Efficiency Directive and a wide range of other EU wide regulations influencing GHG emissions such as the Renewable Energy Directive. It also includes the most important national policies.

For the 2020 timeframe, the most important policies are those resulting from the "2020 climate and energy package" which contains the "20-20-20" targets. These refer to increasing the share of renewable sources of energy to 20%, improvement of energy efficiency (EE) by 20% and the aforementioned reduction of GHG emissions by 20%.

Analysis has shown that these targets are internally inconsistent. Implementing the renewable energy (RE) as well as the EE targets leads to an emission reduction of 30% rather than 20% (Höhne et al. 2011). Whereas the EU is well on track to achieve the renewable energy and emissions reduction targets, it lags behind with respect to the energy efficiency target.

The major new development that took place at EU level since last year's assessment is the Commission's proposal for the Effort Sharing Regulation for the period 2021–2030 (European Commission, 2016b). It proposes emissions reduction targets for each member state in the non-EU ETS sectors. These sectors, such as transport and buildings, cover around 60% of the overall emissions. Each member state has been given an emissions reduction goal between 0 and 40% in comparison to 2005. Combined, these targets add up to the EU-wide goal of 30% emissions reduction (excl. LULUCF) in comparison to 2005.

In July 2016 the Commission also presented the "European Strategy for low-emission mobility" (European Commission, 2016c). It suggested a number of measures aimed at reducing emissions from the transport sector by 60% below 1990 by 2050, announced in 2011 (European Commission, 2011). These measures include increasing the utilisation of digital technologies, fairer taxation that would improve the competitiveness of railways and development of infrastructure that would speed up the market take up of alternative modes of transport, such as electric recharging points, natural gas filling stations and hydrogen filling stations. It has also proposed new and more stringent tests for emissions from cars and vans. The impact of such measures on emissions reduction cannot be quantified and therefore it is not clear if they will allow the EU to meet its "at least 60%" emissions reduction target for the transport sector.

Assumptions

Pledge

Targets for 2020 and 2030 were calculated from the most recent national inventory submissions (CRF, 2016). We calculated EU's LULUCF accounting quantities for the period 2014-2020 for afforestation, reforestation and deforestation using the current Kyoto rules, and for forest management using a net-net approach with a projected reference level for 2014-2020. Some EU countries have included a background level for natural disturbances in their submitted Forest Management Reference Level. LULUCF quantities for the period of 2020-2030 have not been calculated because data projections are not detailed enough to allow their accounting. Furthermore reference levels for forest management have not been set and some additional activities (e.g. wetlands management) may be elected by individual member states thus making the calculation insecure.

The EU provided historical data on forest management and afforestation, reforestation and deforestation for many of its member states. Where members did not submit data it was - wherever available - compiled using the time series data from national inventories (CRF, 2014).

The impact of including LULUCF accounting on reductions of industrial greenhouse gas emissions could be in the range of 1–4%, of 1990 emissions, depending on the exact accounting rules applied. If the rules for the first commitment period of the Kyoto Protocol were used, EU's emission in 1990 would increase by 75 $MtCO_2$ thus effectively weakening the 2030 target by 1.4%, or by 1.3% when expressed as a reduction of industrial greenhouse gas emissions against 1990 levels. Another reference could be the likely second commitment period credits, which the CAT has estimated will be roughly 145 $MtCO_2/a$ (see assumptions below); effectively weakening the EU's target by 3.0% (compare "Kyoto targets" with "Kyoto emission allowances" in the figure), or 2.6% of 1990 Annex A emissions. The whole LULUCF sector is expected to be a net emissions sink of ~210 $MtCO_2/a$ in 2030 (EC, 2014b), or as much as 4% of 1990 emissions of all sectors.

Current policy projections

The current policy projections are based on the EU reference scenario 2016 and the EU's second biennial report. The two scenarios were chosen because they represent a 'bottom-up' and a 'top-down' manner of evaluating the impact of policies in the EU. While the biennial reports reflect the implementation of existing measures as put forward by member states, the PRIMES model performs a separate modelling exercise to estimate the effects of policies.

For the upper end of current policy projection for 2020 and 2030 we used the Second Biennial report's "with existing measures" scenario which "represents a business-as-usual scenario aggregated from 28 national WEM (with existing measures) projections where only policies and measures that have been adopted or already implemented in the Member State are considered, as far as covered by national projections." The figures were then harmonised to the latest inventory historical data (CRF, 2016).

For the lower end of the current policy projections for 2020 and 2030 we used the EU reference scenario 2016, which includes policies and measures adopted at EU level and in the Member States by December 2014 and three additional amendments to three Directives agreed in the beginning of 2015 (ILUC amendment to the RES and FQD Directives and the Market Stability Reserve Decision amending the ETS Directive). The figures were also harmonized to the latest inventory historical data (CRF, 2016).

One major difference between the lower and the upper end of the scenarios is that while the PRIMES model considered the full impact of the Energy Efficiency Directive, this has not been fully taken into account by the projections submitted by member states (EEA 2014). According to the EEA (EEA 2014) member states might not have taken into account further regulations that are included in the PRIMES model evaluation, including the revision or the Energy Performance Buildings Directive (EPBD) and regulations on the CO_2 emissions from cars.

Sources

Belgium and the European Commission on behalf of the European Union and its member states (2010). Submission to the Ad-Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP): Reference levels for Forest Management

CAN (2016): Land-based Emissions (LULUCF).

Council of the European Union Council (2009). Conclusions on EU position for the Copenhagen Climate Conference (7-18 December 2009) 2968th ENVIRONMENT Council meeting Luxembourg, 21 October 2009

Council of the European Union (2008). Brussels European Council, 11 and 12 December 2008, 17271/1/08

CRF (2014). UNFCCC AWG-KP Submissions 2014. Common Reporting Format.

Czech Republic on behalf of the European Community and its member states (2009). Definitions, modalities, rules and guidelines for the treatment of land use, land-use change and forestry (LULUCF) in the post 2012 period (AWG-KP). Views and proposals for further elaboration of the options, elements and issues contained in annex III to the report of the first part of the sixth session, and annex IV to the report at the resumed fifth session, including views on how and which proposals could address cross-cutting issues, 12 February 2009, FCCC/KP/AWG/2009/MISC.5

Denmark and the European Commission on behalf of the European Union and its member States (2012b). Submission to the Ad-Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP): Information by Parties included in Annex I listed in annex 1 to decision 1/CMP.7 on their quantified emission limitation or reduction objectives for the second commitment period under the Kyoto Protocol, 19 April 2012

DG Climate (2013). What is the EU doing about climate? Website of the European Commission.

EEA/DG Climate (2014). Annual European Union greenhouse gas inventory 1990-2012 and inventory report, submission to the UNFCCC Secretariat, Technical report No. 09/2014.

European Commission (2016a). Proposal of the European Parliament and of the Council of the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry into the 2030 climate and energy framework and amending Regulation No 525/2013 of the European Parliament and the Council in a mechanism for monitoring greenhouse gas emissions and other information relevant to climate change.

European Commission (2016b). Proposal for an Effort Sharing Regulation 2021-2030

European Commission (2016c). A European Strategy for low-emission mobility.

European Commission (2015). Communication from the Commission to the European Parliament and the Council

European Commission (2011). WHITE PAPER Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system

European Commission (2014a). 2030 framework for climate and energy policies.

European Commission (2014b) Table 10 in COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT, A policy framework for climate and energy in the period from 2020 up to 2030

European Commission (2011a). Energy Roadmap 2050. Impact assessment and scenario analysis.

European Commission (2011b). Impact assessment for the Directive on Energy Efficiency.

European Council (2011). Conclusions from 4 February 2011

European Council (2014). 2030 Climate and Energy Policy Framework

European Council (2015). Market stability reserve: agreement with European Parliament approved.

European Environment Agency (2014). Trends and projections in Europe 2014 - Tracking progress towards Europe's climate and energy targets for 2020. Copenhagen.

European Environment Agency (2013). Greenhouse gas emission trends and projections in Europe 2013. Copenhagen.

European Environment Agency (2012). Greenhouse gas emission trends and projections in Europe 2012. Copenhagen.

European Union (2012). Directive 2012/27/EU on energy efficiency (Vol. 4).

European Union (2010). Pledge of the EU27 to the Copenhagen Accord. Compiled in: Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention, UNFCCC (2011).

Höhne,N., Hagemann, M; Moltmann, S.; Escalante, (D. 2011) Consistency of policy instruments- How the EU could move to a -30% GHG emission reduction target

Höhne, N.; Gilbert, A.; Hagemann, M.; Fekete, H.; Lam, L.; de Vos, R. (2013) The next steps in Europe's climate action: setting targets for 2030

Hungary and the European Commission on behalf of the European Union and its member states (2011) Submission to the Ad-Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP): Forest management reference level

Intercontinental Exchange (2015). EUA Futures.

JRC/PBL (2012) EDGAR version 4.2 FT2010. Joint Research Centre of the European Commission/PBL Netherlands Environmental Assessment Agency.

UNFCCC (2015a): EU Submits its Climate Action Plan ahead of Paris 2015 Agreement

UNFCCC (2015b): INDCs as communicated by Parties