

The Vision Scenario for the European Union

2017 Update for the EU-28

Executive Summary

The global framework and a CO₂ emission budget for the EU as starting points Global climate change, finite fossil and nuclear resources and the vulnerability of economies and consumers to increasing and volatile prices of fossil energies are the challenges which will determine energy and climate policies for the next decades.

An analysis of the global CO₂ emissions budget and different approaches to derive a fair share for the EU leads to a CO₂ emissions budget of 61.5 billion metric tons from 2015 onwards that is consistent with the global effort to keep the increase of the global average temperature to below 2°C, compared to pre-industrial levels.

The Vision Scenario represents a pathway which consistently combines short- and medium-term objectives with long-term objectives. Furthermore it is in line with an EU greenhouse gas emission budget that is consistent with a 2°C limit on the increase in global temperature. It is the first comprehensive scenario analysis for the European Union that addresses both the (top-down) perspective of a 2°C-compatible CO₂ emission budget and how the related emission trajectories could be achieved from a bottom-up perspective.

Two scenarios that mark the policy-as-usual trend and a 2°C-compatible pathway

The quantitative scenario analysis of the energy system and all greenhouse gas emissions sources (except land use, land-use change and forestry) and of different ambitions in energy and climate policy outlines significantly different pathways for future energy and climate policies:

- In the Reference Scenario, which is based on recent ambitions in energy and climate policies as reflected in the European Commission's Baseline Scenario 2016, an emission reduction of 32% (compared to 1990 levels) by 2030 and 42% by 2050 is achieved. Renewable energies contribute 19% of the primary energy supply in 2030 and 24% in 2050. The share of power generation from renewable energies in total electricity generation is 43% in 2030, and 53% in 2050. The level of nuclear power production decreases slightly in the coming decades.

- The Vision Scenario is based on a greenhouse gas emission reduction target in accordance with the long-term 2°C goal. The total greenhouse gas emission reduction amounts to 54% in 2030 and 93% in 2050. Additional measures in land use, land-use change and forestry could enable a 95% emissions reduction. Renewable energies represent a share of 35% in the total primary energy supply in 2030 (up to 40% if ambient heat is also included) and 97% in 2050. The power sector undergoes a process of early decarbonisation; the share of renewable energies in total net power generation is 70% in 2030 and 100% in 2050. Nuclear power in the EU is phased out in this scenario by 2045. The use of biomass is restricted in order to comply with tight sustainability criteria; CCS may only be used to avoid CO₂ emissions from industrial processes. The Vision Scenario does not, however, consider major lifestyle changes or structural economic changes which could accompany the transition towards a circular economy; it also does not take into account extensive efforts to create more net sinks for carbon.

[...]

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