



Building a Paris Agreement Compatible (PAC) energy scenario

CAN Europe/EEB technical summary of key elements

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2.5 Phasing out nuclear power

Key assumptions

- Newly added capacities are not realistic due to high investment costs and competition of renewables.
- Lifetime is limited to 40 years unless governments and/or operators explicitly announce schedules.
- Increasing costs of maintenance, of the fuel chain and decommissioning incentivise earlier retirements.

Evolution of energy supply

National phase-out plans will be implemented. In countries without such plans, the expected retirement of capacities is based on the country profiles published by the World Nuclear Association.¹ For economic and security reasons, lifetimes are not extended anymore. After 40 years of operation, most capacities are retired as investment in modernisation and maintenance costs are higher than expected income from wholesale markets.² Only capacities at an advanced stage of construction will be completed.

Installed capacities in France alone in 2015 exceeded the sum of installed capacities in all other EU Member States. Provisions of the *Programmation pluriannuelle de l'énergie 2018* (PPE) apply: at least 12 reactors from defined sites will have to be retired between 2027 and 2035 to reduce the share of nuclear power to the legally fixed maximum threshold of 50% of French electricity consumption. Following an option under the PPE, two additional reactors will be retired between 2025 and 2026 as foreseen by PPE in case of oversupply on the European wholesale electricity market. The lifetime of remaining capacities will be mostly limited to 40 years, because after the fourth decennial inspection, further modernisation is economically not viable for the operator EDF.³

Electricity generation decreases from 857 TWh in 2015 to 109 TWh in 2040 and disappears by 2045. Only very few capacities built after 2000 remain in the electricity mix between 2040 and 2045, mainly in France and UK.

Integration of members' and experts' feedback

Retirement trajectories were discussed and slightly adapted in exchange with members' national experts.

Sensitivities and limitations

Nuclear power is strongly dependent on national policy frameworks and still enjoys direct and indirect subsidies. For countries without clear phase-out plans, governments' commitment to support this technology is crucial.

Key results

- A minority of EU Member States keeps nuclear power in the mix. Except for the few reactors added after 2000, all capacities will be retired by the year 2040.
- Its share in electricity generation drops from 26% in 2015 to 6% in 2030 and remains marginal in 2040.

¹ World Nuclear Association: Country profiles, Sept. 2019; <https://www.world-nuclear.org/information-library/country-profiles.aspx>

² Öko-Institut: The Vision Scenario for the European Union. 2017 Update for the EU-28, February 2018; Négawatt: Scénario négaWatt 2017-2050. Dossier de synthèse, January 2017.

³ Négawatt.

