

Submission by ERCST for SA.119469

Benefits of the Nuclear Programme

1. The systemic role of nuclear power for the electricity system, competitiveness, and European sovereignty

The objective of achieving climate neutrality by 2050 requires a profound transformation of the European electricity system. In this context, nuclear energy constitutes a key pillar of a resilient and decarbonised power mix.

Despite expected improvements in energy efficiency and moderation in final energy demand, the large-scale electrification of industry, transport, heating, and hydrogen production will require a substantial increase in low-carbon electricity generation capacity across Europe.

Nuclear power provides dispatchable and reliable generation capacity capable of responding to demand fluctuations across all time horizons, thereby complementing the variability of renewable energy sources and contributing to overall system stability.

Beyond its technical contribution, nuclear energy provides long-term economic predictability. Although capital-intensive at the investment stage, nuclear assets benefit from relatively stable operating costs over lifetimes extending up to 60 years, offering visibility on electricity production costs and reducing exposure to fossil fuel price volatility.

The European Commission itself acknowledges, in the Nuclear Illustrative Programme (PINIC), the contribution of nuclear energy to lowering the overall costs of the European electricity system.

In addition, nuclear technology demonstrates high efficiency in terms of land use and natural resource consumption, while contributing to security of supply and the affordability of electricity for households and industry.

The nuclear sector also supports European industrial sovereignty. Relying predominantly on European industrial value chains and expertise, nuclear generation strengthens strategic autonomy and reduces dependence on external energy suppliers.

More broadly, the sector contributes to economic resilience and territorial cohesion through the maintenance and creation of highly skilled direct and indirect employment across the Union.

2. The need for public intervention in long-term financing

The financing of new nuclear generation capacity constitutes a central challenge for European energy policy and reflects structural market failures that justify public intervention.

The intrinsic characteristics of nuclear projects — including very high upfront capital expenditure, long construction periods, extended asset lifetimes, exposure to electricity price volatility, and regulatory uncertainty — generate risk profiles that private markets alone are unable to absorb efficiently.

In particular exogenous risks of political, macroeconomic, and regulatory nature exceed the risk tolerance of private investors and therefore require balanced risk-sharing mechanisms involving public authorities.

State intervention therefore pursues two complementary objectives: ensuring revenue stability over the long term and minimising the overall cost of the energy transition for society.

Appropriate support mechanisms, including long-term fixed-price contracts such as Contracts for Difference (CfDs), Power Purchase Agreements (PPAs), and preferential financing conditions during construction, can significantly reduce the cost of capital. This directly translates into lower electricity prices for final consumers.

Absent such support, the financial profitability of projects remains insufficient to justify a final investment decision by project developers such as EDF.

3. Industrial rationale for the integrated operator model

EdF's decision to maintain an integrated model combining construction, operation, and commercialisation activities is grounded in robust industrial, technical, and safety considerations.

The management of a centralised nuclear fleet enables substantial economies of scale and operational efficiencies that would not be achievable under a fragmented market structure.

Such integration facilitates the pooling of operational experience, the standardisation of maintenance and safety procedures, and the preservation of high-level engineering capabilities and innovation capacities.

This integrated approach therefore contributes directly to operational performance, industrial resilience, and the maintenance of the highest nuclear safety standards.

4. Relevant market definition and commercialisation conditions

The evolution of the European electricity market towards 2040, 2050, and beyond increasingly supports a cross-border rather than purely national understanding of relevant electricity markets.

Regulatory harmonisation across Member States continues to deepen, while interconnection capacities between France and neighbouring countries have significantly expanded. French regulators themselves now consider France to be effectively integrated into the broader European electricity market.

At the same time, further convergence in competitive conditions and wholesale electricity prices within the Union is expected, reinforcing the existence of an increasingly coupled French, Belgian, and German market.

Against this backdrop, EdF's market share is expected to decline progressively over time due to the evolution of the existing nuclear fleet, the accelerated electrification of end-use sectors, and the expansion of renewable energy generation by multiple market participants.

In this context, the commercialisation of 60% of electricity production supported under the CfD through transparent, open, and non-discriminatory wholesale market mechanisms constitutes an important safeguard against undue distortions of competition and is consistent with the common European interest.