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Four scenarios for understanding the energy programmes of the Presidential candidates

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None of the French Presidential candidates have expressed any doubts about the need for energy transition, which involves a [deep decarbonization](#) of the French energy system. But there is a significant difference in the solutions envisaged to achieve this transition, particularly in relation to two points: the intensity of the action needed to control

the energy demand; and the choice of the electricity generation mix. These points are essential for the future of energy in France because the strategies they enable involve extremely different long-term trajectories. However, these issues have already been [discussed in 2013](#) during the National Energy Transition Debate. We can therefore refer to these issues to analyse the strategies of the contenders for the Élysée Palace.

Four possible energy scenarios

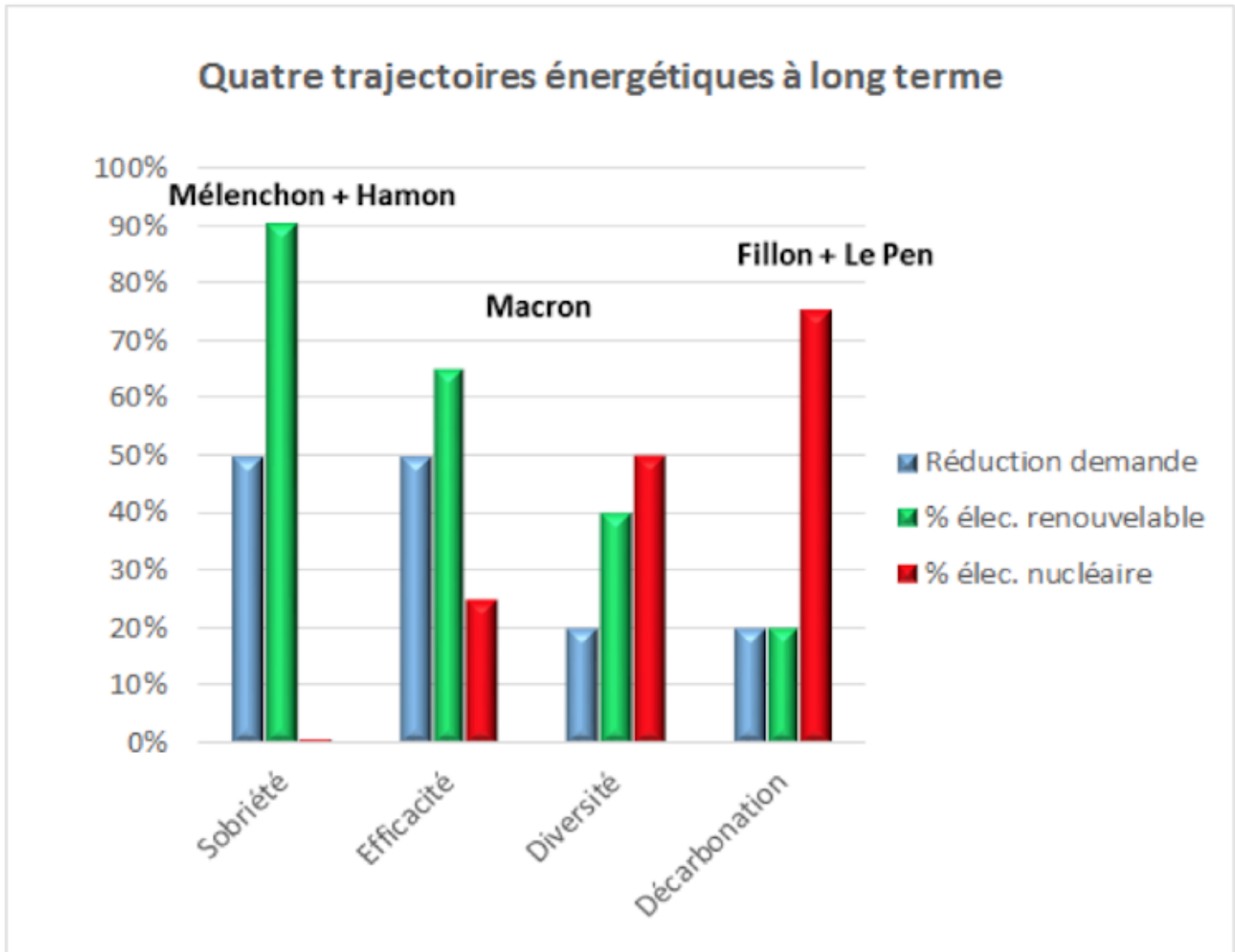
The National Energy Transition Debate was set up at the end of 2012 following François Hollande's announcements on the ecological transition and the commitment to reduce the dependence on nuclear to 50% by 2025. The Debate involved a National Council of about 100 Members, divided into working groups. Experts and business and citizen representatives assisted the Council. The Scenarios Working Group identified four possible "trajectory" groups. They were categorized according to whether the level of effort to reduce energy demand was very high (reduction of 50% in 2050), or more moderate (only a 20% reduction); and depending on whether the energy mix, particularly in the electricity sector, was polarized or diversified. The first trajectory, known as **"sobriety"**, was based on a strong reduction in demand (energy efficiency and behavioural changes) and an energy mix that shifts towards renewable energies. This scenario is also based on the phasing out of nuclear power. This is the model currently [followed by Germany](#). The second option, **"efficiency"**, also aimed at a major reduction in demand, but was instead based on the widespread use of the most efficient consumer technologies. Here, there was no complete phasing out of nuclear power, but the decline was assumed to continue beyond the 50% mark in 2025, until this energy becomes a minority. In contrast, renewable energies were assumed to account for around three-quarters of electricity generation by 2050. In the **"diversity"** scenario, it was considered that the reduction of energy consumption would not reach 50%. It would then be necessary to increase the supply of carbon-free energy; to this end—even if there was to be real progress in wind, solar and biomass energies—nuclear power would maintain an important contribution to the electricity mix, staying at 50% after 2025. Passed in the summer of 2015, a few months before the COP21, the [Green Growth Energy Transition Act](#) borrowed much from the "efficiency" scenarios in terms of demand reduction, and from the "diversity" scenarios in terms of the low carbon supply. The fourth and final option, "decarbonization" (of electricity) represents the continuation and reinforcement of the current French model: no additional energy efficiency effort; redevelopment of nuclear power to ensure an abundant and decarbonized electricity supply.

Which scenario for which candidate?

• **Le Pen and Fillon: "decarbonization" scenario** Marine Le Pen and François Fillon both advocate the defence of the current model, which positions nuclear power as the backbone of the French energy system. Both advocate maintaining the fleet and production at current levels: 63GWe of installed capacity and 400TWh annual nuclear production on average, i.e. 75% of the total. There is no mention of the need to significantly reduce energy demand as advocated in the 2015 Green Growth Transition Energy Act. But differences appear in the secondary options of these two candidates. [Marine Le Pen](#) Pen intends to prioritize national energies above imported energy (especially those coming from the Middle East), but she underlines that she will not support wind power, because there is strong [oppositions in France](#). On the other hand, she gives firm support to hydrogen. [François Fillon's programme](#) is divided into four strands: strengthening nuclear power; supporting renewable energies; energy decentralization with an increased role for regions; reform of the European emissions trading market for large industries and the electricity sector, with a proposal for a carbon price floor close to that of the current government.

• **Mélenchon and Hamon: "sobriety" scenario** [Jean-Luc Mélenchon](#) advocates ecological planning, the nationalization of EDF and ENGIE, 100% renewable electricity and the complete phase out of nuclear power. [Benoît Hamon](#) adopted this last option only very recently and following the agreement with Yannick Jadot (ex-Green candidate). The commitment is for a complete and definitive exit from nuclear power in 25 years. Breaking with a long tradition of the Socialist Party,

which has been rather favourable to this energy, Benoît Hamon is now in alignment with the proposals of the Greens in this area. At the same time, both candidates committed to strong action on energy efficiency and for carbon taxation. The differences between the two energy programmes of these two most left wing candidates have now become minor. •**Macron: between “efficiency” and “diversity”** Neither “decarbonization” (as adopted by the right wing) nor “sobriety” (as adopted by the left), the En Marche candidate’s position lies elsewhere... but is ultimately in line with the Energy Transition Act. For [Emmanuel Macron](#), the objective remains to reduce the share of nuclear energy to 50% by 2025, to promote the development of renewable energies by doubling the installed capacity by 2022 and, in terms of demand, to carry out an accelerated programme of targeted rehabilitation of houses with the poorest energy performance. In the nuclear field, he underlines the fact that this energy constitutes a real asset for France. But he also notes that all decisions concerning the renewal of plants, their dismantling or the launching of a new wave of investments will depend on the results of the next “ten yearly inspections” of existing reactors. These will be undertaken by the [Nuclear Safety Authority \(ASN\)](#) à partir de 2018. For Macron, nuclear policy is therefore largely held in abeyance, but the objective of 50% in 2025 is indeed a reasoned way of managing these radical uncertainties.



Analysis of candidate's programmes in light of the work carried out within the framework of the National Energy Transition Debate

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Beyond the nuclear-renewable debate

Each identified strategy faces specific difficulties and challenges. For scenarios involving a nuclear phase out, it is first necessary to achieve a drastic reduction in consumption, which cannot be taken for granted; then to undertake a deep transformation of the electricity system to guarantee network stability with a very large proportion of variable energies, wind and solar. For scenarios that maintain the nuclear capacity, it is first necessary to carry out a “major refit” while respecting the ASN’s requirements, but also to ensure a financing programme based essentially on the capacities of EDF. Beyond this, there is the question of the simultaneous control of costs and safety of the new EPR model. This strategy could also put a stop to renewable sectors, in contradiction with the strong demands of local authorities and territorial actors. However, by focusing on the nuclear-renewable argument, the debate somewhat regresses and several candidates seem to forget that the transition is not just a matter of electricity production: rehabilitation of the building stock, energy bills and fuel poverty were at the heart of the debates in 2013; since then, the issue of transport has also arisen, with its issues of local pollution, industrial policy and the growing impact on

household budgets. While initiatives are being developed in agriculture, waste, industry and cities, this everyday transition, which is a source of employment, innovation and social links, is too often absent from the debate.

The plane will need a pilot

Finally, we may be missing the essential point. Whatever the structural choices made, their implementation raises three questions: strategic sectoral objectives, the instruments to be mobilized in order to achieve them, and finally the dynamic management processes to make adjustments when the results are insufficient. Existing schemes, [the national low-carbon strategies](#) and [the multiannual energy programme](#), are useful tools in this perspective. They are comparable to those implemented by neighbouring countries, notably Germany and the United Kingdom.. However, the current government, which has enshrined these tools in the Act, has not really used them to work towards the announced changes: the energy transition suffers less from its objectives than from its [lack of steering](#). It also suffers from implementation instruments that are sometimes obsolete. These pilot schemes are to be revised in 2018. We would like to know how each candidate intends to mobilize them to go beyond the symbolic and to make, within the timeframe of a mandate, the changes required to fulfil the visions proposed during the campaign. [Patrick Criqui](#), Senior Researcher at CNRS, [Université Grenoble Alpes](#), and [Michel Colombier](#), Scientific Director, [IDDRI](#) The [original version](#) of this article was first published by [The Conversation](#).

This blog post is part of a series on energy transition in the French presidential election:

- [2017, a pivotal year for French energy transition](#)
- [Energy renovation in France: the challenge of implementing the national objectives](#)
- [Financing the energy transition: it's not just about the money](#)
- [What is the citizen participation in the energy transition?](#)