

Credit FAQ:

The Energy Transition: Is The Proposed Regulation For France's Existing Nuclear Assets Favorable For EDF's Credit Quality?

January 28, 2020

Key Takeaways

- We see a positive signal from the public consultation on proposed new regulation for France's existing nuclear fleet and the introduction of a price corridor for part of the nuclear output, ultimately aiming at covering the total costs of French nuclear production. This change in market design is a crucial element of our rating on EDF (A-/Negative/A-2).
- Timing of implementation and setting of the floor price will be key to assess the degree of supportiveness of the proposed regulation for EDF: Increasing the floor price to a sustainable economic level is politically sensitive as we estimate it could increase electricity bills by 5%-10%, after an increase of 7.7% in 2019. We would consider as detrimental to EDF's cash flows a late implementation in mid-2025, when the existing pricing mechanism, ARENH, legally ends.
- We estimate merchant generation could still represent 20%-25% of EDF's total production (excluding renewables), and this would not be covered by the regulation, taking into consideration residual French nuclear volumes, U.K. nuclear output, and French hydro concessions.
- The regulation process is long, including approval by the European Commission. We expect further government announcements during the year to provide more clarity on key parameters and the timetable.

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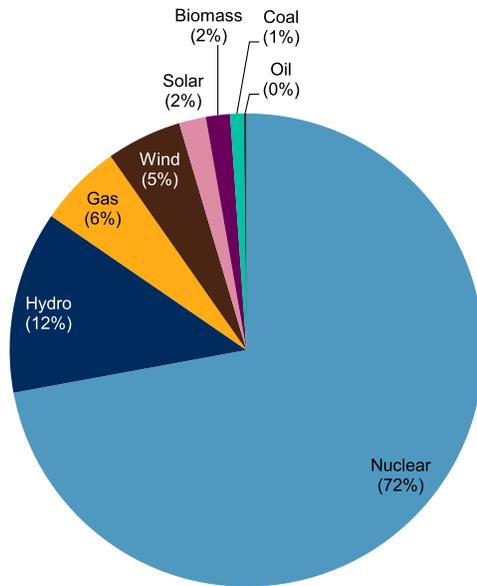
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With about 390 terawatt-hours (TWh) produced each year, EDF's nuclear generation represents 70%-75% of total power production in France (chart 1). A large portion is currently governed by the ARENH fixed price mechanism, which has been detrimental to EDF in recent years, capping power price to the benefit of consumers, while exposing the company to arbitrage opportunities by competitors (alternative electricity suppliers). The fixed price, set at €42 per megawatt-hour (MWh) since 2012, supposedly covered the cost of EDF's existing fleet. However, many market

studies have shown this was too low, notably to allow the massive investment program to upgrade and extend the life of plants. EDF has been vocal on the weaknesses in the existing framework for some time. While the government had said it would take actions to change the regulation, it is now proposing a new framework. While we acknowledge it is still at an early stage in the regulatory process, we view the proposals as positive in terms of supporting EDF's credit quality.

Chart 1

France Production Mix In 2018



Source: RTE.
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Our outlook on EDF is negative and reflects our view of increased operational risks, evidenced by significant cost deviations and commissioning delays at new nuclear projects, FLA-3 and HPC, in 2019. We could consider a negative rating action if we see no clear progress toward positive changes in regulation for EDF's existing French nuclear fleet (or changes in market design). A lack of regulatory change would result in persistent high structural exposure of the group's cash flows to market volatility, given EDF's still-material investment phase. Rating pressure would also stem from FFO to debt falling below 17% and debt to EBITDA failing to stay below 4.5x, levels we do not deem commensurate with our 'A-' rating. A revision of the outlook to stable would depend heavily on the group's reorganization as well as the nature and effective implementation of EU-backed regulation, allowing the group to better cover the economic cost of its existing French nuclear fleet. Additionally, we would view favorably the implementation of remedy measures designed to reinstate financial flexibility (see our latest full analysis, "Electricite de France S.A.," published Dec. 12, 2019).

What Is The Proposed Remuneration Framework?

The proposed framework follows four clear objectives

- Protecting French consumers by offering a largely stabilized electricity price for decarbonized energy.
- Reaching sustainable environmental targets by preserving a decarbonized energy mix, security of supply, and energy independence.
- Securing sustainable financing to operate the existing nuclear fleet.
- Complying with European rules.

Remuneration mechanism based on a price corridor

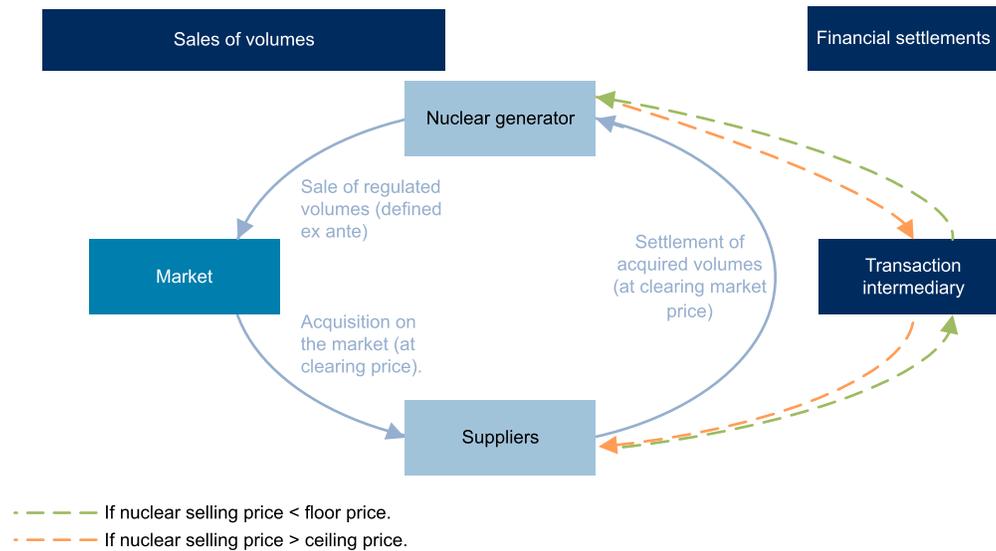
As part of the new framework, a vast majority of French nuclear production will be remunerated at guaranteed fixed price comprised between a cap (ceiling price) and a floor (floor price) with a proposed corridor of €6/MWh. The remaining production that will fluctuate in function of demand and fleet availability will be exposed to wholesale price.

The framework envisages an obligation for EDF to sell a normative nuclear output (that we estimate at about 360 TWh), set 24 months in advance by the regulator, Commission de Régulation de l'Energie, and to hedge this production on the two-year forward market. This will translate into locking a significant portion of the nuclear production, about 80%, at two-year forward market prices. This is very much in line with EDF's current hedging policy.

The major difference between the new framework and the ARENH pricing mechanism, where physical quantities are exchanged outside wholesale markets, is the existence of a compensation mechanism in the form of financial transfers between the producer and electricity suppliers (chart 2). This is comparable to an additional remuneration, allowing EDF as generator to receive the differential between its average selling price and the floor price from suppliers servicing consumers in France, multiplied by the proportion of regulated nuclear power in French baseload consumption ("the ratio"). All suppliers must contribute pro rata to their client base in France. This acts as an ex-ante protection in case of a power price decline. Alternatively, EDF's dedicated production will be capped at a regulated price (ceiling price), beyond which it must pay back a levy to suppliers, i.e. the difference between the average selling price and the regulated ceiling price multiplied by the ratio.

Chart 2

Proposed Compensation Mechanism For Nuclear Power Production In France



Source: Consultation document, Ministry for the Ecological and Inclusive Transition of France.
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The corridor proposed by the French authorities aims at providing "a fair remuneration of the targeted assets, by covering the full costs," and also aims to "limit the end consumer's exposure to price volatility," as per the consultation document. The French ministry of Ecological Transition is advocating the "Service of General Economic Interest" provided by the French nuclear fleet, a concept that can be used to defend cases of state aid. Under this principle, the new regulation will require EDF to provide this service to ensure consumer and climate protection.

The proposed scope is extended to the Flamanville 3 reactor, under construction

The new regulation intends to address the remuneration of the existing French nuclear fleet, as well of the reactor FLA-3, in late-construction phase, whose commissioning date was postponed to 2023, as per latest EDF's guidance in October 2019. We note that the inclusion of FLA-3 will mechanically increase the total fixed and variable costs of the overall fleet, given that EDF's forecast budget for building this new EPR is about \$8,600/kW.

Interestingly, this regulation will apply to European power suppliers with a portfolio of clients in France. The inclusion of European suppliers, eligible to subscribe to the price ceiling/floor for their portfolio of customers established in France, is designed to avoid market distortion on the French supply market.

What Does It Mean For EDF?

Potential benefits from the proposed regulation: A likely higher floor price on larger volumes

The new regulation is a departure from the current ARENH regulation and entails potential positives. It removes the arbitrage opportunities for alternative suppliers, which currently make trade-offs between regulated nuclear supply (up to 100 TWh) and supply on the wholesale futures markets, in an asymmetrical way. While the ARENH price is fixed and unchanged since 2012 at €42/MW, under the proposed regulation the floor and ceiling prices will be adjusted according to fundamental parameters including inflation, decommissioning costs, and weighted average cost of capital (WACC), in order to maintain fair remuneration and mirror the fluctuating full costs of the fleet.

Importantly from a profitability perspective, this new regulation provides protection, through a floor price mechanism in times of power price decline. Back in 2016, when power prices collapsed in Europe, the ARENH mechanism was unable to protect EDF's revenue and cash flow, which were exposed to a large extent to wholesale market prices. While the consultation provides no insight on the calculation or the level of the floor price, we understand it will very likely be higher than the current ARENH price. In addition, the floor price will likely be an important input in our cash flow modelling, as it represents the most certain minimum price level at which EDF's French nuclear assets will be remunerated.

The hedge on two-year forward markets provides visibility on pricing signals (nuclear selling price) over 24 months, but we view this as similar to hedge contracts in place for EDF, as well as to most merchant-exposed generators in Europe. We note that a compensation mechanism with a cap/floor may induce working capital swings depending on settlement periods.

We also understand this compensation mechanism will ensure guaranteed volumes being sold by EDF, even in the case of nuclear selling price being lower than the floor price. This is because the regulator will ensure that nuclear will remain the most competitive source and, in addition, suppliers in France will share collectively, pro rata their consumer portfolio, the difference between their average selling price and the floor, adjusted with the ratio (see section "Remuneration mechanism," above).

New group organization needed, as previously announced

A reorganization or a split of EDF's French nuclear generation from its supply activity is a likely consequence of this proposed regulation, in order to obtain European authorities' approval. This need to reorganize the group while remaining integrated, has been reiterated at multiple occasions by EDF's management.

We understand that EDF's activities would be separated into two distinct entities, EDF Bleu and EDF Vert. At this stage, we understand perimeters have not been clearly defined, but we assume EDF Bleu will be designed to encompass French and U.K. nuclear activities (including Framatome), and possibly the French hydro concessions (about 20 gigawatts of installed capacity).

The timing of reorganization, an intertwined topic, will depend on the European Commission's approval in principle of this new regulation. The Ministry of Ecologic Transition commented in January that mid-2020 was the most likely deadline for EDF's CEO to submit reorganization proposals to the French state.

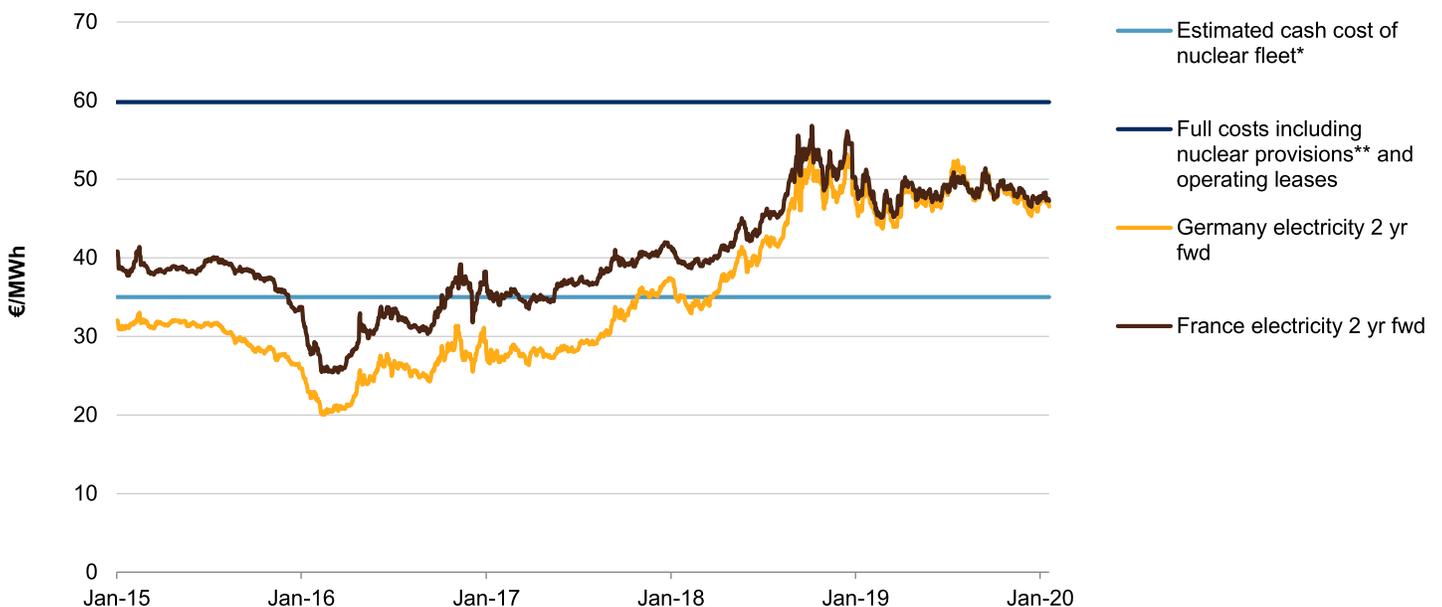
What Risks Do We See Going Forward?

The level of the floor price is politically sensitive

At this stage, the floor price has not been disclosed. We believe this will be a critical feature of the framework since it will determine EDF's capacity to self-finance its existing fleet. We believe the floor price needs to be assessed in conjunction with existing nuclear capacity's mean levelized cost of electricity (LCOE), according to the principle of full cost coverage and reasonable margin. LCOE calculates present value of lifetime costs (including capital costs, fuel costs, and operation and maintenance cost) and includes the cost of constructing the generation asset. However, the exercise of adjusting the floor price toward the LCOE may be constrained by the current power market prices of €45-€50/MWh (chart 3).

Chart 3

France And Germany Electricity Two-Year Forward, Cash Cost Of Nuclear Fleet



Source: S&P Global Platts

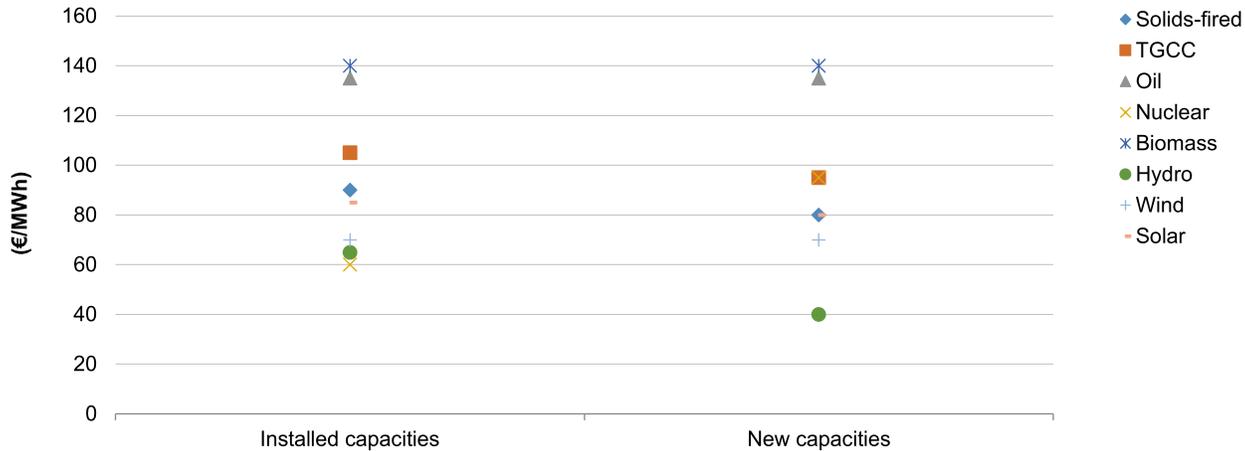
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The floor/cap price is also politically sensitive as it raises affordability issues on final consumers' electricity bills. We see this affordability issue as a potential hurdle to significantly increasing the floor price above the current ARENH price. We estimate that setting the floor price at about €50/MWh (i.e. close to current market price) will lead to an increase of the average residential electricity bill for a couple by a little less than 5% (excluding increase of grid costs). Going to the LCOE level for existing nuclear assets communicated in the consultation report, i.e. €60/MWh

(chart 4), would lead to a 10% increase in consumer bills, by our estimate.

Chart 4

EU-28 Levelized Cost Of Energy By 2030



Source: EU Commission.

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Timing is everything for EDF: Late implementation may lead to weaker credit metrics

Because we anticipate EDF's free cash flow will remain negative over the coming years on the back of its heavy investment program, any delay in the implementation of this new nuclear regulation (and resulting higher guaranteed selling price for nuclear output) will be detrimental to EDF's credit metrics. We currently estimate negative free cash flow in the range of €2 billion-€3 billion per year, despite the scrip dividend payment to the French state, but before any remedy measure such as disposals. An implementation of the new regulation in 2021-2022, our current base case, seems ambitious; the official consultation document mentions that there is a backstop date of mid-2025, when the ARENH mechanism ends.

The public consultation to market players, the regulator, and all stakeholders is open for two months (until mid-March 2020). In parallel, the French government is in discussion with the European authorities to seek approval of the proposal.

We have no visibility on the time that negotiations will take to reach a consensus and for the new regulation to receive approval. The European Commission will have to reach a consensus on nuclear, which is currently missing, as evidenced by the lack of alignment on the European taxonomy when it comes to treating nuclear as a clean energy or not. What's more, as mentioned above, the political sensitivity around a significant price increase in end-user electricity bills may further delay implementation. We believe a likely scenario is that a price increase would be only gradual.

Still significant remaining merchant exposure of EDF Bleu

With the proposed regulation, the merchant exposure of EDF Bleu will be significantly reduced, but we still assess it will represent about 20%-25% of this entity's generation base. This is based on our assumptions of about 60 TWh of U.K.-based nuclear production, about 40-45 TWh of French hydro output (assuming once again French hydro concessions will be part of EDF Bleu), and residual nuclear production exposed to merchant prices (40 TWh not covered by regulation correspond to long-term contracts).

In addition, EDF will be further exposed to market prices in the case of lower availability of its fleet, impeding the group's ability to produce required regulated capacity. Under this new scheme, EDF will bear a legal obligation to produce pre-determined electricity volumes (set 24 months ahead). We understand that these volumes will be adjusted according to the scheduled maintenance calendar of the fleet, but that EDF will be fully exposed to acquiring extra capacity on the wholesale market in case of unplanned outages of its fleet.

Related Research

- Electricite de France S.A., Dec. 12, 2019
- The Energy Transition: Different Nuclear Energy Policies, Diverging Global Credit Trends, Nov. 11, 2019
- The Energy Transition: Nuclear Dead And Alive, Nov. 11, 2019
- The Energy Transition: What It Means For European Power Prices And Producers, Nov. 7, 2019

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