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Research Update:

EDF Outlook Revised To Positive On Recovering Domestic Nuclear Activity; Ratings Affirmed At 'BBB/A-2'

June 5, 2024

Rating Action Overview

- We think Electricite de France S.A.'s (EDF's) domestic nuclear activity continues to strengthen and is progressing toward a sustainable generation potential of 350TWhpa (excluding the Flamanville-3 reactor).
- The recovery supports a consolidated annual EBITDA of €25 billion-€35 billion from 2024. We believe that this should cover finance interests and taxes, and most of EDF's capex, including heavy and partly unpredictable capex on nuclear newbuilds.
- We therefore anticipatefunds from operations to debt within 20%-30% with limited negative discretionary cash flow if any, assuming no or limited dividend.
- We therefore revised our outlook on EDF to positive from stable and affirmed the ratings on the group and its debt. We took the same actions on EDF Energy PLC, EDF Energy Customers PLC, and Edison SpA.
- The positive outlook reflects that upside potential for EDF's stand-alone credit profile (SACP) could prompt us to revise our assessment to 'bb' over the next couple of years. This, alongside government support, would lead to a one-notch upgrade for the group and its senior and hybrid debt, including for EDF Energy, EDF Energy Customers, and Edison.

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Rating Action Rationale

In our view, EDF has largely addressed stress corrosion issues at its domestic nuclear operations. The group's swift action remedied the severe issues that had heavily contributed to substantial negative EBITDA in 2022. Thus, amid persisting concerns on aging fleet and uncertain prospects for sustainable recovery beyond 350 TWh, since spring 2023, EDF's generation has significantly exceeded our base case.

Record EBITDA in 2023 helped EDF reduce leverage and is likely to remain strong over the coming few years. Last year's robust EBITDA, supported by generation recovery and sustained market prices, far exceeded our expectations and allowed EDF to cut S&P Global Ratings-adjusted debt by €9.4 billion, despite the increased asset-retirement obligations that offset part of the 2022 increase. Generation has continued to rise year to date. For the next few years, we expect EBITDA to remain strong between €25 billion and €35 billion. This, coupled with moderate taxes and limited dividends, should nearly cover the group's planned capital expenditure (capex) for 2024-2026 and beyond. As such, we assume the group's credit metrics will comfortably stay in our significant financial risk category applying our standard calibration. That is, despite heavy newbuild spending, we see funds from operations (FFO) to debt in the 20%-30% range, a slightly negative discretionary cash flow (DCF)--based on our assumption of limited mergers and acquisitions--and adjusted debt broadly stable at €85 billion-€90 billion. We expect leverage to stand well within the company's target of below 4x up to 2026. Furthermore, we continue to anticipate EDF's stack of intermediate equity-content hybrids to not fall significantly below €10 billion factoring in calls (and any refinancings), including that announced June 5, 2024.

We anticipate EDF's 2024-2026 cash generation to reflect further recovery in domestic nuclear output and sustained earnings at other operations. EDF's domestic nuclear operations should become essentially merchant from 2026, facing significant unfloored commodity price risk, but able to leverage fairly supportive market prices and its massive generation capacity. The ARENH (Regulated Access to Historical Nuclear Power) regulation lapses at end-2025. We view as fairly supportive the French government's recent proposal for 2026-2040: EDF will be able to deploy an autonomous commercial offer, strike long-term sales contracts with large industrial customers, and receive market prices for its entire current capacity. This would be subject to a 50% tax take on the price achieved above €78/MWh (90% above €110/MWh); the stated aim is to achieve about €70/MWh overall, part of which contributing to the NNF financing (all in 2022 terms).

Nuclear operations continue to weigh on EDF's stand-alone credit profile (SACP) mainly due to risks on newbuilds. Given the legacy fleet's recovery, our SACP assessment now relies heavily on EDF's role in building nine to 11 new EPRs, considering their high and hardly predictable construction costs and long lead times. These are, in increasing order of risk to our rating:

- 100%-owned Flamanville-3 in France, which is being finalized.
- Two potential reactors at the U.K.-based Sizewell C project (SZC, 49.4%-owned and fully consolidated). In case of final investment decision, we expect EDF to reduce its total direct financial involvement to an equity stake below 20.0%.
- Two under construction at Hinkley Point C (HPC) in the U.K. (67.7%-owned at year-end 2023), which are severely beyond planned costing and commissioning dates; the latter were deferred in January 2024 by some three years to the end of the decade.
- Six 100%-owned reactors to be built in France, for commissioning from the mid-2030s (NNF program).

Over our forecast period and beyond, we assume EDF's sizable capex will strain free cash flows, while its debt trajectory will depend on any government support for the NNF. We think nuclear newbuilds' inherent execution risks, coupled with heavy ongoing spending on the €33 billion 2022-2028 Grand Carénage program--which aims to enhance the safety and lifespan of EDF's existing domestic nuclear fleet--represent key credit risks through increased capex and debt. The

NNF financing framework is still unclear despite each of the first six reactors representing a multibillion-euro investment. We expect EDF will have spent some €3 billion by end-2024. Partly mitigating this, however, is the expected continuation of the government's policy of limited or no dividends (as illustrated after the massive 2023 earnings), and our understanding that the government will support the NNF financially, subject to the E.U.'s State Aid framework.

Combined with sizable investments in renewables and distribution grid strengthening, consolidated capex are trending toward roughly €25 billion annually (nearly 50% more than we expected a couple of years ago; about one quarter regulated). As these include some €10 billion annually on HPC newbuilds and Grand Carénage in addition to ramp-up on NNF, they post very low flexibility and somewhat dilute EDF's consolidated business risk in favor of unregulated power generation.

We continue to view the likelihood of extraordinary French government support to EDF as very high, making it the highest among our rated EU utilities. This is based on EDF's very strong link with its sole owner and its very important role for France's energy policy as the company leading the highly strategic NNF project over the next couple of decades. We think EDF's credit quality matters especially during construction, which necessitates financing massive capex. We see a broad-based consensus for France to commit to nuclear energy for the long term, as a support to the security of energy supply and a low-carbon, small-footprint source of energy that the current grid can more easily accommodate than a full-renewable mix.

Outlook

The positive outlook reflects upgrade potential within the next 12-24 months, based on a combination of the following assumptions:

- Some more recovery in domestic nuclear generation towards 350TWh (excluding Flamanville-3), EBITDA stabilization within €25 billion-€35 billion;
- Adjusted leverage contained around or below 3x, FFO/debt within 20%-30%, and neutral to mildly negative DCF, under our expected price environment;
- No major overruns at existing nuclear newbuilds nor major direct financial exposure on SZC; and
- Increasing clarity on the new fiscal regime for the legacy fleet replacing ARENH from early 2026.

Additionally, we expect some clarity to emerge on financial risk-sharing with the government on new domestic reactors.

Upside scenario

Barring a change in our view on extraordinary government support, an upgrade could occur if we gained sufficient confidence that EDF has substantially resolved its industrial challenges at the domestic nuclear fleet, generates only modestly negative DCF if any, with FFO to debt within 20%-30%, no further major overrun at HPC, and the confirmation of no major financial exposure on SZC. A directional clarification of state support for NNF financing would also support an upgrade.

Downside scenario

We could revise the outlook to stable if the SACP doesn't strengthen as we expect. This would likely capture renewed industrial challenges at the existing nuclear fleet or at newbuilds or a pronounced deviation below our base-case leverage expectations. All other factors remaining equal, a positive or negative action on the sovereign rating (France; unsolicited AA-/Stable/A-1+) would not in itself lead to an upgrade or downgrade for EDF.

Company Description

Fully state-owned EDF the largest integrated power company in the world outside China, with 2023 global net installed capacity of 122.7 gigawatts and power generation of 467.6 TWh. EDF is France's dominant electricity operator and has strong positions in the U.K. through EDF Energy, and in Italy through 97.45%-owned Edison. Over the next few years, we expect regulated operations (primarily French power distribution) to contribute on average about one-fifth to consolidated EBITDA and one-quarter to capex, the majority being related to domestic generation and supply. EDF owns and manages France's low- and medium-voltage public distribution network primarily through fully owned Enedis, Europe's largest with a regulated asset base of €53.7 billion (at Jan. 1, 2021). Via its nuclear-dedicated asset fund, EDF also owns 50.1% of, and equity-consolidates, RTE (A/Stable/A-1), France's national high-voltage transmission power grid with a RAB approaching €17 billion.

Generation is over nine-tenths low-carbon (in 2023, 78% nuclear and 9% hydro). EDF Renewables is a major wind and solar company, with global net installed capacity of 15.1GW. It contributes about 5% of EBITDA, like Dalkia (energy services and heating and cooling networks) and EDF's other activities. These include gas activities and EDF Trading, which provide market optimization and risk management services via wholesale energy market operations.

Our Base-Case Scenario

Assumptions

- French nuclear output, outside Flamanville-3, of 335TWh, 350TWh, and 350TWh for 2024, 2025, and 2026, respectively.
- French hydro output of 40TWh for each of these years.
- Realized domestic and U.K. power prices of about €75/MWh from 2025.
- Working capital outflow in 2024 of about €3 billion and inflow in 2025 of about €4 billion.
- Cash dividends of about €1 billion annually (limited to hybrid coupons and dividends to minority interests), no new equity issuance nor repurchases.
- Net annual capex trending toward €25 billion by 2026, including 100% of those on HPC and the NNF.
- No significant acquisitions and disposals
- Overall broadly stable deficits on unfunded nuclear obligations and employee obligations relative to end-2023 levels.

Key metrics

Electricite de France S.A--Key Metrics*

Bil. €	2022a	2023a	2024e	2025f	2026f
EBITDA	-13.0	38.2	34.0-36.0	26.0-28.0	30.0-32.0
Funds from operations (FFO)	-16.5	30.8	27.0-28.0	21.0-22.0	25.0-26.0
Operating Cash Flow (OCF)	-9.2	29.4	23.0-24.0	26.0-27.0	22.0-23.0
Capital expenditure	17.9	20.2	22.0-23.0	23.0-24.0	24.0-25.0
Discretionary cash flow (DCF)	-27.8	8.4	-0.5	1.0	-2.8
Debt, adjusted	95.2	85.8	88.0-89.0	89.0-90.0	91.0-92.0
FFO to debt (%)	-17.4	35.9	31.0-32.0	24.0-25.0	27.0-28.0
Debt to EBITDA (x)	-7.3	2.2	2.5-3.0	3.0-3.5	3.0-3.5

*All data include S&P Global Ratings' adjustments. A--Actual. P--Planned. E--Estimate.

Liquidity

We regard EDF's liquidity as adequate. Our assessment balances the company's strong cash position supporting a 1.2x coverage of uses by sources, its very proactive refinancing, solid relationships with banks, and track record of ample access to capital including as a strategic entity for the French government, with inflexible capex and significant debt maturities. i

Specifically, we expect the following principal liquidity sources for the 12 months from March 31, 2024:

- Cash and cash equivalents of some €28 billion (about €36 billion pro forma the May senior issuance).
- Our estimate of about €10 billion availability under committed credit lines maturing more than one year out. This includes two syndicated credit facilities maturing in December 2025, for a combined €5.5 billion.
- Estimated cash FFO approaching €20 billion.

For the same period, we expect the following principal liquidity uses:

- Debt maturities nearing €23 billion.
- Estimated capex of €20 billion.
- Negative working capital in the mid-single digit € billions.
- No parent-company cash dividends of under €1 billion, including on hybrids and to minority interests.

Debt maturities

As of Dec. 31, 2023:

- 2024: €28.7 billion.
- 2025-2028: €28.4 billion.
- Thereafter: €39.4 billion.

Environmental, Social, And Governance

Governance, environmental, and social factors are a moderately negative consideration in our credit rating analysis of EDF.

EDF's governance, which we assess as neutral, mostly flags risks related to the uncertainties regarding the company's ability to proactively identify, manage, and resolve risks on the company's existing aging nuclear fleet and newbuilds. Given repeated unplanned outages, we consider the track record relatively poor, though improving, and reflective of the inherent complexity of managing aging nuclear generation assets. The record was further marred, mostly between late 2021 and early 2023, by the scale and impact of technical issues on EDF's core French nuclear operations--which EDF has promptly remedied. We also factor in inherent risks of cost overruns and delays at EDF's newbuild nuclear reactor projects in France and the U.K., each of which stands among Europe's largest industrial projects across sectors.

Environmental considerations primarily reflect the company's prominent nuclear operations. With the world's largest nuclear generation fleet and 93% of 2023 production decarbonated, EDF's carbon footprint is markedly advantageous: we estimate its scope 1 combined emissions for its metropolitan French generation and supply and its U.K. operations, effectively the core of the company, were just 7 grams of CO_2 equivalent emissions per KWh of power and heat produced (g/KWh; the group's 37 g/KWh mainly reflects French islands, Edison, and Dalkia; EDF targets lowering it to 22 g/KWh by 2035).

However, environmental and social risks relating to the future long-term storage of nuclear waste offset EDF's low carbon footprint (total provisions related to nuclear generation of €63.5 billion went up by €4.2bn in 2023, half of which due to a new downstream contract with Orano; we adjust EDF's debt for net asset retirement obligations by €9.1 billion at end-2023). In addition, we factor into our assessment the government's support of EDF's strategic role in the French energy transition, its public mission embedded in its power network activities, and its social role as a major employer in France. But we also see as a great social challenge the negative track record of project management and third-party reports pointing to a loss of technical skills and quality within the French nuclear industry, both for EDF and throughout the supply chain. We believe these challenges remain to be fully addressed.

Ratings Score Snapshot

Issuer Credit Rating	**BBB/Positive/A-2**
Business risk:	Satisfactory
Country risk	Low
Industry risk	Intermediate
Competitive position	Satisfactory
Financial risk:	Aggressive (standard volatility table)
Cash flow/leverage	Aggressive

Anchor	bb
Modifiers:	
Diversification/Portfolio effect	Neutral (no impact)
Capital structure	Neutral (no impact)
Financial policy	Neutral (no impact)
Liquidity	Adequate (no impact)
Management and governance	Neutral (no impact)
Comparable rating analysis	Negative (-1 notch)
Stand-alone credit profile:	bb-
Group credit profile	bbb
Likelihood of government support	Very high (+4 notches from SACP)

Related Criteria

- Criteria | Corporates | General: Sector-Specific Corporate Methodology, April 4, 2024
- Criteria | Corporates | General: Corporate Methodology, Jan. 7, 2024
- Criteria | Corporates | General: Methodology: Management And Governance Credit Factors For Corporate Entities, Jan. 7, 2024
- General Criteria: Hybrid Capital: Methodology And Assumptions, March 2, 2022
- General Criteria: Environmental, Social, And Governance Principles In Credit Ratings, Oct. 10, 2021
- General Criteria: Group Rating Methodology, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- Criteria | Corporates | General: Reflecting Subordination Risk In Corporate Issue Ratings, March 28, 2018
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- General Criteria: Rating Government-Related Entities: Methodology And Assumptions, March 25, 2015
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011
- General Criteria: Stand-Alone Credit Profiles: One Component Of A Rating, Oct. 1, 2010

Related Research

- Lower Sovereign Rating On France Has No Immediate Credit Impact For French Utilities, June 3, 2024
- France Long-Term Rating Lowered To 'AA-' From 'AA' On Deterioration Of Budgetary Position; Outlook Stable, May 31, 2024
- Full Analysis: Electricité de France S.A., June 30, 2023

Ratings List

Ratings Affirmed; Outlook Action

	To	From
Edison SpA		
Electricite de France S.A.		
Issuer Credit Rating	BBB/Positive/A-2	BBB/Stable/A-2
EDF Energy Customers Ltd.		
Issuer Credit Rating	BB-/Positive	BB-/Stable
EDF Energy Ltd.		
Issuer Credit Rating	BB-/Positive/B	BB-/Stable/B
Electricite de France S.A.		
Senior Unsecured	BBB	
Junior Subordinated	B+	
Commercial Paper	A-2	