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Research Update:

EDF Affirmed At 'BBB/A-2' As Stronger State Support Mitigates Operational Issues And Debt Growth; Outlook Stable

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Rating Action Overview

- We revised our view of the likelihood of extraordinary French government support to power utility Electricité de France S.A. (EDF) to very high from high. France's strong commitment to support EDF has been reinforced by recent developments in the EU energy landscape. This is linked to security of supply and state intervention, combined with the French government's supportive actions on nationalization, equity increase, and the clarification of the company's lead role in the country's highly strategic new nuclear buildup. Our base case factors in 100% state ownership of EDF and the conversion of the OCEANE convertible bonds increasing EDF's equity by €2.4 billion during 2023.
- We have revised down our view of EDF's stand-alone credit profile (SACP) to 'bb-' from 'bb'. The revision factors in the continued impact of ongoing operating issues on the level and predictability of EDF's power and profit generation and thus on our view of its business risk profile. These issues drove down domestic nuclear power generation by some 80 terawatt hours (TWh) or 22% year on year, with only gradual recovery prospects over 2023-2025. Despite healthy profits at its other divisions, this leads EDF to a massive loss and cash burn in 2022. The SACP revision also factors in a third delay and cost overruns announced last May at the U.K. newbuild Hinkley Point C and the risk of further domestic underperformance.
- These pressures on EDF's SACP are partly balanced by our expectation of sharp EBITDA recovery in 2023 and 2024 on partial production recovery and durably higher market prices, and by a substantially lower pension deficit. Given inflexible annual capital expenditure (capex) that we anticipate at about €17 billion over 2022-2024 in an inflationary environment, we expect EDF's S&P Global Ratings-adjusted debt to increase by some €21 billion over 2021-2023, approaching €100 billion. This is leading leverage to approach 5x in 2023 before easing slightly to about 4.5x on continued EBITDA recovery.
- We therefore affirmed our 'BBB' long-term issuer credit and senior debt ratings on EDF. We lowered our long-term ratings on EDF's U.K. subsidiaries EDF Energy Ltd. and EDF Energy Customers Ltd. in line with our SACP, to 'BB-' from 'BB'.
- We affirmed our rating on EDF's junior subordinated debt at 'B+' to now reflect a small portion

of the state support we attribute to the senior debt.

- We removed all ratings from CreditWatch negative, where we placed them on May 24, 2022.
- The stable outlook reflects nuclear-generation and profit recovery prospects despite the persistent risks on nuclear newbuilds and on domestic nuclear availability. All factors remaining equal, a change up or down in our sovereign rating on France would not in itself lead to an upgrade or downgrade for EDF.

Rating Action Rationale

We believe state support increasingly drives EDF's creditworthiness in the new energy landscape, as EDF's nuclear generation will remain crucial for France's power mix in coming decades. Given the material developments in energy markets in 2022, we revised our view of EDF's role to the government to very important from important; since our assessment of the company's link with the government remains at very strong, we raised to very high our view of the likelihood of extraordinary government support (LoS) to EDF, from high previously.

Russia's 80% cut of its gas exports to Europe, and the subsequent rise of Europe's gas and power price levels and volatility, have prompted a significant shift in EU energy policymaking. For many years to come the EU will focus on meeting three goals: security of supply, affordability, and accelerating the energy transition. France firmly believes nuclear is key to achieve them concurrently and has designated EDF as its primary tool.

In our view, constraints around state aid to key energy suppliers are easing in the current context. Over the summer, the German government provided massive and timely support to private gas supplier Uniper SE (BBB-/Negative/--; reflecting a 'b-' SACP and a "very high" LoS), now fully state-owned. Other countries that are traditionally less interventionist than France resorted to extraordinary measures like liquidity support schemes to utilities participating in energy derivative markets. In this new context, we believe EDF is assuming an even greater role in terms of energy security for the European power platform than we reflected in our previous LoS, easing constraints on French government support to it. Given the planned closure of five reactors by France's neighbors (and the only commissioning being in the Nordic market), by spring 2023, EDF's nuclear capacity will represent some 60% of the EU's (and some 10x the next largest company's). Across technologies, we estimate EDF will generate one-sixth of the EU's power, about triple the next largest company.

Nuclear will be crucial for France's energy goals since the energy transition fosters electricity demand growth and the renewables buildup is somewhat slow. In 2022, after a decade during which French energy policy seemed to de-emphasize nuclear power, newly reelected President Emmanuel Macron and the new government expect that EDF, as its nuclear fleet generates up to 70% of France's electricity, will build 6-14 new reactors, with commissioning starting in the latter part of the next decade. Although the financing framework is as yet unclear, the investment will represent several dozens of billions of euros, just for the first six reactors. We believe that supporting the creditworthiness--and not just the continuity of operations--of a company in the construction phase for such massive, extremely complex projects with very long lead times, is much more important to the French government than protecting the creditworthiness of a company primarily operating legacy assets.

Fleet ageing and stress corrosion issues at EDF's domestic nuclear fleet weigh on our view of its business risk profile and SACP. Positively, performance at EDF's other divisions is robust and power transmission and distribution operations--which contribute one-third of consolidated EBITDA--operate in a strongly supportive domestic framework. Nevertheless, corrosion issues under stress at many of EDF's newer domestic reactors (over a third of the fleet's capacity) raise concerns on the level and predictability of its consolidated power and profit generation and drive our revision of its SACP to 'bb-' from 'bb'. Despite resolute actions taken to address these massive and unexpected issues, since January EDF has had to lower its 2022 domestic nuclear output estimate to 275 TWh-285 TWh (the lowest ever for the current fleet) and its 2023 estimate to 300 TWh-330 TWh. Combined with adverse regulatory measures, we expect these outages to drive 2022 EBITDA into an unprecedented loss of about €10 billion, equivalent to an approximate €30 billion EBITDA fall year on year, and €17 billion lower than our previous estimate in February.

Our SACP revision also factors in £3 billion of additional capex on Hinkley Point C. This is in line with EDF's May announcement on its 66.5%-owned, 3.2-gigawatt (GW) newbuild in the U.K., which it now expects will be commissioned in 2027, a year later than planned until then. We expect EDF's domestic newbuild at Flamanville will start generating significantly from 2024.

At the 'bb-' level, we view the SACP as stable. Our SACP revision balances the above-mentioned credit negatives with several supportive factors, in particular credit metrics being sustainably anchored in the "aggressive" category in 2023, including adjusted debt to EBITDA of about 5x and negative discretionary cash flow (DCF) in the low-single-digit billions of euros, with no significant cash dividends expected and a further recovery in 2024. EDF's major actions at addressing corrosion issues, strong performance at other divisions, lower ARENH volumes (the power volumes that under France's Accès régulé à l'électricité nucléaire historique regulation, EDF needs to deliver at a fixed, very low unit price), and nearly €10 billion of balance-sheet strengthening reduce the risk of further downside to the SACP or rating. In July, France's nuclear safety regulator ASN confirmed its agreement with EDF's action plan for nearly all reactors subject to corrosion under stress, reducing substantially the risk of further prolonged unplanned outages--if at the cost of longer planned ones.

In 2023, sustained power prices and ARENH volumes kept at 100 TWh should support strong earnings and metrics recovery. The government has rejected the power regulator's (CRE's) 130 TWh ARENH proposal for 2023, so the 100 TWh legal minimum holds and EDF bears much lower risks of multi-billion losses associated with reprocurement at very high market prices in case of a generation shortfall. We also expect EDF's essentially fixed-cost generation (including hydro and renewables) to increasingly benefit from Europe's durably higher-price environment well into the medium term, even net of capping mechanisms. Thus, we expect EDF's EBITDA will strongly recover in 2023 to approach €20 billion, supported by domestic nuclear generation of some 300 TWh, despite slowness up to early December in returning reactors to the grid. In 2024, we expect generation of 315 TWh and EBITDA exceeding €20 billion.

Certain factors support EDF's balance sheet in 2022 and 2023. Firstly, we view as sustainable EDF's reduction, by some €7 billion, of its pension deficit on higher interest rates. Secondly, on Nov. 30, the company issued €1 billion of hybrids, which we count as half debt and equity each, ahead of calling its $2.1 billion (€2.0 billion) hybrid stepping up in January, which we now count as debt. Lastly, we understand the state intends to increase equity by €2.4 billion by converting the OCEANE convertible bonds it should soon fully own. Factoring in limited taxes domestically and dividends, and no acquisitions or disposals beyond EDF's €3 billion 2022-2024 disposal program, despite the massive 2022 loss and cash burn we expect leverage of about 5x in 2023 and 4.5x in 2024. The 'bb-' SACP could potentially withstand a limited deviation from this recovery path despite DCF remaining--modestly--negative.

In light of support to EDF's hybrid layer in 2022, we now include a degree of support to our hybrid rating. We now include in junior subordinated debt ratings a fraction of the four-notch uplift we assign to the senior debt to reflect extraordinary government support. This change reflects our understanding that in 2022 massive losses did not prompt consideration for junior hybrid debt to absorb losses, and the likelihood that state support continues to accrue to EDF as an overall entity, also benefiting hybrid holders. Thus we now rate all obligations from the issuer credit rating and for hybrids we remove all but one of the four notches of uplift we assign to the senior debt.

Outlook

The stable outlook factors in a strong recovery in domestic nuclear generation and consolidated profits through 2024, containing leverage at about 5x in 2023 and 4.5x in 2024, in a supportive price environment. We assume no major overruns at existing nuclear newbuilds nor major financial exposure being directly taken on the potential U.K. nuclear newbuild at Sizewell C, in case of a final investment decision. We also anticipate no significant adverse impact from the 15% cap on domestic residential regulated tariffs.

Downside scenario

Barring a change in our views on extraordinary government support, a downgrade would be driven by a significant SACP deterioration. This likely would reflect more severe industrial challenges at the domestic nuclear fleet than we currently factor in, or a significant deviation from our base case for leverage.

Upside scenario

Barring a change in our views 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, that nuclear newbuilds do not add significantly to operating, reputation, and financial risks, and that the new domestic regulatory regime for the legacy fleet replacing ARENH from early 2026 provides sufficient clarity on its remuneration. A significant and sustained improvement in credit metrics combined with a higher visibility on the remuneration framework post ARENH could also support an upgrade.

Company Description

EDF is an integrated power company with major operations across generation, distribution, supply, and trading. 87%-owned by the French government as of Dec. 12, we expect it to be fully state-owned from later this month.

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, making it the world's largest electricity player with 2021 net installed capacity of 123 GW, and global power generation of 524 TWh, 78% of which nuclear and one-tenth hydro.

Absent significant outages, French operations contribute almost nine-tenths to EDF's generation and supply EBITDA, equivalent to two-fifths of the group's consolidated EBITDA. EDF Renewables, with global net installed capacity of 10.6 GW (at June 30; three-quarters wind), of which three-quarters outside France, typically contributes about 5% of EBITDA, slightly less than EDF's other activities, which include Dalkia (energy services and heating and cooling networks) and EDF Trading, which provides market optimization and risk management services via wholesale energy market operations.

EDF owns and manages France's low- and medium-voltage public distribution network primarily through fully-owned Enedis, with a regulated asset base of €53.7 billion, Europe's largest. French regulated activities typically account for about one-third of consolidated EBITDA. EDF also owns 50.1% of RTE (A/Stable/A-1), the equity-accounted national high-voltage transmission power grid.

Our Base-Case Scenario

Assumptions

- French nuclear output of 275 TWh, 300 TWh, and 315 TWh for 2022, 2023, and 2024, respectively.
- French hydro output of 40 TWh for each of these years.
- Realized domestic power prices of about €45 per megawatt-hour (/MWh) in 2022, rising to about €58/MWh in 2023 and €62/MWh in 2024.
- Working capital inflow in 2022 of about €9 billion, notably from overcollection of the CSPE tax, correspondingly contributing to working capital outflow in 2023 of about €8 billion.
- Cash dividends of about €0.4 billion in 2023 (limited to hybrid coupons and dividends to minority interests) and €1.4 billion in 2024.
- Asset disposals of about €3 billion over 2022-2024.
- Net annual investments of about €17 billion over 2022-2024.
- An increase in unfunded nuclear obligations in 2022 of about €1 billion, assuming the impact of higher discount rates is more than offset by market value decreases of dedicated assets and higher inflation assumptions.
- A decrease in unfunded employee-benefit obligations in 2022 of about €7 billion assuming the impact of higher discount rates is more than offset by market value decreases of dedicated assets and higher inflation assumptions.

Key metrics

Electricite de France S.A. -- Key Metrics*

	--Year ended Dec. 31--				
Bil. €	2020A	2021A	2022P	2023E	2024E
EBITDA	16	17	(10)	20	22

Electricite de France S.A. -- Key Metrics* (cont.)

	--Year ended Dec. 31--				
Bil. €	2020A	2021A	2022P	2023E	2024E
FFO	13	13	(13)	16	17
OCF	12	12	(4)	8	16
Capital expenditures	(16)	(18)	(17)	(17)	(17)
DCF	(4)	(6)	(18)	(8)	(4)
Debt, adjusted	76	75	87	96	101
FFO/Debt (%)	17.6	17.9	N.M.	16.6	16.8
Debt/EBITDA (x)	4.7	4.3	N.M.	4.9	4.5

*All data include S&P Global Ratings' adjustments. A--Actual. P--Planned. E--Estimate. FFO--Funds from operations. OCF--Operating cash flow. DCF--Discretionary cash flow. N.M.--Not meaningful.

Liquidity

We regard EDF's liquidity as adequate. Our assessment balances the group's strong cash position, its very proactive refinancing, solid relationships with banks, a track record of ample access to capital including as a strategic entity for the French government, with negative free cash flow and significant debt maturities. Since the coverage of uses by sources currently only marginally exceeds our 1.2x expectation for an adequate liquidity position, if funds from operations (FFO) did not recover as we expect, or the working capital drain became heavier, we would anticipate that EDF's proactive liquidity management would bolster liquidity sources.

Specifically, we expect the following principal liquidity sources for the 12 months from Oct. 1, 2022:

- Cash and cash equivalents of €35 billion pro forma the October-November refinancing
- Our estimate of about €11 billion availability under committed credit lines maturing from 2024
- Estimated cash FFO of about €7 billion.

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

- Debt maturities of about €22 billion including the hybrid stepping up in January
- Estimated capex of €17 billion
- Negative working capital of some €4 billion
- Cash dividends of under €1 billion, including on hybrids and to minority interests.

Environmental, Social, And Governance

ESG credit indicators: E-3, S-3, G-4

Governance factors are a negative consideration in our credit rating analysis of EDF, while environmental and social factors are moderately negative considerations. EDF's governance, which we assess as fair, mostly flags risks related to the oversight of its board and uncertainties regarding the group's ability to proactively identify, manage, and resolve risks on the group's existing ageing nuclear fleet. We consider the track record to be relatively poor, with a number of unplanned outages due to quality issues. This was exacerbated by 2022 developments. We also factor in inherent risks of cost overruns and delays at multibillion euro newbuild nuclear reactor projects in France and the U.K.

Environmental considerations primarily reflect the group's prominent nuclear operations. With one of the world's largest nuclear generation fleets--70 GW net capacity and 78% of output in 2021--EDF's carbon footprint is markedly advantageous. However, environmental and social risks relating to the future long-term storage of nuclear waste mitigate EDF's low carbon footprint (total provisions related to nuclear generation of €62 billion and adjustment to debt for net asset retirement obligations of €8.7 billion at end-2021). We also 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. This was reiterated in 2022 by President Macron (in February) and the new government (since July) as part of recent announcements on the country's nuclear strategy, which aims to give EDF the primary role in delivering new nuclear capacity. 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 difficult to address and rapidly resolve. In particular, we believe that the lack of significant engineering curriculum path and decades of uncertainty on the future of nuclear might mean not enough staff to deliver these nuclear ambitions.

Ratings Score Snapshot

Issuer Credit Rating	**BBB/Stable/--**
Business risk:	Satisfactory
Country risk	Low
Industry risk	Intermediate
Competitive position	Satisfactory
Financial risk:	Aggressive
Cash flow/leverage	Aggressive (medial volatility)
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	Fair (no impact)
Comparable rating analysis	Negative (-1 notch)
Stand-alone credit profile:	bb-
Group credit profile	bbb
Entity status within group	Core

Issuer Credit Rating	BBB/Stable/--
Related government rating	AA
Likelihood of government support	Very high (+4 notches from SACP)

Related Criteria

- 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
- Criteria | Corporates | Industrials: Key Credit Factors For The Unregulated Power And Gas Industry, March 28, 2014
- Criteria | Corporates | General: Corporate Methodology, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities, Nov. 13, 2012
- 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

- France Outlook Revised To Negative On Rising Budgetary Risks; 'AA/A-1+' Ratings Affirmed, Dec. 2, 2022
- Electricite de France Placed On CreditWatch Negative On Further Nuclear Issues And Increase In Debt, May 24, 2022
- Credit FAQ: What Nationalization Could Mean For Electricite de France, April 2, 2022
- Electricite de France S.A.'s 2022 Financials Are Set To Further Deteriorate, March 15, 2022

- Electricite de France Downgraded To 'BBB' From 'BBB+' On Strong Debt Increase In 2022-2023; Outlook Negative, Feb. 21, 2022

Ratings List

Downgraded; Off Watch; Ratings Affirmed

	To	From
EDF Energy Customers Ltd.		
Issuer Credit Rating	BB-/Stable/--	BB/Watch Neg/--
EDF Energy Ltd.		
Issuer Credit Rating	BB-/Stable/B	BB/Watch Neg/B

Ratings Affirmed; Off Watch

	To	From
Electricite de France S.A.		
Issuer Credit Rating	BBB/Stable/A-2	BBB/Watch Neg/A-2
Senior Unsecured	BBB	BBB/Watch Neg
Junior Subordinated	B+	B+/Watch Neg
Commercial Paper	A-2	A-2/Watch Neg

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. A description of each of S&P Global Ratings' rating categories is contained in "S&P Global Ratings Definitions" at https://www.standardandpoors.com/en_US/web/guest/article/-/view/sourceId/504352 Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column. Alternatively, call one of the following S&P Global Ratings numbers: Client Support Europe (44) 20-7176-7176; London Press Office (44) 20-7176-3605; Paris (33) 1-4420-6708; Frankfurt (49) 69-33-999-225; or Stockholm (46) 8-440-5914