Research Update:

EnBW Energie Baden-Wuerttemberg 'A-/A-2' Ratings Affirmed, Despite Volatile European Energy Market; Outlook Stable

July 5, 2022

Rating Action Overview

- We believe that EnBW's exposure to Russian gas through its subsidiary VNG AG is manageable because of the group's overall integrated position and our expectation that strong performance from its generation portfolio will at least counterbalance any shortfall.

- If EnBW executes the intended partial sale of its TransnetBW subsidiary, the minorities' share of funds from operations (FFO) would increase, putting pressure on our FFO-to-debt metric by 2024, which would likely prompt EnBW to take additional remedial measures to support the current rating.

- However, our 'A-' long-term issuer credit rating on EnBW captures the company's strong commitment to protect the rating at the current level, and our opinion that management has sufficient tools to do so.

- We have therefore affirmed our 'A-' long-term issuer credit rating on EnBW, as well as our 'A-2' short-term issuer credit rating.

- The stable outlook reflects our view that EnBW's exposure to Russian commodities is manageable, thanks to the group's diversified and integrated position throughout the energy supply chain, and that the company will continue to prudently manage liquidity risk associated with commodity price fluctuation, mostly gas.

Rating Action Rationale

EnBW's exposure to the disruptions in the German gas market caused by the Russia-Ukraine war is material, but manageable, in our view. Of EnBW's total gas import of 495 terrawatt hours (TWh), via its 74.2%-owned subsidiary VNG, 100TWh per year comes from two contracts with Gazprom, one of which will expire at the end of 2022, reducing the company's direct exposure to Russia to 65TWh per year. We understand VNG is currently receiving all of the volumes, at no loss, under the 65TWh contract because the contract is ultimately with SEFE (formerly Gazprom.
Germania), where contractual agreements are currently backed by a letter of comfort from the German regulator BNetzA, since it is currently operating as a trustee of this entity. Of the 35TWh contracted with Gazprom Europe, we understand that EnBW is currently receiving only 40% of the contracted volumes, forcing the company to procure the missing quantities in the market. In addition, since paragraph 24 of the “Energiesicherungsgesetz” (Energy Security Law), which allows to pass through the increase in costs to customers, has not been triggered yet, the reprocurement costs need to be covered by VNG, which has resulted in low-to-mid single digit million additional daily costs since June 16, 2022. We understand that more than half of such volumes are linked to variable price contracts that allow the company to pass through the incremental costs directly to customers, thereby mitigating the negative impact. Although material, we believe these costs are manageable for EnBW since VNG represents only about 6% of its consolidated EBITDA and we believe that, in the current elevated price environment, other business areas, such as thermal generation are very likely to show improved performance; hence EnBW’s credit profile will benefit from the group’s integrated nature. For example, EnBW’s sustainable generation infrastructure division, which includes thermal generation, increased by 115% year over year to €821 million during the first quarter of 2022 and we expect this trend to continue through 2022.

**Under a severe and prolonged gas-curtailment scenario, the financial impact would depend on the stage of the German Gas Emergency plan (Notfallplan Gas).** If the country remains under the second stage of this plan, EnBW would have to reprocure the deficit at market prices as long as there is no mechanism that allows gas importers to pass on the additional financial burden to customers. If the German government triggers the third stage of the plan, however, we understand VNG would be relieved from fulfilling its contractual obligations. This is because the German regulator, BNetzA would take over to steer demand and supply, thereby cutting ongoing cash outflows.

**Direct exposure to Russian gas is less than 5% of EnBW’s consolidated EBITDA but margins posted represent another layer of exposure.** We understand, however, that EnBW’s gas delivery contracts are subject to margining payments until the moment of physical delivery, and we understand there is no clear mechanism established to recover such margins in case severe gas curtailments lead to the third stage of Germany’s gas emergency plan. This could result in financial losses if EnBW is unable to recover margins posted beyond direct EBITDA exposure.

**We see these risks as increasing, although EnBW’s margin exposure as of March 31, 2022, is net positive at €1.5 billion, which currently alleviates our concerns.** On the other hand, even though some of the gas EnBW procures on the exchange market might come from Russia, EnBW’s direct exposure to Russian gas volumes is less material than for peers such as Uniper, which at year-end 2021 still procured more than 50% of its gas from Russia, and margin collateral postings are significantly less important relative to the size of its balance sheet than for Uniper. Moreover, EnBW’s integrated and diversified business position provides a sufficiently stable cash flow stream amid current volatility. For instance, close to 70% of FFO comes from purely regulated activities and long-term contracted renewables.

**We see mixed, indirect effects for the rest of EnBW’s integrated portfolio, with an overall neutral impact on the rating.** Because of the integrated nature of EnBW’s operations, there are several indirect effects of the ongoing energy crisis on its asset portfolio, including those of its power generation and gas transmission activities. We expect lower gas flow volumes will likely result in fewer capacity bookings at Ontras Gastransport GmbH’s transmission system.
operations, temporarily leading to lower earnings, which nevertheless are fully compensated by regulation with a two-year time lag, resulting in a neutral impact from a credit perspective. Extremely volatile gas prices are leading to negative clean spark spreads, pushing coal generation capacity, which in turn benefits from positive clean dark spreads, into the merit order. We expect EnBW’s 4.2 gigawatt (GW) coal capacity will run at higher rates for the duration of the European energy crisis, and that this will compensate for incremental costs, which we assume will be about €100 million, resulting from reprocuring coal from alternative sources, 85% of which still came from Russia as of year-end 2021.

For the supply business, the recently reformed Energy Security Law allows EnBW to pass through incremental gas procurement costs to customers. However, in practice, the mechanism to calculate and execute such adjustments has not yet been triggered. We expect a form of the mechanism to be implemented soon, but gas curtailments are for now forcing gas suppliers to absorb the incremental increases in costs, depending on their direct exposure to Russian gas volumes. Additionally, once implemented, the law allows customers to cancel the contract if they don’t accept the price increase. Overall, we expect higher electricity and gas prices could lead to bad debt provisions at EnBW’s supply business, but we expect these to remain relatively contained at €10 million–€20 million.

The potential sale of up to 49.9% of TransnetBW will likely lead to additional cash flow leakage. On Feb. 23, 2022, EnBW announced its intention to sell a relevant share of its power transmission subsidiary TransnetBW as part of the group’s risk-sharing approach to execute its growth strategy toward 2025. In our base case, we assume that the transaction will be executed in 2023. We believe the transaction will increase cash flow leakage by an additional 5%-6% of EnBW’s yearly FFO. As a result, we forecast that the spread between consolidated and proportional FFO to debt will increase to about 400 basis points (bps), from 300 bps in our previous base case, putting pressure on metrics by 2024 (see chart). However, we expect EnBW to invest the proceeds in its Suedlink and Ultranet power transmission projects at TransnetBW, thereby providing a long-term EBITDA base and mitigating any dilution of earnings quality. We benchmark our ‘A-‘ rating on EnBW against FFO to debt of 18%, excluding the consolidation effects from minorities, which we believe is a better representation of EnBW’s available cash flows to repay debt given that minority-owned assets carry less debt relative to their EBITDA and FFO contribution to EnBW.
We believe EnBW's financial policy, including shareholder support, is geared toward protecting the current 'A-' rating. EnBW's investment strategy will lead to free operating cash flow (FOCF) deficits of €2.6 billion in 2022, €3.3 billion in 2023, and €1.9 billion in 2024. This trend, along with the increasing share of minority stakes, will set in motion a temporary decline in proportional FFO to debt to lower than 18% by 2024, which is below the downside trigger for the rating. However, we believe that management has sufficient tools and is committed to correcting the trend before then; for instance, through disposals of assets in which EnBW owns a minority stake. Additionally, we believe EnBW's shareholders, the State of Baden-Wuerttemberg and Zweckverband Oberschwäbische Elektrizitätswerke, an association of municipalities in Baden-Wuerttemberg, are supportive of the company's credit quality. Our opinion is based on the track record shown in 2012, when EnBW, along with its shareholders, introduced measures to strengthen the balance sheet amid weakening credit metrics, including issuance of hybrid securities totaling €1 billion, a capital increase of €822 million, and a significant dividend cut.

The current European energy crisis adds incentives to accelerate EnBW's strategy, which aims to achieve climate neutrality by 2035, although it will first result in higher usage of its thermal power plants. The Russia-Ukraine conflict has increased Europe's incentives to reduce dependence on Russian energy, and in particular gas. The RepowerEU Plan, for instance, aims to
increase energy savings, diversify energy supply, and accelerate the rollout of renewable energy. In Germany, the Easter Package aims to accelerate the share of renewables to 80% of total generation in 2030 and about 100% in 2035 by targeting photovoltaic generation capacity of 215 GW, along with 115 GW of onshore and 30 GW of offshore wind by 2030. We expect the Easter Package will be complemented by further measures that streamline permitting the installing of new renewables capacity and grid adaptation during 2022.

We believe that such initiatives, along with the criticality of ensuring security of supply, will provide tailwinds for EnBW's strategic objectives. These include investments of €12 billion during 2021-2025, most of which are across its renewables (30%-40%) and grid segments (about 50%). This will contribute to increasing the share of renewables to 50% of EnBW's total installed capacity, and the deployment of critical projects for long-term security of supply in Germany, such as the 4 GW capacity project Suedlink, which aims to transport increasing renewable generation from northern Germany to the energy-intensive southern states of Bavaria and Baden-Wuerttemberg; and Ultranet's 2 GW 340-kilometer line running from North Rhine-Westphalia to Baden-Wuerttemberg.

A supporting factor of EnBW's strategy is that the company's investments, while increasing leverage in the short term, will be mostly deployed to low-risk infrastructure, with low execution risk. On the other hand, we acknowledge there are short-term challenges, such as the ongoing gas curtailments and increasing utilization of the thermal power fleet, which although profitable, contradict EnBW's greener strategy. We also understand that Germany is considering keeping coal-fired power plants available for longer to assure security of supply, which could affect EnBW's stated plans to withdraw 2.5 GW of its existing 4.6 GW coal capacity by 2030. However, no definite policy has been enforced yet and the company remains committed to its coal exit strategy.

Outlook

Our stable outlook on EnBW reflects our view that the company’s exposure to Russian commodities, while material, is manageable, thanks to the group's diversified and integrated position throughout the energy supply chain. It also mirrors our view that EnBW will continue to prudently manage liquidity risk associated with commodity price fluctuations, mostly gas.

We continue to benchmark our rating on EnBW against FFO to debt of 18% on a proportional basis, which excludes earnings corresponding to minority shareholders. We expect the difference between this ratio and the consolidated FFO-to-debt ratio will widen to nearly 400 bps by 2023 owing to the likely sale of 49% of TransnetBW. As such, FFO to debt of 18% on a proportional basis would correspond to consolidated FFO to debt of 22%.

Even though we forecast proportional FFO to debt, excluding minority stakes, at less than 18% by 2024 due to the partial disposal of TransnetBW, we believe the company has sufficient tools to correct this, for instance, by disposing of partially consolidated assets. Our view that EnBW is strongly committed to protecting the 'A-' rating is a relevant consideration in this context.

Downside scenario

We would downgrade EnBW if FFO to debt falls below 18% without a clear path to recovery. This could be the result of an even larger increase in the share of minority interests in the group's results than we currently expect; or a combination of negative clean dark spreads and poor
weather conditions that hinder EnBW's renewable generation, since we believe these together would impair the company's earnings.

We could also lower the rating if we no longer assume EnBW would receive support from the State of Baden-Wuerttemberg.

**Upside scenario**

Rating upside is currently limited, given the current market uncertainty and EnBW's large, planned investments as part of its 2021–2025 strategy. However, we could raise the rating by one notch if EnBW were to post FFO to debt consistently above 20% on a proportional basis, along with gradual strengthening of the business risk profile, which we believe could result from increasing the share of EBITDA from regulated or long-term contracted activities.

**Company Description**

EnBW is one of the leading vertically integrated utilities in Germany. The group is principally engaged in electricity generation and trading, as well as the operation of electricity grids. Its gas activities include gas storage, gas trading, and portfolio management, while the downstream business covers the transmission, distribution, and sale of gas.

In addition to its traditional EnBW brand, the group serves its German household and industrial customers under the Yello and Naturenergie labels, targeting different market segments. Under its Strategy 2025, EnBW aims to continue positioning its business mix toward less volatile renewable generation and stable grid operations, currently at 25%-28% and 39%-41% of EBITDA, respectively, versus 10% and 33% in 2012. EnBW achieved its 2020 strategy one year ahead of schedule.

EnBW is predominantly active in Germany (more than 85% of EBITDA), where the focus of its operations is the State of Baden-Wuerttemberg, the center of the country's manufacturing and engineering industry. The group is also the majority shareholder of Stadtwerke Duesseldorf AG (not rated). In addition, EnBW has operations in Sweden, Denmark, the Czech Republic, Switzerland, and Turkey.

The State of Baden-Wuerttemberg and Zweckverband Oberschwabische Elektrizitatswerke, an association of municipalities in Baden-Wuerttemberg, each own 46.75% of EnBW. The remaining shares are held by several associations of municipalities in Baden-Wuerttemberg and private investors through a free float.

**Our Base-Case Scenario**

**Assumptions**

- German GDP growth of 1.9% in 2022 and 2.0% in 2023.
- A business mix approaching 75%-80% of EBITDA coming from regulated, system-critical infrastructure and contracted or subsidized renewable generation, albeit with a larger share of EBITDA from trading and thermal generation in the short term, due to higher utilization amid the current energy crisis causing a temporary deviation from this trend.
- EBITDA margins supported by an organizational focus on efficiency, with permanent efficiency
gains of about €200 million by 2024.
- Capital expenditure (capex) of €3.2 billion in 2022 and €3.2 billion in 2023. We expect nearly 75% of EnBW’s capex to be used for growth purposes and the rest for maintenance.
- Dividends from equity investments of €140 million–€150 million per year, which we add to EBITDA.
- Dividend distributions, including to minority shareholders, of €500 million in 2022 and €580 million in 2023.
- Hybrid stock of €2.5 billion to remain as a permanent layer of EnBW’s capital structure.
- 90%-100% of power generation hedged for 2022, 80%-100% for 2023, and 40%-60% for 2024.
- Power prices of €230 per megawatt hour (€/MWh) in 2022 and €183/MWh in 2023 for unhedged generation.
- Increasing interest rates resulting in lower pension and nuclear liabilities.
- Proceeds of €2.5 billion–€3.0 billion for the disposal of up to 49.9% of TransnetBW, assuming an EBITDA multiple of 17x–20x.
- No balance relating to the German Renewable Energies Act (EEG) or margining cash as part of the cash available to the company for debt repayment. This means we expect the positive net margining position of about €1.5 billion as of first-quarter 2022 to balance out by the end of 2022.

**EnBW---Key Metrics***

<table>
<thead>
<tr>
<th></th>
<th>Mil. €</th>
<th>2020a</th>
<th>2021a</th>
<th>2022e</th>
<th>2023f</th>
<th>2024f</th>
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<tr>
<td>EBITDA</td>
<td></td>
<td>2,935</td>
<td>3,385</td>
<td>3,000-3,200</td>
<td>3,200-3,400</td>
<td>3,200-3,400</td>
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<td>Funds from operations (FFO)</td>
<td></td>
<td>2,515</td>
<td>2,884</td>
<td>2,500-2,700</td>
<td>2,800-3,000</td>
<td>2,700-2,900</td>
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<tr>
<td>Capital expenditure</td>
<td></td>
<td>2,159</td>
<td>2,225</td>
<td>3,000-3,200</td>
<td>3,000-3,200</td>
<td>3,800-4,000</td>
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<tr>
<td>Free operating cash flow</td>
<td>(948)</td>
<td>5,412</td>
<td>(2,400-2,600)</td>
<td>(3,150-3,350)</td>
<td>(1,700-1,900)</td>
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<tr>
<td>Dividends</td>
<td></td>
<td>433</td>
<td>585</td>
<td>500-550</td>
<td>575-625</td>
<td>600-650</td>
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<td>Debt</td>
<td></td>
<td>12,034</td>
<td>8,764</td>
<td>12,500-12,700</td>
<td>12,100-12,300</td>
<td>13,700-13,900</td>
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<td>Debt to EBITDA (%)</td>
<td></td>
<td>4.1</td>
<td>2.6</td>
<td>4.0-4.2</td>
<td>3.5-3.7</td>
<td>4.1-4.3</td>
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<tr>
<td>FFO to debt (%)*§</td>
<td></td>
<td>20.9</td>
<td>32.9</td>
<td>20-22</td>
<td>23-25</td>
<td>19-21</td>
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*All figures adjusted by S&P Global Ratings. Metrics in this table are calculated on a consolidated basis. a--Actual. e--Estimate. f--Forecast. §Reflects FFO on consolidated basis.

**EnBW’s financial performance for 2021 benefits from margin collateral received, which we expect to be returned during 2022, dissipating the positive effect.** EnBW’s net debt and FFO to debt of 32.9% as of year-end 2021 benefits from about €1.8 billion of net margins received at its trading business, which the company reports as cash but is not available to repay financial obligations. Without the effect of such resources, we estimate EnBW’s FFO to debt at 25.2% for last year. We expect the effects of the net margining position to dissipate during 2022 as positions unwind and collateral flows back to counterparties. This effect also contributes to our FOCF forecast of negative €2.6 billion for 2022.
We don't expect EnBW to compromise its financial position to fill gas storage facilities at VNG, despite regulatory targets of 80% by Oct. 1, and 90% by Nov. 1, this year on a national level.

VNG is the third-largest gas storage operator in Germany, with a capacity of 2.2 billion cubic meters. Gazprom reduced gas deliveries to Germany via Nordstream 1 by 60% as of June 15, 2022, and it is uncertain whether volumes will be restored. Therefore, the feasibility of achieving the German gas storage targets included in the recently approved German Gas Storage Act ("Gasspeichergesetz") is increasingly at risk. Even though we expect EnBW to participate in the tenders organized by Trading Hub Europe (THE) and increase its storage based on summer-winter spreads, possibly leading to working capital swings, we don't expect it to compromise its financial position as a result, because the ultimate obligation to fill storage capacity lies with the gas system operator THE and not gas traders.

EnBW's credit metrics could benefit from increasing interest rates because that causes a decline in the net present value of its pension and nuclear liabilities. EnBW's pension and nuclear provisions are sensitive to actuarial and discount rates, which are used to determine the net present value of such liabilities. As of Dec. 31, 2021, those rates stood at 1.15% and 0.01%, respectively. We forecast an increase in the European Central Bank's policy rate to 0.83% in 2022 and to 1.75% in 2023. We estimate that a 10-bps interest rate increase would lead to a decline of about €200 million in pension liabilities, or an increase of 30 bps-35 bps in proportional FFO to debt. Similarly, we expect that an increase in discount rates for nuclear liabilities would result in a decline in adjusted net debt, with a 10-bps increase resulting in about a €50 million reduction, or a 15-bps to 20-bps increase in proportional FFO to debt.

Increasing renewables capacity and higher thermal capacity utilization will compensate for declining EBITDA at the regulated grid businesses. We expect EnBW's main EBITDA contributors to remain purely regulated grid activities, with a 39%-41% share of the total in 2022 and 2023, and 25%-28% of long-term contracted renewables generation. We expect smart infrastructure for customers (11%-12%) and thermal generation and trading (20%-24%) to account for the rest. We estimate the weight of regulated grids will decline slightly from 2024 because of declining equity returns for gas grids (from 2023) and power grids (from 2024). However, we expect new renewables generation, along with higher utilization rates at thermal generation facilities, will increase in 2022-2024, leading to a larger contribution to EBITDA from less stable activities. Despite this temporary deviation, we expect EnBW's EBITDA will be 75%-80% over the longer term, coming from regulated grids and long-term contracted renewables.

Liquidity

We assess EnBW's liquidity as strong, since we expect liquidity sources to cover uses by more than 1.5x over the next 12 months, and by 1.0x in the subsequent 12-month period. Our opinion is reinforced by management's commitment to financial prudence, which we interpret as entailing supporting strong liquidity, in particular throughout the current volatile market environment. We understand EnBW has increased its committed bilateral credit lines at VNG by €600 million to €1.3 billion and the company issued €500 million of promissory notes as of June 30, 2022, which we expect will continue supporting EnBW's liquidity over the next 24 months. We also take into consideration the group's strong standing in the financial markets, reflected in its diverse sources of funding.

We expect volatile energy prices will continue to challenge EnBW's liquidity throughout the ongoing European energy crisis. Although we consider that the German government is currently
willing to provide additional liquidity to gas importers amid the ongoing turmoil, we estimate
EnBW is able to sustain its strong liquidity position on a stand-alone basis. For instance, the €5.2
billion of committed credit lines in our calculation do not include €660 million of committed credit
lines at VNG provided by the German KfW bank, since they expire in April 2023, which is sooner
than the 12-month period considered under our criteria.

Principal liquidity sources include:
- Estimated €3.9 billion of unrestricted cash as of the second quarter of 2022.
- €5.2 billion of undrawn credit lines maturing beyond 12 months, including a €1.5 billion credit
  line with an option to be extended at EnBW’s discretion, and €1.6 billion maturing beyond 24
  months.
- €500 million of promissory notes issued as of June 30, 2022.
- About €2.4 billion cash FFO that we forecast over the next 12 months.

Principal liquidity uses include:
- €2.0 billion of debt maturing within 12 months.
- €2.2 billion of working capital outflows, mostly related to reversing EEG balances and positive
  net margining position.
- Capex of €3.2 billion.
- €500 million–€550 million annual dividend payments.

**Marketable securities**

In addition to its cash balances, EnBW had access to about €6.2 billion of marketable securities as
of March 31, 2022, to cover pensions and nuclear provisions.

**Covenants**

We understand there are no restrictive covenants in the group's debt documentation.

**Ratings Score Snapshot**

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<th>Issuer Credit Rating</th>
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<td>Business risk:</td>
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<td>Country risk</td>
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<td>Industry risk</td>
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<td>Issuer Credit Rating</td>
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<td>Capital structure</td>
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Stand-alone credit profile: bbb+
Related government rating: AA+
Likelihood of government support: Moderate (+1 notch from SACP)

**ESG credit indicators: E-2, S-2, G-2**

**Related Criteria**

- General Criteria: Environmental, Social, And Governance Principles In Credit Ratings, Oct. 10, 2021
- General Criteria: Group Rating Methodology, July 1, 2019
- General Criteria: Hybrid Capital: Methodology And Assumptions, 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
- 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
- Criteria | Corporates | General: Corporate Methodology, 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**

- The Dash For Gas Fuels Risks For European Utilities, Slows Energy Transition, June 29, 2022

**Ratings List**

**Ratings Affirmed**

<table>
<thead>
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<th>Entity</th>
<th>Rating</th>
<th>Subordination</th>
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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.