

INVESTMENT PERSPECTIVES

Resilience: Global utilities in the time of coronavirus, oil crisis, and climate change

Climate risks are profoundly changing company fundamentals today.

We see advantages in firms with climate-aware competitive strategies, aligned asset positions, and ample financial strength.

This note is the second in a series evaluating climate change's impact on specific industries.

From February 28 to March 23, 2020, as the coronavirus outbreak and the oil sell-off accelerated, U.S. utilities lost 28% of their equity market capitalization. The S&P 500 Index declined 24% during the same period. Meanwhile, credit spreads tripled for many investment-grade utilities. In both the equity and credit markets, utilities have outperformed only modestly since then. This is surprising given the sector's historical resilience.

By WFAM's Climate Change Working Group and Utility Sector Analysts

Have utilities become more vulnerable? We believe that despite near-term pressures, the answer is no. This note explains why we believe utilities as a group will:

- Prove resilient in the near term despite the coronavirus and the collapse of oil prices
- Deliver growth and profitability in the long term by proactively managing climate change and associated policy and technology risks¹

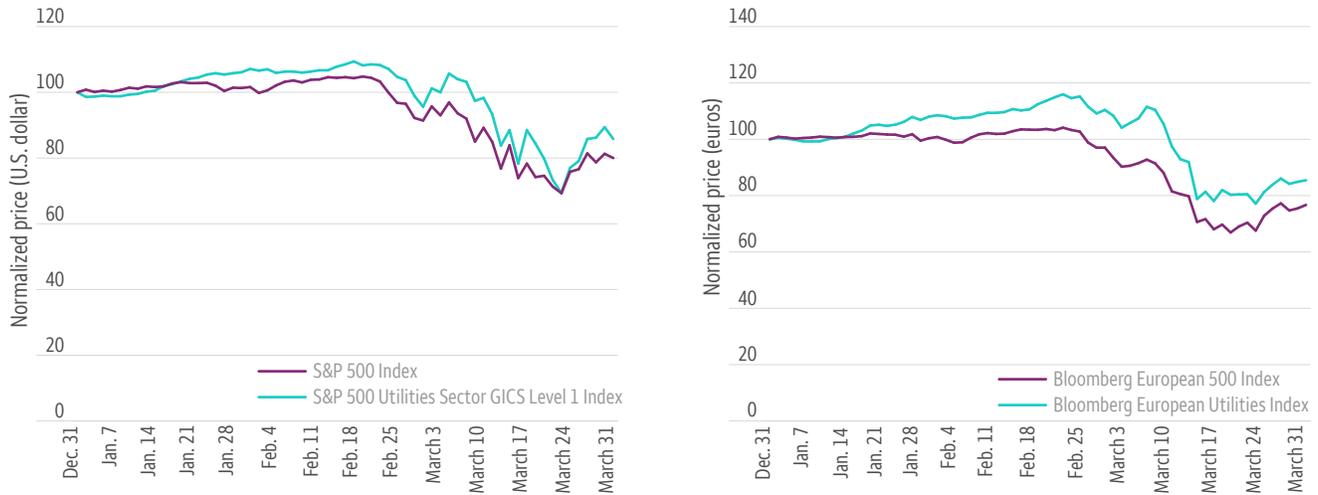
We provide specific examples in credit and equity markets.

Near term: The coronavirus pandemic and oil market dislocation should increase utilities' appeal

Historically, investors have turned to utilities for stability in depressed and volatile markets. Modest cyclicity, often-regulated returns, and stable income have been key to many utilities' appeal. But markets haven't rewarded utilities' defensiveness in recent weeks, as seen in Figure 1.

1. In this note, we evaluate utilities whose primary focus is on the electricity value chain. Some of them also have natural gas and water operations.

Figure 1: Utilities outperformed market indices only slightly in the first quarter of 2020.



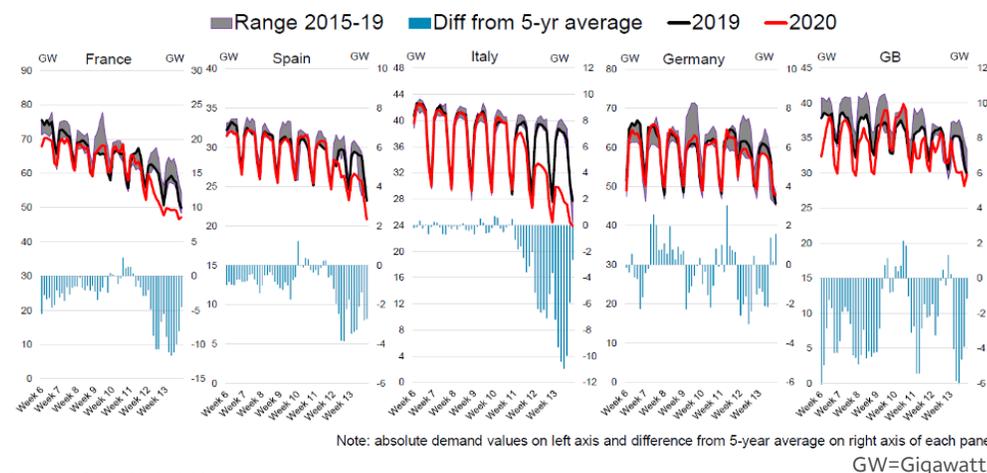
Source: Wells Fargo Asset Management (WFAM)

However, we believe that utilities remain resilient and that their initial sell-off was likely an indiscriminate market reaction in most cases. In our view, neither the coronavirus nor the oil market dislocation should substantially alter utilities' fundamental profile over time.

This is not to say there will be no impact, especially for unregulated utility operations. In Europe, wholesale prices have been down by double-digit percentages. Part of this pressure is fundamental (lower margins and volumes). It's also due to the threat of nonpayment and regulatory intervention in Europe as governments try to reduce the recession's impacts on consumers through price caps and relaxed payment deadlines. In the U.S., most regulated utilities appear well protected, especially those with rate structures that protect against volume risk. U.S. unregulated generators are exposed but still defensive, thanks to hedging programs.

European power demand trends seem to corroborate our view that fundamentals should remain resilient over time. Power metrics for the region show a distinct recovery from declines versus five-year norms. In France, Italy, Spain, and the U.K., the greatest fall in demand occurred on March 25–26. Each of these countries, except Spain, demonstrated more modest declines versus norms. In Italy, the maximum decline reached -28% and recovered to -10% by the end of March. In France, the maximum decline was -19%, which recovered to -9%. In the U.K., the maximum decline of -17% recovered to -4%. Spain improved to 11% relative to five-year norms. Germany's power generation remained fairly normal, but the country's data is generally less reliable due to distortions created by its large exposure to intermittent renewable generation, imports, and exports.

Figure 2: European power demand is beginning to recover.



Source: S&P Global Platts

Longer term: Four global climate trends should have increasing impact on utilities

Until late 2019, climate change was widely viewed as the economic risk with the greatest potential to disrupt the global economy, including utilities. However, the coronavirus' aggressive spread and the unprecedented global reaction to containing it have rightly shifted the narrative. As the pandemic abates, we expect attention to return to climate risks. The coronavirus has shown us that previously unthinkable policy actions to mitigate an existential crisis—such as the shutdown of entire sectors of countries' economies—are possible when threats are imminent.

With this backdrop, we've evaluated four climate risks and their implications for utility fundamentals:

- Gradually expanding physical effects
- Increasingly institutionalized decarbonization policies
- Constantly innovating systems for energy production and consumption
- Stakeholder demand—on the part of communities, policymakers, and investors—for utility climate leadership

Concern over climate change's physical effects hasn't diminished for policymakers, companies, and markets.

This concern is well founded. Climate effects are increasingly tangible, expensive, unpredictable, and systemic.² Decarbonization investments required to reach Paris Agreement goals are expected to average 1.5% to 3.0% of gross domestic product (GDP) through 2050, depending on the country.³ Further, to make electricity systems resilient, utilities will have to go beyond decarbonization and fortify electricity systems to prepare for more frequent and severe weather, wildfires, and droughts. Utility investment will need to be incentivized through value-creating returns.

Decarbonization policies have been reiterated broadly since the coronavirus' escalation.

These policies have four primary objectives: creating jobs, reducing carbon emissions, electrifying industries (with clean technologies), and improving energy efficiency. Thus far, the U.S. presents a conspicuous exception to this trend: Congress has yet to include green infrastructure in its economic stimulus. In contrast, Europe and China have expressed support for green investments that optimize the speed and impact of job creation.

Constantly innovating technologies and systems are tailwinds for utilities.

These technologies allow grid resilience and decarbonization to create more value across the electricity value chain. Results include renewables' cost leadership compared with conventional generation, increasingly affordable storage, more reliable grids, and resource efficiencies through more sophisticated coordination of demand and supply.

It will be important for utilities to remain nimble in managing exposure to new technologies. For example, a company that focuses only on offshore wind could be vulnerable if onshore renewables innovate and reduce costs more quickly. Separately, a recession could temporarily restrict the availability of capital for decarbonization and resilience investments. This could delay renewables' cost

2. Risks of a changing climate: Exploring the investment implications. Isaac Khurgel, Tom Lyons, Jamie Newton, WFAM, November 2019. Changing climate, changing analysis: Focus on global auto. Tom Lyons; Garth Newport, CFA; Ambreesh Bansal, CFA; David Moon; Isaac Khurgel; WFAM, December 2019.

3. The Best COVID-19 Stimulus Plans Will Fight Climate Change, Too, Marco Duso, BCG, 27 March 2020, <https://www.linkedin.com/pulse/best-covid-19-stimulus-plans-fight-climate-change-too-marco-duso/>.

competitiveness versus conventional generation in some regions. However, given the extreme scale of associated risks to our climate and potential returns for effective technology solutions, we expect technology investment to rebound quickly.

Stakeholders—including investors, customers, and regulators—are unlikely to backtrack on demands for utility leadership in responding to climate change.

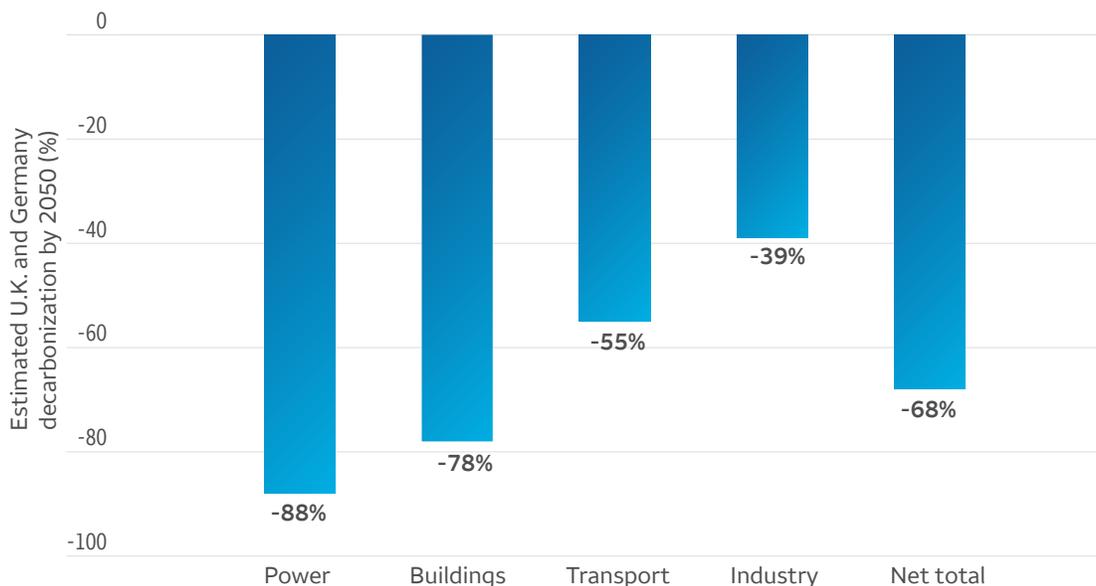
Utilities and energy firms will clearly be preoccupied with the impacts of the coronavirus in the near future. However, investors and governments are already beginning to reapply pressure on these firms to show leadership in decarbonization and resilience. Utilities’ failure to do so could likely lead to higher capital costs, and in the extreme, a loss of license to operate. The vast majority of large utilities in Europe and the U.S. have committed to their stakeholders to achieve net zero emissions by 2050.

Long-term climate trends look positive for utility fundamentals in aggregate ...

A financially robust and climate-resilient utility sector can help the economy and maintain health and safety.

Financially strong utilities are also in a unique position to lead decarbonization and to harden essential infrastructure in the face of climate’s physical risks. Utilities offer more decarbonization potential than any other industrial sector. Low-emitting utilities can enable decarbonization of transportation, buildings, and heavy industry. BloombergNEF, in a report produced with Statkraft and Eaton, argues that electrification and alternative fuels could lower emissions by more than 60% over 2020–2050 across the transport, buildings, and industrial sectors. This transformation could increase emissions for the electricity sector itself because, even with robust growth in renewables, more fossil-fuel-fired plants may be needed to allow for system flexibility. But economy-wide emissions would fall dramatically as the economy moves away from fossil fuels. The report stresses that new policies would be needed to incentivize this process.

Figure 3: Electrification and alternative fuels could help the U.K. and Germany decarbonize by more than 60% by 2050.



Sources: WFAM and BloombergNEF⁴

4. Sector Coupling in Europe: Powering Decarbonization, <https://data.bloomberglp.com/professional/sites/24/BNEF-Sector-Coupling-Report-Feb-2020.pdf>

In our view, electricity’s prominence should expand throughout the economy.

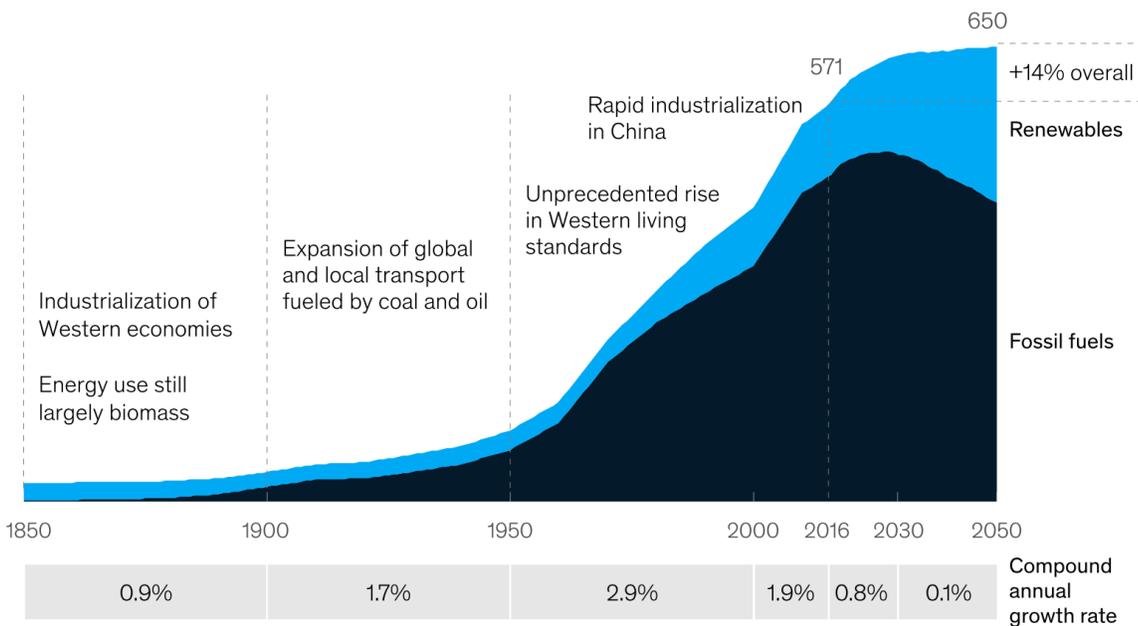
Technology innovation and improved efficiency should reduce the economy’s energy intensity in the near term. However, decarbonization could actually drive electricity intensity higher over time.

Electricity’s share of final global energy demand today is about 20%. The International Energy Agency (IEA) expects this to rise to 25% by 2040. In 2016, the World Energy Council forecast that electrification, combined with economic growth, could at least double demand by 2050. This projection implies a fivefold increase in electricity generation.⁵ Transportation, buildings, and industrial processes are primary targets for electrification. In Europe, electrification of these sectors could cut greenhouse gas emissions by 60% between 2020 and 2050, according to BloombergNEF.⁶ Looking beyond the highest-emitting energy consumers, we believe computing technologies, networks, and the internet will continue to digitize the economy. This should boost robotics and advanced manufacturing methods, which are all powered by electricity.

Figure 4 presents a corollary of an electrified future. Renewables’ quickly growing share of primary energy consumption can occur while stabilizing the energy intensity of GDP. This is the result of precipitously declining oil and coal consumption combined with improved efficiency in the consumption of all forms of energy.

Figure 4: After a century of rapid growth, energy demand is likely to plateau around 2030, primarily driven by the penetration of renewable energy sources into the energy mix.

Global primary energy demand, millions of terajoules



Source: McKinsey Energy Insights’ Global Perspective, January 2019



Exhibit from “The decoupling of GDP and energy growth: A CEO guide,” April 2019, McKinsey Quarterly, www.mckinsey.com. Copyright 2020 McKinsey & Company. All rights reserved. Reprinted by permission.

5. The Age of Electricity, Dieter Helm and Cameron Hepburn, Oxford Review of Economic Policy, Volume 35, Number 2, 2019, pp 183–196.

6. Electrification Can Cut Emissions of Transport, Buildings and Industry in Europe by 60% by 2050, <https://about.bnef.com/blog/electrification-can-cut-emissions-of-transport-buildings-and-industry-in-europe-by-60-by-2050/>

Decarbonization and electrification should deliver above-trend growth and value for utilities at the sector level.

Climate-related investments greatly expand utilities' opportunities to grow and create value. Investment needs for decarbonization alone are estimated at \$27 trillion to 2040, according to the IEA.⁷ Hardening and resilience investments are difficult to estimate but clearly add significantly to this amount.

... But performance and security value are likely to diverge at the company level.

Climate risks are bringing a new set of competitive advantages to the fore for utilities. To capture associated fundamental implications, the Climate Change Working Group updated its proprietary analytical framework. The framework focuses on these competitive factors:

- **Strategy's alignment with climate-driven physical, policy, and technology trends.** Are there convincing plans to harness secular trends, including alignment of asset position, capital budget, and business model?
- **Asset position.** Cost competitiveness, regulatory landscape, physical landscape, diversification, and carbon price exposure are primary considerations.
- **Physical risk profile.** What's the exposure to climate's physical risks and the sophistication of management's strategies to manage these risks?
- **Operational expertise.** Firms must combine their strategy with leadership in development, construction, operations and maintenance, and cross-disciplinary risk management.
- **Financial profiles.** These must enable growth and credit stability in the face of changing policies, technologies, and competitive environments.
- **Stakeholder strategy.** What are the firm's track record and the coherence of its future plans to build climate strategy support from investors, customers, communities, regulators, and governments?

In partnership with WFAM credit and equity analysts, we applied the framework to European and U.S. utilities. The results obtained for these three utilities illustrate the framework's capabilities:

- Orsted A/S, a Denmark-based global leader in unregulated generation focused on offshore wind
- Xcel Energy Inc., a regulated and integrated U.S. utility that shows leadership across climate risk categories
- Vistra Energy Corp., a leader in unregulated U.S. generation markets that appears to face significant decarbonization challenges relative to Orsted and Xcel

Our analysis reveals how differences in these firms' climate risk profiles lead to differences in their overall fundamentals and value proposition.

Orsted: An exceptionally focused, well-managed secular play on decarbonization through development and operation of offshore wind facilities

We view Orsted as one of the best-positioned European utilities with respect to its combination of credit quality and growth potential. We have some concern over its concentrated offshore wind and geographic exposure to Europe and the U.S. However, we believe these factors are largely offset by the firm's well-designed strategy, competitive asset base, and flexible capital structure. The market rewarded Orsted with premium equity and credit market valuations before the escalation of the coronavirus. We can envision this premium returning as markets stabilize.

- **Competitive strategy:** To a greater extent than its peers, Orsted grounds its strategy and value proposition in decarbonization. This focus, along with its global leadership in operations and exceptional growth prospects for offshore wind, delivers leading multiples for Orsted even after the recent sell-off.
- **Asset position:** Orsted's position is high quality by today's standards but extremely concentrated in offshore wind in Europe and the U.S. Should offshore wind underperform other clean technologies, and/or should governments surprisingly enact policies that disadvantage offshore wind, Orsted is likely to suffer disproportionately.
- **Physical risk management:** We note that load factors are inversely correlated with the extremity of offshore weather. Very high wind speeds impair turbines' ability to generate electricity. For Orsted, hardening opportunities include technologies that allow more reliable power output at high wind speeds.
- **Operational expertise:** Orsted is seen as a top performer in offshore wind operations.
- **Financial profile:** Orsted's relative conservatism combined with the Danish government's 50.1% ownership keep credit risk premia at the low end of the sector range. This is an adaptive trait given rising new entrants from other sectors (oil) and distant geographies (foreign utilities), with resulting pressure on returns. Very long-dated and hybrid capital is a key element of Orsted's financial strategy. This offers insurance against offshore wind's need to deliver technology cost reductions as well as negative surprises in secular growth and market share.
- **Stakeholder engagement:** Orsted's security values benefit from the company's excellence in collaborating with investors, customers, and government. Equity values have appeared stretched but defensible. Credit spreads look reasonable relative to other utilities.

Xcel Energy: Outperformance of regulated peers through innovative decarbonization strategies

In addition to having a leading business and financial profile today, Xcel has created an advantaged competitive position for the future with respect to the full range of climate risks. This position is key to our constructive view of Xcel's fundamental position and premium valuations in equity and credit markets.

Profile of Xcel Energy

- **Competitive strategy:** “Steel for Fuel,” or replacing fossil with renewable assets while generating value and growth, is the phrase that Xcel coined to define its primary growth strategy. Grid investment is also top priority.
- **Asset position:** Xcel owns four utilities across seven Midwestern and Rocky Mountain states. Its carbon price risk is well maintained. The firm targets 80% emissions reduction by 2030 relative to 2005 and net zero by 2050.
- **Physical risk profile:** Water scarcity for power plant cooling towers and extreme winter weather for infrastructure assets are primary risks. The company manages several innovative programs to improve operational and physical resilience and does not have coastal exposure.
- **Operating expertise:** Xcel is considered an innovator in rate-basing renewable projects, an industry trend that other utilities are now adopting, and has strong operational history on the utility side.
- **Financial profile:** Management is considered exceptionally conservative with A category credit ratings across regulated subsidiaries. Management has leaned on holding company debt for renewable expansion but is still well regarded and considered disciplined dating back to its exit from the competitive generation business in the early 2000s.
- **Stakeholder strategy:** Xcel has well-managed relationships with investors, communities, and regulators. It's been particularly effective in communicating its “Steel for Fuel” strategy. Xcel's share price and premium equity market valuation are testaments to its strength in this area.

Vistra Energy: A leader in deregulated fossil generation facing significant decarbonization risk

In our view, as the coronavirus' health and economic impacts abate over time, Vistra has the potential to grow into a solidly investment-grade firm if it can:

- 1 Execute its deleveraging strategy in convincing terms given pressure on power prices and heightened challenges to the economy
- 2 Strengthen its climate strategy with a clearer plan to decarbonize and abate climate policy risks—the coronavirus and recession make both tasks more challenging

Profile of Vistra Energy

- **Competitive strategy:** Vistra is a leader in deregulated U.S. generation and supply. The firm has enacted longer-term carbon emission goals that are somewhat less ambitious than Xcel's. Vistra has a 2030 target to achieve “a greater than 50% reduction in CO2 equivalent emissions” and a 2050 target to achieve “a greater than 80% reduction in CO2 equivalent emissions” relative to a 2010 baseline. Retiring coal plants can deliver substantially against these targets. However, the firm has little experience in renewables, which raises questions about how efficiently targets can be fully met. Battery storage investments are a new addition to the utility's strategy.
- **Asset position:** Vistra is significantly larger than its unregulated peers. The company currently owns roughly 39 GW of generation across various geographies—including Texas, New England, and the Mid-Atlantic U.S. Approximately 70% of its generation-assets fuel sources are derived from natural gas (64%) and nuclear (6%), and the company has plans to retire an additional 2.5 GW of coal plants in Illinois. Fossil stations would face significant financial exposures should a carbon tax be introduced. This could be partly offset by upward pressure on power prices.
- **Physical risk profile:** Vistra has a nuclear plant in the Comanche Peak Nuclear Power Plant in northern Texas that requires water reservoir access. Typical weather considerations are also a factor for the plants in the New England and mid-Atlantic regions.
- **Operating expertise:** The company has a strong brand name—TXU Energy—as a retail electric provider. On the competitive generation side, it's one of the stronger operators in the business. However, it's lacking in renewables.
- **Financial profile:** Vistra has kept a disciplined financial profile after exiting bankruptcy. Currently rated in the high-yield category, Vistra strives to be investment grade at the corporate level. The company has undertaken share repurchases and has moderate deleveraging ambitions.
- **Stakeholder strategy:** Vistra has improved outreach to the investment-grade community and has implemented a dividend to exhibit its steady retail operations. We'd take a positive view of more deliberate and ambitious climate strategy content in Vistra's investor and regulatory outreach.

Conclusion

The coronavirus pandemic is an alarming human condition that has brought troubling health consequences for millions globally. This, combined with oil market dislocation, will likely place increasing strain on the already-challenged economy. Recession and related oil market dislocations have been the prime movers behind the recent sell-off in financial markets, including utilities.

We believe recent utilities selling has been indiscriminate in many cases. As a group, the sector has fundamentals that warrant far better performance versus the market than we've seen in recent weeks. Society needs financially robust utilities to lead the response to climate change. Trillions of dollars of capital must be mobilized to decarbonize our energy systems while making them climate resilient.

Further, the stimulus decisions we make today can accelerate this investment and increase the efficacy with which we address climate change for decades to come. We believe climate risk management will remain a top priority for governments and utilities in all likely outcomes following today's health and economic challenges. We also believe utilities with the most attuned climate strategies and best execution stand to grow faster than the economy in the years to come.

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