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STRANDED ASSETS: ASSESSING THE IMPACT ON US AND EUROPEAN UTILITIES

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THE POTENTIAL FINANCIAL IMPACT ON US UTILITIES FROM COAL GENERATION PLANTS AND GAS DISTRIBUTION NETWORKS BEING PREMATURELY RETIRED IS LIKELY OVERSTATED. UNREGULATED EUROPEAN POWER PROVIDERS, HOWEVER, FACE MORE EXPOSURE.

Customers, both in the US and Europe, are a stakeholder class that is at risk of facing higher bills in the future. This is the net impact of compensating generators for stranded assets and the development of replacement generation.

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KEY TAKEAWAYS

- The potential financial risk of stranded assets in the utility sector depends on three main characteristics: regulated status, fuel generation type, and political makeup at the state and federal levels.
  - Coal generation is the most at risk.
  - Regulated coal assets, however, present minimal risk to investors due to favorable regulatory treatment.
  - Customers are the stakeholders most likely to be affected.
- US utilities appear to be better positioned than their European counterparts to cope with the financial implications of stranded assets.

The transition to clean energy, smaller carbon footprints and cheaper renewable power has raised concerns among investors with stakes in utilities supported by older, more conventional power generation facilities. Investors predict that environmental pressures and economics may cause coal-burning plants to be taken out of service earlier than originally anticipated.

As a result, investors are paying close attention to the risk posed by "stranded assets," or resources, power plants or machinery that are no longer in use and therefore can no longer earn a return. Investors are trying to understand whether stranded assets could result in meaningful write-downs that might affect the valuations of utilities companies. Investors have also become concerned that customer bills may come under pressure as utilities increase spending to replace lost generation.

But the negative impact to US-based regulated utilities might not be as significant as feared. Based on our analysis, we believe that there will be manageable negative financial impact on US utilities if state or federal mandates force the accelerated closure of certain assets. The unregulated nature of conventional power generation in Europe, however, leaves utilities there more exposed to the risk of premature plant closures.

This more upbeat US outlook is based on our belief that affected US utilities will receive "fair treatment" from regulators. It also assumes that fleet transformation will occur at a moderate pace over a multi-decade period. Regulators will likely afford power providers access to at least three forms of financial recovery to limit asset impairment and help make utilities whole on their initial investment. Financial recovery may come in the form of authorized accelerated depreciation, the creation of a regulatory asset or securitization. The cost of these regulatory recovery mechanisms would be borne by utility customers.

Our sanguine outlook for US utilities is further bolstered by the outcome of the recent US elections and a growing conviction that key technology issues remain to be solved before a carbon-free power system can be created. We will elaborate on these points later in the paper, but the key takeaway is this: both developments suggest the move to a cleaner energy future will be gradual, making it easier for utilities to manage the costs associated with stranded assets.

Still, investors need to understand the dynamics driving the transition toward clean energy and how the risk of stranded assets could affect the financial performance of utilities companies, both in the US and Europe.

Why the Risk of Stranded Assets is on the Rise

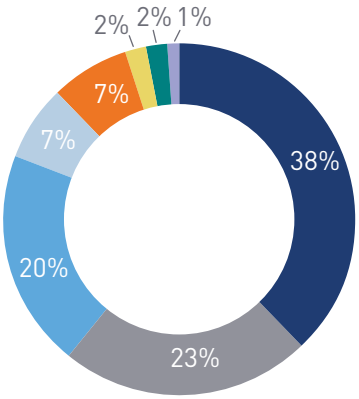
As of 2019, coal accounted for 23% of total US power generating capacity (see exhibit 1), down from 39% in 2000. The US Energy Information Administration (EIA) projects that coal's share of total domestic power generation will fall to 13% by 2050. The EIA projects that this number could be as low as 7% if oil and natural gas prices remain low.[1]

The trend toward more eco-friendly power generation is similar in Europe, though Europe is well ahead of the US in the transition to renewable energy. In 2019, nearly two-thirds of Europe's power came from "clean energy." In addition to the 34% from renewables, 25% came from nuclear generators, followed by gas (22%), coal (15%) and other fossil fuels (4%). Given that at least six countries in Europe have committed to shutting down coal plants over the next 10 years, we expect coal as a percentage of total power generation to continue to decline.

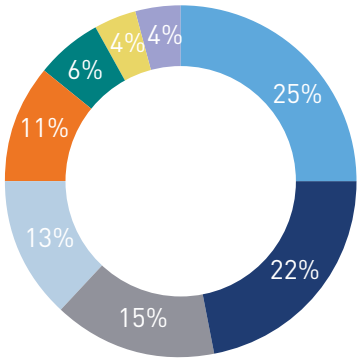
EXHIBIT 1: US AND EUROPEAN ENERGY PRODUCTION 2019 BY EIA

Source: US Energy Information Administration (EIA). https://www.eia.gov/tools/faqs/faq.php?id=427&t=3 & Agora Energiewende https://static.agora-energiewende.de/fileadmin2/Projekte/2019/Jahresauswertung_EU_2019/172_A-EW_EU-Annual-Report-2019_Web.pdf

US Electricity Generation by Source



EU Electricity Generation by Source



[1] *US Energy Information Administration, published February 7, 2020. https://www.eia.gov/todayinenergy/detail.php?id=42755*

There are several factors driving the shift toward clean energy:

POLITICAL AND REGULATORY PRESSURE: The transition away from coal and other nonrenewable energy sources is being driven by policymakers at all levels around the world.

In Europe, participation in the Paris Climate Agreement requires the EU to pursue a 40% reduction in greenhouse gas (GHG) emissions from 1990 levels by 2030. In addition to these efforts, there is a strong push in Europe, as well as other regions, to achieve net-carbon-neutral economies. In the US, the potential for new federal mandates, including the introduction of carbon caps and the extension of tax credits for renewable development, could further accelerate the transition to renewables. The pace of this transition will largely depend on the balance of power in Washington, and also at the state level.

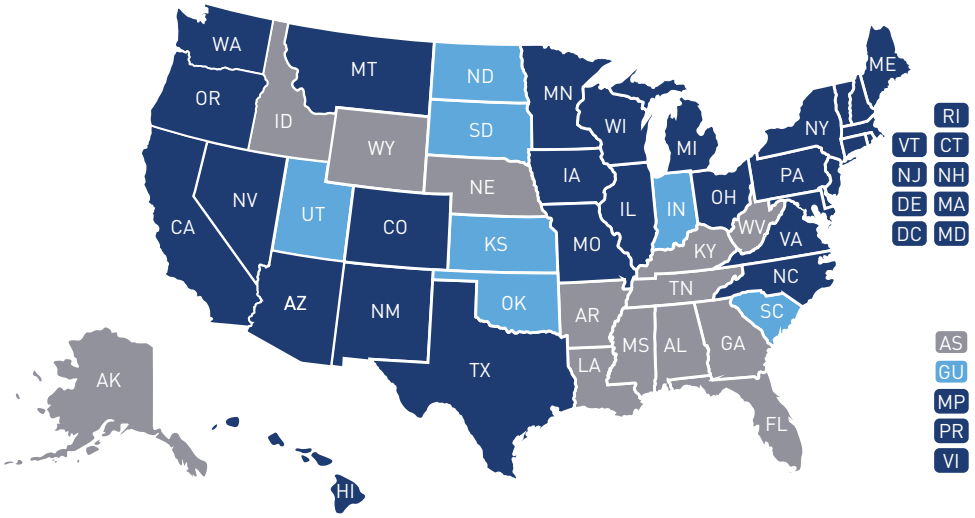
Here, the outcome of the recent elections is relevant. The 2020 presidential and congressional elections resulted, for now in divided government: a Democratic president and, a Republican Senate and Democratic House of Representatives. Democrats generally seek to implement more aggressive carbon-reduction goals, while Republicans tend to favor fossil fuel generation being phased out gradually as the levelized cost of renewable generation becomes more compelling.

As a presidential candidate, Joe Biden advocated moving to a carbon-free power system by 2035. That timetable would have required an investment of trillions of dollars, presumably split between utilities, customers and the federal government. Candidate Biden proposed $2 trillion of federal assistance to achieve his goal. Senate Republicans are almost certain to oppose Biden's proposal and that level of federal investment. Additionally, even if Democrats were to win the Senate majority, there is no guarantee that more moderate Democrats would vote for such a progressive policy. The result: the transition to a carbon-free system is likely to be slower than Biden and many Democrats would prefer. By way of comparison, many US utilities are using a target date of 2050 to reach carbon neutrality, which is in line with meeting the overarching goals of the Paris Climate Agreement. Again, a longer transition lessens the burden of paying off stranded assets, which eventually falls on one of two parties: utilities or ratepayers.

Arguably, political power and decision-making at the state level could have even greater influence than federal policy over the speed of the transition to less carbon-intensive energy sources. More than half of the states in the US have introduced a renewable portfolio standard (RPS), and nine states, along with the District of Columbia, have set a target of 100% clean energy by 2050. RPS is a state government mandate to boost electric energy production via renewable sources such as wind, solar and biomass, and move away from sources such as fossil fuels and nuclear.

EXHIBIT 2: RENEWABLE PORTFOLIO STANDARDS IN THE UNITED STATES

Source: National Conference of State Legislatures, published April 17, 2020. https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx



States and Territories with
- Renewable Portfolio Standards
- A Voluntary Renewable Energy Standard or Target
- No Standard or Target

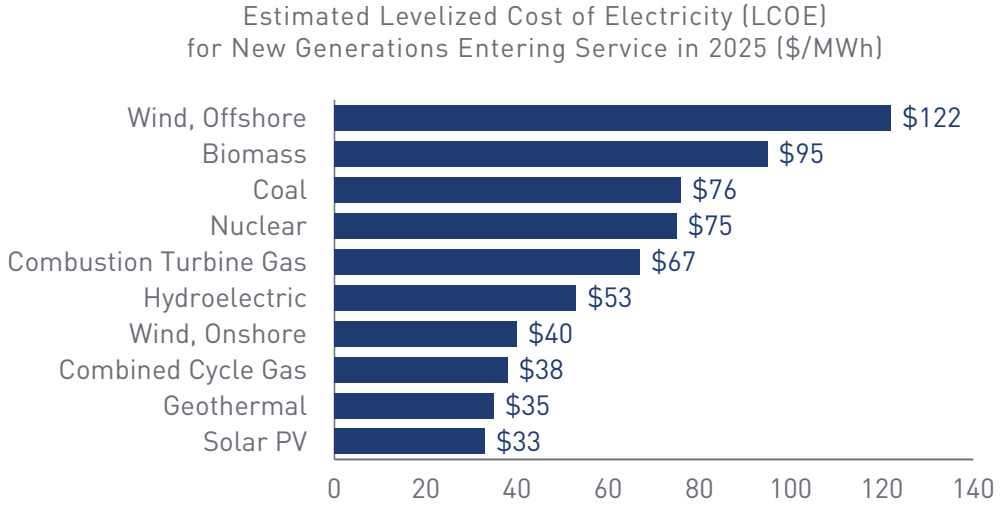
ESG AND OTHER INVESTOR PRIORITIES: Environmental, social and governance (ESG) integration is a rapidly evolving framework that has reshaped the investment landscape during the past decade. The COVID-19 pandemic and recent wildfires in the western US have only heightened investor concerns about supply chain vulnerability and climate change. As a result, ESG-conscious investors—from the world's most sophisticated institutions to retail investors—are pushing power companies to transition to less-carbon-intensive forms of generation. Whether investors are advocating for these changes out of concern for the environment or as a way to mitigate risk in their portfolios, boards of directors at utility companies face mounting pressure to act.

Many US investment firms, including Loomis Sayles, are integrating ESG into their investment processes. Not surprisingly, though, European institutions are leading the charge when it comes to ESG investing, particularly with respect to climate change. Many European investors have incorporated ESG into their investment policies and are pressuring utilities to decarbonize their portfolios; a recent Bank of America survey found that 43% of European investment grade investors consider a company's ESG profile when choosing investments.[2] In contrast, a 2018 CFA Institute Study found that only 13% of credit analysts and portfolio managers in the US "often" integrate ESG into their analysis/investment process.[3]

ECONOMIC AND MARKET-BASED FACTORS: In addition to the political and investment pressures, economic forces play a major role in the shift toward clean energy. Regardless of which party controls the White House and Congress, the percent of coal-fired generation in the US should continue to decrease over time. As new, highly efficient natural gas plants are brought to market and the cost of renewables and battery storage continue to decline, coal-powered electricity will become less economically viable.

EXHIBIT 3: LEVELIZED COST OF ELECTRICITY BY EIA

Source: US Energy Information Administration (EIA). Published February 2020. https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf



[2] *Bank of America. Credit Investor Survey, https://research1.ml.com/C/?q=ZcZW1g2i5bh4QrOzA80ZOQ*

[3] *CFA Institute. ESG Integration in the Americas: Markets, Practices, and Data. https://www.cfainstitute.org/-/media/documents/survey/esg-integration-in-the-americas.ashx*

Types of Power Generation Plants at Highest Risk of Becoming Stranded Assets

COAL IS IN THE CROSSHAIRS: Out of all of the forms of power generation, we believe coal-burning plants face the greatest risk of becoming stranded assets. We see this on both sides of the Atlantic, but even more so in Europe, where several countries have made a pledge to shut coal plants over the next decade. It is worth remembering, though, that coal-fired generation accounts for just 15% and 23% of total power generation in Europe and the US, respectively. Utilities in both regions look to be well-positioned to address this risk.

NATURAL GAS FACES A LONG-TERM RISK: Power plants in both the US and Europe that use natural gas to generate energy may also be in danger of becoming stranded assets. But the phase-out of gas-fired energy generation may be many years away. This is mainly because gas is the fuel that can facilitate the near-term transition away from coal to greener power generation. In our view, moving to a power system without natural gas would require cheaper forms of alternative energy as well as advances in storage technology that have yet to be achieved. Until these technological issues are resolved, which remains difficult to predict, gas generation will be required to ensure grid reliability.

Even so, we expect gas-fired energy generation in Europe, which now accounts for 22% of the continent's power needs, to continue shrinking gradually. Similarly, in the US, we expect environmental activists to push for accelerated retirement of gas-generation assets regardless of which party controls Congress and the White House. However, because of the logistical considerations, we do not view the natural gas industry's long-term viability as a political issue.

EUROPEAN NUCLEAR ASSETS ARE NOT IMMUNE FROM BEING STRANDED: Although nuclear generation is a non-carbon source of energy, nuclear power plants are not immune from becoming stranded assets. The move away from nuclear power generation is primarily driven by safety and security concerns. In addition, the costs associated with operating nuclear power plants can be high. Safety and cost were key factors in Germany's decision to phase out nuclear power generation following the 2011 Fukushima Daiichi accident in Japan, as well as in getting utilities to pay €24 billion into a German fund to help defray nuclear waste storage costs.

Why the Financial Impact of Stranded Assets is Muted

To assess the financial risk that stranded assets pose to utilities, we analyzed five regulated US utilities as a proxy for the US energy sector. These companies have relatively high coal exposure yet also have ambitious carbon-reduction goals. Nonetheless, these utilities have a fairly high risk of having some stranded assets in the coming years.

We examined the potential financial impact of stranded assets and how utilities could mitigate this risk. Here we list several of the key takeaways from our analysis:

US UTILITIES EXPECT TO RECEIVE "FAIR TREATMENT": All of the utilities in our sample are generally confident that they would receive fair treatment from regulators in a situation where an asset must be retired before the end of its useful life. So-called "fair treatment" may come in three primary forms:

- Authorized accelerated depreciation. Accelerated depreciation allows for a utility to reduce the useful life of a generating asset and therefore recoup its recovery on an "accelerated" basis. This process needs regulatory approval because the accelerated reimbursement will be funded through customer rates.
- Creation of a regulatory asset. A regulatory authorized asset allows the utility to carry the book value of a plant in its rate base, even though that plant has been retired. This allows the utility to recover—and earn a return on —its investment in a generating asset.
- Securitization. Securitization allows for utilities to fund the costs associated with plant retirement through debt issuance via a special purpose entity (SPE). The utility then adds a non-bypassable fixed-rate charge to customer bills until the debt is fully repaid. The debt issued remains off the company's balance sheet, protecting the credit of the utility.

These three forms of recovery would help ensure that a utility could be made whole on its initial investment in power-generating assets that become stranded. These measures would ultimately place the burden of recovery on customers via surcharges or price increases; however, the impact on customers' bills would depend on the form of recovery the regulator authorizes.

The management team of one utility we analyzed said that it has already written off coal-generating assets that will soon be retired. The company will request approval from its regulator to recognize this charge as an expense rather than seek full recovery on those assets. The strategy would benefit the utility in the following way: If a utility is overearning its authorized return on equity (ROE), an expense charge could assist in bringing that ROE back in line with its authorized level. The risk of the utility overearning its ROE could open it up for future rate reductions, which it seeks to avoid.

HOW CUSTOMER RATES ARE DERIVED

Customer rates are a function of the utility's rate base, or the property on which it is allowed to earn a return. Rate base growth is a function of capital expenditures and depreciation. The state regulator establishes a return on equity for the utility's rate base while balancing the interest of all stakeholders. All else equal, a higher rate base equates to higher customer bills. The objective of a utility is to earn at or near its authorized return on equity, and a utility's ability to do so is predicated upon sales growth and cost management.

NATURAL GAS AND EUROPEAN NUCLEAR ASSETS FACE LONGER-TERM RISKS: As noted above, the stranded-asset timeline is longer for natural gas and nuclear assets than for coal-generation assets, but it is still worth monitoring from an investment perspective. Several utilities we cover have proactively addressed this subject and said that it is not a near-term risk because of the present intermittency issues associated with renewable power generation.

It is also notable that gas-distribution networks are not at the forefront of regulatory agendas. Indeed, in the Midwest and Northeast, demand for natural gas has continued to increase with population growth. Gas consumption in the US increased 3% in 2019, according to the EIA. Nevertheless, utilities are anticipating longer-term regulatory or political threats to natural gas in certain states and want to get out in front of this dynamic.

Investors are paying close attention to the risk of gas networks becoming stranded assets, but utilities and regulators are not yet in a position to provide clear answers due to low visibility on the future of gas grids. Regulators could address the uncertainty by allowing gas grids to fully recover their investments (i.e., their regulated asset base) even if their assets become stranded. However, this decision could be costly.

RENEWABLE NATURAL GAS AND HYDROGEN GAIN MOMENTUM: When and if regulators do seek to reduce natural gas usage, there are two primary options for doing so. The first involves characterizing gas-distribution networks as obsolete and moving to full electrification. The second uses the existing gas-distribution infrastructure but introduces a more-sustainable form of fuel. Local gas-distribution companies welcome the latter, as it will allow them to use existing plants and machinery. We agree that utilizing the existing gas infrastructure seems more logical and will likely minimize the impact on customer bills.

Renewable natural gas (RNG) and/or hydrogen appear to be front runners as the more efficient future fuel sources. RNG comes from dairy farms, wastewater treatment plants and landfills. This is by no means a new technology, but RNG

has not yet been deployed at scale. A recent Navigant study showed that replacing just 20% of natural gas in the US with RNG is the equivalent to converting 100% of buildings in the US to electric-only power. We have already seen one large US gas-distribution company establish a target of introducing 20% RNG into its system by 2030.[4]

EUROPE'S UNREGULATED UTILITIES FACE GREATER RISK AND POTENTIAL LOSS OF INCOME: In Europe, conventional-power generation (i.e., coal, gas and nuclear) is unregulated. Thus, the burden of addressing stranded power plants falls largely on utilities. Some proactive European utilities have already decarbonized their portfolios to a large extent through a combination of asset disposals and plant closures. On the other hand, a number of utilities located primarily in Central Europe and Eastern Europe, where there are vast coal resources, were late to adapt and remain exposed to early closures of their power plants.

The potential loss of income is a direct implication of stranded assets. We think that European utilities located in countries that remain heavily reliant on thermal-power generation have a higher chance of being compensated. These countries will likely need to take aggressive measures to reduce carbon emissions and, therefore, may need to protect the financial health of local utilities.

An additional consequence of the early closure of power plants is the acceleration of decommissioning and waste-storage payments. While European utilities already carry provisions on their balance sheets, moving these liabilities forward will inevitably increase the size of the provisions. Moreover, the adequacy of these provisions could be called into question. For example, in 2016 German utilities were required to pay an amount larger than what they had provisioned to transfer their nuclear waste storage liabilities to the German Nuclear Waste Storage Fund.

The Bottom Line on Stranded Assets

Based on our analysis, we believe that US utilities, which are all regulated entities, are better positioned than their European counterparts to cope with financial implications of stranded assets. The absence of regulatory oversight on conventional power generation in Europe, as well as the push to build net-carbon-neutral economies in Europe and elsewhere, suggests that the financial risk of stranded assets remains higher abroad than in the US.

Although we think that the risks in the US are muted, investors should closely monitor numerous political, regulatory and technological dynamics on both sides of the Atlantic.

[4] *Navigant Consulting. 2018. Analysis of the Role of Gas for a Low-Carbon California Future. https://c4bes.org/wp-content/uploads/2018/09/Renewable_Gas_Executive_Brief_17_07_2018.pdf*

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Disclosure

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