

ESG Brief: Emerging Themes In U.S. Public Finance

June 3, 2021

As the health and safety crisis resulting from the pandemic wanes in the U.S., S&P Global Ratings believes U.S. public finance (USPF) issuers will face challenges adapting to a rapidly evolving environmental, social, and governance (ESG) landscape while adjusting to a sharp shift in federal policies under the Biden administration. We believe these issues will shape emerging risks or opportunities with the potential to alter USPF issuers' credit fundamentals. In this inaugural ESG Brief, we provide an overview of these themes and examples of forward-looking analytical considerations.

What We're Watching



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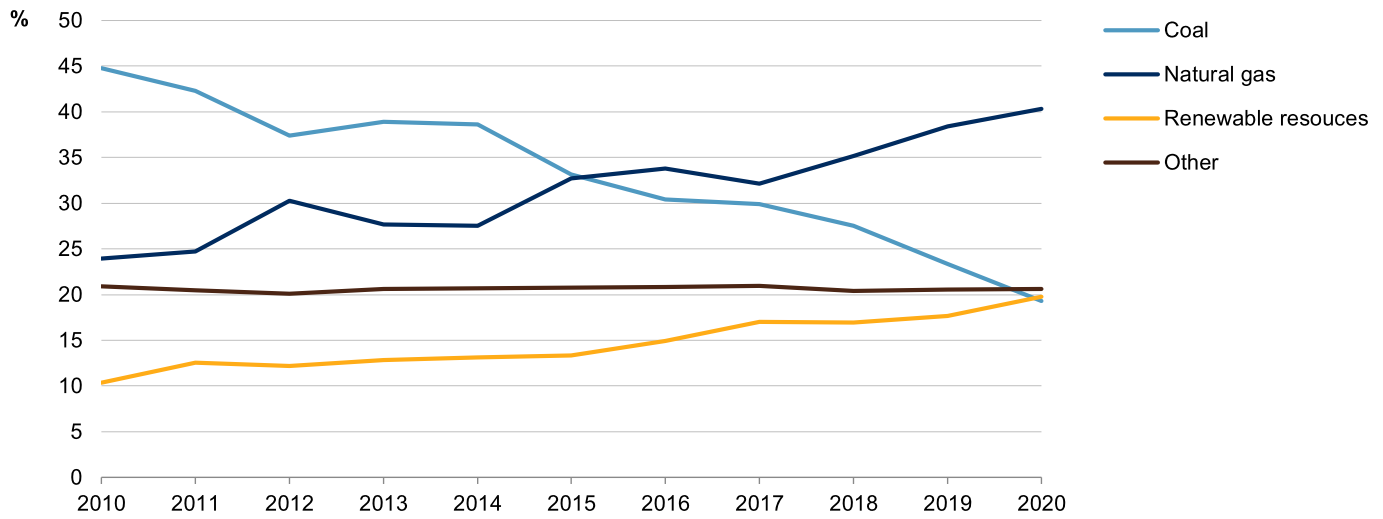
Energy Transition Risk

One of the first orders of business under the Biden administration was rejoining the Paris Agreement, the international treaty on climate change within the United Nations Framework on Climate Change, which also led to reinstitution of a slew of emissions standards in the U.S. In April 2021, President Biden announced a new target for the U.S.: a 50%-52% reduction in economywide net greenhouse gas pollution from 2005 levels by 2030. We believe that Biden's plan, if implemented, and a broader trend toward net-zero emissions policy will intensify transition risk for utilities and state and local economies concentrated in energy production. Furthermore, for some USPF sectors, particularly those with a large physical footprint and high energy use, investments in capital and operating initiatives may be required to adapt to changing climate-related regulations. Chart 1 shows the evolution of fuel sources in U.S. electricity production over the past 10 years, with coal falling as the regulatory framework has changed, natural gas prices have declined, and renewable energy sources have ramped up. Although many public power utilities and investor-owned utilities have committed to significantly reducing greenhouse gas emissions over time to advance environmental goals or comply with state directives, the amount of energy generated with renewable sources will need to double to soak up the 20% of electricity generation still produced with coal. While we believe renewable sources will continue increasing as a share of fuel production, the trajectory may slow until a technology solution facilitates integration into generation fleets through storage capacity that reduces intermittency that could compromise electric service reliability. Positively, the Biden administration's proposed American Jobs Plan could help offset transition infrastructure costs or

provide employment opportunities for individuals displaced by energy transition initiatives.

Chart 1

U.S. Electricity Production By Fuel



Source: Energy Information Administration.

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Analytical Considerations – Energy Transition Risk



Electric cooperatives and municipal-owned public power utilities

Within the operational management assessment (OMA) in our criteria, we review the utility's supply diversity and actions taken or will be implemented to reduce reliance on fossil fuels.

We also consider the infrastructure costs associated with the transition to renewable power supply and how the utility is planning for these requirements in the financial and capital plan.



State and local governments

Our economic analysis considers the concentration in the tax base, top taxpayers, or economic activity generated by the energy sector. We also evaluate how the government is mitigating potential job loss or economic contraction associated with energy transition.



Kindergarten to 12th-grade schools and not-for-profit higher education

Our analysis of universities, community colleges, and kindergarten through 12th-grade schools, given their role as providers of job training and technical education, includes available programs for employees whose jobs may be displaced by the energy transition.



Not-for-profit health care

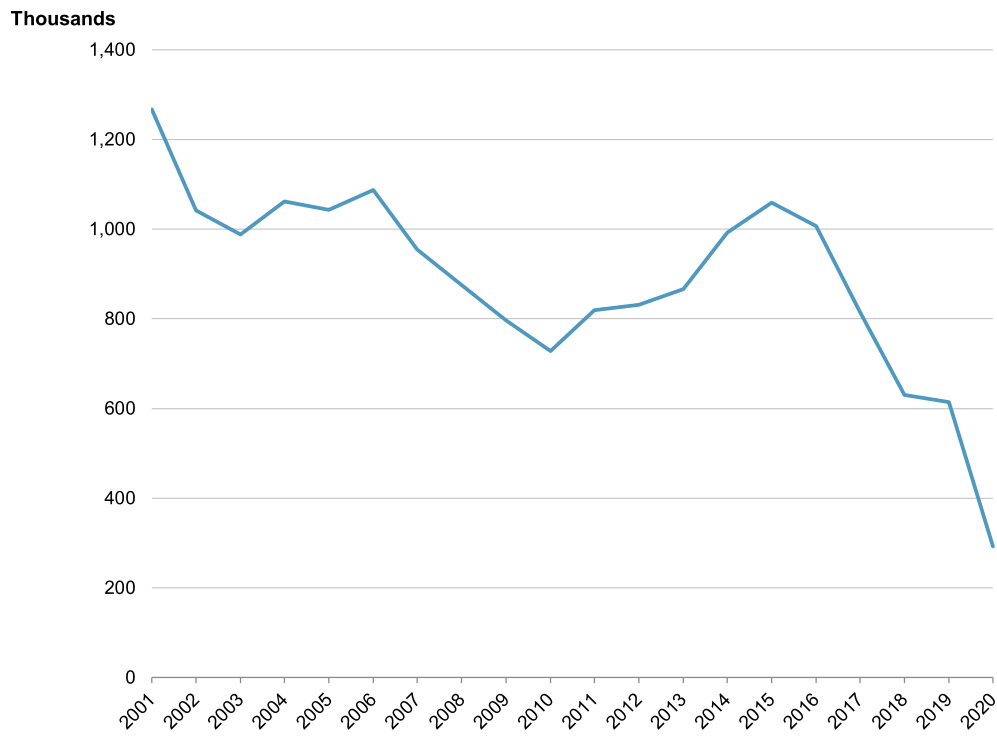
Our financial and debt analysis can include an entity's implementation plan to reduce greenhouse emissions, as these plans may require operational and capital requirements given a broad physical footprint and higher energy consumption of facilities.

Social Justice

Social justice encompasses a wide umbrella of policy issues confronting USPF issuers, such as increasing scrutiny of policing practices; prioritization of resources to bridge the racial, income, and health equity gaps within a community; ensuring that low-income areas are not disproportionately exposed to environmental risks such as inland flooding; and federal changes to immigration policy. S&P Global Ratings has always considered the community's relationship with the government or other not-for-profit service provider through authorization of voter initiatives, support of property tax or user rate changes, and how turnover in elected board positions may affect policies and practices. However, the murder of George Floyd and other events across the U.S. have brought into greater focus an issuer's response to the community's engagement on racial issues. In addition, we believe the Biden administration's change to immigration policy, including the Deferred Action for Childhood Arrivals, could require additional services but support demographic growth in areas that rely on international mobility or migrant labor to generate job and economic expansion. For instance, chart 2 shows net international migration over the past 20 years, including the period under the Trump administration, when more restrictive policy curtailed these trends. The sharp decline in 2020 likely reflects the effect of the pandemic, but international migration has been declining since 2016.

Chart 2

Net International Migration 2001-2020



Source: IHS Markit. Net international migration for sum of states.
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Analytical Considerations – Social Justice



State and local governments

Our analytical approach reviews management's long-term planning strategies for a variety of social issues, including policing policies and affordable housing programs. In addition, if the government is experiencing an uptick in social unrest, we analyze budgets for the inclusion of higher public safety costs or if reserves or insurance coverage are sufficient to offset potential legal settlements.



Water and sewer utilities

Our analysis includes a review of the rate structure within the context of community demographics to determine potential affordability constraints that could pressure an entity's rate making flexibility.



Kindergarten to 12th-grade schools

Our discussions with management teams will often focus on what program and curriculum changes may be required to address vulnerable populations. In addition, operational risks may include state statutory changes prohibiting certain curriculum instruction with funding tied to a school's compliance.



Not-for-profit health care

We often analyze necessary costs to address demands from changing demographics. We also review how state and federal funding sources help support a hospital's core mission of providing quality health care to the entire community including vulnerable populations that may be exposed to certain comorbidities.



Housing

We may consider how potential federal legislation may affect an entity's credit profile as well as how entities are planning for the phase-out of eviction moratoriums and forbearances implemented during the pandemic to protect vulnerable populations.

Acute Physical Risks

The National Oceanic and Atmospheric Administration recently released a set of climate averages covering the 30-year period from 1991 to 2020 showing that the climate has turned warmer--with the average temperature for the 48 contiguous states climbing to a record 53-plus degrees Fahrenheit (up 1.7 degrees since 1901 to 1930, the first period for which climate normals were calculated). Although this may not sound significant, it represents an average warming across the states, with some regions recording higher temperatures than others. For example, the increase observed in Alaska indicates that Fairbanks is no longer a sub-Arctic climate but resides within a warm summer continental zone. Similarly, on May 12, 2021, the Environmental Protection Agency updated data sets that contribute to its National Climate Assessment, adding indicators that track the physical changes of warming temperatures and the effects on natural disasters and resident populations. We believe USPF issuers face greater frequency and severity of acute physical risks, including hurricanes, droughts, wildfires stemming from climate change, and heat waves. Studies show that heat waves can reduce worker productivity, particularly for outdoor workers but also office workers, and can increase electricity prices as demand rises and

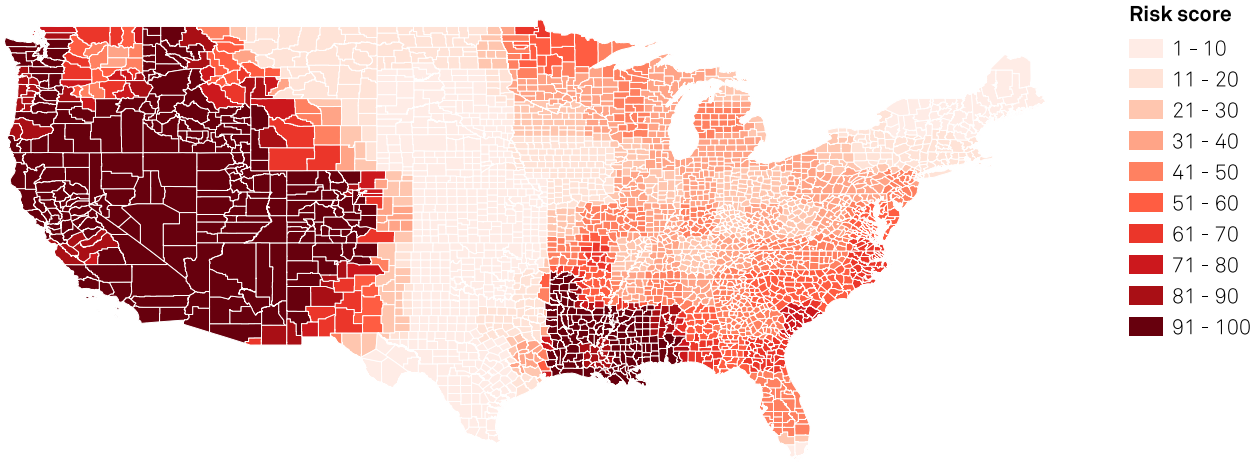
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production efficiency drops. Although these risks vary by region--for example, with wildfires concentrated in the West and Southwest (see chart 3)--credit stability will require increased efforts to bolster infrastructure and finances against these events.

Chart 3

Wildfire Scores Across The United States Under RCP8.5 In 2050

1=lowest risk, 100=highest risk



Source: S&P Global Ratings and Trucost (2020).
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Analytical Considerations – Acute Physical Risks



Electric cooperatives and municipal-owned public power utilities

Our analysis considers fuel redundancy in the event of demand spikes during extreme hot or cold weather and whether dedicated reserves or other hedging practices are in place to cover higher fuel costs following an event.



Water and sewer utilities

Within our OMA, we consider the utility's drought planning efforts and whether it has identified alternate water supply in the face of limited sources.



State and local governments

A comprehensive risk management strategy through mitigation efforts should be included in long-term financial and capital planning. In addition, a discussion about modified development codes to require certain materials that are more resilient against a severe weather event may also inform our analysis.



Not-for-profit health care and higher education

In our analysis, we consider geographic diversity of assets and procedures to ensure the safety of patients or students in the event of power loss or other facility disruption. For entities in certain regions, we also analyze the efforts undertaken to harden infrastructure assets in anticipation of extreme weather events or earthquakes.



Transportation

Capital infrastructure investments planned to protect assets from extreme weather events and flooding are part of our management and governance assessment. In addition, we may ask if the airport has prepared a sustainability plan that addresses changing environmental conditions and how these assumptions are incorporated into long-term asset management and operational planning.



Housing

Our analysis evaluates the exposure of real estate assets to extreme weather and seismic events and the extent to which those risks are mitigated.

Risk Management Strategies

S&P Global Ratings incorporates financial and operational management, or management and governance analysis within each of its USPF practice-level criteria. We believe positive elements of comprehensive risk management include long-term planning efforts that guide decision-making, and adherence to stated reserve and liquidity policy thresholds to insulate operations from unforeseen events. However, as emerging risks crystalize, we believe risk management efforts will evolve. This is evident in an enhanced wildfire analysis with California utilities and in management discussions on cybersecurity, particularly with such attacks accelerating with more sophisticated bad actors that include threats to community health and

safety. We also believe the pandemic represents a disruption requiring management teams to consider other emerging risks that may require establishing dedicated reserves, equipment stockpiles or replacement (e.g. to electric vehicles), or operational changes (e.g. personnel positions to oversee diversity, equity, and inclusion initiatives).

Analytical Considerations – Risk Management Strategies



All USPF sectors

Management discussions have always been integral to our analysis. We believe they will become more robust as these themes become material to credit quality. For example, we may ask if a resiliency plan is adopted or underway or about the creation of dedicated reserves to cover the initial recovery costs following a severe weather event, whether enrollment trends reflect demographic changes, and what services are available to support vulnerable populations.

Transparency And Disclosure

In 2017, as a result of the large-scale and complex nature of climate change, the Task Force for Climate-Related Financial Disclosure released climate-related financial disclosure recommendations focusing on corporate entities. We believe the framework could help inform a similar disclosure regime for public finance issuers, and recently the Government Finance Officers Assn. published "Best Practices for ESG Disclosure" as a guide for issuers to assist with increasing transparency of environmental risks. Furthermore, the State of California is initiating efforts to implement statutory provisions to require better and uniform disclosure on climate change risks, and President Biden's executive order on climate-related disclosure requirements and standards will likely advance transparency initiatives. In our view, market participants would benefit from more robust disclosure tailored to an issuer's specific risk exposure that increases transparency and presents an opportunity for issuers to demonstrate the benefits of existing or planned adaptation actions.

Analytical Considerations – Transparency And Disclosure



All USPF sectors

Credit rating agencies use various types of disclosure to inform our analysis, including data available in a preliminary offering document, budgets and audited financial statements, codified policies and practices, regular reports provided to governing bodies, and other plans that outline strategic goals. We believe environmental risk disclosure will help guide our management discussions and provide insight for our forward-looking view of an entity's readiness to mitigate chronic and acute risks associated with climate change.

This report does not constitute a rating action.

Related Research

- Sustainable Finance Newsletter, published May 10, 2021
- The Leaders Climate Change Summit: A Decisive Decade To Cut Emissions, May 4, 2021
- The ESG Pulse: A Spotlight On Structured Finance, April 28, 2021
- How ESG Factors Are Shaping North American Regulated Investor-Owned Utilities' Credit Quality, published April 28, 2021
- Winter Storm In Texas Will Continue To Be Felt In Utilities' Credit Profiles, published March 15, 2021
- U.S. Electric Cooperative Utilities' Decarbonization Initiatives Improve Some ESG Risk Attributes, Feb. 17, 2021
- Sustainability In 2021: A Bird's-Eye View Of The Top Five ESG Topics, Jan. 28, 2021
- Major Capital Cities Must Be Vigilant About Rising ESG Risks As They Look To A Post-Pandemic World, Dec. 10, 2020
- Scenario Analysis Shines A Light On Climate Exposure: Focus On Major Airports, Nov. 5, 2020
- Extreme Weather Events: How We Evaluate The Credit Impacts In U.S. Public Finance, Nov. 2, 2020
- California's Rolling Blackouts Could Foreshadow Rating Pressures For Public Power and Electric Cooperative Utilities, Sept. 10, 2020
- Better Data Can Highlight Climate Exposure: Focus On U.S. Public Finance, Aug. 24, 2020
- California Public Power Utilities Face Disparate Physical And Credit Exposures To Wildfires, Aug. 4, 2020
- Through The ESG Lens 2.0: A Deeper Dive Into U.S. Public Finance Credit Factors, April 28, 2020
- U.S. Public Finance Issuers Must Be Nimble To Fend Off Cyberattacks Or They Could Face Credit Fallout, Feb. 25, 2020

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