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Summary:

Arizona Power Authority; Wholesale Electric

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Credit Profile

Arizona Pwr Auth WHLELC

Long Term Rating

AA/Stable

Affirmed

Credit Highlights

- S&P Global Ratings affirmed its 'AA' long-term rating on the Arizona Power Authority's (APA) series 2014 power resource revenue bonds (federally taxable Hoover prepayment project bonds).
- The outlook is stable.

Security

The bonds are direct, special obligations of APA and are payable from the proceeds of the sale of electric power and energy pursuant to the power sales contracts, the interest in and under the Western power sales contract, and surplus agreement revenue, and funds established by resolutions permitting their use for that purpose.

Bond provisions for APA are adequate. Although, as a matter of policy, APA targets maintaining minimum debt service coverage of 1.1x to 1.2x, bond covenants require only 1.0x. The resolution permits APA to add back to the current year's debt service calculation any rebate stemming from the prior year. Before additional bonds may be issued, legal covenants mandate that net revenue for any 12 consecutive months of the 24 months preceding issuance be at least equal to the aggregate debt service for that period with respect to bonds outstanding. A debt service reserve fund must be funded at maximum annual debt service.

APA had \$24.9 million in total debt outstanding as of fiscal year-end (Sept. 30) 2021, with relatively high debt to capitalization of 93%, although this is not atypical for a wholesale power provider.

Credit overview

Persistent drought conditions have caused a decline in Lake Mead's water level, which fell 7.9% to 1,044 feet in December 2022 from 1,133 feet in 2011. Notably, the bulk of the decline has occurred over the past three years as the drought has deepened. The lower water levels contributed to lower power production and an increase in the per-unit cost of power that APA passes through to its members. Nevertheless, the rating reflects our opinion that APA's cost of energy from the project remains highly competitive, despite the cost pressures from the drought, and in high demand from project off-takers.

In our view, additional declines in water levels could erode APA's power cost competitiveness further, which could affect the rating.

The Bureau of Reclamation projects water elevation will remain above 1,000 feet through 2024. However, we note that the minimum power pool elevation where Hoover Dam can no longer effectively generate electricity is when the water

elevation at Lake Mead is less than 950 feet.

Should Lake Mead water elevation approach the minimum power pool levels, the rating could be pressured, potentially by several notches.

APA is working with its customers to find ways to stabilize revenues through potential federal funding and its rate-making autonomy, which we project will continue to result in stable financial performance. We understand APA is projecting an increase in power costs and subsequently annual member rate increases for 2024-2027 given lower power production. However, we believe in the near term a key credit strength is that APA's rates will remain among the lowest in the country and its 100% carbon-free attributes are also highly credit positive. Lastly, we believe APA's large membership, consisting of 63 members with contracts that extend through 2063, provides additional credit stability.

The rating reflects our view of:

- Extremely competitive wholesale, emission-free hydro power production from Hoover Dam that provides APA-contracted customers with very low wholesale power rates;
- Ratemaking autonomy that allows APA to set wholesale customer rates sufficient to cover costs, with a history of intrayear adjustments in addition to regular annual rate adjustments;
- Cost stability for APA in the form of annual rate setting by Western Area Power Administration (Western) for Hoover power, which allows APA, in turn, to set annual customer rates sufficient to meet obligations;
- Increased efficiency improvements at Hoover Dam, which have helped offset the decreases in generation resulting from reduced water levels;
- A solid customer base that includes 63 wholesale customers, with almost 34% of energy sold to the Salt River Project (AA+/Stable) and the Central Arizona Water Conservation District (AA+/Stable) in fiscal 2021;
- Take-or-pay power sales contracts for all of APA's hydro entitlement, where payment for power is an unconditional obligation; and
- Adequate-to-good cost recovery over the past several years, including debt service coverage of 1.5x and fixed-charge coverage of slightly more than 1.0x in fiscal 2021.

Partly offsetting the above strengths, in our view, are:

- Continued below-average hydrology conditions throughout the Colorado River Basin for the past 23 years that have resulted in reduced water storage at Lake Mead and power production at Hoover Dam, although the U.S. Bureau of Reclamation (the bureau), in concert with Western, has several tools at its disposal to manage lake levels, including adjusting upstream reservoir releases, and critical needs for water downstream result in greater stability in generation, and
- The overall credit quality of APA's customer base, with many customers being small, rural, or irrigation-based and sensitive to power cost increases, although the high number of offtakers promotes diversity.

Environmental, social, and governance

In our opinion, APA's environmental risks are moderately negative within our credit rating analysis given physical risk exposure to drought conditions in the region that have reduced generation at Hoover over the past two decades. Various measures are being taken to reduce the risk of further water level declines. In 2007, interim guidelines were established for the management of water releases from dams and reservoirs on the Colorado River that provide for increases or decreases in the amount of water released to meet delivery obligations to downstream users. In response, the bureau installed wide-head turbines at Hoover to increase efficiency and is analyzing another potential installation. The Drought Contingency Plan (DCP) with Central Arizona Project and Arizona Department of Water Resources consists of a set of agreements designated to protect the Colorado River through voluntary reductions and increased conservation for which Arizona is a participant. The Lower Basin States (Arizona, California, Nevada) and the U.S. Bureau also have developed the 500+ Plan. The goal is to conserve an additional 500,000 acre-feet more per year beyond the DCP reductions, to benefit Lake Mead. In addition, other utilities are putting together proposals such as Southern Nevada Water Authority to address the drought impact for the seven states that rely on the Colorado river to protect Lake Mead. Finally, APA is working with customers and other states to leverage available federal dollars, where possible, to mitigate rate impacts to customers.

We believe APA's governance is neutral within our credit rating analysis. In our opinion, APA has strong governance factors, represented by good financial management and rate-setting practices, and maintenance of adequate coverage and ample liquidity.

Social risks are neutral within our credit rating analysis given APA's rates are among the lowest in the nation and will continue to be competitive despite planned member rate increases. Nevertheless, we note the continued drought conditions and the higher cost of power, for less, could result in member dissatisfaction.

Outlook

The stable outlook reflects the bureau's projections that Lake Mead water levels will remain above 1,014 feet through October 2024, which is above the minimum power pool elevation, and APA will continue to produce below-market-rate, low-cost power.

Downside scenario

Should drought conditions result in further material reductions in Lake Mead's water elevation below the bureau's projection, we could lower the rating. The potential magnitude of a rating action could vary based on the extent of future drought conditions and their impact on cost competitiveness and level of power generation.

Upside scenario

We do not anticipate raising the rating, given our view of APA's merely adequate coverage and its hydrology challenges, and given our view of the customer base's overall credit quality.

Credit Opinion

APA was established by state statute in 1944 to take title to Arizona's share of hydro power produced from Hoover Dam. Since 1977, Western has marketed power produced by the Bureau of Reclamation (Bureau) at Hoover Dam to various contractors that receive power from the project, including APA. Under an energy service contract with Western, effective Oct. 1, 2016, through Sept. 30, 2067, APA is obligated to pay an annual base charge for power without regard to Hoover generation levels. APA's share of power is about 410 megawatts (MW), or 19.8% of total capacity. APA, in turn, pays this portion of the project's capacity obligations. APA sells its entitlement to 63 customers under long-term take-or-pay contracts, and these wholesale customers include electrical and irrigation districts, water conservation districts, power and water districts, and Arizona municipalities. Sales vary annually as a function of water conditions in the Lower Colorado River Basin, upon which Hoover Dam is located. In the event of a customer default, APA may terminate the associated power sales agreement within 60 days of nonpayment. Given Hoover power's very low cost and lack of carbon attributes, we believe the authority would likely successfully remarket the power to interested utilities, including nondefaulting customers.

In conjunction with the Hoover Power Allocation Act of 2011, which determined the allocation of power to APA and other contractors from Hoover Dam, APA's post-2017 power allocation process resulted in revised power sales contracts. These contracts, effective Oct. 1, 2017, extend to Sept. 30, 2067, the same termination date of APA's electric service contract with Western.

APA sells four classes of power to its customers: A, B, C, and D. Hoover A power is defined as energy sold under power sales contracts for the original capacity of Hoover Dam prior to the uprating program (under which generation capacity was increased). Hoover B power is defined as the additional capacity derived from the uprating program, and Hoover C Energy is defined as surplus or "excess energy." Hoover C energy results from high-water years of the Colorado River, but because of the drought no C energy has been available since 2002. Finally, Hoover D power, created under the Hoover Power Allocation Act of 2011 and marketed beginning Oct. 1, 2017, consists of new power allocations to customers in Arizona, California, and Nevada.

Under the electric service contract with Western effective Oct. 1, 2017, Hoover A power totaling 1,462 MW of contingent capacity is sold to nine contractors, including APA (191 MW). APA will also purchase 190 MW of Hoover B power and receive Hoover C power to the extent available, as it does currently. The Hoover Allocation Act of 2011 also requires Western to establish a resource pool equal to 5% of the total amount of contingent capacity and firm energy of post-2017 Hoover A and B contingent capacity along with firm energy to be allocated to entities that receive neither Hoover A nor B power. Western's allocation of Hoover D power will first go to eligible American Indian tribes and then to nonprofit entities, with APA receiving an allocation of 29 MW. The obligation for APA's customers to pay for power is an unconditional, take-or-pay obligation. We view the contract provisions favorably given that they reduce the risk of declining demand.

APA customers Salt River Project and Central Arizona Water Conservation District (both AA+/Stable) represented about 34% of demand in fiscal 2021, relatively unchanged versus the prior two years. Although their significant purchases generally support the credit strength of APA's customers, reduced generation and higher power costs could

weaken APA's customers by putting pressure on the margins of agricultural customers, and could make it difficult under stress scenarios for some of these customers to pay increased power rates, even if these rates are still well below market.

Water levels in the major reservoirs that supply Hoover continue to be extremely low, with Lake Mead at just 28% of capacity as of December 2022. Lake Mead has a total capacity of 26.1 million acre-feet of the Colorado River Basin's total storage of 60.0 million acre-feet, and one of the key strengths of Hoover and APA is that all water must pass through Hoover to meet critical downstream deliveries to Arizona, California, and Mexico. The elevation of Mead hit its lowest point since 1938 in June 2022 at 1,040 feet, but has since slightly improved, rising to 1,044 feet as of December 2022. According to the bureau, the maximum elevation before water would spill through Hoover Dam spillways is 1,221 feet. In the past 30 years, the maximum elevation of Mead was 1,216 feet in 1998 and remained near that level until the drought began in 2000. The average elevation of Lake Mead since and including 1938 has been 1,156 feet, which is 113 feet above the current level. Drought level is considered 1,125 feet.

The elevation of Lake Mead and generation from Hoover tend to correlate, but the relationship is not direct given downstream water requirements. For example, generation could increase at Hoover during a dry water year in which Lake Mead's elevation declines, if water demand increases and more water passes through Hoover's turbines. In addition, efficiency improvements to the turbines have increased output.

The correlation is more direct between capacity and elevation, with total Hoover capacity of 696 MW at an elevation of 950 feet, rising to more than 2,074 MW by 1,200 feet. Nonetheless, total Hoover generation was 3,713 gigawatt-hours (GWh) in 2021, slightly above the 3,315 GWh of 2017 but well below the 3,985 GWh in 2012. APA delivered 707,643 megawatt-hours (MWh) of energy in 2021, slightly above the trailing five-year average but 6% below the 2012 level. This was significantly less than the average annual delivery over the past 50 years, which has been closer to 1 million MWh.

Hoover Dam is the highest and the third-largest concrete dam in the U.S. As part of the Lower Colorado River Basin (the majority of which is located in Arizona and Nevada), Lake Mead (the reservoir behind the dam) depends on snow and precipitation in the upper basin (predominantly encompassing the states of Wyoming, Colorado, and Utah) for its water elevation. The dam serves several purposes, including flood control, water storage, and power generation, and water flowing through Hoover's 17 turbines is critical to the Southwest's population of 40 million. Lake Mead can hold 27.4 million acre-feet, with current storage at about 7.4 million acre-feet, or about 27% of capacity. Hoover Dam continued to experience lower-than-optimal capacity and generation in 2021, and APA's capacity slice in operating year 2021 also remained at reduced levels that averaged about 276 MW, compared with the 410 MW capacity to which it is entitled under the contract. The Hoover facility has been derated (because its generators are unable to operate at maximum capacity) since 2004; the derating occurs when Lake Mead's elevation reaches about 1,130 feet.

We believe that the extremely low-cost nature of Hoover power is a key credit strength for APA. APA's credit quality hinges on our anticipation that the rates it charges, even under adverse drought conditions, will remain below Southwest wholesale power prices. Hoover's cost of power per MWh was just \$17.66 in 2021, with APA's customer cost for Hoover power, including debt service and administrative costs, at \$26.56 per MWh as of fiscal year-end 2021, not including transmission (which purchasers pay for separately). The pure Hoover power cost (without transmission)

is about \$17.66 in 2021, which remains well below prices at major Southwest energy trading hubs such as Palo Verde (about \$61.63 per MWh). The cost advantage of energy at two cents per kilowatt-hour is significant and underpins APA's credit quality.

APA is self-regulating and has the authority to set rates without the approval of the legislature or the state regulatory commission. APA is governed by a board of five commissioners who are appointed by Arizona's governor and approved by the state senate. Commissioners serve six-year overlapping terms, and this provides consistency. The chairman and vice chairman, who are elected by the commissioners, hold office for two years. The board meets at least monthly and may implement rate adjustments whenever it convenes. Rates are adjusted and set annually as part of the budget process. Intra-year rate adjustments are also made from time to time. The board has made rate decreases the past few years, but plans a 7% rate increase for fiscal years 2023 and 2024, followed by increases of 6% in 2026 and 4% in 2027 given anticipated higher power costs due to drought conditions and planned capital spending by the Bureau of Reclamation. APA's rates include Hoover purchased power costs, administrative expenses, debt service, and collection of funds for the Lower Colorado River Basin Development Fund. Western's rates may be changed with the approval of the U.S. Assistant Secretary of Energy. We note that pursuant to state statute, APA's board is required to include in its ratemaking the amounts required to support working capital and depreciation as well as fund reserves, and may modify electric rates with just 24 hours' notice if it needs liquidity to comply with the statutory obligations, with revised rates to take effect the first of the following month at the earliest. Hoover power costs are set as part of an annual process that APA is a party to, and once rates are set they are kept in place for the year, precluding the need for APA to have a power adjustment mechanism in place. Since 1996, APA's cost of generation and transmission has consistently been well below the Palo Verde index for peaking power.

APA accounts for its funds in accordance with the Governmental Accounting Standards Board. APA's financial statements reflect the activities of two separate funds:

- The uprating fund, which is used to capture the business activities associated with the purchase and resale of Hoover power, and
- The general fund, which principally is engaged in the procurement and resale of supplemental power to APA's customers at their request to augment power available from the Hoover project.

Although APA's low-cost, valuable hydro power is the foundation of its credit quality, we also anticipate that APA will maintain cash and accrual policies that result in at least 1x debt service coverage. APA has put into place policies that help manage cash flow and maintain metrics within bond covenants. We note that these policies have resulted in debt service coverage that has been consistent and sufficient on both a cash and an accrual basis over the past several years, including 1.5x debt service coverage (S&P Global Ratings-calculated) and slightly more than 1.0x fixed-charge coverage in fiscal 2021. We expected similar coverage ratios in future years.

APA's liquidity has been improving during the past five years. APA maintains cash balances in two funds--the Hoover uprating fund and the general fund--both of which are available to meet debt service. APA's Hoover uprating fund has adequate liquidity equal to about 99 days' cash, based on a year-end cash balance of \$5.6 million as of Sept. 30, 2021. At the discretion of the APA board or executive director, cash in APA's general fund may also be tapped without restrictions. General cash balances provided an additional \$3.9 million in fiscal 2021. APA's general fund need not be

replenished following a draw on it by the Hoover uprating fund. APA's commission intends to maintain an adequate amount in the APA general fund (generally around \$3.0 million to \$3.5 million) for unanticipated expenditures. The inclusion of both cash accounts provides APA with about 200 days' cash, up from 101 days in 2017. A debt service reserve fund is also available that covers maximum annual debt service. This is adequate, given the limited functions of the Hoover project.

Debt and capital

The series 2014 bond proceeds were used to prepay APA's share of the obligations incurred by the bureau for various improvements at Hoover Dam and to fund a debt service reserve fund. The financing resulted in substantial cost savings in terms of the amounts that APA pays for power and energy from Hoover.

The bureau has identified four major projects in the coming years for which APA's share would be about 20%. These projects consist of Penstocks & Lateral Spot Coating, Hoover Generator Step-Up, Cylinder Gate Stem Evaluation and Replacement, a Drum Gate Overhaul, and other ancillary projects. Capital spending generally represents about 10% to 20% of Western's total annual revenue requirement, and will be captured in the all-in power cost from Hoover contractors. Contractors such as APA, in turn, will pass these costs onto customers. APA is in the beginning stages of identifying federal dollars from the Bipartisan Infrastructure Law to amortize the cost of these projects over a longer period of time to provide rate relief to customers.

S&P Global Ratings projects that the U.S. economy is likely to fall into a shallow recession in 2023, tempered by moderate initial jobless claims and unemployment rates. (See "Economic Outlook Sees The U.S. Tipping Toward Recession," Nov. 28, 2022.) Consequently, we continue to monitor the strength and stability of the revenue streams of U.S. Public Finance proprietary enterprises including electric utilities for evidence of delinquent payments or other revenue erosion because rising consumer prices and interest rates are whittling consumers' discretionary income.

Related Research

Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

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