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Impact of Navajo Generating Station Retrofit Options On Cost of Central Arizona Project Water And Development Fund Revenues

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The Environmental Protection Agency (EPA) is in the process of determining the Best Available Retrofit Technology (BART) to reduce nitrogen oxide (NO_x) emissions from the Navajo Generating Station (NGS) and improve visibility in surrounding Class I areas, including the Grand Canyon. EPA's decision on this issue is vital to the future of the Central Arizona Project (CAP) because NGS is the source of 95 percent of the power required to deliver CAP water. The installation of Selective Catalytic Reduction (SCR), at a capital cost of more than \$700 million, is one of the technologies being considered. CAP's preferred technology is low NO_x combustion controls, at a capital cost of \$43 million. These controls, which are currently being installed at NGS, will achieve a calculable improvement in visibility in the surrounding Class I areas. EPA recently asked CAP for more information about the cost impacts of EPA's BART determination on CAP water rates. Following is a summary of CAP's response.

Uncertainties Facing NGS

The NGS participants currently face numerous uncertainties over the future operation of the Plant. Because of these uncertainties, the participants may well choose to close the Plant rather than incur the enormous cost of SCRs. These uncertainties include the following:

- new lease and right-of-way agreements must be negotiated by 2019;
- a new coal supply contract must be negotiated with Peabody before 2019;
- because of California restrictions on new investment in coal-fired power plants, the Los Angeles Department of Water and Power, with a 21.2 percent entitlement in the Plant, has announced its intention to dispose of its interest or withdraw as a participant by 2020;
- future greenhouse gas (GHG) legislation or EPA GHG regulations may result in significant additional capital and operating costs; and
- other prospective Clean Air Act regulations may affect the operation of the Plant.

Preferred Option: Low NO_x Combustion Controls

The on-going installation of low NO_x combustion controls will reduce NO_x emissions from NGS and will result in a calculable visibility benefit at the Grand Canyon and other Class I areas. Installation of these controls will result in a negligible increase in CAP energy rates of about \$0.50 per acre-foot.

High Cost Option: SCR

Scenario 1: SCRs are installed and operated by 2016

The installation of SCRs would require an increase in CAP energy charges of at least \$9.85 per acre-foot, a 20 percent increase over the 2010 energy rate. In addition, the Lower Colorado River Basin Development Fund would lose revenues totaling about \$175 million, plus interest, between 2016 and 2036 alone. This scenario represents the *least harmful* result that may occur if SCRs are required to be installed. It also assumes that the NGS participants would install SCRs despite the cost and the other uncertainties facing the Plant and also assumes that the investment could be amortized over 20 years of continued Plant operations. The increase in energy costs would be especially harmful to CAP's Indian and non-Indian agricultural water users. The loss of Development Fund revenues also would adversely affect CAP's taxpayers, municipal and industrial (M&I) water users, and Indian communities.

Scenario 2: Closure of NGS by 2016

If the participants choose to close NGS rather than incur the cost of installing SCRs, the impacts to CAP and its water users would be extremely harsh.

- CAP would be forced to acquire a substitute source of pumping energy at market price. Assuming that recent energy market price fluctuations reflect future market variability, this would require a 50 to 300 percent increase in CAP energy charges over those that would be expected if NGS continued to operate as it does today.
- CAP would lose at least \$50 million in annual revenues from the sale of surplus NGS power. The loss of these revenues would result in either a substantial increase in water service capital charges for CAP's M&I water users or significant increases in ad valorem tax rates within CAP's service area, or both. If collected in the form of increased water service capital charges for M&I water users, which may be the most likely result, replacing these lost revenues would necessitate new water service capital charges of about \$80 per acre-foot levied against each M&I user's CAP entitlement.
- The United States and those Indian communities with congressionally-approved settlements of their water rights claims would lose tens of millions of dollars in revenues to the Lower Colorado River Basin Development Fund each year. These revenues are *over and above* the annual payments due from CAWCD on its repayment obligation for CAP – as much as \$60 million to \$90 million *per year* between 2016 and 2023 alone – and are pledged to the direct benefit of the United States and Indian tribes under the Arizona Water Settlements Act of 2004. CAP has assumed in its long-term financial plan that NGS would continue to operate through the end of the CAP repayment period in 2046 and thus that such revenues would continue to benefit CAP, the United States and Indian communities well beyond 2023.

Conclusion

EPA should determine that a NO_x emission limit of 0.24 pounds per million British thermal units, achieved using low NO_x combustion controls, is the Best Available Retrofit Technology for NGS. EPA has the ability, under the “reasonable progress” provisions of its Regional Haze Rules, to consider additional controls in future planning periods if such controls are required to make reasonable progress toward the national visibility goal. Requiring the installation of SCRs in the face of the major uncertainties currently surrounding future operations of NGS would risk the future of the Plant and could result in irreparable harm to CAP and its water users. Low NO_x combustion controls do not entail that risk and will ensure a calculable visibility benefit at a reasonable cost.