

Overview of Comments

Arizona Electric Power Cooperative, Inc. (“AEPCO”)

Submitted to the

Federal Energy Regulatory Commission

In Advance of the

**February 25, 2015 Technical Conference On
the Environmental Protection Agency’s Clean Power Plan**

Docket No. AD15-4-000

February 24, 2015

The Arizona Electric Power Cooperative, Inc. (“AEPCO”), which along with Southwest Transmission Cooperative and Sierra Southwest Cooperative Services, is one of three cooperatives making up Arizona’s Generation and Transmission Cooperatives, is pleased to submit this statement to the Federal Energy Regulatory Commission (“FERC”) Technical Conference on the Environmental Protection Agency’s Clean Power Plan, formally the *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Generating Units*, Proposed Rule, 79 Fed. Reg. 34,830 (June 18, 2014) (“CPP” or “Proposed Rule”).

AEPCO is a rural, member-owned generation and transmission electric cooperative formed in 1961 to provide electric generation service to local rural, consumer-owned electric distribution cooperatives in Arizona. As a not-for-profit cooperative, AEPCO is fully owned by its members. AEPCO has six “Class A” members, who participate in and rely on AEPCO’s electric generation services, and one “Class D” member that only participates in AEPCO’s electric scheduling and trading services. Together, AEPCO’s Class A members serve just under 150,000 meters, providing electricity primarily for residential use.

Because of the rural and residential nature of the cooperatives it serves and which comprise its membership, AEPCO is a relatively small entity with limited financial means. AEPCO operates only one power generation facility: the Apache Generating Station (“Apache” or “AGS”). Apache was first constructed with the installation of Steam Unit 1 (“ST1”), a 72 net

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MW steam unit in 1963 and Gas Turbine 1 (“GT1”), a 10 net MW simple cycle gas turbine in 1964. In 1978-1979, AEPCO added ST2 and ST3, almost identical Riley Stoker turbo-fired boiler units with a 175 net MW capacity each. ST2 and ST3 are AEPCO’s coal-fired units. Other simple cycle combustion turbines (GT2, GT3 and GT4) were added later. Collectively, Apache has approximately 555 MW of net installed capacity in its electric generating units (“EGUs”).

The major units at Apache Station, coal-fired EGUs ST2 and ST3, were planned in the mid-1970s and installed by the late 1970s. At this time, the United States was undergoing multiple energy shocks due to the Oil Embargo and relatively limited supplies of domestically produced natural gas. In line with evolving United States energy policy favoring use of coal as a secure domestic energy source, AEPCO commissioned both ST2 and ST3 as coal-fired units, even though from a size perspective the units would have more typically been built as natural gas-fired units. AEPCO’s decision to build coal-fired units was subsequently validated when Congress passed the Fuel Use Act, which forbid the use of natural gas for electric generation in new units to conserve natural gas availability for residential and commercial use. Since that time, AEPCO’s base load growth has not been sufficiently great to justify the installation of new, more efficient coal- or gas-fired load-following units. AEPCO thus remains heavily dependent upon its two coal-fired load-following units, ST2 and ST3. The history of AEPCO’s resource decisions, including its conformance to United States’ energy policy then favoring coal, should merit special consideration on behalf of AEPCO and entities like it.

SUMMARY OF CONCERNS

- The CPP creates substantial risks to the reliability of Arizona’s electric grid. These risks come from:
 - Closure of AEPCO’s load-following coal-fired EGUs ST2 and ST3 that provide substantial capacity (350 MW out of 555 MW) and economic energy reliability to the southeast Arizona system.

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- Dislocation of the current electric transmission model, which is based on moving energy from the northern, eastern and southern periphery of the state toward Phoenix, Arizona. AEPCO is concerned that with the loss of ST2 and ST3, as may be required under the Proposed Rule, it will be unable to maintain voltage in the Southeast Arizona quadrant (the “southern bubble”) that is currently anchored by Apache.
- Inadequate time to provide for needed electric generation, transmission and natural gas transmission infrastructure upgrades.
- AEPCO shares the Arizona Utilities Group (“AUG”) concern that the Proposed Rule will drive Arizona’s reserves into the negative by 2020.
- The Proposed Rule will result in severe economic stress on Arizona utilities, their customers and members, and ultimately the state economy.
 - The premature retirement of AEPCO’s ST2 and ST3 will cost AEPCO upwards of \$400 million to replace. The \$400 million more than triples AEPCO’s existing debt, thereby forcing rural and financially limited customers to pay for unused electric service.
 - ST2 and ST3 currently represent approximately 75% of AEPCO’s \$185 million debt made up of both federal Rural Utilities Service (“RUS”) guaranteed Federal Financing Bank (“FFB”) loans and National Rural Utilities Cooperative Finance Corporation (“CFC”) debt, of which \$156 million is FFB debt.
 - The Pace Study, completed on the behalf of AUG, estimates that the Proposed Rule will leave Arizona customers paying for approximately over \$3.8 billion (2020 dollars) in stranded costs from all utilities expected to face forced closure and diminished generation.
 - The premature retirement of Arizona coal-fired EGU fleet and the disruption of the existing transmission models will entail additional costs, not yet estimated, but likely of significant magnitude, in additional electric transmission and natural gas

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distribution infrastructure. In particular, additional sources of generation would be required for AEPCO's transmission network in the southeastern quadrant of Arizona (sometimes called the "southern bubble").

- The Proposed Rule violates the Rural Electrification Act ("REA") and the 80-year federal mandate that the electric cooperative system provide reliable, low-cost electricity to rural America. AEPCO will be forced to violate its obligations under the REA mandate, as well as other state, Federal Energy Regulatory Commission ("FERC"), North American Electricity Reliability Corporation ("NERC") and Western Electricity Coordinating Council ("WECC") requirements to serve its members with low-cost, reliable electric service.

PROPOSED SOLUTION

AEPCO has proposed two approaches that EPA should consider in reducing the disproportionate cost borne by a few, making the Proposed Rule more equitable, while still achieving the bulk of the carbon reduction.

Small Public and Cooperative Utility Subcategory Proposal

As outlined in AEPCO's comments submitted on September 29, 2014, to EPA (EPA Docket No. EPA-HQ-OAR-2013-0602), AEPCO believes that EPA should create a subcategory for small public and cooperative utilities that are disproportionately affected by the Proposed Rule. Based on feedback from other members of the cooperative family, AEPCO has refined its proposal, which now reads as follows:

Proposed 40 C.F.R. § 60.5765(b)

(b) In lieu of meeting the state-wide goal established in 40 C.F.R. § 60.5765(a) and Table 1, a small public or cooperative utility may request a State to establish an alternative rate-based or mass-based emission performance goal for affected EGUs owned by a small public or cooperative utility on January 8, 2014 in accordance with this subsection.

(1) For purposes of this subsection, a "small public or cooperative utility" is a governmentally- or cooperatively owned non-profit entity primarily engaged in the generation, transmission, and/or distribution of electric energy for sale with total electric

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output (including affiliates) of 4 million megawatt hours (MWh) or less during the baseline period.

(2) A small public or cooperative utility qualifies for the alternative limit in this subsection if, after implementing all reasonably cost effective affected unit heat rate improvements, dispatching all existing natural gas combined cycle affected units owned and operated by the entity at 70% annual net capacity or, in the case of units owned but not operated, offering for dispatch all existing natural gas combined cycle affected units at the entity's proportionate share of 70% annual net capacity, and accounting for any renewable resources (other than hydropower or existing nuclear generation) owned by the entity, the following are true:

(i) one or more affected EGUs (the "non-achieving unit(s)") owned by the small public or cooperative utility cannot achieve the interim goal on a rate basis using only the small public or cooperative utility's affected units and renewable resources and any existing state-mandated energy efficiency requirements;

(ii) the non-achieving unit(s), individually or collectively, make up 20 percent or more of the small public or cooperative utility's net generation in the baseline period;

(iii) shutting the non-achieving unit(s) down will occur prior to the end of the remaining useful life as determined by the utility regulatory commission having jurisdiction, if any, or the permitting authority, if none; and

(iv) the cost of building an equivalent sized NGCC, NSPS-compliant, unit or units to replace the non-achieving unit(s) plus servicing existing debt for the non-achieving units would, in the judgment of the state, be excessive.

(3) For each small public or cooperative utility that owned an affected EGU on June 18, 2014 and continues to own that non-achieving unit satisfying the criteria in paragraph (b)(2) of this section, the State may exclude such non-achieving unit(s) from calculating its state-wide goal in Table 1 of this subpart and establish an alternative goal under its state plan as follows:

(i) During the interim goal period:

(A) Each non-achieving unit owned by the qualifying small public or cooperative utility must implement all reasonably cost effective measures to improve heat rate, which must include enforceable increments of progress, not to exceed five years from plan approval;

(B) The qualifying small public or cooperative utility shall increase dispatch of all existing NGCC units it owns and operates to the maximum extent feasible, up to a 70% utilization rate and, for units it owns but does not operate, shall offer such unit for operation up to the utility's pro rata share of 70% annual utilization; provided, however, that if the increased dispatch of NGCC units results in the non-achieving unit being reduced below its reliability limit, the state plan may provide for either periodic curtailment or earlier retirement of the non-achieving unit so long as total carbon mass is not increased over what would be achieved by 70% utilization of NGCC units owned by the small public or cooperative utility

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during the interim goal period or appropriate pro rata share of units owned only in part by the small public or cooperative utility.

(C) The qualifying small public or cooperative utility shall install renewable energy capacity or obtain renewable energy credits (in a state plan recognizing such credits) equal to at least 10% of non-achieving unit(s) capacity within five years of plan approval or 2025, whichever is later.

(D) The qualifying small public or cooperative utility, if it has local distribution, shall achieve at least one-half of any applicable state energy efficiency requirements set forth in the state plan.

(E) The qualifying small public or cooperative utility shall achieve a net reduction of its carbon intensity through the measures specified in paragraph (b)(3)(i)(A) through (D), plus additional increments of process specified in the state plan for such small public or cooperative utility, equal to the lesser of the following (excluding nuclear and hydropower):

(I) an amount that achieves for the small public or cooperative utility an emission rate equal to the state Final Goal established in Table 1 of Subpart UUUU by 2030; or

(II) an amount that achieves a 15 percent reduction from the baseline carbon intensity of the small public or cooperative utility.

(III) for units that the small public or cooperative utility owns only in part, the calculations of this paragraph (b)(3)(E) shall be made based on its ownership share in the units.

(F) The qualifying small public or cooperative utility must achieve at least 33% of the reduction required in subsection (b)(3)(i)(E) by 2020 or three years after plan approval, whichever is later.

(ii) During the final goal period, the state plan shall provide that the qualifying small public or cooperative utility must take one of the following actions:

(A) Shutdown the non-achieving unit(s) at the start of the final goal period; or

(B) If any non-achieving unit(s) will remain in operation, then the qualifying small public or cooperative utility shall continue any measures imposed on the non-achieving unit(s) and the utility by the state plan and shall install additional renewable energy or obtain renewable energy credits (in a state plan recognizing such credits) beyond the quantity required in subparagraph (b)(3)(i)(C), equal to at least 10% of the non-achieving unit(s)' capacity prior to the start of the final goal period. Additional renewable energy offsets equal to 10% of the non-achieving unit(s)' capacity must be obtained prior to each fifth anniversary of the final goal plan effective date if the unit is to be kept in operation beyond the anniversary date. These offsets are in addition to any other renewable energy requirements in the state plan that are applicable to all utilities.

(iii) Except as provided in paragraph (b)(3)(iv) of this section, a non-achieving unit may not operate pursuant to this subsection (b) beyond the end of its remaining useful life established by the utility regulatory commission having jurisdiction, if any,

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or the permitting authority, if none. The shutdown date for each non-achieving unit shall be included in the state plan.

(iv) A small public and cooperative utility that has non-achieving units that would be able to achieve the state final goal set forth in Table 1 of this subpart on or before December 31, 2039 may transition from this subcategory back to the State Plan by obtaining a revision to the state plan approved by EPA. A non-achieving unit that transitions back prior to December 31, 2039 shall not be subject to the mandatory shutdown provision of paragraph (b)(3)(iii), but shall comply with all requirements of the state plan applicable to that unit.

(4) A state may establish more stringent requirements for a qualifying small public or cooperative utility.

As indicated in AEPCO's comments filed on September 29, 2014, which are hereby incorporated by reference, this proposal would affect approximately 100 small public and cooperative entities if the 4 million MWh of sales definition is used and significantly more if the Small Business Administration definition is used. AEPCO's analysis determined that it is likely that the small public and cooperative utility subcategory would result in less than a 1% leakage rate from the carbon reduction that EPA is seeking.

The Arizona Utilities Group (AUG) Proposal

AEPCO also urges FERC to consider recommending to EPA a solution set forth in the comments of the AUG, which has recommended a solution that reduces the costs of compliance while lessening the reliability problems and maintaining the bulk of the carbon reductions under the Proposed Rule. The AUG recommendation is as follows:

1. For purposes of goal setting under Building Block 2 (BB2):
 - a. Redispatch from coal-fired EGUs to NGCC EGUs should occur upon the later of any of the following, if redispatch would occur prior to January 1, 2030:
 - i. January 1, 2020;
 - ii. January 1 of the year following 40 years after initial commencement of operation; or
 - iii. January 1 of the year following 20 years after commencement of operation of major pollution control retrofit, such as selective catalytic reduction ("SCR"), flue gas desulfurization ("FGD"), or baghouses at any EGU if installation occurred prior to issuance of the Final Section 111(d) rule, or after commencement of operation of selective non-catalytic reduction ("SNCR") or electrostatic precipitators ("ESPs") at an EGU owned by a small utility as

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defined by the Federal Energy Regulatory Commission (“FERC”) if installation occurred prior to the first year of the compliance period (i.e., 2020).

- b. For coal-fired EGUs that either shutdown or convert to natural gas-fired operation, redispatch would occur as specified in an applicable implementation plan or enforceable Title V permit, provided that such commitment is entered prior to the effective date of the final rule and the date of shutdown or natural gas conversion is prior to January 1, 2030.
 - c. Coal-fired EGUs that do not redispatch prior to January 1, 2030, under paragraphs 1.a or 1.b remain coal-fired EGUs for purposes of calculating the Interim and Final Goals.
2. For purposes of goal setting, when redispatching to NGCC, a rate of 1,000 lbs CO₂/MWh should be used, consistent with the most stringent standard in the EPA’s proposed New Source Performance Standard (“NSPS”) for EGUs.
 3. The State should establish the Interim Goal in its State Plan based upon EPA’s Building Block approach as modified by paragraphs 1 and 2 above.

AEPCO is a member of the AUG and agrees that this approach, which is more fully explained in the AUG comments, which AEPCO adopts and incorporates herein, addresses many of the issues that cause difficulty in Arizona. AEPCO recommends that EPA adopt both the proposed small and cooperative utility subcategory and the AUG proposal.

AEPCO’s detailed comments and concerns on reliability and electric markets follow.

Rural Electrification, Rural Electric Cooperatives and AEPCO

In 1935, President Franklin D. Roosevelt established the Rural Electrification Administration (“REA”) by executive order and tasked it with bringing affordable electricity to rural communities across the country. *Establishment of the Rural Electrification Administration*, Exec. Order No. 7037, May 11, 1935. While acknowledging the difficulty and expense of extending service to less densely populated areas of the country, President Roosevelt also recognized the vital importance of rural communities and considered the REA’s mission to bring modern electric service to rural families as “one of the most important projects” of the nation. Franklin D. Roosevelt, “Statement on Signing a Rural Electrification Bill” (Sept. 22, 1944), *available at* <http://www.presidency.ucsb.edu/ws/?pid=16560>. By passing the Rural Electrification (“RE”) Act of 1936, Congress formally established the REA as a federal agency

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and made its mission to power America's rural communities and to improve access to electricity a matter of statutory mandate. 7 U.S.C. § 904(a).¹ The REA became a part of the Department of Agriculture in 1939. Since 1939, Congress has consistently acted to ensure that the REA, and its successor, the Rural Utilities Service ("RUS"), successfully provided electric service to the entire country.

Congress and the REA recognized that federal support was essential to the electrification of rural America because established utilities generally served high-density areas and did not serve farmers and other rural Americans. Particularly due to the lower population densities of rural areas, these utilities had no financial incentive to do so. Partnering with rural electric cooperatives was (and remains) fundamental to achieving the goals of the Rural Electrification Act. *See generally* Rural Electrification Administration, "A Guide for Members of REA Cooperatives" (July 1940). Seeking to ensure that that maximum benefit was provided to rural communities, the government recognized that the cooperative model was the key to success. Where investor-owned utilities at the time were concerned that the high cost of extending service to under-populated and traditionally low-income areas conflicted with the duty to provide reasonable returns to shareholders, cooperatives had more flexibility as non-profit organizations to flow the benefits of the program directly to their rural membership. In this way, cooperatives became the predominant instrument through which the REA was able to comply with its statutory mandate. *Wabash Valley Power Ass'n., Inc. v. Rural Electrification Administration*,

¹ *See also* *Arkansas Valley Cooperative Rural Electric Co. v. Elkins*, 200 Ark. 883, 141 S.W.2d 538 (1940) (The RE Act was designed to effect a "governmental policy" to make the benefits of electricity available to rural areas and "remedy a deficiency in the life and economy of the rural population of the nation."). "[T]he REA promotes and facilitates investment in electricity (and telephones, to a lesser extent) for rural areas in order to ensure that these regions receive power at reasonable prices." *Wabash Valley Power Ass'n, Inc. v. Rural Electrification Admin.*, 988 F.2d 1480, 1483 (1993) (citing to Congressional Budget Office, *New Approaches to the Budgetary Treatment of Federal Credit Assistance* (1984); M. Weidenbaum & R. Harnish, *Government Credit Subsidies for Energy Development* (1976)). "REA has a statutory duty to lend money and see that it is repaid; but more, it is a government agency created by Congress to further rural electrification." Norman L. Plotka, *Agricultural Credit: Electric and Telephone; Rural Electrification Act of 1936 and Related Statutory Provisions*, in *Agricultural Law* § 98.01[1] (2014) (citing *P.U.D. No. 1 of Pend Oreille County v. United States*, 417 F.2d 200 (9th Cir. 1969)).

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988 F.2d 1480, 1490 (7th Cir.1993) (“Rural electrification, whether enabling electricity purchases by distribution cooperative customers or assisting the development of generation and transmission facilities, remains the fundamental goal of the RE Act.”).

In the decades following enactment of the RE Act, Congress has continued to support the REA by passing laws to secure funding and expand its mandate. *See generally* Norman L. Plotka, *Agricultural Credit: Electric and Telephone; Rural Electrification Act of 1936 and Related Statutory Provisions*, in *Agricultural Law* § 98.01[1] (2014) (citing *P.U.D. No. 1 of Pend Oreille County v. United States*, 417 F.2d 200, note 11 (9th Cir. 1969)). Congress authorized the REA to borrow funds from the Reconstruction Finance Corporation in 1938. 52 Stat. 818 (1938). In 1944, Congress made loan funds under the RE Act permanently available and authorized the REA to refinance existing loans from the Tennessee Valley Authority. 58 Stat. 925 (1944). With the enactment of the Department of Agriculture Appropriation Act in 1947, the REA began borrowing funds from the Treasury. 61 Stat. 546 (1947). The Rural Electrification and Telephone Revolving Fund was established in 1973 to provide for insured and guaranteed loans under the RE Act. 87 Stat. 65 (1973). The REA’s successor, the RUS, was formed in 1994 and continues to implement the statutory mandate of the RE Act through direct loans and loan guarantees, recognizing that “reliable, affordable electricity is essential to the economic well-being and quality of life for all of the nation’s rural residents.” USDA Rural Development–UEP Home, http://www.rurdev.usda.gov/UEP_HomePage.html (last visited Sept. 5, 2014).

Today, over 95% of all rural Americans have access to electricity. USDA, “When the Lights Came On,” *available at* <http://www.rurdev.usda.gov/rbs/pub/aug00/light.htm>. The RUS Electric Programs have, either directly or indirectly, in some way funded all of the generating units owned and operated by generation and transmission cooperatives (“G&Ts”) and almost half of all rural electric line construction in the nation. These programs continue to provide the capital needed to upgrade, expand, maintain and replace America’s rural electric infrastructure including pollution controls for generating units. Through the Electric Programs and partnerships with over 900 rural cooperatives, the federal government is the majority note holder

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for approximately 700 electric systems borrowers in 46 states, with loan levels over \$47 billion. Despite unquestionable success over the last 80 years, the statutory mandate to serve the rural community with reliable, low-cost power is as important as ever. As Secretary of Agriculture Tom Vilsack wrote in 2010, “Rural America is aging, and those living there earn less than their urban counterparts and are more likely to live in poverty.” Tom Vilsack, *USDA: Committed to Co-ops*, Rural Cooperatives (May/June 2010), at 2.

AEPCO is a rural electric generation cooperative. Its sister company, Southwest Transmission Cooperative, is a rural transmission cooperative.

DETAILED COMMENTS

I. EPA’s Proposed Rule Violates the Rural Electrification Act (“REA”) Mandate to Provide Affordable and Reliable Power to Rural America

The EPA’s Proposed Rule violates the REA’s federal mandate that rural America receive reliable, low cost electric services because it will result in the significant reduction in either the operation of or retirement of nearly all coal-fired EGUs, many of which are owned and operated by rural electric cooperatives such as AEPCO. EPA recognizes in the proposal that there is no technological option to reduce CO₂ emissions from power plants. Instead, EPA determines that the BSER for CO₂ emissions EGUs is primarily the reduction or elimination of coal generation. Without this coal generation, the reliability of this country’s electric grid is severely threatened. Coal generation is essential to serving this country’s electric load, ensuring that the owners and operators of coal generation remain viable and preventing dramatic increases in electricity rates. Due to their relatively small customer base, rural electric cooperatives are particularly vulnerable to the impacts of reduced coal generation ahead of the end of those EGUs useful life. In addition, without relief granted to small public and cooperative utilities, these disproportionate impacts will fall on the poorest electric consumers in the country. This is unacceptable. Because of the Proposed Rule, the CAA and the REA (and its progeny) can no longer be read and applied harmoniously. Consequently, the Proposed Rule must be withdrawn.

AEPCO, even more so than other G&Ts, will be forced to violate the mandate that it provide reliable, low-cost electricity to its members. AEPCO cannot achieve the Proposed

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Rule's Arizona emissions rate goals without shutting down the Apache coal-fired EGUs ST2 and ST3, which will leave AEPCO substantially short on generation. Without this reliable, high capacity generation, the Proposed Rule seeks to force AEPCO to natural gas combined-cycle resources and renewable energy to serve load that was met by coal generation. At this point AEPCO does not have (or have access to) sufficient natural gas combined-cycle and renewable energy generation to meet its load. Without adequate system generation AEPCO cannot reliably serve its load. Arizona reliability issues if the Proposed Rule were to be adopted were noted by both NERC and WECC.

Because the Proposed Rule will leave AEPCO without sufficient generation, it will be forced into the spot energy market and other extremely costly capacity and energy options to serve its members. G&Ts like AEPCO are not-for-profits and do not have shareholder equity or any other means to deal with cost increases other than to pass them onto electricity rates. These increases in AEPCO's electricity costs, therefore, can only result in dramatic rate increases for its members. AEPCO's rates are paid by some of the poorest Americans. G&T ratepayers are not in a position to absorb significant rate increases and, to the extent possible, will choose to voluntarily reduce service and suffer from a lesser quality of life.

The Proposed Rule, therefore, will force AEPCO to violate the REA and the federal mandate to serve reliable, low-cost electricity to its members and must be withdrawn unless EPA adopts revisions such as those proposed in the small public and cooperative utility subcategory and the AUG proposal.

II. EPA's Building Block #2 Overestimates the Ability to Redispatch Coal-Fired Generation to Existing NGCC With A Utilization Target of 70%, Ignores the Difficulty or Impossibility of Shifting Energy Generation Based on Arizona's Current Infrastructure, and Inappropriately Excludes any Consideration of Hydroelectric Power.

EPA's proposed BB2 seeks to redispatch energy generation from coal-fired EGUs to less CO₂-intensive existing NGCC. In this proposal, EPA assumes that existing NGCC units can operate at 70% capacity factor but fails to demonstrate that this operation capacity is technically feasible. To complicate this assumption, EPA also fails to demonstrate or acknowledge the

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infrastructure and implementation problems associated with transferring such large energy production to existing NGCC.

A. EPA has effectively ignored drastic problems associated with the redistribution of power within the grid system based on Arizona's current infrastructure.

EPA's Proposed Rule does not evaluate or account for infrastructure and transportation capacity that must be implemented before existing NGCC can increase its capacity to the proposed 70% annual capacity target. EPA has failed to adequately evaluate the redirection of power given the current grid availability and resource location, consequences of such a significant increase in natural gas consumption, and the timeframe that necessary infrastructure improvements will require.

1. EPA failed to consider current NGCC capacity needs and increases, irrespective of its proposal to more than double the NGCC generation

In its Proposed Rule, EPA failed to account for increases in NGCC consumption just from *existing* generation sources. This additional gas transportation capacity needs to be established *before* NGCC can meet its current demands and future proposed 70% capacity target. Currently, the United State and Canada are already in need of additional natural gas pipelines to provide adequate transportation for existing generation sources. The Interstate Natural Gas Association of America ("INGAA") has estimated that the United States and Canada already need 28,900- 61,600 miles of additional natural gas pipelines through 2030—this is before considering any necessary increase in transportation needs from the Proposed Rule.² Additionally, increased transportation capacity also requires compression and pumping infrastructure and working gas storage capacity. With the Proposed Rule's projected increase in demand for natural gas from 25-32 states, the current infrastructure upgrades and increased capacity will only increase more. As the Wisconsin Energy Conservation Corporation ("WECC") in particular points out, the required natural gas buildout would occur in the same period. As a result, it is very likely that the United States suppliers would not be able to handle

² INGAA, North American Midstream Infrastructure through 2035: Capitalizing on Our Energy Abundance, March 18, 2014 at <http://www.ingaa.org/Foundation-Reports/2035Report.aspx>.

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the numerous simultaneous projects. Consequently, building this volume of new natural gas is not feasible by the Interim Goal, possibly not even before the Final Goal.

2. *EPA has not addressed natural gas transport limits on redispatch.*

As noted by the Pace Study, the existing transmission network is designed for coal-fired EGUs located in the eastern and southern periphery of the State, while the NGCC EGUs are located in and around Phoenix and in the western periphery of the State. Significant modifications to the transmission network would be required to account for shutdown of the coal-fired EGUs and still provide reliable coal. *See* Pace Study § 3.1, at 13-14. It does not appear that these issues were included in the proposed timing of BB2 implementation in 2020.

Pace reviewed the natural gas pipeline capacity in Arizona and determined that there are two major systems: Transwestern and El Paso. The Transwestern system is essentially at 98 to 100% utilization even prior to the Proposed Rule. Increased utilization would thus fall almost wholly on the El Paso system. Both systems would run out of capacity in the mid-2020s and time is short to fully integrate pipeline system improvements given lead times for such infrastructure projects. *See* Pace Study § 3.1, at 14.

Arizona does not currently have a sufficient natural gas pipeline system to support likely Proposed Rule demand and will not have time to upgrade the system to comply with the Interim and Final Goals timelines. NERC-CAISO has determined that Arizona's "existing pipeline capacity is not adequate to handle incremental gas needs of the state under the CPP." Pace Study § 3.6, at 26 (citing NERC-CAISO Joint Report, "Maintaining Bulk Power System Reliability while Integrating Variable Energy Resources"). EPA has not given adequate consideration of this issue and must revise the timing of BB2 and revision to the Interim Goal, at the very least, to accommodate the necessary infrastructure upgrades. Additionally, EPA assumed that states would be able to rely upon one another to comply. However, given that individual states have the theoretical ability to define their own future in terms of compliance with the goals of the Proposed Rule, it is not guaranteed that Arizona will have sufficient capacity in its neighboring states to maintain reliable electric service. Consequently, Arizona must be afforded the relief

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requested to continue a reliable electric grid on its own as well as a sufficient MW peak reserve margin, as the Pace Study addressed.

3. *Arizona faces extensive and expensive evaluation, siting and permitting processes*

In addition to the expense related to increasing the infrastructure necessary to support the increased demand and use of NGCC, the process for infrastructure improvements is going to include time-consuming siting and permitting processes for pipeline, storage, and other midstream natural gas infrastructure. Modifying the electric transmission infrastructure is a complex, costly, time-consuming process that will require the cooperation of state and federal agencies, electric utilities, tribes, the general public, and private landowners. EPA has not provided guidance for grid updates and infrastructure support, necessary for States to begin such a daunting, timely, extensive, and expensive process.

Arizona faces an extensive planning and review process and will likely face NGCC resource allocation problems. Due to the inflexibility of the 2020 Interim Goal, the expected problems associated with ramping up energy efficiency, and the approval states will need to implement the State Plans, Arizona anticipates and expects that this will create complications regarding an uninterrupted supply of natural gas and pipelines and storage sufficient enough to allow available NGCC units to bridge the difference in the electric generating capacity. To further demonstrate this concern, the Salt River Project (“SRP”) completed an analysis that demonstrates that this extra capacity does not exist during Arizona’s peak summer months.³ SRP additionally determined that Arizona has little to no control over how NGCC units are dispatched, as most of Arizona’s merchant plant generators have contracts with in-state and out-of-state entities; therefore a combination of all merchant NGCC generation and the existing baseload coal-fired units will be necessary to meet electric demand in the state and ensure reliability. Arizona faces additional problems in a timeline for implementing new NGCC capacity, as siting and permitting requirements will likely average ten (10) years or more if federal or tribal lands are involved. Further, given federal, state and tribal relations it may be infeasible or even impossible to acquire adequate private land for new projects.

³ Salt River Project, *Building Block #2 Impacts on the Emission Rate Goals for Arizona Under EPA’s Clean Power Plan Proposal*, August 2014.

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Additionally, current infrastructure will not support AEPCO's need to re-dispatch its coal-fired units to NGCC. AEPCO's transmission is limited from Phoenix into the "southern bubble." AEPCO's development is centered around Apache Generating Station and is not structured or designed to take energy redirection from the fringes of its transmission system and redistribute to the center of the system. AEPCO does not have the financial resources to replace its coal capacity with new NGCC. Currently, between 80-90% of energy supplied by AEPCO to its members is coal-generated. In addition to the higher fuel cost of NGCC, the added capital cost would place a severe burden on smaller entities. This results in the unequivocal necessity of Apache Generating Station staying online.

4. *Arizona needs to protect the reliability of its energy grid*

It is unclear based on the current infrastructure, unknown timeline of NGCC infrastructure growth and reliability, and Arizona's unique peak summer loads, that Arizona could survive the loss of a natural gas pipeline and still support the grid demand without retaining backup coal-fired options to support the grid. Until the reliability and affordability of Arizonian electricity can be assured, EPA's Proposed Rule is infeasible and unreasonable for Arizona.

However, it is clear that the Proposed Rule will eliminate energy reserves and has timing issues that will significantly risk the reliability of the Arizona electric transmission network. In a study completed by Pace Global, Pace concluded that:

The assumption that coal generation can be one-for-one diverted to existing NGCC units is inaccurate, and the magnitude and timing which Arizona specifically would need to switch generation would make the state's electric supply unreliable. The lead time for new transmission infrastructure is five to ten or more years. The recent North American Electric Reliability Corporation's (NERC) report 7 on the Clean Power Plan cites the need for a 10 to 15 year outlook for planning transmission development due to the time required for engineering, contracting, siting and permitting, as well as the various federal, state, provincial, and municipal approvals required. The CPP interim goals would allow for less than a 5 year outlook from state planning finalization until when the new transmission capacity would absolutely be needed.

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Since the CPP requirements will not be finalized until mid-2015 and state implementation plans will not be approved by EPA until mid-2017 or later, timing of the final state plan approval and the typical five-year timeframe to site and construct new power plants would result in real reserve margin declines, noting the sharp decrease in coal generation required under Pace Global's analysis of the CPP Building Block scenario. Given these real world constraints, Arizona will need to seek relief from the CPP's interim goals in order to maintain grid reliability and security. The EPA should include a reliability safety valve mechanism in the final rule. Even if the interim goals are delayed or state goals reduced, there is still a risk to reliability. Consistent with impacts, the EPA should include in its final rule circumstances under which compliance can be delayed to manage real time issues that will compromise electric reliability.

Pace Study § 3.5, at 20-22. AEPCO shares these concerns. Additionally, technical concerns surrounding the frequency and voltage support, as well as system stability, are necessary considerations in the applications of system-wide changes. This concept is illustrated in the following excerpt from the Pace Study Report.

Finally, the modeling does not take into account region-specific technical issues. In particular, given the remote location of Arizona's existing coal units, it is anticipated that shutdown of these units may result in issues surrounding voltage and system stability. In the absence of a detailed transmission analysis, given Arizona's demonstrated lack of flexibility, EPA would be unable to assess what units are necessary for the reliability of the electric grid.

Pace Study § 3.1, at 16. On the part of the AEPCO and Southwest Transmission Coop electric system, internal analyses indicate that Apache Generating Station, due to its remote locations, is necessary for the continued reliability of the electric grid in the southeastern quadrant of Arizona, sometimes known as the "southern bubble".

B. EPA incorrectly evaluated the current system's reliability and mandated compliance with Interim and Final Goals sooner than the system can support.

EPA ignores the fact that another type of fuel must be available for when the grid and/or NGCC resources are not adequate to support demand. Coal generation was not designed to cycle with intermittent resources and does not possess the ramping capabilities to do so. Additionally, this kind of operation would place heavy wear-and-tear on these units, resulting in escalating costs of operations. See Pace Study § 5.5. EPA insufficiently estimated the availability and cost

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of renewable resources, as well as the cost of fossil fuel source backup. As discussed above, it is necessary for states, such as Arizona, to have reliable, available and cost-effective backup electricity in the case of unforeseen events or drastic weather events. EPA's Proposed Rule and Interim and Final Goals do not provide for this type of energy generation flexibility in times of peak demand or unreliable transmission, thereby endangering electric generation reliability for utilities and their customers.

III. The Proposed Rule Should Provide a "Safety Valve" for EGUs Determined to be "Critical" for Grid Reliability.

AEPCO believes, as do others responsible for grid reliability, that the Proposed Rule should provide a "safety valve" to allow continued operation of EGUs that are determined to be "critical" for grid reliability. AEPCO believes that FERC, or the North American Energy Reliability Corporation ("NERC"), the reliability entity designated by FERC, or possibly state utility commissions, should be authorized to review the operation of the overall electric grid and identify any units that are "necessary for grid stability and reliability" as exempt from re-dispatch requirements under Building Block 2 as well as state goal-setting. While FERC, NERC or state utility commissions are in the best position to determine what units are "necessary for grid stability and reliability," AEPCO believes such units may include EGUs that because of their location provide essential reliability services to portions of the grid that cannot be serviced by other units. Shutting such units down would jeopardize electric grid stability and reliability. Because of the nature of the grid, which tends to have multiple sources of generation for substantial urban areas, many of these grid stability and reliability situations may arise in more rural areas. AEPCO believes that jeopardizing grid reliability in these areas is inconsistent with the policy of the United States expressed in the Rural Electrification Act, as well as the mission of all utilities to provide reliable electric service.

CONCLUSION

As currently drafted, the CPP places an unreasonable and inequitable burden on AEPCO to reduce its CO₂ emissions by imposing overly stringent Interim and Final emission rate goals on the State of Arizona that will impact electric system reliability, impose an unreasonable

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financial burden on Arizona's ratepayers, including AEPCO's members, and force early closure or reduced generation from coal-fired EGUs. AEPCO urges FERC to work with EPA to develop solutions that protect grid reliability and the nation's power markets through use of the proposed solutions contained in the "small public and cooperative utility" subcategory and the approach to BB2 redispatch recommended by the AUG as the best way to ameliorate some of the very real costs and burdens of the proposed Clean Power Plan.

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