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November 26, 2014

U.S. Environmental Protection Agency
Attention Docket ID No. EPA–HQ–OAR–2013–0602
EPA Docket Center, U.S. EPA
Mailcode: 28221T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generation Units, Proposed Rule, Docket ID No. EPA–HQ–OAR–2013–0602; FRL–9910-86-OAR, 79 Fed. Reg. 34,830 (June 18, 2014)

Dear Sir or Madam:

The Electricity Consumers Resource Council ("ELCON") appreciates the opportunity to submit the following comments in response to the Environmental Protection Agency's ("EPA's") proposed Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generation Units, Docket ID No. EPA–HQ–OAR–2013–0602; FRL–9910-86-OAR, 79 Fed. Reg. 34,830 (June 18, 2014) (hereinafter, the "NOPR").

ELCON is the national association representing large industrial consumers of electricity. ELCON member companies produce a wide range of industrial commodities and consumer goods from virtually every segment of the manufacturing community. ELCON members operate hundreds of major facilities in all regions of the United States. Many ELCON members also cogenerate electricity while serving a manufacturing steam requirement.

ELCON participated in two other sets of comments submitted in this docket, one by a broad-based coalition of associations (including the National Association of Manufacturers and the U.S. Chamber of Commerce) representing the nation's leading energy, agriculture, and manufacturing sectors (the "Industry Coalition Comments"), and the other by the Combined Heat and Power Association (the "CHPA Comments"). ELCON fully supports those comments. In filing these separate comments, ELCON wishes to highlight its concerns with the NOPR that are especially pertinent to its members as large industrial users of electricity and, in many cases, cogenerators of electricity.

ELCON is especially concerned that in looking beyond pollution control technologies that can be retrofitted for existing fossil fuel-fired EGUs, the NOPR would abandon EPA's prior source-specific approach and expand its focus, as the NOPR explicitly states, to the entire "integrated electricity system." 79 Fed. Reg. at 34,836. The NOPR's severe CO_2 emissions reductions would in many States require extreme changes to the mix of types of energy generation, particularly a decrease in coal-fired generation and a dramatic increase in natural gas fired and renewable generation, impose new demands on the transmission grid, change the priorities for electricity dispatch to a focus on a least-CO_2 emission basis rather than a least-cost or reliability basis or any other metric, and mandate demand-side energy efficiency programs that would especially impact large industrial consumers of electricity. The NOPR also fails to give full and proper recognition to the environmental benefits of industrial combined heat and power units. Taken together, these considerations call into question, at a fundamental level, the economic and technical feasibility of the NOPR.

In these comments, ELCON briefly addresses the following issues:

- EPA's failure to adequately assess the NOPR's impact on electricity reliability.
- EPA's failure to adequately assess the NOPR's impact on electricity cost.
- EPA' overestimation of the availability renewable capacity.
- EPA's overreliance on the potential for efficiency improvements.

- The infeasibility of EPA's aggressive implementation timeline.
- The need to exclude industrial CHP units from the scope of affected EGUs and to recognize their environmental benefits.

ELCON also supports the extensive presentations in the Industry Coalition Comments and CHPA Comments demonstrating that the NOPR exceeds EPA's authority under Section 111(d) of the Clean Air Act.

For the reasons presented in these summary comments and in the Industry Coalition Comments and CHPA Comments, ELCON urges EPA to immediately withdraw the NOPR. Any future NOPR to address GHG emissions from EGUs should fully recognize and address the impacts on reliability of the electricity grid and the other feasibility, cost and timing issues that are summarized in these comments and addressed in greater detail in the Industry Coalition Comments and CHPA Comments.

I. THE NOPR FAILS TO ADEQUATELY ADDRESS THE ADVERSE EFFECT OF THE RULE ON ELECTRICITY RELIABILITY

The central issue with the NOPR is that EPA has not adequately assessed its impact on the reliability of the electricity grid. ELCON, supported by many other commenters, believe that the rule in fact would have significant adverse impact on grid reliability. Reliability of electricity supply is an absolute business necessity for ELCON's members, and electricity outages and flow variations cannot be tolerated.

EPA fails to appreciate the fragility of the electric transmission system and the affect that the NOPR would have on grid reliability over time. EPA's failure to fully and properly assess and account for the NOPR's impact on grid reliability puts at risk the economic viability of thousands of manufacturing facilities in the United States that are interconnected to their utilities at transmission voltages. The US industrial sector is well aware of the harm posed by power outages. The economic cost of the August 2003 Blackout that was limited to parts of only seven States was estimated as high as $10 billion.[1] More recently—January 2014—several regions of the country were at the brink of serious power disruptions as a result of the "polar vortex" weather anomaly.[2] This event highlights the potential risk to reliability of generator retirements targeted by EPA that are not immediately replaced on a one for one basis. Several recent independent reliability assessments emphasize this point.

On November 5, 2014, the North American Electric Reliability Corporation ("NERC") issued its preliminary review of the assumptions and potential reliability impacts of the NOPR.[3] NERC is an international regulatory authority established to evaluate and improve the reliability of the bulk power system ("BPS") in North America.[4] In the United States, NERC is subject to the oversight of the Federal Energy Regulation Commission ("FERC") pursuance to Section 215 of the Federal Power Act. In the Energy Policy Act of 2005, the US Congress directed NERC to conduct periodic assessments of the reliability and adequacy of the BPS. NERC's recent review of the NOPR is one such assessment.

[1] Electricity Consumers Resource Council, The Economic Impacts of the August 2003 Blackout, February 2004. The blackout affected all or parts of the following States; Michigan, Ohio, Pennsylvania, New York, New Jersey, Connecticut, and Massachusetts.

[2] North American Electric Reliability Corporation, Polar Vortex Review, September 2014.

[3] North American Electric Reliability Corporation (NERC), Potential Reliability Impacts of EPA's Proposed Clean Power Plan, Initial Reliability Review, November 2014 (the "NERC Report").

[4] The "bulk power system" is defined as facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy. 16 U.S.C. §824o.

NERC's report identifies concerns related to the changes in resource mix and the consequent reliability issues that would be forced by the NOPR.[5] Specifically, NERC found that the NOPR would constrain the availability of Essential Reliability Services ("ERSs"), such as load following, regulation and ramping services. This outcome results from the intermittent nature of Variable Energy Resources ("VERs") such as wind and solar. Ironically, the increased reliance on renewables that are VERs should be met with an increase in reserve margins to maintain reliability, but the NOPR instead would reduce regional reserve margins to compensate for the retirement of coal-fired generation. NERC also noted that the number of estimated retirements identified by EPA "may be conservative if the assumptions prove to be unachievable. Developing suitable replacement generation resources to maintain adequate reserve margin levels may represent a significant reliability challenge, given the constrained time period for implementation."[6]

Further, NERC warned that increased penetration under the NOPR of so-called Distributed Energy Resources ("DERs"), which most commonly are roof-top photovoltaic arrays, will pose significant challenges to system operators because this resource cannot be dispatched and is generally invisible to the operator, but will rely on the "system" for backup services, placing a greater demand for ERSs.

An overarching concern of NERC is the NOPR's wholly unrealistic and arbitrary compliance deadlines. EPA would have one year to review and approve implementation plans for each State by June 2017. But, under this schedule, affected generating units would have less than three years to develop their respective compliance plans, including the siting and permitting,

[5] NERC Report at 24-26.

[6] NERC Report at 2.

financing, and construction of any needed replacement capacity and/or transmission facilities—a time period that flies in the face of all recent experience in this country. The construction timeline for a new transmission facility can be 5 to 15 years depending on the voltage class, location, and availability of skilled construction crews.[7]

NERC also raised specific issues concerning the NOPR's Building Blocks.

NERC is concerned that the assumed heat rate improvements of Building Block 1 "may not be realized across the entire generation fleet since many plant efficiencies have already been realized and economic heat rate improvements have been achieved. Multiple incentives are in place to operate units at peak efficiency, and periodic turbine overhauls are already a best practice."[8] Further, improving the existing coal fleet's average heat rate by 6% may be difficult to achieve. For example, the lower coal plant capacity factors achieved by Building Block 2 would cause heat rates to increase and undermine the effectiveness of Building Block 1.[9]

NERC concluded that Building Block 3 would pose the following reliability challenges:

- EPA's analysis relies on resource projections that may overestimate reasonably achievable expansion levels and do not fully reflect the reliability consequences of renewable resources;
- Increased reliance on VERs (*e.g.*, wind and solar) can significantly impact reliability operations and requires more transmission and adequate ERSs to maintain reliability; and

[7] NERC Report at 20.

[8] NERC Report at 2.

[9] NERC Report at 8.

- With a greater reliance on VERs, transmission and related infrastructure expansion lead times may not align with the NOPR's implementation timeline.[10]

Finally, NERC concluded that Building Block 4 would pose the following reliability challenges:

- EPA appears to overestimate the reduction in electricity demand from energy efficiency that is achievable over the compliance time frame, which has implications for future electric transmission and generation infrastructure needs;
- Substantial increases in energy efficiency programs exceed recent trends and projections; in fact, several sources, including but not limited to NERC, EIA, EPRI, and various utilities, have published reports, analysis, and forecasts for energy efficiency that do not align with the EPA's assumed declining demand trend;
- The NOPR's assumption appears to underestimate costs and may underestimate the capital investments that would be required by utilities to sustain energy efficiency performance through 2030; and
- The offsetting requirements in more coal retirements, along with expansions in natural gas and VERs, in a constrained time period could potentially result in reliability or constraints on the provision of ERSs.[11]

One of the most important recommendations in the NERC report is the need for detailed system evaluations that yields a "clear understanding of the complex interdependencies resulting

[10] NERC Report at 13.

[11] NERC Report at 16.

from the rule's implementation."[12] EPA's modeling of its rule assumptions is not a detailed system evaluation. The Integrated Planning Model ("IPM") used by EPA lacks the granularity and realism capable of identifying the real risk of the NOPR at the operational level. IPM dispatches on a seasonal basis using load duration curves and regional load shapes. IPM does not really model individual power plants, does not model the random intermittency of wind and solar, uses an unrealistic, simplified industry structure (*i.e.*, 64 "model regions" in lower 48 States as proxies for the actual utilities and transmission operators), and relies on an even more simplified "model" of natural gas supply and demand. The devil is in the details and the details are missing from EPA's modeling scenarios.

Fortunately industry planning groups are beginning to prepare more detailed evaluations of the NOPR's potential impacts on grid reliability. The assessment of the Southwest Power Pool, Inc. ("SPP") is one such example. SPP is a FERC-jurisdictional Regional Transmission Organization ("RTO") and Regional Entity ("RE") with delegated authorities to ensure the reliability of the bulk electric system within the SPP region. That region includes all or parts of eight States: Arkansas, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma, and Texas. SPP's plenary function as an organization is maintaining reliability. In that capacity, on October 8, 2014, SPP released, and submitted to EPA, a detailed, quantitative document entitled Reliability Impact Assessment of the EPA's Proposed Clean Power Plan (the "SPP Reliability Assessment").

The SPP Reliability Assessment has two parts: (1) evaluation of transmission system impacts (i.e., potential for bulk electric system equipment overloads and low voltages), and (2) evaluation of impacts to reserve margins. In both cases, the SPP Reliability Assessment

[12] NERC Report at 27.

quantitatively evaluated the impacts of the EPA's projected EGU retirements within SPP and adjacent areas on reliability of the bulk power system within the SPP region.[13]

In summary, SPP unequivocally determined that the NOPR would impede reliable operation of the electric transmission grid in the SPP region, resulting in violations of NERC's mandatory reliability standards and exposing the power grid to significant interruption or loss of load. These impacts result, in part, from the infeasibility of the compliance schedule in the NOPR. There is not adequate time to ensure the timely siting and construction of the necessary electric transmission and electric generation within and across the appropriate planning areas.

Specifically SPP's overall finding was that the NOPR would pose a "serious risk" to reliability:

> If the proposed [Clean Power Plan ("CPP")] remains as is, the <u>bulk electric system will be at serious risk of violating these limits</u> [to ensure that transmission lines are not overloaded and voltage is maintained]. <u>The likelihood that this outcome occurs dramatically increases if the timing of the issuance of the final rule effectively prevents the construction of electric system infrastructure necessary to facilitate compliance with the state goals being contemplated under the proposed CPP</u>.[14]

SPP conducted the transmission system impact evaluation in two parts. In the first part, SPP assumed available unused electric generation capacity that currently exists within the SPP region and surrounding areas would be used to replace the projected retired capacity. The second part of the transmission system impact evaluation assumed that the projected EGU retirements would be replaced by increased output of existing generation, including wind resources, and new generation capacity modeled according to resource planning information

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[13] Bulk Electric System ("BES") is a subset of Bulk Power System ("BPS") as defined in the Federal Power Act. BES refers to facilities that are specifically targeted by NERC Reliability Standards.

[14] SPP Reliability Assessment at 2 (emphasis added).

being utilized in SPP's 10-year transmission planning assessment that is currently in progress. The SPP Reliability Assessment concluded:

> The SPP region will experience numerous thermal overloads and low voltage occurrences under both scenarios studied. Results of the first part of the transmission system impact evaluation indicate that if the assumed EGU retirements were to occur absent requisite transmission and generation infrastructure improvements, <u>the power grid would suffer extreme reactive deficiencies … that would expose it to widespread reliability risks resulting in significant loss of load and violations of NERC reliability standards</u>.
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> Results of the second part of the evaluation indicate that even with generation capacity added to replace the assumed EGU retirements, additional transmission infrastructure will be needed to maintain reliable operation of the grid. <u>This assessment revealed 38 overloaded elements that SPP would be required to mitigate with transmission planning solutions</u>. These overloaded elements were identified in the portions of six states – Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas – that operate within the SPP region. Portions of the system in the Texas panhandle, western Kansas, and northern Arkansas were so severely overloaded that cascading outages and voltage collapse would occur and would result in violations of NERC reliability standards.
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> It is important to note that the transmission expansion currently planned in SPP does not consider EGU retirements expected as a result of the CPP. EPA's projected EGU retirements represent approximately 6,000 MW of additional capacity being retired in the SPP region beyond that currently expected by 2020. This represents approximately a 200% increase in retired generating capacity compared to SPP's current expectations. <u>Unless the proposed CPP is modified significantly, SPP's transmission system impact evaluation indicates serious, detrimental impacts on the reliable operation of the bulk electric system in the SPP region, introducing the very real possibility of rolling blackouts or cascading outages that will have significant impacts on human health, public safety and economic activity within the region</u>.[15]

SPP also performed an evaluation of the impacts of the projected EGU retirements on SPP's reserve margin. Reserve margin is the amount of generation capacity an entity maintains in excess of its peak load-serving obligation. SPP's minimum required reserve margin is 13.6% per load-serving entity.

[15] SPP Reliability Assessment at 4-6 (emphasis added).

> This evaluation concluded that by 2020, SPP's reserve margin would fall to 4.7%, which is 8.9% below SPP's minimum reserve margin requirement and would result in a violation of SPP's reliability criteria and NERC reliability standards. Out of the fourteen load-serving members impacted by the EPA's projected EGU retirements, nine would be deficient in 2020. Furthermore, SPP found that its anticipated reserve margin would fall to -4.0% by 2024, causing ten of SPP's load-serving members to be deficient ….[16]

Other reliability experts have raised similar concern:

- In a letter to EPA, 18 current and former State PUC Commissioners asserted that "[p]oor forecasting by EPA [in the proposed rule] also means the reliability of the electric grid will be threatened due to coal shutdowns …."[17]
- Furthermore, several sources have concluded that, if the NOPR were implemented, the Midcontinent Independent System Operator ("MISO") and SPP would be forced to operate well below FERC's required 14.5% reserve capacity.[18]
- In addition, a joint study by NERC and the California ISO concluded that the reliability of bulk power supply can be diminished when renewable resources reach 20% or more of total supply[19]—a number that EPA projects can be achieved or exceeded by 24 States to achieve the NOPR's emissions reduction mandates.

[16] SPP Reliability Assessment at 7.

[17] Letter from Sandra Hochstetter Byrd, *et al.* to Hon. Gina McCarthy, Administrator, EPA at 2 (Sept.17, 2014).

[18] *See* Hannah Northey, *EPA Rules for coal-fired power may threaten Midwest reliability*, E&E Publishing (Sept. 19, 2014) (citing MISO, 2016 Resource Adequacy Forecast (June 5 ,2014); Letter from Sandra Hochstetter Byrd, *et al.* to Hon. Gina McCarthy, Administrator, EPA at 2; Testimony of Philip D. Moeller, at 3 (Apr. 10, 2014); SPP Comments at 7.

[19] Testimony of Gerry Cauley, President and CEO, NERC, Senate Energy and Natural Resources Committee, Hearing on "Keeping the Lights On- Are We Doing Enough to Ensure the Reliability and Security of the U.S. Electric Grid?" at 7 (Apr. 10, 2014) (citing NERC & California ISO, 2013 Special Reliability Assessment: Maintaining Bulk Power System Reliability While Integrating Variable Energy Resources – CAISO Approach (Nov. 2013)).

The substantial, well-documented concerns being raised by the organizations that focus on electricity grid reliability issues highlight not only the unprecedented scope of the NOPR, but also the risks it would create in an area where it has less expertise than other federal agencies such as FERC or industry bodies such as NERC and SPP. It is clear that reliability impacts have not been adequately addressed in the NOPR or related technical support documents and that the impacts are so substantial that the NOPR should be withdrawn to enable them to be more adequately assessed on a nationwide basis.

II. THE NOPR FAILS TO ADEQUATELY ADDRESS ITS IMPACT ON ELECTRICITY COST

EPA projects that the NOPR will increase electricity prices by as much as seven percent. 79 Fed. Reg. at 34934. The ramifications of these cost increases would be significant, but ELCON is concerned that EPA has underestimated the NOPR's impact on electricity prices. EPA projects that 110 GW of coal generating capacity—representing 33% of the current coal generation fleet—will be retired by 2030, a number far greater than the retirement projected under existing environmental regulations such as MATS. And, to meet EPA's emission reduction targets, these retirements must occur by 2020—not by 2030 when the interim compliance period ends. Even if utilities had plans to retire some of that generating capacity, the NOPR would accelerate the retirement schedule and increase the costs associated with the transition from existing coal-fired EGU capacity to other sources of electricity. For coal fired EGUs scheduled for retirement over a longer time scale, and for those that were not projected to be retired at all, there will be a significant cost in the form of stranded assets that will result in significant economic harm by premature retirement. ELCON share the concerns identified by SPP and believes that they have validity not just in the SPP region but across the United States:

> The proposed CPP will change the market dispatch of generating units by reducing the availability of the most economic generating resources. Such a shift will cause higher market clearing prices in the SPP region resulting in material adverse economic impacts on SPP customers. The proposed CPP will increase reliance on renewables and generators fueled by natural gas, yet there has been no evaluation of additional operating and planning measures needed to support integration of significant additional renewables and of natural gas availability required to fuel the increased number of gas burning units in the SPP region.[20]

In fact, a study by Energy Ventures Analysis Inc. that is being submitted to this docket found that "[o]n a percentage basis, the U.S. industrial sector would be affected most severely, as its total cost of electricity and natural gas would approach $200 billion ($170 billion) in 2020, a 92% (64%) increase from 2012. Increased operational costs in the industrial sector are of particular concern for energy intensive industries in the U.S. such as aluminum, steel and chemicals manufacturing, which require low energy prices to compete."[21]

III. THE NOPR IS BASED ON OVERESTIMATION OF FUTURE RENEWABLE CAPACITY

In the NOPR, EPA has overestimated the potential availability of renewable capacity. Because these resources will not be available to the extent that EPA has projected, States likely will have to implement other measures to achieve their emissions reduction targets, at greater cost and greater impact on electricity reliability.[22]

EPA's projections with respect to renewable capacity are especially suspect as they are based on a series of abstract assumptions. In essence, EPA applies a regional approach which averages existing State RPS targets in a given region and then applies that average target to each

[20] SPP Comments at 9.

[21] Energy Ventures Analysis, "Energy Market Impacts of Recent Federal Regulations on the Electric Power Sector" (Nov. 2014) at 5.

[22] For a more detailed discussion of these points, see Industry Coalition Comments at Sec. VII.E.4.

State in that region, based on the assumption that renewable energy opportunities are uniform within a region. There are numerous flaws with the approach.

EPA's key assumption is that State RPS targets are an accurate reflection of the renewable energy potential for the State and, by extension, for each State in the region. EPA's assumption that a State's RPS target accurately reflect renewable energy potential within that State is misguided. State RPS targets may be aspirational and not necessarily supported by an analysis of renewable energy potential within the State. For instance, States sometimes incorporate safeguards that suspend or scale back the RPS programs if cost thresholds are exceeded the levels cannot be achieved. In other cases, States create incentives for certain types of renewable energy by offering additional credits for preferred energy sources, meaning that the credits produced for compliance with the RPS will exceed the actual level of generation. Some States also exclude certain classes of power generators, such as municipally-owned power plants or cooperatives, from the RPS obligations, meaning that the States' actual percentage of renewable energy generation on a State-wide level will be less than the amount required by the RPS target.

Similarly, EPA's reliance on State RPS targets fails to address the fact that many State RPS programs allow out-of-State renewable energy generation to satisfy the State's RPS goal. To the extent that a State permits such out-of-State compliance, its RPS standard may not be a good indicator of the State's assessment of renewable energy potential within the State. Further complicating matters is the fact that neighboring States with the potential to export renewable energy under RPS programs may elect to enact more modest RPS programs, or forego them entirely, because it is more profitable for its utilities to sell renewable energy credits to other States.

EPA's broad-based regional approach also fails to account for differences in renewable energy potential among States. The mere fact that two States are in relative geographic proximity does not mean that they have the same potential to produce renewable energy.

Finally, EPA fails to account for the significant cost and numerous implementation challenges that would result from nationwide implementation of a large volume of renewable capacity. These implications result primarily from the intermittent nature of many renewable energy sources, such as wind and solar, and the substantial new transmission infrastructure that would be needed to bring renewable generation from the resource location to population centers and industrial areas. Particularly for States with large generating capacities, EPA's projection that annual growth factors of renewable capacity in the double digits are achievable may prove difficult to sustain in practice.

IV. THE NOPR'S RELIANCE ON EFFICIENCY IMPROVEMENTS IS BURDENSOME AND INFEASIBLE

Given the aggressive nature of the NOPR's proposed emission reduction targets, many States will have no choice but to pursue demand-side energy efficiency improvements. Under those circumstances, States may be inclined to focus energy efficiency efforts on energy intensive industry sectors such as those represented by ELCON's members because, from a regulatory perspective, it may appear more efficient to focus on a limit number of large industrial sources. ELCON has documented that such efforts can be counterproductive. The higher rates that industrial consumers pay to their utility to comply with the State-mandated energy efficiency programs (or to subsidize utility investments in renewable resources) reduce the funds available to the customer for investing in higher value projects that may be more aligned with EPA's objectives. Thus, industrial consumers would be forced to "borrow" money from the host utility to fund the energy efficiency measures in a SIP at an effective cost of capital that exceeds the consumer's own cost of capital.[23]

In particular, in Building Block 4, EPA evaluated energy efficiency studies and energy efficiency programs adopted by States to determine the potential for energy efficiency programs to reduce energy demand and, thereby, reduce the need to operate fossil fuel-fired EGUs. Based on these sources, EPA projected that States could achieve an incremental energy efficiency savings of 1.5% of retail sales, with a yearly rate of improvement of 0.2% until a State reached the 1.5% target. ELCON is concerned that, in deriving these projections, EPA has over-relied on data derived from the recent recession and slow economic recovery period that followed. While the energy efficiency gains observed during this period are promising, it does not represent typical demand conditions associated with periods of more rapid economic growth. Further, EPA did not attempt to control for the extent to which States have already adopted energy efficiency programs and therefore have already achieved the most easily implemented, lowest-cost efficiency improvements.

V. THE NOPR'S AGGRESSIVE IMPLEMENTATION TIMELINE IS INFEASIBLE

The timing proposed by EPA for implementation of the NOPR is infeasible and exacerbates its reliability and cost implications.[24] The NOPR would adopt an aggressive compliance schedule that will require States and affected EGUs to complete the lions' share of the required emission reductions within a few short years after the rule is finalized and State implementation plans are submitted to EPA. While EPA includes a 10-year interim compliance

[23] Electricity Consumers Resource Council, "Financing Clean Energy Investments of Large Industrial Customers: What is the Role of Electric Utilities?" (2010).

[24] These points are discussed further in the Industry Coalition Comments at Sec. II.B.

period and does not impose a final emission reduction target until 2030, its so-called glide path only applies to emissions reductions associated with renewable energy and demand-side energy efficiency. In contrast, EPA projects that all emissions reductions associated with heat rate improvements at exiting coal-fired EGUs and all redispatch from coal-fired EGUs to NGCC turbines will be completed before the initial 2020 compliance deadline. 79 Fed. Reg. at 34905-06. Thus the NOPR does not call for a phased transition; rather, it would require nearly three quarters of the emissions reductions to occur in the next five years (*i.e.*, by January 1, 2020).[25]

Consequently, States and affected EGUs would have to take immediate action in planning for and implementation of the rule's mandated changes in view of the time lag required to modify generation and to plan, permit and construct related large scale infrastructure projects such as additional transmission, especially in States with significant coal-fired generating capacity. Recent experience with transmission projects shows that it is highly unlikely that a State could develop an implementation plan, obtain EPA approval, and plan for, design, site, permit and construct massive infrastructure projects in less than a decade. Thus, even if EPA completes the rulemaking on schedule, it seems apparent that States would not be prepared to implement significant portions of their plans until 2025, or halfway through the interim compliance period.

EPA did not even model transmission system impacts or consider transmission as a critical path for getting VERs deliverable to load. In this regard, SPP concluded: "Based on SPP's review of the proposed CPP, EPA has considered neither the cost nor the time required to plan and construct electric transmission facilities. … Compliance with the proposed CPP is

[25] Data taken from EPA, Clean Power Plan Proposed Rule Technical Support Documents, Data File: Goal Computation – Appendix 1 and 2 (XLS), *available at* http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule-technical-documents.

impossible due to the transmission expansion that will be required and the time it takes to complete the required transmission expansion."[26] ELCON concurs with SPP's findings and believes that they equally apply on a nationwide basis.

VI. THE NOPR SHOULD EXCLUDE INDUSTRIAL CHP UNITS AND RECOGNIZE THEIR POTENTIAL TO MITIGATE CO2 EMISSIONS

Industrial combined heat and power ("CHP") units should be excluded from the scope of the NOPR instead should be recognized as one of the forms of electricity generation that mitigates carbon dioxide emissions. CHP is the simultaneous generation of electricity and useful thermal energy. These efficient systems make use of heat that normally would be wasted and save the fuel that would otherwise be used to produce heat or steam in a separate unit. As a result, CHP units are capable of reaching overall efficiencies of 60-80 percent and therefore of generating electricity at significantly lower emission rates than conventional electricity generating units. CHP technologies offer improved environmental quality, reduced energy consumption, and improved grid reliability.

ELCON agrees with EPA's recognition of the environmental benefits of CHP units. For example, in the NOPR for modified and reconstructed sources, EPA noted that "CHP requires less fuel to produce a given energy output, and because less fuel is burned to produce each unit of energy output, CHP reduced air pollution and greenhouse gas emissions. CHP has lower emissions rates and can be more economic than separate electric and thermal generation." 79 Fed. Reg. at 34982. Likewise, Administrator McCarthy recently explained that "CHP technology offers a strategy to help meet the goals of the President's Climate Action Plan for a cleaner power sector while boosting the efficiency and competitiveness for many U.S.

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[26] SPP Comments at 8.

manufacturers."[27] These statements echo EPA's prior observations that by capturing and utilizing "heat that would otherwise be wasted from the production of electricity," CHP generation produces significantly fewer CO_2 emissions than conventional boilers.[28] In addition to increased efficiency, non-condensing generation CHP units consume little to no water in generating electricity and promote grid reliability through distributed generation.[29] EPA has predicted that an additional 50 gigawatts of power, nearly half of that supplied by nuclear generating capacity, could be deployed by CHP units by 2020, resulting in significant emissions and cost reductions.[30] The NOPR also acknowledges these emission reduction opportunities from non-affected CHP at EGUs and indicates that State plans that encourage that CHP would be approvable.[31]

Further support for the environmental benefits of CHP units is provided by President Obama's 2012 Executive Order, *Accelerating Investment in Industrial Energy Efficiency*, which directed executive agencies, including EPA, to "use existing Federal authorities, programs, and policies to support investment in industrial energy efficiency and CHP" because "these investments… can improve the competitiveness of the United States manufacturing, lower

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[27] EPA, Press Release, EPA Honors Manufacturers with ENERGY STAR Award / Eastman Chemical, Janssen R and D, and Merck use Combined Heat and Power systems to cut carbon pollution, save money, and combat climate change (Sept. 30, 2014).

[28] EPA, Combined Heat and Power Partnership, Environmental Benefits, *available at*, http://www.epa.gov/chp/basic/environmental.html

[29] *See* EPA, Combined Heat and Power: Frequently Asked Questions, *available at*, http://www.epa.gov/chp/documents/faq.pdf

[30] *Id.*

[31] *See* Proposed Rule, 79 Fed. Reg. at 34888 ("…large energy users might independently see additional energy efficiency opportunities or opportunities for self-generation using options such as combined heat and power…, and states can structure their plans to allow the CO_2 reductions achieved at affected EGUs through such actions to assist in reaching compliance."); *Id.* at 34899 ("States may choose measures that would ease pressures on system reliability. This is true for many demand-side management approaches, including programs to encourage… combined heat and power, which actually reduce demand for centrally generated power and thus relieve pressure on the grid.").

energy costs, free up future capital for business to invest, *reduce air pollution*, and create jobs."[32] In a joint 2012 report, Department of Energy ("DOE") and EPA found that 40 GW of new CHP, including industrial CHP, would reduce CO_2 emissions by 150 million metric tons annually.[33]

Given the environmental benefits of CHP units and the government's affirmative steps to promote increased industrial distributed generation, ELCON urges EPA to exclude industrial CHP units from the category of affected EGUs that are regulated under Section 111(d) and included in EPA's computation of State emissions reduction goals. Instead, it should permit industrial CHP units to participate voluntarily alongside other energy sources that can reduce net GHG emissions. Such an exclusion would further incentivize the adoption and maintenance of efficient, reliable, and low-emission distributed generation. An exclusion would reflect the fact that industrial CHP units are fundamentally different from the fossil fuel-fired EGUs that are the subject of this rulemaking because their primary purpose is not to provide electricity to the grid and because they typically are customized to suit the needs of each host facility.

One approach would be for EPA add a specific exclusion for industrial CHP units. For example, EPA could state in the final rule that CHP units will not be considered to be affected EGUs if 20% or more of their total gross or net energy output consists of useful thermal output on a 3-year rolling average basis. This is the same threshold for useful thermal output that has proposed to use for CHP units under its Section 111(b) proposals. *See, e.g.*, proposed 40 C.F.R. §§ 60.46(k) (definition of gross energy output); 60.4421 (same); 60.5580 (same). Alternatively, EPA could revise the applicability criteria for affected EGUs to exclude CHP units from the

[32] Accelerating Investment in Industrial Energy Efficiency, Exec. Order 13624 of Aug. 30, 2012, 77 Fed. Reg. 54779 (Sept. 5, 2012) (emphasis added), www.gpo.gov/fdsys/pkg/FR-2012-09-05/pdf/2012-22030.pdf.

[33] U.S. Dep't of Energy & U.S. Envtl. Prot. Agency, DOE/EE-0779, COMBINED HEAT AND POWER: A CLEAN ENERGY SOLUTION 22 (2012), https://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf.

industrial and manufacturing sectors in any of a number of ways. For example, EPA could add an exclusion for highly efficient (over 60% design system efficiency ("HHV")) CHP units as an additional applicability criterion in order to avoid creating a disincentive to add CHP to sources that already combust fossil fuels for industrial process use.[34]

Further, the NOPR "requests comment on whether industrial combined heat and power approaches warrant consideration as a potential way to avoid affected EGU emissions…"[35] In ELCON's view it is essential that EPA and the States fully and properly account for the carbon benefits of CHP. EPA should eliminate this uncertainty by clearly excluding industrial CHP from the rule, and by encouraging it's use. Thus, ELCON supports EPA's proposal in the modified and reconstructed EGU rulemaking to make a technical correction to apply a discount for avoided electricity losses through transmission. *See* proposed 40 C.F.R. § 60.46(g). However, based on data from the U.S. Energy Information Administration, the discount should be increased from 5% to 7%.[36] Further, ELCON urges EPA to fully count useful thermal output—as defined by EPA in its Section 111(b) proposals[37]—toward gross energy output. In the Section 111(b) proposals, EPA would only count 75% of useful thermal output toward gross

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[34] Under the NOPR, CHP units that are primarily providers of large quantities of industrial heat and generate electricity to sell to the grid merely as a means of efficiently using excess thermal power will be impacted by a compliance and regulatory burden which could provide an incentive to remove the electric generators and avoid emission standards under this rule. However, the removal of electric generators will not reduce the quantity of fossil fuel consumed to generate the industrial heat and will require additional generation from affected EGUs to make up for the lost electric generation. By exempting these highly efficient units, EPA can eliminate this counterproductive incentive without significant environmental impacts.

[35] 79 Fed. Reg. at 34924.

[36] U.S. Energy Information Administration, Frequently Asked Questions: How much electricity is lost in transmission and distribution in the United States? (reporting "about 7%") (http://www.eia.gov/tools/faqs/faq.cfm?id=105&t=3); *see also* U.S. Energy Information Administration, DOE/EIA-0348(01)/2, Jan 27, 2012, State Electricity Profiles 2012 (Table 10: "Supply and Disposition of Electricity, 2000 and 2004 through 2010 (Million Kilowatthours)") (http://205.254.135.7/electricity/state/pdf/sep2010.pdf; Table 10) (line losses calculated as ["estimated losses" divided by "total disposition" minus "direct use"]*100 or [261,990/ (4,170,143-134,554)]*100 = 6.49%)].

[37] *See* Proposed 40 C.F.R. §§ 60.46(k), 60.4421, 60.5580, Docket # EPA-HQ-OAR-2013-0603-0044.

energy output. 79 Fed. Reg. at 34973. To fully account for the environmental benefits of CHP and to reflect the Administrations' efforts to promote CHP, EPA must count 100% of the useful thermal output from CHP facilities. Such an approach also would be consistent with the past practice of EPA[38] and the States.[39]

CONCLUSION

For the reasons set forth above, the NOPR should immediately be withdrawn. Any future NOPR to address GHG emissions from EGUs should fully recognize and address the impacts on reliability of the electricity grid and the other feasibility, cost and timing issues that are summarized in these comments and addressed in greater detail in the Industry Coalition Comments and CHPA Comments.

Respectfully submitted,

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[38] *See* New Source Performance Standard ("NSPS") for Stationary Combustion Turbines (40 CFR Part 60, Subpart KKKK) (crediting 100% of thermal output).

[39] *See* U.S. EPA, CHP Partnership, Feb. 2013, "Accounting for CHP in Output-Based Regulations," at 7-9 (citing California's multi-pollutant regulations and Texas permit by rule and standard permitting program) (http://www.epa.gov/chp/documents/accounting.pdf).