December 2, 2014

Administrator Gina McCarthy
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
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Dear Administrator McCarthy:

We strongly support the EPA's goals in the Clean Power Plan draft regulation, and we are grateful for the agency's leadership in setting a critical policy for reducing emissions from the electricity generation sector. We also appreciate the fact that the Clean Power Plan's purpose is to create enforceable goals for states to reduce emissions, and a framework (the Best System of Emissions Reduction) for them to implement and comply with the targets. The framework must be flexible and adaptable, to account for technological advances and regional differences in energy resources and regulatory systems, but it must also encourage rational and effective policies.

Unfortunately, the treatment of nuclear energy in the draft rule is unsupported by meaningful analysis, and would make it possible for states to implement the rule in ways that are counterproductive to the Clean Power Plan's purpose of reducing emissions. We are, additionally, very concerned about industry proposals to expand provisions to encourage nuclear. We urge the EPA to conduct a thorough and fact-based analysis of nuclear, and to do the following:

1. Remove the preservation of existing nuclear reactors from the BSER.
2. Do not force Georgia, South Carolina, and Tennessee to finish building new reactors.
3. Conduct a thorough and accurate analysis of the environmental impacts of nuclear power, from radioactive waste and uranium mining to reactor accidents and water use.
4. Recognize and incorporate the much greater role renewable energy and efficiency can, will, and must play in reducing carbon emissions and replacing both fossil fuels and nuclear.

We recognize that the EPA has undertaken a monumental task in developing the Clean Power Plan - perhaps the most important single step in setting the U.S. on the path to reducing emissions enough to avert the worst of global warming and climate change. It is essential that we begin making substantial reductions in emissions immediately, and that the institutional inertia and narrow self-interest of utilities and major power companies do not stand in the way of deploying the most cost-effective and environmentally sustainable energy solutions. For that

very reason, it is important the regulation ensures states do not get off on the wrong foot and implement the rule in ways that are counterproductive. Unfortunately, the Clean Power Plan's treatment of nuclear incentivizes the preservation and expansion of a technology that is and has always been the most expensive, inflexible, and dangerous complement to fossil fuels.

The Clean Power Plan incorporates nuclear into the BSER in two ways:

- **Assumes five new reactors will be completed and brought online** in the states of Georgia, South Carolina, and Tennessee, and irrationally estimates the cost of doing so as $0. In fact, billions more remain to be spent on these reactors and there is a great deal of uncertainty about when, if ever, they will be completed, facing years of delays and billions in cost overruns. The cost assumption would force states to complete the reactors no matter the cost, rather than enabling them to choose better ways to meet their emissions goals. Even though renewables and efficiency could be deployed at lower cost than nuclear, the draft rule would make it look like they are much more expensive because of the zero-cost assumption about completing the reactors.
- **Encourages states to "preserve" reactors economically at-risk of being closed**, equivalent to 6% of each state's existing nuclear generation. While it is true that about 6% of the nation's operating reactors may close for economic reasons, this provision encourages every state to subsidize existing reactors, greatly underestimates the cost of doing so, and overestimates their role in reducing emissions. Uneconomical reactors have high and rising operating costs, and cannot compete with renewables and efficiency. If anything, EPA should simply recommend that low-carbon energy sources be replaced with other low-carbon resources, but singling out nuclear for "preservation" suggests it is better for states to lock themselves into obsolete and increasingly uneconomical nuclear.

The rule also says states may utilize two other ways of adding nuclear capacity as options for achieving the goals, even though they are not incorporated in the BSER:

- **New reactors other than those currently in construction.** EPA recognizes that new nuclear is too expensive to be included in the BSER, so it should not suggest states consider it as a way of meeting their emissions goals.
- **Power uprate modifications to increase the generation capacity of existing reactors.** Power uprates are capital-intensive and expensive, and several recent projects have been cancelled or suffered major cost overruns, in the case of Minnesota's Monticello reactor, at a total cost greater than most new reactors ($10 million/megawatt).[1]

Rather than suggesting states waste resources on nuclear generation too expensive and infeasible to be included in the BSER, EPA should include an analysis of these problems so that states can better evaluate their options and select lower-cost, more reliable means for reducing emissions, such as renewables and efficiency.

[1] Shaffer, David. "Xcel management blamed for cost overruns at Monticello nuclear plant." Minneapolis Star-Tribune. July 9, 2014. http://www.startribune.com/business/266353511.html

The Clean Power Plan also considers some non-air quality impacts of nuclear generation, as it is required to do under the Clean Air Act. However, the EPA's evaluation is both woefully incomplete and alarmingly inadequate. EPA dismisses concerns about radioactive waste and nuclear power's impact on water resources, simply characterizing them as equivalent to problems with fossil fuel generation. In fact, radioactive waste is an intractable problem that threatens the environment for potentially hundreds of thousands of years. In addition, nuclear reactors' use of water is more intensive than fossil fuel technologies, and a majority of existing reactors utilize the most water-intensive once-through cooling systems. Regardless, however, rather than only comparing them to fossil fuels, EPA should have compared these impacts to the full range of alternatives, including renewables and efficiency, which do not have such problems.

EPA leaves out a host of other environmental impacts unique to nuclear, including uranium mining and nuclear accidents. There are over 10,000 abandoned uranium mines throughout the U.S., which are subject to lax environmental standards, pose major groundwater and public health risks, present serious environmental justice concerns, and could entail billions in site cleanup and remediation costs. The failure to consider the impacts of a nuclear accident is a glaring oversight, in the wake of the Fukushima disaster. EPA must consider both the environmental and economic impact of nuclear accidents.

In general, the Clean Power Plan's consideration of nuclear appears to be based on a dangerous fallacy: that closed reactors must be replaced with fossil fuel generation, presumably because other low-/zero-carbon resources could not make up the difference. In fact, renewable energy growth has surpassed all other forms of new generation for going on three years, making up 48% of all new electricity generation brought online from 2011 to July 2014.[2] The growth rate of wind energy alone (up to 12,000 MW per year) would be sufficient to replace all of the "at-risk" nuclear capacity within two years, at lower cost than the market price of electricity,[3] let alone at the subsidized rate for nuclear the draft rule suggests.

Assuming that closed reactors will be replaced with fossil fuel generation both encourages states to waste resources trying to "preserve" (or even build) uneconomical reactors rather than on more cost-effective and productive investments in renewables and efficiency. While states are free to develop their implementation plans without using the specific energy sources included in the BSER, the rule should not promote such foolishness. No amount of spending or subsidies for

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[2] Sun Day Campaign. "Renewables Provide 56 Percent of New US Electrical Generating Capacity in First Half of 2014." July 21, 2014.
http://www.renewableenergyworld.com/rea/news/article/2014/07/renewables-provide-56-percent-of-new-us-electrical-generating-capacity-in-first-half-of-2014

[3] Lawrence Berkley National Laboratory. "2013 Wind Technologies Market Report." U.S. Department of Energy. August 18, 2014.
http://energy.gov/sites/prod/files/2014/08/f18/2013%20Wind%20Technologies%20Market%20Report_1.pdf

nuclear has been effective at reducing the technology's costs nor overcoming lengthy construction times and delays, whereas spending on renewables and efficiency has had the effect of lowering their costs and increasing their rate of deployment. The economic problems facing currently operating reactors merely underscore the point that nuclear is not a cost-effective way of reducing emissions.

We are hopeful that the Clean Power Plan will be a watershed in setting the country on a path to emissions reductions and climate action, and we are grateful to the EPA for taking this step. We believe that correcting the problems with the way nuclear is considered in the draft rule, and increasing the role of renewables and efficiency, will make the Clean Power Plan much stronger and lead states to implement it more productively and cost-effectively.

Sincerely,

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