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TALKING POINTS: Role of Nuclear Power in the Clean Power Plan

EPA has removed incentives for nuclear power from the Clean Power Plan, responding to the public's demand for a nuclear-free climate action policy and saving the rule from the possibility of being undermined by efforts to turn it into a feeding trough of subsidies for nuclear power.

The rule cites the removal of nuclear power from the CPP's emissions reduction strategy as one of the principal changes made in the final rule.

This is a major step forward in recognizing that nuclear power is not a true climate solution, and that renewable, carbon-free energy sources are truly our best, fastest, most cost-effective way to reduce carbon emissions and solve the climate crisis.

The EPA should be commended for truly listening to the public and looking at what is happening in the real world. The agency has stood up to a powerful and incessant nuclear industry lobbying campaign, and recognized that renewable energy can replace fossil fuels and nuclear power.

New Nuclear Reactors

Reactors under construction
"By removing the five reactors currently under construction from three states' emissions targets, EPA has done those states a favor. While NIRS supports establishing the most aggressive emissions standards possible, EPA's decision recognizes that these projects stand a high probability of failure, already years behind schedule and billions of dollars over cost, despite being little more than half-way completed. Removing them from the Clean Power Plan gives these states the option of canceling these projects and leaves the door open to pursue true, clean energy options for reducing carbon emissions: energy efficiency, wind energy, and solar power."

New reactors
"EPA recognizes that further construction of new nuclear reactors is not a viable option for reducing greenhouse gases. As we are seeing with the handful of reactors currently being built, they are the highest cost, least reliable way to actually reduce emissions. The process of planning and building new reactors is at least a decade long, and quite possibly longer, and the probability of such projects to fail before being completed is too great."

"We need to start making significant reductions in carbon emissions as soon as possible, and we have plenty of zero-carbon options to do that: energy efficiency and wind are already the lowest-cost energy options available, and solar is already affordable and will soon join them. And those technologies can start reducing emissions immediately, rather than waiting over a decade before ever possibly having an impact."

Reactor power uprates
"EPA has recognized that increasing the power output of existing reactors is not a significant way to reduce carbon emissions. States can get some credit for reactors that undergo these pricey and possibly dangerous retrofits, but only in the amount that the power output of the reactor actually increases. In reality, most of the reactors that could be modified to significantly increase power have already done so."

"In addition, these uprates may actually cause reactors to become uneconomical and close earlier than they otherwise would, as over half of the reactors considered uncompetitive and economically "at-risk" were uprated a decade or more ago. They are extremely costly and extensive retrofits, nearly as expensive as building new nuclear plants in some cases. They can also cause reactor components to wear out more quickly, increase maintenance costs, reduce safety margins, and increase the likelihood of nuclear accidents."

Existing Nuclear Reactors

At-risk reactors
"EPA removed any and all incentives for states to "preserve" uneconomical nuclear reactors. In doing so, the agency defended US climate policy from being used as a grab basket of subsidies to prop up aging, increasingly dangerous power plants without reducing emissions one iota, as well as the creation of mountains of radioactive waste. Most notably, the

Relicensing
"EPA rejected the nuclear industry's Orwellian argument that reactors that receive permit extensions ("relicensing") should be treated as brand new power plants, and get full credit for reducing emissions. That would inexplicably reward nuclear power companies for doing what they have already been doing anyway, and for something that ought to give nuclear plants a competitive advantage. The agency stuck to its guns and recognized that keeping reactors operating might make business sense for their owners, but it doesn't reduce emissions and it shouldn't preclude lower-cost alternatives, such as renewables and energy efficiency."

Replacement
"EPA affirmed that renewable energy sources are the best way to reduce CO2 emissions, and, by implication, that wind and solar can replace nuclear power, since they can replace fossil fuels. The agency's decision deals a fatal blow to the nuclear industry's deceptive PR campaign, which portrays renewable energy as too expensive and unreliable. This is a welcome and commendable conclusion that protects the integrity of climate policy."

Citations from the Regulation

p. 284-5 – Removal of nuclear from BSER among principal changes in final rule
The final BSER incorporates certain changes from the proposed rule, reflecting the EPA's consideration of comments responding to the approaches outlined in the proposal and our own further analysis. The principal changes are the exclusion from the BSER of emission reductions achievable through demandside EE and through nuclear generation; a revised approach to

New Nuclear

p. 344 – Reactors under construction are not part of BSER
However, there are also important differences between these types of low or zero-CO2 generation. Investments in new nuclear capacity are very large capital-intensive investments that require substantial lead times. By comparison, investments in new RE generating capacity are individually smaller and require shorter lead times. Also, important recent trends evidenced in RE development, such as rapidly growing investment and rapidly decreasing costs, are not as clearly evidenced in nuclear generation. We view these factors as distinguishing the under construction nuclear units from RE generating capacity, indicating that the new nuclear capacity is likely of higher cost and therefore less appropriate for inclusion in the BSER.

p. 387-8 – Completion of reactors under construction would count toward compliance
Excluding the under-construction nuclear units from the BSER, but allowing emission reductions attributable to generation from the units to be used for compliance as discussed below and in section VIII, will recognize the CO2 emission reduction benefits achievable through the significant ongoing commitment required to complete these major investments.

p. 376 – New nuclear/uprates as compliance measure
g. Measures that reduce CO2 emissions or CO2 emission rates but are not included in the BSER. There are numerous other measures that are available to at least some affected EGUs to help assure that they can achieve their emission limits, even though the EPA is not identifying these measures as part of the BSER. These measures include demand-side EE implementable by affected EGUs; new or uprated nuclear generation; renewable measures other than those that are part of building block 3, including distributed generation solar power and off-shore wind; combined heat and

power and waste heat power; and transmission and distribution improvements.

Existing Nuclear

p. 345 – Existing nuclear does not lower emissions; Preservation of "at-risk" nuclear not part of BSER

The EPA is likewise not finalizing the proposal to include a component representing preserved existing nuclear generation in the BSER. On further consideration, we believe it is inappropriate to base the BSER on elements that will not reduce CO2 emissions from affected EGUs below current levels. Existing nuclear generation helps make existing CO2 emissions lower than they would otherwise be, but will not further lower CO2 emissions below current levels. Accordingly, as described in section V.A.3., the EPA is not finalizing preservation of generation from existing nuclear capacity as a component of the BSER.

p.388 – No need to preserve existing nuclear, can be replaced with RE/EE

With respect to existing nuclear units, although again we believe that other refinements in the final rule would address the concern about disparate impacts on particular states, we acknowledge that we lack information on shutdown risk that would enable us to improve the estimated 5.8 percent factor for nuclear capacity at risk of retirement. Further, based in part on comments received on another aspect of the proposal –- specifically, the proposed inclusion of existing RE generation in the goal-setting computations –- we believe that it is inappropriate to base the BSER in part on the premise that the preservation of existing low- or zero-carbon generation, as opposed to the production of incremental, low- or zero-carbon generation, could reduce CO2 emissions from current levels. Accordingly, we have determined not to reflect either of the nuclear elements in the final BSER.

Nuclear in Emissions Trading

p.388-9 – Existing nuclear not an emissions offset

Generation from under-construction or other new nuclear units and capacity uprates at existing nuclear units would still be able to help sources meet emission rate-based standards of performance through the creation and use of credits, as noted in section V.A.6.b. and section VIII.K.1.a.(8), and would help sources meet mass-based standards of performance through reduced

utilization of fossil generating capacity leading to reduced CO2 emissions at affected EGUs. However, consistent with the reasons just discussed for not reflecting preservation of existing nuclear capacity in the BSER –- namely, that such preservation does not actually reduce existing levels of emissions from affected EGUs –- the rule does not allow preservation of generation from existing or relicensed nuclear capacity to serve as the basis for creation of credits that individual affected EGUs could use for compliance, as further discussed in section VIII.K.1.a.(8).

p.490 – New nuclear/uprates as an emissions credit/offset
(2) New or uprated nuclear generating capacity.
In the June 2014 proposal, the EPA included generation from the five nuclear units currently under construction as part of the proposed BSER. As discussed above in section V.A.3.c., upon consideration of comments, we have determined that generation from these units should not be part of the BSER. However, we continue to observe that the zero-emitting generation from these units would be expected to replace generation from affected EGUs and thereby reduce CO2 emissions, and the continued commitment of the owner/operators to completion of the units is essential in order to realize that result. Accordingly, a section 111(d) plan may rely on ERCs [emissions reduction credits] issued on the basis of generation from these units and other new nuclear units. For the same reason, a plan may rely on ERCs issued on the basis of generation from uprates to the capacity of existing nuclear units. Requirements for state plan provisions intended to serve this purpose are discussed in section VIII.K.

Renewable Energy and Reliability

p. 745-6 -- Powerful statement on reliability impacts: RE can replace baseload
Independent power producers (IPPs) also can and do own both RE and fossil generation. For example, NRG is a diversified IPP that operates substantial coal, natural gas, wind, solar, and nuclear capacity. NRG demonstrates the ability of IPPs to reduce utilization of fossil fuel-fired EGUs and replace that generation with RE. NRG announced a goal to cut CO2 emissions from its fleet by 50 percent by 2030 (from a 2014 baseline).714 NRG has already reduced CO2 emissions from its fleet by 40 percent since 2005. This achievement demonstrates that when an IPP commits to shifting its generation portfolio, it can do so at reasonable cost and without reliability impacts. The NRG example shows that reduced utilization of fossil fuel-fired EGUs

that is replaced by RE also owned by the EGU owner is adequately demonstrated.

p. 1125 – Nuclear scenario for the reliability exemption
Examples of such an event could include, a catastrophic event that damages critical or vulnerable equipment necessary for reliable grid operation; a major storm that floods and causes severe damage to a large NGCC plant so that it must shut down; or a nuclear unit that must cease generating unexpectedly and therefore other affected EGUs need to run so as to exceed their requirements under the approved state plan.

New reactors/uprates in state compliance

p. 1219 – Banking of credits for future years
As discussed in section VIII.C.2.a, a MWh of generation or savings that occurs in 2022 or a subsequent year may be carried forward (or "banked") and applied in a future year. For example, a MWh of RE generation that occurs in 2022 may be applied to adjust a CO2 emission rate in 2023 or future years, without limitation.943 These MWh may be banked from the interim to final periods.

p. 1232 – Power uprates: Compliance calculation
Quantification and accounting criteria for incremental RE (and nuclear generation) are as follows. The incremental generating capacity (in nameplate MW) is divided by the total uprated generating capacity (in nameplate MW) and then multiplied by generation output (in MWh) from the uprated generator. For example, if a hydroelectric power plant expands generating nameplate capacity from 100 MW to 125 MW and generation output

p. 1247-8 – Application of nuclear to emissions rates
The EPA has determined that generation from new nuclear units and capacity uprates at existing nuclear units will be eligible for use in adjusting a CO2 emission rate, just like new and uprated capacity RE. However, consistent with the reasons discussed for not including the preservation of existing nuclear capacity in the BSER – namely, that such preservation does not actually reduce existing levels of CO2 emissions from affected EGUs – preserving generation from existing nuclear capacity is not eligible for use in adjusting a CO2 emission rate.

In contrast, any incremental zero-emitting generation from new nuclear capacity would be expected to replace generation from affected EGUs and, thereby, reduce CO2 emissions; and the

continued commitment of the owner/operators to completion of the new units and improving the efficiency of existing units through uprates can play a key role in state plans. Therefore, consistent with treatment of other low- and zero-emitting generation, new nuclear power generating capacity installed after 2012 and incremental generation resulting from nuclear uprates after 2012 are measures eligible for adjusting a CO2 emission rate. However, existing nuclear units (i.e., those that originally commenced operation in 2012 or earlier years) that receive operating license extensions are not eligible for use in adjusting a CO2 emission rate, except where such units receive a capacity uprate as a result of the relicensing process. Only the incremental capacity from the uprate is eligible for use to adjust a CO2 emission rate.

Applicable generation (in MWh) from incremental nuclear power is determined in the same manner as that described for incremental RE above.