To: Jackson, Ryan[jackson.ryan@epa.gov]
From: George D. Baker
Sent: Tue 9/12/2017 3:16:25 PM
New Source Performance Standard.docx

Ryan: Per your request, attached is a straightforward one-pager on the issue surrounding Section 111(b) and its impact on simple cycle natural gas combustion generators that Sean Trauschke will brief you on today at 4:45 pm. Any questions, please just let me know. Great thanks!

George Baker

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New Source Performance Standard (NSPS) under "111(b)" and "quick start" combustion turbines

EPA finalized the NSPS for CO2 emissions from power plants on October 23, 2015. That rule establishes unit-specific standards of performance for CO2 from new power plants for two subcategories of plants:

o fossil fuel-fired electric utility steam generating units (chiefly utility boilers) and

o Stationary combustion turbines.

With regard to new coal units, the rule imposes emissions limits by unit which can only be achieved by carbon capture and sequestration technology which is currently commercially undemonstrated and generally cost-prohibitive. With regard to new gas units, the rule distinguishes between two types of gas-fired turbines generally in use by the industry. They are different technologies and have different purposes:

o Combined Cycle Gas Turbines (CCGT) which are built for "baseload" power and as such have longer start up times (achieves full load in ~ 12 hours) but designed to run for long periods at a time.

o Simple Cycle Combustion Turbines (CTs) are like jet engines which are built as bridging, quick start units (achieves full load in 10 mins). They are intended to be used to fill gaps in a system's generation output and to provide grid stability until larger "baseload units" like coal, nuclear, CCGT units come online with full output. These simple cycle CT units do not run for long periods of time when deployed into service.

The NSPS rule combines all of these gas turbines together and then divides them into "baseload" (CCGT) and "non-baseload" for regulatory treatment:

- Effectively, a simple cycle CT is treated as a CCGT if it runs more than an artificially determined 35% of the year which in that case deems a "baseload" unit even though it is not designed as such and is a wholly different technology.

- Should a CT operate in excess of 35% of the year, by rule it must comply with the CCGT emissions limit which is technologically unachievable and for which there is no emissions control technology.

Quick start CT units provide grid stability during short term market changes including abrupt and often unforeseeable wind output changes, storm response, baseload unit outages or transmission line trips. DOE's recent Grid Stability Report identifies these challenges as a significant concern, made worse by the rapid growth and magnitude of variable/intermittent renewable output. Quick-start turbine technology is widely recognized, including by regional transmission organizations such as the Southwest Power Pool, as an important solution to the problem of renewable intermittency.

Petitions for Reconsideration on this rule were denied on May 6, 2016. Litigation has been filed and currently is in abeyance at EPA's request following the March 2017 Presidential Executive Order but the rule itself was not stayed.