**UNITED STATES**

**Environmental Protection Agency**

**Docket ID No. EPA-HQ-OAR-2013-0495-0001**

**COMMENTS**

**SUBMITTED ON BEHALF OF**

**THE PUBLIC UTILITIES COMMISSION OF OHIO**

**April 9, 2014**

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# INTRODUCTION

The Public Utilities Commission of Ohio (PUCO) appreciates the opportunity pro­vided by the United States Environmental Protection Agency (EPA) to comment on the proposed rule. The mission of the PUCO is to assure our citizens adequate, safe, and reliable public utility services at a fair price in a competitive market. As a restructured retail electric competition state, Ohio no longer regulates integrated resource planning, such that in large measure, genera­tion investments are made based upon the independent judgments of market participants. As a result, the PUCO is keenly interested in the abil­ity of market participants to make invest­ment decisions unencumbered by regulatory uncertainty. Additionally, the PUCO is con­cerned about the effects on electricity prices caused by the proposed rule’s classification of the new source category and the treatment of new and existing generation resources. Because this proposed rule may unduly affect regulatory certainty with regard to the clas­sification of new and existing resources and therefore the long-term adequacy, safety, reliabil­ity, and cost of generating electricity in Ohio, the PUCO offers these comments.

## A. Section 111 of the Clear Air Act New Source Performance Standards

Section 111 of the Clean Air Act (CAA) establishes mechanisms for controlling emissions of air pollutants from stationary sources.[[1]](#footnote-1) Under Section 111(b), the Adminis­trator of the EPA is required to issue New Source Performance Standards (NSPS), which apply to new stationary sources of emissions. In the April 2012 proposal, pursuant to Section 111 of the CAA, the Administrator proposed a NSPS to reduce Greenhouse Gas (GHG) emissions by limit­ing the CO2/MWh (1,000 lb. CO2/MWh) emitted by fossil fuel-fired elec­tric generating units (EGUs). The proposal included combining electric utility steam gener­ating units fueled by coal and by natural gas into a new source category for the pur­pose of setting performance standards for new fossil fuel-fired EGUs. The pro­posal also included the establishment of an alternative 30-year averaging compliance option for complying with the NSPS. This compliance option within the proposal would allow a new EGU to operate with emissions levels that do not immediately meet the NSPS so long as the average emissions level for the 30-year period is equal to the NSPS of 1,000 lb. CO2/MWh.

## B. Changes to Proposed Rulemaking

The EPA issued a revision to the proposed rule making in January 2014. The differ­ences between the April 2012 Rulemaking (EPA-HQ-OAE-2011-0660) and January 2014 Rulemaking (EPA-HQ-OAR-2013-0495-0001) are delineated below.

First, the April 2012 proposal set one standard and one Best System of Emission Reduction (BSER) for all fossil-fuel fired units. This January 2014 rule proposes three different emissions standards and two separate BSERs based on the category of gener­ator. The EPA states it made this change because in the first rule proposal, the EPA pri­marily relied on models that projected there would be no new coal-fired generation con­struction through the year 2030 without carbon capture and sequestration (CCS). How­ever, comments and new information indicated new coal-fired generating capacity could be constructed within the rule’s planning timeframe. In response to this information, and to allow for resource diversity, the EPA created separate standards for coal versus natural gas-fired EGUs.

The three different emission limits are: (1) a limit of 1,000 lb. CO2/MWh for large natural gas combined cycle turbines (NGCCs); (2) a limit of 1,100 lb. CO2/MWh for small NGCCs; and (3) a limit of 1,100 lb. CO2/MWh for coal-fired utility boilers and integrated gasification combined cycle (IGCC) units. The two BSER standards are: (1) partial integration of CCS for fossil fuel-fired electric steam generating units and IGCC units and (2) natural gas combined cycle technology (no CCS will be required at this time) for natural gas-fired stationary combustion turbines.

Second, instead of an alternative 30-year averaging compliance option for new solid fuel-fired EGUs, the EPA proposed an alternative 7-year (84-operating month) averaging option for coal-fired boilers and IGCCs. The EPA has proposed the 84-oper­ating month average be between 1,000 lb. CO2/MWh and 1,050 lb. CO2/MWh and is requesting comment on the appropriate standard that would make the 84-month option as stringent, or more stringent than the 12-month standard.

Third, the applicability requirements proposed today differ from the applicability requirements in the original proposal. Formerly, the rule applied to an EGU that could potentially supply more than one-third of its potential electric output, but did not neces­sarily do so. Under the new proposed rule, an EGU must be intended to and actually generate more than one-third of its potential electric output on a three year rolling aver­age for the rule to apply. This proposed rule makes clear that a unit that was not orig­inally constructed to supply more than one third of its potential electric output to the grid, but does so for one year, does not become affected. Also, the rule now applies to an EGU that is constructed to supply “more than 219,000 MWh,” as opposed to “25 MW,” net-electrical output to the grid. Finally, additional language is proposed for the defini­tion of a steam generating unit, IGCC, and stationary combustion turbine so that the rule will also apply to “any integrated equipment that provides electricity or useful thermal output to either the affected facility or auxiliary equipment.”

Fourth, the proposed rule will now apply to some previously excluded “transi­tional sources.” In the April 2012 proposal, fifteen projects were distinguished from other EGU projects as “potential transitional sources” to which the proposed rule did not apply. This proposal does not continue that distinction, except for possibly three projects in Michigan, Georgia and Kansas (Wolverine, Washington County, and Holcomb). Under the January 2014 proposed rule, any former “potential transitional source” that commences construction after publication of this proposal will be subject to the final CO2 standards established in this rulemaking and any source that commenced construc­tion prior to publication of this proposal will be subject to the CO2 standards under CAA section 111(d).

## C. Regional Perspective

Although the EPA’s rules acknowledge that a different set of standards are required when analyzing generators based on fuel type, the rules seem to assume that all states will be able to accommodate these new standards regardless of current market con­ditions or generation portfolios. With this in mind, the PUCO urges the EPA to analyze the potential impacts of its proposed standards on individual regional transmission organizations (RTOs) especially as they may impact states with various fuel generation portfolios and market structures.

Ohio is part of the PJM Interconnection system, which is responsible for coordinat­ing the operations of the electrical power system from Illinois to New Jersey. Although all members are a part of “one pool,” PJM is composed of both vertically-inte­grated as well as restructured markets. One key difference between the market-based regulatory construct (which includes Ohio) and a vertically-integrated regulatory con­struct is the funding of new EGUs. In a vertically-integrated system, regulatory entities can require the development of new generation resources, regardless of current or future economic viability, with costs financed by rate-payers. On the other hand, in the market-based system, the market incentivizes new generation by sending price signals to market participants that new generation is needed.

Due to the Clean Air Interstate Rule (CAIR), Mercury and Air Toxic Standards (MATS), Boiler MACT, and other rules that the U.S. EPA has proposed and imple­mented over the past few years; low natural gas prices; and economic conditions that have reduced demand, Ohio generation owners have made the business decision to retire nearly 5 GW of coal-fired generation between now and 2015. More generating units are expected to be slated for retirement beyond that time period. In fact, the entire PJM region is experiencing the same accelerated trend in coal generation retirements, with over 17 GW retired to date in the region. While some of this initial price impact can be mitigated in traditional, vertically-integrated states, restructured states like Ohio will require market participants to construct new generation resources with little lead time, most likely relying heavily on NGCCs. As will be elaborated upon later in these com­ments, this over-reliance on natural gas for electricity generation leaves Ohio and the PJM region as a whole susceptible to volatile price spikes and impaired reliability.

Rather than rely on a “one size fits all” approach, the PUCO urges the EPA to allow greater flexibility for regions to evaluate their options in complying with future rules and avoid the continued “dash to gas” that this rule appears to mandate.

The concerns that the PUCO has with the latest proposed rule are detailed in the comments below.

# COMMENTS

## A. The PUCO has serious concerns about protecting Ohio consum­ers from high electric prices and from unexpected outages based on EPA’s Proposed 111(b) Rule.

With the PJM region still reeling from the price and reliability impacts of last year’s summer crises and the more recent polar vortex weather events, the PUCO urges the EPA to analyze the potential impacts of the proposed rule on an already capacity-con­strained marketplace, as described below. As demonstrated by these events in both the summer and winter periods in PJM, we are fearful that these crises represent a “new nor­mal.” The PJM region, as well as other regions, is experiencing base load coal retire­ments. In fact, between 2009 and 2013, the PJM region saw an unprecedented level of coal generation retirements with nearly 10,200 MW taken offline. Looking ahead, the PJM region is bracing for an additional 8,252 MW of coal generation scheduled to retire by 2015, much of which was called upon in these recent events to meet the needs of the system. [[2]](#footnote-2) These retirements are coming at a time when new electricity peak demand highs are being set and natural gas demands, both peaks and averages, are far exceeding averages and expectations over the last five years. Already, outages are occurring,[[3]](#footnote-3) and electricity and gas prices are repeatedly reaching all time records.[[4]](#footnote-4)

In Ohio, along with other restructured markets, regulatory bodies rely on the mar­ket to send adequate price signals to investors to build new generation resources. Although PJM, as the RTO, is responsible to ensure adequate reliability, an overreach by the EPA under this rule could result in many of the less efficient, but reliable, coal units being prematurely priced out of the market. The PUCO holds that instead of coal units slowly and systematically giving way to more efficient generation, this rule aggravates an already stressed capacity market without allowing adequate new firm base load genera­tion capacity to be built to offset the retiring plants.

Without adequate new or existing coal generation, the Ohio market is certain to become increasingly reliant on natural gas generation to ensure capacity. However, as demonstrated in the aforementioned weather events, some of our region’s existing natural gas generation is not able to secure the firm natural gas transmission required to handle generating in peak times. These constraints are due to both limited natural gas transmis­sion infrastructure as well as the extraordinary costs associated with ensuring firm capac­ity for peak demand. As more gas is required to maintain grid reliability, these events could potentially become increasingly frequent and leave the region susceptible to vola­tile price swings. With ensuring overall system reliability as an agency goal, the PUCO is concerned that the rule has the potential to undermine two critical components that are vital to overall system reliability: diverse resource generation and price stability.

It is the policy of the state of Ohio and PUCO’s responsibility to ensure the reliabil­ity of electricity resources.[[5]](#footnote-5) With that mission in mind, Ohio fully supports the development and use of domestic fuel supplies of all sources, including natural gas. On the federal level, the PUCO has been supportive of the “all-of-the-above” energy strategy that holds the promise of ensuring improved long-term energy security, affordability, and reliability. However, the proposed rule may cre­ate an unnecessary challenge to electric resource diversity given the fact that coal-fired generation can not truly be considered a viable generation option in the future. The proposed rule relies heavily on the develop­ment of natural gas, reasoning that “in light of a number of eco­nomic factors, including the increased availability and significantly lower price of natural gas, energy industry modeling forecasts uniformly predict that few, if any, new coal-fired plants will be built in the foreseeable future.”[[6]](#footnote-6) Indeed, the EPA’s rules will make a perceived zero coal future a self-fulfilling prophecy.

Before enacting rules which may arbitrarily precipitate this shift away from coal, the EPA should carefully consider the long-term implications of this move on customers’ electricity rates. The proposed rule is founded on the EPA’s prediction that NGCC units are “likely to be the predominant fossil fuel-fired technology for new generation in the future.”[[7]](#footnote-7) Current market forces seem to support the EPA’s projection that construction of new coal-fired EGUs is unlikely; natural gas prices are lower than ten years ago,[[8]](#footnote-8) coal prices are slowly increasing,[[9]](#footnote-9) and there is slow growth in the demand for electricity.[[10]](#footnote-10) However, the market is ever changing and natural gas prices have historically been vola­tile.[[11]](#footnote-11) This volatility was particularly apparent in 2008, when the Henry Hub Natural Gas Spot Price surpassed the $10 and even the $13 mark.[[12]](#footnote-12) More recently, while the 2013 Henry Hub Natural Gas Spot Price average remained relatively low, in the $4 range, during this winter season natural gas prices spiked to around $8.[[13]](#footnote-13) With the recent wave of coal-fired generation retirements across the PJM region, natural gas fired units are increasingly on the margin, *i.e*. generators that submit the highest accepted offer and thus set the spot market electricity price at a given time, leading to increased electric price volatility.

Accounting for 21% of PJM’s load, Ohio Locational Marginal Pricing (LMP) sky­rocketed this January due to a combination of PJM’s greater reliance on natural gas for electric generation and price volatility in natural gas spot markets.[[14]](#footnote-14) Within the RTO, prices can range from roughly $35/ MWh to over $1,800.[[15]](#footnote-15) With this in mind, the PUCO urges the EPA to use caution when proposing rules based upon a forecast focused only upon the speculative long-term outlook for natural gas. The EIA’s 2007 Annual Report stated in part:

Energy market projections are subject to much uncertainty. Many of the events that shape energy markets are random and cannot be anticipated, including severe weather, political dis­ruptions, strikes, and technological breakthroughs. In addi­tion, future developments in technologies, demographics, and resources cannot be foreseen with certainty.[[16]](#footnote-16)

Market forces may continue to make natural gas units more cost-effective than the construction of new coal-fired or pet coke-fired units. However, the CAA grants the Administrator discretion to distinguish among classes, types, and sizes within catego­ries of new sources for the purpose of establishing NSPS.[[17]](#footnote-17)

With these concerns in mind and in order to preserve grid reliability, the PUCO urges the Administrator to use its discretion to develop an emission limitation achievable through the application of the BSER. This approach should take into account the cost of achieving such reduction with the health, environmental, and energy market impacts of maintaining coal-fired EGUs. The PUCO is concerned that the proposed rule would effectively limit coal-fired or pet coke-fired generation from being constructed, even in instances where it may be necessary to increase reliability by hedging against market vol­atility. The Administrator should use its discretion to conduct either a true cost-benefit analysis using non-pilot scale examples of CCS on coal-fired boilers or a system-wide cost-benefit analysis to determine at what level the coal-fired generation emissions limit should be set. In order to ensure that the analysis only incorporates applicable projects, the economic baseline of the analysis should not be calculated based upon generators that were shut down due to high costs. The PUCO believes that by developing an emissions limitation based on BSER, PJM will be able to maintain reliability, limit costs, and ensure resource diversity, while at the same time achieving the necessary reductions in CO2 emissions.

## B. The PUCO is concerned about the proposed rule’s reli­ance upon and specification of CCS techn­ology and requests the EPA con­sider other viable alternatives reflective of current technology.

The proposed rule dictates that CCS technology must be implemented by a coal-fired generating unit. Since CCS is the only system of emissions reduction that a coal-fired or pet coke-fired generating unit can apply to meet the proposed standard, the only conclusion to draw is that the Administrator has determined that CCS has been ade­quately demonstrated. The PUCO is greatly concerned that CCS technology has not been adequately demonstrated as a presently viable commercial solution. When determining that a technology has been adequately demonstrated, the Administra­tor must take into account the costs of the technology.[[18]](#footnote-18) CCS technology has not yet demonstrated that it can reduce emissions in an economically feasible manner.[[19]](#footnote-19) The Administrator acknowl­edges that the addition of CCS would substantially increase the cost of a new coal-fired power plant, but asserts that companies interested in building new coal-fired power plants may have access to government pro­grams for assistance and forecasts that the costs of CCS will decline in the future as CCS matures and is utilized more widely.[[20]](#footnote-20) The PUCO is con­cerned that in a period of budget uncertainty, the level of funding available in the future may be less than the EPA asserts and that the costs of CCS may decline less than forecasted. Further, in a restructured market, the impact on market-based investment decisions is even more dramatically impacted by reliance on government funding availa­bility as merchant generators do not have customers from whom they can recover costs like traditional, vertically-integrated utilities. This distinction is critical and should be an important consideration in this rulemaking. This is all the more reason to allow for state and regional consideration and flexibility.

When CO2 capture and storage is compared to other technical options for reducing CO2 emissions, 10-40% more energy is needed for producing the same amount of elec­tricity; therefore, it is expected that CCS would raise the cost of producing electricity by about 20 to 50%.[[21]](#footnote-21) The few projects that have demonstrated carbon capture results have been small pilot projects where the company conducting the pilot was not expected to recover the costs of the project through the energy market. [[22]](#footnote-22) The cost of installing CCS tech­nology at present is too high for it to be considered a viable economic means of com­plying with the standard.[[23]](#footnote-23)

Furthermore, the PUCO is concerned that the proposed rule actually requires the installation or operation of CCS as a particular technological system of emission reduc­tion, which seems to contradict the plain meaning of the CAA.[[24]](#footnote-24) In the pro­posed rule, the EPA acknowledges that any new coal-fired or pet coke-fired EGUs will have to use CCS technology to meet the standard in the proposed rule.[[25]](#footnote-25) And yet, the CAA prohib­its the specification of a particular technology to meet performance standards.[[26]](#footnote-26) Setting a stand­ard of performance that can only be met using a particular tech­nological system is to require the installation and opera­tion of that particular technologi­cal system. The pro­posed rule requires that any new or modified coal-fired or pet coke-fired source install and operate CCS technology to comply with the NSPS.

In addition to the economics directly related to the energy production, there are a host of other unresolved issues around CCS that add to the uncertainty of the feasibility of the technology. For instance, there is the necessary transport and associated cost and safety concerns. There is a potential additional cost of storage, if enhanced oil recovery is not an option. Another concern is leakage of stored CO2 and whether that will com­promise CCS as a GHG emission mitigation option. Furthermore, the rule does not ade­quately consider geographical and geologic variables as to the viability of CCS. For instance, CCS may not be an option in certain areas due to proximity to fault lines or other natural formation. Finally, it is important that the EPA recognize many legal issues surrounding CCS remain unresolved, such as mineral rights, pore space ownership and liability obligations.

It should be noted that even with the absence of successful deployment of commer­cial CCS technology, the U.S. Electricity Sector CO2 emissions have decreased nearly 11% since 2005. In fact, Ohio has accomplished over a 22% reduction, with no CCS technology deployment.

The proposed rule should provide an economically feasible compli­ance option for units using a fuel other than natural gas. An “all of the above” energy strategy *must* be economical. Making coal uneconomic by requiring CCS and expecting rate-payer or shareholder cost recovery makes it impossible to ensure base load reliability. The PUCO is concerned that without adequate funding and/or demonstrated economic viability, CCS technology is not an eco­nomically viable means for a coal-fired or pet coke-fired unit to comply with the stand­ard. Nor is it necessary. By eliminating coal from the energy gen­eration mix the proposed rule stands to jeopardize grid reliability, public safety, and affordability of utility service.

The cost of installing CCS on a new coal boiler is sufficiently high to make it extremely unlikely for a regulated utility or merchant generator to consider construction of coal-fired generation when constructing new generation resources. According to EIA, the cost of a new advanced coal-fired boiler with CCS is $135.5/MWh, whereas new conventional coal is $100/MWh, the cost of new advanced nuclear (considered an expen­sive option) is $108/MWh, and a new natural gas combined cycle plant is $67/MWh.[[27]](#footnote-27)

It is with these concerns in mind that the PUCO urges the EPA to accept standards that will allow for the development of supercritical coal plant configurations and options other than gas generation alone. By accepting these standards, it would accomplish the EPA’s goal of lower carbon emissions but grant regions currently reliant on coal genera­tion cost-effective opportunities to ensure overall system reliability.

# CONCLUSION

The Public Utilities Commission of Ohio appreciates the opportunity provided by the EPA to comment on the proposed rule. The PUCO is concerned that the proposed rule relies too heavily on theoretical car­bon capture technology without offering genera­tors an adequate cost-effective alternative. The PUCO believes that this rule will exacer­bate the region’s “dash to gas” for electric generation. As outlined, a regional over-reli­ance on natural gas has the potential to stress the region’s already constrained electricity markets and natural gas infrastructure, resulting in decreased reliability and leaving the region increasingly susceptible to volatile price swings. The PUCO encourages the EPA to promote an “all of the above” policy framework, which would allow states the flexi­bility to promote increased system efficiencies without threatening grid reliability.

Respectfully submitted,

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Dated at Columbus, Ohio, this 9th day of April, 2014.

1. 42 U.S.C. § 7411 (2012). [↑](#footnote-ref-1)
2. Michael Niven and Neil Powell, “Upcoming, recent coal-fired power unit retire­ments”, SNL, March 25, 2014. [↑](#footnote-ref-2)
3. Esther Whieldon, “PJM called 5 blackouts to prevent cascading outages during September heat wave,” SNL, September 26, 2013. [↑](#footnote-ref-3)
4. Everett Wheeler and Peter Marrin, “Gas reliance under renewed scrutiny after epic power price spikes,” SNL, January 27, 2014. [↑](#footnote-ref-4)
5. ORC 4928.02 (C). “It is the policy of this state to ... Ensure diversity of electric­ity supplies and suppliers…” [↑](#footnote-ref-5)
6. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Generating Units, 77 FR 22394. [↑](#footnote-ref-6)
7. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Generating Units, 77 FR 22398. [↑](#footnote-ref-7)
8. U.S. Energy Information Administration (EIA), Annual Energy Outlook 2012 Early Release Overview, 5, June 2012. [↑](#footnote-ref-8)
9. U.S. EIA, January 2014 Electric Power Monthly, Table ES2.B, released March 21, 2014. [↑](#footnote-ref-9)
10. *Id*. [↑](#footnote-ref-10)
11. U.S. EIA, “Short‐Term Energy Outlook Supplement: Energy Price Volatility and Forecast Uncertainty,” October 2009. [↑](#footnote-ref-11)
12. U.S. EIA, Henry Hub Natural Gas Spot Price Chart, June 9, 2012. [↑](#footnote-ref-12)
13. U.S. EIA, Natural Gas Weekly Update, February 20, 2014. [↑](#footnote-ref-13)
14. Peter Behr, “As gas generators’ fuel costs soar, grid operator asks FERC to waive price cap,” E&E Publishing, January 24, 2014; Mary Crane, “Consumer advocates ask FERC to investigate ‘unprecedented’ power prices in PJM,” SNL, February 20, 2014. [↑](#footnote-ref-14)
15. PJM, Monthly Locational Marginal Pricing. [↑](#footnote-ref-15)
16. U.S. EIA, Annual Energy Outlook 2007, Feb. 2007. [↑](#footnote-ref-16)
17. 42 U.S.C. § 7411(b)(2) (2012). [↑](#footnote-ref-17)
18. Federal Register Vol. 79, No. 5 (January 8, 2014), p. 1434. “Section 111(b) requires the EPA to identify the ’best system of emission reduction … adequately demonstrated’ (BSER) available to limit pollution. The CAA and subsequent court deci­sions (detailed later in this notice) identify the factors for the EPA to consider in a BSER determination. For this rulemaking, the following factors are key: feasibility, costs, size of emission reductions and technology.”

    Federal Register Vol. 79, No. 5 (January 8, 2014), p. 1462. “According to the D.C. Circuit, EPA determines the best demonstrated system based on the following key considerations, among others:….the costs of the system must be reasonable.”    
     [↑](#footnote-ref-18)
19. Massachusetts Institute of Technology (MIT), The Future of Coal: Options for a Carbon-Constrained World, 43-62 (2007). “At present government and private sector programs to implement on a timely basis the required large-scale integrated demonstra­tions to confirm the suitability of carbon sequestration are completely inadequate.” [↑](#footnote-ref-19)
20. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Generating Units, 77 FR 22394. [↑](#footnote-ref-20)
21. Green Facts, CO2 Capture and Storage Digest, Question 8, “How cost-effective are different CO2 capture and storage options?” [↑](#footnote-ref-21)
22. A brief sampling of projects that have already been subsidized yet have been can­celled or are awaiting more favorable economic conditions (i.e., cap and trade) are as follows: Kimberlina CCS, BP Carson CCS, Taylorville CCS, Indiana Gasification CCS, Antelope Valley CCS, Sweeny Gasification CCS, Trailblazer CCS, ZENG Worsham Steed CCS, Wallula CCS, AEP Mountaineer CCS, and Appalachian Power CCS.

    See also MIT Carbon Capture and Sequestration Technologies, “Cancelled and Inactive Projects.” [↑](#footnote-ref-22)
23. U.S. EIA, AEO2013 Early Release Overview, “Levelized Cost of New Genera­tion Resources in the Annual Energy Outlook 2013,” January 28, 2013. [↑](#footnote-ref-23)
24. 42 U.S.C. § 7411(b)(5). [↑](#footnote-ref-24)
25. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 FR 22392. “This NSPS would provide regulatory certainty that any new coal-fired power plant must limit CO2 emissions by implementing some form of partial capture and storage.” “New coal-fired or pet coke-fired units could meet the standard either by employing carbon capture and storage (CCS)1 of approximately 50% of the CO 2 in the exhaust gas at startup, or through later application of more effective CCS to meet the standard on average over a 30-year period.” [↑](#footnote-ref-25)
26. 42 U.S.C. § 7411(b)(5). “…nothing in this section shall be construed to require, or to authorize the Administrator to require, any new or modified source to install and operate any particular technological system of continuous emission reduction to comply with any new source standard of performance.” [↑](#footnote-ref-26)
27. U.S. EIA, AEO2013 Early Release Overview, “Levelized Cost of New Genera­tion Resources in the Annual Energy Outlook 2013,” January 28, 2013. [↑](#footnote-ref-27)