Cara Horowitz
Andrew Sabin Family Foundation Co-Executive Director
Emmett Institute on Climate Change and the Environment
Ph: (310) 206-4033
horowitz@law.ucla.edu

SCHOOL OF LAW
405 Hilgard Ave.
BOX 951476
LOS ANGELES, CALIFORNIA 90095-1476

March 18, 2019

Submitted electronically and via email (a-and-r-docket@epa.gov)
Environmental Protection Agency
EPA Docket Center (EPA/DC)
Mail Code 28221T
Attention Docket ID No. Docket ID No. EPA-HQ-OAR-2013-0495
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Comment by Electricity Grid Experts Benjamin F. Hobbs, Brendan Kirby, Kenneth J. Lutz, and James D. McCalley on Docket ID No. EPA-HQ-OAR-2013-0495, New Source Performance Standards for greenhouse gas emissions from new, modified, and reconstructed electricity generating units.

We submit this comment letter with and on behalf of a group of nationally renowned experts on the operations of the U.S. electric grids, in response to the recent proposal by the U.S. Environmental Protection Agency ("EPA") to revise the New Source Performance Standards ("NSPS") for new, modified, and reconstructed electricity generating units ("EGUs") under Section 111(b) of the Clean Air Act ("CAA"). The rule proposes to retreat from the 2015 EPA determination that identified the Best System of Emissions Reduction ("BSER") as partial carbon capture and storage ("CCS") for new coal units. In 2015, the EPA determined that for newly constructed fossil fuel plants, CCS was adequately demonstrated, widely available, and implementable at a reasonable cost, and it set performance standards using that technology as a reference. The proposed revisions would weaken these standards. We write in firm opposition to the EPA's proposed changes. The EPA's proposed rule would increase the permissible amount of pollution from CO_2 from new coal generating units while making no appreciable improvement to grid reliability.

Two aspects of the NSPS proposed rule particularly trouble us and, in our view, fail to reflect fundamental characteristics of electricity grids and their operations.

First, the EPA argues that identifying CCS as BSER would increase the cost of new coal-fired EGUs to a degree that harms their place in the dispatch order, reduces fuel diversity, and adversely affects the supply of electricity. 83. Fed. Reg. at 65,445 and 65,448.[1] But as the EPA's own analysis states, generation will shift away from coal regardless of this proposed rule. *Id.* at 65,427. We argue that grid operations and the supply of electricity have not been harmed by recent growth in non-coal sources and will not be harmed by the continuation of the 2015 rule. EPA has misevaluated the underlying costs of CCS. Abandoning CCS as BSER in an effort to stimulate investment in coal generation is unnecessary and unwise, because the grid has shown itself to be capable of shifting generation to cheaper, cleaner resources.

Second, the EPA argues that CCS is not as viable as it found in 2015 because of uncertainty about the geographic availability of geologic storage for CO_2. *Id.* at 65,441-42. But in making this argument, the EPA does not sufficiently account for grid interconnectedness. Due to the interconnected nature of the grid, new plants could be sited taking the availability of geologic resources into account, while still serving load in locations where geologic sequestration resources are scarcer.

Collectively and individually, we have decades of experience and significant expertise in the area of grid connectivity and reliability.[2] In this comment letter, we support our opposition to the NSPS proposal with information about: (1) how the interconnected electric grids work and how effective pollution controls acknowledge their distinctive characteristics; (2) how the NSPS proposal's failure to account for grid characteristics results in an overvaluation of coal's place in

---

[1] *See also* EPA News Release, EPA Proposes 111(b) Revisions to Advance Clean Energy Technology: Proposal Supports President Trump's Energy Dominance Agenda (Dec. 6, 2019), "The previous administration sought to discourage new coal developments by requiring the use of unproven carbon capture and storage technologies that turned out to be economically prohibitive and limited geographically. By revising the NSPS, EPA will protect the environment while helping to provide room for American energy production to continue to grow and diversify, which is critical for long-term energy security and global competitiveness goals."

[2] Signatories of this letter include Benjamin F. Hobbs, Brendan Kirby, Kenneth J. Lutz, and James D. McCalley. These signatories have expertise in the structure, operation, and economics of the U.S. power system; integration of low- and zero-carbon generation sources into the power system; power-system reliability and planning; and electric grid modernization. Benjamin Hobbs is the Theodore M. and Kay W. Schad Professor in Environmental Management at Johns Hopkins University and chair of the California ISO Market Surveillance Committee; his research focuses on electric power and energy market planning, risk analysis, and environmental and energy systems analysis and economics. Brendan Kirby worked at the Oak Ridge National Laboratory and is a private consultant with clients including the Hawaii Public Utilities Commission, National Renewable Energy Laboratory, and others. He has forty-four years of electric grid experience and has published over 180 papers, articles, book chapters, and reports on power system reliability and on integrating renewables into the grid. Kenneth J. Lutz is an Affiliated Professor in the Department of Electrical and Computer Engineering at the University of Delaware, where he does research and teaches a specially designed course on the smart grid. He has decades of experience in the regulation of utilities. James D. McCalley is the London Professor of Power System Engineering at Iowa State University. He is the author of over 230 publications in electric power systems engineering; his areas of research include: transmission planning, power-system security, power-system dynamics, wind energy, long-term investment planning for energy and transportation systems at the national level, and power-system decision problems under uncertainty. Each of these experts has an interest in the integrity and reliability of electricity infrastructure, and the efficiency of its management and regulation. Their credentials are outlined more fully in the Exhibit 1 in the Appendix.

the dispatch order; and (3) how the grid's interconnectedness can bolster the feasibility of CCS, even in the face of geographic uncertainties.

I. Effective Power-Sector Pollution Controls Acknowledge the Distinctive Characteristics of Electricity and the Interconnectedness of the Regional Grids.

Effect pollution control regimes work with fundamental characteristics of the power sector. It is important, therefore, to understand the operations of the electricity grids when considering the EPA's proposed revisions to NSPS.

A. Electricity Is a Uniquely Fungible and "Real-Time" Good.

Electricity has two fundamental distinguishing features. First, electricity is fungible. In most of the United States, "any electricity that enters the grid immediately becomes a part of a vast pool of energy that is constantly moving in interstate commerce." *New York v. Fed. Energy Regulatory Comm'n*, 535 U.S. 1, 7 (2002). Energy must be pooled because it cannot be directed (like an e-mail or letter) to a particular recipient.

Second-by-second variation in demand is balanced by all generators in the grid, independent of the location of the generators, by responding to the frequency variation that those imbalances cause. The frequency is analogous to the water level in a swimming pool fed by many supply spigots located around the pool's edges; when the water level (frequency) increases, the water supply (generation) decreases, and vice versa. All spigots have the same effect on maintaining a constant water level, independent of their location around the pool (grid). In other words, "[i]f [someone] in Atlanta on the Georgia system turns on a light, every generator on Florida's system almost instantly is caused to produce some quantity of additional electric energy which serves to maintain the balance in the interconnected system . . ." *Fed. Power Comm'n v. Florida Power & Light Co.*, 404 U.S. 453, 460 (1972) (citation omitted).

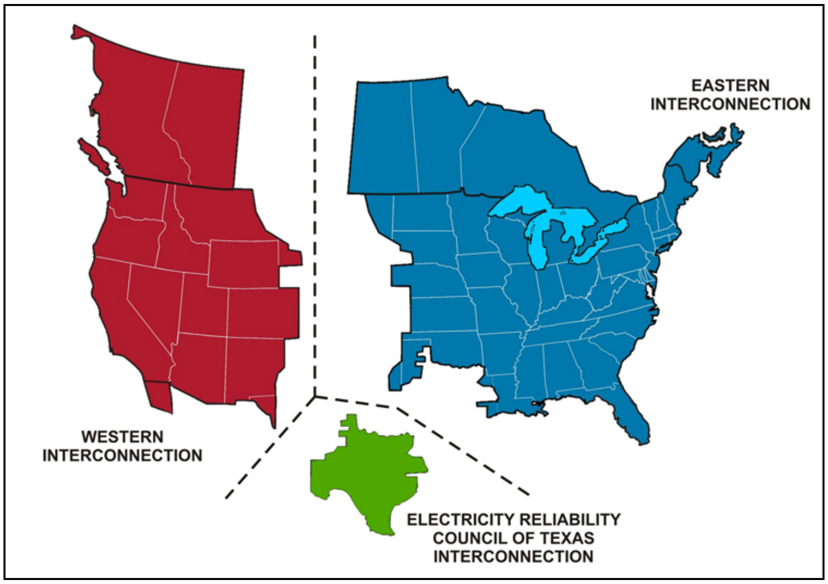
Electricity that generators add to the grid energizes the entire grid. Generators do not "generate" electrons and consumers do not "consume" electrons, as is commonly believed—electric power is injected into and withdrawn from the grid. An electromagnetic wave, propagated by generators, moves at the speed of light along wires. Electrons in an alternating current network merely move back and forth at a frequency of 60 cycles per second. Because all electricity within a grid is pooled, the electric power that any single generator adds becomes part of an undifferentiated stream. As with water added to a pool, consumers cannot distinguish coal-generated power from wind-turbine-generated power once it is injected into the grid.

The second elemental feature of electricity is that it cannot easily or economically be stored on a large scale with current technology. The inability to store large amounts of electricity means generation (supply) and load (demand) must continuously and precisely be balanced. This makes electricity the ultimate "real-time" product. *See* Paul L. Joskow, *Creating a Smarter U.S. Electricity Grid*, 26 J. ECON. PERSP. 29, 33 (2012).

B. Each of the Three Regional Grids Operates as a Single Machine.

The infrastructure necessary to balance supply and demand distinguishes the power system from any other industry or supply chain. The central enabler to synchronized operation is interconnection. Each of the three regional grids, or "interconnections"—Eastern, Western, and Texas—operates as a single synchronized machine.[3]

Figure 1. U.S. Power-System Interconnections[4]



Each of the grids consists of three components essential to delivering reliable and cost-effective power to consumers: generation, transmission, and distribution. *First*, a diverse set of generators converts primary energy (such as coal, sunlight, or wind) into electricity. *Second*, within each grid, a giant network of high-voltage transmission lines allows power to flow where it is needed, sometimes over hundreds or even thousands of miles. The transmission network is crucial because many generators are located far from population centers; it also enables use of the most economic resources at any given time. The transmission network facilitates system reliability: if one line goes down, electricity can flow through alternate routes; when a generator fails, other generators can pick up the load smoothly without a power interruption. *Third*, local substations receive electricity from high-voltage transmission lines and lower the voltage for delivery to consumers via local distribution networks.

Grid interconnectedness is a product of history. The first power plants constructed in the late 1800s initially served only a small set of local customers. Backup generators maintained reliability. Local systems gradually consolidated to reduce costs and improve reliability.

---

[3] Hawaii and Alaska have their own grids.

[4] *North American Electric Reliability Corporation Interconnections*, U.S. DEP'T OF ENERGY, http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/NERC_Interconnection_1A.pdf (last visited Jan. 8, 2018).

Consolidation required the development of transmission lines. Networks continued to grow, ultimately giving rise to the three interconnections. 80 Fed. Reg. at 64,690-92.

Today, each of the three interconnections is highly coordinated to maintain reliability. The balancing of generation and load must be virtually instantaneous across each interconnection, such that the amount of power dispatched to the grid is identical to the amount withdrawn for end uses in real time. Like orchestra conductors signaling entrances and cut-offs, grid operators use automated systems to signal particular generators to dispatch more or less power to the grid as needed over the course of the day, thus ensuring that power pooled on the grid rises and falls to meet changing demand.

As components of an integrated machine, interdependent generators must coordinate with one another—and with grid authorities—regarding their routine operations. Because the performance and usage of their units depends on the operation of other units outside their individual control, power companies regularly coordinate to plan new investments, plan unit retirements, and balance their respective systems—for example, through joint dispatch arrangements (which pool the generation sources of multiple utilities to reduce operating costs and increase reliability), joint power-plant ownership agreements, bilateral power purchase agreements, and short-term balancing transactions. As the Supreme Court has recognized, "generating facilities cannot be maintained on the basis of a constant demand." *Gainesville Util. Dep't v. Florida Power Corp.*, 402 U.S. 515, 518 (1971). Coordinated planning is critical to ensure there is always adequate generation to meet expected regional demand, plus additional capacity in case generators fail during times of peak demand. *Id.*

C. Dispatch Governance Frameworks Are Designed to Facilitate Shifts Among Generators and Ensure Affordable, Reliable Electricity.

Regional energy governance frameworks keep the "complex machine" operating reliably. Although governance differs within and across the three interconnections, the standard approach all grid operators use to dispatch generation is Security Constrained Unit Commitment and Economic Dispatch, or "Constrained Least-Cost Dispatch." As its name implies, Constrained Least-Cost Dispatch deploys generators with the lowest variable costs first, as system operational limits allow, until the generation satisfies all demand. Constraints that grid operators routinely consider include transmission limits, generators' physical constraints, and environmental standards.

In competitive wholesale markets (which govern about two-thirds of the power sector), federally regulated entities called Independent System Operators ("ISOs") or Regional Transmission Organizations ("RTOs") utilize a series of auctions to match generation and load. Generators bid into a regional market with a price at which they are willing to sell electricity during specified periods, and the ISO/RTO ranks bids according to Constrained Least-Cost Dispatch principles. In traditional cost-of-service states outside of ISOs/RTOs, utilities use generators' marginal costs, rather than bid prices, to determine dispatch order. While the ISOs/RTOs' use of Constrained Least-Cost Dispatch principles is more transparent, Constrained Least-Cost Dispatch principles guide all dispatch planning across the country. Dispatch and related coordination activities occur on multiple scales—yearly, seasonally, monthly, weekly, daily, hourly, and five-minute intervals—as grid operators respond to variable supply, demand, and operational constraints by managing shifts among different generators. In both organized markets and traditional cost-of-service regimes, renewable energy generators typically receive dispatch priority because they have lower variable costs than fossil-fuel-fired generators, which must purchase fuel. 80 Fed. Reg. at 64,693.

Power companies recognize that their units are subject to Constrained Least-Cost Dispatch and have long planned their operations accordingly. They routinely execute contracts to purchase power from third-party generators; invest in demand-side energy efficiency programs; and, as existing units retire, invest in more efficient and cost-competitive generation facilities, such as natural gas and renewable sources, in order to compete for dispatch priority. These practices are consistent with the fungibility of electricity (described above).

II. The EPA's Rationales for Weakening the 111(b) Standard are Not Coherent and Do Not Justify Promoting Coal Generation.

The proposed revisions to the NSPS for GHG emissions from new fossil fuel-fired power plants are not warranted and are not supported by EPA's rulemaking record here. In contrast to the 2015 NSPS determination, the proposed revisions would increase pollution from new coal-fired plants while failing to enhance grid security or fuel diversification, two of EPA's stated goals.

The EPA proposes to retreat from CCS as the BSER in favor of the most efficient demonstrated steam cycle in combination with best operating practices. 83 Fed. Reg. at 65,424. This revision would increase the emission rates set by standards of performance for new, modified, and reconstructed EGUs. For example, emission rate standards for new large steam generating units would increase from 1,400 lb CO_2/MWh-gross to 1,900 lb CO_2/MWh-gross. 80 Fed. Reg. at 65,412, Table 1; 83 Fed. Reg. at 65,427, Table 1. One of EPA's central justification for this retreat is its reconsideration of CCS as a reasonable cost technology. In particular, it now expresses concern that identifying CCS as BSER would increase the cost of new coal-fired EGUs to a degree that harms their place in the dispatch order and prevents installation of new coal units. 83, Fed. Reg. at 65,439. EPA argues that this would inhibit desirable grid characteristics, such as fuel diversity, and have "adverse effects on the supply of electricity." *Id.* at 63,445 and 63,448.

We disagree with the EPA's analysis in this proposal for several reasons. First, we do not endorse EPA's claims about the effect of CCS on dispatch order. Its reasoning ignores that Section 111 has a technology-forcing purpose and that the technology will become more cost effective as CCS is developed and deployed. *See* Brief of Amici Curiae Technology Innovation Experts Nicholas Ashford, M. Granger Morgan, Edward Rubin, and Margaret Taylor in Support of Respondents, State of North Dakota v. U.S. EPA (D.C. Cir., Dec. 21, 2016). In fact, experts have found that "costs will be at least as low as EPA projected in its 2015 regulatory analysis of the rule, and almost certainly lower." *Id.* at 7-23. And, even if new coal-fired EGUs sit lower in the dispatch order, that would not significantly harm the economic reasonableness of the 2015 rule, or its ability to facilitate reduced greenhouse gas emissions.

Second, EPA need not and should not promote coal for fuel diversification, as recent trends in the energy sector make clear. Moving away from a predominance of coal generation toward a robust mix of coal, natural gas, renewables, and other sources actually *increases* fuel diversification while reducing harmful emissions. This is especially true in "markets with significant quantities of coal-fired generation," which the EPA cites as areas where implementation of the 2015 BSER could have significant impact on the economic viability of new coal plants implementing CCS. 83 Fed. Reg. at 65,439. EPA's concern for diversification appears to be, in fact, a loosely disguised concern for maintaining coal's dominant market share. This has never been a goal of state or federal energy regulators, much less environmental regulators.

Even taken at face value, EPA's concern about maintaining a significant role for coal in the fuel mix are misplaced. Coal generation is projected to capture a large share of the electricity market for years to come under any of the scenarios being considered. Coal-generated electricity consisted of 31% of total net electric power sector generation in 2017 and is projected by the Energy Information Administration ("EIA") to be 23.5% of generation in 2030 and 21.6% in 2040. EIA Annual Energy Outlook 2019, Table 8: Electricity Supply, Disposition, Prices, and Emissions.[5] Both the 2015 and 2018 EPA rulemakings endorse these projections.[6] Coal is currently the second largest source of electricity after natural gas and generates more electric power than all renewable energy sources combined (including hydropower). *Id.* Based on the EIA projection, coal will continue to be the second largest source in 2030. *Id.* Although EIA projects a marked reduction in coal's share of electricity generation, it is difficult to see evidence that supports the idea that coal will not make up a significant part of a diverse energy mix in the near future.

Third, even with markedly reduced percentages of coal generation, system reliability will be maintained. Neither reliability nor electricity costs have been previously harmed from existing trends that have led to less coal-generated electricity and more natural gas and renewable electricity. Because of the fundamental grid characteristics discussed in Section I above, the most cost-effective CO_2 emissions reductions can be achieved over the coming decades by encouraging the displacement of generation from carbon-intensive sources, without sacrifices to reliability or security.

As utilities have used less coal, the grid has shown it can incorporate high levels of non-coal generation without adverse reliability impacts. For example, in March of 2017, wind met 52.22% of the Southwest Power Pool's demand, and in October it met 54.22 % of the Texas Interconnection's demand. Southwest Power Pool (@SPPorg), TWITTER (Mar. 20, 2017, 8:14 AM); [7] ELEC. RELIABILITY COUNCIL OF TEXAS, WIND INTEGRATION REPORT (Mar. 31, 2017). Wind met 25% of demand in the Midcontinent ISO on November 23, 2012. Hannah Hunt, *Strong winds blow away records across the U.S.*, INTO THE WIND: THE AM. WIND ENERGY ASSOC. BLOG (Nov. 7, 2017).[8] And the main grid operator in Colorado regularly meets demand with large percentages of wind, including 20 hours during which wind met over 60% of demand.

---

[5] *Available at* https://www.eia.gov/outlooks/aeo/data/browser/#/?id=8-AEO2019&region=0-0&cases=ref2019&start=2017&end=2050&f=A&linechart=ref2019-d111618a.6-8-AEO2019&chartindexed=1&sourcekey=0.

[6] The cost-benefit analysis for the 2015 Rule adopted these EIA projections. *See* 80 Fed. Reg. at 64,515. The 2018 proposed rule agrees that these projections are "generally correct." 83. Fed. Reg. at 65,427.

[7] https://twitter.com/SPPorg/status/843843253346668544

[8] http://www.aweablog.org/strong-winds-blow-away-records-across-u-s/.

Michael Goggin, *Output Records and NERC Report Show Increasing Reliability Contributions of Wind*, INTO THE WIND: THE AM. WIND ENERGY ASSOC. BLOG (Dec. 22, 2015).[9]

In fact, renewable sources can *improve* reliability. For instance, wind generation was key in maintaining service in the northeast and mid-Atlantic during the 2014 Polar Vortex, when demand spiked to one of the highest winter peaks in regional history. ANALYSIS GROUP, ELECTRIC SYSTEM RELIABILITY AND EPA'S CLEAN POWER PLAN: THE CASE OF PJM 3, 12 (2015).[10] It is true that renewable energy varies more in availability than other types of generation, leading system operators to maintain generation reserves that provide back-up when renewable energy is unavailable. But the U.S. power sector has successfully managed large amounts of renewable power in this manner, and technical studies have concluded the sector can integrate even more without significant reliability impacts. *See, e.g.*, GE ENERGY, PJM RENEWABLE INTEGRATION STUDY, COVER LETTER 1 (2014)[11] (finding that the RTO PJM could operate with up to 30% of generation from wind and solar with no significant reliability impacts); ENERNEX CORP., EASTERN WIND INTEGRATION AND TRANSMISSION STUDY 27 (2011)[12] (finding that wind generation could feasibly supply 20% to 30% of electricity on the Eastern Interconnection); GE ENERGY, WESTERN WIND AND SOLAR INTEGRATION STUDY (2010)[13] (finding that the Western Interconnection could maintain reliability with 35% wind and solar generation).

Whether renewable sources or natural gas are replacing coal units, reliability is not diminished. The Federal Energy Regulatory Commission ("FERC") has recently addressed, and rejected, the claim that foreseeable levels of generation shifting will harm reliability. In denying a DOE request that FERC provide special compensation for coal plants in the interest of resilience and reliability, FERC noted that "the extensive comments submitted by the RTOs/ISOs do not point to any past or planned generator retirements that may be a threat to grid resilience." *Grid Resiliency Pricing Rule: Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Grid Resiliency Pricing Rule*, 162 FERC ¶ 61,012 at p. 15 (Jan. 8, 2018). FERC noted that it had taken action and considered reliability issues with regard to the growth in natural gas for electric generation. *Id.* at p. 12. FERC found that the current trend toward cleaner energy generation is not currently threatening reliability and is not expected to. *Id.* at p. 15.

Furthermore, the existing tools and procedures that industry and regulators use to ensure grid reliability would continue to function effectively in the face of reductions in coal generation. For example, the North American Electric Reliability Corporation develops and enforces reliability standards. FERC and state public utility commissions are also closely involved in overseeing reliability. Balancing authorities, such as ISOs/RTOs, maintain reliability on particular areas of the grid, operating to limit the impact of outages. All of these entities continuously incorporate

---

9 http://www.aweablog.org/output-records-and-nerc-report-show-increasing-reliability-contributions-of-wind/.

10 App. at Exhibit 2.

11 App. at Exhibit 3.

12 App. at Exhibit 4.

13 App. at Exhibit 5.

changing economics and operational conditions into their planning processes. The BSER changes nothing about how they function.

We also note that although reliability concerns have been raised in past EPA rulemakings, such as the recently proposed Affordable Clean Energy rulemaking, we know of no instance where an environmental regulation caused a reliability event.

Grid reliability will not be harmed if coal is more expensive, nor will diversification of fuels be harmed if designating CCS as the BSER increases the cost of potential new EGUs to the point where their dispatch priority falls. The interconnected grid has continually and successfully shifted among generators to ensure affordable and reliable electricity. Because there is no evidence to suggest that attempting to prioritize new coal EGUs' place in the dispatch order will increase grid reliability, the EPA should maintain its 2015 determination on the standard for new coal units.

III. The Proposed Rule's Discussion of Geological Sequestration Fails to Account Sufficiently for Grid Interconnectivity.

As one rationale for weakening its performance standard for these facilities, the EPA now claims new uncertainties as to where geologic sequestration for CCS is possible. 83 Fed. Reg. at 65,441. However, it fails to sufficiently account for the way that grid interconnectedness facilitates geographic dispersion of generation. The strength of the grid, as explained above, reduces the impact of any geographic uncertainty on the ability of the electric system to integrate new EGUs.

The 2015 rulemaking found that geologic sequestration sites—in the form of both deep saline formations and oil and gas reservoirs—were widely available. EPA, *Technical Support Document: Geographic Availability* (July 31, 2015). New data published by the National Energy Technology Laboratory ("NETL") and cited by the EPA continues to support the 2015 rule, finding "relatively minimal changes in estimated storage resources" for those types of sites. 83 Fed. Reg. at 65,441 (citing NETL, *Carbon Storage Atlas*, *Fifth Edition* (Sept. 2015)). Yet the EPA now questions the availability of a third type of locale for geologic sequestration, unmineable coal seams. 83 Fed. Reg. at 65,442. The EPA now excludes those coal seams as geologic sequestration areas because no large-scale demonstrations have occurred. *See id.* In other words, although the EPA's science-based conclusions on the geographic availability of geologic sequestration have not changed, the agency claims that technical, regulatory, and economic uncertainties provide a basis for revision of the emission standard.

We do not consider it our place to weigh in on questions about the absolute availability of geologic sequestration sites. Our point is simpler: regardless of the geographic uncertainty that the EPA now claims, reductions in the geographic availability of carbon sequestration resources should not significantly affect the feasibility of CCS. This is due to grid interconnectedness, a feature of electricity grids that EPA fails to consider in its analysis.

Because of their geographic scope, each of the three grids reduces whatever harm that geologic constraints might impose on the use of CCS. As explained in Sections I.A and I.B., each grid operates as a single machine that can efficiently distribute electricity resources within its interconnected system. Variation in demand is balanced by all generators in the grid, independent of the location of the generators. Therefore, for new EGUs, it is necessary only to locate plausible geologic sequestration sites within each grid system. In 2015, the EPA noted this in response to a lawsuit claiming that transport of captured CO_2 over long distances for sequestration would be too costly. At that time, the EPA stated that "a new source can be sited out of state proximate to a sequestration site . . .and still provide electricity via 'coal-by-wire' arrangements." EPA, Basis for Denial of Petitions to Reconsider the CAA Section 111(b) Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Utility Generating Units (April 2016).

Coal-by-wire has historically been used to generate electricity at or near a coal mine and to then transmit the electricity to meet load somewhere else, saving coal shipping costs. In the context of CCS, it can be used to serve demand in locales that do not have geologic sequestration sites by drawing energy from coal-fired electricity generation near geologic sequestration. This electricity can then be delivered through transmission lines. 80 Fed. Reg. at 64,682-83. Thus, even if there is greater uncertainty than originally thought about the geographic availability of CCS, the interconnected nature of the grid allows for CCS to be implemented where feasible without unduly harming reliability or cost. In fact, each interconnected grid already has dispatch governance frameworks in place to accomplish this, greatly lessening the importance of any reduced availability of CCS, provided that there is potential within the geographic scope of the regional grid to deploy CCS.

IV. Conclusion

Weakening pollution standards for new and modified fossil-fuel-fired power plants is unnecessary and unwarranted. The EPA's proposal fails to justify its promotion of coal as a power source. In particular, it neglects to account for the capacity of the interconnected grids to compensate for areas of EPA's stated concern. Because the EPA's new proposal for BSER does not recognize the ability of the grid to accommodate shifts in generation type and location, we oppose this proposal.

Sincerely,

Cara Horowitz
Andrew Sabin Family Foundation Co-Executive Director
Emmett Institute on Climate Change and the Environment
UCLA School of Law

Ann Carlson
Shirley Shapiro Professor of Environmental Law
Faculty Co-Director, Emmett Institute on Climate
Change and the Environment
UCLA School of Law

William Boyd
Professor of Law
Emmett Institute on Climate Change and the Environment
UCLA School of Law

Nathaniel Logar
Emmett-Frankel Fellow on Climate Change and the Environment
Emmett Institute on Climate Change and the Environment

With and on behalf of:

Benjamin F. Hobbs, Ph.D.
Theodore and Kay Schad Professor of Environmental Management
Department of Environmental Health & Engineering

Founding Director, Environment, Energy, Sustainability & Health Institute
Johns Hopkins University
Chair, CAISO Market Surveillance Committee

____
Brendan Kirby, P.E.

____
Kenneth J. Lutz, Ph.D.
Affiliated Professor
Department of Electrical and Computer Engineering
University of Delaware

____
James D. McCalley, Ph.D.
Anson Marston Distinguished Professor
London Professor of Power System Engineering
Department of Electrical & Computer Engineering
Iowa State University