



## Enhancing Compliance Flexibility under the Clean Power Plan: A Common Elements Approach to Capturing Low-Cost Emissions Reductions

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Electric power plants are the largest stationary source of greenhouse gases in the United States, accounting for approximately one-third of domestic greenhouse gas (GHG) emissions and approximately 5 percent of global GHG emissions.<sup>1</sup> Using its authority under section 111(d) of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has proposed, and is on course to finalize this summer, state-specific targets for the abatement of carbon dioxide from these plants. The proposal leaves decisions about how to achieve those targets to the states.

The proposed rule—referred to as the Clean Power Plan (CPP)—presents a number of policy choices for state officials to consider as they develop plans for meeting state emissions targets. Choices include how much of the compliance obligation falls on power plants and what emissions reduction measures power plant operators can employ. The proposed rule includes the option to design market-based systems and would allow states to combine their efforts into multistate compliance plans.

Market-based approaches to environmental compliance—for example, capping of sulfur dioxide emissions from power plants under the Acid Rain Program—have been shown to considerably lower regulatory costs.<sup>2</sup> Prospective modeling of the Clean Power Plan similarly suggests cost savings from market-based approaches at regional and national levels.<sup>3</sup> Moreover, the use of markets in CPP compliance plans may offer additional benefits, such as setting a clear and measurable compliance obligation on the part of power plants, leaving energy planning decisions to energy experts (e.g., power plant owners and utility commissioners) rather than environmental regulators, and allowing power plant operators to determine economic compliance choices over time.

<sup>1</sup> Friedlingstein, P., et al. (2014). “Persistent Growth of CO<sub>2</sub> Emissions and Implications for Reaching Climate Targets.” *Nature Geoscience* 7 (10): 709–715. In 2013, the U.S. electricity sector emitted 2,040 million metric tons (MMT) of CO<sub>2</sub>. U.S. EPA. (2015). Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013. Global CO<sub>2</sub> emissions in 2013 reached an estimated 36,000 MMT.

<sup>2</sup> Stavins, R.N. (1998). “What Can We Learn from the Grand Policy Experiment? Lessons from SO<sub>2</sub> Allowance Trading.” *Journal of Economic Perspectives* 12 (3): 69–88; Carlson, Curtis, et al. “Sulfur Dioxide Control by Electric Utilities: What Are the Gains from Trade?” *Journal of Political Economy* 108.6 (2000): 1292–1326.

<sup>3</sup> Murray, B.C., W.A. Pizer, and M. Ross. (2014). “Regulating Existing Power Plants under the Clean Air Act: Present and Future Consequences.” NI WP 14-07. Durham: Duke University. [http://nicholasinstitute.duke.edu/sites/default/files/publications/ni\\_wp\\_14-07.pdf](http://nicholasinstitute.duke.edu/sites/default/files/publications/ni_wp_14-07.pdf); Burtraw, D., J. Linn, K. Palmer, and A. Paul. (2014). “The Costs and Consequences of Clean Air Act Regulation of CO<sub>2</sub> from Power Plants.” *American Economic Review: Papers & Proceedings* 104(4): 557–62; U.S. Env’tl. Prot. Agency (2014). “Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants.” PJM, “PJM Interconnection Economic Analysis of the EPA Clean Power Plan Proposal.” <http://www.pjm.com/~media/documents/reports/20150302-pjm-interconnection-economic-analysis-of-the-epa-clean-power-plan-proposal.ashx>.

Although there is an established track record of market-based compliance strategies offering economic benefits, pursuing market mechanisms under the Clean Power Plan may raise economic, administrative, and political concerns for some states. For states and stakeholders interested in exploring market-based strategies, this policy brief outlines a regulatory approach whereby state plans could incorporate a range of potentially cost-effective compliance options, including the option to participate in cross-state emissions markets, but delegate compliance choices to the operators of electric generating units (EGUs). If states opt to use the same unit of compliance and a common (or linked) tracking platform(s)—“common elements”—they could allow their covered EGUs to realize the benefits of flexible, multistate compliance options with limited up-front investment on the part of regulators.

In short, a state could develop an individual-state plan to meet its own emissions target (rather than a multistate plan to meet a joint target) and allow EGU operators to transfer compliance credits among units within a state and among states that share common elements in their compliance plans. For example, if states required plants to emit only a certain tonnage of CO<sub>2</sub> per year, but allowed those plants that exceeded their target to account for their additional emissions by purchasing credits from other plants that over complied, these states would have a compliance “element” of “tons of CO<sub>2</sub>.” If multiple states then used this same element—even if the details of their compliance plans vary—they could allow power plants within their borders to use the element from another state. Under this approach, EGU operators in one state could choose to acquire a compliance instrument from other states if doing so would reduce the cost of meeting their compliance obligations. In this way, the common elements approach opens the door for flexible multistate systems in which the private owners of power plants could decide when to pursue use of common elements without requiring state governments to dedicate the resources or accept the political exposure necessary to devise a detailed multistate plan.

This brief describes the relationship between federal and state responsibilities under Section 111(d) and explains how it might allow a general common elements approach, with potential benefits for both states and EGU operators. It then identifies issues that warrant further consideration if state officials and stakeholders wish to explore this approach.

### **Federal and State Roles under Clean Air Act § 111(d) and the Proposed Clean Power Plan**

Section 111(d) of the Clean Air Act includes roles for the U.S. EPA and for state governments. The EPA develops the procedure by which states submit plans, but the statute grants states the authority to define standards for performance for the covered units within their borders. The Clean Air Act defines “standard of performance” as:

a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the [EPA] Administrator determines has been adequately demonstrated.<sup>4</sup>

The first step under section 111(d) requires identification of state emissions targets based on the best system of emissions reductions available to each state. The EPA’s proposed rule identifies four categories of emissions reduction strategies, or “building blocks,” that together form the best system of emissions reduction: (1) improving efficiency at existing coal-fired power plants, (2) increasing dispatch of existing natural gas facilities, (3) increasing or maintaining generation from zero-emitting sources (including renewable and nuclear facilities), and (4) increasing energy efficiency. The proposed Clean Power Plan applies a formula using these building blocks to the electricity sector in each state. State emissions targets differ, because the potential for reducing emissions under each category differs from one state to another.<sup>5</sup>

States have broad discretion to determine how to meet their emissions targets, and the compliance strategies available to them extend beyond those included in the building blocks used to calculate state goals.<sup>6</sup> The proposed CPP identifies a number of options that the states may pursue, including EGU-specific strategies, with operators taking full responsibility for compliance; the “portfolio approach” whereby entities other than EGU owners hold some portion of the compliance obligation; a “state commitment approach” in which the state itself commits to achieving part of its emissions goal; and a multistate approach that involves essentially a joint plan submitted by a group of states to meet an aggregate performance

<sup>4</sup> 42 U.S.C. § 7411(a) (2012).

<sup>5</sup> Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 *Fed. Reg.* 34,830, 34,892 (June 18, 2014) [hereinafter proposed Clean Power Plan].

<sup>6</sup> *Id.* at 34, 897, 34,900–02. Section 111(d) grants states the authority to “establish[] standards of performance” and “provide[] for the implementation and enforcement” of those standards. 42 U.S.C. § 7411(d) (2012).

level across those states.<sup>7</sup> Although the common elements approach described in this policy brief is not expressly discussed in the proposal, it is consistent with the state plan requirements outlined in the proposal.

### Common Elements Approach

EGU operators may prefer different compliance strategies based on their respective company profiles, state energy mixes, and fuel availability, and the regulatory structures within which they operate. As referenced above, previous experience with market-based compliance approaches and preliminary modeling of their use under the proposed CPP suggest that providing compliance flexibility between sources and among a larger pool of regulated entities (e.g., through multistate programs) may lower overall compliance costs. Yet consideration of interstate market programs may face barriers in some states. For example, states anticipating lower compliance costs than their neighbors may be reluctant to allow interstate trading out of concern for higher electricity prices for their citizens. Devising a multistate compliance program may increase the resources needed to design and evaluate the program, and EGU operators within a state may not agree on a single regulatory approach. Furthermore, political opposition to cap-and-trade programs may constrain officials in some states from considering market-based compliance mechanisms even if the data suggest that such mechanisms would be more cost-effective for citizens.

The common elements approach offers a middle ground that could allow states to realize the benefits associated with multistate and market-based solutions without mandating either strategy. States would develop individual-state plans (not multistate plans) to achieve individual-state targets, defining EGU operators' obligations and the suite of strategies the operators may implement to meet their respective emissions limits. The state plan would allow the operator to determine whether to use tradable compliance instruments (i.e., credits) or other means to meet its compliance obligation.<sup>8</sup> As described below, in order to make market-based options available to EGU operators, the state plan would need to address items such as the process for creating and tracking compliance instruments.

Market-based approaches could take a number of forms under the CPP. For example, state plans could allow for the creation of emissions credits by generating power from zero-emitting sources, such as wind, solar, or nuclear energy, or by reducing electricity demand through energy efficiency or demand response programs (similar to existing renewable energy credit and energy efficiency credit markets). The state plan could establish a state limit on total emissions, create credits equal in number to the tons of emissions in the emissions limit, and distribute the emissions credits to EGU operators and other market participants through an auction system or direct allocation. EGUs would then turn in a credit for each ton of emissions during a compliance period (similar to the existing Acid Rain Program, the Regional Greenhouse Gas Initiative, and the California Cap-and-Trade Program).

A further option would involve the state assigning a compliance obligation to each affected EGU and allowing it to generate credits on the basis of over-compliance with its obligation. If the compliance obligation is mass based (i.e., based on tons of emitted CO<sub>2</sub>), the state plan could assign each EGU an emissions limit and allow it to reduce emissions by any combination of emissions reduction strategies: improving plant efficiency, decreasing utilization, investing in end-use energy efficiency or renewable energy that lowers emissions from the covered unit, and participating in a market-based program. If the EGU's emissions are below the emissions limit, the EGU would generate credits for sale to other regulated entities or for use in a later compliance year. EGUs with CO<sub>2</sub> emissions in excess of their emissions limit could maintain compliance by purchasing credits from over-compliant EGUs.

If the EGU compliance obligation is rate based (i.e., based on emissions rate targets rather than tons of emitted CO<sub>2</sub>), the state could assign to each EGU an average emissions rate that it must meet over the course of a compliance period. Credits could be created by zero-emitting generation, demand-side energy efficiency programs, or fossil fuel-fired EGUs operating at an emissions rate below the state standard. An EGU operating above the assigned emissions rate could purchase these credits and use them to improve its emissions rate.<sup>9</sup>

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<sup>7</sup> Proposed Clean Power Plan, at 34,900–02 (EGU-specific strategies); *id.* at 34,910–12 (portfolio, state commitment, and multistate approach).

<sup>8</sup> The Common Elements Approach concept builds on insightful analyses by other individuals and organizations. *See e.g.*, Franz T. Litz & Jennifer Macedonia, Choosing a Policy Pathway for State 111(d) Plans to Meet State Objectives, GREAT PLAINS INST. AND BIPARTISAN POLICY INST. (2015 forthcoming); Lissa Lynch et al., Clean Power Plan Implementation: State Compliance Approaches with Opt-In Interstate Elements, GEORGETOWN CLIMATE CTR. AND M.J. BRADLEY & ASSOC. (2015) (available from authors upon request); Steven Michel & Nielsen, Carbon Reduction Credit Program: A State Compliance Tool for EPA's Clean Power Plan Proposal, WESTERN RESOURCE ADVOCATES (2014).

<sup>9</sup> Proposed Clean Power Plan, at 34,897.

## Benefits of the Common Elements Approach

The common elements approach described in this brief offers a number of potential benefits.

### *State Autonomy*

A multistate compliance plan raises a number of potential challenges, including the need to find agreement on policy choices among states with divergent economic and political circumstances. The EPA has already addressed the most significant policy choice—the stringency of state targets—and the common elements approach obviates the need for a negotiated state consensus on remaining policy choices. The ability to transfer compliance instruments among states would require shared definitions of those instruments and a common or linked tracking system(s) to protect against double counting. States could decide individually the degree to which they wish to coordinate with one another on these issues, thereby ensuring state plan alignment and opportunities to transfer credits between states.<sup>10</sup> Similarly, states may decide to align other plan components, such as protocols for crediting energy efficiency and renewable energy in a rate-based compliance system.

Overall, states would remain free to make their own decisions about the nature of compliance credits (e.g., mass based or rate based), how to distribute the compliance burden among EGUs/companies, how to resolve stakeholder concerns, and other issues.<sup>11</sup> As a result, one state could auction credits, as in the California Cap and Trade Program and the Regional Greenhouse Gas Initiative, while another could grant entities the flexibility to trade credits if they over-comply with a plant-specific emissions standard. Despite these differences, the two states could allow their entities to trade the credit for a ton of CO<sub>2</sub> that is their systems' common element.

### *Operator Choice*

Market-based approaches allow EGUs to choose the compliance strategy or strategies that are best suited for the firm. State officials implementing a common elements approach would neither have to endorse nor mandate a particular compliance strategy. Instead, they could specify EGUs' compliance obligations and provide a range of choices for meeting those obligations. The state plan could delegate the compliance choice to the EGU operators, who have the best understanding of the short-term and long-term plans for their EGUs and the broader trends affecting the electricity system. This potential benefit is not without its tradeoffs: enhancing operator choice would reduce state control over EGU compliance choices. States concerned that trading may result in higher electricity prices would need to explore the potential costs and benefits associated with interstate trading before pursuing a common elements approach.

### *Expanded Range of Compliance Options*

The common elements approach allows operators to take advantage of the lowest-cost compliance option—whether available in state or out of state. The more state plans that include a common set of compliance options and similar language defining market-based instruments, the broader the number of sources that may choose to participate in a market.

### *Lower Administrative Burden*

Because individual-state plans are the backbone of the common elements approach, regional planning in the form of negotiations, model rule writing, multistate plan development and submittal, or a memorandum of understanding between states is unnecessary.<sup>12</sup> A state could develop a compliance plan without engaging in formal interstate negotiations and

<sup>10</sup> The proposal discusses a version of a multistate plan in which “all states participating in a multi-state plan separately make individual submittals that address all elements of the multi-state plan,” as opposed to one joint plan submittal. Proposed Clean Power Plan, at 34,911. Unlike the multistate option identified in the proposed CPP, the common elements approach would not require states to negotiate with one another to develop a multistate plan. Rather, the individual-state plans would describe the nature of compliance credits, designate a tracking platform, and allow for interstate transfers of credits among states with plans that share these essential common elements.

<sup>11</sup> Individual state definitions of compliance instruments will determine which states interact under the common elements approach. This dynamic already occurs with renewable energy credits (RECs), because states with renewable portfolio standards use different definitions of renewable energy. Some RECs may count toward compliance in numerous states, while other RECs may count toward compliance in a single state. Trading between states with rate-based plans and those with mass-based plans would complicate efforts to determine the validity of a credit and therefore might not be permissible under the approach described in this brief.

<sup>12</sup> The proposed CPP allows states to make a request for a one-year extension to the June 30, 2016, state plan submission deadline. Such a request must include justifiable reasons for the extension, such as “the need for multi-state coordination in the development of an individual state plan, or the process and coordination necessary to develop a multi-state plan.” Proposed CPP, at 34,915. States developing a multistate plan can seek a two-year extension (until June 20, 2018) but must complete an initial submittal by June 30, 2016, that includes “executed agreements among the participating states and a road map for both design of the multi-state program and its implementation at the state level.” *Id.*, at 34,916. The proposal notes that a memorandum of understanding (MOU) among states is one approach. *Id.* It is unclear, however, whether the common elements

still benefit from low-cost mitigation opportunities in another state if the two states choose the same credit definition and tracking platform. Informal conversations among states could allow them to strategically choose a common platform and credit definition and thereby permit their EGUs to access a larger pool of credits.

Another administrative benefit is that a state need not name in its plan the states whose credits it will accept. Rather, the state plan would describe the nature of the credit (e.g., permission to emit one ton of carbon or, in a rate-based framework, tons of avoided generation) and include provisions to ensure credit integrity and to avoid double counting. Unlike with Regional Greenhouse Gas Initiative, there is no predetermined group of states working together; credits would be tradable among states with congruent plans.

### **Maintain Traditional State Agency Roles**

A strategy that identifies targets for covered units and that identifies a suite of compliance strategies from which EGU operators may choose would maintain state-level agencies' traditional roles. The state environmental agency would develop the state compliance plan, including obligations for covered entities and parameters of compliance options from which operators may choose, such as a carbon market. Unit operators and utility regulators would continue to make energy decisions and address reliability considerations. State energy offices would continue to pursue their mandates.

## **State Planning Considerations**

### **Existing Models**

A common elements approach operates much like existing renewable energy credit (REC) markets. Twenty-nine states have renewable portfolio standards (RPSs), which require a portion of electricity generation or sales to come from renewable sources.<sup>13</sup> These programs allow companies to comply with the renewables requirements by surrendering RECs that represent 1 MWh of renewable energy generation.<sup>14</sup> State laws implementing RPSs define what constitutes a renewable source (e.g., solar, wind, biomass, or swine waste) and prescribe how RECs are created. These jurisdictions often allow covered entities to utilize credits that originate either inside or outside the state, so long as they meet criteria specified by the state of compliance. In addition to defining the RECs and what constitutes a renewable energy facility, state RPSs designate approved tracking systems to protect against double counting.

In North Carolina, for example, statutory and regulatory provisions allow power companies to use RECs from in-state or out-of-state renewable energy facilities toward renewable standards,<sup>15</sup> so long as the RECs are issued by or imported into the state-designated tracking platform: the NC-Renewable Energy Tracking System (NC-RETS).<sup>16</sup> RPSs in Missouri and Kansas operate similarly in that they define a renewable energy credit as 1 MWh of renewable generation,<sup>17</sup> allow interstate transfers,<sup>18</sup> and require RECs to be tracked on a designated tracking platform—the North American Renewables Registry (NAR).<sup>19</sup> These three states—North Carolina, Missouri, and Kansas—neither formally coordinated the provisions of their RPS programs nor named each other in their state statutes. Nevertheless, RECs that originate in each state can be used toward compliance in the other states because the three states' programs allow for out-of-state RECs and designate common or electronically linked tracking platforms—NC-RETS and NAR.<sup>20</sup> Similarly, EGUs in states with common elements (i.e., common credit definitions and a mutual (or linked) platform could transfer CPP credits across state lines for compliance without a formal multistate agreement.

### **Tracking Platform and Double Counting**

The proposed Clean Power Plan—like state REC and CO<sub>2</sub> programs—requires that no two EGUs utilize the same tradable instrument for compliance.<sup>21</sup> Credit tracking platforms ensure that credits are authentic and have only one owner at

approach would qualify for a two-year extension under the proposal or, if so, whether an MOU would be necessary.

<sup>13</sup> Database for State Incentives for Renewables and Efficiency, RPS Policies Map, [http://nccsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2015/01/RPS\\_map.pdf](http://nccsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2015/01/RPS_map.pdf).

<sup>14</sup> In some states, energy efficiency credits can count toward RPS requirements. *See e.g.*, N.G. Gen. Stat. § 62-133.7(b)(2) (2015).

<sup>15</sup> N.C. Gen. Stat. § 62-133.7(b)(2)(e) (2015) (limiting the use of out-of-state RECs to 25% of an RPS obligation).

<sup>16</sup> N.C. Utilities Comm'n. Rules and Regs. § R8-67(h)(2).

<sup>17</sup> Kan. Admin. Regs. § 82-16-1(k) (2015); Mo. Code Regs. Ann. Tit. 4, § 240-20.100(1)(J) (2015).

<sup>18</sup> *See* Kan. Admin. Regs. § 82-16-1(k); Mo. Code Regs. Ann. Tit. 4, § 240-20.100(3)(G) (2015).

<sup>19</sup> Kan. Admin. Regs. § 82-16-6(d) (2015); Mo. Code Regs. Ann. Tit. 4, § 240-20.100(3)(F) (2015).

<sup>20</sup> North American Renewables Registry, Frequently Asked Questions, <http://www.narecs.com/about-the-registry/> (explaining that NAR “is set up to export certificates to NC RETS and accept imports of certificates from [five other registries, including NC-RETS]”).

<sup>21</sup> *See* Proposed Clean Power Plan, at 34,913 (explaining that an emissions standard must not be “duplicative”).

any point in time by enabling the creation, tracking, transfer, and retirement of credits through a centralized electronic interface.<sup>22</sup> A number of such platforms already exist in the United States to handle carbon credits,<sup>23</sup> carbon offsets,<sup>24</sup> RECs, and energy efficiency credits.<sup>25</sup> In addition, many states have experience with the EPA's Allowance Management System, which is used to track allowance transfers under the Acid Rain Program, the Clean Air Interstate Rule, and the Cross-State Air Pollution Rule.<sup>26</sup>

When it comes to designating a tracking system for CPP purposes, states have a range of choices. First, they could request that the EPA develop a tracking platform and allow them to utilize it at their discretion. This approach would build on the EPA's existing infrastructure for tracking emissions allowances as well as on the agency's ongoing inventory of EGU emissions. A national platform would facilitate transfers not just among states in the same region but also among regions, widening the availability of low-cost carbon reductions while further reducing the need for state coordination. Second, individual states could establish their own tracking systems, similar to the systems that states such as North Carolina and Michigan use to track RECs pursuant to their respective renewable portfolio standards.<sup>27</sup> A state-specific tracking system would need to electronically interface with other registries to facilitate the cross-state transfer of compliance instruments. Alternatively, a state might designate a tracking system that is also selected by other states. Private companies such as APX develop and operate electronic tracking platforms for RECs and carbon offsets, and similar platforms may develop for Clean Power Plan credits.<sup>28</sup>

### **Rate- or Mass-based System**

As described above, states could use a common elements approach in a rate- or mass-based framework. Because state emissions targets differ, rate-based interstate trading would require more coordination than mass-based interstate trading to define the instruments that may trade and the level of avoided emissions those instruments represent. For example, credits for renewable generation could represent avoided emissions relative to the emissions target of the state where the credit was generated, the emissions target of the state where the credit is used, or an aggregate rate-based target for the group of states accepting the credit. A rate-based framework may also require alignment of energy savings protocols to ensure a consistent approach for assigning credits for the impacts of energy efficiency programs. The issue of aligned protocols does not arise in a mass-based approach, because any impacts of energy efficiency programs, zero-emitting generation, and natural gas generation are captured by reductions in total emissions rather than represented by fungible credits. As a result, mass-based state plans may involve less coordination among states than rate-based plans.

### **Conclusion**

Many state officials and other stakeholders are considering market-based approaches to CPP compliance because the approaches offer potential economic benefits and leave energy planning decisions to EGU operators and utility commissions. At the same time, the prospect of pursuing market mechanisms, including interstate markets, may raise practical and political challenges for some states.

The common elements approach allows a state to develop an individual-state plan to achieve its CPP emissions targets and gives power plant owners the option to participate in cross-state emissions markets. Operators could choose to transfer compliance credits among states to take advantage of low-cost abatement opportunities, so long as the states involved have compliance plans with common elements—namely, aligned definitions of compliance credits and a common or linked tracking platform to protect against double counting. This approach maintains state autonomy, enhances compliance flexibility for operators, places compliance choices in the hands of energy experts, and maintains traditional state agency roles—without requiring a formally negotiated agreement among states. For states for which interstate market mechanisms raise concerns, the common elements approach provides an opportunity to capture the advantages of transferring low-cost reductions among states without mandating a top-down compliance strategy to power companies.

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<sup>22</sup> Contract-path auditing is an alternative to tracking systems for protecting against double counting. Environmental Tracking Network of North America, Learn More, <http://www.etnna.org/learn.html#tracking>.

<sup>23</sup> Examples include the RGGI Carbon Dioxide Allowance Tracking System used by RGGI and the Compliance Instrument Tracking System Service used for the California and Western Climate Initiative carbon trading programs.

<sup>24</sup> Examples include the Climate Action Reserve and the American Carbon Registry.

<sup>25</sup> Examples include NC-RETS, Michigan Renewable Energy Certification System, Midwest Renewable Energy Tracking System, and Western Renewable Energy Generation Information System.

<sup>26</sup> U.S. Env'tl. Prot. Agency, Allowance Transfers, <http://www.epa.gov/AIRMARKETS/participants/allowance/index.html>.

<sup>27</sup> N.C. Utilities Comm'n. Rules and Regs. § R8-67(h)(2); Michigan Renewable Energy Certificate System, Home, <http://www.mirecs.org/>.

<sup>28</sup> APX, Registries Supported by APX, <http://www.apx.com/registries-supported-by-apx/>.

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### **Nicholas Institute for Environmental Policy Solutions**

The Nicholas Institute for Environmental Policy Solutions at Duke University is a nonpartisan institute founded in 2005 to help decision makers in government, the private sector, and the nonprofit community address critical environmental challenges. The Nichols Institute responds to the demand for high-quality and timely data and acts as an "honest broker" in policy debates by convening and fostering open, ongoing dialogue between stakeholders on all

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