Regional Energy Governance and U.S. Carbon Emissions

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The U.S. Environmental Protection Agency's final rule that limits carbon dioxide emissions from existing power plants—the Clean Power Plan—is an environmental regulation that powerfully influences energy law and forms a key part of the U.S. plan to meet its voluntary international commitments under the December 2015 Paris Agreement on climate change. Even if portions of the Plan are ultimately struck down, almost any viable pathway to lower carbon emissions will require greater integration of these two areas of law to address the large percentage of U.S. emissions from the energy sector. This integration produces both challenges and opportunities for governance. The Clean Power Plan (or similar regulations likely to be promulgated under the Clean Air Act in the future) must rely on an environmental-law cooperative federalist implementation structure in which states implement federal standards. However, electricity markets and governance are highly regional, and numerous studies show the economic benefits of interstate coordination, whether through governmental cooperation or trading among utilities. The project of energy-environment integration will benefit from existing regional energy-based institutions that already integrate electricity sources from different states. But it will require enhancement of existing regional approaches to generation capacity planning and transmission expansion, the interconnection of generators to lines, and energy markets. It also will require more interstate, state-regional-federal, and interregional cooperation.

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This Article systematically explores the opportunities for implementation of U.S. carbon emissions regulation presented by regional energy governance, using the Clean Power Plan as a case study. The Plan is not only the most ambitious effort at energy-environment integration to date, but also illustrates the need for enhanced regional governance. The Plan's many options for interstate coordination—from multistate plans to utility trading—do not ensure alignment with existing regional markets because coordination will be difficult for states that choose different approaches to emissions accounting. The Article provides a timely analysis of (1) why enhanced regional governance of carbon emissions is needed, (2) what barriers it faces and opportunities it presents, and (3) how states could build from existing regional approaches in other contexts to create new mechanisms for cooperation and enhance regional governance structures. Addressing these governance issues effectively in the transition to a lower carbon economy will reduce the implementation costs of carbon emissions reduction and improve the reliability of the electricity system.

INTRODUCTION

In 2015, the U.S. Environmental Protection Agency (EPA) took a substantial step toward addressing climate change by promulgating a final rule called the Clean Power Plan (CPP) that adds to a growing set of greenhouse gas regulations under the Clean Air Act.[1] This regulation—aimed at reducing existing power plants'[2] CO_2 emissions to 68 percent of 2005 levels by 2030—continues, and to some degree hastens,[3] an ongoing domestic energy transition[4] away from coal and toward more natural gas and renewables.[5] The CPP attempts to achieve this goal by bringing together a cooperative federalist system of environmental law, which relies on state implementation of federal standards, with a largely regional system of energy markets.[6] This melding of two different governance structures occurs because the CPP's environmental goal—a substantial reduction of CO_2 emissions—can only be realistically achieved by changing energy generation practices, specifically, by decreasing the amount of high-carbon fuels burned to produce electricity, and increasing the use of zero- and lower-carbon fuels.[7]

1. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60) [hereinafter "Clean Power Plan"].

2. The CPP applies to steam-fired and stationary combustion turbine power plants for which construction had commenced as of January 8, 2014. *Id.* at 64,715–16. Steam-fired plants burn fossil fuel to heat up water, which turns a turbine that produces electricity. *Id.* at 64,716. Stationary combustion turbines use the exhaust from burning natural gas to turn a turbine; combined-cycle stationary turbines use the exhaust to turn a turbine and the heat from the exhaust to produce steam that also turns a turbine. *Id*. The same day that it released the CPP for existing power plants, the EPA also released a final rule that regulates carbon emissions from newly constructed plants. *See* Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510 (Oct. 23, 2015) (to be codified at 40 C.F.R. pts. 60, 70, 71, 98).

3. Many coal plants already were nearing retirement when the EPA finalized the CPP. *See* David E. Adelman & David B. Spence, *Cost-Benefit Politics in U.S. Energy Policy* 24, 30–35 (KBH Energy Ct. Research Paper No. 2015-12, 2015), http://kbhenergycenter.utexas.edu/files/2015/08/Cost-Benefit-Politics-in-U.S.-Energy-Policy (in addressing the mercury, interstate pollution, and CPP rules, noting that "most of the generating plants projected to retire in response to these rules are old plants, at or near the end of their useful lives, that pollute at higher rates," although noting various RTO and ISO concerns about how the rules might hasten certain plant retirements and require substantial changes in transmission to accommodate new generation).

4. Clean Power Plan, *supra* note 1, at 64,678, 64,736 n.384.

5. *Id*. at 64,667.

6. For discussions of previous ways in which environmental and energy law have been brought together and some of the complexities of doing so, see Lincoln L. Davis, *Alternate Energy and the Energy-Environment Disconnect*, 46 IDAHO L. REV. 473 (2010); Alexandra B. Klass, *Climate Change and the Convergence of Environmental and Energy Law*, 24 FORDHAM ENVTL. L. REV. 180 (2013); *see also infra* notes 7–11.

7. Air pollution laws historically have focused on the electricity sector, but none have focused on the fuels used to produce electricity as much as the CPP. Rather, compliance with many previous

The CPP is only one page within what is certain to be a long saga of federal carbon-based regulatory approaches. Even if the U.S. Supreme Court ultimately reverses the rule or portions of it, the Court already has made clear that carbon can be regulated under the Clean Air Act.[8] The EPA likely will use similar regulatory strategies in the future, whether building upon the CPP or modifying its approach to address any legal constraints that might emerge. Regardless of the ultimate strategy taken, any viable approach to reducing U.S. carbon emissions will have to integrate energy and environmental law to address the substantial emissions from the energy sector.[9] Further, the expansion of renewable energy as a result of economic forces and state and local renewable energy requirements is already requiring energy law to evolve in response to these environmental initiatives[10]—an evolution explored in depth in this Article.

Other environmental laws have brought together the energy and environmental fields, both at the federal and state levels,[11] but U.S. governance

regulations issued under the Clean Air Act entailed installing equipment at plants that "scrubbed" or otherwise removed pollutants from the pollution stream, although federal air quality standards did take into account reductions in emissions achievable by burning cleaner fuels. Under these standards, states have the option of requiring power plants to change the fuels that they use or to change other processes at the plant in lieu of or in addition to installing pollution control technology. *See, e.g.*, Clean Air Act, 42 U.S.C. § 7475(a)(4) (2012) (requiring that entities constructing new stationary sources of air pollutants built in attainment areas—areas with relatively clean air—first show that "the proposed facility is subject to the best available control technology" for each regulated pollutant); § 7479 (defining "best available control technology" as "an emission limitation based on the maximum degree of reduction of each pollutant . . . which the permitting authority . . . determines is achievable . . . through application of production processes and available methods, systems, and technologies, including . . . clean fuels, or treatment of innovative fuel combustion techniques for control of each such pollutant"); *cf.* Clean Power Plan, *supra* note 1, at 64,689 ("CO_2 is an inherent product of clean, efficient combustion of fossil fuels, and therefore is an unavoidable product generated in enormous quantities").

8. *See generally* Massachusetts v. EPA, 549 U.S. 497 (2007). For more discussion of the CPP litigation, see *infra* Part II.C.1.

9. EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2013, 2-3–2-4 (2015), http://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Chapter-2-Trends.pdf (showing greenhouse gas emissions from fossil fuel combustion as the largest contributor to U.S. emissions, and power sector emissions as the largest contributor within the fossil fuel combustion category).

10. *See infra* notes 36–37.

11. Numerous federal Clean Air Act standards that reduce emissions of pollutants like sulfur dioxide and mercury apply to the power sector because this sector is the largest emitter of these pollutants. EPA, Sulfur Dioxide, http://www3.epa.gov/airquality/sulfurdioxide/ ("The largest sources of SO_2 emissions are from fossil fuel combustion at power plants (73 [percent]) and other industrial facilities (20 [percent])."); *Basic Information About Mercury*, EPA, http://www2.epa.gov/mercury/basic-information-about-mercury#airemissions (last updated Oct. 19, 2015) ("In the United States, power plants that burn coal to create electricity account for about half of all manmade mercury emissions."). Requirements for reducing emissions of these pollutants from power plants take into account certain energy-based considerations, such as whether the operation of pollution-reducing equipment will be so energy-intensive that the benefits of the equipment will be largely offset by increased electricity generation to power the equipment. *See, e.g.*, §§ 7475 (a)(4), 7479 (3). Further, states that determine which types of generation electric utilities may build and which costs these utilities may recover from retail customers consider utilities' costs of complying with federal and state environmental laws, and the states typically allow utilities to recover these costs. Public utility and service commissions'

of carbon emissions from power plants expands this historic integration through its holistic approach to electricity production.[12] The CPP's approach requires states and regional grid operators to grapple with the multi-level electricity governance structures involved in the generation and sale of electricity and its transmission through the electric grid. The target of the CPP or of similar regulation that might be promulgated in the future—electric generation—is regulated largely by states,[13] but generation operates within a regional electricity market governed by regional grid operators.[14] These operators

environmental planning is typically limited to review of utilities' integrated resource plans in states where these plans are required or encouraged and to review of utility requests to recover the costs of state and federal environmental compliance. In integrated resource plans, utilities describe the types of generation resources that they will use to meet consumers' electricity needs in the future, and states often require the utilities to consider renewable energy and energy efficiency options within these plans. *See* RACHEL WILSON & BRUCE BIEWALD, SYNAPSE ENERGY ECON., BEST PRACTICES IN ELECTRIC UTILITY INTEGRATED RATE PLANNING 4–5, 7 (2013), http://www.synapse-energy.com/sites/default/files/SynapseReport.2013-06.RAP_.Best-Practices-in-IRP.13-038.pdf. For examples of state statutes that allow for the recovery of environmental compliance costs, see FLA. STAT. § 367.081(2)(a)(2)(c) (2015) ("[T]he commission shall approve rates for service which allow a utility to recover from customers the full amount of environmental compliance costs"); IND. CODE § 8-1-27-8 (2015) ("The commission shall issue an order approving an environmental compliance plan" if certain conditions are met.).

12. Clean Power Plan, *supra* note 1, at 64,710, 64,832 (noting that the Plan's options for state compliance accommodate "the wide range of regulatory requirements and other programs that states have deployed or will deploy in the electricity sector" and harness "emission reduction opportunities in the interconnected electricity system").

13. The roles of public utility commissions vary based on how their state regulates their energy markets. Some states have traditionally vertically integrated utilities. In those states, one utility controls generation, transmission, and distribution for a geographic area within the state, and the public utility commission sets the rates these utilities may charge for building and operating the infrastructure necessary for these activities. Other states have restructured to have more competitive markets and leave generation decisions largely to private actors. *See U.S. Retail Competition Is Alive, and Seemingly Managing Well*, 26 ELECTRICITY J. 5 (Mar. 2013); John S. Moot, *Economic Theories of Regulation and Electricity Restructuring*, 25 ENERGY L.J. 273 (2004); DISTRIBUTED ENERGY FIN. GRP., 2011 ABACCUS: AN ASSESSMENT OF RESTRUCTURED ELECTRICITY MARKETS (2011), http://defgllc.com/publication/2011-abaccus-an-assessment-of-restructured-electricity-markets/. In states that have not restructured their retail electricity sectors, states determine what type of generation may be built and where. States sometimes deny certain types of proposed generation, including low-carbon generation, on the basis that the generation is not needed or does not qualify for receiving approval from the state, is not a "prudent" investment, or will not produce "just and reasonable" rates for retail ratepayers. *See, e.g.*, Tampa Elec. Co. v. Garcia, 767 So. 2d 428, 435–36 (Fla. 2000) (finding that a power plant that would produce wholesale power and that was incentivized by federal law—an independent, efficient natural gas combined cycle plant cogeneration facility—could not be built in Florida because there was no guarantee that the plant would provide electricity only to Florida customers); Nassau Power Corp. v. Deason, 641 So. 2d 396, 398–99 (Fla. 1994) (per curiam) (finding that a nonutility generator may not receive a certificate of need). Traditionally regulated states also influence utilities' use of different types of generation by prohibiting the utilities from recovering the costs of certain generation from ratepayers. *See, e.g.*, Gulf State Utils. Co. v. La. Pub. Serv. Comm'n, 578 So. 2d 71, 94 (La. 1991) (finding sufficient basis in the record to support the state utility agency's conclusion that a utility's decision to restart nuclear plants was imprudent).

14. Electric generating units (EGUs) that provide electricity for customers around the country rely on a regional grid for the transport of most generated electricity. *Learn More About Interconnections*, U.S. DEP'T OF ENERGY, http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/transmission-planning/recovery-act-0 (last visited Jan. 24, 2016). Due to the physical configuration and regional operation of this grid, it is common for a single electric utility to

decide how much and what type of generation should be available for future use,[15] plan for transmission lines that will be built to connect new generating units to the grid,[16] determine when generating units may interconnect with the grid, and influence which generators may dispatch electricity (send electricity through the grid) at any given moment.[17]

This interconnection of electricity markets across state borders makes it critical for states to reduce carbon emissions cooperatively in ways that align with regional energy governance. The EPA estimates that states will save $1.5 billion in CPP compliance costs if they collaborate,[18] and regional grid operators estimate even larger cost savings from regional approaches as compared to individual state compliance.[19] Further, cooperative implementation is essential because of the regulation's design and the nature of energy markets, which are decidedly interstate in nature. The EPA addressed the need for interstate collaboration in the CPP by creating numerous ways for states to work together, from allowing for multistate goals to creating several options for interstate and cross-state utility trading, including a pre-written "ready-for-interstate-trading" plan.[20] But states must choose between two different mechanisms for measuring emissions and complying with emission standards, and emitters in states that choose different mechanisms cannot easily

construct generating units in multiple states and, at any given time, to draw from these generating units in different states to serve its customers. *See* Clean Power Plan, *supra* note 1, at 64,728–29 ("Shifting of generation among EGUs is an everyday occurrence within the integrated operations of the utility power sector"); CAL. ENERGY COMM'N, *Total Electricity System Power*, CAL. ENERGY ALMANAC, http://energyalmanac.ca.gov/electricity/total_system_power.html (last visited Oct. 13, 2013) (showing approximately 98,000 gigawatts of electricity imported into California from the Southwest and Northwest in 2014, and 198,973 gigawatts of in-state generation).

15. Grid operators do so by making decisions about generation "reserve capacity," which are generating units available to address future increases in electricity demand. *See Reserve Electric Generating Capacity Helps Keep the Lights On*, ENERGY INFO. ADMIN. (June 1, 2012), http://www.eia.gov/todayinenergy/detail.cfm?id=6510 (describing electric generation reserve capacity and showing reserve capacity available in different regions).

16. Transmission Planning and Cost Allocation by Transmission owning and Operating Public Utilities, Order on Rehearing and Clarification, 77 Fed. Reg. 64,800, 64,800 (Oct. 24, 2012) (codified at 18 C.F.R. pt. 35) (requiring regional transmission planning).

17. For further discussion of the role of regional operators in the energy system, see *infra* Part II.B.3.

18. EPA, REGULATORY IMPACT ANALYSIS FOR THE PROPOSED CARBON POLLUTION GUIDELINES FOR EXISTING POWER PLANTS AND EMISSION STANDARDS FOR MODIFIED AND RECONSTRUCTED POWER PLANTS at ES-8 tbl. ES-4 (2014), http://www2.epa.gov/sites/production/files/2014-06/documents /20140602ria-clean-power-plan.pdf; *see also* Angus Duncan, *Clean Air Act Section 111(d) CO_2 Reduction Compliance Pathways for the Pacific Northwest and Intermountain States*, 30 J. ENVTL. L. & LITIG. 303, 308 n.14 (2015) (citing this statistic).

19. *See infra* note 119 and accompanying text (describing the Midcontinent Independent System Operator's estimate of $3 billion in annual cost savings in that region alone).

20. For a detailed discussion of these options, see *infra* Part I. Moreover, in developing CPP requirements, the EPA assumed that utilities would change practices at various generating units on a regional grid to comply with CPP emission limits, meaning that individualized state solutions would be a more difficult and awkward compliance approach than the many opportunities for interstate solutions that the EPA built into the CPP. *See infra* notes 112–113 and accompanying text.

trade with each other. Interstate collaboration among states in energy regions will not materialize without concerted state effort to work together and agree upon basic elements such as the type of compliance mechanisms states will use. Further, as generators within each regional grid operate more or less frequently and build new units in order to comply with the CPP and trade with sources in other states, regional grid operators will need to update regional governance and operation of the grid. These changes will be necessary to plan for, accommodate, and support generation changes that will occur throughout their region and other regional grids.[21]

This Article systematically analyzes how to bring together interstate options for carbon emissions reductions with regional energy governance.[22] Specifically, the Article considers how states will have to meld intrastate CPP requirements or those of similar carbon emissions reduction efforts with existing state-based energy regulation, facilitate cross-state discussions and interstate coordination of generation policy, and coordinate with regional entities that govern the grid. It also explores how regional grid governance itself will have to change to enable successful interstate carbon emissions reductions. The Article considers needed changes, opportunities for collaboration and improved governance presented by existing regional energy organizations, and challenges to interstate coordination. Finally, the Article explores how states could build from regional approaches outside of the CPP context to coordinate CPP planning, thus lowering implementation costs and improving the reliability of the electricity system.

The Article argues that effective energy-environment integration, whether through the CPP or similar future efforts to reduce carbon emissions, will necessitate four types of enhanced coordination. First, states' regulatory systems for energy generation currently do not incorporate the CPP's environmental requirements. For example, in states that regulate whether new generation may be built and how much utilities may charge ratepayers for this generation, state energy regulatory commissions will have to incorporate state environmental agencies' carbon-based requirements into their regulatory decisions. Second, because utilities often operate generation in multiple states, and planning carbon emissions reductions on a state-by-state basis would be less efficient and more costly, states will need to coordinate "horizontally" across state lines.[23] This interstate coordination will allow utilities to plan for additions of generation in the numerous states that these utilities serve and change operating practices at units in different states to reduce emissions.[24]

21. For a detailed discussion of this issue, see *infra* Part II.B.3.

22. As discussed further below, the CPP provides important, detailed guidance regarding the technical details of regional implementation. We complement this guidance by exploring the institutional aspects of regional governance such as the types of decision-making structures that could best support regional governance.

23. *See infra* Part II.B.2.

24. *See id.*

Similarly, it will allow states to enable more trading among sources in numerous states—a practice that will make emissions reductions easier and cheaper—by selecting compatible plans. Third, states, including states that allow interstate trading or that have formed interstate agreements for emissions reductions, will have to coordinate more closely with regional grid operators.[25] This state-regional cooperation will allow regional grid operators to incorporate states' emissions reduction plans or individual sources' trading approaches into decisions about the amount and location of generation capacity that will be necessary and available to satisfy regional demand, transmission planning and interconnection, and generation dispatch.[26] Finally, many states that engage in interstate strategies for reducing carbon emissions are not likely to limit themselves to the boundaries of the regional grid in which they operate.[27] For example, one way for states to comply with the CPP is to adopt the federal ready-for-interstate-trading program, which would allow power plants in the state to trade with power plants in any other state that had similarly adopted the federally-designed trading program.[28] This interstate coordination among different grid regions may require regional grid operators—which already coordinate with each other to some extent—to improve communications and collaborative planning among regions.[29]

A simplified example illustrates the enhanced need for intrastate, interstate, state-regional-federal, and interregional coordination. Assume that states A, B, and C—which are not located within the same regional grid—decide to allow utilities within each state to trade with utilities in the other states in order to comply with the CPP. State A is a very windy state and has some existing wind generation, State B relies primarily on coal-fired generation, and State C has numerous natural gas generating units. If State A is a state that regulates retail electricity—requiring agency approval of the need for new generation units and which rates may be recovered from ratepayers, if any—utilities will likely apply to the state to build more wind generating units and potentially to recover some costs if some of the electricity will be sold retail. The state's regulatory process will have to accommodate these requests. Further, if States A, B, and C decide to allow trading, some interstate coordination will be needed because states must adopt certain uniform elements of their plans for CPP implementation for trading to work. They could all decide to use the ready-for-interstate-trading approach offered by the EPA, for example, but even if they take this relatively easy-to-implement approach, they must implement the same strategy for measuring emissions and complying with carbon caps (either emissions of CO_2 per megawatt-hour (MWh) of electricity generated or total CO_2 emissions) for trading to work.

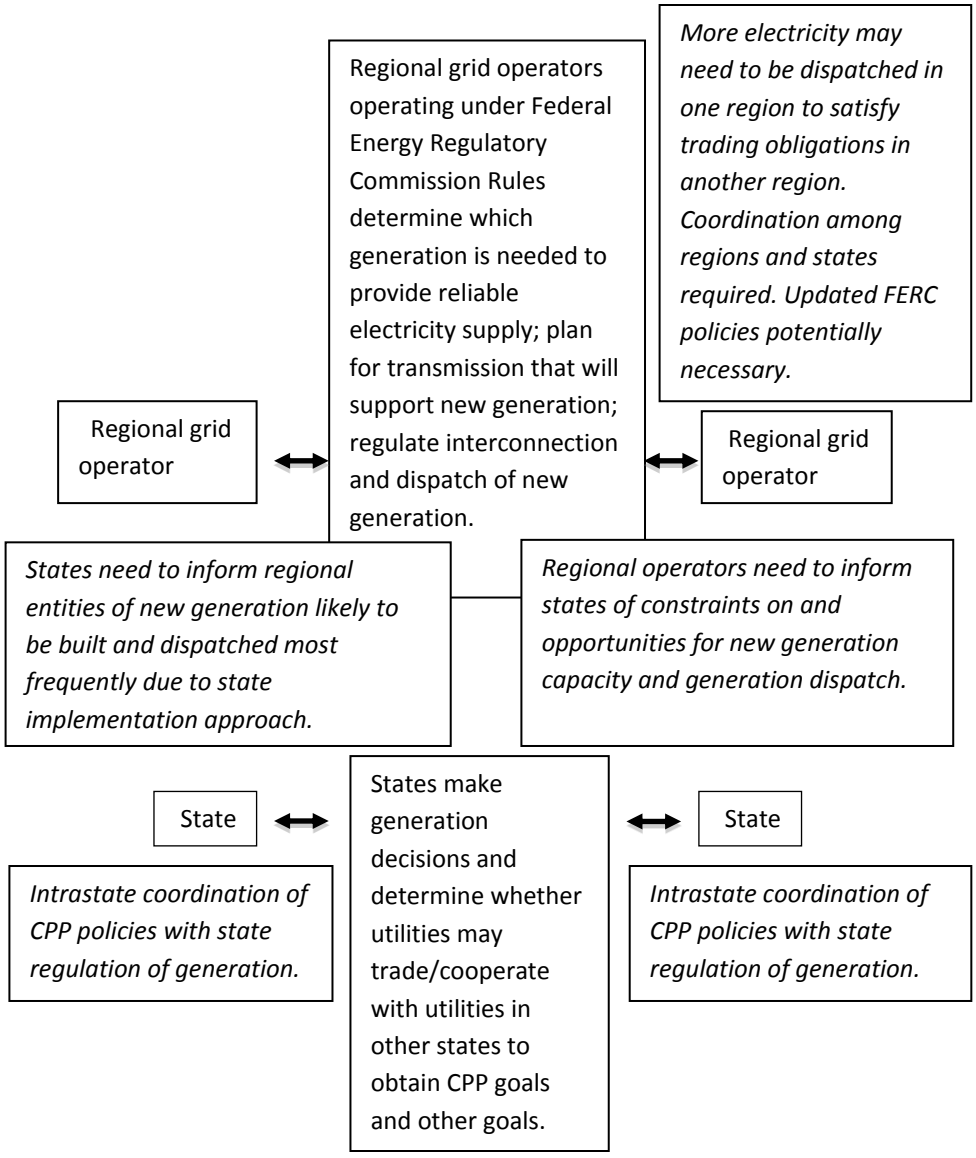
25. *See infra* Part II.B.3.
26. *See id.*
27. *See id.*
28. Clean Power Plan, *supra* note 1, at 64,833, 64,892.
29. *See infra* Part II.B.3.

Once the states have agreed to use the same type of plan, generation practices and plans for the construction of new generation within each state are likely to change. For example, utilities in State A are likely to build much more wind generation or expand output from existing wind facilities, creating extra credits and allowances that can be purchased by utilities in States B and C to help those utilities comply with their states' plans. Further, natural gas units in State C, which emit less CO_2 than coal units, might be operated more frequently, while coal units would run less frequently, perhaps to generate additional credits or allowances that could be sold to utilities in State B.

The regional grid operator in each of these states will need to know about these changes due to the operators' above-described functions. For example, if generating units in States A and C will likely operate more frequently and will want to send more electricity into the grid, both to comply with the plans in each of their states and to generate additional credits or allowances to be sold to the other states, the regional grid operator will need to know this in order to accommodate the additional flow of electricity from these units into the regional grid used by the generating units. Moreover, regional grid operators will need to inform states about potential constraints that might prevent certain generating units from maximizing their ability to generate electricity and create credits and allowances for trading. For example, transmission lines take years to plan and construct, and utilities in State A might not be able to expand their output from new wind farms as quickly as they would hope. In addition, regional grid operators will have to talk with each other and with states in different regions to consider how power flows within each regional grid might increase and how expanded grid connections, including across different regional grids, could help certain types of generation expand. And finally, regional grid operators may need permission from the Federal Energy Regulatory Commission (FERC)—which governs their activities—to change certain policies, for example, policies prioritizing which new generation resources get to connect with and use the grid.

Figure 1 depicts the four types of expanded cooperation and coordination that will be necessary under the CPP.

Figure 1. Intrastate, Interstate, State-Regional-Federal, and Interregional Coordination



Efforts are underway to create this needed coordination for the CPP, building on existing regional governance structures. State energy and environmental agencies have been meeting with their neighbors within footprints of regional grid operators to try to cooperate in their implementation

approaches.[30] Regional transmission organizations (RTOs) are also planning for different scenarios under the CPP, and some are encouraging state coordination while working with states to determine optimal compliance strategies.[31] Further, utilities and several regional grid operators note that interstate and interregional planning processes already required by FERC are "particularly suited to the challenges of implementing the CPP," as they require planning for coordinated, expanded transmission lines for resources such as renewable generation.[32] But these groups add that it is likely necessary to convene grid operators to specifically consider CPP-related grid planning.[33] CPP compliance that minimizes costs and maximizes the reliability of the delivery of electricity to millions of customers will require much more interstate, state-regional, and interregional cooperation than currently exists.[34]

Moreover, even if the CPP were struck down or substantially limited by one of the numerous lawsuits lodged against it or by a new presidential administration,[35] interstate coordination and regional energy governance will have to evolve to accommodate generation practices that are already changing as a result of broader market forces. Indeed, the tools and relationships that regional grid operators need in order to comply with the CPP are nearly identical to many of the tools that these regional operators are already developing to address shifts toward renewables and natural gas that are driven by federal incentives, state and local renewable energy policies, and market forces. For example, as the cost of renewable electricity generation has declined and energy developers have built growing numbers of solar and wind generating units,[36] regional transmission grid operators have discussed the need

30. *Implementation Options for EPA's Proposed Clean Power Plan: Highlights from a Midcontinent States Regional Workshop*, BIPARTISAN POL'Y CTR. (2015), http://bipartisanpolicy.org/wp-content/uploads/2015/05/EPA-CPP-Workshop-Summary.pdf (describing how energy and environmental agency representatives, as well as utilities and environmental groups, have discussed possible regional CPP cooperation).

31. *See, e.g.*, Tom Kleckner, *SPP to Push Regional Approach in First CPP Webinar*, RTO INSIDER (Sept. 21, 2015), http://www.rtoinsider.com/spp-clean-power-plan-17757/; MISO BD. OF DIRS., CLEAN POWER PLAN UPDATE 4 (Oct. 22, 2015), https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/BOD/BOD/2015/20151022/20151022%20BOD%20Item%20VIA%20Clean%20Power%20Plan%20Update.pdf (noting that individual state approaches within the footprint of the MISO RTO would increase the reserve capacity that each utility had to maintain and detrimentally "re-balkanize[]" the grid).

32. WIRES, Preliminary Comments for the February 19 Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets, and Energy Infrastructure (Feb. 18, 2015), http://www.ferc.gov/CalendarFiles/20150219125246-Hoecker,%20WIRES,%20comments%20with%20EPA%20filing.pdf.

33. *Id*. at 3–4.

34. *See infra* Part III & II.B.

35. *See infra* notes 280–282 and accompanying text.

36. U.S. ENERGY INFO. ADMIN., ELECTRIC POWER MONTHLY WITH DATA FOR OCTOBER 2015 at 14 tbl. 1.1 (2016), http://www.eia.gov/electricity/monthly/pdf/epm.pdf (showing net generation from U.S. solar units increasing from 550 thousand megawatt-hours in 2005 to 17,961 in 2014, and for the renewable category excluding hydroelectric and solar and including wind and biofuels, among other renewables, increasing from 86,779 to 261,522).

to expand their boundaries, or to better coordinate the planning of power flows through the grid through market design, so that they can draw from different renewable resources at different times.[37]

Despite this progress, developing enhanced approaches to coordination across energy and environmental law and across different levels of governance calls for further changes to existing models of federalism and governance. An extensive environmental law literature maps out various forms of dynamic federalism. This scholarship attempts to capture the many horizontal (among entities at the same governance level, such as among states or regional energy operators), vertical (among entities at different levels, such as federal and state governments and regional energy operators), and even diagonal (simultaneous vertical and horizontal) dynamics that occur in environmental regulation, including how they evolve over time.[38] Energy federalism is comparatively underdeveloped, and our prior work has applied these dynamic approaches to the project of conceptualizing energy governance.[39] We have focused in

37. *See infra* note 244 and accompanying text. Renewable resources like wind and solar are intermittent, meaning that their output changes at different times of day and in different seasons. YURI V. MAKAROV ET AL., ANALYSIS METHODOLOGY FOR BALANCING AUTHORITY COOPERATION IN HIGH PENETRATION OF VARIABLE GENERATION 1.1–1.2 (2010), http://www.pnl.gov/main/publications/external/technical_reports/PNNL-19229.pdf. The more resources that a grid operator can draw from in a broader region, the easier it is to ensure that adequate electricity will flow through the grid at any given time. *See, e.g.*, Malcolm McClellan & Carol Opatrny, *Maintaining Balance: Innovation in Power System Balancing Authorities*, 1 WASH. J. ENVTL. L & POL'Y 1, 27 (2011) (noting that "Balancing Authority Areas with large geographic scopes can secure diversity of load and generation" but that "there are other ways to combine diverse generation resources"). Interstate, state-regional grid operator, and interregional discussions have generated suggestions for identifying wind energy resources from different regional grid operators and "aggregating" them, or planning when and how electricity from all of the different wind units located in different states and different territories of regional grid operators will be sent through the grid. *Id*. at 28 ("Through the use of dynamic scheduling or pseudo-ties, some are seriously considering certifying wind-based Balancing Authorities focused on the aggregation of wind generation located in a number of adjacent Balancing Authority Areas for the specific purpose of isolating, managing and operating intermittent renewable generation using dedicated AGC [Automatic Generation Control]."); CAL. INDEP. SYS. OPERATOR, DYNAMIC TRANSPORT ISSUE PAPER 6 (2009), http://www.caiso.com/2476/2476ecfa5f550.pdf ("Pseudo-ties are employed to dynamically transfer resources (generating resources or loads [demand for electricity]) from the BAA (Balancing Authority Area—the entity that balances the amount of electricity demanded with the amount of electricity supplied in the grid] to which they are physically interconnected (native BAA) into another BAA that assumes operational control of the resources (attaining BAA)."). Regional planning for transmission lines to connect growing renewable resources to population centers is also underway, and has been highly effective in some regions. *See Recovery Act Interconnection Transmission Planning*, DEPT. OF ENERGY, http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/transmission-planning/recovery-act (last visited Jan. 31, 2016).

38. For an overview of the dynamic environmental federalism literature, see Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159, 176 (2006). For a discussion of horizontal federalism in an environmental context, see Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405 (2006). For a discussion of iterative federalism in the climate change context, see Ann E. Carlson, *Iterative Federalism and Climate Change*, 103 NW. U. L. REV. 1097, 1099 (2009).

39. *See* Hari M. Osofsky & Hannah J. Wiseman, *Dynamic Energy Federalism*, 72 MD. L. REV. 773, 835–36 (2013).

particular on emerging hybrid regional structures that pull together different levels of government, as well as public and private actors. And we have argued that these governance structures have the potential to assist with transitions to new and modified approaches to fuel extraction and electricity generation, particularly at the energy-environment intersection.[40]

This broader federalism scholarship, and our work on hybrid energy governance in particular, provides a helpful foundation for this Article's federalism and governance analysis. Effective implementation of the CPP or of similar carbon emissions reduction requirements requires institutions that can bring together key actors at and within different levels of governance, often doing both simultaneously.[41] This implementation also necessitates integrating key private actors, particularly utilities, which often operate in multiple states, into public regulatory processes. Hybrid entities like RTOs—which are governed by FERC but have largely private companies as members—play an important role in that multilevel, multiactor interconnection, including in RTOs' incorporation of the CPP into grid governance and markets.[42] However, CPP implementation and the current evolution of the energy system present federalism and governance challenges for even these innovative institutions, which this Article lays out and then proposes solutions for addressing.

The Article's approach contributes to the federalism and governance literature and efforts at practical implementation by demonstrating that a key aspect of effective implementation in this context—in contrast to traditional federalism approaches focused primarily on the federal government and states—is the role of regional-level governance and its integration of state and federal governance. It analyzes existing interstate and regional institutions and initiatives, as well as the gaps that remain in bringing together energy and environmental law in this context. Its proposed pathways towards regional institution building—focused on building upon existing and potentially crafting new hybrid structures—contribute to conceptualizing how multilevel, and particularly regional, governance can and should evolve in a context of overlapping interstate and regional activity. In so doing, it demonstrates the ways in which hybrid regional institutional development can help to address the knotty federalism issues at the convergence of environmental and energy law.

This Article uses the CPP as a case study to explore how carbon emissions reductions integrate environmental and energy law and require coordination of state, regional, and federal energy governance. However, its lessons apply equally to alternative regulatory approaches to carbon emissions that the EPA might promulgate in the future and to the evolution of the power sector that is already occurring without top-down regulatory forces. Any carbon emissions

40. Hari M. Osofsky & Hannah J. Wiseman, *Hybrid Energy Governance*, 2014 U. ILL. L. REV. 1 (2014).

41. *See* Kleckner, *supra* note 31; MISO BD. OF DIRS., *supra* note 31.

42. Osofsky & Wiseman, *supra* note 40.

reduction strategy will have to focus on the power sector—the predominant contributor to carbon emissions in the United States[43]—and that sector relies largely on utilities that routinely draw on power plants in different states and send electricity through an interstate electricity grid.

Part I of the Article describes the CPP and its melding of environmental and energy law, as well as the types of interstate implementation that the CPP allows and encourages. Part II explores opportunities posed by implementing interstate CPP approaches within regional energy markets as well as obstacles that, although surmountable, might impede certain efforts toward regionalism. Then, drawing both from a rapidly-emerging literature and from examples of regional approaches in other contexts, Part III analyzes a menu of options for developing new and enhancing existing hybrid institutions that will support effective regional CPP approaches. The Article concludes by considering the broader implications of its proposals for the transitions taking place in our energy system. It argues that effective regional CPP implementation can serve as an important model for the many other areas in which energy and environmental governance must be brought together.

The CPP is an ambitious and important rule, one that has the potential to form the basis of U.S. energy and environmental policy for the foreseeable future.[44] The CPP also forms a key aspect of the U.S. voluntary national commitment to reduce emissions under the December 2015 Paris Agreement on climate change.[45] But states and regional grid operators must act quickly to modify and enhance regional governance mechanisms to address the surmountable yet important challenges described above.[46] A failure to agree upfront on compliance mechanisms that allow utilities to draw from carbon reduction solutions in multiple states—and to enhance existing institutions or form new institutions needed to support interstate implementation

43. *See supra* note 9.

44. Even if it does not survive judicial challenge and/or the 2016 presidential election, it is already influencing industry decision making in important ways. *See* Clean Power Plan, *supra* note 1, at 64,663 ("[T]ransition to cleaner power generation . . . is already well underway in the utility power sector"); *State Analysis of Clean Power Plan*, W. RESOURCE ADVOCATES, http://westernresource advocates.org/projects/state-analysis/ (last visited Jan. 29, 2016) ("[M]ajor utilities have taken proactive measures to get ahead of carbon pollution regulations.").

45. The Paris Agreement adopted at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change in December 2015 requires parties to "prepare, communicate and maintain successive nationally determined contributions" to global emissions reduction and to "pursue domestic mitigation measures" to that end. Paris Agreement to the United Nations Framework Convention on Climate Change, art. 4 cl. 2, Dec. 12, 2015, https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf. The United States intended "nationally determined contribution" to contain "an economy-wide target of reducing its greenhouse gas emissions by 26–28 percent below its 2005 level in 2025," which rests on CPP implementation, among other domestic measures. *See* United States, *Intended Nationally Determine Contribution*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (2015), http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf.

46. *See infra* Part II.

approaches—could lead to the entrenchment of a patchwork of less-effective state mechanisms.[47]

I. INTERSTATE AND REGIONAL IMPLEMENTATION OPTIONS UNDER THE CLEAN POWER PLAN

The CPP, like many other federal environmental regulations, takes a "cooperative federalist" approach to regulating power plant emissions; it provides federal standards that states can choose how to implement.[48] Yet because the CPP applies to energy—which is regulated by states, regional organizations, and standards issued by FERC—it requires more complex coordination among agencies than a typical environmental regulation.[49] As noted in the Introduction, these coordination issues are at the core of the federalism and governance challenges facing implementation. This Part frames the rest of the Article's analysis by exploring relevant aspects of the CPP. It describes how the CPP establishes federal environmental standards for a largely state and regional energy system, and delineates the interstate and regional approaches that the Plan allows.

Throughout this Article, the term "interstate approaches" refers to state efforts to regulate electric generation in a manner that is at least consistent with other state efforts, even if not coordinated with these efforts. In other words, any states that do not require a wholly independent plan—which prevents sources in the state from trading with sources in other states to comply with the CPP—are deemed to take interstate approaches under our definition. For example, state rules that allowed electric generators within the state to trade with generators in any other state that has signed on to a federal ready-for-interstate-trading plan for CO_2 would be an interstate approach. The term "regional approaches" refers to more detailed multistate efforts that might emerge if states decide to combine CPP goals, coordinate electric generation policy for CPP compliance, and form a new regional organization—or modify an existing regional organization such as an RTO—to help implement these

47. For a discussion of path dependence in the context of energy transition, see PROMOTING SUSTAINABLE ELECTRICITY IN EUROPE: CHANGING THE PATH DEPENDENCE OF DOMINANT ENERGY SYSTEMS (Williams M. Lafferty & Audun Rund eds., 2008).

48. When a federal goal is set for states to implement, this is called a "cooperative federalism" regime. The Clean Air Act is somewhat different from other cooperative federalism statutes, however, in that it sets individual targets for states in order to achieve the national target. In certain other environmental statutes and regulations, Congress and the EPA set national goals and ask the states to meet these goals without defining individual state targets. For example, under the Clean Air Act the EPA sets National Ambient Air Quality Standards, and states develop State Implementation Plans in order to meet these standards. 42 U.S.C. § 7410 (2012). More recent approaches, however, are somewhat similar to the CPP. Various iterations of the EPA's regional ozone rules have attempted to set individual or regional ozone limits for states, for example, and to allow limited trading among states. *See* EPA v. EME Homer City Generation, 134 S. Ct. 1584 (2014) (discussing the rule and reversing the D.C. Circuit's vacatur of the rule).

49. Clean Power Plan, *supra* note 1, at 64,672–73.

efforts.[50] Regional governance also refers more generally to existing energy markets, which are regionally governed and operated by RTOs or similar organizations. Although regions are generally comprised of groups of geographically proximate states, they may sometimes be more diffuse, reflecting the organization of electricity regions; for example, the Midcontinent Independent System Operator (MISO) includes members from states in the Midwest and South, which would not generally be viewed as part of the same geographical region.[51]

A. The Clean Power Plan's Energy-Environment, Federal-State Approach

The CPP sets emission standards for sources that emit CO_2 and, based on these estimates of emissions that individual sources can reduce, establishes state targets for CO_2 reductions. It then requires states, which are the regulated entities under the CPP, to decide how sources within states will meet CPP standards.[52] To help states meet the CPP's carbon reduction goal, the CPP establishes what is called a "best system of emission reduction" (BSER) for two types of existing (already built and operating) power plants.[53] BSER, which serves as the basis for the CPP "goals" that states must meet, has two components: (1) reductions in CO_2 emissions that each plant within each power plant category[54] is estimated to be able to achieve, expressed as the maximum

50. The Regional Greenhouse Gas Initiative (RGGI), an organization of New England and Mid-Atlantic states that wrote model rules establishing a carbon cap and allowing trading among utilities in the states to meet that cap, is an example of an existing regional carbon reduction institution. *Program Design*, REGIONAL GREENHOUSE GAS INITIATIVE http://www.rggi.org/design (last visited Jan. 29, 2016). It is "regional" because states created a separate regional institution and voting mechanisms through which the institution adopted recommended rules. States then individually adopted these rules through their respective legislatures. *Id.*

51. *Regional Transmission Organizations (RTO)/Independent System Operators (ISO)*, FED. ENERGY REGULATORY COMM'N, http://www.ferc.gov/industries/electric/indus-act/rto.asp (last updated Jan. 21, 2016). The distinction between interstate and regional is somewhat loose, as interstate efforts with a high degree of coordination—even without the formation of a regional implementing institution—could appear to be more "regional" than interstate, and states that loosely agreed to form a regional organization that would recommend CPP compliance strategies might be labeled as regional but might engage in little coordination.

52. The EPA also establishes interim goals to be achieved prior to the final goal, which is to be reached by 2030. Clean Power Plan, *supra* note 1, at 64,736 n.384. These interim goals are important measures to ensure that states have achieved the final target by 2030.

53. These plants include both fossil fuel-fired electric steam generating units—plants that typically use coal to produce steam and turn a turbine—and stationary combustion turbines, which use the exhaust from burning natural gas to turn a turbine. *Id.* at 64,667. Combined cycle turbines also use the heat from the exhaust to heat up water, which produces steam and turns a turbine. *See supra* note 2 and accompanying text.

54. The EPA calls these groups "subcategories" because under the Clean Air Act, the EPA regulates on the basis of stationary source categories and subcategories, which are groups of pollution-emitting facilities that have similar characteristics and similar pollution and can therefore be subject to the same standard for reducing pollution. *See* Clean Power Plan, *supra* note 1, at 64,702 (describing the general Clean Air Act approach to pollution from stationary sources).

amount of CO_2 emitted per MWh of electricity produced from a steam plant and from a combustion turbine plant,[55] and (2) the actions that these plants[56]—as directed by states—could choose to take to achieve these emissions reductions.[57] These actions include three "building blocks": (1) making existing coal-fired steam power plants more efficient; (2) drawing more electricity from existing natural gas combined cycle (NGCC) power plants that emit less carbon and relying less on higher-CO_2 plants; and (3) relying more on newly built zero-carbon renewable power plants and less on higher-CO_2 plants.[58]

After the EPA estimated the individual achievable amount or rate of emissions for each type of plant, it used these individual amounts or rates to establish state goals.[59] For each state, the EPA took the nationally uniform emission reductions that it estimated could be achieved for each steam generating unit and stationary combustion turbine according to the BSER and aggregated these reductions for the plants within the state.[60] This aggregation established the total emission reductions that each state must achieve under the CPP, and thus the total carbon emissions allowed[61] within each state by 2030, with interim emission reduction measures starting in 2022.[62] The total emissions allowed within each state, which are expressed either as a rate (total CO_2 that may be emitted per net MWh of electricity generated) or total mass

55. *Id*. at 64,667.

56. States also may adopt an approach in which nonregulated plants help achieve the federally-established emission reduction or state-specific emission reduction goal. *Id.* at 64,675.

57. *Id.* at 64,667.

58. *Id*. The emission standard resulting from BSER is expressed as a permissible rate of emissions from each type of plant—CO_2 emissions per MWh of electricity generated (rate-based)—or total allowed emissions from each plant (mass-based). *Id.* at 64,812. For the rate-based standard, by 2030, each existing steam generating unit within a state may only emit 1305 pounds of CO_2 per MWh of electricity generated, and stationary combustion turbines may only emit 771 pounds of CO_2 per MWh. *Id*. at 64,707, 64,812. The rates are "adjusted output-weighted-average" emission rates, which reflect the amount of carbon reductions that the CPP-affected plants are able to achieve by substituting higher carbon generation for lower-and zero-carbon generation, and thus the total CO_2 emissions or emissions per MWh these plants are allowed to emit over two years. *Id*. at 64,812.

59. *Id*. at 64,743 ("[W]eighted-average state goals reflect the application of the uniform CO_2 emission performance rates for affected steam EGUs and affected NGCC units to the respective units in each subcategory in each state"); *id.* at 64,824 (listing the state goals). The EPA did not establish state goals for "Alaska, Hawaii, Guam, and Puerto Rico" because these states have very small CO_2 emissions, the EPA does not have the necessary data to establish a BSER for them, and it believes that it can legally omit these geographically isolated states from the final rule but establish a BSER for them later. *Id*. at 64,825–26. The EPA did not develop statewide emission performance goals for Vermont or Washington, D.C. because it believes that neither of these jurisdictions has CPP-affected power plants. *Id*. at 64,824 n.764.

60. *Id.* at 64,743.

61. The total emissions allowed are expressed as an annual mass-based cap, but compliance is based on two-year periods that aggregate annual caps. *Id*. at 64,849, 64,866 (explaining that "[f]or a mass-based plan, emission performance is total tons of CO_2 emitted by affected EGUs over the reporting period" and noting that the reporting period is two years after the 2022–2029 interim compliance period).

62. *Id*. at 64,667.

(total CO_2 that may be emitted within a year), are called an emission or carbon intensity "goal."[63] These two ways of measuring emissions are crucial to the governance issues that this Article explores because, as analyzed in the following subpart, states will only be able to trade easily with states that choose the same approach.

The CPP describes a variety of other compliance options that, although not officially part of the building blocks within the BSER, can also be used to achieve CPP required targets. These include, inter alia, keeping old nuclear units running and relying on these units more for electricity generation, and reducing energy use through energy efficiency programs.[64] States are the entities tasked with implementing the BSER within their jurisdiction, using the specified building blocks and/or additional tools. The CPP allows states to choose how they will comply with the federal requirements and to determine whether they will work independently, regionally, or simply adopt a federal plan.[65] Specifically, the CPP allows states to (1) individually formulate and implement plans; (2) coordinate to form a regional goal and determine how to regionally implement the goal through, for example, trading of emission reductions or allowances; (3) retain individual goals but regionally cooperate to attain their goals, again, through trading or similar approaches; or (4) apply federal emission rates directly to plants within the state.[66]

B. Opportunities for Multistate Collaboration Under the Clean Power Plan

Trading—as well as other specific elements of CPP compliance—will in many cases be most effective if multiple states coordinate compliance approaches, or, more simply, if they sign on to the ready-for-interstate-trading plan. The CPP therefore encourages states to take coordinated approaches to implementation. The EPA has issued detailed technical guidance as to how this would be done, along with a trading plan that would allow for instantaneous regional or even nationwide cooperation.[67] In particular, it provides two

63. *Id*. at 64,849, 64,865–86.

64. *Id* at 64,729–30.

65. Other sections of the Clean Air Act are more preemptive. For example, with respect to motor vehicle tailpipe emissions, the federal government sets a standard that all states must follow, with the exception that California can obtain a waiver to set its own standard and that other states can then choose to follow California's standard, if the California waiver is granted, or the federal standards. *See* 42 U.S.C. § 7543(b) (2012). This alternative federalism approach has shaped the development of motor vehicle greenhouse gas emissions, with an initial waiver denial under the Bush administration, a later waiver grant under the Obama administration, and now a move towards harmonization of California and federal standards. For an in-depth analysis of this regime, see Hari M. Osofsky, *Diagonal Federalism and Climate Change: Implications for the Obama Administration*, 62 Ala. L. Rev. 237 (2011).

66. *See* Clean Power Plan, *supra* note 1, at 64,832–33.

67. Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before Jan. 8, 2014; Model Trading Rules; Amendments to Framework Regulations, 80 Fed. Reg. 64,966 (Oct. 23, 2015) (to be codified at 40 C.F.R. pts. 60, 62, 78) [hereinafter "Federal Plan Requirements"].

primary pathways for interstate cooperation: (1) multistate goals, with multistate collaboration, such as trading and other mechanisms, and (2) individual state goals with various forms of trading among utilities.[68] These interstate and regional approaches could be followed by states that had adopted either a rate-based or a mass-based approach, although states collaborating would have to collectively decide upon one approach[69] or individually adopt approaches that happen to be compatible.[70]

Under the CPP, states may combine their individual emission goals—the term used by the EPA for each state's emission target—into one regional goal through a multistate plan.[71] States would then collaborate to achieve this aggregate goal. For example, states could establish a multistate cap and allow utilities to determine how to best comply with this regional cap, including allowing the utilities to trade with utilities in other states that are part of the multistate plan.[72] The EPA included this multistate option within the CPP largely to support the few existing state plans that include regional carbon trading, such as the Regional Greenhouse Gas Initiative (RGGI)—a group of Mid-Atlantic and New England states that have capped carbon and have implemented a trading program[73]—and California's carbon trading program.[74]

Alternatively, through an approach that is likely to be more common than multistate plans, a state may retain its individual goals set by the federal CPP yet coordinate regionally by allowing utilities in the state to trade emission allowances or reductions with utilities in other states that agreed to

68. Clean Power Plan, *supra* note 1, at 64,710.

69. *See id.* at 64,912 (noting that the rule restricts "states to interstate trading with equivalently denominated mass-based allowances or rate-based ERCs [emission reduction credits]"). There is an exception for renewable energy built in states that use a mass-based approach that applies only to existing, affected EGUs, and thus requires those generating units to reduce CO_2 emissions at the units rather than building new zero-carbon renewable energy. *Id.* at 64,897. Renewable measures that occur in these mass-based states may be used by utilities in a rate-based state to reduce those utilities' emission rates. *Id.*

70. JONAS MONAST ET AL., ENHANCING COMPLIANCE FLEXIBILITY UNDER THE CLEAN POWER PLAN: A COMMON ELEMENTS APPROACH TO CAPTURING LOW-COST EMISSIONS REDUCTIONS 5 (2015), https://nicholasinstitute.duke.edu/sites/default/files/publications/ni_pb_15-01.pdf.

71. Clean Power Plan, *supra* note 1, at 64,838 (indicating that multiple states may "aggregate their rate or mass CO_2 goals and submit a multistate plan that will achieve a joint CO_2 emission goal for the fleet of affected EGUs located within those states"). Through this approach, states would take each of their individual goals and aggregate them. *Id.* The aggregate goal would be expressed as either the maximum rate of CO_2 emissions allowed per MWh of electricity generated from the two types of regulated units in the states, or the total quantity of CO_2 emissions allowed from regulated existing sources annually plus a limit on total CO_2 emissions allowed from new sources. *Id.* This emission limit on new sources is called a "CO_2 emission complement." Clean Power Plan, *supra* note 1, at 64,839.

72. MONAST ET AL., *supra* note 70, at 3 ("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.").

73. *See supra* note 50.

74. Carbon Pollution Emission Guidelines for Existing Stationary Source: Electric Utility Generating Unit, 80 Fed. Red. 64,662, 64,783 (Oct. 23, 2015) (noting that states in RGGI, as well as California, "have indicated that they intend to maintain their current state programs" and noting that the rule would allow the continuation of these state programs).

coordinate—or in other states that happened to have uniform trading regimes.[75] For example, if utilities in hypothetical State A would have trouble lowering CO_2 emissions to the point required by State A's goal, while utilities in hypothetical State B would easily meet and even exceed State B's separate goal, State A could allow utilities in State A to purchase additional CO_2 emissions reductions from utilities in State B.[76]

Given the likelihood that most states will choose some variation of individual goals plus trading, this subpart focuses on two key aspects of that decision. First, it examines why the CPP's trading structure makes it difficult for rate-based states to trade with mass-based states. Second, it examines the options available to states, whether they opt for rate-based or mass-based approaches, to trade under the CPP.

1. Rate-Based Versus Mass-Based Trading

For states that choose to set individual goals and trade, several options exist. However, whichever trading option they decide upon, they will only easily be able to partner with states that select the same mechanism for measuring emissions. Specific trading approaches will differ depending on whether a state has selected a rate-based or mass-based approach, and this will impede collaboration with states that have made an alternative choice. For rate-based trading, the specific units of trading are emission reduction credits (ERCs), which represent a MWh of electric power generated with no CO_2 emissions and are created when plants "emit below a specified CO_2 emission rate" or substitute low-carbon generation that avoids generation from a CPP-regulated unit.[77] Buyers of ERCs will be plants for which it will be cheaper to

75. *Id.* at 64,838 (allowing "states to retain their individual state goals for affected EGUs and submit individual plans, but to coordinate plan implementation with other states through the interstate transfer of ERCs or emission allowances").

76. *Id*. at 64,839 ("Under this approach, a state plan could indicate that ERCs or CO_2 allowances issued by other states with an EPA-approved state plan could be used by affected EGUs for compliance with the state's rate-based or mass-based emission standard, respectively."). Many states welcome this cheaper approach to complying with the CPP, although some will be reluctant to share inexpensive electricity produced by utilities in their state with other states. *See, e.g.*, Elizabeth Harball & Emily Holden, *Carbon Trading Finds a Foothold in at Least 20 States*, CLIMATEWIRE (Jan. 19, 2016), http://www.eenews.net/stories/1060030764; Clean Power Plan, *supra* note 1, at 64,674 (noting that state and utility commenters recommended that final plan guidelines "facilitate interstate trading"). The concern about sharing inexpensive energy with other states or relying more on energy imported from other states is why some states have resisted the formation of RTOs in their region, citing to the fact that these states currently enjoy low electricity rates and that RTOs naturally encourage cross-state transfers of electricity. *See* Regional Transmission Organizations, 65 Fed. Reg. 810, 935–36 (Jan. 6, 2000) (codified at 18 C.F.R. pt. 35) (summarizing state objections to a FERC regulation regarding RTOs).

77. Clean Power Plan, *supra* note 1, at 64,834. An ERC is a "tradable compliance instrument that represents a zero-emission MWh" from an action that qualifies as an allowed action under the CPP, and which "may be used to adjust the reported CO_2 emission rate" of an EGU subject to a rate-based emission standard. *Id.* at 64,908. For example, the CPP counts the increased use of an existing NGCC plant as a qualifying action. A plant that increased its reliance on an NGCC unit and decreased its reliance on a coal-fired reduces its CO_2 emissions per MWh of electricity generated and thus creates a

purchase ERCs than to limit their emissions as is required to meet the state goal.

The units of trading for mass-based programs are carbon allowances.[78] Under the allowance trading regime that would apply under the CPP, total CO_2 emissions that sources within a state could emit would be quantified into allowances, each of which would represent the ability to emit one short ton of CO_2 annually.[79] These allowances would be distributed—either given away or sold—among the existing power plants in the region.[80] Thus, individual plants would start out with a certain limited number of allowances that was set based on the overall cap and a particular method of dividing up and distributing or auctioning off allowances[81] to the plants. The allowances allotted would function as individual caps on plants; plants could emit up to the amount of allowances they had, "spending" the allowances in order to emit a certain amount of CO_2 annually.[82] Plants that needed to emit more CO_2 than the allowances they had could purchase allowances from plants that could easily reduce CO_2 below their individual allotment.[83] Because the total allowances available for sale would be equal to the total, capped amount of CO_2 that could be emitted under the CPP, this trading approach would ensure CPP compliance while giving power plants within a region the flexibility to either reduce CO_2 emissions, or continue emitting and buy an allowance from another plant that had over-reduced CO_2 emissions.[84]

In a simplified hypothetical example of how trading would work under a mass-based program, picture a certificate stating: "This allowance permits the power plant holding this allowance to emit one ton of CO_2 in 2025." Say that there were seventeen power plants in States A, B, and C, which had maintained

valid ERC. *See, e.g.*, Federal Plan Requirements, *supra* note 67, at 64,994 (noting incremental natural gas combined cycle unit generation (from existing plants) above 2012 levels can receive an ERC). An "allowance" is "an authorization for each specified unit of actual CO_2 emitted from an affected EGU or a facility during a specified period," meaning permission for a power plant regulated by the CPP to emit a certain amount of CO_2 over a certain amount of time. *Id*. at 64,959. Thus, an ERC certifies that CO_2 emissions have been reduced, whereas an allowance certifies that an entity is allowed to emit a certain amount of CO_2. Both of these instruments can be traded under the CPP. *See* Clean Power Plan, *supra* note 1, at 64,709. Under an allowance system, "the owner or operator of each affected EGU is required to hold an allowance for each specified unit of CO_2 emitted from that affected EGU facility during a specified period," and the total amount of authorizations issued is capped, thus limiting total CO_2 emissions from all units that hold allowances. *Id*.

78. *Id.* at 64,709.

79. *Id*. at 64,835, n.794.

80. The power plants in a given state would receive, divided among the plants, allowances totaling the quantity of emissions allowed under that state's goal. *See* Federal Plan Requirements, *supra* note 67, at 233 ("The total amount of allowances distributed in each state for each year would sum to the state's mass goal for that year.").

81. The CPP allows the states to choose how allowances are distributed—such as by auction or direct distribution from the state. Clean Power Plan, *supra* note 1, at 65,012.

82. *Id.*

83. *Id.*

84. *Id.*

their original goals but established a multistate trading regime. At the beginning of 2025, each power plant received one CO_2 allowance from the regional compliance authority governing CPP matters for these states, meaning that the plant would be allowed to emit one ton of CO_2 in 2025. To prove compliance, at the end of 2025, each power plant would surrender one CO_2 allowance to the regional authority and demonstrate through emissions measurements and reporting that it had emitted only one ton of CO_2.[85]

To understand how trading would benefit these plants, assume that two of the seventeen power plants were older natural gas plants that ended or substantially reduced generation and built new renewable generation to offset the lost natural gas generation, reducing emissions to zero tons of CO_2 in 2025, whereas one plant in the region was a coal-fired plant that would have trouble reducing its CO_2 emissions to one ton in 2025. Each of the natural gas plants could sell its CO_2 allowances to the coal plant since they no longer needed them due to their reduced emissions. If the coal plant needed to emit three tons of CO_2 in 2025, it could use the one CO_2 allowance allotted to it and the two additional allowances purchased from the natural gas plants that had built renewable generation.[86] At the end of 2025, the coal plant would relinquish its three allowances and demonstrate that it had emitted only three tons of CO_2. The two natural gas plants that had sold their CO_2 allowances to the coal plant would demonstrate that their net emissions were zero tons of CO_2.[87]

Some utilities are already making decisions that demonstrate how interstate trading among generating units in different states can be beneficial. For example, Xcel Energy—a Minnesota-headquartered utility with customers in Minnesota, Michigan, Wisconsin, North Dakota, South Dakota, Colorado, Kansas, Oklahoma, Texas, and New Mexico—announced in October 2015 that it would retire two of its three units at the Sherco coal-fired power plant, which is Minnesota's largest power plant. Xcel explained that the closures were part of its strategy to cut carbon emissions by sixty percent by 2030.[88] These Minnesota-based actions could, however, count towards reductions in other states where Xcel operates if those states allowed such an approach. Even broader benefits could be realized if utilities traded with each other across

85. *See id.*

86. *See id.*

87. The EPA notes in the CPP that its allowed trading schemes build from existing trading approaches, including the sulfur dioxide and nitrous oxide trading regimes to reduce emissions from power plants that contribute to acid rain. This hypothetical describes this type of trading regime. For examples that provide more granular detail of trading approaches, see, for example, Dallas Burtraw et al., *Economics of Pollution Trading for SO_2 and NO_x*, 20 ANN. REV. ENVTL. RESOURCES 253 (2005); Robert W. Hahn & Gordon L. Hester, *Where Did All the Markets Go? An Analysis of EPA's Emissions Trading Program*, 6 YALE J. ON REG. 109 (1989).

88. Steve Karnowsky & Kyle Potter, *Xcel Energy Says It Plans to Retire 2 of Its 3 Coal-Fired Units at Sherco Power Plant*, STAR TRIB. (Oct. 2, 2015), http://www.startribune.com/xcel-energy-plans-to-retire-2-of-3-coal-fired-sherco-units/330454161/.

numerous states, thus finding the cheapest and most effective compliance options.

However, in order for states to gain these economic benefits, their plans must be designed to allow this kind of trading. The following subpart explores their many options for structuring plans under the CPP.

2. Options for Trading Programs

This subpart considers the numerous options available to states that opt to have individual plans but allow some form of trading, whether mass-based or rate-based. The first and potentially simplest approach is for states to rely on the ready-for-interstate-trading system.[89] Many states are likely to sign on to this plan because they requested that the EPA provide a trading-ready option.[90] Instead of setting up their own system for creating, tracking, and trading allowances, a state through its CPP plan would allow CPP-regulated sources in the state to trade with sources in any other state that had an EPA-approved CPP plan and used an allowance tracking system approved or administered by the EPA.[91] In other words, the EPA has already established a model emissions trading program that, if used by states, has been reviewed by the EPA and is pre-approved as a presumptively acceptable CPP compliance measure.[92]

Although this option is simple in theory, it contains some constraints that create challenges for aligning all states within an energy region. Most fundamentally, as explored in the previous part, under the ready-for-interstate-trading program, sources in rate-based states may only trade with sources in other rate-based states, and sources in mass-based states may similarly only trade with sources in other mass-based states.[93] Moreover, as we discuss further in Part II, increased interstate trading could require enhanced regional grid governance, including more coordination among states, between states and regional grid operators, among regional grid operators, and between regional grid operators and FERC.[94] Regional governance is already changing as renewable generation is built and renewable credits are traded among states,[95] thus making enhanced regional CPP governance feasible. But more institutional development will be needed to operationalize cooperation effectively.

89. Clean Power Plan, *supra* note 1, at 64,910 n.1007.

90. *See, e.g.*, Scott Detrow, *Regulators Study a "Trade-Ready" CO_2 Emissions Trading System that Would Not Require State Legislative Approval*, CLIMATEWIRE (July 14, 2015), http://www.eenews.net/climatewire/2015/07/14/stories/1060021738 (noting that, prior to the final CPP's release, "a growing number of analysts and state officials are rallying around the idea of 'trade-ready' multistate compliance plans as the best way to meet the rule's ambitious carbon-reduction goals").

91. *See id.*

92. *See id.*

93. Clean Power Plan, *supra* note 1, at 64,912 (noting that the rule "restrict[s] states to interstate trading with equivalently denominated mass-based allowances or rate-based ERCs").

94. *Infra* Part II.

95. *See infra* Part II.B.2.a.

Second, a group of states with individual goals could create, through a multistate plan, its own emissions tracking and trading system to be reviewed and approved by the EPA.[96] All states in the region would have to agree on how ERCs or allowances would be created and tracked as well as whether their plans would all be mass-based or rate-based, and they would share the task of reviewing credits or allowances issued.[97] Each state would individually implement a "materially consistent" trading program, meaning that the states would regionally agree on an approach and then individually confirm through legislation or regulation that they were implementing that approach.[98] It is unclear whether states beyond those in RGGI and those that participate in California's trading program will make the effort to form a complex regional trading scheme in light of the easier ready-for-interstate-trading option, but the possibility remains on the table.

Third, under what is called the "bilateral" or "multilateral" trading approach (not to be confused with "bilateral investment" implemented by a utility that is discussed below), states could take a slightly less coordinated approach, identifying just one or several other states that had similar or interoperable emission reduction tracking systems. Sources in State A could trade with sources in the other states that State A identified as trading partners in its plan.[99] Finally, the CPP allows for several utility-specific compliance options. States may establish multistate plans for one specific utility or several utilities, meaning that power plants of the participating utility or utilities in different states may work together and trade with each other to meet an aggregated goal.[100] Each utility within a state could participate in a different multistate plan[101] if the individual state plans allowed this. Similarly, even without a multistate plan in place, states may allow one utility that is attempting to meet a plant-specific emission standard[102] to make bilateral investments in other units that are part of that utility's network of power plants or part of another utility's infrastructure.[103] In a state that allowed trading of credits as a

96. Clean Power Plan, *supra* note 1, at 64,910–11.

97. *Id*.

98. *Id*.

99. *Id*. at 64,892.

100. *Id*. at 64,838–40.

101. *Id*. at 64,840.

102. Utilities also may use this bilateral investment option to contribute to an aggregate state goal for regulated plants. *See supra* note 100 and accompanying text.

103. Clean Power Plan, *supra* note 1, at 64,724, 64,734 (noting that trading is not the "only transactional approach" that "states could use to effectuate the building blocks" and noting "bilateral investment of various kinds" as a mechanism separate from allowance and emissions reduction credit trading). Utilities may enter into bilateral partnerships in which they pay other generators on the same interconnected grid to generate more electricity from an NGCC plant or build a renewable plant, among other cooperative options. *Id*. at 64,753 (noting that bilateral transactions "could but need not involve an organized market" of emission reduction credits"); *id*. at 64,731 (providing examples of bilateral transactions); *but see id*. at 64,734 (noting that bilateral transactions will likely "develop into discrete, tradable commodities" such as an emission reduction credit).

compliance strategy, the utility would obtain credits for making these investments, which would help it achieve compliance with the state plan.[104]

Indeed, several states fall within the jurisdiction of several grid operators, so utilities operating within varying parts of these states would likely prefer different multistate plans that overlay the energy region in which they participate.[105] For example, some parts of eastern Texas are within the jurisdiction of MISO, which extends into portions of Louisiana, Arkansas, and Mississippi and through numerous Midwestern states to the north, whereas other parts of northern and eastern Texas are within the jurisdiction of another regional grid operator called the Southwest Power Pool, which extends into portions of Arkansas, Oklahoma, Kansas, and Nebraska, among other states.[106] Utilities that operate in these parts of Texas and in nearby states might prefer participating in the multistate plans that encompass states within the jurisdiction of their regional grid operator, or in the ready-for-interstate-trading approach, which would allow utilities to independently decide when, where, and how to fuel switch. Even with the ready-for-interstate-trading option, however, as we discuss in Part II, utilities and states would likely have to coordinate more closely with the regional grid operator that manages the generating units involved in fuel switching so that the operator was aware of the units that would be used more often or less often. Other generators in Texas that operate in the portion of the state that remains largely isolated from other states' transmission networks might prefer a Texas-only plan. This divergence would be possible under the CPP, which allows an individual state plan for certain utilities and a multistate plan or plans for other utilities.[107]

Together, these options help to facilitate interstate cooperation. Due to the CPP's flexibility, states can gain the benefits of collaboration without high levels of agreement (other than the crucial mass-based versus rate-based decision). States need not formally coordinate to create a trading regime that would allow for regional compliance with individual state goals, and they need not specifically list the states with which utility trading is allowed, although they can choose to do so. As researchers at Duke University note, states could each individually adopt a trading scheme with "common elements"—a uniform definition for credits or allowances and the use of the same system for tracking the creation and use of credits or allowances.[108] As long as states had such materially consistent plans, and the states within their individual plans made

104. *Id*.

105. *See, e.g.*, *id*. at 64,840 (noting that states might choose "to cover affected EGUs in different ISOs or RTOs in different multi-state plans").

106. *Regional Transmission Organizations (RTOs)/Independent System Operators (ISOs)*, *supra* note 51.

107. Clean Power Plan, *supra* note 1, at 64,840 (noting that a plan "could involve a subset of affected EGUs that are subject to a multi-state plan, with the remainder of affected EGUs subject to a state's individual plan. Alternatively, different affected EGUs in a state may be subject to different multi-state plans.").

108. MONAST ET AL., *supra* note 70, at 5.

clear that utilities within the state could trade with utilities in states with materially consistent plans, these alignments would enable an interstate compliance approach.[109]

However, these many options do not necessarily translate neatly into collaboration that fits existing energy governance. The next Part explores economic, institutional, and political challenges that must be addressed to achieve the needed enhancement of existing intrastate, interstate, state-regional-federal, and interregional coordination. It also discusses the existing regional structures that provide opportunities for overcoming these challenges. Part II focuses particularly on hybrid, regional grid governance organizations that include private utilities as members but are "public" in the sense that they are regulated by FERC. We have explored in our prior work the substantive and structural roles that such organizations can play in facilitating transitions in the energy system,[110] roles that are crucial to the CPP's melding of environmental and energy law.

II. CHALLENGES AND OPPORTUNITIES FOR REGIONAL GOVERNANCE

This Part focuses on the economic, institutional, and political dimensions of cooperative CPP compliance. The economic dimension is the most straightforward of the three. The economic benefits of combining state, federal, and interstate generation policies within regional governance structures are extensive—when monetized, they add up to billions of dollars in savings as compared to individualized state approaches.[111] Although the CPP itself is controversial, broad consensus exists among regulators and industry regarding the advantages of working together toward carbon reduction and the costs of going it alone.

The institutional dimension, though, provides greater challenges for three primary reasons. First, environmental and energy law involve different implementing institutions, with different federalism arrangements, that must collaborate within states. If state environmental and energy agencies work together to develop ideas for best implementing the CPP, this integration of institutions will be more effective. Second, the aspects of energy law implicated by the CPP are governed by both states and regional operators; intrastate, state-state, state-regional-federal, and interregional cooperation will need to increase to facilitate effective implementation. Third, as analyzed above, the inability to trade easily between mass-based and rate-based states means that states within energy regions must make the same choice or face the additional complexity of CPP cooperation and trading not matching existing energy markets.

109. *Id*.
110. Osofsky & Wiseman, *supra* note 40.
111. *See infra* note 119 and accompanying text.

Finally, the CPP is mired in partisan politics over energy. States attempting to coordinate with each other and with regional institutions have differing stances toward the CPP and, at times, fraught relationships with each other. However, as we explore, unless the CPP is struck down by courts or eliminated by a future president, the political barriers will likely be less significant than the institutional ones. Even states opposed to the CPP have largely been planning for compliance to avoid a federal plan being imposed upon them. Under the CPP or a similar carbon reduction scheme, states have strong incentives to comply in an economically effective way that works with existing energy markets.

A. Economics

Part I explored the extensive interstate and regional approaches that the EPA allows and encourages within the CPP, including trading among sources in any state that has adopted the federal plan, trading among sources in states that have independently adopted materially consistent trading regimes, trading among sources in states that are part of a multistate plan, and bilateral investments by utilities. The growing literature analyzing these types of interstate and regional approaches makes clear that they will be far superior to individualized state approaches economically.

The important economic benefits of interstate and regional approaches arise from the simple fact that the emission standards within the CPP—which are calculated based on the emission reductions that the EPA believes utility operators can feasibly achieve—are based on assumptions of regional coordination. Specifically, in setting individual emission standards for each affected source subcategory (the two types of generating plants regulated under the CPP), the EPA assessed existing power plant operations within the three large U.S. grid interconnections. It identified the CO_2 reductions that each type of regulated plant within each interconnection could achieve, investigating how these plants had increased certain efficiencies of operation, drawn more from natural gas-fired units in certain states and less from coal-fired units (thus "fuel switching" among states on a regional grid), and built new renewables in various states.[112] The EPA then determined the interconnection in which the lowest carbon reductions were achieved for each type of regulated plant and set that as the national standard.[113] If states do not allow for cooperation across state borders, including allowing utilities within an interconnected grid to rely

112. Clean Power Plan, *supra* note 1, at 64,727, 64,738.

113. *Id.* at 64,727 ("[T]he EPA has quantified the emission reductions achievable through building block 1 [heat rate improvements, relating to making old power plants more efficient] on a regional basis."); *id*. at 391–92 (noting the agency's "consistent regionalized approach to quantification of emission reductions" in which "each of the building blocks is quantified and applied at the regional level, resulting in the computation for each region of a performance rate for steam EGUs and a performance rate for NGCC units," and a national performance rate was set by taking the "least stringent subcategory-specific performance rates" from one region and applying those rates to all regions).

on a variety of power plants in different states to make efficiency improvements and other CO_2 reductions, these states will have more difficulty achieving the CPP goals, which expressly rely on assumptions relating to interstate fuel switching.

Beyond the fact that the EPA assumed that utilities would switch among plants on a regional grid when determining feasible CO_2 reductions, both trading and bilateral investment also have the advantage of drawing from numerous types of CO_2 reductions and allowing utilities to locate the cheapest and most effective CO_2 reductions for CPP compliance. One agency's calculation of steam and combustion turbine plants' ability to reduce CO_2 emissions per MWh of electricity generation inevitably has limitations because no entity—private or public—can fully know the costs of an approach until that approach is implemented. As states, and utilities following state requirements, work to reduce the rate of CO_2 emitted per MWh from these plants, they will discover that some tools work better than others.[114] Some renewable power plants will be more or less effective than expected, some existing plant improvements will reduce CO_2 more or less than expected, and so on. Plants will be able to experiment with the cheapest and most effective options because, as the PJM RTO (a regional grid operator that has members in several Northeastern and Midwestern states)[115] observes, "regional compliance provides more 'degrees of freedom' in available abatement options across a wider area."[116] Further, it is already clear that some states have far more opportunities for cheap, relatively easily-implemented CO_2 reductions than others—as PJM notes, "low-cost abatement options are not evenly distributed across states."[117] Thus, as introduced in the trading example above, a utility that has relatively high costs of CO_2 reduction could benefit by, instead of implementing its own high-cost reductions, encouraging its power plants to simply purchase a neighboring state power plant's excess—beyond that neighboring state's CPP goal—CO_2 reductions.

The estimated cost savings for interstate and regional approaches as compared to individual state approaches support the theoretical justifications for state collaboration. PJM concludes that if states were to primarily use in-state generation resources to comply with the CPP, the CO_2 allowance price

114. *Cf.* MONAST ET AL., *supra* note 70, at 4 (noting the benefit of allowing EGUs to "choose the compliance strategy or strategies that are best suited for the firm" and that "[t]he 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").

115. *About PJM: Who We Are*, PJM INTERCONNECTION, http://www.pjm.com/about-pjm/who-we-are.aspx (last visited Jan. 23, 2016) (explaining that PJM is an RTO and describing the states in which it operates).

116. PJM INTERCONNECTION, PJM INTERCONNECTION ECONOMIC ANALYSIS OF THE EPA CLEAN POWER PLAN PROPOSAL 78 (2015), https://www.pjm.com/~/media/documents/reports/20150302-pjm-interconnection-economic-analysis-of-the-epa-clean-power-plan-proposal.ashx.

117. Meredith Fowlie et al., *An Economic Perspective on the EPA's Clean Power Plan*, 346 SCIENCE 815, 816 (2014).

would be higher due to supply and demand dynamics. There would be fewer plants available that could overcomply and sell their CO_2 allowance to plants that had more difficulty reducing CO_2 emissions, thus limiting the supply of CO_2 allowances.[118]

MISO concluded that for similar reasons "[r]egional compliance options save approximately $3 [billion] annually compared to sub-regional compliance,"[119] and MISO stakeholders have accordingly begun developing an interstate trading platform for CPP compliance.[120] Another economic analysis noted that "efficiency is enhanced when states form regional trading markets"[121] and that substantial deadweight losses will occur if states operating within a particular interconnection take an individualized approach.[122] Yet another model found that "production costs of [CPP] compliance decreased with increasing cooperation."[123]

Interstate and regional approaches are also important to reducing costs and smoothing market function due to the existing physical nature of the electric grid and its regional and federal regulation. Because transmission lines cross state lines, utilities frequently import electricity from other states in order to meet their customers' needs, or they export excess electricity out-of-state.[124] But if states retain individual goals and compliance approaches, they might ignore this regional reality. For example, assume that there are two identical, efficient NGCC power plants with the same technology and emissions—one in

118. *See* PJM INTERCONNECTION, *supra* note 116, at 77 ("In a state-by-state approach, CO_2 prices in each state will differ, perhaps significantly, from the single, regional CO_2 price due to the available abatement options and resource mix within a state. For example, a state with very little renewable energy or natural gas combined-cycle resources will likely find it much more expensive to redispatch resources and likely could face a much higher CO_2 price than the regional price.").

119. MISO, GHG REGULATION IMPACT ANALYSIS—INITIAL STUDY RESULTS 11 (Sept. 17, 2014) (PowerPoint presentation), http://www.eenews.net/assets/2014/09/18/document_ew_01.pdf.

120. Rich Heidorn, Jr., *MISO, SPP Stakeholders Developing Trading Plan to Comply with EPA Carbon Rule*, RTO INSIDER (Apr. 2, 2015), http://www.rtoinsider.com/epa-ferc-clean-power-plan-miso-spp-14140/.

121. James B. Bushnell et al., *Strategic Policy Choice in State-Level Regulation: The EPA's Clean Power Plan* 5 (Energy Institute at Haas, Working Paper No. 255, 2014), https://ei.haas.berkeley.edu/research/papers/WP255.pdf.

122. *Id*. (analyzing the Western Interconnection).

123. David L. Oates & Paulina Jaramillo, *State Cooperation Under the EPA's Proposed Clean Power Plan*, 28 ELECTRICITY J. 26, 39 (2015).

124. States vary in how they regulate imports and exports, and these regulations have at times become controversial. For example, North Dakota's dormant Commerce Clause challenge of Minnesota's renewable energy law focuses on a provision that limits imports from coal-fired power plants. *See* North Dakota v. Heydinger, 15 F. Supp. 3d 891, 915–19 (D. Minn. 2014). Renewable energy targets in one state also can drive these utility transfers, such in the case of Oregon's exporting renewable energy to California. *See* Cassandra Profita, *Why Oregon Imports Power from Fossil Fuels and Exports Renewable Energy*, OR. PUB. BROADCASTING: ECOTROPE (June 1, 2011), http://www.opb.org/news/blog/ecotrope/why-oregon-imports-power-from-fossil-fuels-and-exports-renewable-energy/. Idaho imports approximately 40–50 percent of its electricity from other states, such as Wyoming, and often from coal-fired power plants. *See* Peter Jensen, *Idaho Weighs Response to Climate Plan*, IDAHO MOUNTAIN EXPRESS (Aug. 5, 2015), http://www.mtexpress.com/news/environment/idaho-weighs-response-to-climate-plan/article_b524f3f8-3b03-11e5-ba96-3be072084c5c.html.

State A, the second in State B, with both plants serving the same customers in States A and B. With state-based approaches to the CPP, these utilities could face very different regulations, with one power plant being used much more than another. Assume that State A could easily achieve its CPP goal by switching from coal to the NGCC plant, yet State B would need to rely mostly on building new renewable technologies. Without interstate coordination, State A might rely heavily on the NGCC plant in State A but not on the NGCC plant in State B, even though both plants serve State A through the regional grid and have identical technologies. States could easily overcome this hurdle simply by recognizing the existing nature of the grid; customers in State A could continue drawing from the NGCC plants in both States A and B to help State A achieve its CPP goal. Indeed, because many multistate generation units are owned by one utility, it would be artificial for states to force utilities to focus on their generation assets in only one state when making the utilities reduce CO_2 to support compliance with the CPP.[125]

Just as forcing utilities to rely on single-state measures would sometimes prevent utilities from benefiting from low-carbon generation that already operates on a regional grid, regional grid operators worry that single-state CPP solutions will "re-balkanize[]" the grid and increase the costs of grid operations.[126] Regional grid operators must constantly balance the amount of electricity demanded by consumers and the amount of electricity generated. This balancing requires them to carefully calculate needed generation "reserves"—ensuring that utilities have excess generation capacity to draw on during times of peak demand. But the more generation from varied places a regional grid operator can access, facilitated by more market participants across a broader geographic area, the fewer individual reserves any one utility must maintain. Not only will the operator have more options to cover a deficit in particular generators, but geographically specific interruptions, like severe storms or localized outages, will also be less of an issue.

The CPP or similar carbon emissions reduction strategies would seem to encourage even more use of the grid in this manner. For example, the construction of additional renewable generation, which any emissions reductions strategies will have to encourage, requires more careful balancing of reserves; drawing from reserves across a broader region can help address the intermittency of renewable resources. MISO estimates that if states within its region do not coordinate to implement the CPP, utilities' reserve margins will have to increase from the current 9 percent to 18 to 20 percent, meaning that utilities will have to ensure that they have generation that is typically not

125. For example, Xcel has a diverse set of generating stations in Colorado, Minnesota, New Mexico, North Dakota, South Dakota, Texas, and Wisconsin. For plant lists that include fuel types for each state, see *Power Generation*, XCEL ENERGY, http://www.xcelenergy.com/Energy_Portfolio/Electricity/Power_Generation (last visited Jan. 31, 2016).

126. *See* MISO BD. OF DIRS., *supra* note 31, at 5.

needed but could be called on to meet 18 to 20 percent of peak demand.[127] Further, regional grid operators require individual generators to demonstrate that they are able to closely "regulate" (control) the exact amount of electricity they send to the grid at any given time and can immediately increase or decrease generation when called upon to do so. Regional grid operators' "regulation" requirements for generators will become more stringent[128] if each state implements an individual CPP plan, which could cause the use of renewable resources or natural gas units to suddenly spike or of coal units to suddenly decline in one state, thus necessitating that the regional grid operator quickly draw upon other generation.

Although the economic benefits of interstate and regional cooperation are uncontroversial, translating the EPA's interstate options into an effective approach that works well with existing regional governance will be complex. Not only does the rate-based versus mass-based choice make it possible that interstate collaboration will not match the footprint of existing energy regions but also additional forms of state-state, state-regional, and regional-regional coordination will be needed. The next subpart examines in depth the new types of coordination that will be required by CPP implementation and the challenges that they pose for existing institutions.

B. Institutions

As Part I discusses, the CPP—like many environmental statutes—relies on traditional cooperative federalism, setting federal standards for states to implement. Yet the CPP is also, in many respects, an interstate rule in large part because the CPP establishes environmental standards for electric generating units that operate in multiple states and send their electricity through a regional grid. The interstate approaches encouraged by the CPP—ready-for-interstate-trading, multistate goals with multistate implementation, individual state goals with multistate coordination, individual state approaches that include compatible trading approaches, and cross-state utility solutions such as bilateral investment and utility-specific multistate plans—will be essential tools for matching CPP governance with the realities of regional energy markets. And interstate approaches will benefit from the strong regional institutions already present in energy law.

However, the challenges of developing and refining regional rules and governing organizations, which we define here as "institutions," will arise in (1) enhancing intrastate coordination of the environmental CPP requirements with state generation policy; (2) developing further interstate cooperation among states on generation issues, including planning for new generation and expanded operation of certain plants owned by utilities that operate in multiple

127. *Id.*; *Reserve Electric Generating Capacity*, *supra* note 15 (describing reserve margins).

128. *See* MISO BD. OF DIRS., *supra* note 31, at 5; *Reserve Electric Generating Capacity*, *supra* note 15.

states; (3) ensuring that the regional entities that currently operate the grid incorporate these state decisions and request any federal approval that may be required to incorporate these decisions (enhancing state-regional-federal cooperation); and (4) bolstering existing interregional coordination among regional grid operators.

First, states will have to meld new CPP environmental requirements with state generation policy that does not currently incorporate these requirements. If a state's energy regulatory agency is not the entity that writes the state's CPP compliance plan, it will have to communicate more extensively with the state agency responsible for the CPP, which is generally the state environmental agency, to understand how this policy is likely to change utilities' choices about generation and operation. For example, in states where each new generating unit must be approved as "needed,"[129] the state is likely to experience an uptick in requests for new construction due to the CPP. The state will also often need updated criteria for addressing these requests.

Second, states will have to enhance interstate cooperation to develop multistate CPP approaches or, more simply, agree on a rate-based or mass-based approach that would allow for ready-for-interstate-trading with other states that select the same approach. Regional institutions will also have to be enhanced to integrate interstate CPP approaches, as explored in more depth in Part III. These dynamics create the governance dilemma framed in the Introduction, and the need for analysis of how institutions can most effectively bring together environmental and energy law and their different federalism structures.

Third, in addition to necessitating coordination among state energy and environmental agencies, the CPP demands careful integration of state generation and regional/federal grid expansion, interconnection, and generation dispatch decisions. Some sophisticated state-regional-federal coordination has already occurred in this area, with states working closely with some RTOs to plan for new transmission lines that improve reliability and connect more renewable resources to population centers, and with RTOs obtaining FERC approval for allocating the costs of these new lines among different generators that use the lines.[130] This demonstrates that the enhanced state-regional-federal coordination necessary under the CPP will be possible, but will require more detailed coordination throughout the country.[131]

129. In states like Florida, even entities that propose to build merchant plants that will mostly sell wholesale electricity must apply for a siting certificate, and in order to obtain a siting certificate they must obtain a certificate of need. *See* Nassau Power Corp. v. Deason, 641 So. 2d 396, 398–99 (Fla. 1994) (per curiam).

130. *See infra* note 224.

131. Midwest Indep. Transmission Sys. Operator, Inc., 137 F.E.R.C. ¶ 61,704, pp. 8–12, (2011) (order denying in part and granting in part rehearing) (describing the MISO planning process for new regional transmission to support reliability and new generation—particularly renewable generation required by individual state policies).

Finally, interstate CPP approaches will require regional grid operators to coordinate more closely with each other, as some states are likely to cooperate with other states that are not within the same regional grid. Regional grid operators making decisions about transmission planning and interconnection, capacity, and dispatch will need to monitor changes in neighboring grids, particularly where neighboring grids are interconnected and exchange electricity with each other. If large amounts of renewable generation are likely to be built in one region because of abundant wind or solar resources in that region, which can be used to provide credits through the EPA's ready-for-interstate-trading program, regional grid operators will need to be aware of this additional generated electricity that might flow through their wires to utilities in another part of the country.[132] Similarly, certain types of generation—particularly coal—will decrease in some regions, and regional grid operators need enhanced knowledge of the generation that is likely to increase or decrease within their region and in other regions with which they are connected so that they have a better idea of likely power flows.

This subpart explores these issues in turn. For each issue it analyzes the challenges and opportunities presented by the existing mix of state, regional, and federal authority over energy law—much of which is implemented by regional grid operators that run energy markets—and the environmental law of the CPP, which interacts with these markets.

1. Coordinating Intrastate Energy Regulation and CPP Requirements

By melding environmental and energy law, the CPP requires state public utility commissions (PUCs), which decide how much and what type of new generation may be built in states that regulate retail electricity, to become experts in a particular area of environmental law. PUCs already engage in some analysis of environmental issues when they make certain energy law decisions. For example, when a utility in a regulated state requests to build a new plant or make changes to an existing plant to comply with Clean Air Act requirements for conventional and hazardous air pollutants, PUCs typically approve these requests and allow the utility to recover the costs of the changes from

132. *See, e.g.*, WIRES, *supra* note 32, at 3 (noting how the interregional planning already required by FERC helps grid operators coordinate their planning for the expansion of transmission lines across regions to help support new generation capacity, and the allocation of costs for these new lines). Although a utility need not receive the electricity generated from a renewable plant in order to obtain a credit or allowance from that plant, the excess renewable electricity generated in order to create credits or allowances will require some wires through which to flow. The electricity does not have to physically follow the allowance or credit, but under the CPP one utility may not count both the generation of renewable electricity and the credit created by this generation for CPP compliance. This would constitute impermissible double counting.

ratepayers.[133] Further, many states have renewable portfolio standards and goals that PUCs and other state energy agencies help design and implement.[134]

But the CPP's top-down federal requirements will require PUCs to make CPP-specific determinations of acceptable and necessary changes to existing plants and construction of new plants. These needed changes will vary among states because some states regulate retail electricity, including the types of generation that may be built and the rates that may be charged for generation, whereas others have restructured the retail electricity sector, making it a largely competitive market and relying less on PUC approval of generation and retail rates. This subpart discusses intrastate coordination challenges in each of these types of states.

In the "traditional" states that have not restructured retail electricity, state PUCs make decisions about the construction and operation of generation plants through regulation, requiring each generator to prove that new generation is "needed" and setting the rates that the generator may charge to recover the costs of construction, operation and maintenance, financing, and equity.[135] Because many generators will likely build more renewable generation to comply with state plans and generate credits or allowances for sale elsewhere, CPP considerations—or similar carbon-based considerations that would arise under an alternative EPA carbon regulation—will have to be incorporated into the need determination. States will have to pay particular attention to the issue of whether plants built primarily to generate credits or allowances to be sold to sources in other states are considered "needed," and, if some of the electricity is also sold retail rather than just to other utilities, how ratepayers and utility shareholders should proportionately pay the capital and operational costs of these plants.

Restructured states leave generation decisions to the market.[136] In these states, if there is demand for generation, a developer may simply build a power plant, although the developer still must get siting approval from the state or a local government and typically a license from the state government.[137] CPP

133. *See supra* note 11 and accompanying text.

134. *See Database of State Incentives for Renewable Energy, Renewable Portfolio Standard Policies*, NC CLEAN ENERGY TECHNOLOGY CTR. (Oct. 2015), http://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2014/11/Renewable-Portfolio-Standards.pdf (showing that 29 U.S. states, Washington, D.C., and three U.S. territories have renewable portfolio standards).

135. For a discussion of the differences among state regulatory structures, see *supra* note 13.

136. *Id.*

137. Federal regulation only influences state generation decisions through its influence on wholesale markets. Utilities that sell electricity retail to customers within states typically build new power plants (a state-regulated decision) and purchase wholesale electricity from other power plants to fulfill retail needs (a federally-regulated activity). States may prohibit utilities from purchasing certain wholesale power on economic grounds, but once they allow a wholesale purchase, states may not interfere with the federal regulation of that purchase. For example, states may not prohibit a utility from recovering certain costs of wholesale power purchases from its retail customers, although ex ante states may simply prohibit a utility from purchasing certain wholesale power on the basis of its expense. More specifically, states may not determine that the wholesale price that the utility paid was inaccurate—

compliance will affect both of those categories as utilities rework their generation portfolios and have to address stranded costs of infrastructure built under an old regulatory system.[138] PUCs might have to reenter the governance sphere in order to address these issues—either by adding a new factor to the generation market, such as a carbon price, or by intervening in purely market-based decisions to favor certain generation resources over others.[139] Because the CPP will indirectly create a carbon price, there are likely to be natural incentives to build low-carbon generation both to ensure utility compliance with the CPP and create potentially lucrative trading opportunities. But even if the CPP naturally incentivizes this construction and intervention in the generation market is unnecessary, states will need to update transmission siting policies to accommodate new generation.

Texas—a restructured state—exemplifies one approach that these types of states could take to the extent that they need to incentivize new low-carbon generation under the CPP, and to address transmission needs. Although anyone may build new generation in the restructured areas of Texas, provided that power plant developers meet local land use requirements and obtain a basic license, Texas encouraged the construction of particular types of generation by requiring the construction of transmission lines to wind farms[140] and implementing a renewable portfolio standard.[141]

PUCs also will have to consider comprehensively how all utilities with affected plants in the state—and, for plans that rely on both CPP-regulated and nonregulated sources, how nonregulated sources—might collectively achieve the state's carbon goal. More simply, states could just allow their CPP-regulated sources to participate in a ready-for-interstate-trading program. But even under this approach, PUCs will need information about how utilities participating in trading will likely rely more or less on certain generating units and will need to build new units. This, in turn, will require more interstate coordination and discussions about potential approaches to CPP compliance, as well as agreements with other states about the types of plan—mass-based or rate-based—to implement in order to enable trading.

states may not determine that the utility, through its purchase of the wholesale electricity, should not have had to cover certain costs of the wholesale generation and transmission that should have been borne by other purchasers.

138. Stranded costs are the infrastructure costs of prior investments that are generally included in rates to repay that outlay even when the infrastructure is no longer needed. For discussion of generation changes that will be needed to achieve carbon emissions reduction goals, *see supra* Part I.

139. *Id.*; *see also supra* notes 11–12.

140. 16 TEX. ADMIN. CODE § 25.174(c)–(d) (2016).

141. § 25.173. The renewable portfolio standard ended up being largely unnecessary and was easily and quickly met, however, because the wind industry expanded rapidly with an assurance of the availability of transmission lines and because of the favorable economics of wind projects in Texas.

2. Coordinating State Generation Policies

States will be centrally involved in CPP governance not only because they are responsible for writing plans and reporting to the EPA but also because, as discussed in Part II.B.1., they have important governmental control over electricity generation—the target of the CPP. In addition to working with regional grid operators to ensure that state CPP goals are incorporated into regional systems, the focus of Part II.B.3, states will have to coordinate with each other to determine how they will regulate utilities that operate in multiple states, and how they can work together to ensure lower-cost CPP compliance. This subpart discusses the need for augmented discussions and coordination among states and legal constraints that states will have to consider when implementing the CPP.

a. The Need for Enhanced State Coordination

States already collaborate in a variety of ways relevant to CPP implementation and compliance with similar carbon regulations that the EPA might promulgate in the future. However, the new demands on PUCs and the benefits of collaborative CPP compliance will require more cooperation. This subpart considers how states are already interacting to address relevant energy policy and analyzes the additional coordination needs created by the CPP.

If states were to approach the CPP regionally through a multistate plan or multistate coordination toward individual state goals, PUCs, state environmental agencies, and other entities could benefit from collective, enhanced knowledge of potential approaches to achieving federal CPP requirements. Indeed, a group called the Midcontinent States Environmental and Energy Regulators (MSEER) is already fostering these types of interagency discussions in the Midwest; state energy and environmental regulators from numerous states, as well as environmental groups and utilities, have been meeting for a number of months to discuss issues such as how to collaborate if they choose different pathways to CPP compliance.[142] Similar groupings are taking place in other regions, as Part III.C.2 discusses.

Beyond these new CPP-focused meetings, states have many formal and informal groupings to help them collaborate on energy policy and decision-making approaches. Most broadly, state PUCs coordinate informally through their existing organizations. For example, the National Association of Regulatory Utility Commissioners (NARUC) organizes educational sessions on the state of the utility industry and utility regulation, suggests regulatory best practices and compares state energy regulation, conducts policy advocacy on certain shared views of PUCs, and publishes reports on utility regulation,

142. *Implementation Options for EPA's Proposed Clean Power Plan: Highlights from a Midcontinent States Regional Workshop*, *supra* note 30.

among other functions.[143] NARUC's work and meetings provides a mechanism for states to coordinate on CPP implementation, among a variety of other energy issues.

In addition to sharing ideas and strategies for the most effective compliance mechanisms for the CPP and agreeing on the type of plan to implement in order to allow trading, regulated states with utilities that operate in several states will need to discuss how the costs of new and expanded CPP generation will be shared among ratepayers. Some states currently coordinate generation policy and ratemaking to a limited extent. For example, in the Pacific Northwest, one utility—PacifiCorp—owns the largest share of the remaining coal plants.[144] Many of these coal plants are located in Montana but service other states like Idaho and Oregon.[145] Because PacifiCorp owns generation in multiple states and this generation services multiple other states, PacifiCorp must approach each state PUC to obtain approval for the cost of building new generation and importing electricity from out-of-state plants. The states served by PacifiCorp have developed a regional approach that lessens the burden on the utility, through which the six states served by PacifiCorp use a formula that calculates the construction, operation, and financing costs incurred by the utility in all six states and allocates costs among the states. However, individual states may reject the costs that the formula suggests ratepayers in each state should bear.[146]

A number of states also work together in the context of limiting carbon emissions. In the most extensive examples of coordination, Mid-Atlantic and Northeastern States through RGGI have already developed and implemented a regional cap on greenhouse gas emissions and trading among power plants to achieve this cap,[147] drawing from the advice and expertise of states' utility and environmental agencies. California has a similar cap[148] on carbon emissions from certain sources, including power plants,[149] and it allows sources to trade carbon allowances, including with sources in Canada that have linked their trading system to California's.[150] This degree of interstate (or, in California's case, international) coordination requires relatively complex regional governance structures, as discussed in further detail in Part III.[151] These

143. *Welcome*, NAT'L ASS'N OF REGULATORY UTIL. COMM'RS, http://www.naruc.org/ (last visited Feb. 1, 2016).

144. Duncan, *supra* note 18, at 312.

145. *Id*. at 309.

146. *Id*. at 313.

147. *Welcome*, REG'L GREENHOUSE GAS INITIATIVE, http://www.rggi.org/ (last visited Feb. 1, 2016).

148. CAL. CODE REGS. tit. 17, § 95841 (2016).

149. CAL. CODE REGS. tit. 17, § 95811 (2016).

150. *Summary*, CTR. FOR CLIMATE AND ENERGY SOLUTIONS, http://www.c2es.org/us-states-regions/key-legislation/california-cap-trade (last visited Jan. 24, 2016) (noting that in January 2014, Quebec linked its carbon market to California's carbon market).

151. *See infra* Part III.

interstate governance structures help inform efforts toward CPP coordination, although states that choose to retain individual goals but engage in coordinated compliance may not require such complex interstate coordination.

Indeed, some states produce opportunities for regional coordination without formally working together. Researchers at Duke University note that states like Missouri and Kansas have independently formed mechanisms for trading credits created when renewable energy is generated, and these mechanisms allow for interstate trading. These states define credits using the same units, and they use the same "bank" for tracking when the credits are created and used.[152] North Carolina, too, which requires utilities to generate or purchase a certain percentage of renewable electricity, allows the utilities to buy renewable energy certificates from other states to comply with this regulation, provided that those states use a particular platform for tracking the creation and use of the credits.[153]

Finally, many states coordinate in another area that will be essential for CPP compliance—planning for the siting of transmission lines. For example, the Committee on Regional Electric Power Cooperation, which consists of representatives from state energy agencies, utility commissions, and facility siting agencies within the Western Electricity Coordinating Council (WECC), has been active since 1984. This group holds webinars to inform its state members of issues such as the National Renewable Energy Laboratory's study on better integrating wind and solar into energy systems and CPP compliance. Many of the states that are members of this Committee were involved in an extensive Western Governors' Association planning effort to identify the most abundant, accessible renewable energy resources in the West and to prioritize areas where transmission lines might be built based on this renewable energy assessment.[154]

Although these various efforts at coordination—not to mention the many regional efforts that convene states to facilitate aligning CPP compliance discussed below—are valuable, CPP compliance will require some additional forms of collaboration. This need stems in part from the fact that, as discussed above, individual states have different fundamental regulatory systems for energy based on whether they have a traditional system of vertically integrated utilities or have restructured electric utilities to encourage more competition.[155]

Beyond the coordination issues made more complicated by the different state energy systems, states will have to agree on several other issues specific to the CPP. These include not only the choice between mass-based or rate-based plans but also how compliance will be measured, whether states will rely only on CPP-regulated sources or also on additional sources in order to comply, and

152. MONAST ET AL., *supra* note 70, at 5.

153. *Id.*

154. W. RENEWABLE ENERGY ZONES, PHASE I REPORT (2009), www.westgov.org/component/docman/doc_download/5-western-renewable-energy-zones-phase-1-report?Itemid=.

155. For sources on restructured versus nonrestructured states, see *supra* note 13.

whether to develop an aggregate CPP goal or to retain individual state goals and rely on coordinated compliance, among other decisions. None of the current interstate entities discussed above are facilitating coordination at this level of specificity with respect to CPP compliance. This enhanced coordination will occur most effectively if a regional governance mechanism exists through which states may discuss options, deliberate, and vote to approve particular CPP approaches. Part III uses examples of other regional organizations to suggest the types of regional CPP organizations states could potentially create, and the voting mechanisms and procedures that the organizations could potentially use, to agree upon the many facets of CPP compliance.

b. Legal Considerations

Regardless of the approach chosen, in enhancing interstate coordination under the CPP, states will have to navigate potential constitutional constraints on their regulatory approaches. The dormant Commerce Clause[156] limits the ways in which state regulation can affect other states, while the Compact Clause affects their ability to create agreements.[157] These two constraints interact, but both likely can be addressed through careful framing of CPP implementation. The more that states cooperate in CPP implementation, the less vulnerable their approaches are to dormant Commerce Clause challenges. However, as they collaborate, states must be careful to structure institutional arrangements in a way that does not raise Compact Clause concerns. This subpart focuses on the potential dormant Commerce Clause challenges, and Part III examines how states can develop regional approaches that avoid Compact Clause hurdles.

Three recent dormant Commerce Clause lawsuits in the context of state efforts to address climate change—California's Low Carbon Fuel Standard (LCFS),[158] Colorado's Renewable Energy Standard,[159] and Minnesota's Minnesota Next Generation Energy Act[160]—produce valuable lessons for CPP implementation approaches. To date, courts have upheld the California and Colorado provisions that were challenged, and struck down the Minnesota one.[161] However, these results may change upon appeal.

Although the California lawsuit focuses on transportation rather than electricity, the Ninth Circuit's reasoning is relevant to CPP implementation. The challenge to the LCFS focused on the law's use of lifecycle analysis in assessing transportation fuel carbon intensity.[162] Specifically, the LCFS takes

156. This constraint has been inferred from the Commerce Clause. U.S. CONST. art. I, § 8, cl. 3.
157. *Id.* art I, § 10, cl. 3.
158. Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070 (9th Cir. 2013).
159. Energy & Env't Legal Inst. v. Epel, 793 F.3d 1169, 1173 (10th Cir. 2015).
160. North Dakota v. Heydinger, 15 F. Supp. 3d 891 (D. Minn. 2014).
161. *See* sources *infra* notes 165, 168 & 169 and accompanying text.
162. *Rocky Mountain Farmers Union*, 730 F.3d at 1080–81.

into account the greenhouse gas emissions resulting from the fuels' production and transportation, which Midwestern ethanol producers claimed discriminated against them due to the higher carbon emissions (and costs) associated with out-of-state transport into California.[163] The Ninth Circuit rejected this reasoning, explaining:

> Under dormant Commerce Clause precedent, if an out-of-state ethanol pathway does impose higher costs on California by virtue of its greater [greenhouse gas] emissions, there is a nondiscriminatory reason for its higher carbon intensity value. Stated another way, if producers of out-of-state ethanol actually cause more [greenhouse gas] emissions for each unit produced, because they use dirtier electricity or less efficient plants, [the California Air Resources Board] can base its regulatory treatment on these emissions.[164]

In 2014, the Ninth Circuit denied en banc review and the Supreme Court denied certiorari, though litigation continues over other issues regarding the LCFS.[165] For purposes of CPP implementation, the Ninth Circuit's reasoning suggests that measures that affect other states' electricity markets should be upheld if they have the nondiscriminatory purpose of greenhouse gas emissions reduction.

The district court's reasoning in *Energy and Environmental Legal Institute v. Epel*, which struck down a challenge by a pro-coal nonprofit and one of its members to the Colorado Renewable Energy Statute, relates even more directly to CPP implementation. In that case, petitioners claimed that the Colorado law's requirement that Colorado electricity providers meet a "Renewables Quota" should be treated as constitutionally forbidden extraterritorial regulation of out-of-state businesses. The district court took a similar approach to the Ninth Circuit, with reasoning directly on point for CPP implementation. Specifically, the opinion distinguishes between direct regulation of another state's electricity markets and taking steps that affect those markets.

> [T]he fact that [the incentive for Colorado utilities to buy renewable electricity] may negatively impact the profits of out-of-state generators whose electricity cannot be used to fulfil [*sic*] the Quota does not make the Renewables Quota invalid. The dormant Commerce Clause neither protects the profits of any particular business, nor the right to do business in any particular manner.[166]

On appeal, the Tenth Circuit upheld this approach, noting that the Colorado law "isn't a price control statute, it doesn't link prices paid in

163. *Id.* at 1092.

164. *Id.* at 1089–90.

165. Rocky Mountain Farmers Union v. Corey, 740 F.3d 507 (9th Cir. 2014) (denying rehearing *en banc*); Rocky Mountain Farmers Union v. Corey, 134 S. Ct. 2875 (2014) (denying certiorari). The district court considered some of these additional issues on remand. *See* Am. Fuels & Petrochem. Mfrs. Ass'n v. Corey, Nos. 1:09–cv–2234–LJO–BAM, 1:10–cv–163–LJO–BAM, 2015 WL 5096279 (E.D. Cal. Aug. 28, 2015).

166. Energy & Env't Legal Inst. v. Epel, 43 F. Supp. 3d 1171, 1180 (D. Colo. 2014).

Colorado with those paid out of state, and it does not discriminate against out-of-staters."[167] Petitioners filed a writ of certiorari with the Supreme Court, which the Court denied in December 2015.[168]

The district court's and Tenth Circuit's reasoning in *Energy and Environmental Legal Institute* fits CPP implementation well. When states create individual plans to meet CPP targets, even if they affect other states' implementation due to their interconnected markets, the dormant Commerce Clause should allow states to act with respect to their own generators. If they collaborate, the issue becomes even easier; they are explicitly agreeing to the ways in which they affect each other's implementation.

However, the district court opinion in *North Dakota v. Heydinger*, which upheld a challenge by North Dakota, lignite coal industry representatives, and multistate electric cooperatives to a provision of Minnesota's Next Generation Energy Act, takes a very different approach from the other two opinions that potentially raises issues for CPP implementation.[169] The provision at issue in *Heydinger* requires carbon dioxide offsets for imports of electricity into Minnesota from new out-of-state coal-fired power plants. The district court's opinion finding a violation of the dormant Commerce Clause indicated, in particular, that the interstate electricity industry's participation in MISO gives the regulation extraterritorial effect.[170] If a court were to apply this broad view of the reach of the dormant Commerce Clause to CPP implementation, it could create a hurdle for all of the state implementation plans, whether states are collaborating or not. Any effort by a state to reduce CO_2 will likely affect electricity markets across states, as discussed in the previous subpart.

Given the Supreme Court's denial of certiorari in the other two dormant Commerce Clause cases, though, it seems unlikely that it will agree with the Minnesota district court. Such reasoning would potentially have far-reaching and problematic implications for state power well beyond CPP implementation; it is hard to see how state PUCs could make almost any decision regarding generation, or how state environmental agencies could implement cooperative federalist environmental regulatory schemes, without implicating markets in this way. In light of the embedded nature of states' powers in these areas and the Supreme Court's approach thus far, it seems unlikely that the courts will hold that nondiscriminatory action to meet CPP goals that impacts other states' electricity generators and markets is unconstitutional, even if Minnesota's particular provision is still found to be problematic on appeal. The Colorado district court's and Tenth Circuit's approach in *Energy and Environmental Legal Institute*, on which the Supreme Court declined to grant certiorari, seems to comport better with longstanding dormant Commerce Clause

167. Energy & Env't Legal Inst. v. Epel, 793 F.3d 1169, 1173 (10th Cir. 2015).

168. Energy & Env't Legal Inst. v. Epel, 136 S. Ct. 595 (2015) (denying certiorari); Petition for Writ of Certiorari, *Energy & Env't Legal Inst.*, 136 S. Ct. 595 (No. 15-471), 2015 WL 5996408.

169. North Dakota v. Heydinger, 15 F.Supp. 3d 891 (D. Minn. 2014).

170. *Id.* at 915–19.

jurisprudence.[171] Further, states can avoid certain dormant Commerce Clause challenges by entering into formal agreements with each other, although in these cases, the Compact Clause might apply in minor ways, as discussed in Part III.B.

3. Coordinating State, Regional, and Federal Generation Policies

Regional entities, in addition to states, impact decisions about the construction of generation resources and how often these generation resources operate; they will therefore be centrally involved in CPP implementation. Fully capturing the governance challenge of melding a federal-state CPP with a federal-regional-state energy system requires an understanding of the different forms of regional grid operators. This subpart begins by providing this overview, and then explores the challenges that CPP implementation provides for coordinating among these multi-level entities, with a particular focus on the evolving role of regional operators in melding energy and environmental law.

a. Regional Grid Divisions and Governance

This subpart explores the regional nature of the physical grid and the ways in which governance has developed to match these physical characteristics. To conceptualize regional grid operators, picture the national grid, which consists of three large sets of interconnected transmission lines.[172] Most of the transmission lines in the western United States are connected to each other through an array of lines, and this connected area of lines is called the Western Interconnection.[173] Similarly, most lines in the eastern United States are connected to each other, forming the Eastern Interconnection. Texas only has limited interconnections across its borders, which comprise the final independent Texas Interconnect.[174]

Within each massive maze of wires that forms a large interconnection, there are smaller portions of connected wires that form a natural, physical, smaller unit of lines. An entity that has governance authority over a smaller unit

171. For scholarly analyses of these cases and their implications, see JACQUELINE PEEL & HARI M. OSOFSKY, CLIMATE CHANGE LITIGATION: REGULATORY PATHWAYS TO CLEANER ENERGY? 296–98 (2015); Alexandra B. Klass & Elizabeth Henley, *Energy Policy, Extraterritoriality, and the Dormant Commerce Clause*, 5 SAN DIEGO J. CLIMATE & ENERGY L. 127 (2013–2014); Daniel K. Lee & Timothy P. Duane, *Putting the Dormant Commerce Clause Back to Sleep: Adapting the Doctrine to Support State Renewable Portfolio Standards*, 43 ENVTL. L. 295 (2013). For an analysis of the interaction between the dormant Commerce Clause and broader efforts at interstate coordination in energy law, see Alexandra B. Klass & Jim Rossi, *Revitalizing Dormant Commerce Clause Review for Interstate Coordination*, 130 MINN. L. REV. 129 (2015).

172. *See Learn More About Interconnections*, U.S. DEP'T OF ENERGY, http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/transmission-planning/recovery-act-0 (last visited Jan. 24, 2016).

173. *See id.*

174. *See id.*

of connected lines within an interconnection is called a balancing authority.[175] These balancing authorities, as well as balancing authorities that have merged into larger units, are the regional grid operators that we described in the Introduction. Every portion of each of the three large interconnections is governed by a balancing authority,[176] and these authorities play a central role in ensuring grid reliability—a role that causes them to centrally impact decisions regarding which types of fuels are used to generate electricity through capacity, interconnection, dispatch, and transmission planning decisions.

In some cases, a regional authority controls an area that covers multiple balancing authorities.[177] This regional authority, which is called a coordinating

175. *See* FRANK DELEA & JACK CASAZZA, UNDERSTANDING ELECTRIC POWER SYSTEMS: AN OVERVIEW OF THE TECHNOLOGY, THE MARKETPLACE, AND GOVERNMENT REGULATIONS 172 (2d. ed. 2010) ("The Balancing Authority operates within a predefined part of the electric grid whose boundaries are metered. Each balancing area is unique and in the aggregate cover the entire grid. Every generator, transmission facility, and end-use customer is in a Balancing Authority Area. The Balancing Authority's mission is to maintain the balance between loads and resources in real time within its Balancing Authority Area by keeping its actual interchange equal to its scheduled interchange and meetings.").

176. *See id*.

177. There are several types of regional grid operators due to federal law. From a geographic (extent of the wires) perspective, the balancing authority is the smallest regional operator. The federal entity that regulates electricity reliability—the North American Electric Reliability Corporation (NERC)—requires that these authorities exist in order to ensure that the amount of electricity flowing through the wires exactly matches demand, that wires are not overly congested, and that last-minute sources of electricity can be brought on to the grid to address last-minute spikes in demand, in addition to other reliability requirements. Sometimes, a balancing authority is simply one utility that owns and operates wires within a particular portion of a state or region. Further, a higher-level authority, which also typically operates at a broader geographic level than the balancing authority, must also ensure grid reliability under NERC standards. This is called the Reliability Coordinator. *Id.* at 172 ("The Reliability Coordinator is the highest operating authority; the underlying premise is that reliability of a wide area takes precedence over reliability of any single local area."); N. AM. ELEC. RELIABILITY CORP. STD. IRO-001-3 at 1, http://www.nerc.com/files/IRO-001-3.pdf ("Each Transmission Operator, Balancing Authority, Generator Operator, and Distribution Provider shall comply with its Reliability Coordinator's direction"); *Florida Reliability Coordinating Council (FRCC)*, N. AM. ELEC. RELIABILITY CORP. http://www.nerc.com/pa/RAPA/ra/Pages/FRCC.aspx (last visited Feb. 16, 2016) (explaining that the Florida Reliability Coordinating Council includes ten balancing authorities). Beyond the legally required transmission authorities that must implement reliability standards, there are regional grid authorities that have voluntarily developed in order to better coordinate generation markets. These grid authorities tend to cause several balancing authorities to coordinate their transmission planning and dispatch activities with each other. In some cases, these balancing authorities are combined into one larger balancing authority that serves electricity market coordination functions in addition to reliability functions, or the authorities maintain their separate status but coordinate their actions in order to better coordinate electricity markets. Where several balancing authorities have been pulled together, either forming a larger, single authority or causing numerous authorities to cooperate in operating electricity markets, this is typically called a coordinating council, power pool, RTO, or ISO. *See* Clean Power Plan, *supra* note 1, at 64,693 ("In states with cost-of-service regulation of vertically-integrated utilities, the utilities themselves form the balancing authorities who determine dispatch based upon the lowest marginal cost. These utilities sometimes arrange to buy and sell electricity with other balancing authorities. RTOs and ISOs coordinate, control, and monitor electricity transmission systems to ensure cost-effective and reliable delivery of power, and they are independent from market participants."); *id*. at 64,691 ("[U]tilities began building larger transmission lines to deliver power in times when large generators experienced outages. Eventually, some utilities that were in reserve sharing agreements formed electric power pools to balance electric load over a larger area. Participating utilities gave control over

council, independent system operator (ISO), or RTO, depending on its role in the energy system,[178] governs many aspects of generation resources and has balancing responsibilities over this broader area.[179] If individual balancing authorities remain within the region, the coordinating council or RTO must coordinate among these authorities, telling them when new generation will be constructed and determining how these authorities will decide when and how much electricity from this new generation can be sent through the wires at a given time.[180] (Intermittent resources like solar and wind can have a sudden decline in electricity,[181] thus requiring the grid operator to quickly draw electricity from another source, and addressing this possibility requires planning.) In some coordinating councils and RTOs, rather than having a regional authority act as the go-between for various balancing authorities, the balancing authorities are consolidated and cover the same region that is covered by the council or the RTO.[182]

RTOs are different from coordinating councils primarily in the sense that they have received official certification from FERC in the form of a tariff issued to the RTO and approval of the organization itself. This tariff confirms that the RTOs have full operational control over all of the lines in the region and can call on various generation sources throughout the region when needed. It also states that RTOs meet other requirements of being an official regional grid operator—one with jurisdiction that extends well beyond the small unit of an interconnection operated by a small balancing authority.[183] To determine the amount of generation that will dispatched at any given time, these RTOs—

scheduling and dispatch of their electric generation units to a system operator. Some power pools evolved into today's RTOs and ISOs."). To be an RTO or ISO that runs sophisticated electricity markets, a grid entity must meet certain FERC requirements and receive a tariff from FERC that allows it to act as a regional grid operator and run energy markets. Where a regional grid entity like an RTO, ISO, or coordinating council has formed in order to coordinate markets, this entity is typically also designated as the Reliability Coordinator that answers to NERC. *See Reliability Coordinators*, N. AM. ELEC. RELIABILITY CORP., http://www.nerc.com/pa/rrm/TLR/Pages/Reliability-Coordinators.aspx (last visited Jan. 24, 2016) (listing the reliability coordinators as including RTOs and ISOs like MISO and PJM Interconnection).

178. FERC approved ISOs under the Order 888 standards for regional organizations and approved RTOs under the very similar Order 2000 standards. *See* Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services; Recovery of Stranded Costs By Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (codified at 18 C.F.R. pts. 35, 385). Since all current ISOs have nearly identical characteristics to RTOs, we do not treat ISOs as a separatee category for the purposes of CPP analysis.

179. *See supra* note 177.

180. For a more detailed institutional analysis of the institutional roles of RTOs and coordinating councils, *see infra* Part II.B.3.

181. Other power plants can also experience outages, and the grid can experience interruptions; intermittent resources are therefore not the only cause of reliability concerns. All regional authorities plan for plant outages and grid interruptions and for the resources needed to avoid and address these problems. *See* MAKAROV ET AL., *supra* note 37, at 1.1 (describing regional entities' functions).

182. *Id.* at 1.2 (describing consolidation of balancing authorities in MISO).

183. Regional Transmission Organizations, 65 Fed. Reg. 810 (Jan. 6, 2000) (codified at 18 C.F.R. pt. 35) (establishing the requirements for entities to be approved as RTOs).

unlike less sophisticated balancing authorities and many coordinating councils—also run complex wholesale energy markets, in which load-serving entities that need electricity make bids in RTO-run auctions, generators that provide electricity place offers through the auction, and a clearing price emerges.[184] Some coordinating councils similarly have this broad regional control and have coordinated different balancing authorities,[185] but they do not operate regional auction-based markets for wholesale electricity. Instead, they rely on utilities entering into bilateral contracts for electricity, which are commitments to send a particular amount of electricity to the grid to another utility. These coordinating councils also use additional commitments—provided by independent generators and/or generators in bilateral contracts—to satisfy demand and avoid outages when the grid needs more electricity.[186]

These regional entities—whether an RTO, coordinating council, or balancing authority—are functionally separated from the states implementing the CPP, although they frequently interact with the states and are influenced by state groups designed to influence RTO policies. They also are not regulated entities under the Clean Air Act that the CPP is implementing, and the geographic territories that they serve differ substantially. For example, some RTOs and coordinating councils operate a regional grid that stretches across many states, while others cover only one state.[187] However, they are essential to CPP implementation because of their responsibilities for capacity, interconnection, dispatch, and transmission planning.[188] The following subpart

184. *See* ISO/RTO COUNCIL, PROGRESS OF ORGANIZED WHOLESALE ELECTRICITY MARKETS IN NORTH AMERICA 1 (2007), http://web.mit.edu/cron/project/urban-sustainability/Old%20files%20from%20summer%202009/Ingrid/Urban%20Sustainability%20Initiative.Data/Progress_of_Organized_Who—-rom_10_ISOs___RTOs.pdf ("Two-thirds of the United States and more than 50 [percent] of Canadian populations are supplied wholesale electricity through markets run by ISOs or RTOs.").

185. The Western Electricity Coordinating Council is an example of a highly developed entity with many functions that parallel that of an RTO. It is organized into thirty-eight separate balancing authorities, and "is charged with coordinating and promoting Bulk Electric System reliability. Additionally, WECC coordinates the operating and planning activities of its Western Interconnection members." *Western Electricity Coordinating Council (WECC)*, W. INTERST. ENERGY BD., http://westernenergyboard.org/reliability/western-electricity-coordinating-council-wecc/ (last visited Feb. 3, 2016).

186. Udi Helman et al., *The Design of US Wholesale Energy and Ancillary Service Auction Markets: Theory and Practice*, *in* COMPETITIVE ELECTRICITY MARKETS: DESIGN, IMPLEMENTATION, PERFORMANCE 179, 180 (Fereidoon P. Sioshansi, ed., 2008) (noting that only ISOs and RTOs operate "organized regional bid-based auction markets for spot energy, various types of ancillary services, and possibly capacity" and that other regions lack a "co-ordinated spot energy market that encompasses the territory of multiple utilities"); MICHAEL MILLIGAN ET AL., NAT'L. RENEWABLE ENERGY LAB., EXAMINATION OF POTENTIAL BENEFITS OF AN ENERGY IMBALANCE MARKET IN THE WESTERN INTERCONNECTION at ix–x (2013), http://www.nrel.gov/docs/fy13osti/57115.pdf (describing the current approach in the Western Electricity Coordinating Council to ensure that there is adequate electricity flowing through the grid to meet "load" (demand) and thus to avoid grid imbalances).

187. Single-state RTOs include the Electric Reliability Council of Texas and the California Independent System Operator. *See About ERCOT*, ELECTRIC RELIABILITY COUNCIL TEX., http://www.ercot.com/ (last visited Aug. 9, 2015); *About Us*, CALIFORNIA INDEP. SYS. OPERATOR, http://www.caiso.com/about/Pages/default.aspx (last visited Aug. 9, 2015).

188. Within these RTOs and coordinating councils, individual utilities own the transmission lines, but they give up certain responsibility over operating the wires to regional entities. As we discuss in the

explores how the roles of regional operators in the energy system present opportunities for effective environmental-energy CPP governance, but will need to change in some ways to accommodate evolving energy practices caused by the CPP.

b. The Role of Regional Operators in CPP Implementation

Although states control many aspects of generation and will use those powers in their implementation of the CPP or similar carbon rules, states do not make all of the decisions relevant to that implementation because generated electricity flows through regional transmission grids.[189] The entities that govern these regional grids, with guidance from the federal government, ensure that: (1) enough generation capacity will be built to match future demand, and that this capacity will fulfill both constant "baseload" demand and peak demand, pursuant to federal reliability requirements;[190] (2) new generators can

Introduction, these regional entities must plan for new transmission needs in their regions, including transmission to support grid reliability and state generation policies, such as policies that require a certain amount of electricity to come from renewable resources. 18 C.F.R. 35 (2011); ISO/RTO COUNCIL, INCREASING RENEWABLE RESOURCES: HOW ISOS AND RTOS ARE HELPING MEET THIS PUBLIC POLICY OBJECTIVE (Oct. 16, 2007); Press Release, Midcontinent Indep. Sys. Operator, MISO Furthers Wind Integration into Market (Jun. 1, 2011), https://www.misoenergy.org/AboutUs/MediaCenter/PressReleases/Pages/MISOFurthersIntegrationofWindResources.aspx; *Market Committee*, MIDCONTINENT INDEP. SYS. OPERATOR (Mar. 1, 2011), https://www.midwestiso.org/Library/Repository/Meeting%20Material/Stakeholder/MSC/2011/20110301/20110301%20MSC%20Item%2012a%20DIR%20Implementation%20Update.pdf. Regional grid operators also determine, with FERC approval, how the costs of building new portions of the transmission grid and maintaining and operating the grid will be allocated among grid users. These entities charge a fee of the utilities that use the grid to transmit electricity, and this fee is allocated to different grid users based on how many costs these users impose on the grid and how many benefits they receive from it. *See* Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VANDERBILT L. REV. 1801, 1824–25 (2012) (discussing cost allocation policy); Ill. Commerce Comm'n v. Fed. Energy Regulatory Comm'n, 721 F.3d 764 (7th Cir. 2013) (reiterating the cost allocation rule that applies when FERC approves fees charged of utilities that use transmission lines—fees that cover the costs of line construction and operation).

189. The extent of regional coordination required by the CPP and similar potential carbon emissions governance strategies will differ geographically. Some states, like Florida, tend to have relatively few regional transmission connections, and utilities operate a grid that is largely within the state of Florida. *See Home*, FLA. RELIABILITY COORDINATING COUNCIL, INC., https://www.frcc.com/default.aspx (last visited Feb. 3, 2016) (showing that one entity, the Florida Reliability Coordinating Council, addresses the reliability aspects of Florida's grid solely within Florida, with the exception of the panhandle, which is part of a larger reliability entity that covers much of the Southeast); *Florida Reliability Coordinating Council (FRCC)*, *supra* note 177 (showing sixty-eight balancing authorities within the FRCC that dispatch electricity in order to balance supply). But even these relatively isolated states might prefer to rely on more imported electricity to meet CPP goals, or export more electricity to benefit their state's comparative advantage in low-carbon generation, and will still likely need to engage in a moderate degree of regional coordination.

190. ERIK ELA ET AL., NAT'L RENEWABLE ENERGY LAB., OPERATING RESERVES AND VARIABLE GENERATION 1, 12 (2011), http://www.nrel.gov/docs/fy11osti/51978.pdf ("Power system operators have a number of responsibilities that focus on maintaining reliability. System generation must be as close as possible to the system load and electrical losses to ensure that system frequency is maintained at or very close to nominal levels. . . This is achieved through numerous procedures on different time scales using

interconnect with the transmission grid and thus generate electricity and send it to customers; (3) at any given moment, enough electricity is dispatched (sent through) the grid to exactly meet the quantity of electricity demanded;[191] and (4) there are adequate transmission lines to service existing generation and allow new generators to come online. Thus, the regional grid operator influences the type and amount of new generation constructed, as well as how often this generation operates.

With respect to the construction of new plants, regional grid operators[192] must follow federal guidelines for grid reliability. These operators must ensure that there is adequate electricity to meet demand, and that the amount of electricity demanded exactly matches the amount of electricity supplied, thus avoiding voltage problems.[193] Specifically, these operators must ensure that for the transmission wires they control, there will be adequate generation resources—called "capacity"—to satisfy all electricity demand within the region now and in the future.[194] These operators run auctions or use similar mechanisms to obtain commitments from companies to build specific types of generation.[195]

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both economic response and deployment of reliability reserves with both centralized control and autonomous response . . . [M]any of the properties of the power system, including its generation output, load [electricity use] levels, and transmission equipment availability are both variable and unpredictable. Therefore, additional capacity (generation and responsive load availability) above that needed to meet actual load demands are made available either on-line or on-standby.").

191. These authorities must ensure that there is enough generation available "to keep electric energy supply and demand in balance at all times." CHRISTENSEN ASSOCS. ENERGY CONSULTING, MARKET STRUCTURES AND TRANSMISSION PLANNING PROCESSES IN THE EASTERN INTERCONNECTION 1, 18 (2012), http://www.naruc.org/grants/Documents/EISPC%20Market%20Structures%20Whitepaper_6_15_12.pdf. Balancing authorities therefore must be able to dispatch generators at a given time to fill generation need. N. AM. ELEC. RELIABILITY CORP., GLOSSARY OF TERMS USED IN NERC RELIABILITY STANDARDS 1, 10 (2015), http://www.nerc.com/files/glossary_of_terms.pdf. A balancing authority is "[t]he responsible entity that integrates resources plans ahead of time, maintains load-interchange-generation balance within a balancing authority area, and supports the Interconnection frequency in real time." *Id*. at 10.

192. The EPA also refers to regional grid operators as "system operators." *See* Clean Power Plan, *supra* note 1, at 64,693.

193. Regulators call markets that ensure that generation will be built and/or available in the future "capacity markets." *Capacity Market (RPM)*, PJM INTERCONNECTION, https://learn.pjm.com/three-priorities/buying-and-selling-energy/capacity-markets.aspx (last visited Feb. 1, 2016).

194. *See* N. AM. ELEC. RELIABILITY CORP., 2014–2015 WINTER RELIABILITY ASSESSMENT at iii (2014), http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/2014WRA_final.pdf ("While NERC does not have authority to set Reliability Standards for resource adequacy—e.g., reserve margin criteria—or to order the construction of resources or transmission, NERC can independently assess where reliability issues may arise and identify emerging risks. This information, along with NERC recommendations, is then made available to policy makers and federal, state, and provincial regulators to support decision making within the electric sector.").

195. *See Capacity Market (RPM)*, *supra* note 193. The ability of federally-regulated regional authorities to influence generation through capacity decisions has recently been challenged. *See* N.J. Bd. of Pub. Utils. v. Fed. Energy Regulatory Comm'n, 744 F.3d 74, 79 (3d Cir. 2014) (affirming a FERC order for the PJM RTO that "required that load serving entities (LSEs) [utilities that provide retail electric power] in the PJM market procure a certain amount of energy capacity—that is, additional generation resources that the market may access during times of peak load"); PPL EnergyPlus v.

Capacity markets offered in some RTOs accept offers (bids) from generators to provide needed generation capacity (such as a NGCC unit) in the future.[196] The RTO selects the capacity primarily on the basis of cost—not on the type of generation—but some types of generation are treated differently in capacity markets, which can influence the types of generation built.[197] For example, in the PJM capacity market, wind, solar, and hydroelectric generation units are not required to meet certain capacity market rules—such as a guarantee that the resources will be available at peak hours or during peak seasons—and accordingly do not receive what is called a "performance incentive" payment for providing these types of services.[198] States in areas with RTOs that have capacity markets or RTOs willing to form capacity markets will need to coordinate with RTOs to meld carbon reduction strategies, such as enhanced construction of renewable plants, with reliability requirements in capacity markets. Reliability requirements require RTOs to recognize the intermittency of renewable resources, and the fact that these resources cannot be called on at any hour of the day for a specific amount of electricity, when RTOs allow these resources to bid into markets.[199]

RTO and state preferences for capacity do not always intersect, however, and these conflicts could increase under the CPP. States can reject certain types of generation altogether on economic grounds, thus influencing the type of generation bid into regional capacity markets. For example, if a regional operator held a capacity auction in which utilities offered to build generation capacity, and a state prohibited utilities from building new nuclear plants because it deemed these plants to be too expensive, the utility bidding into the regional auction would avoid offering to build any new nuclear plants in that state.[200] But within the bounds of the types of generation allowed by states,

Nazardian, 753 F.3d 467 (4th Cir. 2014), *cert. granted*, 136 S. Ct. 382 (2015); PPL EnergyPlus v. Solomon, 766 F.3d 241 (3d Cir. 2014) (certiorari petitions pending) (affirming a district court decision finding that federal law, which applies to wholesale sales of electricity, preempted New Jersey law aiming to require the construction of new generation capacity).

196. *Capacity Markets*, DIRECT ENERGY BUS., https://www.business.directenergy.com/understanding-energy/managing-energy-costs/deregulation-and-energy-pricing/capacity-markets (last visited Aug. 12, 2015) (identifying four RTOs with capacity markets).

197. *See* Nat'l Ass'n of Clean Air Agencies, *Revise Capacity Market Practices and Policies*, *in* IMPLEMENTING EPA'S CLEAN POWER PLAN: A MENU OF OPTIONS 19-1, 19-4 (2015), http://www.4cleanair.org/sites/default/files/Documents/Chapter_19.pdf (noting that many capacity markets have a "near-term" (three-year) focus and thus do not create a certain market opportunity for generation resources that cannot be built quickly, such as nuclear and hydroelectric projects).

198. Joseph Bowring, *Capacity Markets in PJM*, 2 ECON. ENERGY & ENVTL. POL'Y 46, 54–55 (2013).

199. *Id*. at 49–50.

200. States may not deny nuclear plants on safety grounds but may deny them on the grounds that they are too expensive for ratepayers. *See* Pac. Gas & Elec. v. State Energy Comm'n, 461 U.S. 190 (1983) (California's moratorium on new nuclear plants was not preempted because the moratorium was based on economic concerns regarding the costs of disposing of nuclear wastes); Entergy Nuclear Vermont Yankee, LLC v. Shumlin, 733 F.3d 398 (2nd Cir. 2013) (state legislation requiring legislative approval of nuclear plant preempted because the legislation was not required to open up electricity

regional processes for securing generation reserves substantially influence the type of new generation built. These processes likely will need to be redesigned with increases in renewable generation and more frequent operation of natural gas plants in mind.

Regional grid operators also influence power plants' construction and operation, such as whether coal plants may reduce their generation and whether renewable plants may increase their generation, in several ways. First, these operators determine which new plants may connect to the grid, and when.[201] If a developer contemplating building a new renewable plant believes that the wait for interconnection with a transmission line is too long—indeed, the queues are notoriously long[202]—the developer might not choose to construct the plant. RTOs, with FERC approval, have developed some procedures to allow certain generation resources to reserve a spot earlier in the long interconnection queue.[203] However, operators may need to update interconnection policies further—again, with FERC approval—to prioritize low-carbon resources within the interconnection queue. An existing FERC order specifying that interconnection decisions are to be made on a first-come, first-served basis already provides some flexibility to operators to give certain generators priority even if they joined the queue later,[204] but additional updates may be necessary.

Once a generation plant has been built, has connected to the grid, and is able to send electricity through the grid, regional grid operators make continuous dispatch decisions to determine how much electricity the generator may send through the grid at any given time. Because electricity storage is

markets to competitors like renewable generators, and state legislators had made comments regarding safety concerns). States do not face similar constraints for denying other types of generation, aside from certain capacity decisions; nuclear is the only type of generation decision for which states face partial federal preemption.

201. *See, e.g.*, INTERCONNECTION REQUESTS FOR NEW ENGLAND CONTROL AREA: GENERATION, ELECTIVE TRANSMISSION UPGRADE AND TRANSMISSION SERVICE REQUESTS, PROJECTS AS OF 2/1/2016 (2016) (showing the many generators waiting to be approved for interconnection with the transmission lines controlled by the New England ISO); Standardization of Small Generator Interconnection Agreements and Procedures, Order No. 792, 70 Fed. Reg. 71760 (Nov. 22, 2013) (codified at 18 C.F.R. pt. 35); Open Access and Priority Rights on Interconnection Customer's Interconnection Facilities, Order No. 807, 80 Fed. Reg. 17654 (Apr. 1, 2015) (codified at 18 C.F.R. pt. 35); Interconnection for Wind Energy, Order No. 661, 70 Fed. Reg. 34993 (June 2, 2005) (codified at 18 C.F.R. pt. 35).

202. *See, e.g.*, *ISO New England Application Portal*, INDEP. SYS. OPERATOR NEW ENG., INC., https://portal.iso-ne.com/uniquesigfc5f1422bcd98327808787b72cf49729/uniquesig0/SecurePORTAL PortalHomePage/ (last visited Feb. 3, 2016).

203. For example, some grid operators hold "open seasons" in which generators may commit to interconnecting to the grid and pay a certain amount of money to demonstrate their sincere desire to build generation and use the grid and to move ahead of certain other, less committed generators in the queue. *See, e.g.*, Fact Sheet, Bonneville Power Admin., Transmission to Offer Network Open Seasons (Mar. 2008), https://www.bpa.gov/news/pubs/FactSheets/fs200803-Network%20Open%20Season.pdf.

204. Standardization of Generator Interconnection Agreements and Procedures, 106 F.E.R.C. ¶ 61,220 (Mar. 5, 2004) (codified at 18 C.F.R. pt. 35).

constrained,[205] regional operators must constantly balance the exact amount of electricity demanded with the exact amount of electricity supplied.[206] As introduced above, they do this through auctions (in the case of RTOs) or contracts with generators in which generators commit to provide electricity when it is needed.[207]

Regional operators dispatching electricity typically choose the least-cost generation first[208]—thus often favoring fossil fuels over lower-carbon sources. However, some RTOs have policies for the priority of dispatch that take into account state carbon and renewable portfolio standards, as well as considerations other than the lowest marginal cost of generation, which could serve as a model for CPP implementation.[209] A pre-CPP example from the Pacific Northwest illustrates the ways in which regional operators, interacting with FERC, will need to address these dispatch issues. California's renewable portfolio standard and carbon cap led to a surge in wind farm construction.[210] Yet the regional grid operator had an electricity "redispatch" policy at the time that prioritized certain hydroelectric power resources over certain wind resources. This situation sometimes led to curtailment of electricity from wind resources, which is a reduction in the amount of electricity accepted from these resources, and led to a drawn-out battle before FERC. FERC ultimately

205. *See* Roger Lueken & Jay Apt, *The Effects of Bulk Electricity Storage on the PJM Market*, 5 ENERGY SYS. 677, 677 (2014) (noting that "[e]lectric power systems" have storage capacity that is only three percent of generation capacity and that this requires "grid operators to continuously balance generation and load").

206. *Id*.; DELEA & CASAZZA, *supra* note 175 (describing the role of balancing authorities in matching electricity supply with load (use)).

207. *See, e.g.*, EXETER ASSOCS. & GEN. ELEC. INTL., INC., REVIEW OF INDUSTRY PRACTICE AND EXPERIENCE IN THE INTEGRATION OF WIND AND SOLAR GENERATION 5 (2012), http://www.pjm.com/~/media/committees-groups/subcommittees/irs/postings/pris-task3b-best-practices-from-other-markets-final-report.ashx (comparing some of the markets).

208. *See id*. Operators also tend to first dispatch baseload generation, which includes plants that operate most efficiently if they run constantly rather than frequently shutting down and starting up.

209. *See Electric Generator Dispatch Depends on System Demand and the Relative Cost of Operation*, ENERGY INFO. ADMIN. (Aug. 17, 2012), http://www.eia.gov/todayinenergy/detail.cfm?id=7590 ("The exact order of dispatch varies across the United States, depending on such factors as fuel costs, availability of renewable energy resources, and the characteristics of local generating units."); Natalie Karas, *Recommendations for Inter-Agency Regulatory Coordination: Analyzing Reliability Impacts of the EPA's Clean Power Plan*, 27 ELECTRICITY J. 103, 105 (2014) ("For economic and technical reasons, nuclear plants in the United States are almost invariably operated as baseload units at maximum output."). Plants that designate themselves as "self-scheduled output" and notify the regional entity of this designation are "price-taking resources that prefer to operate regardless of the market price for energy." Further, considerations other than cost can be and already are considered in dispatch decisions through "self-scheduled output." N.Y. INDEP. SYS. OPERATOR, COMMENTS OF THE ISO RTO COUNCIL IN RESPONSE TO THE FEDERAL ENERGY REGULATORY COMMISSION'S NOTICE OF INQUIRY SEEKING PUBLIC COMMENT ON THE INTEGRATION OF VARIABLE ENERGY RESOURCES 75 (2010), https://www.caiso.com/Documents/April12_2010Comments-ISO_RTOCouncil-notice-inquiry inRM10-11_Integration-variableenergyresources_.pdf.

210. *See* CAL. ENERGY COMM'N, RENEWABLE ENERGY OVERVIEW http://www.energy.ca.gov/renewables/tracking_progress/documents/renewable.pdf; CAL. EPA, CAP-AND-TRADE-PROGRAM, http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm (last updated Jan. 13, 2016).

directed the operator to change its redispatch policy to better accommodate wind generators.[211]

Similarly, carbon reduction priorities will have to be added to and melded with pre-existing grid operator dispatch priorities, and states and regional entities will have to agree on these new rules. For example, a high-efficiency natural gas or renewable energy plant should have high dispatch priority under the CPP or similar rules addressing carbon emissions. But, that plant will not be dispatched at certain times if it will cause grid reliability problems, or would force a plant that generally must run without much interruption in order to be economically and environmentally efficient, like an old coal-fired plant, to ramp down (decrease electricity output) or temporarily shut down. Furthermore, regional entities, which already have curtailment policies for reducing the amount of generation from certain plants during times of low demand, will have to modify these policies to incorporate CPP goals.[212]

Regional entities that dispatch electricity will also have to incorporate states' energy efficiency approaches, including programs being designed as part of CPP compliance and ones already being implemented for other purposes. Although energy efficiency is not an official building block in the final plan, the EPA indicates that states may use energy efficiency and other strategies that are not "building blocks" in the final version of the rule to achieve CPP goals.[213] Where sources in states that send electricity through a regional grid rely on improving energy efficiency and reducing the use of electricity during times of peak demand, thus reducing the need for the use of carbon-intensive "peaker" power plants, regional grid operators will need to modify electricity markets to accommodate this approach.

When a regional entity faces a certain amount of electricity demand, it has two options: it can dispatch the amount of generation required to meet that demand, or it can reduce the demand, thus reducing the need for new generation. Reducing the demand for electricity in lieu of calling on new generation is sometimes called "virtual" generation: a regional entity can either call on a power plant to generate more electricity, or it can call on a virtual generator to reduce its electricity use.[214] Many RTOs already allow virtual

211. Timothy P. Duane & Kiran H. Griffith, *Legal, Technical, and Economic Challenges in Integrating Renewable Power Generation in the Electricity Grid*, 4 SAN DIEGO J. CLIMATE & ENERGY L. 1, 20–32 (2012–2013). In California, the state has established a "loading order" that directs utilities in the priorities they should follow in dispatching electricity. Utilities are to prioritize, first, energy efficiency and demand response (encouraging customers to reduce electricity use during peak demand so that additional generation is not needed), second, renewable resources, and third, "efficient natural gas-fired power plants." Letter from Mary D. Nichols, Chairman, Cal. Air Res. Bd., to Gina McCarthy, Adm'r, EPA 14 n.23, (Dec. 27, 2013), www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2014-0020-0085&disposition=attachment&contentType=pdf.

212. LORI BIRD ET AL., NAT'L RENEWABLE ENERGY LAB., WIND AND SOLAR ENERGY CURTAILMENT 5–15 (2014), http://www.nrel.gov/docs/fy14osti/60983.pdf.

213. *See supra* note 64 and accompanying text.

214. For a discussion of the role of virtual power plants in renewable energy integration, see Tildy Bayar, *Virtual Power Plants: A New Model for Renewables Integration*, RENEWABLE ENERGY WORLD

generators to bid electricity "negawatts" (nonuse) into markets, but the types of markets vary and may need to be modified to accommodate states' CPP planning for energy efficiency and demand response.[215]

Regional operators already have useful information about states' reliance on energy efficiency and demand response, which will help these operators forecast likely decreases in generation in certain areas. States that use integrated resource plans, which address future generation capacity needed in the state and how electricity demand can be reduced, typically incorporate energy efficiency goals or mandates into their plans.[216] Similarly, when utilities submit information to states regarding their likely generation build-outs in the future and their available generating capacity to demonstrate that they will be able to fulfill demand, utilities also submit information about energy efficiency that will reduce the need for certain new generation and demand response that lowers peaking plant use, and regional operators can access this information.[217] Finally, regional grid operators already incorporate energy efficiency and demand response into their "load forecasts," which project future energy demand.[218] Enhanced state CPP programs for energy efficiency and demand response could be plugged into these forecasts.

Beyond helping to plan for likely increases and reductions in certain types of generation under the CPP for dispatch planning purposes, this information will be critical for regional grid operators' timely development of new or expanded transmission lines. These lines will be necessary to service new power plants under the CPP—particularly renewable power plants[219]—and plants operating more frequently.[220] Enhanced transmission planning for the

(Sept. 30, 2013), http://www.renewableenergyworld.com/articles/print/volume-16/issue-5/solar-energy/virtual-power-plants-a-new-model-for-renewables-integration.html.

215. *Selling It by the Negawatt*, THE ECONOMIST (Dec. 2, 2014), http://www.economist.com/news/business-and-finance/21635404-demand-response-industry-consolidating-selling-electricity-negawatt. The Supreme Court's decision in Fed. Energy Reg. Comm'n v. Elec. Power Supply Ass'n, 136 S.Ct. 760 (Jan. 25, 2016) (revised Jan. 28, 2016), upheld FERC's authority to incentivize demand response, which will help support these efforts by RTOs. *Id.*

216. *See* RACHEL WILSON & PAUL PETERSON, SYNAPSE ENERGY ECON., INC., A BRIEF SURVEY OF STATE INTEGRATED RESOURCE PLANNING RULES AND REQUIREMENTS (2011), http://www.cleanskies.org/wp-content/uploads/2011/05/ACSF_IRP-Survey_Final_2011-04-28.pdf.

217. *See, e.g.*, FLA. PUB. SERV. COMM'N, REVIEW OF THE 2014 TEN-YEAR SITE PLANS FOR FLORIDA'S ELECTRIC UTILITIES (2014), http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2014/TYSP2014.pdf.

218. *See, e.g.*, PJM INTERCONNECTION, PJM LOAD FORECAST REPORT 65 (2015), https://www.pjm.com/~/media/documents/reports/2015-load-forecast-report.ashx.

219. *Cf.* CALVERT ET AL., LOW WIND SPEED TECHNOLOGY DEVELOPMENT IN THE U.S. DEPARTMENT OF ENERGY WIND ENERGY RESEARCH PROGRAM 2 (2002), http://www.nrel.gov/docs/fy02osti/32512.pdf (noting an average distance of five hundred miles between load centers (areas of high electricity demand) and the best wind energy sites—those with high and relatively constant wind speeds).

220. *See* Ill. Commerce Comm'n v. Fed. Energy Regulatory Comm'n, 721 F.3d 764, 781 (7th Cir. 2013) (affirming FERC's approval of MISO's allocation of costs among utilities that use the new transmission lines and pay fees for use of the lines).

CPP will require regional operators to have more detailed and regular communication with states and with utilities operating within and across states.

Given the very limited federal eminent domain authority to site transmission lines,[221] regional transmission entities like RTOs have already played a key role in planning for needed new transmission—indeed, they are required by FERC to conduct regional transmission planning.[222] In addition, these operators determine how the costs of paying for the new transmission lines will be divided among the utilities that use the lines, and FERC approves or rejects these cost allocation approaches.[223] One ISO's pre-CPP experience in planning for how to expand and pay for new transmission lines provides valuable lessons for how RTOs can facilitate the transmission planning needed to meet CPP goals and expansions of renewable generation that are occurring even without the CPP. Through a process called multi-value planning (MVP), MISO coordinated closely with states and other stakeholders to develop a successful plan to build new transmission lines and allocate costs among utilities for the purposes of improving grid reliability and connecting renewable generation to more population centers.[224]

Finally, beyond their important specific governance functions related to the CPP, RTOs have hundreds of members, which include states, electricity consumers, and utilities, and the RTOs often convene stakeholder groups that influence RTO decisions.[225] Moreover, RTOs already have developed sophisticated regional governance structures relevant to CPP planning, as shown by the MISO MVP example.[226] But RTOs may need to include more and different stakeholders in CPP decision-making processes, and states and state PUCs will likely need to have more influence within these processes. A

221. *See* Klass & Wilson, *supra* note 188. For discussion of state siting issues, *see* Ashira Pelman Ostrow, *Process Preemption in Federal Siting Regimes*, 48 HARV. J. ON LEGIS. 289 (2011).

222. Under a recently-released FERC order, all regional entities are required to conduct transmission planning to support reliability and state resources plans such as renewable portfolio standards, which require a certain percentage of electricity to come from renewables. Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842 (Aug. 11, 2011) (codified at 18 C.F.R. pt. 35) (discussing the Order 1000 requirements).

223. *See Ill. Commerce Comm'n*, 721 F.3d 764 (affirming an independent system operator's method of allocating costs among utilities for new transmission lines built to connect new wind energy to the grid and to improve reliability of electric power provided within the region); Ill. Commerce Comm'n v. Fed. Energy Regulatory Comm'n, 756 F.3d 556 (7th Cir. 2014) (invalidating FERC's methodology for approving the PJM RTO's plan for allocating costs among utilities that the RTO believed would all benefit from new high-voltage lines to be built within the eastern portion of the RTO).

224. MIDCONTINENT INDEP. SYS. OPERATOR, CANDIDATE MVP PORTFOLIO STUDY, https://www.midwestiso.org/Planning/Pages/MVPAnalysis.aspx (last visited July 16, 2012) ("High-level study updates were provided at the Planning Advisory Committee (PAC), Planning Subcommittee (PS) and the Subregional Planning Meetings (SPMs).").

225. *See, e.g.*, *Membership List*, MIDCONTINENT INDEP. SYS. OPERATOR, https://www.misoenergy.org/StakeholderCenter/Members/Pages/MembershipList.aspx (last visited Feb. 3, 2016).

226. *See* MIDCONTINENT INDEP. SYS. OPERATOR, AT-A-GLANCE 24 (2015), https://www.misoenergy.org/Library/Repository/Communication%20Material/Corporate/At-A-Glance.pdf.

range of other institutional decisions must be made, including whether a subgroup of the RTO should make CPP decisions or whether an independent regional organization should be formed that would advise the RTO on needed changes to its curtailment and dispatch policies. Among other changes, these decisions would include who should be a member of the RTO subgroup or independent group; how much voting power each member should have; what type of vote would be required to change regional procedures to accommodate the CPP—for example, whether a majority vote would be required to change the curtailment and dispatch policies to incorporate CPP resources—and so on. Part III provides examples of other regional organizations that have had to make similarly thorny institutional decisions. Their experiences provide models for how states might best coordinate—through existing RTOs or newly formed regional groups—in meeting CPP goals or similar carbon reduction requirements.

Thus far this subpart has explored ways in which regional operators, in their interactions with states, will need to evolve their approaches to address the CPP. However, energy governance—and the challenge of mapping environmental law onto energy law regimes—is further complicated by the fact that the federal government guides regional grid governance, but not to the extent that all regional grid policies are identical. Regional entities make grid-based determinations under FERC and North American Electric Reliability Corporation (NERC) rules. NERC, overseen by FERC,[227] requires regional operators to ensure grid reliability—that there will be enough electricity to satisfy demand at all times and that the amount of electricity supplied matches the amount of electricity drawn from the grid, thus ensuring proper voltage within the wires.[228] Different regions have different reliability policies—for example, different RTOs have different reserve capacity requirements[229]—but all must comport with these federal goals. The CPP will require certain high CO_2 generation resources to be used less often or to be fully retired and will thus demand changes to reliability policies. Regional entities will need new mechanisms for harmonizing CPP goals with reliability standards[230] and for better quantifying the reliability impacts of the CPP—a project that has already begun but must substantially expand.

227. *Reliability Standards*, N. AM. ELEC. RELIABILITY CORP., http://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx (last visited Feb. 3, 2016). We have analyzed NERC in depth in Osofsky & Wiseman, *supra* note 40. FERC reviews and can change NERC reliability standards and, in addition to NERC, can penalize utilities and regional entities that fail to meet reliability standards.

228. *See Frequently Asked Questions*, N. AM. ELEC. RELIABILITY CORP. 1–2, http://www.nerc.com/AboutNERC/Documents/NERC%20FAQs%20AUG13.pdf (last visited Feb. 6, 2016).

229. *See supra* note 194.

230. *See, e.g.*, Karas, *supra* note 209, at 108 (noting the need to understand how regional entities that have incorporated renewable energy requirements into their markets have dealt with reliability concerns and to discuss "[t]he methodologies used to analyze the reliability impacts of the Clean Power Plan").

In addition, FERC requires the transmission lines run by the regional grid operator to be available on an open-access basis and sets the procedures the grid operator must follow to accept and honor interconnection requests.[231] Any generator who wishes to use the grid must have the opportunity to access (interconnect with) the grid, and to send electricity through the grid if there is adequate space and the interconnection and dispatch of electricity will not negatively impact reliability. Thus, the regional entity that governs the grid must obtain a tariff ("license") from FERC containing these and other terms of service.[232] The tariff also sets the fee that the regional entity may impose on grid users.

Part of what makes these coordination efforts complex is that they must integrate interrelated state, RTO, and federal authority. Many of these changes will only require modification of PUC and regional grid organization policy, and the fact that state PUCs and regional grid organizations already make many of the types of generation decisions required by the CPP or potential similar carbon reduction strategies presents opportunities for effective carbon governance. But not all of these changes will be simple, and more coordination as well as added decision-making criteria for certain efforts, such as interconnection and transmission planning policy, will be necessary.

4. Coordinating Regional Grid Operators

The CPP will not only require better coordination between states and regional grid operators and between grid operators and the federal government; it will also necessitate enhanced interregional coordination. This complex coordination will be important to addressing expanded transmission that crosses the "seams" between regions—areas where two regional grids come together—as well as the interconnection of new renewables throughout several regions. Further, regional grid operators will need to consider coordinating reserve capacity across several regions and dispatching renewables from different regions to balance out intermittency. This subpart focuses on these interregional coordination issues.

Grid operators already work together—in part due to FERC requirements for interregional coordination and in part due to the efficiencies gained when grid operators cooperate across the seams. Balancing authorities, coordinating councils, RTOs, and ISOs coordinate when planning for expanded transmission lines, exploring how and to what extent new lines should interconnect across regions. Through periodic reports, regional grid operators must describe to FERC how they coordinate their plans for expanding transmission with

231. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (codified at 18 C.F.R. pt. 35, 385).

232. In cases where there is only minimal regional grid governance, individual utilities that own the wires obtain a tariff from FERC.

neighboring operators.[233] Regional grid operators also discuss generation reserves and, to some extent, coordinate planning for the amount of reserves required in each region.[234] In addition, certain interregional dispatch of electricity occurs.[235]

However, this interregional planning and activity will have to increase under the CPP for interstate approaches to be successful. WIRES, a group of utilities and RTOs focused on facilitating the development of transmission lines needed to advance energy transmission, has stressed the importance of interregional planning particularly from the perspective of expanding the transmission grid.[236] Working group members note that interregional coordination of planning for new transmission lines to accommodate new renewable generation, and to enhance reliability when certain plants are retired and other plants must be operated more frequently, will be essential to CPP compliance.[237] For example, if numerous states comply with the CPP by signing up for ready-for-interstate-trading, in which sources in the state can trade carbon allowances with sources in any other state that has also signed on to the ready-for-interstate-trading plan,[238] large quantities of new renewable generation are likely to be built in areas of the United States with abundant sun and wind. This renewable generation will create credits that can be sold to sources that have trouble meeting their CO_2 reduction requirements. Compliance with the CPP thus will necessitate more sophisticated planning across regions for new wires and interconnections; new dispatch policies; and complex planning for generation reserves, or drawing from resources in a broader region, in the event that intermittent renewable resources cause reliability concerns.

233. *See, e.g.*, INDEP. SYS. OPERATOR NEW ENG., INC., AMENDED AND RESTATED NORTHEASTERN ISO/RTO PLANNING COORDINATION PROTOCOL (2015), http://www.pjm.com/~/media/documents/agreements/NE_Protocol.ashx.

234. *See, e.g.*, *Electric Power Markets: Northwest*, FED. ENERGY REGULATORY COMM'N, http://www.ferc.gov/market-oversight/mkt-electric/northwest.asp (last updated Nov. 3, 2015) (noting in the western United States, where there are few RTOs or ISOs, "[a]lthough the BAs [balancing authorities] operate autonomously, some have joint transmission-planning and reserve-sharing agreements").

235. *See* ENERGY INFO. ADMIN., ELECTRICITY MARKET MODULE 113 (2015), http://www.eia.gov/forecasts/aeo/assumptions/pdf/electricity.pdf (noting that the "flow of power from region to region" occurs in the form of "trading of capacity and energy to help another region satisfy its reserve margin requirement" and "economic transactions" that "involve energy transactions motivated by the marginal generation costs of different regions").

236. *See* WIRES, *supra* note 32, at 2 (supporting more interregional transmission planning and observing that "[a] strong grid can help ensure that the transformative impacts of the CPP on the generation mix and system flows do not undermine electric reliability while also ensuring that the CPP itself is achievable as a practical matter. In other words, transmission provides the optionality and flexibility to accommodate the various possible end [] states that the rule will drive and about which we now can only speculate").

237. *Id.*

238. Clean Power Plan, *supra* note 1, at 64,832–33.

With respect to dispatch, in order to ensure that electricity can seamlessly flow among regions, different regional markets have to adopt interchangeable protocols for scheduling electricity flows—ensuring that the codes in the computer systems used for dispatch, and dispatch procedures, are compatible.[239] When RTOs form and expand territories, they follow specific protocols for melding together the many different seams between balancing authorities and offering "one stop shopping" for any entity that wishes to send electricity through the grid or purchase electricity.[240] Further, non-RTO regional operators like coordinating councils also work to develop "consistent Market Interface practices and compatible commercial practices" among balancing authorities.[241]

Despite this progress, much work remains to be done. For example, within the WECC, which consists of more than thirty balancing authorities as well as "subregional transmission planning groups," different balancing authorities have varying methodologies through which generators commit to provide electricity when it is needed and determine how and when electricity should be dispatched. In addition, some balancing authorities have systems for automatically scheduling certain generators to come online, whereas others require generators to do "self-scheduling" to indicate when they will be sending electricity through the grid.[242] The WECC must coordinate these different systems and methodologies,[243] and there have been proposals to implement a dispatch market within the WECC—one that would be uniform throughout the region—to more efficiently schedule and dispatch generation.[244]

Moreover, to fully integrate electricity markets across different regions, beyond more coordinated planning and new dispatch markets, computer software that forms the backbone for the dispatch of electricity through the transmission grid may have to be updated to recognize certain generation priorities under the CPP.[245] For example, new codes might be needed for CPP-specific dispatch.

239. WILLIAM W. HOGAN, INTERREGIONAL COORDINATION OF ELECTRICITY MARKETS 9 (2001), http://www.hks.harvard.edu/fs/whogan/mult_hogan_FERC_061901.pdf.

240. KATHLEEN A. CARRIGAN, AN OVERVIEW OF THE PROPOSAL TO CREATE REGIONAL TRANSMISSION ORGANIZATION FOR NEW ENGLAND (2003), https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0CDcQFjAEahUKEwislIW6hprJAhXDeSYKHW2yAso&url=http%3A%2F%2Fwww.iso-ne.com%2Fcommittees%2Fcomm_wkgrps%2Fprtcpnts_comm%2Fprtcpnts%2Fmtrls%2F2003%2Fsep52003%2F2003.09.05%2520CK%2520NPC%2520RTO%2520update.PPT&usg=AFQjCNHRQEYqXwyyTqkmBFc7HUhaIqjIsg&sig2=hYkTcPGM0wV5fF3Is-FAog&bvm=bv.107763241,d.eWE&cad=rja.

241. *Market Interface Committee*, W. ELECTRICITY COORDINATING COUNCIL, https://www.wecc.biz/MIC/Pages/Default.aspx (last visited Feb. 3, 2016).

242. *Id*.

243. Milligan, *supra* note 186, at ix–x.

244. *Id*. at x (describing a proposed Energy Imbalance Market for rapid dispatch in the WECC).

245. Helman et al., *supra* note 186, at 236 (noting that "software has been a limiting factor in the development of efficient market designs," that "existing ISO software and data systems are a result of market start-up decisions as well as patches resulting from continual change and improvement," that

Table 1 summarizes the many types of enhanced coordination discussed throughout this institutional analysis that will have to occur under the CPP and as a result of the current shift toward lower-carbon sources that is already in progress due to market and other forces. It also summarizes potential barriers to this coordination and the most promising opportunities for overcoming these barriers.

Table 1. Factors Necessitating Institutional Changes, Potential Barriers, and Opportunities for Overcoming Barriers

Coordination Needed	Barriers	Opportunities
Intra- and Interstate		
Selecting a common measurement/compliance approach (mass- or rate-based) and addressing environmental and energy goals	Political differences (see Part II.C)	States are coordinating through organizations such as NARUC[246] and MSEER.[247]
Restructured states: may need to encourage the construction of certain types of generation	Some states currently do not individually approve the need for construction of new renewable energy infrastructure or how much it may cost.	Many states have renewable portfolio standards that encourage renewable energy construction.[248] CPP will produce market signals for construction of lower-carbon generation.
Regulated states	Certificate of need and rate recovery processes for new and expanded generation have not generally incorporated carbon considerations.	States can update environmental cost recovery proceedings to incorporate CPP factors.[249]

"changes to a single software system may require changes to many software and data systems," and that "[c]urrently, there is a significant backlog of improvements in each ISO").

246. *See supra* note 143 and accompanying text.
247. *See infra* note 142 and accompanying text.
248. *See supra* note 134 and accompanying text.
249. *See supra* note 129 and accompanying text.

Coordination Needed	Barriers	Opportunities
	Sources that wish to build low-carbon generation in the state to provide allowances/credits for other states may not be considered "needed" and may not be approved. States may need to divide up costs of newly built CPP generation among ratepayers in different states.	States can modify process for approving "needed" generation to incorporate CPP considerations. PacifiCorp example shows that some states have developed model calculations for sharing of rates among ratepayers in different states.[250]
State-regional-federal		
Planning for the construction of new generation capacity	States, through siting and certificate of need determinations, sometimes block generation encouraged by regional entities or the federal government.[251] Regional grid operators will need a better understanding of which new capacity is likely to be built to comply with the state plan and to take advantage of	Some RTOs operate capacity markets, and CPP would impact which resources tended to bid into those markets.[252] To the extent that the CPP did not change bidding, RTOs could add a CPP factor when selecting capacity bids. States have organizations to communicate with RTOs and to support or oppose certain RTO efforts, including capacity-based efforts. [253]

250. *See supra* note 146 and accompanying text.
251. *See supra* note 186 and accompanying text.
252. *See supra* note 13.
253. *See, e.g.*, *OMS Purpose*, ORG. OF MISO STATES, http://www.misostates.org/ (last visited, Feb. 2, 2016) (describing the organization's functions).

Coordination Needed	Barriers	Opportunities
	trading opportunities.	
Planning for new interconnections for new and expanded CPP generation	Interconnection queues are very long.[254] Regional operators may need to create uniform, updated rules for prioritizing the interconnection of CPP resources. Generators will need to balance intermittent resources and potentially expand connections across regions to enhance geographic diversity.	Existing FERC orders provide some flexibility in the transmission queue, and some regional operators have already implemented strategies, such as open seasons, for allowing certain types of resources to move ahead in the queue.[255] Discussions for interregional balancing of intermittent resources or the creation of new grid authorities devoted to balancing of intermittent resources are underway.[256]
Dispatching more renewable energy and natural gas	Currently, regional operators rely on cost-based dispatch, prioritizing the lowest-cost resources first. For states that rely on energy efficiency to help achieve CPP requirements, for purposes of capacity and dispatch regional	Due to the CPP's impact on carbon prices and generators' internalization of CPP compliance needs, generators' bids into regional markets might reflect priority of low-carbon resources. Some RTOs conduct limited environmental dispatch,[257] and lessons

254 *See supra* note 202 and accompanying text.

255 *See supra* notes 203-204 and accompanying text.

256 *See, e.g., Two New Western Balancing Authorities Proposed by Constellating Energy*, TROUTMAN SANDERS LLP, http://www.troutmansandersenergyreport.com/2012/07/two-new-western-balancing-authorities-proposed-by-constellation-energy/ (last visited, Feb. 2, 2016) (discussing proposed formation of two new balancing authorities within the WECC to support wind generation); *supra* note 235–236; MICHAEL MILLIGAN ET AL., COMBINING BALANCING AREAS' VARIABILITY: IMPACTS ON WIND INTEGRATION IN THE WESTERN INTERCONNECTION (2010), http://www.nrel.gov/docs/fy10osti/48249.pdf (discussing possibilities for balancing wind variability through integration of different balancing areas within the Western Interconnect).

257 *See supra* note 211.

Coordination Needed	Barriers	Opportunities
	operators will need to know which generating units will likely operate less due to lower energy demands.	from existing models could be transferred to other RTOs. Regional operators allow bidding of energy nonuse into markets and incorporate energy efficiency into load forecasts.[258]
Planning for expanded and new transmission to newly built CPP plants and plants that will operate more due to the CPP	States, in projecting the likely expansion of generation that will occur for compliance so that plants can benefit from trades, will need to communicate transmission needs to regional operators. Regional operators will need to enhance and speed up transmission planning processes.	Regional operators currently must plan for regional transmission expansions under FERC rules.[259] Successful planning for expanded transmission to enhance reliability and connect to new renewable infrastructure driven by state policy[260] demonstrates that regional operators can work with states to successfully enhance planning processes.

258. *See supra* notes 214–215 and accompanying text.
259. *See supra* notes 241-244 and accompanying text.
260. *See supra* note 224 and accompanying text.

Coordination Needed	Barriers	Opportunities
Region-region		
Expanding transmission across the seams where regional grids interconnect; balancing intermittent renewable generation; improving dispatch across the seams	To accommodate more renewable infrastructure, operators will need to address intermittency by expanding the geographic diversity and type of renewable infrastructure; more electricity may need to be dispatched across different regions. Regions may need to create more uniform dispatch practices and codes.	FERC requires some interregional transmission coordination, and groups like WIRES have stressed the importance of more interregional planning for cross-seam transmission expansion.[261] Regional operators such as the Western Electricity Coordinating Council have discussed potentially uniform dispatch markets.[262]

As this summary reinforces, the CPP's multistate options provide an important foundation for states, states and regional organizations, and regional organizations across regional lines, to cooperate in ways that will reduce costs and maintain reliability. And existing institutions, including regional grid operators, as well as existing rules and processes such as interregional transmission planning, support interstate CPP compliance. But these existing institutions—while presenting an important starting point due to their current efforts to address the transitions in the energy system—do not fully address the many ways in which environmental and energy institutions from all levels of government will need to collaborate for effective implementation. As Part III analyzes in depth, building from multistate options to facilitate effective interstate cooperation in a regionally organized energy system will require key choices about institutional structuring.

C. Political Differences

In addition to requiring changes to existing regional energy governance and coordination of varied, independent state policies for generation, CPP implementation takes place against the backdrop of significant partisan divides

261. *See, e.g.*, WIRES, *supra* note 32, at 2.

262. *See supra* notes 241- 244 and accompanying text; (discussing possible integration of different balancing authorities in order to integrate variable resources).

over climate change and energy transition. The country is far more split along partisan lines than it was two decades ago, with these issues being among the most contentious.[263] Moreover, states within the same energy regions often are on opposite sides of these issues and have difficult political and legal relationships around them, at times even involving lawsuits.[264]

To a large extent, however, the need to find practical implementation solutions if the CPP survives judicial challenges—and solutions for a future, similar rule that would likely replace the CPP if the CPP were reversed by the Supreme Court or withdrawn by a new president—seems to be overcoming these political differences. Even among states that vary greatly politically, institutional complexities, such as the inability to trade easily between mass-based and rate-based states, seem to serve as a greater barrier to cooperation than political disagreements. The Supreme Court's February 2016 granting of a stay of the CPP may slow cooperative efforts during the pendency of the litigation, and the outcome of the 2016 presidential election will impact the CPP's long-term prospects. But the efforts thus far at regional coordination and state-level planning are a promising sign that practical considerations rather than partisan politics will largely guide implementation decisions.[265] This subpart explores the politics of the CPP and how they interact with regional governance.

1. Partisanship over the Clean Power Plan

For the purposes of regional implementation of the CPP, state partisanship at first blush poses a formidable potential barrier because of the very different positions states within the same energy regions have taken on the plan. When the EPA released the final CPP in August 2015, the responses were predictable. Just as with the release of the draft plan in 2014, Republicans were quick to condemn the new standards as a "war on coal," while Democrats, with the exception of some from major coal states, largely supported it.[266] Opponents of

263. PEW RESEARCH CENTER FOR THE PEOPLE AND PRESS, PARTISAN POLARIZATION SURGES IN BUSH, OBAMA YEARS: TRENDS IN AMERICAN VALUES 1987–2012, http://www.people-press.org/2012/06/04/section-1-understanding-the-partisan-divide-over-american-values/; Hari M. Osofsky & Jacqueline Peel, *Energy Partisanship*, __ EMORY L.J. __ (forthcoming 2016).

264. *See infra* Part II.B.1.

265. *See id.*

266. Edward Felker, *Lawmakers Take Partisan Swipes over EPA Carbon Rule*, ENERGY GUARDIAN (July 30, 2014), http://energyguardian.net/lawmakers-take-partisan-swipes-over-epa-carbon-rule; Ben Kieffer & Katherine Perkins, *Obama's Clean Power and the GOP Response*, IOWA PUB. RADIO (Aug. 5, 2015), http://iowapublicradio.org/post/obamas-clean-power-and-gop-response#stream/0. Support and opposition do not consistently break down neatly along partisan lines, however, and in some states one political leader, such as the governor, supports the CPP, and another political leader, such as the state attorney general, opposes it. For a discussion of different factors contributing to CPP opposition and support and instances of split support and opposition, see Adelman & Spence, *supra* note 3.

the plan have sought to block implementation along multiple pathways, including through federal and state legislation and judicial challenges.[267]

In June 2015—a few weeks before the final plan was released—the House of Representatives passed the Ratepayer Protection Act, a law introduced by Energy and Power Subcommittee Chairman Ed Whitfield (R-KY).[268] This bill, which has little prospect of becoming law, focuses on extending the rule's compliance dates and allowing states to avoid implementation if the governor, in consultation with relevant state officials, determines that compliance would adversely affect retail, commercial, or industrial ratepayers or the electricity system's reliability.[269] On November 17, 2015, in the lead up to the negotiations in Paris on the United Nations Framework Convention on Climate Change (UNFCCC), the Senate passed resolutions (with fifty-two votes in favor and forty-six votes opposed) to block the CPP and the EPA's regulation of new power plants.[270]

During the international negotiations, Congressional Republicans continued to show their opposition, with the House passing the antiregulatory resolutions and Senator Ted Cruz holding a hearing on climate change science.[271] As expected, President Obama vetoed these resolutions through choosing not to act (known as a pocket veto) shortly after the international negotiations concluded.[272] So, like the Ratepayer Protection Act, these resolutions and the hearings were primarily symbolic acts that reinforced the political divisions in the United States.[273] And despite this Congressional opposition, the United States—represented by its executive branch—joined the "high ambition coalition" pushing for a strong agreement and supported the Paris Agreement.[274] This new international treaty is structured to allow the United States to ratify via an executive agreement, since Senate treaty

267. For an in-depth discussion of the partisan politics surrounding the CPP and the issues covered in this Part, see Osofsky & Peel, *supra* note 263.

268. Kevin Rogers & Matthew Daly, *House Approves State Opt-out for Existing Plant Rule*, ENERGY GUARDIAN (June 24, 2015), http://www.energyguardian.net/house-approves-state-opt-out-existing-plant-rule.

269. Press Release, U.S. House Representatives Energy & Commerce Committee, Whitfield Unveils Ratepayer Protection Act to Address EPA's Overreaching Power Plant Rule (Mar. 23, 2015), http://energycommerce.house.gov/press-release/whitfield-unveils-ratepayer-protection-act-address-epa%E2%80%99s-overreaching-power-plant-rule.

270. Coral Davenport, *Senate Votes to Block Obama's Climate Change Rules*, N.Y. TIMES (Nov. 17, 2015), http://www.nytimes.com/2015/11/18/us/politics/senate-blocks-obamas-climate-change-rules.html.

271. Ben Adler, *Republicans Still Hope to Throw Wrench in the Paris Climate Deal*, NEWSWEEK (Dec. 17, 2015), http://www.newsweek.com/republicans-still-hope-throw-wrench-paris-climate-deal-406635.

272. Timothy Cama, *Obama Vetoes GOP Push to Kill Climate Rules*, THE HILL (Dec. 19, 2015), http://thehill.com/policy/energy-environment/263805-obama-vetoes-gop-attempts-to-kill-climate-rules.

273. *Id.*

274. Matt McGrath, *COP21: US Joins "High Ambition Coalition" for Climate Deal*, BBC NEWS (Dec. 10, 2015), http://www.bbc.com/news/science-environment-35057282.

ratification would surely fail.[275] The U.S. pledge under the agreement relies, however, on CPP implementation, among other past and current regulatory steps.[276]

Given the limited prospects for Congress to overrule the CPP through legislation, at least with the current administration's commitment to vetoing such legislation, courtrooms and state-level governmental bodies have served as the key battlegrounds for disputes over the plan. Lawsuits brought by several states and Murray Energy Corporation, the largest privately owned U.S. coal company, argued that the EPA's promulgation of national emission standards for power plants under Clean Air Act section 112 in 2012 deprives the agency of legal authority to establish state-by-state standards for those power plants. An important issue in these initial legal challenges is that the House and Senate versions of the 1990 amendments to the Clean Air Act conflict in a relevant way; the House version bars regulation under section 111(d) of sources already regulated under section 112, and the Senate one only bars such regulation if it involves the same pollutant.[277]

The D.C. Circuit deemed these first challenges to the draft CPP to be premature,[278] but similar challenges were brought to the final plan. Even before the *Federal Register* publication of the rule, sixteen states filed a stay request on August 5, 2015,[279] and an overlapping group of fifteen states filed an emergency petition for extraordinary writ on August 13, 2015.[280] Following the final rule publication on October 23, 2015, twenty-seven states and numerous industry groups filed another fifteen challenges to the plan, while eighteen

275. John B. Bellinger III & Jonathan Masters, *Would a Paris Climate Deal Be Legally Binding on the U.S.?*, COUNCIL ON FOREIGN REL. (Nov. 24, 2015), http://www.cfr.org/united-states/would-paris-climate-deal-legally-binding-us/p37291.

276. *United States—Intended Nationally Determined Contribution*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf.

277. Petition for Extraordinary Writ at 15–22, *In re* Murray Energy Corp., 788 F.3d 330 (D.C. Cir. 2015) (No. 14–1112).

278. *In re* Murray Energy, 788 F.3d at 333–34; *see* Coral Davenport, *Judges Skeptical of Challenge to Proposed E.P.A. Rule on Climate Change*, N.Y. TIMES (Apr. 16, 2015), http://www.nytimes.com/2015/04/17/us/legal-battle-begins-over-obama-bid-to-curb-greenhouse-gases.html.

279. The sixteen states are Alabama, Arizona, Arkansas, Indiana, Kansas, Kentucky, Louisiana, Nebraska, Ohio, Oklahoma, South Carolina, South Dakota, Utah, West Virginia, Wisconsin, and Wyoming. Application For Administrative Stay by the State Of West Virginia and 15 Other States, EPA Docket No. EPA-HQ-OAR-20 13-0602 (Aug 5, 2015), http://www.ago.wv.gov/Documents/WV%20-%20Administrative%20Request%20for%20Stay%20CPP.PDF; *see also* John Funk, *Shelve Clean Power Plan Until Courts Rule, Ohio, West Virginia and 13 Other States Ask EPA* (Aug. 5, 2015), http://www.cleveland.com/business/index.ssf/2015/08/shelve_clean_power_plan_until.html.

280. Those states include Alabama, Arkansas, Florida, Indiana, Kansas, Kentucky, Louisiana, Michigan, Nebraska, Ohio, Oklahoma, South Dakota, West Virginia, Wisconsin, and Wyoming. *In Re* West Virginia, Petition for Extraordinary Writ to the U.S. EPA (Aug. 13, 2015), http://www.eenews.net/assets/2015/08/14/document_ew_04.pdf.

states, the District of Columbia, five cities, and a county intervened in those cases on the EPA's behalf.[281]

All of these cases were consolidated in the D.C. Circuit Court of Appeals,[282] which on January 21, 2016 denied the stay request and expedited consideration.[283] However, the Supreme Court granted the stay on February 9, 2016, which prevents CPP implementation and enforcement during the disposition of the legal challenges.[284] Although the Supreme Court's granting of the stay was widely viewed as dampening the prospects for the CPP's wholly surviving judicial challenge, Justice Scalia's sudden death four days later[285] complicates matters considerably. He was one of five votes supporting the stay, and whether a ninth justice is in place before the case reaches the Supreme Court and who that justice is will likely affect the outcome of the case.[286] A 4–4 Supreme Court split on the merits, which is quite possible given

281. *See* Emily Holden, *2016 Holds Flurry of State Planning, Legal Drama for Clean Power Plan*, CLIMATEWIRE (Jan. 4, 2016), http://www.eenews.net/stories/1060030047. The intervenors on behalf of the EPA include: the States of New York, California (by and through Governor Edmund G. Brown Jr., the California Air Resources Board, and Attorney General Kamala D. Harris), Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Minnesota (by and through the Minnesota Pollution Control Agency), New Hampshire, New Mexico, Oregon, Rhode Island, Vermont, Washington, the Commonwealths of Massachusetts and Virginia, the District of Columbia, the Cities of Boulder, Chicago, New York, Philadelphia, and South Miami, and Broward County, Florida. Unopposed Motion for Leave to Intervene as Respondents at 1, West Virginia v. EPA, No. 15-1363 (D.C. Cir. Nov. 11, 2015).

282. For a summary of the cases to date, exploration of these issues, and links to the filings, see *Legal Challenges – Overview and Documents*, E&E NEWS, http://www.eenews.net/interactive/clean_power_plan/fact_sheets/legal (last visited Jan. 10, 2016).

283. *See* Order, West Virginia v. EPA, No. 15-1363 (D.C. Cir. Jan. 21, 2016) (denying motion for stay).

284. Order in Pending Case, West Virginia v. EPA, No. 15A773, 2016 WL 502947 (Feb. 9, 2016). Democrats and Republicans reacted very differently to the granting of the stay. *See* Adam Liptak & Coral Davenport, *Supreme Court Deals Blow to Obama's Efforts to Regulate Coal Emissions*, N.Y. TIMES (Feb. 9, 2016), http://www.nytimes.com/2016/02/10/us/politics/supreme-court-blocks-obama-epa-coal-emissions-regulations.html; *Supreme Court Puts Obama's Power Plant Regs on Hold*, FOX NEWS (Feb. 9, 2016), http://www.foxnews.com/politics/2016/02/09/supreme-court-puts-obamas-clean-power-plan-on-hold.html.

285. Adam Liptak, *Antonin Scalia, Justice on the Supreme Court, Dies at 79*, N.Y. TIMES (Feb. 13, 2016), http://www.nytimes.com/2016/02/14/us/antonin-scalia-death.html.

286. Robinson Meyer, *Will a Reconfigured Supreme Court Help Obama's Clean-Power Plan Survive?*, ATLANTIC (Feb. 14, 2016), http://www.theatlantic.com/politics/archive/2016/02/antonin-scalia-clean-power-plan-obama-climate-change/462807/. Within hours of Justice Scalia's death, partisan battles began over whether his replacement would be confirmed prior to the 2016 presidential election. Juliet Eilperin & Paul Kane, *Supreme Court Nomination Process Sure To Be an Epic Debate*, WASH. POST (Feb. 14, 2016), https://www.washingtonpost.com/politics/supreme-court-nomination-process-sure-to-be-an-epic-debate/2016/02/14/63cd2cd6-d32a-11e5-b195-2e29a4e13425_story.html. An additional complexity immediately arose in the CPP context around the nomination process. One of the leading contenders for the nomination, D.C. Circuit Judge Sri Srinivasan, is on the appellate panel hearing the CPP case. If he had been nominated, he might have recused himself from the D.C. Circuit panel (currently comprised of two Democratic and one Republican nominees) or Supreme Court review depending on the timing of the nomination process. Robin Bravender & Jeremy B. Jacobs, *New Era Begins for Environmental Law, Obama's Climate Rule*, CLIMATEWIRE, Feb. 14, 2016, http://www.eenews.net/stories/1060032374. However, when President Obama nominated Judge Merrick Garland, that

the 5–4 decision on the stay, would result in the D.C. Circuit's decision on the CPP being upheld.[287]

It is unclear how much the stay will constrain preparations for implementation, especially in light of the uncertainty that Justice Scalia's death creates. In its immediate response to the stay, the Obama Administration reaffirmed its commitment to "work with states that choose to continue plan development and . . . prepare the tools those states will need," as well as "take aggressive steps to make forward progress to reduce carbon emissions."[288] As of March 8, 2016, twenty states have committed to continuing to plan, nine states are assessing whether to continue to plan, and eighteen states have suspended planning.[289] Some of the states that continue to plan are participating in the legal challenges to the CPP but want to be prepared if it is upheld.[290] All of the states that have suspended planning are part of the challenges.[291] However, state decisions only provide part of the implementation picture; even before Justice Scalia's death, executives from electricity producers and industry trade associations indicated that the industry-wide transition to cleaner and cheaper forms of energy will likely continue and accelerate regardless of the current stay and ultimate outcome of the litigation.[292]

The next major step in the litigation will be a D.C. Circuit hearing scheduled for June 2, 2016, which will, among other issues, consider how to address the conflicting versions of section 111(d).[293] Another key substantive issue for these cases involves what is often referred to as the "fence line" dilemma. Two of the EPA's three building blocks go beyond a power plant's site or operation, or "fence line," which opponents claim is the boundary of the EPA's Clean Air Act enforcement authority. However, the "farthest from the

uncertainty was resolved. While the case may still reach a Supreme Court with only eight justices, the D.C. Circuit panel will remain unchanged. *See* Michael D. Shear & Gardiner Harris, *Obama to Nominate Merrick Garland to Supreme Court*, N.Y. TIMES, Mar. 16, 2016, http://www.nytimes.com/2016/03/17/us/politics/obama-supreme-court-nominee.html?emc=edit_na_20160316&nlid=52930963&ref=headline&_r=0.

287. Meyer, *supra* note 286. For an empirical analysis of past 4-4 splits and a proposal for how the Supreme Court should handle future ones, see Justin R. Pidot, *Tie Votes in the Supreme Court*, Feb. 13, 2016, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2732192.

288. Press Release, White House, Press Secretary Josh Earnest on the Supreme Court's Decision to Stay the Clean Power Plan (Feb. 9, 2016), https://www.whitehouse.gov/the-press-office/2016/02/09/press-secretary-josh-earnest-supreme-courts-decision-stay-clean-power.

289. *Supreme Court Stay Response*, E&E'S PUBLISHING,http://www.eenews.net/interactive/clean_power_plan/#planning_status_chart (last visited Mar. 8, 2016).

290. *Id.*

291. *Id.*

292. Joby Warrik & Steven Mufson, *Move to Cleaner Power Is Proceeding, Regardless of Supreme Court's Ruling*, WASH. POST, (Feb. 11, 2015), https://www.washingtonpost.com/news/energy-environment/wp/2016/02/11/move-to-cleaner-power-is-proceeding-regardless-of-supreme-courts-ruling/.

293. *See Legal Challenges*, *supra* note 282.

fence line" building block from the draft plan—energy efficiency—is not in the final plan, which helps the EPA on this type of challenge.[294]

States have been active not only in litigation but also in commentary on the plan and state-level action. A group of Democratic-leaning states—which overlaps with the states supporting EPA climate change regulation in CPP and other climate change cases[295]—filed joint comments in December 2014 expressing support for the CPP and suggesting some revisions.[296] At smaller scales, state and local leaders supporting the CPP have written similarly supportive letters to governors. For example, numerous elected officials in Minnesota wrote such a letter to Governor Mark Dayton a few weeks after the issuance of the final plan.[297]

States opposing the CPP, which for the most part are Republican-leaning and/or have major coal industries, have varied in whether they are preparing for or resisting implementation, at times with internal division on this issue, such as in Kentucky or Colorado.[298] With the support of the American Legislative Exchange Council, Senator Mitch McConnell (R-KY)—who also has opposed replacing Justice Scalia before the 2016 election[299]—has led an effort to encourage states to resist implementation.[300] Few states chose to follow that course prior to the Supreme Court stay because they wanted to avoid its consequence—a federal implementation plan being imposed upon them if

294. *Id.*

295. *See* Hari M. Osofsky, *Is Climate Change "International"?: Litigation's Diagonal Regulatory Role*, 49 VA. J. INT'L L. 585 (2009); Hari M. Osofsky, *The Intersection of Scale, Science, and Law in* Massachusetts v. EPA, 9 OR. REV. INT'L L. 233 (2007).

296. *See* Joint State Comments in Response to EPA's Proposed Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Docket ID No. EPA–HQ–OAR–2013–0602 (2014), http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC-States_CPP_Support_and_Comments-Dec%202014.pdf.

297. Letter from Minnesota Elected Officials to Mark Dayton, Governor of Minnesota (Sept. 15, 2015), http://www.alanmuller.com/wp-content/uploads/2015/09/MN-Elected-Officials-Letter-of-Support-for-Clean-Power-Plan.pdf.

298. *See* Marjorie Haun, *Clean Power Plan Pits Colorado AG Against Governor*, WATCH DOG ARENA (Aug. 5, 2015), http://watchdog.org/232739/clean-power-plan-coal-colorado/; Naveena Sadasivam, *Coal States Building Wall of Red Tape to Resist EPA's Clean Power Plan*, INSIDECLIMATE NEWS (Feb. 17, 2015), http://insideclimatenews.org/news/17022015/coal-states-building-wall-red-tape-resist-epas-clean-power-plan (mapping how coal states overlap with states bringing lawsuits); *see also infra* note 302 and accompanying text.

299. Todd J. Gillman, *Cruz, Rubio, McConnell Insist that New President Fill Scalia Seat on Supreme Court*, DALLAS MORNING NEWS: TRAIL BLAZERS BLOG (Feb. 13, 2016, 5:23 PM), http://trailblazersblog.dallasnews.com/2016/02/cruz-rubio-mcconnell-insist-that-new-president-fill-scalia-seat-on-supreme-court.html/. For an analysis of Senator McConnell's role in the upcoming nomination process, see Sarah Binder, *The Fight over Justice Scalia's Replacement Has Already Started. Here's How It Will Play Out*, WASH. POST (Feb. 13, 2016), https://www.washingtonpost.com/news/monkey-cage/wp/2016/02/13/the-fight-over-justice-scalias-replacement-has-already-started-heres-how-it-will-play-out/.

300. *See* John Eick, *State Factor: States are Engaging EPA on Clean Power Plan*, AM. LEGIS. EXCHANGE COUNCIL (Nov. 17, 2014), http://www.alec.org/article/state-factor-states-engaging-epa-clean-power-plan/; *EPA's Regulatory Train Wreck*, AM. LEGIS. EXCHANGE COUNCIL (NOV. 1, 2011), http://www.alec.org/initiatives/epas-regulatory-train-wreck/.

efforts to block the CPP fail.[301]In those initial months, states were more inclined to pass resolutions reinforcing their authority or join courtroom challenges to express their dissatisfaction with the CPP. In fact, most state legislation involving the CPP has focused on taking steps to prepare for implementation. Several Democratic senators authored an April 2015 letter to the National Governors Association noting that even Senator McConnell's home state of Kentucky had begun taking steps to develop a compliance plan.[302] Although the stay has led to many states suspending their efforts, as noted above, some states opposing the CPP are continuing their planning processes.[303]

2. Political Differences within Regions

These divergent state responses to the CPP and approaches to addressing it could substantially impede regional implementation or interstate cooperation, even if the CPP survives court challenges and thus moots many states' approaches to CPP opposition. Many states that have highly interconnected and interdependent electricity markets—and thus operate in areas where regional approaches would likely be most efficient and practical—take very different stances on the plan, and at times have indicated that they would find it difficult to cooperate.[304] However, the on-the-ground reality seems to be more positive thus far. States with different views or implementation approaches have shown a willingness to meet regionally and try to cooperate. This subpart uses the MISO region as a case example of how states with significant political differences are attempting to forge a regional approach and the institutional complexities that they are encountering.

The MISO market covers all or most of Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin, and parts of Arkansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, and Texas (mostly covered by a single-state RTO—the Electric Reliability Council of

301. *See* DANIEL SELMI, SABIN CTR. FOR CLIMATE CHANGE LAW, STATES SHOULD THINK TWICE BEFORE REFUSING ANY RESPONSE TO EPA'S CLEAN POWER RULES (2015), https://web.law.columbia.edu/sites/default/files/microsites/climate-change/selmi_-_states_should_think_twice_before_refusing_any_response_to_epas_clean_power_rules.pdf (exploring the consequences of states choosing not to submit a state implementation plan); Holden, *supra* note 281.

302. Letter from U.S. Senators Sheldon Whitehouse, Barbara Boxer, Elizabeth Warren, Al Franken & Bernard Sanders to Nat'l Governors Ass'n (Apr. 14, 2015), http://www.whitehouse.senate.gov/download/?id=33ebe122-635e-4bd6-b59a-9246a3d256ac&download=1&utm_source=EnergyGuardian. For additional materials on Kentucky's decision making around compliance, see James Bruggers, *Kentucky Defends Work Toward Climate Path*, COURIER-J. (Mar. 5, 2015), http://www.courier-journal.com/story/watchdog-earth/2015/03/05/mcconnell-tells-states-to-resist-clean-power-plan-requirements/24457533/.

303. *See infra* note 291 and accompanying text.

304. *See infra* notes 317–318 and accompanying text.

Texas (ERCOT)).[305] Table 2 illustrates some of these states' actions supporting or opposing the CPP, and divisions within the region.

Table 2. MISO States' Political Involvement in CPP Support and Opposition

State	States Submitting Dec. 2014 Joint Comments Supporting Draft CPP[306]	States Petitioning for Stay of Final CPP[307]	States Participating Lawsuits Challenging Final CPP[308]	States with Bills or Resolutions Expressing Concerns with CPP, Creating Implementat-ion Constraints, or Supporting Coal as of March 2016[309]	States Intervening on behalf of the EPA in Challenges to Final CPP
Arkansas		X	X	X	
Illinois	X				X
Indiana		X	X		
Iowa					X
Kentucky		X	X	X	
Louisiana		X	X	X	

305. *Electric Power Markets: Midcontinent (MISO)*, FED. ENERGY REGULATORY COMM'N, http://www.ferc.gov/market-oversight/mkt-electric/midwest.asp (last updated Nov. 17, 2015).

306. *See supra* note 296 and accompanying text.

307. *See supra* note 279 and accompanying text.

308. *See supra* notes 278-280 and accompanying text.

309. *See States' Reactions to Proposed EPA Greenhouse Gas Emissions Standards*, NAT'L CONFERENCE OF STATE LEGISLATURES, (June 30, 2015), http://www.ncsl.org/research/energy/states-reactions-to-proposed-epa-greenhouse-gas-emissions-standards635333237.aspx. We treated some procedural requirements as barriers, such as the impact report and public hearing requirement in Nebraska. However, others, like Minnesota's requirement that the Commissioners submit their plan to relevant legislative committees for review and comment did not seem sufficiently burdensome to be treated as a barrier. *Id.*

State	States Submitting Dec. 2014 Joint Comments Supporting Draft CPP[306]	States Petitioning for Stay of Final CPP[307]	States Participating Lawsuits Challenging Final CPP[308]	States with Bills or Resolutions Expressing Concerns with CPP, Creating Implementat-ion Constraints, or Supporting Coal as of March 2016[309]	States Intervening on behalf of the EPA in Challenges to Final CPP
Michigan			X		
Minnesota	X				X
Mississippi			X	X	
Missouri			X	X	
Montana			X	X	
Nebraska		X	X	X	
North Dakota			X	X	
South Dakota		X	X	X	
Texas			X		
Wisconsin		X	X		

Moreover, these official state actions do not fully capture the level of political dissension within and among these states. A number of states in the MISO region, including ones who supported the CPP, have had failed legislation or resolutions introduced that opposed the CPP.[310] In some

310. *Id.*

instances, states with deeply interlinked electricity markets are in the middle of active disputes regarding energy with relevance to CPP implementation. For example, as discussed above, North Dakota sued Minnesota, claiming a dormant Commerce Clause violation in a provision of a law establishing renewable energy goals,[311] and the district court's opinion justified its finding a violation in part on the interconnection of states' electricity markets through MISO.[312]

With respect to CPP cooperation, though, despite these differences, the MISO states' environmental and energy regulators—and some key utilities—have been meeting since soon after the June 2014 draft CPP was released through the MSEER group introduced above.[313] From a governance perspective, this is a promising development along the lines we explore in more depth in Part III.[314] MISO states are among the most organized regionally around the CPP, assisted by the highly developed RTO that brings together key participants in its energy markets. A number of the states even signed joint MSEER comments on the draft CPP aimed at "giv[ing] states flexibility in developing plans that include multistate coordination."[315]

Moreover, the MSEER dialogues have helped spur and support other regional conversations. For example, many of the state regulators in the PJM region—which abuts MISO and includes utilities in Delaware, Indiana, Illinois, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia—began having similar discussions in June 2015.[316] The PJM discussions have been assisted by the fact that some of its member states are partly in MISO, and some of the groups and individuals participating in regional discussion therefore overlap.

But the MSEER meetings have also reinforced the complexities of translating CPP interstate options into regional coordination, even if states can overcome their political differences. For example, Nancy Lange of the Minnesota Public Utilities Commission, the key energy regulatory body in one of the states that is most supportive of the CPP, indicated that despite regional cooperation making a great deal of sense "in theory," the states' different CO_2 reduction goals under the CPP (which vary because different states have

311. For the Chamber of Commerce briefing to the Eighth Circuit expressing this view, see Brief of Amici Curiae Chamber of Commerce et al. Supporting Appellees and Affirmance, North Dakota v. Heydinger, No. 14-2156 (8th Cir. Jan. 27, 2015).

312. *See supra* Part II.B.2.b.

313. Jeffrey Tomich, *Behind the Noise, Central States Study EPA Rule Cooperation*, ENERGYWIRE (Dec. 3, 2014), http://www.eenews.net/stories/1060009833.

314. *See infra* Part III.

315. Letter from Midcontinent States Envtl. & Energy Regulators Steering Committee to Gina McCarthy, Adm'r, EPA (Nov. 21, 2014), http://www.naruc.org/Publications/Final%20MSEER%20Comment%20Letter%2011%2021.pdf.

316. Jeffrey Tomich, *PJM State Officials Discuss Possible Carbon Rule Coordination*, ENERGYWIRE (Oct. 13, 2015), http://www.eenews.net/stories/1060026205.

different numbers of CPP-regulated plants, all of which have nationally-uniform emission standards) make operationalizing cooperation complex.[317] She noted, "We've spent a lot of time in the MSEER group gnashing our teeth about our differences in goals."[318]

Indiana Department of Environmental Management Commissioner Thomas Easterly also raised issues related to harmonizing among states if they choose different ways of calculating compliance: "We couldn't figure out any viable way to trade between a rate-based and a mass-based state."[319] The rate-based versus mass-based decision hopefully will not be a serious implementation barrier; states within energy regions have strong incentives to make a common choice. But at this stage, it is still unclear if all states within energy regions will adopt compatible options.[320] Moreover, as analyzed in Part III.A, because the footprints of energy regions do not fully match those of states, there could be difficulties if states in neighboring energy regions do not choose the same option.[321]

These barriers to reaching agreement in the MISO region, even as states that disagree politically try to work together, reinforce the importance of developing effective institutional mechanisms for regional cooperation to complement the approaches that the EPA has developed. States, particularly given the deep political differences represented in many regions, need clear pathways to achieving regional cooperation and its economic benefits.

III. TOWARDS EFFECTIVE REGIONAL GOVERNANCE

Parts I and II have explored the possibilities for interstate collaboration under the CPP and the challenges and opportunities presented by interstate and regional approaches to achieving such collaboration. Due to political gridlock, agency ossification, and the generally "sticky" nature of governance approaches—as well as the danger of locking in second-best energy infrastructure with a long operational life—it is essential to implement the best possible institutional approach to the CPP and future, similar carbon emissions regulations from the outset.[322] But the melding of two very different types of federalism—a federal-state CPP with federal-regional-state energy policy and markets—will make this task particularly difficult. As we have explored in our previous scholarship, the nature of federalism in energy law is particularly

317. Jeffrey Tomich, *States to FERC: Clean Power Plan Too Much, Too Fast*, ENERGYWIRE (Apr. 2, 2015), http://midwestenergynewscom/2015/04/02/states-to-ferc-clean-power-plan-too-much-too-fast/.

318. *Id.*

319. *Id.*

320. *See* SELMI, *supra* note 301 (exploring the consequences of states choosing not to submit a state implementation plan); Holden, *supra* note 281.

321. *See infra* Part III.A.

322. For discussion of agency inaction due to extensive judicial review and the need to develop voluminous supporting records, see Thomas O. McGarity, *Some Thoughts on "Deossifying" the Rulemaking Process*, 41 DUKE L.J. 1385, 1385, 1387 (1992).

complex, with regional entities like RTOs playing an unusually large and important role in bringing together federal, state, and private actors to create manageable energy markets and policies.

This Part contributes to efforts toward rapid, effective implementation of the CPP and similar carbon emissions requirements likely to be promulgated by the EPA, and the scholarly literature on federalism and governance, by analyzing what it would take to achieve effective regional carbon emissions governance that brings together the CPP's federal-state approach with current regional energy governance. Building on our prior work on hybrid governance,[323] this Part proposes regional institutional development as a strategy for helping to meld the divergent federalism structures at this legal convergence. It argues that regional institutions, whether built from existing regional energy architecture or newly created, can play a crucial role in bringing together key public and private stakeholders at state, regional, and federal levels.

As the MISO states' experience described in Part III.C.2 reinforces, even in regions with strong regional energy institutions and active efforts to collaborate, states may find coordinating their plans to be a complex endeavor due to the constraints of the CPP (particularly the need to all choose mass-based or rate-based in order to trade effectively) and to a lesser extent, their political differences. In a step somewhat beyond MSEER—but one that still substantially maintains state independence—states can simply engage in informal discussions and sign a memorandum of understanding (MOU) in which they agree to implement materially consistent trading regimes, thus enabling sources within the states to benefit from regional approaches without requiring a formal agreement among the states.[324] But regional implementation ideally will go beyond the important first step of MSEER's and other regions' collaborative discussion forums, and in some cases beyond informal agreements and MOUs, to states making commitments and developing decision-making structures that help them overcome differences and reap the economic benefits of joint implementation.[325] These hybrid regional structures can play a crucial role in bridging the overlapping and fragmented governance structures described in the previous parts in a manner that engages key stakeholders effectively.

This Part focuses on four elements of regional institutional design that, based on experiences of other regional U.S. institutions, likely will help address the federalism and governance challenges that we have identified. In particular, it examines the following key considerations in designing regional institutions (agencies and rules) for multistate plans, or individual state targets with regional compliance: (1) the choice of agency, including whether a new

323. Osofsky & Wiseman, *supra* note 39; Osofsky & Wiseman, *supra* note 40.
324. MONAST ET AL., *supra* note 70, at 4.
325. *See supra* Part II.B.2.

organization will be formed or an existing entity will be modified to develop and implement regional CPP approaches; (2) the decision-making structure, including whether the regional agency itself will make decisions that legally bind the states, or whether the agency will provide model rules to be implemented by the states; (3) selection of stakeholders and participation roles, including who will have voting or less formal participatory powers; and (4) decision-making procedures, including whether expert groups will be formed to recommend rules, whether unanimous or supermajority votes will be required to bind the states to regional approaches, and how rules defining how stakeholders can make motions and vote on proposed modifications to the rules and organizational membership over time will be structured.

The Part draws from examples from two existing regional regimes in energy law, RGGI and the Northwest Power and Conservation Council (NPCC), to frame its analysis of each of the four elements. Numerous regional agencies could serve as similarly useful models. But the experiences of these institutions, which already wrestle with intertwined environmental and energy challenges and attempt to meld states' divergent energy policies, provide useful lessons about the ways in which institutional design can help or hinder interstate and regional cooperation in carbon emissions governance.[326]

A. Choice of Agency

The first critical issue to resolve in CPP implementation and similar carbon emissions reduction strategies is how states want to build from existing federalism and governance structures to provide the needed interstate coordination—even if, in the CPP context, that coordination is simply agreeing on a mass-based or rate-based plan so that trading between sources in different states is possible. States will need an interstate organization, which might only be loosely formed in some cases, through which to form initial rules and guidance regarding the regional approach and to modify these rules over time.

States have several options for forming a regional agency that will serve as the central point for discourse and deliberation. Depending on the degree of state collaboration, the agency could also be the hub for technical research for rule development; initial and modified rule making; and bringing together various state officials who would collectively conduct monitoring, enforcement, and reporting of rule implementation. As Part II demonstrates, regional grid operators (or regional groupings of states formed around their footprint) will provide a natural base for developing and implementing at least

326. The EPA in the CPP and scholars and policy groups have used similar analogies, often looking to RGGI and other trading regimes to suggest how a regional CPP approach could operate. *See, e.g.*, PAUL HIBBARD ET AL., ANALYSIS GROUP, EPA'S CLEAN POWER PLAN: STATES' TOOLS FOR REDUCING COSTS AND INCREASING BENEFITS TO CUSTOMERS 17 (2014). Our analysis builds from these sources and focuses primarily on the procedural aspects of RGGI, incorporating an analysis of how an existing regional group—MISO—enhanced participatory procedures in order to accomplish a new regional goal. A similar transition will be necessary for the CPP.

some of these rules. The simplest solution would therefore be for states to persuade an existing regional organization, such as a regional grid operator, to enhance its existing processes to serve as this central hub or to enhance the authority of a group like MSEER that includes all states in its energy region. Using the RTO or other balancing authority as a convening point for state discussions would also enhance state-regional communication. As discussed in Part II, this communication will be necessary so that regional grid operators can better predict capacity, interconnection, dispatch, and transmission changes needed to support new and expanded generation infrastructure within each state.[327] Alternatively, states could form a new regional organization, as occurred for RGGI, but this requires far more coordination and planning.

As highlighted above, one challenge to using existing grid governance organizations as the entities through which states convene to develop and implement regional CPP plans is that these organizations will not always encompass the geographic area of a regional CPP scheme, or of a collection of states that have agreed to allow their sources to trade with sources in other states. Even if the RTO footprint maps well with states that choose to collaborate, some states are covered by more than one RTO, which causes both an RTO authority issue and a state coordination issue. Because RTOs are comprised of entities in the electricity market, utilities within a state at times divide in terms of RTO membership.[328] As a consequence, some states are partly covered by MISO and partly by PJM, the Southwest Power Pool, or ERCOT. In addition, some states are partly covered by an RTO and partly not covered by an RTO.[329] This partial coverage poses an issue because forming one regional collaboration around an RTO footprint would not fully integrate the state's energy markets, whereas joining multiple regional plans will require a great deal of effort.[330] Further, states that sign on to the ready-for-interstate-trading plan or allow trading with any other states that have adopted consistent plans will likely allow sources in the state to trade with sources that operate in numerous RTOs, depending on how many other states sign on to uniform trading frameworks. Right now, overlapping states are simply participating in more than one conversation, such as the MSEER and PJM discussions,[331] but at an implementation stage, this participation in several different regional planning processes will become harder if the regions' approaches do not dovetail.

Assuming states can work through the partial coverage issues, in areas with relatively sophisticated regional grid governance performed by RTOs, the states that are part of these RTOs have developed comparatively strong

327. *See id.*

328. *See supra* notes 105–106 and accompanying text.

329. *Id.*

330. *Id.*

331. *See* Emily Holden et al., *Behind the Scenes, Most States Are Exploring the Benefits of Carbon Trading*, ENERGYWIRE (Oct. 13, 2015), http://www.eenews.net/stories/1060026225.

horizontal (state-to-state, as opposed to vertical state-local or state-federal) governance relationships. Specifically, these states have created non-profit organizations consisting of state members. Through these organizations, state representatives periodically meet to propose new policies to the RTO, review proposed RTO policies and oppose or support them, and, in some cases, litigate in support of or against RTO policies or FERC decisions to approve or reject those policies.[332] States' existing engagement through these and other organizations involves some of the core subject matter that is addressed by the CPP, such as discussing where and how renewable generation and associated transmission lines should be expanded.[333] This experience and history of engagement on CPP-relevant issues is likely to make states that already work together to influence RTO governance good candidates for creating a multistate plan under the CPP. The MISO states' collaboration in MSEER, for example, reflects how RTO links can translate into interstate collaboration, if not yet cooperation, on implementation.[334]

In the case of the multistate RTOs more broadly, states that have chosen to collaborate or allow trading might overlap with the territory of RTOs fairly well aside from the issue of some states containing members of more than one RTO. Even in states that lack RTOs, CPP discussions often seem to be following regional grid governance geographically. Indeed, there is a possibility that state collaboration within non-RTO areas—where energy markets are not as well linked—is more active than in RTO areas because greater in-depth cooperation among states is necessary for effective grid planning. For example, states in the WECC are having collaborative discussions organized by the Colorado-based Center for the New Energy Economy.[335] This effort is perhaps not a surprise, as the western states have several long-running groups that convene to address regional energy issues.[336]

Multistate plans within the geographic area already covered by the RTO, or individual plans with state coordination of compliance, might also emerge as a result of utility lobbying. Utilities often operate within the jurisdictional boundaries of an RTO because they have generation and transmission lines in

332. *See* Osofsky & Wiseman, *supra* note 40.

333. *See, e.g.*, *Committee on Reg'l Electric Power Cooperation: What We Do*, W. ENERGY BD., http://westernenergyboard.org/crepc/what-we-do/ (last visited Feb. 3, 2016) ("CREPC is comprised of the public utility commissions, energy agencies and facility siting agencies in the western states and Canadian provinces in the western electricity grid, and works to improve the efficiency of the western electric power system.").

334. *See supra* notes 313–319 and accompanying text.

335. *See* Holden et al., *supra* note 331.

336. *See, e.g.*, *supra* note 333; *Western Renewable Energy Zones*, W. GOVERNORS' ASS'N http://www.westgov.org/rtep/219-western-renewable-energy-zones (last visited Feb. 3, 2016) (However, the Western Renewable Energy Zones initiative is no longer active.); *Agenda: Joint Meeting of the Committee on Regional Electric Power Cooperation and the Western Interconnection Regional Advisory Body*, W. ENERGY BD. (Apr. 8–9, 2009), http://www.westernenergyboard.org/wieb/meetings /crepcsprg2009/04-09agen.htm (showing discussions of transmission policy for renewables, long-term transmission planning, and other regional issues).

multiple states that are part of an interconnected grid governed by the RTO.[337] These utilities might push states to coordinate CPP compliance within the geographic RTO region in order to make utility compliance easier; a utility can rely on a range of its generating units in many different states to reduce its carbon emissions, and once a regional regime is up and running, the utility might only have to report compliance to one organization rather than multiple states. But some large utilities operate around the country and have generation in several grid interconnections. These utilities might push for multistate plans beyond the geographic area covered by the RTO. Indeed, the CPP expressly allows select utilities within a state to be part of different multistate plans.[338]

Despite some examples of relatively extensive state coordination within RTOs and within somewhat less cohesive coordinating councils, states that are geographically part of an RTO are sometimes only linked by the mere existence of an interconnected physical grid. As discussed in Part II.C.2, states within even a fairly collaborative RTO may have strong political or other differences that make regional CPP governance within the full RTO footprint difficult.[339] If some of the current regional coordination efforts were to fail and particular states were to work with only a portion of the RTO states in their region and/or other states outside of the RTO, they might choose to form a new regional organization that would have to harmonize policy among RTOs and with other regional grid entities.[340] As analyzed in Part I.B, the potential for trading and associated state coordination that does not match energy regions is enhanced by the fact that the CPP is designed so that mass-based and rate-based states can only trade among states that make the same choice; states within regional grids that choose a mass-based approach will be blocked from trading with states in their region that choose a rate-based approach, but can trade out of their region with other mass-based states.[341]

Beyond RTOs and similar regional grid governance authorities, and the groups of states convening around them, there are very few existing regional entities that could potentially be used for regional CPP governance. The exception is RGGI, which covers certain Northeastern and Mid-Atlantic States. Through RGGI, governors of ten states signed an MOU creating the multistate

337. *See supra* note 182 and accompanying text.

338. *See* RAYMOND L. GIFFORD ET AL., WILKINSON, BARKER, KNAUER, LLP, THE CLEAN POWER PLAN: CARBON TRADING, STATE LEGISLATION AND POLITICAL ECONOMY ISSUES 1, 3 (2015), http://www.wbklaw.com/uploads/White%20Paper%20%20Carbon%20Trading%20State%20Legislation%20and%20the%20Political%20Economy%20Issue%20Oct15.pdf.

339. *See supra* Part II.B.2.

340. Similar proposals have been made in the past for coordinating states' transmission siting policies and preferences for allocating the costs of new transmission lines within a regional grid. *See, e.g.*, NAT'L GOVERNORS ASS'N, INTERSTATE STRATEGIES FOR TRANSMISSION PLANNING AND EXPANSION 9 (2002), http://www.hks.harvard.edu/hepg/Papers/NGA_Interstate.Strategies.Planning.for.Transmission_9-3-02.pdf ("Governors should form Multi-State Entities (MSEs) to facilitate state coordination on transmission planning, certification, and siting at the regional level. The MSE should reflect the boundaries of regional electricity markets as defined by participating states.").

341. Holden et al., *supra* note 331.

initiative and establishing a cap on the greenhouse gases emitted annually in these regions. The states created a 501(c)(3) nonprofit organization to develop and support this initiative.[342] This organization has no "regulatory or enforcement authority," as states that are part of the initiative retain independent rulemaking and enforcement authority and simply adopt model rules to implement RGGI, but it conducts much of the technical and operational work required to make RGGI run smoothly.[343] This work includes, inter alia, "[d]evelopment and maintenance" of a CO_2 allowance trading, tracking, and reporting program; creating and implementing "a platform to auction CO_2 allowances"; technical research to help review states' proposals to offset greenhouse gas emissions; and "technical assistance to the participating states to evaluate proposed changes to the States' RGGI programs."[344] However, some but not all PJM states are in RGGI, reinforcing that other relevant regional organizations may not align fully with regional grid operators.[345] Companies have largely been supportive of the constructive role that RGGI has played, though NRG energy filed comments in January 2016 opposing expanding RGGI as part of CPP compliance.[346]

Another organization with responsibilities somewhat similar to those that a regional CPP agency would have is the NPCC, which provides potentially useful lessons for CPP approaches to organization, membership, and stakeholder inclusion. Congress created the NPCC in 1980 to prepare "a regional conservation and electric power plan" and "a program to protect, mitigate, and enhance fish and wildlife" because much of the power in the Northwest comes from hydroelectric dams that impact fish and wildlife.[347] Just as states under the CPP will have to select generation sources that will reduce CO_2 emissions (and thus environmental impacts) while continuing to ensure the reliability of the electric supply, states through the NPCC must "assure the region of a safe, reliable, and economical power system with due regard for the environment."[348]

Where states planning to coordinate on CPP issues are unable to form a new unit within an RTO or other regional grid governance organization, build on interstate groupings that match those regional entities, or rely on an existing regional organization like RGGI or the NPCC, they will have to form a new interstate agency, or at a minimum a loosely organized interstate entity, to

342. *RGGI, Inc.*, REG'L GREENHOUSE GAS INITIATIVE, http://www.rggi.org/rggi (last visited Aug. 7, 2015).

343. *Id*.

344. *Id*.

345. Holden et al., *supra* note 331.

346. Robert Walton, *NRG Opposes Expanding RGGI for Clean Power Plan Compliance*, UTIL. DIVE (Jan. 8, 2016), http://www.utilitydive.com/news/nrg-opposes-expanding-rggi-for-clean-power-plan-compliance/411772/.

347. Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. § 839b (2012).

348. *Council Bylaws*, NW. POWER & CONSERVATION COUNCIL (Oct. 15, 2003), https://www.nwcouncil.org/about/policies/bylaws.

assist states in agreeing upon and implementing regional solutions. And regardless of whether they form a new agency or a new unit within an existing organization, they will have to carefully consider the decision-making authority of this unit or entity, including whether the agency or entity itself will develop regional rules applicable to the states or, as with RGGI, the states will retain the authority to choose whether or not to implement model rules suggested by the agencies.[349] This choice of structure might implicate the Compact Clause in minor ways,[350] as discussed in the following subpart.

B. Decision-Making Authority

As introduced in Parts I and II, states can choose a variety of regional approaches to implementing the CPP. In selecting among these approaches—including aggregating state goals into a multistate goal and coordinating compliance, retaining individual goals and coordinating compliance, or implementing a variety of trading schemes[351]—states, after selecting an interstate entity, will need to decide how much and what type of authority that entity will wield. However, existing federalism structures constrain those possibilities for governance innovation somewhat. Namely, as states work to craft new hybrid regional institutions, they will need to briefly assess what is allowed under the Compact Clause—which prevents states from entering into agreements or compacts without Congressional approval.[352]

This subpart explores these options from an institutional design perspective, which range from, at the strongest, forming an aggregate state goal and writing uniform model rules for states to implement, to, at the weakest, providing a forum for states to interact with no binding authority—an arrangement similar to MSEER and other regional dialogues. Of course, at the very weakest, there could be no institution at all, but we focus on the situations in which states choose to develop a new institution or give an existing one new powers. The analysis here focuses on the implications under the Compact Clause for the creation of such organizations, arguing that states can form even a strong interstate entity to enforce the CPP without encountering constitutional issues so long as the entity is structured appropriately.

States that engage in the strongest form of cooperation under the CPP could form a regional entity, or enhance an existing entity, through which states would combine their individual CPP goals and vote on a multistate plan for achieving the aggregated goal.[353] These states could also give the regional

349. *See infra* note 364 and accompanying text.

350. U.S. CONST. art. I, § 10, cl. 3.

351. *See infra* Part I.B.

352. U.S. CONST. art. I, § 10.

353. *See* Clean Power Plan, *supra* note 1, at 64,859 (allowing "common" multistate submittals of a single multistate plan that would be "signed by authorized officials for each of the states participating in the multi-state plan and would have the same legal effect as an individual submittal for each participating state").

authority the power to write a model rule for regional CPP implementation but provide that states would individually have to adopt the model rule—the RGGI approach.[354]

A question that potentially arises with the strongest forms of interstate entities, when created by states directly without the involvement of Congress, is whether their formation will trigger application of the Compact Clause. This clause of the Constitution provides that "[n]o State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State."[355] However, the only agreements and compacts that fall within the Clause and require congressional approval are those that "enhance state power *quoad* the National Government,"[356] "increase the political power" of the states, or "encroach upon or interfere with the just Supremacy of the United States."[357] Compacts and agreements that affect the sovereignty of states that are not members of the agreement are also reviewed carefully by courts. All other agreements and compacts, regardless of their form, are outside of the scope of the Compact Clause[358] and do not require congressional approval.

In the case of the Clean Air Act, Congress has already granted individual states the power to regulate in an area that would otherwise involve federal Commerce Clause authority—specifically, they are empowered to regulate pollutant emissions from power plants operated by multistate actors on a multistate grid.[359] And the fact that multiple states coordinate to exercise this power granted to them by Congress does not mean that these states automatically encroach into federal turf. After all, FERC already regulates RTOs, so if states coordinated and ceded interstate or regional CPP authority to the RTO, FERC would continue to have regulatory authority over that RTO. Even states that coordinated through an institution other than an RTO would not create new powers vis-à-vis the federal government—they would simply be shifting powers among states in different ways.

Promisingly for states that wish to create a strong regional or other interstate entity to assist CPP implementation, the Supreme Court has allowed states to exercise authority collectively—authority they independently wielded prior to acting together—without having to obtain congressional permission. In

354. The former approach of giving a regional entity authority would be somewhat more likely to implicate the Compact Clause than the latter approach, but neither approach would likely be probleatic from a Compact Clause perspective as discussed below. *See supra* notes 355–358 and accompanying text.

355. U.S. CONST. art. I, § 3, cl. 10.

356. U.S. Steel v. Multistate Tax Comm'n, 434 U.S. 452, 459 (1978) (emphasis in original).

357. Cuyler v. Adams, 449 U.S. 433 (1981).

358. *See id.* at 440 ("Where an agreement is not 'directed to the formation of any combination tending to the increase of political power in the States, which may encroach upon or interfere with the just supremacy of the United States,' it does not fall within the scope of the Clause and will not be invalidated for lack of congressional consent."); *U.S. Steel*, 434 U.S. at 469 (after reviewing previous Compact Clause cases, reaffirming that "not all agreements between States are subject to the strictures of the Compact Clause").

359. 42 U.S.C. § 7426 (c)(2) (2012).

U.S. Steel Corp. v. Multistate Tax Commission, twenty-one states, without the consent of Congress, entered into a Multistate Tax Compact that coordinated the states' approaches to taxing corporations that operate in multiple states (an approach that a prior Supreme Court case suggested was permissible).[360] Under their newly formed compact, the states created a Multistate Tax Commission that had the authority to "study state and local tax systems," propose uniform tax approaches, study improved taxation approaches that could assist the states, and "adopt uniform administrative regulations." These uniform "advisory" regulations did not bind the states unless the states individually adopted them.[361] The Supreme Court held that this Multistate Tax Compact did not fall within the scope of the Compact Clause because it did not "enhance the political power of the member States in a way that encroaches upon the supremacy of the United States."[362]

The *U.S. Steel* case provides solid ground for states avoiding Compact Clause concerns when implementing interstate CPP approaches, regardless of whether they give a regional authority independent rule-making authority that would bind the states or whether they work through a regional authority to adopt model CPP rules that the states would individually implement. Indeed, in the CO_2 regulation context, RGGI followed a somewhat similar model to *U.S. Steel*.[363] RGGI states that agreed upon a carbon emissions cap and trade scheme carefully structured the form and extent of its authority. Specifically, through RGGI, the regional authority writes model rules that the states then implement. The regional authority itself cannot bind the states,[364] although states must follow their own constitutions and laws in order to properly withdraw from the agreement.[365] A similar approach in the CPP context would likely avoid constitutional difficulties.

360. *U.S. Steel*, 434 U.S. at 454. The states formed this compact after a Supreme Court case determined that individual states could tax "net income from the interstate operations of a foreign corporation" if the tax was nondiscriminatory and showed "sufficient nexus" to the state. *Id*. at 455 (citing *Nw. States Portland Cement Co. v. Minnesota*, 358 U.S. 450, 421 (1959)).

361. *Id*. at 456–457.

362. *Id*. at 472, 479.

363. *See* HIBBARD ET AL., *supra* note 326.

364. The RGGI regional organization has "no regulatory or enforcement authority with respect to the Program." *RGGI, Inc., supra* note 342.

365. A New Jersey superior court held that a state agency used improper procedures when it withdrew from RGGI. *In re* Regional Greenhouse Gas Initiative, 2014 WL 1228509, at *5 (N.J. Super. Ct. App. Div. Mar. 25, 2014) (per curiam) (agreeing with the parties who challenged the procedures for withdrawals because the agency "engaged in improper rulemaking by posting the withdrawal notice on its website rather than repealing the Trading Program regulations through the procedures established by the APA."). Certain RGGI opponents expressed concerns that RGGI might violate the Commerce Clause. *See, e.g.*, Edison Electric Institute Comments on the Regional Greenhouse Gas Initiative Memorandum of Understanding 22–24 (Mar. 20, 2006), https://web.archive.org/web/20151030213229/https://www.rggi.org/docs/rggi-eeimou_comments032006final.pdf (arguing that the Memorandum of Understanding for RGGI, in which the states commit to implement individualized legislation to implement RGGI, requires congressional approval under the Compact Clause); *but see The Compact Clause and the Regional Greenhouse Gas Initiative*, 120 HARV. L. REV 1958, 1976 (2007)

Other interstate approaches envisioned by the CPP implicate no Compact Clause concerns. For example, the weakest form of interstate collaboration, in which states decide to simply allow sources in their state to trade with sources in any other state that has an EPA-approved plan and that follows an EPA-administered or approved trading scheme,[366] might not even be considered a compact or agreement. States would simply be opting into a federal scheme.

C. Stakeholder Representation

As important as the type of entity that will be formed to make and implement interstate CPP decisions, and the extent of this entity's authority, is the question of which stakeholders will be included in a multistate CPP process. As our prior work on hybrid governance analyzes, effectively addressing overlapping and fragmented governance at the energy-environment intersection necessitates structures that can effectively include key public and private stakeholders across levels of governance.[367] A decision in this context will require careful consideration of the entities that will be most impacted by the CPP and those that can bring needed technical knowledge and other resources to the table. This subpart uses the NPCC as a model for how to include key public and private stakeholders in an interstate regional structure and applies its lessons to the CPP context. It explores which governmental and nongovernmental entities should be included in an interstate entity assisting with CPP implementation and dilemmas around how to include key private actors such as utilities without risking private interests subsuming public ones.

The most essential participants in interstate CPP governance, as noted above, will be the states. The current regional discussions reflect the central role of states, as regulators from MISO, PJM, and WECC states meet to discuss collaboration.[368] Representatives from state PUCs and environmental agencies should have advisory and voting authority within an interstate CPP agency because these representatives have expertise in and authority over generation decisions. PUCs regulate the construction and operation of generation as well as power purchases,[369] and state environmental agencies influence generation choice by implementing federal and state environmental regulations for conventional and hazardous air pollutants.

The process for forming RGGI and including stakeholders is perhaps most instructive. This effort required several states, all of which have distinct energy

(concluding that because RGGI allows for states to unilaterally withdraw, this suggests that "it should fall outside the scope of the Compact Clause"); Michael S. Smith, Note, *Murky Precedent Meets Hazy Air: The Compact Clause and the Regional Greenhouse Gas Initiative*, 34 B.C. ENVTL. AFF. L. REV. 387, 397–402, 407–09 (2007) (discussing *U.S. Steel* and applying it to RGGI to argue that RGGI does not require congressional approval).

366. *Id*. at 1294.

367. Osofsky & Wiseman, *supra* note 39; Osofsky & Wiseman, *supra* note 40.

368. Holden et al., *supra* note 331.

369. *See supra* note 13.

policy, to reach consensus on carbon reduction goals—something that will have to occur for the CPP as well. The RGGI initiative began when Governor George Pataki invited eleven states to participate in an initiative that "would involve developing a regional market-based emissions trading system to require power generators to reduce CO_2 emissions."[370] Eight states initially agreed to join the RGGI effort, and most designated a state air regulator as their RGGI representative.[371] Chief executives from state agencies formed an "Action Plan" based on recommendations from a staff working group comprised of "two representatives from each state (one each from a state's energy regulatory and environmental agencies)."[372] The staff working group also established a steering committee consisting of two representatives from each of three states, and these representatives rotated every six months to allow all states input in the process.[373] In addition, the states formed working groups chaired by state energy and environmental agency officials that made technical recommendations.[374] These groups had tasks such as conducting research and exploring options for a model rule, engaging other stakeholders, researching/developing a greenhouse gas registry, and conducting energy modeling, among other tasks.[375]

The NPCC, which, as introduced above, serves many of the same functions that an interstate CPP agency will serve, similarly relies on state agency officials as its core state stakeholders and could also serve as a model for regional CPP governance. It includes representatives of its member states as the sole voting members of the Council. Governors from each state select and certify two members from each state to serve as council members.[376] These members must be from state government agencies or other state government entities.[377]

Beyond the states themselves, large multistate utilities have the highest stakes in CPP governance and regional energy governance choices. These utilities will be essential players in helping to decide how multistate plans will operate and be implemented and therefore must have a seat at the regional governance table. Indeed, the EPA explicitly recognizes that certain multistate plans might be formed solely for specific utilities—a state may allow utilities within the state to participate in multistate plans designed around these utilities'

370. CTR. FOR RES. SOLUTIONS, LESSONS LEARNED FOR INTEGRATING RENEWABLES INTO GREENHOUSE GAS TRADING PROGRAMS 3 (2005), http://www.hmwinternational.com/Publications/Lessons_Learned_for_Integrating_Renewables_into_Greenhouse_Gas_Trading_Programs.pdf.

371. *Id*.

372. *Id*.

373. *Id*.

374. *Id*. at 4.

375. *Id*.

376. *Council Bylaws*, *supra* note 348 ("The Council consists of eight members, two each from the states of Idaho, Montana, Oregon and Washington, who have been certified as members by the Governors of their respective states.").

377. *Id*. (providing that council members are "officers employed by their respective states").

geographic operations.[378] However, including the entities most impacted by a CPP interstate approach in the decision-making process will raise potential capture concerns, in which well-organized, relatively wealthy interests with the most to lose or gain from a decision may have undue influence as compared to diffuse, less-organized interests that collectively have a great deal to gain or lose but individually have small interests. There are several strategies that states embarking upon regional CPP approaches should consider to alleviate capture concerns.

The clearest approach to giving utilities a needed voice at the table but somewhat constraining their influence over interstate CPP decisions would be to give them participatory access but not a vote in these decisions. The interstate authority could automatically include utilities as "interested parties" in any decision-making process and assign them to participate in various working groups that propose strategies for regional implementation. This approach would still potentially raise serious public choice concerns—concerns that we have addressed in other work[379]—depending on the role that interested parties play.

However, particular strategies of structuring the "interested parties" participation may help to include these necessary private stakeholders in the process without allowing them to unduly influence the process. For example, the interested parties type of approach is used in the regional transmission planning and operation context, where Michael Dworkin and Rachel Aslin Goldwasser have extensively examined accountability and capture concerns. Dworkin and Goldwasser note that most RTOs use a "two-tiered" decision-making structure, in which one board of independent, non-utility entities makes final decisions on the basis of advice from a "second tiered advisory committee" comprised of stakeholders, including utilities.[380] RTOs can alternatively have boards with decision-making authority that consist entirely of stakeholders but prevent any one stakeholder from having veto authority, and "hybrid" boards with stakeholders and independent entities; some have suggested that for this latter approach, independent, nonstakeholder entities should hold the majority of seats on the board to prevent undue influence from stakeholders.[381]

The NPCC takes an approach similar to the two-tiered approach of most RTOs. To address stakeholder considerations and benefit from outside expertise in making Council decisions, the NPCC may by majority vote

378. Clean Power Plan, *supra* note 1, at 64,480.

379. Osofsky & Wiseman, *supra* note 39; Osofsky & Wiseman, *supra* note 40

380. Michael H. Dworkin & Rachel Aslin Goldwasser, *Ensuring Consideration of the Public Interest in the Governance and Accountability of Regional Transmission Organizations*, 28 ENERGY L.J. 543, 563 (2007).

381. *Id*. at 563–65.

establish advisory committees.[382] For example, its Generating Resources Advisory Committee (GRAC) "was chartered to advise the Council regarding generating resource and technology alternatives"[383]—a task that CPP regional agencies will also have to take up. Stakeholders may apply to the NPCC and request membership in the GRAC, and the Council appoints GRAC members.[384] Members and interested parties include, inter alia, representatives from privately traded utilities, cooperatives, and municipally owned utilities;[385] state energy policy offices and PUCs;[386] and nonprofit groups that support the expansion of renewable generation.[387]

These types of structures are ones that a CPP organization might consider for striking a balance between including private actors and giving them too much influence. Regional CPP agencies could take similar approaches to those of RTOs or the NPCC, either excluding utilities from voting and giving them a role through membership or interested party status in advisory committees, or including utilities in final decisions but constraining their voting authority or watering it down by giving nonutility entities more votes. Such strategies would involve the utilities while providing protection for the public interest.

As shown by the NPCC approach, utilities are not the only stakeholders that will need at least a strong advisory role within interstate CPP agencies (due to their operations being affected by carbon reduction rules and their understanding of which approaches might be the most effective in reducing CO_2 emissions). Citizen groups consisting of electricity consumers who will be affected by generation changes and associated price changes, environmental groups that have long advocated for changes in the generation mix, and other nonprofit entities should have the ability to at least participate in an advisory capacity.

Interstate CPP agencies will also need to include federal representatives, at least in an advisory capacity, because of the overarching federal structure of the CPP. At a minimum, these representatives will need to include FERC—the agency that writes rules for transmission planning, generator interconnection, and wholesale electricity sales—and the EPA, which will review and approve

382. *Council Bylaws*, *supra* note 348 ("The Council may establish such advisory committees as a majority of its members deem appropriate to assist it in carrying out its functional and responsibilities.").

383. *Generating Resources Advisory Committee*, NW. POWER & CONSERVATION COUNCIL (Nov. 15, 2014), https://www.nwcouncil.org/energy/grac/home/.

384. *Id*.

385. *See* NORTHWEST POWER & CONSERVATION COUNCIL, GENERATING RESOURCES ADVISORY COMMITTEE (GRAC) 2014 MEMBERSHIPS (AS OF 11/2014) 1 (2014), https://www.nwcouncil.org/media/7148488/gracmember-2014_11.pdf (showing members such as Clark Public Utilities, Grant County PUD [Public Utility District], Idaho Power, and the Flathead Electric Cooperative).

386. *Id*. at 1 (showing members such as the California Energy Commission, Oregon Department of Energy, and Idaho Public Utilities Commission).

387. *Id*. (showing Renewable Northwest as a member); *Our Story*, RENEWABLE NW., http://www.rnp.org/node/our-story (last visited Aug. 10, 2015) (explaining that Renewable Northwest is a 501(c)(3) organization with a mission "to promote the expansion of environmentally responsible renewable energy resources in the Northwest").

multistate plans and individual state plans with regional coordination. These federal representatives likely should not have voting authority, as the states retain jurisdiction to decide specific CPP approaches, but they will play an important role in advising the states of potential legal snags to their proposed interstate approaches or other flaws in their plans that could cause the EPA to later reject it.

Lessons for including a federal representative in an advisory role once again come from the NPCC, which includes representatives from the Army Corps of Engineers as interested parties on GRAC.[388] Because the Corps must permit dredging and filling for new hydroelectric dams or changes to existing ones, it can alert the committee to any generation decisions that might implicate Corps permitting and might be beneficial or problematic from a Corps perspective.[389] The NPCC also includes as interested parties federal representatives from the Lawrence Berkeley National Laboratory (LNBL), which conducts studies regarding the interconnection of generation to the grid, among other technical studies.[390] An LBNL representative could also be highly valuable to regional CPP decisions or similar decisions made under other potential carbon reduction approaches.

Beyond defining the voting members of the regional CPP agency and stakeholders who will consistently be defined as "interested parties" or similar entities who have a guaranteed advisory capacity role, interstate agencies will have to establish procedures for making rules and modifying them. The following subpart explores these issues.

D. Decision-Making Procedures

The states that take a more formal approach to regional CPP governance than the collaborative discussion models represented by current talks among MSEER, PJM, and WECC regulators will need to decide on a process for identifying and analyzing priority issues, resolving conflicts, agreeing upon interstate CPP policies, and allowing for entry and exit. Given the variety of key stakeholders identified in Part III.C., this process will need to have mechanisms for input and for making a final decision. States will need to decide whether to appoint a leader of the interstate entity, who might have the role of initiating the process of identifying and voting upon priority areas and policies. Addressing this range of procedural issues is crucial for operationalizing hybrid regional governance structures in an effective way. As with the prior three elements, existing regional entities—specifically RGGI and NPCC—provide helpful models for how these decision-making procedures might be established for a regional CPP entity.

388. *Id*.
389. *Id*.
390. *Id*.

With respect to the first issue of procedures for identifying issues and exploring them with the input of stakeholders, RGGI has developed approaches that might translate well into the regional CPP context. For the formation of RGGI policies and implementation strategies, chief executives from state environmental and energy agencies, such as secretaries of these agencies, led the effort and decided on "key policy issues."[391] But they did so only after receiving input from a staff working group comprised of environmental and energy agency officials from each state and from working groups overseen by a steering committee.[392] Specific subgroups were also formed to conduct "background research," suggest stakeholder input processes, and draft the model rule.[393] These subgroups met and prepared a variety of issue papers, which were extensively debated, and the staff working group then released a "package proposal," which was discussed at a large stakeholder meeting.[394] The working group, after addressing comments from the meeting, sent the proposal package "to the Agency Chief Executives for their approval," after which the Governors of the participating states began "intense negotiations" and agreed upon a MOU.[395] Although the voting structure for agreeing upon this MOU is not reported, it appears that the vote had to be unanimous, as agreement on an MOU was reached only after Massachusetts and Rhode Island initially withdrew from RGGI.[396]

This RGGI approach to deliberation potentially fits a CPP interstate organization well because of its combination of state governmental leadership and extensive stakeholder input. Because the CPP involves energy and environmental law,[397] it makes sense to have leaders from both sets of state agencies in charge of the process. However, given the quantity of nongovernmental stakeholders, and their crucial roles in implementation,[398] involving them in a meaningful way is also important. Working groups paired with subgroups addressing issues in more depth provides a helpful mechanism for obtaining input to shape the implementation approach. These groups can also serve as a forum for addressing the political differences within regions.[399]

Regarding the second issue of final decision-making procedures within the regional entity, the NPCC provides an instructive model for the CPP context. The NPCC elects a chair and vice chair "[a]t the first meeting of each calendar year."[400] The chair is the presiding officer for all meetings and "sets the date,

391. *See* REGIONAL GREENHOUSE GAS INITIATIVE ("RGGI") STAKEHOLDER GRP., OUTLINE OF KEY POLICY ISSUES (2004), http://www.rggi.org/docs/revisedoutline _5_20_04.pdf.

392. CTR. FOR RES. SOLUTIONS, *supra* note 370, at 3–4.

393. *Id*.

394. *Id*. at 5.

395. *Id*.

396. *Id*. at 5–6.

397. *See supra* Part I.

398. *See supra* Part III.C.

399. *See supra* Part II.B.

400. *Council Bylaws*, *supra* note 348.

time, place and agenda" of all meetings.[401] He or she also chooses the chairs of any committees assigned to address specific tasks, has the authority to execute documents on behalf of the Council, and, along with an executive committee, oversees Council staff.[402] Most actions of the Council must be taken by majority vote, although amending the Power Plan prepared by the Council requires a supermajority vote.[403]

This combination of majority and supermajority voting could be a helpful approach for the CPP, especially given the differences in politics and goals among states that could cause conflict for certain issues.[404] Substantive interstate CPP agency decisions about the specific building blocks that will be used to comply with the CPP—decisions that could fundamentally affect each state's generation resources—should perhaps be subject to supermajority or unanimous vote requirements. Laxer voting requirements for such important decisions could make states hesitant to join an interstate CPP agency, as they would be concerned that other states could substantively impact within-state generation policy. More minor matters that would be less likely to raise state concerns about the loss of in-state authority over generation decisions, such as how CO_2 emissions would be measured and accounted for, should potentially be subject to laxer voting requirements such as majority support. Requiring all interstate CPP decisions to be made by supermajority or unanimous votes might unacceptably delay regional decision-making processes and make them too burdensome.

Beyond considering majority versus supermajority or other forms of voting for different types of CPP decision making, interstate entities will need to resolve whether each state will have one vote—as states do in most of the existing regional organizations that we use as models—or whether certain states will have more votes based on their population, electricity consumption, generation capacity, or another factor. Giving states weighted votes based on these types of factors might be an impossible compromise to reach. Small states would feel that they had too little power within a weighted voting scheme. Moreover, the fact that states with larger populations and more generation capacity were willing to agree upon a one-state, one-vote scheme for RGGI suggests that this might be the most manageable approach.

Finally, states will need to establish procedures for adding states to and allowing states to leave these cooperative relationships. If states discover that the trading partners that they have chosen do not provide the least expensive opportunities for obtaining low-carbon generation, they may wish to swap out partners for others, and the regional entity that governs electricity flow through the grid will need to have advance knowledge of these changes. The form that

401. *Council Bylaws*, *supra* note 348.
402. *Id*.
403. *Id*.
404. *See supra* Part II.B.

these procedures can take will be shaped to some extent by which cooperative option states have chosen under the CPP. Membership alterations will be most straightforward in the scenarios in which states have individual plans but the plans allow utilities to trade with utilities in other states.

As with other procedural issues, RGGI provides a helpful model for simple entrance and exit procedures that would facilitate evolution in response to changing market conditions, needs, and politics. Article 5 of the RGGI MOU provides that new states can join with the consent of existing states, and can exit by providing a 30-day notice. Remaining states then adjust their allowance usage to account for those of the withdrawing state. RGGI also contains a procedure for removal of states through its by-laws.[405] RGGI has used both the new signatory and withdrawal procedures to add states and allow states to leave. For example, its Second Amendment to the MOU adds Maryland, and the RGGI allowed New Jersey to withdraw, which could serve as a model in the CPP context.[406]

What makes the RGGI approach useful for interstate approaches to CPP implementation is that it provides easy-to-use mechanisms for change, but ensures that existing members have some input in the change process. They have the opportunity to consent before a new state joins, helping to ensure that any concerns of member states are addressed. The withdrawal mechanism allows a state total control over exit—which many states might require as a condition for joining, as they would not want to cede their authority over implementation—but also makes sure that the remaining states reexamine the existing arrangement to maintain its functionality. These two mechanisms would work well within an interstate organization created for states with individual plans who want a formal collaboration arrangement with significant flexibility.

This Part has focused on key components of developing interstate entities to assist regions—whether they match the boundaries of existing energy regions or not—that have the inclination and political will to do so. We think that such entities have important advantages in addressing the federalism and governance challenges, in that they could help create a fully coordinated approach that can maximize the benefits of economies of scale and other regional benefits explored above. In many cases, however, states will likely follow less formal regional processes than those explored here given their political differences and their preferences for maintaining individual solutions or simply adopting the ready-for-trade federal approach to the CPP. But

405. REG'L GREENHOUSE GAS INITIATIVE, MEMORANDUM OF UNDERSTANDING 9 (2005), http://www.rggi.org/docs/mou_final_12_20_05.pdf.

406. REG'L GREENHOUSE GAS INITIATIVE, NEW JERSEY, NOTICE OF WITHDRAWAL OF AGREEMENT TO THE RGGI MEMORANDUM OF UNDERSTANDING, REGIONAL GREENHOUSE GAS INITIATIVE (2011), http://www.rggi.org/docs/Documents/NJ-Statement_112911.pdf; REG'L GREENHOUSE GAS INITIATIVE, SECOND AMENDMENT TO MEMORANDUM OF UNDERSTANDING (2006), http://www.rggi.org/docs/mou_second_amend.pdf.

because many states' generation systems are already deeply embedded within a regional grid, many states rely heavily on electricity imports, and all economic studies to-date point to regional solutions being far cheaper than state-centric ones, these states are likely to at least seriously consider and discuss interstate and regional solutions if not ultimately deciding to implement them. The stakeholders included in these processes and the tools used for exploring technical areas—employing working groups and other advisory bodies, for example—can be equally instructive for formal regional governance and looser state discussions about potential CPP solutions.

CONCLUSION

The CPP and similar carbon emissions regulations likely to be promulgated in the future provide an important, transformational opportunity to bring together the fields of environmental and energy law—a melding of law that will be necessary if we are to effectively address climate change and meet our voluntary national commitments under the Paris Agreement. Whether states oppose or support the CPP and similar regulatory approaches, many are beginning the process of making substantial changes in their approach to energy to meet CPP goals or similar carbon reduction targets. States are also starting to address changing markets that are driving the growth of resources like renewable energy generation.[407] But as this Article explores in depth, the complexities of integrating energy and environmental law and their associated state, regional, and federal governance structures could create difficulties for effective implementation of the CPP or other carbon emissions regulations or for expansion of opportunities to innovate. The regional physical, market, and governance structure of energy makes it important for states to take advantage of the interstate collaboration options allowed by the CPP to maximize utilities' provision of affordable, clean, and reliable electricity under the plan.[408]

Developing functional interstate solutions that harmonize with regional energy governance is urgent because the implementation actions states take now involve infrastructure choices and investments that will remain with them for years to come. If states "go it alone" or establish limited collaborations that do not map well onto their energy markets, their initial decisions may make longer-term collaboration harder. The key actors in implementation of any carbon emissions reduction regime—the EPA, FERC, states, utilities, regional grid organizations, nongovernmental organizations, etc.—have consistently acknowledged the benefits of interstate cooperation. The detailed multistate options within the EPA's final plan, MSEER's and other regional regulators' multiple meetings, and the many analyses of the economic benefits of interstate collaboration in this context, are all a promising start.[409]

407. *See States' Reactions*, *supra* note 309.
408. *See supra* Parts I & II.
409. *See supra* Part I.B & I.E.

This Article's institutional analysis aims to complement these efforts and provide states with models and options for developing interstate entities that can facilitate collaboration. Its approach maps how a hybrid regional governance approach could help to address the challenges posed by the existing structure of relevant energy and environmental law and institutions. Although we recognize that in a number of regions, states likely will not opt to create a new regional implementing institution, further development of existing institutions or establishment of new regional entities could greatly assist a fuller integration of state planning that would allow states to maximize the benefits of collaboration. Moreover, even if states decide on a weaker form of collaboration, the elements of institutional development that we analyze in Part III—choice of agency, decision-making authority, stakeholder representation, and decision-making procedures—should be key discussion points.

Addressing these questions in the CPP context is critical not only for the implementation of this important regulation but also because these issues are arising repeatedly as our energy system continues its transition and are driving multiple forms of institutional experimentation.[410] The grid is becoming smarter—with more options for demand response, consumer input, and energy storage—and the two main systems using energy, electricity and transportation, are becoming more integrated.[411] Moreover, consensus science suggests that the need to address climate change, both in terms of controlling emissions and responding to the impacts of climate change, including impacts on electricity and transportation infrastructure, will only become more urgent.[412] This Article's novel assessment of how to integrate existing state and regional institutions and develop additional ones provides a model for the types of federalism and governance pathways needed to bring together energy and environmental law.

In this broader context, the CPP serves as an important testing ground—a key area in which government regulators will need to bring together the substantively and structurally mismatched energy and environmental laws and agencies, and more closely address the regional character of the interstate grid. Forging functional interstate institutional solutions for carbon emissions reductions can thus provide an important model moving forward. While this Article's solutions are certainly no panacea for the many challenges facing carbon emissions reduction or the energy system, they fill a gap in current

410. Osofsky & Wiseman, *supra* note 40.

411. *Id*.

412. *See* EPA, CLIMATE CHANGE INDICATORS IN THE UNITED STATES (2014), http://www3.epa.gov/climatechange/pdfs/climateindicators-full-2014.pdf; INTERGOV'TAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY: SUMMARY FOR POLICYMAKERS (2014).

resources for regional collaboration and can assist states in their efforts to find solutions that best serve their citizens.