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LEVELS OF GREEN: STATE AND REGIONAL EFFORTS, IN WYOMING AND BEYOND, TO REDUCE GREENHOUSE GAS EMISSIONS

*Joshua P. Fershee**

I. INTRODUCTION

Greenhouse gas (GHG) emissions are created by nearly every human activity¹ and are believed to be a leading cause of climate change (or “global warming”), which, in turn, is a likely cause of droughts, heat waves, hurricanes, heavy storms, and floods.² Policies designed to reduce GHG emissions began emerging in the late 1980s, and such efforts have increased dramatically in the past ten years.³ Although the concept that ever-increasing GHG emissions are “bad” is approaching consensus, how to deal with GHG emissions is hotly contested at all levels of

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¹ Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677, 692 (1999). (“[V]irtually every human activity directly or indirectly emits GHGs: fossil fuel combustion, biomass combustion, leaks from natural gas pipelines and coal mines, the clearing of forests and grasslands, . . . the raising of ruminant animals . . . , the use of nitrogen fertilizers to grow crops, and the disposal of wastes in landfills.”).

² See, e.g., Fiona Harvey, *Review Finds Temperature Rise Is Due to Human Action*, FIN. TIMES (London), Feb. 2, 2006, at 9 (discussing the most recent draft report of the Intergovernmental Panel on Climate Change, convened by the United Nations, which is charged with assessing climate-change science).

³ See Fiona Harvey, *Lose-Lose: The Penalties of Acting Alone Stall Collective Effort on Climate Change*, FIN. TIMES (London), Dec. 6, 2006, at 17.

government.⁴ Nonetheless, local communities, state and federal governments, and international organizations have contemplated, and in some cases implemented, programs to reduce GHG emissions. However, before taking an active role to set policies designed to reduce GHG emissions, lawmakers and government regulators need to consider whether the actions they are contemplating are likely to be effective at their given level of government. That is, although a program may be theoretically capable of achieving its desired effect, GHG reduction programs will be significantly impeded if the implementing authority chooses programs that are too broad or too limited in scope.

State and regional initiatives have unique benefits and drawbacks that should be recognized and embraced when states attempt to develop GHG emissions reduction policies. The Bush Administration has, at least for the first six years, adamantly opposed worldwide GHG reductions plans⁵ and has effectively kept mandatory federal GHG emissions reduction policies off the table.⁶ Therefore, this article focuses on state and regional efforts, using some recent efforts of the energy-rich state of Wyoming as a model.

This article analyzes recent Wyoming GHG emissions reduction initiatives at the state and regional level and considers these programs in the context of other proposed GHG emissions reduction plans. Part II of this article considers a major state-level GHG emissions reduction plan in Wyoming: the Wyoming carbon sequestration project. Wyoming's state-level efforts are especially interesting because Wyoming has a law expressly prohibiting mandatory GHG emissions reductions. Part III of this article first discusses the Regional Greenhouse Gas Initiative, which was created to design and implement a flexible, market-based "cap-and-trade program" to reduce carbon dioxide (CO₂) emissions from power plants in the northeastern United States. Part III then discusses two Wyoming-related regional efforts established via separate but related Memoranda of Understanding (Wyoming MOUs). The first is an MOU between the governors of Wyoming, California, Nevada, and Utah, which is designed to facilitate

⁴ *Id.* ("For more than a decade after large numbers of scientists and policymakers started focusing on climate change in 1988, critics exploited uncertainties in the evidence to cast doubt on the emerging scientific consensus that human actions were leading to climate change by burning fossil fuels.").

⁵ Peter Baker & Steven Mufson, *Bush's Climate Remarks Weighed for Policy Shift*, WASH. POST, Jan. 27, 2007, at A1 (stating that the 2007 State of the Union Address was "the first time in Bush's six years in office that he mentioned [climate change] in a State of the Union.").

⁶ *Energy Promises a Focus of Bush's State of the Union*, CHI. TRIB., Jan. 22, 2007, at 9 (RedEye Ed.) (stating that, according to White House aides, "the president remains opposed to mandatory cuts in carbon dioxide and other heat-trapping 'greenhouse' gases as has been proposed in Congress"). The recently elected Democratic majority will likely attempt to move some programs forward. See *infra* Part IV. However, a federal program is still likely years away because a veto of any aggressive programs is nearly certain, and it is highly unlikely any plan would have sufficient support to override a presidential veto.

the development of new interstate electric transmission lines; the second is an MOU between the governors of Wyoming and California designed to facilitate reductions of GHG emissions in California. The differing scope of each MOU provides valuable insight into the problems and potential of regional energy programs designed, at least in part, to reduce GHG emissions. Part IV concludes by briefly discussing the promise of mandatory federal programs designed to reduce GHG emissions and discusses some of the recently proposed federal plans. This part then recommends a coordinated approach that maximizes the expertise of each level of government, provides adequate autonomy for localized efforts, and provides incentives to businesses to participate actively in the development of GHG emissions reductions strategies.

II. SUCCESSFUL STATE-LEVEL PROGRAMS MUST BALANCE ECONOMIC REALITIES WHILE REDUCING EMISSIONS

State-level programs aimed at addressing climate change are often viewed as impractical and making “little economic sense”⁷ and as a means to pressure federal regulation.⁸ Although all such labels can be accurate for many state-level proposals, there are state climate change related programs that can be sensible, economic, and effective where large-scale programs are lacking.⁹

The State of Wyoming’s GHG reduction strategies offer an interesting case study in how and why states consider certain types of programs. Wyoming, as a leading coal supplier, has a significant interest in protecting both coal suppliers and coal users from restrictions (such as CO₂ emissions caps) that would limit coal consumption. In fact, the Wyoming legislature has specifically forbidden the Wyoming Department of Environmental Quality (DEQ) and the Wyoming Environmental Quality Council (EQC) from “propos[ing] or promulgat[ing] any new rule or regulation intended . . . to reduce emissions as called for by the Kyoto Protocol, from the residential, commercial, industrial, electric utility, transporta-

⁷ See Kirsten Engel, *State and Local Climate Change Initiatives: What is Motivating State and Local Governments to Address a Global Problem and What Does This Say About Federalism and Environmental Law?*, 38 URB. LAW. 1015, 1021 (2006).

⁸ See Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 ECOLOGY L.Q. 183, 223 (2005) (“We suggest that based upon past history, regulation at a lower jurisdictional level can trigger regulation at a higher level . . .”); see also Mekaela Mahoney, *State and Local Governments Take the Reins in Combating Global Warming*, 38 URB. LAW. 585, 591 (2006) (“The efforts by . . . states and local governments have been met with varying success, but . . . [t]he number of states and cities taking part in efforts to reduce greenhouse gas emissions has increased and continues to increase, putting pressure on the federal government to take more aggressive measures of its own.”).

⁹ See *supra* note 8, at 196 (“In the absence of unitary global regulation, the asymmetry between costs and benefits . . . makes the standard-setting problem for subglobal environmental regulators into a strategic interaction: each actor’s welfare depends in part on what other actors do.”).

tion, agricultural, energy or mining sectors.”¹⁰ The United States has refused to ratify the Kyoto Protocol,¹¹ which requires member states to reduce emissions to five percent below 1990 levels between 2008 and 2012.¹² The Wyoming statute expressly mentions the Kyoto Protocol, but the statute plainly prohibits any type of mandatory regulations requiring GHG emissions reductions. However, voluntary initiatives are permitted.

To explore such voluntary initiatives, the Wyoming legislature created the Carbon Sequestration Advisory Committee (Carbon Committee) in 2001 to research and recommend ways in which the state could assist Wyoming landowners develop additional income sources through carbon sequestration.¹³ Carbon sequestration is the long-term storage of carbon in “terrestrial sinks” (i.e., soil organic matter and above-ground plants) and “geologic sinks” (i.e., underground storage of CO₂ in depleted oil and gas reservoirs).¹⁴ Carbon sequestration provides benefits to the environment by providing a net removal of CO₂ from the atmosphere, thus mitigating the impacts of human activities such as fossil fuel consumption and cultivation of croplands. The financial incentive is tied to carbon trading via “offsets”¹⁵ created by carbon sequestration programs. These offsets have potential value to CO₂ emitters, such as energy producers, transportation companies, and agricultural companies, which must or desire to obtain a net reduction in their emissions.

The Carbon Committee was specifically charged with recommending policies or programs that would “enhance the ability of Wyoming agriculture and forest

¹⁰ WYO. STAT. ANN. § 35-11-213.

¹¹ Jim VandeHei, *Bush, Blair Agree on Aid For African Famine Relief; But Leaders Disagree on Amount and on Global Warming*, WASH. POST, June 8, 2005, at A13 (“On global warming, Bush and Blair did not appear to make much progress. Bush has long opposed the 1997 Kyoto treaty that the United States refused to ratify.”).

¹² Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 22 [hereinafter Kyoto Protocol], available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>. The Bush Administration has repeatedly argued that the Kyoto Protocol is “fatally flawed.” See Maura Reynolds & James Gerstenzang, *Updating His Spin on Climate Change*, L.A. TIMES, Feb. 11, 2007, at A30 (stating that President Bush “declared the Kyoto Protocol—the United Nations’ consensus document on climate change—‘fatally flawed in fundamental ways’ and announced that the United States was withdrawing from the pact”).

¹³ See 2001 Wyo. Sess. Laws ch. 173 § 2(a)(ii), amended by 2002 Wyo. Sp. Sess. Laws ch. 75 and 2004 Wyo. Sess. Laws ch. 38 (extending the committee’s mandate until July 1, 2009).

¹⁴ Brochure, Wyo. Carbon Sequestration Advisory Comm., Wyoming Carbon Sequestration Program [hereinafter Carbon Brochure], available at http://www.wyomingcarbon.org/Brochure12-05_new.pdf (last visited Mar. 21, 2007).

¹⁵ Offsets are GHG emissions reductions tied to a unique emissions source and are not actual reductions in GHG emissions from a traditional source like, for example, an electric plant. They are instead separate programs that have the net effect of reducing emissions. Offsets either reduce the amount of GHG emissions in the air (such as carbon sequestration) or reduce the amount of emissions created by a separate source (installing electric heaters in trucks so that a driver can shut off the engine).

landowners to participate in systems of carbon trading.”¹⁶ By creating offsets via carbon sequestration, the additional carbon storage created is a commodity that can be traded through various carbon credit trading brokers.¹⁷ Such credits can be sold on the Chicago Climate Exchange (CCX), which is “the world’s first and North America’s only legally binding rules-based greenhouse gas emissions allowance trading system.”¹⁸ The Carbon Committee concluded that Wyoming lands could sequester 2.9 to 7.8 million tons of carbon per year, which could lead to annual sales receipts of \$9,100,000 to \$22,000,000.¹⁹

Wyoming’s carbon sequestration program is a solid example of a climate change program that has a sensible and economic basis for operating on the state level to reduce GHG emissions. First, the most appropriate types of carbon sequestration programs will vary from state to state, because each state’s resources (land, water, etc.) vary considerably. Although resources within a state also can vary significantly, state-level agencies are in the best position to analyze potential programs because those conducting the assessments know (or should know) the geography and geology of the state. Because carbon sequestration is obtained via terrestrial and geologic sinks,²⁰ assessments of land management practices can be especially effective at the state level. Unlike tracking emissions that are in the atmosphere and are not constrained by political boundaries, the measure of sequestered carbon is based on a specific land- or water-based footprint that can be effectively drawn at a state line. Thus, a carbon sequestration program can run effectively on the state level because the net benefit from the offsets created can be effectively measured on a state level.

Furthermore, a carbon sequestration program like that proposed in Wyoming does not require the same kinds of economic and infrastructure investments found in other “green” programs.²¹ Obviously, there are some costs involved to changing “business as usual” when undertaking a sequestration project, but the investments for many carbon sequestration projects are more modest and more readily available than building cleaner electric generation facilities.²² Similarly, if the federal

¹⁶ 2001 Wyo. Sess. Laws ch. 173 § 2(a)(ii).

¹⁷ Carbon Brochure, *supra* note 14.

¹⁸ Press Release, Chicago Climate Exchange, United Technologies to Join Chicago Climate Exchange (Dec. 20, 2006), *available at* http://www.chicagoclimatex.com/news/press/release_20061220_UTC.pdf.

¹⁹ Carbon Brochure, *supra* note 14 (stating as part of this assumption that “Carbon recently sold for \$3.14 per ton (\$0.85 per ton of CO₂)”).

²⁰ *Id.*

²¹ See Wyo. Carbon Sequestration Advisory Comm. Home Page, <http://www.wyomingcarbon.org/> (“Enhancing the natural processes that remove CO₂ from the atmosphere is thought to be one of the most cost-effective means of reducing atmospheric levels of CO₂, and forestation and deforestation abatement efforts are already under way.”).

²² See Press Release, Sen. Dianne Feinstein, Senator Feinstein Outlines New Legislation to Curb Global Warming, Keep Economy Strong (Mar. 20, 2006), *available at* <http://www.feinstein.senate.gov/06releases/r-global-warm320.pdf>. Sen. Dianne Feinstein has touted increased access

government ever implements a GHG emissions reduction plan nationwide, thus preempting state efforts, carbon sequestration projects run less risk of becoming completely useless²³ because a federal program would likely include such projects. Even the Bush Administration, which opposed virtually all climate change efforts, supports a carbon sequestration program.²⁴ The Department of Energy is in the process of developing “low cost carbon sequestration technology for both new and existing coal plants” as part of its greenhouse gas mitigation strategy.²⁵

Finally, for states rich with energy resources, like Wyoming, a carbon sequestration program at the state level provides a way to reduce GHG emissions without negatively impacting sales of its energy resources. In fact, such a program may help ensure the consistent consumption of Wyoming’s energy exports because the offsets could continue to make consumption feasible. Furthermore, a carbon sequestration program is focused enough that it can avoid the concerns related to state-level GHG emissions reductions programs, i.e., that they are impractical and irrational.²⁶

This is not to say that the Wyoming Carbon Sequestration Project is without flaws. In fact, although it is a promising concept, the program remains “in development” more than five years after the initial legislation forming the Carbon Committee. In 2004, the Carbon Committee developed a work plan to research and “recommend policies and programs that augment the ability of Wyoming cropland, rangeland, and forestland owners and producers to implement management practices that enhance carbon storage,”²⁷ but no information about these projects has been released publicly.

Furthermore, although there has been no outward indication that the Carbon Committee is moving rangeland efforts forward, there are indications from

to low-cost farm and afforestation credits in the United States as a win-win for farmers and the economy. *Id.* Farmers can earn revenue by selling earned carbon credits; the economy benefits because such a program “allows electric utilities and other large emitters to meet emission caps by switching to low-emitting technologies on a gradual schedule and buying lower-cost credits to cover their emission reductions while they gear up to make the transition.” *Id.*

²³ Here, “completely useless” refers to the value to the party implementing the program; the value of reduced GHG emissions would remain as long as the project endures, regardless of whether financial benefits from trading or other credits are available.

²⁴ Frank D. Roylance, *Scientists Dig Deep for Global Solution; Carbon Capture Could Help to Curb World Warming*, BALT. SUN, Feb. 4, 2007, at 1A.

²⁵ *FY 2008 Budget Request for the Department of Energy, Before the Committee on Energy and Natural Resources of the U.S. Senate*, 110th Cong. 7 (2007) (testimony of Sec’y of Energy Samuel W. Bodman), available at http://energy.senate.gov/public/_files/BodmanTestimony.pdf.

²⁶ See Engel & Saleska, *supra* note 8, at 186-88.

²⁷ Wyo. Carbon Sequestration Advisory Comm., Work Plan 1-2 (Sept. 14, 2004), available at <http://www.wyomingcarbon.org/CSAC%20Work%20Plan.doc>.

other sources that rangeland carbon sequestration projects hold great promise in Wyoming.²⁸ In defense of the Carbon Committee, a significant reason rangeland projects have not moved forward is that neither the CCX nor any other entity provided a rangeland standard until March 2007,²⁹ which meant that potential participants did not know what the trading and verification requirements would be. As such, they could not make an economic assessment of their potential interest in participation.³⁰ Until the program requirements were made clear, Wyoming (and the Carbon Committee) could not make a determination of who should administer the program (e.g., create an aggregator, use an existing aggregator), much less determine who might be willing and able to participate.³¹ Nonetheless, the slow progress of the Carbon Committee's work does not diminish the potential value or the rationale for creating it.

III. HIGH-PROFILE REGIONAL PROGRAMS HAVE PROMISE, BUT FACE CHALLENGES IN THE EAST AND WEST

At the regional level, several states have considered or initiated plans to reduce GHG emissions, especially CO₂ emissions. This is, in part, because there is no comprehensive federal plan in place to reduce CO₂ emissions, and in fact there is arguably a federal policy of not regulating such emissions.³² It is well documented that the Bush administration has ardently opposed the Kyoto Protocol and

²⁸ Sara Campbell et al., *Can Ranchers Slow Climate Change?*, RANGELANDS, Aug. 2004, at 16, (examining "the economics of creating carbon credits on a 41,577 acre, cow/calf operation in central Wyoming"); *id.* at 21 (concluding that "ranchers can likely compete in the new emerging market for carbon credits and provide a part of the solution for global climate change, benefiting both their immediate income as well as protecting our nation's resources and environment for future generations").

²⁹ Press Release, Chicago Climate Exchange, Rangeland Management Soil Carbon Offsets Approved by Chicago Climate Exchange, Beartooth Capital LLC joins the Exchange as the first Rangeland Offset Aggregator (Mar. 8, 2007), *available at* http://www.chicagoclimatex.com/news/press/release_20070308_Rangeland.pdf ("This represents the first standardized protocol that brings carbon capturing rangeland management into an organized market for reducing and trading greenhouse gas emissions.").

³⁰ State-level programs, of course, are often impacted by other private, regional, or federal programs, even when they are working toward similar or complementary goals.

³¹ See Chicago Climate Exchange, Chicago Climate Exchange Offset Projects, <http://www.chicagoclimatex.com/environment/offsets/index.html> ("Offset projects involving less than 10,000 metric of CO₂ equivalent per year should be registered sold through an Offset Aggregator.").

³² See Tseming Yang, *The Problem of Maintaining Emissions "Caps" in Carbon Trading Programs Without Federal Government Involvement: A Brief Examination of the Chicago Climate Exchange and the Northeast Regional Greenhouse Gas Initiative*, at 17 (Sept. 22, 2006), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=900918 (unpublished essay presented at Fordham Environmental Law Review, Climate Symposium, March 20, 2006) (stating that "the federal government has essentially rejected any federal effort to limit carbon emissions by government regulation" and that a regional cap and trade program "could be interpreted by emissions limits opponents as an attempt to defy federal government policy").

consistently refused to consider federal emissions caps.³³ Given that most GHG emissions come from U.S. sources,³⁴ many have criticized the United States for not being more aggressive.³⁵ The Bush Administration, in particular, has avoided GHG-emissions-reduction programs such as the Kyoto Protocol because of a belief that such programs would lead to a reduction in energy supply.³⁶ However, programs that provide incentives for reducing GHG emissions via new and renewable energy sources could have exactly the opposite effect.³⁷

The lack of a federal program cannot, however, be easily solved at the state level. State programs are often too small to accomplish their goals and are subject to problems such as “leakage,” which occurs when electricity suppliers within a regulated area import power from outside the regulated area thus avoiding the emissions cap and essentially negating any potential emissions reductions.³⁸ Although leakage issues are not eliminated with a regional program, they are least reduced as compared to a state-level program.³⁹ Regional initiatives, therefore, are fast becoming an attractive option.

Part III first considers the Regional Greenhouse Gas Initiative (RGGI), which is a regional program that would ideally be national in scope. Because a similar

³³ See Reynolds & Gerstenzang, *supra* note 12, at A30.

³⁴ James Kanter & Andrew C. Revkin, *World Scientists Near Consensus on Warming*, N.Y. TIMES, Jan. 30, 2007, at A13 (stating that the United States is “the world’s largest emitter” of greenhouse gases).

³⁵ See, e.g., Eli Sanders, *Rebuffing Bush, 132 Mayors Embrace Kyoto Rules*, N.Y. TIMES, May 14, 2005, at A9 (stating that Seattle Mayor Greg Nickels and 131 other U.S. mayors joined a “nationwide effort to do something the Bush administration will not: carry out the Kyoto Protocol on global warming”).

³⁶ Mark A. Drumbl, *Poverty, Wealth, and Obligation in International Environmental Law*, 76 TUL. L. REV. 843, 884 & n.165 (2002).

³⁷ *Id.* at 884 n.165. (“[F]ailing to exploit substitute and more environmentally friendly energy sources will only embed the United States in its dependency on fossil fuels, which are a leading cause of greenhouse gas emissions, and unsustainable in the long run.”).

³⁸ The Kyoto Protocol, for example, uses the following definition for leakage: “That portion of cuts in greenhouse-gas emissions by developed countries—countries trying to meet mandatory limits under the Kyoto Protocol—that may reappear in other countries not bound by such limits. For example, multinational corporations may shift factories from developed countries to developing countries to escape restrictions on emissions.” See United Nations Framework Convention on Climate Change, Glossary, http://unfccc.int/essential_background/glossary/items/3666.php (last visited Mar. 21, 2007).

³⁹ Leakage will always be a problem to some degree as long as there is an area that is not regulated from which a supplier can import power. This has led some to argue that only global GHG emissions reduction programs are viable. See Engel & Saleska, *supra* note 8, at 187-88 (challenging “the conventional wisdom that unilateral action [by individual countries] to restrain despoliation of the global commons is always presumptively irrational”). Others have recognized that, although not perfect, smaller scale programs still have the potential to reduce GHG emission. See *id.* at 232 (concluding “that unilateral subglobal regulation is a viable, if not optimal, approach to global commons environmental problems”).

federal program is, at best, far off, the region took matters into its own hands. While laudable in its goals, the regional nature of the program makes it unlikely to succeed. Part III then compares two Wyoming efforts to reduce GHG emissions by using regionally focused agreements aimed at new infrastructure and technology. Although the Wyoming efforts, too, could have increased success on a national scale, these efforts address specific needs of the region, making success more likely.

A. RGGI: A Regional Program That Needs to "Grow Up"

RGGI is one of the higher profile emissions reduction programs proposed in the United States and provides specific, mandatory targets for GHG emissions reductions. RGGI is a multi-state regional initiative that was developed by the governors of several Northeast states.⁴⁰ Seven states have signed an agreement to implement RGGI: Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont.⁴¹ Legislation in Maryland requires the state to join by June 30, 2007.⁴² RGGI was created to design and implement a flexible, market-based "cap-and-trade program" to reduce carbon dioxide emissions from power plants in the Northeast.⁴³ The initial emissions cap, according to RGGI, is approximately the same as 1990 emissions levels.⁴⁴

Launched in 2003 by New York Governor George Pataki, RGGI requires the approximately 300 power plants in the region (with capacity in excess of twenty-five megawatts) to reduce their CO₂ emissions levels.⁴⁵ The proposal would cap regional emissions at 121.3 million short tons of CO₂ through 2014.⁴⁶ This initial emissions cap would remain in place until 2015, when plants would step down their emissions over a four-year period to ten percent below the initial level in 2018.⁴⁷ In perhaps the most significant achievement, the RGGI states agreed to the specific amount of the regional initial emissions budget that would be appor-

⁴⁰ RGGI, Frequently Asked Questions 1 (Dec. 20, 2005), available at http://www.rggi.org/docs/mou_faqs_12_20_05.pdf.

⁴¹ RGGI, Memorandum of Understanding, at Recitations (Dec. 20, 2005), available at http://www.rggi.org/docs/mou_12_20_05.pdf.

⁴² Kari S. Larsen & Athena Y. Vellie, *Emissions Trading Programs Are Evolving*, ELEC. LIGHT & POWER, July 1, 2006, at 46.

⁴³ RGGI, Frequently Asked Questions, *supra* note 41, at 1.

⁴⁴ RGGI, Overview 1 (Dec. 16, 2005), available at http://www.rggi.org/docs/mou_rggi_overview_12_20_05.pdf.

⁴⁵ RGGI, Frequently Asked Questions, *supra* note 41, at 1.

⁴⁶ RGGI, Overview, *supra* note 45, at 1.

⁴⁷ *See id.*

tioned to each RGGI state.⁴⁸ RGGI would be the first mandatory cap-and-trade program in the United States to reduce GHG emissions.⁴⁹

RGGI provides a unique and aggressive model. The plan uses specific emissions targets that must be met and then permits emission sources to use the market to “reduce” their GHG emissions. Additionally, while RGGI focuses on the reduction of carbon emissions, it could also reduce energy consumption.⁵⁰ The RGGI cap-and-trade program seeks “real emissions reductions” at the lowest possible cost and includes the following basic components:⁵¹ First, the individual states will determine the power plant emission sources to be covered by the cap.⁵² Second, each state will establish an “emissions cap,” which is the total amount of emissions that will be allowed from all covered sources.⁵³ Third, each state will issue one allowance for each ton of emissions, up to their emissions cap; those allowances are to be distributed to the generators and the market.⁵⁴ Finally, every covered source must have enough allowances to cover its emissions at the end of each compliance period.⁵⁵ If a source lacks enough allowances to cover projected emissions, the source can reduce emissions, buy allowances on the market, or gen-

⁴⁸ RGGI, Memorandum of Understanding, *supra* note 42, at § 2; *see also* Mary Anne Sullivan & Joshua P. Fershee, *States Get Together on Greenhouse Gases*, LEGAL TIMES, at 36 (June 12, 2006) (“Perhaps the most significant achievement of the plan is the specific amount of the regional initial emissions budget that would be apportioned to each RGGI state.”).

⁴⁹ RGGI, Frequently Asked Questions, *supra* note 41, at 1. On the federal level, Senator Dianne Feinstein recently circulated a draft cap-and-trade program that, when fully implemented, would reduce U.S. greenhouse gas emissions by 7.25% of today’s emissions levels. *See* Press Release, Sen. Dianne Feinstein, Senator Feinstein Outlines New Legislation to Curb Global Warming, Keep Economy Strong (Mar. 20, 2006), *available at* <http://feinstein.senate.gov/06releases/r-global-warm320.htm>. RGGI appears to have spurred (or renewed) interest in a national cap-and-trade program, but it remains to be seen if a federal program is politically feasible at this point. *See, e.g.*, 151 Cong. Rec. S6885 (daily ed., June 21, 2005) (statement of Sen. Voinovich) (discussing the Energy Policy Act of 2005) (“The bottom line is, if you kill coal with a mandatory cap on carbon, you force more people to go to natural gas to produce electricity. We just add to the crisis that we already have.”).

⁵⁰ *See* RGGI Model Rule XX-10.3(a)(1)(iv) (Jan. 5, 2007), *available at* http://www.rggi.org/docs/model_rule_corrected_1_5_07.pdf (allowing offsets to be earned for reducing or avoiding “CO₂ emissions from natural gas, oil, or propane end use combustion due to end-use energy efficiency”), ; *see also* Marc Breslow, *Carbon Dioxide Cap-and-Trade for Electric Generation: Should Permits to Pollute be Auctioned or Given Away?* (and understanding RGGI, the northeast Regional Greenhouse Gas Initiative) (May 10, 2004) (draft), *available at* <http://www.massclimateaction.org/PrimerCarbonCap&Trade2.doc> (“Particularly in the Northeast, energy consumption is a drain on the economy, as virtually all our fossil fuels are purchased from outside the region. The [RGGI] carbon cap itself will reduce this drain, as our consumption of coal, oil, and natural gas is reduced.”).

⁵¹ RGGI, Frequently Asked Questions, *supra* note 41, at 2.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

erate credits through an emissions offset project.⁵⁶ Any covered source that reduces its emissions below required levels may bank or sell its excess allowances.⁵⁷

A mandatory cap-and-trade program would create immediate incentives to reduce GHG emissions. A program like the RGGI plan would also reduce fossil fuel consumption in the short-term and have the potential to motivate long-term investment in more efficient infrastructure. However, at the regional level, such a program is likely to fail.⁵⁸

First, the program will face significant legal hurdles, including constitutional challenges under the Compact Clause, Dormant Commerce Clause, and Supremacy Clause (claims of preemption).⁵⁹ Second, and partly as an effort to avoid Compact Clause problems, the program lacks the necessary enforceability.⁶⁰ Finally, RGGI effectively penalizes proactive companies by not allowing offsets to those companies already participating in voluntary federal programs designed to reduce greenhouse gases.⁶¹ Most of these problems would be eliminated if the program were at the federal level. Therefore, while the program is based on sound (if controversial) principles, a cap-and-trade program such as RGGI would be far more efficient and effective on a national scale.

B. The Wyoming MOUs: Satisfying Regional Power Needs While Reducing Emissions

Recognizing the growing power needs in the West, particularly California, and the potential resources available from western states, Wyoming has been

⁵⁶ *Id.*

⁵⁷ RGGI, Frequently Asked Questions, *supra* note 41, at 2.

⁵⁸ Although not confirmed, there are many who believe that RGGI was not intended to succeed directly and was instead designed to facilitate (and provide a model for) federal legislation. *Northeast GHG Trading Rule Sets Stage For State-Level Battles*, ENERGY WASHINGTON WEEK (Aug. 30, 2006), available at http://energywashington.com/secure/energy_docnum.asp?f=ew_2002.ask&docnum=EWEEK-3-35-5 (stating that while some believe RGGI is a perfect model for a national cap-and-trade program, “[a]lready, disagreements can be heard about whether RGGI is a national model”). If a similar federal program were to follow RGGI’s lead, even RGGI’s “failure” could be deemed a success.

⁵⁹ Thomas G. Echikson & Jim Wedeking, *Compacts, Commerce and Federal Supremacy*, CONST. LAW TASK FORCE NEWSL. (Am. Bar Ass’n, Wash., D.C.), Apr. 2006, at 8-10.

⁶⁰ See Yang, *supra* note 32, at 15 (“Lack of enforceability was built-in by design since a binding multistate cooperative agreement might require Compact Clause approval by Congress.”).

⁶¹ RGGI Model Rule XX-10.3(d)(4) (“CO₂ offset allowances shall not be awarded to an offset project or CO₂ emissions credit retirement that is awarded credits or allowances under any other mandatory or voluntary greenhouse gas program.”); see also Sullivan & Fershee, *supra* note 48, at 36 (“It is hard to imagine a clearer message to those participating in any voluntary greenhouse-gas reduction efforts: You participate at your competitive peril.”).

active in the Western Governor's Association's (WGA) energy initiatives,⁶² and Wyoming Governor Dave Freudenthal has pursued and signed two Memoranda of Understanding that seek to promote and facilitate the creation and transmission of green power.

The first is the Memorandum of Understanding Among the Governors of California, Nevada, Utah, and Wyoming Concerning Electric Transmission Development (Frontier Line MOU), which was signed in April 2005.⁶³ The proposed Frontier Line is an up to 1,300-mile transmission line from Wyoming to California (through Nevada and Utah),⁶⁴ and "is expected to leverage up to 6,000 megawatts of wind power and 6,000 megawatts of clean coal power."⁶⁵ The project is estimated to cost \$3.3 billion, and the estimated annual benefits for the region are between \$926 million and \$1.7 billion annually.⁶⁶ As such, western electricity consumers should see a net benefit within a few years of construction.⁶⁷

The second is an April 2006 Memorandum of Understanding Between the Governors' Offices of California and Wyoming (Clean Coal MOU), which created a joint task force between the two states to support advanced coal technology development.⁶⁸ The MOU was driven largely by GHG emissions reduction goals for California established by Governor Schwarzenegger, seeking to reduce state emissions levels to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.⁶⁹ This partnership makes sense given Wyoming's "abundant reserves of coal and renewable wind resources that can provide a secure and reliable source of domestic energy."⁷⁰ To help achieve the stated goals, the Clean Coal MOU seeks to "take advantage of federal funding opportunities,"⁷¹ such

⁶² See W. Govs. Ass'n, Clean and Diversified Energy Initiative, at <http://www.westgov.org/wga/initiatives/cdeac/index.htm> (last visited Mar. 21, 2007) ("Under the leadership of Govs. Bill Richardson (N.M.), Arnold Schwarzenegger (Calif.), Dave Freudenthal (Wyo.) and John Hoeven (N.D.) the governors have hit the ground running and many states have already begun work on the necessary measures to advance the region's energy portfolio.")

⁶³ Calif. Gov. Arnold Schwarzenegger, et al., Memorandum of Understanding Among the Governors of California, Nevada, Utah, and Wyoming (Apr. 2005), available at <http://www.ftlout-reach.com/images/FiveStateMOUonTransmission.pdf> [hereinafter Frontier Line MOU].

⁶⁴ *Western Governors Back Four-State, \$3.3B Line to Bring Energy to West Coast Load Centers*, ELEC. UTIL. WEEKLY, Apr. 11, 2005, at 16.

⁶⁵ Frontier Line Backgrounder at 2, available at http://www.frontierline.org/docs/Frontier_Line_backgrounder.pdf (last visited Mar. 21, 2007).

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ Calif. Gov. Arnold Schwarzenegger & Wyo. Gov. Dave Freudenthal, Memorandum of Understanding Between the Governors' Offices of California and Wyoming (Apr. 2006), available at http://www.frontierline.org/summit/WY_CA_MOU.pdf.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

as the \$200 million authorized each fiscal year from 2006 to 2014 for clean coal research in coal-based gasification technologies under the Energy Policy Act of 2005 (EPAAct 2005)⁷² and the \$54 million included in the 2007 Department of Energy budget for a next-generation power plant that “would generate electricity and hydrogen from coal with near-zero atmospheric emissions.”⁷³

The Wyoming MOUs are sensible examples of regional programs that provide great promise for the reduction of GHG emissions because they strike the right balance between maximizing local expertise, while reaping the benefits of economies of scale and expanded markets. The Frontier Line MOU has the potential to fulfill a significant regional need while maximizing the regional benefits of additional western transmission infrastructure. Similarly, the Clean Coal MOU provides California one potential mechanism to use in pursuit of its GHG emissions reduction goals and, at the same time, provides Wyoming with a means to maintain and protect its coal market share.⁷⁴

1. *The Frontier Line MOU*

a. *Regional Action Is Necessary for Interstate Transmission Construction to Succeed*

The potential value in regional oversight of certain electricity transmission functions is well recognized, if not always universally embraced.⁷⁵ For example, in 1996, the Federal Energy Regulatory Commission (FERC) required that public utilities functionally “unbundle” wholesale generation and transmission services and offer open access transmission services equally to all potential customers under an open access transmission tariff to be filed with FERC.⁷⁶ Through unbundling, FERC sought “to remedy both existing and future undue discrimination in the

⁷² Energy Policy Act of 2005 § 401, 42 U.S.C.A. § 15,961 (West Supp. 2006).

⁷³ Budget of the United States Government, Fiscal Year 2007, Dep’t of Energy 93 (Feb. 10, 2006), available at <http://www.whitehouse.gov/omb/budget/fy2007/pdf/budget/energy.pdf>.

⁷⁴ See *The Future of Wyoming Coal: Hearing Before the Senate Comm. on Energy and Natural Resources*, 109th Cong. (Apr. 12, 2006), available at <http://www.wyia.org/Docs/Comments/Testimony%20-%20Waddington%20-%20April%2012%202006.pdf> (statement of Steve Waddington, Exec. Dir., Wyo. Infrastructure Authority).

⁷⁵ See, e.g., Clinton A. Vince, et al., *What is Happening and Where in the World of RTOs and ISOs?*, 27 ENERGY L.J. 65, 65 (2006) (discussing FERC’s support for regional oversight of open access transmission) (“[T]his noble experiment has not been without controversy, complexity, and uncertainty. Indeed, there has been considerable tension between state and federal regulators, generators and load interests, and other industry members, as to which regional approaches will be reliable, yet cost-effective for consumers.”).

⁷⁶ Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities, FERC Order No. 888, 61 Fed. Reg. 21,540, 21,552 (May 10, 1996) [hereinafter Order No. 888] (“We conclude that functional unbundling of wholesale services is necessary to implement non-discriminatory open access transmission . . .”).

industry and realize the significant customer benefits that will come with open access.”⁷⁷ Thus, FERC decided to “eliminate the remaining patchwork of closed and open jurisdictional transmission systems and ensure that all these systems . . . cannot use monopoly power over transmission to unduly discriminate against others.”⁷⁸

FERC supported the concept of Independent System Operators (ISOs) “as a way for existing tight power pools to satisfy the requirement of providing non-discriminatory access to transmission.”⁷⁹ In Order No. 2000, “FERC encouraged the voluntary formation of Regional Transmission Organizations (RTOs) to administer the transmission grid on a regional basis throughout North America (including Canada).”⁸⁰ FERC has embraced the use of ISOs/RTOs, which seek “to promote efficiency in wholesale electricity markets and the lowest price possible for reliable service.”⁸¹ Because FERC has jurisdiction over all wholesale electric transmission transactions and operations,⁸² FERC has the power to authorize and support this regional approach directly.⁸³

However, FERC does not have jurisdiction for the siting and construction of transmission lines except in limited circumstances, where FERC was recently granted “backstop authority.”⁸⁴ Otherwise, siting and construction jurisdiction

⁷⁷ *Id.* at 21,541.

⁷⁸ *Id.*

⁷⁹ Fed. Energy Regulatory Comm’n, Frequently Asked Questions, <http://www.ferc.gov/o12faqpro/default.asp?Action=Q&ID=261> (last visited Mar. 21, 2007).

⁸⁰ *Id.* ISOs and RTOs are similar, but there is no “scope” requirement for ISO status, whereas an RTO must be of sufficient regional scope. *Id.* There are now six ISOs/RTOs: the California Independent System Operator (CAISO); Midwest ISO; ISO New England; PJM Interconnection, an RTO; New York ISO; and Southwest Power Pool (SPP), an RTO. Fed. Energy Regulatory Comm’n, Regional Transmission Organization Activities, <http://www.ferc.gov/industries/electric/indus-act/rto.asp> (last visited Mar. 21, 2007).

⁸¹ Fed. Energy Regulatory Comm’n, Regional Transmission Organization Activities, *supra* note 80.

⁸² *See* 16 U.S.C. § 824(b) (2005); *New York v. FERC*, 535 U.S. 1, 17 (2002) (stating that FERC’s “jurisdiction includes ‘the transmission of electric energy in interstate commerce’ and ‘the sale of electric energy at wholesale in interstate commerce’” (quoting 16 U.S.C. § 824(b)).

⁸³ *See* *Public Util. Dist. No. 1 v. FERC*, 272 F.3d 607, 614-15 (D.C. Cir. 2001) (finding that FERC properly chose to promote the voluntary use of RTOs even though FERC had concluded that “it [was] clear that RTOs [were] needed to resolve impediments to fully competitive markets” (quoting Order No. 2000)).

⁸⁴ *See* Energy Policy Act of 2005 § 1221, 16 U.S.C.A. 824p (West Supp. 2006). “Backstop” authority is limited authority available only where the states lack the authority or otherwise have failed to act. *See id.* Backstop authority can only be exercised in areas the Department of Energy (DOE) identifies as a “national interest electric transmission corridor” (NIETC). *Id.* DOE must file a report that will “designate any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a national interest electric transmission corridor.” *Id.*

resides with each state through which the line would be built. This need for multi-state approvals to build an interstate electric transmission line makes regional cooperation (like that represented in the Frontier Line MOU) a necessity for the construction of interstate transmission lines.⁸⁵ Increased transmission capacity is necessary to make large-scale green power programs viable.

This regional commitment significantly raises the likelihood that the new transmission line will be built, but the Frontier Line still faces significant hurdles. First, siting authority still remains with each state in which construction would occur. This has historically been a sticking point, as each state must approve construction and determine where and how the transmission line from each state will interconnect.⁸⁶ Several options exist to help ensure siting approvals. In Wyoming, Gov. Freudenthal issued Executive Order 2003-4, "implementing the protocol governing the siting and permitting of interstate electric transmission lines."⁸⁷ This order is designed to help streamline the approval process by coordinating the review process of the "Wyoming Public Service Commission and other Wyoming agencies that have a role in environmental siting and permitting."⁸⁸ Although this is a good step forward, it still requires separate state siting approvals, which could lead to significant delays.

The Energy Policy Act of 2005 (EPAAct) allows states to cede their siting authority to a regional transmission siting agency,⁸⁹ which would further streamline the permitting process.⁹⁰ The signatory states may consider this option to enhance their cooperation, but it is not clear this mechanism will make the process significantly faster, given that the signatory states have already made significant

⁸⁵ See ERIC HIRST, EXPANDING U.S. TRANSMISSION CAPACITY 11 (Aug. 2000) ("There is a widespread perception in the [electricity] industry that siting new electric transmission lines has become almost impossible because of the obstacles encountered in the process of regulatory review and approval." (quoting "a report from the federal Office of Technology Assessment (1989)" (modification in original)), available at http://www.eei.org/industry_issues/energy_infrastructure/transmission/hirst2.pdf; see also Steven J. Eagle, *Securing a Reliable Electricity Grid: A New Era in Transmission Siting Regulation?*, 73 TENN. L. REV. 1, 2 (2006) ("Perhaps the greatest obstacle to the construction of new [electric] transmission [capability] . . . is the age-old problem of gaining approval for new transmission lines." (quoting Hirst, *supra*) (modification in original)).

⁸⁶ See Eagle, *supra* note 85, at 13 (stating that every affected state must approve an interstate transmission project).

⁸⁷ Wyo. Exec. Order 2003-4 (May 2003), available at <http://psc.state.wy.us/htdocs/sub-regional/exec.pdf>.

⁸⁸ *Id.*

⁸⁹ Energy Policy Act of 2005 § 1221, 16 U.S.C. 824p (2006).

⁹⁰ See Eagle, *supra* note 85, at 45. Some commentators have urged the mandatory use of regional transmission siting agencies, arguing that there would then "be no concerns about the precise delineation of transmission corridors, states 'passing the buck' to the federal government on siting decisions, or regional benefits ever being given less than appropriate consideration." *Id.* at 43.

strides forward, and siting for portions of the Frontier Line that would run on federal land would still require federal siting approvals.⁹¹

The second major hurdle facing the Frontier Line is that siting authority and eminent domain authority are separate powers. Once siting is approved, to ensure that construction can actually commence, each state will need to exercise its eminent domain authority individually, as well. Despite providing options for regional siting approvals, EAct 2005 did not provide for a comprehensive use of eminent domain power unless a federal permit is issued.⁹² The use of a regional agency to streamline the process would not likely provide much benefit in this area because the regional siting agency would need to have state-based eminent domain powers. To do so would probably require congressional approval.⁹³ As such, it would be imprudent to pursue such an option because of the time needed to (1) negotiate agreement among all the signatory states to grant the regional siting agency eminent domain authority and (2) then obtain approval from Congress.⁹⁴

The high-level of cooperation and commitment to date under the Frontier Line MOU indicates that the signatory states are likely better off moving forward in the coordinated, state-by-state manner in which they began. Further, the signatory states have wisely urged FERC to continue the EAct 2005 “368 process”⁹⁵

⁹¹ See Energy Policy Act of 2005 § 1221, 16 U.S.C.A. 824p(i)(3) (West Supp. 2006) (“The regional transmission siting agencies shall have the authority to review, certify, and permit siting of transmission facilities, including facilities in national interest electric transmission corridors (other than facilities on property owned by the United States).”).

⁹² See Eagle, *supra* note 85, at 42. (“[T]he Act allows use of the federal power of eminent domain, but only for those projects that receive federal permits.”).

⁹³ U.S. CONST., art. I § 10, cl. 3 (“No state shall, without Consent of Congress . . . enter into any Agreement or Compact with another State”); Eagle, *supra* note 85, at 42-43.

⁹⁴ I have argued elsewhere that Congress should have granted FERC siting authority for all interstate transmission lines, thus eliminating many of the obstacles slowing construction of much-needed infrastructure like the Frontier Line. See Joshua P. Fershee, *Misguided Energy: Why Recent Legislative, Regulatory, and Market Initiatives Are Insufficient to Improve the U.S. Energy Infrastructure*, 44 HARV. J. ON LEGIS. (forthcoming 2007). However, because many (if not all) states would adamantly oppose such legislation, and because Congress opted to “compromise” and grant FERC only backstop siting authority, the western states are better served pursuing their current course of action. See Eagle, *supra* note 85, at 45. (“The industry has clamored for legislation that would transfer siting authority . . . to regional or national entities that can adequately account for the vast regional benefits of interstate transmission lines. State organizations and officials, on the other hand, have protested against any such measures”).

⁹⁵ Section 368 provides:

Sec. 368. ENERGY RIGHT-OF-WAY CORRIDORS ON FEDERAL LAND.

(a) Western States.—Not later than 2 years after the date of enactment of this Act, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Defense, the Secretary of Energy, and the Secretary of the Interior (in this section referred to collectively as “the Secretaries”), in consultation with the Federal

to help facilitate siting on federal land.⁹⁶ Section 368 directs the secretaries of the relevant agencies (i.e., Agriculture, Commerce, Defense, Energy, and Interior) to designate “energy corridors” in the western states for oil, gas and hydrogen pipelines, and electricity transmission and distribution facilities.⁹⁷ If DOE grants the requested section 368 energy corridors, the likelihood of the Frontier Line succeeding will have taken a big step forward, helping the states clear “hurdles rang[ing] from securing approval for siting permits on federal lands to working through necessary steps involved in the Endangered Species Act, the National Environmental Policies [sic] Act and other regulatory processes.”⁹⁸ Despite many remaining obstacles,⁹⁹ by using the recently created mechanisms to facilitate acquisition of necessary siting approvals on federal lands while continuing to move the process forward at the regional level, the Frontier Line has the potential to be the largest clean energy transmission project ever built in the western United States.¹⁰⁰

b. Enhanced Interstate Transmission Infrastructure Is the Key to Opening the Door to Green Power

A major obstacle to significant investment in readily available renewable energy is a technological issue: the current electricity transmission system is designed for

Energy Regulatory Commission, States, tribal or local units of governments as appropriate, affected utility industries, and other interested persons, shall consult with each other and shall—

- (1) designate, under their respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land in the eleven contiguous Western states (as defined in section 103(o) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702(o));
- (2) perform any environmental reviews that may be required to complete the designation of such corridors; and
- (3) incorporate the designated corridors into the relevant agency land use and resource management plans or equivalent plans.

Energy Policy Act of 2005 § 368, 42 U.S.C. 15,926.

⁹⁶ *Before the House Committee Natural Resources, Subcommittee on Water and Power*, 109th Cong. 6 (2006) [hereinafter *Nelson Testimony*] (testimony of Laura Nelson, Ph.D.) (“We believe further that successful completion of the 368 process will be essential to the development of projects such as the Frontier Line.”), available at www.ftloutreach.com/images/FTL_Nelson_testimony_6-28.pdf.

⁹⁷ Energy Policy Act of 2005 § 368, 42 U.S.C. 15,926.

⁹⁸ *Nelson Testimony*, *supra* note 96, at 6.

⁹⁹ See Al Senia, *Battle on the Frontier*, ENERGYBIZ MAG., July-Aug. 2006, at 10 (stating the Frontier Line “will likely face up to three years of intense scrutiny before construction even begins”).

¹⁰⁰ *Nelson Testimony*, *supra* note 96, at 3.

power plants that are proximate to end users.¹⁰¹ However, some renewable energy sources, especially wind energy, require that the power be sent thousands of miles to market.¹⁰² For example, wind power generated in the plains could provide substantial amounts of green energy to California (or any other part of the country) if the necessary transmission lines were available.¹⁰³ The Frontier Line was proposed in recognition of the technological constraint and could provide the necessary infrastructure to spur significant investment in renewable energy sources.

As Dr. Laura Nelson, Energy Advisor to Utah Governor Jon Huntsman, stated in her testimony to the House Resources Subcommittee on Water and Power, the Frontier Line “represents a collective vision of our Governors to encourage the construction of what would be the single largest clean-energy enabling infrastructure project ever built in the American West.”¹⁰⁴ States like “Wyoming are anxious to utilize their expansive resource base to develop abundant renewable and clean coal power supplies for export,” but the lack of sufficient transmission infrastructure limits the expansion of access to such green power sources.¹⁰⁵

The Frontier Line, rather than a solution unto itself, should be a model for additional regional transmission lines, both in the West and throughout the country. Because generated electricity cannot be stored easily or efficiently until there are significant changes in technology,¹⁰⁶ additional transmission lines are necessary to tap often-remote resources, like wind, for power. Of the top seven states for “wind energy potential,”¹⁰⁷ only one state (Texas) is in the top half of the country in terms of population.¹⁰⁸ Therefore, adequate transmission infrastructure could

¹⁰¹ Lakshman D. Guruswamy, *A New Framework: Post-Kyoto Energy and Environmental Security*, 16 COLO. J. INT'L ENVTL. L. & POL'Y 333, 342 (2005) (“[T]he present hub and spoke energy transmission networks that form the grid system were designed for central power plants close to users.”).

¹⁰² *Id.*

¹⁰³ *See id.* (“[T]he absence of necessary transmission lines and grids presently prevents the transfer of wind power from North Dakota [and other states] to the Pacific or Atlantic Coast.”).

¹⁰⁴ *Nelson Testimony, supra* note 96, at 3.

¹⁰⁵ *See id.* at 4.

¹⁰⁶ *See* Richard J. Pierce, Jr., *Completing the Process of Restructuring the Electricity Market*, 40 WAKE FOREST L. REV. 451, 464 (2005) (“Electricity demand varies over time by as much as a factor of ten, it cannot be economically stored, and it flows around an integrated transmission grid in constantly changing patterns in inverse proportion to the impedance on each of the thousands of lines that comprise the grid.”).

¹⁰⁷ Am. Wind Energy Ass'n., *Wind Energy: An Untapped Resource*, http://www.awea.org/pubs/factsheets/Wind_Energy_An_Untapped_Resource.pdf [hereinafter *Wind Energy Fact Sheet*] (last visited Mar. 21, 2007). The top seven states, in order, are North Dakota, Texas, Kansas, South Dakota, Montana, Nebraska, and Wyoming. *Id.*

¹⁰⁸ Texas is the second largest U.S. state by population. Press Release, U.S. Dep't of Commerce, *State Rankings* (July 21, 1998), available at <http://www.census.gov/Press-Release/state01.prn>.

provide enormous amounts of clean energy: “the total amount of electricity that could potentially be generated from wind in the United States has been estimated at 10,777 billion kilowatts hours annually—three times the electricity generated in the U.S. today.”¹⁰⁹

Of course, wind energy is not a cure-all because the wind is “not always on.”¹¹⁰ Thus, other resources, such as clean coal, are needed to ensure adequate power sources in all weather conditions. An improved and expanded transmission infrastructure would provide access to such renewable resources, regardless of their location.

Finally, the Frontier Line MOU wisely focused on a specific plan for the four signatory states, but also remained open to expanding the project to include other states, as long as the expansion would not serve to delay the project.¹¹¹ This strikes the right balance between moving the project forward, without unnecessarily limiting the potential benefits of the undertaking.

2. *The Clean Coal MOU*

To the extent the concept proves commercially feasible, the Clean Coal MOU provides a model agreement between producer and consumer. For Wyoming, clean-coal technology provides a way for the state to preserve and potentially enhance its market position for a critical resource. For California, the technology would provide a way to meet the state’s aggressive GHG emissions reduction goals. The Clean Coal MOU would thus seem to be the obvious solution, and in many ways, it is. However, complementary regulatory and market developments make the Clean Coal MOU particularly important and promising.

The Frontier Line project, for one, would create a market for the power created by clean-coal technology. As with problems facing many wind energy proposals, any power generated in Wyoming is of little value if there is no way to deliver it to

¹⁰⁹ Wind Energy Fact Sheet, *supra* note 107.

¹¹⁰ See, e.g., Sen. Frank H. Murkowski, Policy Essay: *The Kyoto Protocol Is Not the Answer to Climate Change*, 37 HARV. J. ON LEGIS. 345, 359 (2000) (“There are also issues of reliability and availability of energy sources: the wind does not always blow, and the sun is not there to provide solar energy at night when heating is needed.”).

¹¹¹ The Frontier Line MOU provides:

The Coordinating Committee will investigate proposals made for complementary western transmission projects to determine whether the Transmission Project should be expanded to incorporate such other projects in whole or in part. However, it is important to keep the work of the Coordinating Committee on the Transmission Project on track. Accordingly, any work investigating other transmission projects should be undertaken only if it does not delay work on the Transmission Project.

Frontier Line MOU, *supra* note 63, at 3.

end users.¹¹² Having a direct line to potential buyers would provide the necessary economic incentives for the development and construction of clean-coal power facilities. California's commitment to GHG emissions reductions creates a more concrete market and further increases the likelihood that clean-coal plants will come to fruition, as long as the power can be delivered.

Beyond that, for Wyoming (and any other state) to benefit from sales of electricity from coal-fired plants to California via the Frontier Line, the energy must be "generated in a facility that emits no more greenhouse gas than a combined-cycle power plant fueled by natural gas."¹¹³ Although a direct connection between the Frontier Line MOU and the Clean Coal MOU has been denied, clean-coal plants will be needed to address emissions concerns of states like California, regardless of whether the Frontier Line is ever built.¹¹⁴

Additionally, the high price of natural gas, which is increasingly the fuel of choice for electric generating facilities, has created a hot potential market for more cost-friendly, cleaner burning energy sources.¹¹⁵ Natural gas supplies are also becoming increasingly tight, in part because demand is more constant on a year-round basis than ever before.¹¹⁶ The construction of facilities needed to increase natural gas supplies, namely liquefied natural gas (LNG)¹¹⁷ facilities,¹¹⁸ is also heavily contested.¹¹⁹ Finally, coal is a domestically available resource, whereas

¹¹² See Phillip G. Oldham & Joseph P. Younger, *Lighting the Lone Star: The Texas Experience with a Competitive Electricity Market*, 40 WAKE FOREST L. REV. 709, 722 (2005) ("In addition to the massive infrastructure necessary for wind power, there are numerous other transmission projects that must be built in order to mitigate congestion that has been brought about through the operation of market forces.").

¹¹³ Colin Sullivan, *Calif. Energy Chief Defends "Clean Coal" in Frontier Project*, GREENWIRE, Apr. 19, 2006.

¹¹⁴ See *id.* ("I think anybody in coal-producing states understands that's part of the landscape going forward." (quoting Wyoming Governor Dave Freudenthal)).

¹¹⁵ See Mary Anne Sullivan, *Voluntary Plans Will Not Cut Greenhouse Gas Emissions in the Electricity Sector*, SUSTAINABLE DEV. L. & POL'Y, Winter 2006, at 47 (stating that the recent "decline in carbon intensity is largely a function of the increase over the last decade in the use of natural gas for power generation, a trend that is now starting to reverse as a result of increases in natural gas prices").

¹¹⁶ Peter Behr, *No Help for Natural Gas Users: Stagnant Production Keeps Prices High*, WASH. POST, May 21, 2003, at E1 ("More than 90 percent of the power plants built since the beginning of electricity deregulation in the late 1990s run on natural gas, and that is the primary fuel for producing peak power supplies when air-conditioning demand soars.").

¹¹⁷ LNG is natural gas that is condensed into a liquid after having been cooled to minus 260° F or less. Monica Berry, *Liquefied Natural Gas Import Terminals: Jurisdiction over Siting, Construction, and Operation in the Context of Commerce Clause Jurisprudence*, 26 ENERGY L.J. 135, 137 (2005).

¹¹⁸ Kenneth T. Kristl, *A Boundary Dispute's Effect on Siting of an LNG Terminal*, 21 NAT. RESOURCES & ENV'T 34, 35 (2006) (discussing the "growing need for LNG").

¹¹⁹ See Jacob Dweck, et al., *Liquefied Natural Gas (LNG) Litigation After the Energy Policy Act of 2005: State Powers in LNG Terminal Siting*, 27 ENERGY L.J. 473, 473 (2006) ("As the United States

new natural gas supply providers are increasingly from overseas,¹²⁰ which makes clean coal a politically appealing option because it would also reduce dependence on foreign energy sources.¹²¹ The Clean Coal MOU, by coordinating market needs and political appeal, is thus another example of a sound regional effort to help reduce GHG emissions.

IV. CONCLUSION

Despite the apparent lack of willingness on the part of Congress and the Bush Administration, pressure is growing for a mandatory federal program, which would facilitate larger-scale GHG emissions reductions than state or regional programs.¹²² Some have argued that only a global program has any real promise of success, but, as the largest emitter of GHGs,¹²³ the United States could have a significant impact on its own. Furthermore, if a federal program gained serious traction, the United States might even reconsider participating actively in a global initiative like the Kyoto Protocol.

There are two main federal programs that have garnered significant support. The first is a national carbon tax; the second is some form of emissions trading program.

A carbon tax would place an excise tax on fossil fuel sales, i.e., sales of coal, petroleum products, and natural gas, based on the fuel's carbon content.¹²⁴ A federal carbon tax has been promoted by several, and diverse, sources. Duke Energy, one of the largest energy companies in the United States, is an ardent supporter of a carbon tax, arguing that it "is an effective fiscal policy option that would simultaneously support federal tax reform initiatives, reduce carbon dioxide emissions, and promote sound energy policies."¹²⁵ On the other end of the spectrum,

moves toward increasing LNG importation and developers race to construct import terminals, the relatively young U.S. LNG industry is experiencing expected growing pains that have created obstacles and opposition to the LNG movement, including infrastructure concerns . . .").

¹²⁰ See Kristl, *supra* note 118, at 35 ("According to FERC, Indonesia, Algeria, Malaysia, Qatar, and Trinidad are the leading exporters of LNG.").

¹²¹ Jeffrey Immelt & Jonathan Lash, *The Courage to Develop Clean Energy*, WASH. POST, May 21, 2005, at A19 (stating that clean energy sources are desperately needed because of declining oil and natural gas reserves, a continued reliance on foreign energy sources, and global climate concerns).

¹²² Robert R. Nordhaus & Kyle W. Danish, *Assessing the Options for Designing a Mandatory U.S. Greenhouse Gas Reduction Program*, 32 B.C. ENVTL. AFF. L. REV. 97, 97 (2005) ("[T]he U.S. government is facing pressures—from both domestic and international sources—to establish a federal mandatory reduction program to address the risk of global climate change.").

¹²³ See Kanter & Revkin, *supra* note 34, at A13.

¹²⁴ Craig Hanson & James R. Hendricks Jr., *Taxing Carbon to Finance Tax Reform*, DUKE ENERGY/WORLD RESOURCES INSTITUTE ISSUES BRIEF 1 (Mar. 2006), available at http://pdf.wri.org/taxing_carbon_full.

¹²⁵ *Id.*

former Vice President Al Gore is also a strong proponent of carbon taxes¹²⁶ and has even suggested using a carbon tax in place of some payroll taxes.¹²⁷

Despite growing appeal at both the federal and global level,¹²⁸ increased carbon taxes have, to date, proven politically untenable in the United States. As noted above, the Bush Administration¹²⁹ and many members of Congress adamantly oppose carbon taxes,¹³⁰ arguing that such a tax would improperly impose economic harm.¹³¹ Although there are some indications that politicians from both sides of the aisle are more open to (at least some) carbon taxes than ever before,¹³² no serious proposals are on the horizon.¹³³

¹²⁶ Charles Komanoff, *Forward-Thinking Idea For a Trendsetter*, SEATTLE POST-INTELLIGENCER, Aug. 2, 2006, at B7 (“We should sharply reduce payroll taxes and make it all up in CO₂ taxes so the low- and middle-income people don’t bear the cost burden of this big transition in energy sources.” (quoting from a speech Vice President Gore gave at Wal-Mart’s headquarters)).

¹²⁷ Robert Walker, *Making a Lean-Green Tax Shift*, PHILADELPHIA INQUIRER, Oct. 3, 2006, at A11 (“Al Gore gave a speech at New York University recently in which he proposed lowering the payroll tax and substituting a ‘carbon tax’ to make up the lost revenue.”).

¹²⁸ See Cass R. Sunstein, *Irreversible and Catastrophic*, 91 CORNELL L. REV. 841, 845, 858 (“When regulators lack information about the likelihood and magnitude of a risk, it makes sense to spend extra resources to buy an ‘option’ to protect against irreversible harm until future knowledge emerges.”) (“The argument for a global carbon tax is significantly strengthened by an appreciation of the option value of conserving the atmospheric environment.”).

¹²⁹ H. Josef Hebert, *Findings Shift Debate from Cause to Cost*, PITT. POST-GAZETTE, Feb. 3, 2007, at A8 (“The Bush administration doesn’t like any [proposals for cutting greenhouse gas emissions], arguing that arbitrary pollution limits would be too costly, threaten certain carbon-intensive industries and result in lost jobs as business shifts to other countries.”).

¹³⁰ Richard E. Cohen & Peter Bell, *Insiders Poll*, NAT’L J., Feb. 3, 2007, at 6-7 (indicating that only 3% of Republicans and 50% of Democrats polled would support a carbon tax to reduce global warming).

¹³¹ *President Bush’s FY 2008 Budget and Revenue Proposals: Hearing Before the S. Budget Comm.*, 110th Cong. (2007), 2007 WLNR 2754619 (statement of Sen. Domenici) (“I submit to you that everybody’s looking for a law that will [fix global warming], which will put in all kinds of impacts on business, and it will become just another master of bureaucracy on trying to collect carbon tax, or whatever it is.”); see also 149 Cong. Rec. S10021 (daily ed. July 28, 2003) (statement of Sen. Inhofe) (stating “that the motives for Kyoto are economic, not environmental; that is, proponents favor handicapping the American economy through carbon taxes and more regulations”).

¹³² For example, N. Gregory Mankiw, former Chairman of the President’s Council of Economic Advisers (2003-05) and current professor of economics at Harvard University, recently proposed a carbon tax on gasoline of \$1 per gallon, to be phased in at ten cents per year over the next 10 years. N. Gregory Mankiw, *Raise the Gas Tax*, WALL ST. J., Oct. 20, 2006, at A12; see also Daniel Gross, *Raise the Gasoline Tax? Funny, It Doesn’t Sound Republican*, N.Y. TIMES, Oct. 8, 2006, § 3 (Econ. View), at 3 (stating that former Federal Reserve Board Chairman Alan “Greenspan isn’t the only Republican-aligned economist to have discovered, or rediscovered, a fondness for higher energy taxes since leaving government service”).

¹³³ Although many “Republican-leaning economists . . . may think [an increased carbon tax on gasoline] is a good idea, the Republican politicians who control the levers of power in Washington think that it’s an awfully bad one, even though gas taxes in the United States are far lower than those in other industrialized countries.” Gross, *supra* note 132, § 3 (Econ. View), at 3.

The other oft-discussed federal program option is an emissions trading program, which would operate similar to the regional cap-and-trade program proposed in RGGI (Part III, *supra*). A comprehensive federal cap-and-trade program would generally allocate or auction “a fixed number of tradable allowances to emitters and requires them to surrender allowances equal to their emissions in a particular compliance period—known as ‘downstream’ cap-and-trade.”¹³⁴ Another option is an upstream cap-and-trade program, which “requires firms to surrender allowances equal to the carbon content of the fuel and the GHG content of certain other products they sell each year.”¹³⁵ There have been a number of proposed programs at the federal level,¹³⁶ and there is continued¹³⁷ and growing support for such programs.¹³⁸ There are several proposals currently active in the U.S. Senate,¹³⁹ but implementation of a mandatory national cap-and-trade program remains unlikely in the near future.¹⁴⁰

One or both of these programs may well be the best way to achieve reductions in GHG emissions. For the time being, however, GHG emissions reductions will have to come at the state and regional level. In doing so, states should maximize local needs and resources.

At the state level, any GHG emissions reduction program must be manageable and enforceable for state agencies. When creating programs at the state level, offset projects, such as conservation measures and land-based initiatives, are the

¹³⁴ Nordhaus & Danish, *supra* note 122, at 109-10.

¹³⁵ *Id.* at 110.

¹³⁶ See, e.g., Climate Stewardship and Innovation Act of 2005, S.1151, 109th Cong. (2005); Climate Stewardship Act of 2003, S.139, 108th Cong. (2003). “Various bills proposing the implementation of an economy-wide cap-and-trade system have been introduced over the years, but none have been approved by Congress.” Jennifer Rohleder & Jillian Button, *The Legal Dimensions of Climate Change: Conference Report*, SUSTAINABLE DEV. L. & POL’Y, Winter 2006, at 57, 59 (reporting the presentation of Robert Nordhaus).

¹³⁷ *Kerry Seeks Middle Ground on CO₂ Reductions with New Climate Bill*, CLEAN AIR REP. § 3, Feb. 8, 2007, 2007 WLNR 2343212 (“Sen. John Kerry (D-MA) is touting his new legislation as the middle ground among several competing proposals to deal with climate change”); see also Press Release, Senator Dianne Feinstein, Senator Feinstein Calls for Immediate Steps to Reduce U.S. Emissions to Combat Climate Change (Feb. 2, 2007), available at <http://www.feinstein.senate.gov> (“We need national cap-and-trade programs tailored for the electricity and industrial sectors.”).

¹³⁸ Pew Center on Global Climate Change, Summary of The Lieberman-McCain Climate Stewardship Act, http://www.pewclimate.org/policy_center/analyses/s_139_summary.cfm (stating that, although the Climate Stewardship Act of 2003 “failed by a vote of 43 to 55, the vote demonstrated growing bipartisan support for a genuine climate change policy”) (last visited Mar. 21, 2007).

¹³⁹ See, e.g., Electric Utility Cap and Trade Act of 2007, S.317, 110th Cong.; Global Warming Pollution Reduction Act, S.309, 110th Cong.; Climate Stewardship and Innovation Act of 2007, S.280, 110th Cong.

¹⁴⁰ *White House Rejects CO₂ Caps*, INVESTOR’S BUS. DAILY, Feb. 2, 2007, at A01 (“Despite a strongly worded global warming report from the world’s top climate scientists, the Bush administration still opposes caps on greenhouse gases.”).

most likely to have success. Good examples of state-level programs include: natural gas, heating oil and propane energy efficiency projects; carbon sequestration projects; landfill methane capture and destruction projects; and “avoided methane emissions from agricultural manure management operations” projects.¹⁴¹ State legislatures and regulators can monitor progress and provide incentives for such programs that are most beneficial for their constituents.

It is worth noting that state programs are not completely isolated, so regional or national market opportunities will be part of a state’s program analysis. For example, as discussed in Part II, *supra*, Wyoming (solely at the state level) can provide incentives and help analyze the best market for carbon sequestration projects. However, the market for carbon credits earned would be at the regional, national, or even the international level. Such a program still makes sense at the state level, though, because the state can further the program and help participants enter existing markets.

At the regional level, states should focus on developing programs where the participants have specific emissions reduction needs or where the parties have complementary resources. That is, to maximize the effectiveness of a regional program, there should be specific synergies or other reasons to limit the effort to the region (instead of seeking a national program). The Wyoming MOUs, for example, would always be appropriate at the regional level, because the states in the region have unique needs and resources that can best be analyzed by those in the region. This holds true, even if program portions (like siting approval and eminent domain authority) would be more efficiently accomplished at the federal level.

Given the current reluctance to develop programs at the federal level, regional programs (like RGGI) that would be more appropriate at the national level also still warrant consideration. To the extent regional action can provide a model for national action or raise the public awareness needed to trigger federal action, such programs also have value. However, in the long-run, the states would be better served to focus efforts on state and regional programs that complement federal initiatives (rather than developing their own programs) where the program is almost inherently national in scope (like a cap-and-trade program).

Reducing greenhouse gas emissions is a daunting problem that requires coordination at all levels of government. Wyoming has managed to initiate and participate in programs at both the state and regional level by balancing political

¹⁴¹ Note that all of these examples are included “offset” projects as part of the RGGI “cap-and-trade” program in the RGGI Model Rule XX-10.3(a)(1). “Offsets allowances (or ‘credits’) are certified emissions reductions or carbon sequestration that take place outside the electric generating sector in project areas that meet the program requirements. RGGI, Frequently Asked Questions, *supra* note 41, at 3. Although a regional program, RGGI’s offset program would be monitored and administered by each member state. See RGGI MOU 4, pt. F(1)(b).

realities with the need to reduce GHG emissions. Wyoming is a coal-producing state that is simply not going to promote initiatives that would cripple its own economy. However, rather than hide from the issue, Wyoming has pursued partners with similar needs and is promoting solutions that could have a real, if somewhat limited, impact. Other states should follow Wyoming's lead and seek additional state and regional opportunities to reduce GHG emissions. Similarly, on the federal level, Congress and the administration should follow Wyoming's example of embracing a difficult issue by pursuing new technologies and aggressively facilitating access to domestic and renewable energy sources.