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Shaping Oregon Climate Policy in Light of the Kyoto Protocol

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Climate change is aptly described as an environmental, economic, political, scientific, ethical, educational, and technological problem.¹ It is regarded by some as the greatest environmentally related challenge of the twenty-first century, with projected effects that “occur at a larger geographic scale, adversely affect more people, and occur over a larger time period than virtually any other environmental problem now being faced.”² The complexity of climate change stems in large part from the critical fact that it “pits the potential disruption of our global climate system against the future of a fossil fuel-based economy.”³ This loggerhead cannot be overstated. Policymakers seeking to implement reformative measures tailored to mitigating the adverse impacts of climate change must contend with a proverbial train wreck. The ultimate implication of the climate-change issue is that the reformative measures it necessitates will likely alter the development patterns of industrialized and developing countries throughout the world,⁴ and entail a global normative shift

¹ Laura H. Kosloff et al., *Outcome-Oriented Leadership: How State and Local Climate Change Strategies Can Most Effectively Contribute to Global Warming Mitigation*, 14 WIDENER L.J. 173, 174 (2004).

² John C. Dernbach, *Toward a Climate Change Strategy for Pennsylvania*, 12 PENN ST. ENVTL. L. REV. 181, 190 (2004).

³ DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 589 (2d ed. 2002).

⁴ See *id.* at 606; see also INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: SYNTHESIS REPORT - SUMMARY FOR POLICYMAKERS 4 (2001) [hereinafter IPCC SYNTHESIS REPORT], <http://www.ipcc.ch/pub/un/syrenq/spm.pdf>. The IPCC notes, “The climate change issue is part of the larger challenge of *sustainable development*. As a result, climate policies can be more effective when consistently embedded within broader strategies designed to make national and regional *development paths more sustainable*.” *Id.* (emphasis added).

associated with the propriety of climate-changing behaviors.⁵

This Comment focuses on the frontier of climate policy in the State of Oregon. Specifically, in light of the implementation of a global cap-and-trade system for greenhouse-gas (GHG) emissions under the Kyoto Protocol (Protocol), this Comment examines the policy option of implementing a regional GHG cap-and-trade system in Oregon and among the West Coast states. Much terrain is covered to give context. Part I provides a primer on climate science that describes the potential impacts of climate change on the global level and in the Pacific Northwest. After illuminating the potential threats posed by climate change, Part II describes the international community's response, focusing almost exclusively on the Protocol's cap-and-trade regulatory system for GHG emissions. In contrast, Part III shifts attention to the state and local levels. It begins by providing a cursory discussion of the climate policies and programs established by states and localities as well as some of the cutting-edge litigation brought by states and localities involving climate change. Part IV examines climate policies and programs in the State of Oregon, paying particular attention to the carbon dioxide (CO₂) standard for new energy facilities (the Standard). Finally, Part V provides a comparative analysis of the Protocol and the Standard, discusses how Oregon and the other West Coast states can use the Protocol as a model to design a regional cap-and-trade system, and concludes by examining some of the potential obstacles and benefits associated with implementing such a system.

Overall, this Comment reflects the viewpoint that an international effort is needed to address climate change effectively. The Protocol is currently the most concrete form of such an effort. Unfortunately, the United States has chosen to not ratify the Protocol and has also declined to implement a federal regulatory program for GHG emissions. In the face of such federal inaction, this Comment advocates for Oregon and the other West Coast states to act in conformity with the international response.

⁵ Ronald B. Mitchell, *Flexibility, Compliance and Norm Development in the Climate Regime*, in IMPLEMENTING THE CLIMATE REGIME: INTERNATIONAL COMPLIANCE 65 (Olav Schram Stokke et al. eds., 2005). Dr. Mitchell describes this normative shift as follows: "Actions that cause climate change, and the failure to take actions to avert it, generally have not yet been framed as illegitimate, reprehensible or otherwise inappropriate. Climate regime institutions and processes must foster economic, political and social changes that make behaviours that contribute to climate change appear increasingly inappropriate . . ." *Id.* at 66.

Ultimately, it is hoped that such actions will compel the federal government to ratify the Protocol and implement a GHG regulatory program, and position Oregon and the other West Coast states to be in conformance with such a program when it emerges.

I

CLIMATE SCIENCE

A. *Basic Concepts and Historical Patterns*

A basic understanding of climate science is necessary to formulate and evaluate climate policies. The greenhouse effect, and the role of GHGs therein, are central concepts of this science. Simply put, the greenhouse effect is the planet's warming mechanism.⁶ It operates as follows: some of the infrared energy emitted from the Earth's sunlight-warmed surface is trapped by GHGs in the atmosphere and redirected back to the surface.⁷ GHGs essentially function as a blanket around the planet, preventing energy from escaping from the Earth's surface and atmosphere.⁸ This climate system maintains temperatures within a hospitable range for all living organisms on Earth.⁹

Human interference with this climate system constitutes "climate change" or "global warming," which is defined as "a change of climate which is attributed directly or indirectly to *human activity* that alters the composition of the global atmosphere and which is in addition to *natural* climate variability"¹⁰ The burning of fossil fuels, agriculture, and land-use changes are all human activities that increase GHG emissions and concentrations in the atmosphere.¹¹ The primary GHG emitted is CO₂,¹²

⁶ HUNTER, *supra* note 3, at 590-91.

⁷ *Id.* at 589.

⁸ INFO. SERVS., UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE SECRETARIAT, CARING FOR CLIMATE: A GUIDE TO THE CLIMATE CHANGE CONVENTION AND THE KYOTO PROTOCOL 3-4 (Joanna Depledge & Robert Lamb eds., 2003), http://unfccc.int/resource/cfc_guide.pdf.

⁹ CITY OF PORTLAND & MULTNOMAH COUNTY, LOCAL ACTION PLAN ON GLOBAL WARMING 2 (2001) [hereinafter LOCAL ACTION PLAN], <http://www.portlandonline.com/shared/cfm/image.cfm?id=112115>.

¹⁰ United Nations Framework Convention on Climate Change (art 1, para. 2), May 9, 1992, S. TREATY DOC. NO. 102-38 (1992), 1771 U.N.T.S. 165 [hereinafter UNFCCC] (emphasis added). An electronic copy of the UNFCCC is available at http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

¹¹ See IPCC SYNTHESIS REPORT *supra* note 4, at 4.

¹² See IPCC SYNTHESIS REPORT *supra* note 4, at 4.

and fossil-fuel combustion is the primary source of CO₂ emissions.¹³ In short, climate change is essentially the response of the planet's climate system to altered concentrations of GHGs in the atmosphere.¹⁴

It should be noted that the United States is the historic and current leader in GHG emissions. From 1850 to 2000, the United States was the primary source of CO₂ emissions, contributing nearly 30% of global totals.¹⁵ As of 2000, the United States was the primary source of all GHG emissions, contributing almost 21%,¹⁶ while maintaining the sixth highest per capita GHG emissions.¹⁷ By 2025, the United States is projected to be the second-largest GHG emitter, and China is expected to become the world's largest emitter.¹⁸ This projection is representative of a broader pattern whereby developing countries are expected to contribute the greater share of global GHG emissions by 2025.¹⁹

¹² KEVIN BAUMERT & JONATHAN PERSHING, PEW CENTER ON GLOBAL CLIMATE CHANGE, CLIMATE DATA: INSIGHTS AND OBSERVATIONS 5 fig.2, 6 (2004), <http://www.pewclimate.org/docUploads/Climate%20Data%20new%2Epdf>. CO₂ emissions constitute 77% of global GHG emissions. *Id.* Emissions of methane and nitrous oxide respectively constitute 14% and 8%. *Id.* Those gases with the highest global warming potentials—sulfur hexafluoride, perfluorocarbons, and hydrofluorocarbons—comprise the remainder of emissions. *Id.*

¹³ Specifically, CO₂ emissions from the burning of fossil fuels constitute 59% of global GHG emissions. *Id.*

¹⁴ HUNTER, *supra* note 3, at 589.

¹⁵ BAUMERT & PERSHING, *supra* note 12, at 27 tbl.7. U.S. CO₂ emissions constituted 16.8%-26.8% of global totals in the period 1950-2000, with the variation resulting from the method of calculation used. *Id.* at 28 tbl.8.

¹⁶ *Id.* at 4 fig.1. Overall U.S. GHG emissions ranged from 15.8%-24.1% of global GHG emissions as of 2000, with the variation resulting from the method of calculation used. *Id.* at 23 tbl.3.

¹⁷ *Id.* at 25 tbl.5. As of 2000, Qatar, the United Arab Emirates, Kuwait, and Bahrain all had higher per capita GHG emissions than the United States. *Id.* Among the major GHG emitting countries, however, only Australia had higher per capita GHG emissions than the United States at this time. *Id.*

¹⁸ *Id.* at 15, 16 fig.10. China's GHG emissions are expected to increase 118% between 2000 and 2025; in contrast, U.S. GHG emissions are projected to increase 39% during this period. *Id.*

¹⁹ Specifically, the developing countries are projected to contribute 55% of global GHG emissions by 2025. *Id.* at 15. Overall, developing countries' GHG emissions are projected to increase 84% from 2000 to 2025, while those of developed countries are projected to increase 35% during the same period. *Id.* at 15, 16 fig.10.

B. Climate-Change Trends and Projected Impacts at the Global Level

Established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, the Intergovernmental Panel on Climate Change (IPCC) is the international scientific body charged with researching climate change.²⁰ IPCC data illustrate the climate response described above. The IPCC has found that atmospheric GHG concentrations have increased substantially since pre-industrial times (pre-1750),²¹ with CO₂ concentrations increasing by almost one-third during this period.²² At the same time, IPCC data also suggest that the global mean temperature has increased 0.6°C during the twentieth century,²³ and it is “*very likely* that the 1990s was the warmest decade, and 1998 the warmest year in the instrumental record (1861-2000).”²⁴ Considering these data together, the IPCC has determined that “most of the warming observed over the last fifty years is *likely* due to increases in greenhouse gas concentrations due to human activities.”²⁵ Looking forward to the twenty-first century, the IPCC projects that CO₂ concentrations will increase substantially, mainly due to fossil-fuel emissions, and the global surface temperature will increase 1.4°C-5.8°C, a warming rate very likely without precedent in the past 10,000 years.²⁶

In terms of the impacts of climate change, the IPCC has stated that “projected climate change will have beneficial and adverse effects on both environmental and socio-economic systems, but the larger the changes and rate of change in climate, the more the adverse effects predominate.”²⁷ The IPCC has pointed to a rise in sea levels, precipitation and growing season shifts, increased

²⁰ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, 16 YEARS OF SCIENTIFIC ASSESSMENT IN SUPPORT OF THE CLIMATE CONVENTION 2 (2004), <http://www.ipcc.ch/about/anniversarybrochure.pdf>.

²¹ IPCC SYNTHESIS REPORT, *supra* note 4, at 4.

²² *Id.* at 5 tbl.SPM-1. Atmospheric concentrations of methane and nitrous oxide have increased almost 151% and 17% respectively during this period. *Id.*

²³ *Id.*

²⁴ *Id.* at 4 (emphasis added). The IPCC uses the term “very likely” to indicate that there is a 90%-99% chance that a particular statement is true. *Id.* at 5 box SPM-1.

²⁵ *Id.* at 5, 31 tbl.SPM-3 (emphasis added). The IPCC uses the term “likely” to indicate that there is a 66%-90% chance that a particular statement is true. *Id.* at 5 box SPM-1.

²⁶ *Id.* at 8.

²⁷ *Id.* at 9.

frequency and intensity of tropical storms, and shifts in plant and animal ranges as examples of impacts experienced during the twentieth century.²⁸ In the twenty-first century, the IPCC projects a number of similar adverse effects. These include a rise in sea levels of 0.09 m-0.88 m;²⁹ increased intensity of precipitation events resulting in increased flooding, landslide, and avalanche damages;³⁰ loss of biodiversity; desertification; diminished air quality;³¹ and increased drought in continental interiors resulting in diminished crop yields, water supply, and water quality.³²

The most alarming finding from the standpoint of social justice is that the adverse impacts of climate change will not be proportionally borne by those developed countries whose GHG emissions have thus far most interfered with the climate system.³³ The IPCC directly addresses the social inequities associated with climate change, stating: “[t]he impacts of climate change will fall disproportionately upon developing countries and the poor persons within all countries, and thereby exacerbate inequities in health status and access to adequate food, clean water, and other resources.”³⁴ These social inequities are associated with developing countries’ lack of adaptive capacity. In short, many developing countries lack the resources to develop and implement adaptive measures to combat the adverse impacts of climate change. Examples of such measures include air conditioning, dams, irrigation projects, medical facilities, reservoirs, sea walls, and water-treatment facilities. In the absence of such measures, adverse health impacts such as heat stress; spread of water-borne diseases; and diminished water quality, air quality, food availability, and food quality are projected to unduly affect lower-income populations, predominantly those within tropical and subtropical countries.³⁵ In addition, populations in low-lying coastal areas of developing countries and on small islands are particularly expected to bear the adverse effects of raised sea levels and “storm

²⁸ *Id.* at 6 tbl.SPM-1.

²⁹ *Id.* at 9.

³⁰ *Id.* at 15 tbl.SPM-2.

³¹ *Id.* at 29.

³² *Id.* at 15 tbl.SPM-2.

³³ *See id.* at 12.

³⁴ *Id.*

³⁵ *See id.* at 9.

surges," such as property damage, displacement, and destruction of fisheries and other coastal resources.³⁶

C. Climate-Change Trends and Projected Impacts in the Pacific Northwest

The observed trends and projected impacts of climate change in the Pacific Northwest region align with the IPCC findings. The region grew warmer and wetter over the twentieth century.³⁷ There has been an annual average-temperature increase of 1°F-3°F, and an annual average-precipitation increase of 10%.³⁸ These patterns are predicted to intensify during the twenty-first century. By the 2090s, average summer temperatures are projected to have risen by 7°F-8°F and average winter temperatures by 8°F-11°F.³⁹ Average precipitation is projected to increase during this period, but the precise amount is uncertain, ranging from a few percent to as much as fifty percent.⁴⁰

There would be numerous adverse impacts associated with a warmer, wetter climate shift in the Pacific Northwest. Increased flooding, landslides, and erosion would result from increased precipitation.⁴¹ Coastal inundation and erosion would occur due to raised sea levels.⁴² Forest areas would be placed at a greater risk to fire and pest infestation.⁴³ As a result of reduced snowpack, water shortages would be exacerbated, resulting in decreased supplies for irrigation, drinking, and recreation.⁴⁴ Salmon populations would decrease due to lower summer and fall flows,⁴⁵ and a decline in water quality due to greater sedimentation associated with flooding and erosion.⁴⁶ Finally, increased heat waves, heat-related illnesses and deaths, as well as the possible spread of insect-transmitted diseases associated with a warmer, wetter cli-

³⁶ *See id.* at 12.

³⁷ NAT'L ASSESSMENT SYNTHESIS TEAM, U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS ON THE UNITED STATES: THE POTENTIAL CONSEQUENCES OF CLIMATE VARIABILITY AND CHANGE 68 (2001), available at <http://www.usgcrp.gov/usgcrp/Library/nationalassessment/10NW.pdf>.

³⁸ *Id.*

³⁹ *Id.* at 69.

⁴⁰ *Id.*

⁴¹ *Id.* at 73.

⁴² *Id.*

⁴³ *Id.* at 72.

⁴⁴ *See id.* at 70.

⁴⁵ *Id.*

⁴⁶ *Cf. id.*

mate would jeopardize public health.⁴⁷ Although this list is not exhaustive, it is apparent from these impacts that substantial property damage and significant detrimental economic effects may result from climate change in the Pacific Northwest. Moreover, it is likely that the lower-income segments of the regional population, like those at the global level, will be disproportionately affected because of lesser adaptive capacity.

In sum, the science behind climate change reveals it is an issue with numerous, profound, and inequitable impacts both at the global and regional levels. Fortunately, this science provides knowledge that can be utilized to create policies designed to mitigate these impacts. Ultimately, such responses will likely require far-reaching modification of existing fossil fuel-based economic systems and development patterns. This is no small feat. Nonetheless, the potential impacts and inequities of climate change warrant such actions.

II

INTERNATIONAL CLIMATE POLICY

Considering the vast threat that climate change poses in its potential environmental manifestations, as well as the social inequities that it involves, the international community has been seemingly slow to construct policy mechanisms to address this issue.⁴⁸ The development of international climate policy spans the period from 1979 to the present.⁴⁹ Although there are many noteworthy dates and developments along this continuum, the primary work product of the international community currently consists of two documents: the United Nations Framework Convention on Climate Change (Convention) and the Protocol.⁵⁰ This Comment primarily focuses on the Protocol's policy mechanisms—its GHG cap-and-trade provisions—and contains only a brief discussion of the Convention in order to describe its relation to the Protocol.

⁴⁷ Or. Dep't of Energy, Climate Change and Oregon, <http://www.oregon.gov/ENERGY/GBLWRM/climhme.shtml> (last visited Aug. 9, 2006).

⁴⁸ See HUNTER, *supra* note 3, at 616.

⁴⁹ *Id.* at 615 box 10.7.

⁵⁰ See INFO. SERVS., *supra* note 8, at 3-4.

**A. *The United Nations Framework
Convention on Climate Change***

The Convention is the foundational climate-change document. As a framework agreement, rather than imposing “hard” obligations, it “sets goals and establishes a cooperative framework designed to reach [them].”⁵¹ The Convention entered into force in 1994.⁵² At present, it enjoys almost global membership: 189 parties have joined, including the United States.⁵³

The Convention’s objective is “to achieve . . . stabilization of greenhouse gas concentrations in the atmosphere at a level that would *prevent dangerous anthropogenic interference* with the climate system.”⁵⁴ In support of this objective, the Convention identifies several guiding principles: intergenerational equity, common concern of humankind, common but differentiated responsibilities, the right to *sustainable* development, and the precautionary principle.⁵⁵

Pursuant to the Convention’s objective, and in accordance with its guiding principles, the party countries (Parties) are divided into three groups, each of which is assigned different commitments based on its particular circumstances and needs.⁵⁶ These three groupings are Annex II Parties, Annex I Parties, and Non-Annex Parties.⁵⁷ Annex II Parties consist of the developed countries, including the United States, Canada, Western European nations, the Nordic countries, Japan, Australia, and New Zealand.⁵⁸ Annex I Parties consist of all Annex II Parties plus countries with economies in transition, including the countries of Eastern Europe and members of the former Soviet Union.⁵⁹ Non-Annex Parties primarily are developing countries.⁶⁰

⁵¹ John H. Knox, *The International Legal Framework for Addressing Climate Change*, 12 PENN ST. ENVTL. L. REV. 135, 136 (2004).

⁵² *Id.* at 135.

⁵³ UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE SECRETARIAT, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE STATUS OF RATIFICATION 7 (2006), http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/ratlist.pdf.

⁵⁴ UNFCCC, *supra* note 10, art. 2 (emphasis added).

⁵⁵ *Id.* at art. 3, paras. 1, 3, 4, (emphasis added).

⁵⁶ See INFO. SERVS., *supra* note 8, at 5-6.

⁵⁷ See UNFCCC, *supra* note 10, art 4.

⁵⁸ *Id.* at annex 2.

⁵⁹ *Id.* at annex 1.

⁶⁰ INFO. SERVS., *supra* note 8, at 6.

Although a full discussion of the Parties' differentiated commitments under the Convention goes beyond the scope of this Comment, two points should be mentioned. First, all Parties to the Convention are responsible for compiling inventories of GHG emissions, preparing national programs in order to implement the Convention, and submitting reports that describe their implementation actions.⁶¹ Second, the Convention does *not* impose binding GHG-emissions limits. Instead, it provides only that Annex I Parties must commit to the inventories, national programs, and reports described above, "with the *aim* of returning individually or jointly to their 1990 levels of these anthropogenic emissions of carbon dioxide and other greenhouse gases"⁶² The Protocol addresses the Convention's lack of adequate and binding GHG-emissions limits.⁶³

B. The Kyoto Protocol

The Protocol's full title is the Kyoto Protocol to the United Nations Framework Convention on Climate Change.⁶⁴ As alluded to above, it is an extension of the Convention that imposes legally binding GHG-emissions limits on Annex I parties.⁶⁵ The Protocol was adopted in 1997 by the Third Conference of the Parties to the Convention in Kyoto, Japan.⁶⁶ It shares the Convention's objective, principles, and taxonomy of Parties.⁶⁷ Only Parties to the Convention may become Parties to the Protocol;⁶⁸ it requires their separate signature and ratification.⁶⁹ The Protocol entered into force on February 16, 2005.⁷⁰

At the "heart" of the Protocol are its emissions targets.⁷¹ Article 3 requires Annex I Parties to adopt legally binding emissions targets that account for emissions of six GHGs: carbon dioxide,

⁶¹ UNFCCC art. 4, para. 1(a), (b), (j), *supra* note 10.

⁶² *Id.* at art. 4, para. 2(a), (b) (emphasis added).

⁶³ See HUNTER, *supra* note 3, at 619.

⁶⁴ Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, Gr. Brit. T.S. No. 1 (2005) (Cd. 5379), at 3 [hereinafter Kyoto Protocol], available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

⁶⁵ See INFO. SERVS., *supra* note 8, at 4.

⁶⁶ *Id.*

⁶⁷ *Id.* at 16.

⁶⁸ *Id.*

⁶⁹ *Id.* at 4.

⁷⁰ United Nations Framework Convention on Climate Change Secretariat, Status of Ratification, http://unfccc.int/essential_background/kyoto_protocol/status_of_ratification/items/2613.php (last visited Aug. 9, 2006).

⁷¹ INFO. SERVS., *supra* note 8, at 17.

methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.⁷² Annex I Parties must commit themselves to one comprehensive emissions limit under which the emissions of the five non-CO₂ GHGs are accounted for by converting them into their CO₂ equivalents according to their respective global-warming potentials.⁷³ The global-warming potential of a GHG is its effect on warming the atmosphere.⁷⁴ To illustrate, because methane has a global-warming potential of twenty-one, the emission of one ton of methane is equivalent to the emission of twenty-one tons of CO₂ for calculation purposes under the Protocol.

The comprehensive GHG-emissions limit to which each Annex I Party commits itself is called an assigned amount.⁷⁵ These assigned amounts are the Party's commitment to reduce GHG emissions by a certain percentage below its previous emissions at a set base-year.⁷⁶ For example, Germany has committed to reduce its GHG emissions to 8% below 1990 levels, and its assigned amount is 92% of its 1990 levels.⁷⁷ The Annex I Parties must meet their assigned amounts by the first commitment period, which is 2008-12.⁷⁸ Specifically, the Protocol requires "each party's level of emissions during that period average its commitment amount."⁷⁹ The Protocol's goal is to reduce GHG emissions to at least 5% below 1990 levels by this time.⁸⁰ Notably, Non-Annex Parties, including two major GHG emitting countries, India and China,⁸¹ are not bound to assigned amounts under the Protocol.

⁷² Kyoto Protocol, *supra* note 64, art. 3, para. 1 & annex A.

⁷³ INFO. SERVS., *supra* note 8, at 17.

⁷⁴ *Id.*

⁷⁵ Kyoto Protocol, *supra* note 64, art. 3, para. 1.

⁷⁶ *Id.* at art. 3, paras. 5, 7-8. Note that the Annex I Parties' specific assigned amounts are listed in Annex B of the Protocol. *Id.* at annex B.

⁷⁷ *See id.* at annex B.

⁷⁸ *Id.* at art. 3, para. 7.

⁷⁹ Knox, *supra* note 51, at 139.

⁸⁰ Kyoto Protocol, *supra* note 64, art. 3, para. 1.

⁸¹ BAUMERT & PERSHING, *supra* note 12, at 23 tbl.3. Depending on the calculation method used, China was the second- or third-largest GHG emitter in 2000 and contributed between 11.9% and 14.5% of global GHG emissions. *Id.* With the same caveat, India was considered the fifth-, sixth-, or seventh-largest GHG emitter in 2000, with contributions of 4.2%-5.5% of global totals. *Id.* Moreover, as noted above, China is projected to overtake the United States to become the largest, global, GHG emitter by 2025. *Id.* at 15, 16 fig.10.

In order to meet their assigned amounts, Annex I Parties must implement a number of domestic policies and measures aimed at mitigating climate change. These include enhancing energy efficiency, promoting renewable energy, favoring sustainable agriculture, recovering methane emissions through waste management, removing subsidies and other market distortions, and protecting and enhancing GHG sinks.⁸² These domestic actions are intended to be the primary means by which Annex I Parties meet their assigned amounts; the Protocol requires that such actions must constitute a “significant element” of efforts to meet these commitments.⁸³

In addition to these primary domestic actions, the Protocol contains three innovative policy mechanisms that enable Annex I Parties to meet their assigned amounts. These are the Protocol’s “flexibility mechanisms”: joint implementation (JI), the clean development mechanism (CDM), and emissions trading.⁸⁴ Under JI, Annex I Parties implement sustainable development projects that reduce GHG emissions (e.g., renewable energy projects), or increase removals using carbon sinks (e.g., reforestation projects), in other Annex I countries.⁸⁵ By implementing such projects, the investing country generates emission-reduction units, which can be used to meet its assigned amount.⁸⁶ Similarly, under the CDM, Annex I Parties implement the same types of sustainable development projects in Non-Annex countries,⁸⁷

⁸² Kyoto Protocol, *supra* note 64, art. 2, para. 1(a).

⁸³ This provision is set out in the Marrakesh Accords, Decision 15/CP.7. Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh from 29 October to 10 November 2001, *opened for adoption* Oct. 29-Nov. 10, 2001, [hereinafter Marrakesh Accords], <http://unfccc.int/resource/docs/cop7/13a02.pdf>. The Marrakesh Accords originally served as draft decisions to be considered for adoption by the Parties to the Protocol upon the Protocol’s entry into force. Hermann E. Ott, *Global Climate*, in 12 YEARBOOK OF INTERNATIONAL ENVIRONMENTAL LAW 210, 213 (Geir Ulfstein & Jacob Werksman eds., Oxford Univ. Press 2001). Functionally, the Marrakesh Accords flesh out the details of how the Protocol will be implemented, including establishing procedures governing the operation and administration of the flexibility mechanisms. *Id.* at 213-16. The Marrakesh Accords were recently adopted by the Parties to the Protocol at Montreal 2005. Press Release, United Nations Framework Convention on Climate Change Secretariat, Montreal Climate Conference Adopts ‘Rule Book’ of the Kyoto Protocol (Nov. 30, 2005), http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/press051130_marrakesh.pdf.

⁸⁴ INFO. SERVS., *supra* note 8, at 19.

⁸⁵ See Kyoto Protocol, *supra* note 64, art. 6, para. 1.

⁸⁶ *Id.* at art. 3, paras. 10-11 & art. 6, para. 1.

⁸⁷ *Id.* at art. 12, paras. 2-3.

and the investing country earns certified emissions reductions, which can be used to meet its assigned amount.⁸⁸ Finally, under emissions trading, Annex I Parties may trade the emission-reduction units and certified emissions reductions that they have earned by implementing JI or CDM projects,⁸⁹ and may also trade assigned-amount units, which are units in excess of those needed by the particular Annex I Party to meet its assigned amount.⁹⁰

It is important to note that *only* Annex I Parties that have ratified the Protocol may participate in the flexibility mechanisms.⁹¹ Although this particular limitation is clear, the extent to which an Annex I Party may utilize the mechanisms to meet its assigned amount is an issue that has not yet been precisely determined. The Protocol currently imposes no quantitative limit, requiring only that use of the flexibility mechanisms must be “supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments”⁹²

When an Annex I Party fails to meet its assigned amount, despite domestic actions and use of the flexibility mechanisms, two substantial consequences result. First, the Party must make up the difference by which it failed to meet its assigned amount, plus a penalty of 30% of that deficiency, in the subsequent commitment period.⁹³ For example, if Germany exceeded its assigned amount by 1000 tons in the first commitment period, it would have 1300 tons deducted from its assigned amount in the second commitment period. Second, the Party’s eligibility to sell credits under emissions trading will be suspended.⁹⁴

The Protocol’s emissions limits and flexibility mechanisms took effect when the Protocol entered into force in early 2005.

⁸⁸ *Id.* at art. 3, para. 12.

⁸⁹ *Id.* at art. 3, paras. 10-12 & art. 6.

⁹⁰ *See id.* at art. 17; INFO. SERVS., *supra* note 8, at 20.

⁹¹ The Marrakesh Accords establish that an Annex I Party is eligible to participate in the flexibility mechanisms subject to three conditions: (1) the Party has ratified the Protocol, (2) the Party is in compliance with the Protocol’s methodological and reporting requirements, and (3) the Party is in compliance with the procedures and mechanisms contained in Decision 24/CP. 7: (a) adoption of a national GHG inventory system, (b) adherence to the Protocol’s compliance procedure. Marrakesh Accords, Decision 15/CP.7, *supra* note 83, para. 5.

⁹² Kyoto Protocol, *supra* note 64, arts. 6 & 17.

⁹³ Marrakesh Accords, Decision 24/CP. 7, *supra* note 83, § 15, para. 5(a). An electronic copy of Decision 24/CP. 7 appears at <http://unfccc.int/resource/docs/cop7/13a03.pdf#page=64>.

⁹⁴ *Id.* at § 15, para. 5(c).

Entry into force required ratification by at least fifty-five Parties to the Convention, including enough Annex I Parties to account for at least 55% of that group's GHG emissions in 1990.⁹⁵ Although the first condition had been met for some time, the second was not satisfied until late 2004. On November 18, 2004, almost seven years after the Protocol's initial adoption, the Russian Federation, which accounts for 17.4% of the Annex I Parties' 1990 GHG emissions, deposited its ratification instrument with the Secretary-General of the United Nations.⁹⁶ With Russia's ratification, Annex I countries accounting for 61.6% of that group's 1990 GHG emissions had ratified the Protocol.⁹⁷ Both conditions satisfied, the Protocol entered into force ninety days after Russia's deposit.⁹⁸

In sum, February 16, 2005, marked the entry into force of an international climate-change treaty that imposes binding GHG-emissions limits on many of the world's developed countries. While there is no question that the Convention and Protocol will have to be improved upon in order to address climate change in the most effective and proportional manner, two points are presently clear. First, as evidenced by both the Convention and Protocol, the international community perceives climate change as a formidable human-caused problem that must be addressed with a global response. Second, the international community has chosen the Protocol's cap-and-trade system as the preferred policy mechanism for mounting that response.

III

CLIMATE-POLICY EFFORTS AT THE STATE AND LOCAL LEVELS—FILLING AND REBUKING THE FEDERAL REGULATORY VOID

Although the majority of the world's industrialized countries have ratified the Protocol, the United States has elected to address climate change unilaterally. The Bush Administration announced its intention to not ratify the Protocol in March 2001

⁹⁵ Kyoto Protocol, *supra* note 64, art. 25, para. 1.

⁹⁶ Press Release, United Nations Environment Programme, Russia's Ratification of the Kyoto Climate Treaty "Historic" Says Kofi Annan, (Nov. 18, 2004), http://unfccc.int/files/press/news_room/press_releases_and_advisories/application/pdf/press041119_unep.pdf.

⁹⁷ Richard M. Schwartz et al., *Environmental Disclosure Requirements Under the Federal Securities Laws*, 1489 PRAC. L. INST. 115, 135 (2005).

⁹⁸ *Id.*

and subsequently implemented a climate policy that aims for an 18% reduction in the GHG intensity of the U.S. economy by 2012.⁹⁹ Although the efficacy of this policy is questionable,¹⁰⁰ the critical point for purposes of this Comment is that it is voluntary and imposes no binding GHG-emissions limits.¹⁰¹ Thus, the United States has rejected the Protocol's GHG cap-and-trade system and implemented a policy that lacks the legal effect of a federal regulatory program.

A. *State and Local Climate Policies and Programs*

The absence of an adequate federal program has created a regulatory vacuum in the United States.¹⁰² States, localities, and companies have emerged to fill this vacuum by establishing their own policies and programs to limit GHG emissions.¹⁰³ In short, federal inaction on climate change has "simply moved the locus of the response from the federal government to the state and local governments and the private sector."¹⁰⁴

Although a full survey of state, local, and private climate policies and programs is beyond the scope of this Comment,¹⁰⁵ the momentum in this area is apparent when considering local and state actions broadly. At the local level, more than 150 U.S. cities and counties currently participate in the International Council

⁹⁹ See Knox, *supra* note 48, at 145. A reduction in GHG intensity refers to a reduction in the amount of GHGs released per unit of gross domestic product. *Id.*

¹⁰⁰ *Id.* at 146. Professor Knox, the Pew Center on Global Climate Change, and *The Economist* all suggest that the GHG-intensity policy could actually allow for increased GHG emissions. *Id.*

¹⁰¹ *Id.*

¹⁰² See Robert B. McKinstry, Jr., *Local Solutions for Global Problems: The Debate Over the Causes and Effects of Climate Change and Emerging Mitigation Strategies for States, Localities and Private Parties*, 12 PENN ST. ENVTL. L. REV. 1, 2 (2004).

¹⁰³ *Id.* at 2-3; see also Kosloff, *supra* note 1, at 188-93.

¹⁰⁴ McKinstry, *supra* note 102, at 2.

¹⁰⁵ There are a number of published materials that provide thorough surveys of current state, local, and private climate-policy efforts. These include: Robert B. McKinstry, Jr., *Laboratories for Local Solutions for Global Problems: State, Local and Private Leadership in Developing Strategies to Mitigate the Causes and Effects of Climate Change*, 12 PENN ST. ENVTL. L. REV. 15 (2004), and BARRY G. RABE, PEW CENTER ON GLOBAL CLIMATE CHANGE, GREENHOUSE & STATEHOUSE: THE EVOLVING STATE GOVERNMENT ROLE IN CLIMATE CHANGE (2002), <http://www.pewclimate.org/docUploads/states%5Fgreenhouse%2Epdf>. In addition to these materials, the Pew Center on Global Climate Change maintains a database of information about state and local programs, which is available at <http://www.pewclimate.org/states.cfm>.

for Local Environmental Initiative's Cities for Climate Protection Campaign.¹⁰⁶ This campaign enables these localities to implement and coordinate climate policies and programs that promote energy efficiency and reduce GHG emissions in all emitting sectors.¹⁰⁷ At the state level, forty-one states have completed GHG inventories to identify emissions sources within their boundaries,¹⁰⁸ and at least twenty-eight states have completed state action plans to reduce these GHG emissions.¹⁰⁹ Collectively, these state efforts have been described as "quietly redefining American climate change policy."¹¹⁰

One state-based program of central relevance to this Comment is the Regional Greenhouse Gas Initiative (RGGI). Initiated in April 2003 by Governor George Pataki of New York,¹¹¹ the RGGI is a joint effort by seven Northeast and Mid-Atlantic states to implement a regional GHG cap-and-trade program.¹¹² The program will initially regulate CO₂ emissions from power plants in the participating states.¹¹³ After this initial implementation, the states will consider expanding the program to regulate additional GHGs beyond CO₂, and to regulate additional GHG-emissions sources beyond the electricity-generation sector.¹¹⁴ Notably, although the RGGI's system has a regional focus, its guiding principles for program design and organizational structure both expressly indicate that states not currently participating may join in the future.¹¹⁵ Overall, the RGGI is especially note-

¹⁰⁶ Information about the Cities for Climate Protection Campaign—including a list of current membership—is available at <http://www.iclei.org/index.php?id=1118> (last visited Aug. 6, 2006).

¹⁰⁷ *Id.*

¹⁰⁸ U.S. Env'tl. Prot. Agency, State GHG Inventories, <http://yosemite.epa.gov/OAR/globalwarming.nsf/content/EmissionsStateGHGInventories.html> (last visited Aug. 6, 2006).

¹⁰⁹ U.S. Env'tl. Prot. Agency, Action Plans, <http://yosemite.epa.gov/oar%5Cglobalwarming.nsf/content/ActionsStateActionPlans.html> (last visited Aug. 6, 2006).

¹¹⁰ RABE, *supra* note 105, at 1.

¹¹¹ Regional Greenhouse Gas Initiative, About RGGI, <http://www.rggi.org/about.htm> (last visited Aug. 6, 2006).

¹¹² See REGIONAL GREENHOUSE GAS INITIATIVE, MEMORANDUM OF UNDERSTANDING 1-7, http://www.rggi.org/docs/mou_12_20_05.pdf (last visited Sept. 6, 2006). The current RGGI member states include Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont. *Id.*

¹¹³ Regional Greenhouse Gas Initiative, About RGGI, *supra* note 111.

¹¹⁴ *Id.*

¹¹⁵ REGIONAL GREENHOUSE GAS INITIATIVE, REGIONAL GREENHOUSE GAS INITIATIVE (RGGI): GOALS, PROPOSED TASKS, AND SHORT-TERM ACTION ITEMS 1-3, <http://www.rggi.org/docs/actionplanfinal.pdf> (last visited Aug. 6, 2006).

worthy because it exemplifies a committed regional response to climate change that utilizes the same policy mechanism as the Protocol: a cap-and-trade system. The RGGI is currently scheduled to be implemented in 2009.¹¹⁶

B. Climate-Change Litigation

Beyond the foregoing internal activities, states and localities are attempting to engage the federal government in taking more concrete action on climate change. In July 2002, acting on the conviction that climate change is the “most pressing environmental challenge of the twenty-first century,” attorneys general from eleven states wrote a letter to President Bush urging him to take a “strong national approach” to the problem.¹¹⁷ The attorneys general noted that their states were addressing climate change independently in the absence of federal leadership.¹¹⁸

Subsequent to this letter, states and localities have attempted, with mixed results, to use litigation as a means to force federal and private regulation of GHG emissions. A cursory review of the following three cases provides insight into the novel area of climate-change litigation.

First, in *Friends of the Earth v. Watson*, filed in August 2002, the cities of Boulder, Colorado; Oakland, California; and Arcata, California joined Greenpeace in bringing suit against the Overseas Private Investment Corporation and the Export-Import Bank of the United States for violations of the National Environmental Policy Act (NEPA) and the Administrative Procedure Act (APA).¹¹⁹ Both Overseas Private Investment Corporation and Export-Import Bank are government corporations.¹²⁰ The former provides insurance and loan guarantees for projects in developing countries, while the latter facilitates U.S. exports in

¹¹⁶ REGIONAL GREENHOUSE GAS INITIATIVE, MEMORANDUM OF UNDERSTANDING, *supra* note 112, at 2, 7.

¹¹⁷ Press Release, Office of the At’y Gen., State of California, State Attorneys General Press Bush Administration for Federal Leadership to Address Global Warming (July 17, 2002), *available at* <http://caag.state.ca.us/newsalerts/2002/02-080.htm> (internal quotations omitted). The letter referenced was sent by the attorneys general of Alaska, California, Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, and Rhode Island. *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Friends of the Earth, Inc. v. Watson*, No. C02-4106 JSW, 2005 WL 2035596, at *1 (N.D. Cal. Aug. 23, 2005).

¹²⁰ *Id.*

overseas markets.¹²¹ The plaintiffs allege that, without complying with the requirements of NEPA and the APA, Overseas Private Investment Corporation and Export-Import Bank provided financial assistance to projects that are responsible for substantial amounts of CO₂ and methane emissions, and thereby contribute to climate change.¹²² At the time of this writing, the most recent action on this case occurred in August 2005, when the Northern District of California denied the defendants' motion for summary judgment, determining in part that the plaintiffs had sufficiently demonstrated the injury-in-fact, causation, and redressability elements necessary for Article III standing.¹²³

Second, in *Massachusetts v. EPA*,¹²⁴ filed in October 2003, twelve states, three major U.S. cities, two U.S. territories, and several environmental groups brought suit challenging a July 2003 ruling by the Environmental Protection Agency (EPA) that it lacks statutory authority to regulate CO₂, methane, nitrous oxide, and hydrofluorocarbons under the Clean Air Act.¹²⁵ Contrary to this position, the EPA had previously provided congressional testimony and statements that it was so authorized.¹²⁶ New York Attorney General Eliot Spitzer explained his State's decision to file suit in pointed remarks, stating, "[t]he vacuum of federal leadership on global warming by the Bush Administration is a betrayal of the best interests of the American people," and "[t]his failure to act is harming public health and the environment and will continue to do so for generations to come. With no leadership from Washington, our only recourse is to turn to the courts for relief."¹²⁷

In July 2005, the D.C. Circuit upheld the EPA's refusal to regulate the aforementioned greenhouse gases under section

¹²¹ *Id.*

¹²² *Id.* at *3.

¹²³ *Id.* at *2-*4.

¹²⁴ *Massachusetts v. EPA*, 415 F.3d 50 (D.C. Cir. 2005), *cert. granted*, 126 S. Ct. 2960 (2006).

¹²⁵ *Id.* at 53, 56; *see also* Press Release, Office of the Massachusetts Att'y Gen., States, Cities, Environmental Groups Sue on Global Warming, Challenge EPA's Refusal to Reduce Greenhouse Gas Pollution (Oct. 23, 2003), *available at* <http://www.ago.state.ma.us/sp.cfm?pageid=986&id=1111>. The states that filed suit were California, Connecticut, Illinois, Maine, Massachusetts, New Jersey, New Mexico, New York, *Oregon*, Rhode Island, Vermont, and Washington. *Id.* (emphasis added). The cities that filed suit were Baltimore, New York City, and Washington, D.C. *Id.*

¹²⁶ *Id.*

¹²⁷ *Id.*

202(a)(1) of the Clean Air Act.¹²⁸ The court deferred to the Administrator's "policy judgments" as well as the agency's decision to forego rulemaking "[u]ntil more is understood about the causes, extent and significance of climate change and the potential options for addressing it."¹²⁹ Writing in concurrence, Judge Sentelle further concluded that the petitioners had not shown a sufficiently particularized injury to establish the injury-in-fact element necessary for Article III standing.¹³⁰ Judge Tatel's lengthy dissenting opinion disagreed with both grounds for the decision, determining that: (1) Massachusetts' claimed injury resulting from rising sea levels was sufficient to confer constitutional standing;¹³¹ (2) EPA's argument that it lacks statutory authority fails under Chevron step one based on the plain language of sections 202(a)(1) and 302(g) of the Clean Air Act;¹³² and (3) EPA's arguments regarding its discretion to refrain from making an endangerment finding, as well as the statutorily permissible bases for finding no endangerment, were rooted in an erroneous interpretation of section 202(a)(1).¹³³ The Supreme Court granted certiorari in *Massachusetts v. EPA* on June 26, 2006, with oral arguments currently scheduled for the Court's October 2006 term.¹³⁴

Third, in *Connecticut v. American Electric Power Co.*, filed in July 2004, eight states, New York City, and several environmental groups sued five major electric utility companies alleged to be the "five largest emitters of carbon dioxide in the United States."¹³⁵ In order to curtail the defendants' CO₂ emissions, the plaintiffs relied on both the federal and state common law of public nuisance and sought an order: (1) "holding each of the Defendants jointly and severally liable for contributing to the ongoing public nuisance, global warming," and (2) "enjoining each of the Defendants to abate its contribution to the nuisance by capping its emissions of carbon dioxide and then reducing those emissions by a specified percentage each year for at least a

¹²⁸ *Massachusetts*, 415 F.3d at 58.

¹²⁹ *Id.* at 57-58.

¹³⁰ *Id.* at 59-60 (Sentelle, J., concurring).

¹³¹ *Id.* at 64-67 (Tatel, J., dissenting).

¹³² *Id.* at 67-73 (Tatel, J., dissenting).

¹³³ *Id.* at 73-82 (Tatel, J., dissenting).

¹³⁴ *Massachusetts v. EPA*, 126 S. Ct. 2960 (2006).

¹³⁵ *Connecticut v. Am. Elec. Power Co.*, 406 F. Supp. 2d 265, 267-68 (S.D.N.Y. 2005). The eight states bringing suit were Connecticut, New York, California, Iowa, New Jersey, Rhode Island, Vermont, and Wisconsin.

decade.”¹³⁶ In September 2005, the Southern District of New York granted the defendants’ motion to dismiss the suit on jurisdictional grounds, invoking prudential principles.¹³⁷ Specifically, the court determined that the case presented non-justiciable political questions, stating “[b]ecause resolution of the issues presented here requires identification and balancing of economic, environmental, foreign policy, and national security interests, ‘an initial determination of a kind clearly for non-judicial discretion’ is required.”¹³⁸

C. Climate Policy in the State of Oregon

Efforts to mitigate climate change made by the State of Oregon and City of Portland demonstrate an awareness and a willingness resembling those of the international community in ratifying the Protocol, those of the Northeastern and Mid-Atlantic states currently designing the RGGI, and those of the localities and states attempting to use litigation as a means for reducing GHG emissions. Both the State of Oregon and City of Portland have emerged as progressive leaders in the area of climate policy.

In 1993, extending from its involvement in the Cities for Climate Protection Campaign, Portland became the first U.S. city to adopt a plan to reduce CO₂ emissions.¹³⁹ In 2001, this plan was joined by Multnomah County and became the Local Action Plan on Global Warming (Local Action Plan).¹⁴⁰ The Local Action Plan consists of six components aimed at reducing GHG emissions: energy-efficiency initiatives; transportation reductions; renewable-energy promotion; solid-waste reduction and recycling promotion; forestry and carbon-offsets enhancement; and policy, research, and education.¹⁴¹ The Local Action Plan’s ultimate goal is to reduce CO₂ emissions to 10% below 1990 levels by 2010.¹⁴² Although it is questionable whether this goal will be reached, the plan has thus far been partially successful. In 2004,

¹³⁶ *Id.* at 270.

¹³⁷ *Id.* at 274.

¹³⁸ *Id.*

¹³⁹ U.S. Env’tl. Prot. Agency, Portland’s Local Action Plan Learned from Stockholm and Copenhagen, <http://www.epa.gov/innovation/international/airclimate.htm> (last visited Aug. 6, 2006).

¹⁴⁰ LOCAL ACTION PLAN, *supra* note 9, at 1.

¹⁴¹ *Id.* at 5, 7.

¹⁴² *Id.* at 1.

despite rapid population and economic growth, overall CO₂ emissions in Multnomah County were “only slightly above 1990 levels,” and per capita emissions had fallen by 12.5%, a reduction regarded as “an achievement likely unequalled in any other major U.S. city.”¹⁴³

Like the City of Portland, the State of Oregon has been proactive in addressing climate change. It is one of the twenty-eight states that has implemented state action plans to reduce GHG emissions.¹⁴⁴ Oregon’s maintenance of a three-decade old, comprehensive land-use planning program is an important part of its efforts. This program’s enumerated goals include conservation of the State’s forest and agricultural land base,¹⁴⁵ and it is reportedly responsible for preventing the loss of 1.2 million acres of forest and agricultural land.¹⁴⁶ In addition to the land-use planning program, Oregon currently administers residential and business tax-credit programs that promote investments in renewable energy, recycling, energy-efficient vehicles, and energy-conservation improvements.¹⁴⁷

A recent and fairly well-publicized addition to the State’s efforts to mitigate climate change is the push by Governor Ted Kulongoski to implement California’s GHG-emissions standards for vehicles in Oregon. In August 2005, the Governor vetoed language contained in an appropriations bill for the Oregon Department of Environmental Quality (DEQ) prohibiting the agency from adopting the GHG-emissions standards.¹⁴⁸ The Governor’s action was challenged in state court but ultimately upheld as a valid exercise of the item veto power contained in

¹⁴³ CITY OF PORTLAND & MULTNOMAH COUNTY, GLOBAL WARMING PROGRESS REPORT: A PROGRESS REPORT ON THE CITY OF PORTLAND AND MULTNOMAH COUNTY LOCAL ACTION PLAN ON GLOBAL WARMING 1 (2005), <http://www.portlandonline.com/shared/cfm/image.cfm?id=112118>.

¹⁴⁴ U.S. Env’tl. Prot. Agency, Action Plans, *supra* note 109.

¹⁴⁵ OR. ADMIN. R. 660-015-0000 (2004). Goals four and five, respectively, address maintaining and conserving the forest and agricultural land base. *Id.*

¹⁴⁶ GOVERNOR’S ADVISORY GROUP ON GLOBAL WARMING, OREGON STRATEGY FOR GREENHOUSE GAS REDUCTIONS 94 (2004), <http://www.oregon.gov/ENERGY/GBLWRM/docs/GWReport-FInal.pdf> [hereinafter GOVERNOR’S ADVISORY GROUP].

¹⁴⁷ The rules governing the Residential Energy Tax Credit Program are contained in OR. ADMIN. R. 330-070-0010 to -0097 (2004). The rules governing the Business Energy Tax Credit Program are contained in OR. ADMIN. R. 330-90-0105 to -0150 (2004).

¹⁴⁸ Michelle Cole, *Governor Clears Way for Stricter Auto Rules*, OREGONIAN, (Portland) Aug. 30, 2005, at A1.

article V, section 15a of the Oregon Constitution.¹⁴⁹ Subsequent to the veto, relying on a report from his Vehicle Emissions Workgroup, the Governor directed the DEQ to develop administrative rules containing the GHG-emissions standards for presentation to the Environmental Quality Commission.¹⁵⁰ The DEQ fulfilled this mandate by drafting temporary rules for Oregon's Low Emission Vehicles (LEV) program,¹⁵¹ which were unanimously adopted by the Environmental Quality Commission in December 2005.¹⁵² Ultimately, on June 22, 2006, the Environmental Quality Commission adopted permanent LEV rules, making Oregon the tenth state to implement California's GHG-emissions standards.¹⁵³

Notably, Oregon's permanent adoption of the LEV rules will also result in California's GHG-emissions standards becoming effective in Washington, which adopted the standards contingent upon Oregon's doing so.¹⁵⁴ Accordingly, Governor Kulongoski has described the end result of Oregon's implementation of the GHG-emissions standards for vehicles as follows: "The entire West Coast will have the same heightened standards, and the pressure for the automobile industry to transition to cleaner cars—not just on the West Coast, but also nationally—will be inevitable."¹⁵⁵

As set out in Oregon Benchmark #76, the near-term goal of the State's foregoing efforts is to prevent CO₂ emissions generated within the State from exceeding 1990 levels.¹⁵⁶ Despite this goal, Oregon's GHG-emissions inventory in 2000 revealed that

¹⁴⁹ *Ferrioli v. Or. Dep't of Env'tl. Quality*, Civil No. 05C-18514, at 14 (Cir. Ct., Marion County, March 23, 2006), available at http://www.calcleancars.org/legal/Opinion_Letter_MSJ.pdf.

¹⁵⁰ Letter from Ted Kulongoski, Governor, State of Oregon, to Stephanie Hallock, Director, Or. Dep't of Env'tl. Quality (Nov. 23, 2005), <http://governor.oregon.gov/Gov/pdf/letters/deq112305.pdf>. The Vehicle Emissions Workgroup Report is available at <http://www.deq.state.or.us/aq/aqplanning/ORLEV/docs/05Nov02WorkgroupRpt.pdf>.

¹⁵¹ Memorandum from Stephanie Hallock, Director, Or. Dep't of Env'tl. Quality, to Env'tl. Quality Comm'n 1 (Dec. 22, 2005), available at <http://www.deq.state.or.us/about/eqc/agendas/attachments/2005dec/F-CalLEVtemp rule.pdf>.

¹⁵² Memorandum from Stephanie Hallock, Director, Or. Dep't of Env'tl. Quality, to Env'tl. Quality Comm'n 1 (June 22, 2006), available at <http://www.deq.state.or.us/aq/aqplanning/ORLEV/docs/finalstaffreport.pdf>.

¹⁵³ Or. Dep't of Env'tl. Quality, DEQ's Low Emission Vehicle Information, <http://www.deq.state.or.us/aq/aqplanning/ORLEV/index.htm> (last visited Oct. 11, 2006).

¹⁵⁴ Hallock, *supra* note 152, at 1.

¹⁵⁵ Cole, *supra* note 148.

¹⁵⁶ GOVERNOR'S ADVISORY GROUP, *supra* note 146, at 9.

CO₂ emissions were 18% above this level.¹⁵⁷ Thus, it appears unlikely that the State will make its mark. However, the most important point for the purposes of this Comment is that the State's activities demonstrate its willingness to develop and implement progressive climate policy. The discussion contained in the following section regarding the Oregon Standard further evidences this spirit.

D. The Oregon Standard—A Regulatory Cornerstone

Central to Oregon's current climate policies is the CO₂ standard for new energy facilities.¹⁵⁸ Alongside the recently adopted LEV rules, the Standard occupies a central role in the State's GHG regulatory program. The Standard is essential for two reasons: (1) CO₂ is the dominant GHG emitted in Oregon, accounting for 84% of GHG emissions in 2000;¹⁵⁹ and (2) electricity generation is the primary economic sector in which CO₂ is emitted, contributing to 42% of CO₂ emissions in 2000.¹⁶⁰ In short, the Standard regulates the State's most prevalent type of GHG emissions from the highest-emitting sector.

The Standard emerged in 1997, when the Oregon Legislature passed House Bill 3283, authorizing the Energy Facility Siting Council (Council) to set CO₂-emissions standards for energy facilities that are proposed for construction and operation within the State.¹⁶¹ The Standard is hailed as the first law enacted in the United States "aimed at reducing [GHG] levels in the atmosphere."¹⁶² It operates as follows: acting under the authority conferred by section 469.503(2) of the Oregon Revised Statutes, the Council utilizes three CO₂-emissions standards (collectively, the Standard) when determining whether to issue site certificates to

¹⁵⁷ *Id.* at B-3 app. B.

¹⁵⁸ For a detailed explanation of the Standard, see OR. DEP'T OF ENERGY, OREGON CARBON DIOXIDE EMISSION STANDARDS FOR NEW ENERGY FACILITIES, <http://egov.oregon.gov/ENERGY/SITING/docs/ccnewst.pdf> (last visited June 2, 2006) [hereinafter OR. DEP'T OF ENERGY, OREGON CARBON DIOXIDE EMISSION STANDARDS].

¹⁵⁹ GOVERNOR'S ADVISORY GROUP, *supra* note 146, at 29, B-2 app. B.

¹⁶⁰ *Id.* at B-3 app. B.

¹⁶¹ OR. DEP'T OF ENERGY, OREGON CARBON DIOXIDE EMISSION STANDARDS, *supra* note 158, at 1. The CO₂-emissions standards are set out in OR. ADMIN. R. 345-024-0500 to -0720 (2004).

¹⁶² THE CLIMATE TRUST, PURCHASING QUALITY OFFSETS IN AN EMERGING MARKET: THE CLIMATE TRUST'S FIVE YEAR REPORT TO THE ENERGY FACILITY SITING COUNCIL 1 (2004) (unpublished report, on file with author).

developers proposing to construct and operate energy facilities within Oregon.¹⁶³ First, a CO₂-emissions standard is set for base-load, natural-gas-fired power plants.¹⁶⁴ These power plants utilize natural gas to generate electricity and may operate full time (around-the-clock, 8,760 hours annually) under their site certificates.¹⁶⁵ Notably, while the Council has not yet set a CO₂-emissions standard for base-load power plants that utilize fossil fuels other than natural gas (e.g., coal), the Council has authority to do so under section 469.503(2) in the event that such facilities are proposed. Second, a CO₂-emissions standard is set for non-base-load power plants.¹⁶⁶ These are fossil-fuel power plants that operate three-quarters of the time (6,600 hours or less annually) under their site certificates.¹⁶⁷ Third, a CO₂-emissions standard is set for non-generating energy facilities.¹⁶⁸ This third standard is most commonly applied to underground natural-gas storage facilities.¹⁶⁹

As described above, when applying to the Council for a site certificate, the developer of a proposed energy facility must demonstrate that the facility will meet the relevant CO₂-emissions standard.¹⁷⁰ One way that developers may meet these standards is through carbon-offset projects. Under the Standard, an “offset” means an action that will be implemented by the applicant, by a third party, or through a “qualified organization” to avoid, sequester, or displace CO₂ emissions.¹⁷¹ Based on this language, an applicant has two alternatives when utilizing carbon-offset projects to meet the relevant emissions standard. First, the applicant or a third party with whom the applicant contracts may

¹⁶³ *Id.*

¹⁶⁴ OR. ADMIN. R. 345-024-0550 (2004). The Council has set the CO₂-emissions standard for base-load, natural-gas facilities at 17% below the emissions rate of the most efficient base-load gas plant operating in the United States. *See* OR. ADMIN. R. 345-024-0570 (2004).

¹⁶⁵ *See* OR. ADMIN. R. 345-001-0010(7) (2004).

¹⁶⁶ OR. ADMIN. R. 345-024-0590 (2004). The Council has also set the CO₂-emissions standard for non-base-load plants at 17% below the current state-of-the-art level. *See* OR. ADMIN. R. 345-024-0610 (2004).

¹⁶⁷ *See* OR. ADMIN. R. 345-001-0010(36) (2004).

¹⁶⁸ OR. ADMIN. R. 345-024-0620 (2004).

¹⁶⁹ OR. DEP'T OF ENERGY, OREGON CARBON DIOXIDE EMISSION STANDARDS, *supra* note 158, at 5.

¹⁷⁰ OR. REV. STAT. § 469.503(2) (2005).

¹⁷¹ OR. REV. STAT. § 469.503(2)(e)(I) (2005).

directly implement carbon-offset projects.¹⁷² Second, the applicant may pay funds to a “qualified organization” responsible for obtaining carbon offsets by investing in offset projects.¹⁷³ This second method is called the “Monetary Path.”¹⁷⁴ Notably, there are no limitations on the geographic locations of offset projects under either alternative.¹⁷⁵

Under the Monetary Path, the sole “qualifying organization” in Oregon is a non-profit organization called the Climate Trust.¹⁷⁶ Headquartered in Portland, the Climate Trust is one of the largest and most experienced offset-project investors in both U.S. and international markets.¹⁷⁷ It currently has ten carbon-offset projects in its portfolio,¹⁷⁸ which together will offset 1.9 million tons of CO₂.¹⁷⁹ These projects include the purchase of 1600 acres of old growth forest in Washington State,¹⁸⁰ reforestation of 680 acres in a biological preserve in northwest Ecuador,¹⁸¹ financing of a cogeneration facility at a lumber mill in Lakeview, Oregon,¹⁸² and financing of a truck stop electrification project in Oregon and Washington.¹⁸³

To summarize this Part, federal inaction over climate change has prompted states and localities to establish climate policies and programs of their own accord, as well as to resort to litiga-

¹⁷² OR. REV. STAT. § 469.503(2)(c)(B) (2005). Pursuant to this statute, OR. ADMIN. R. 345-024-0560(2), -0600(2), and -0630(1) (2004) allow for direct or third-party implementation of carbon-offset projects.

¹⁷³ OR. REV. STAT. § 469.503(2)(c)(C)-(D) (2005). Pursuant to this statute, OR. ADMIN. R. 345-024-0560(3), -0600(3), and -0630(2) (2004) allow for payment of funds to a “qualified organization” that implements carbon-offset projects. The statutory definition of “qualified organization” is set in OR. REV. STAT. § 469.503(2)(e)(K) (2005). As of 2003, the monetary-offset rate is set at eighty-five cents per ton of CO₂ emitted. OR. ADMIN. R. 345-024-0580 (2004).

¹⁷⁴ OR. DEP’T OF ENERGY, OREGON CARBON DIOXIDE EMISSION STANDARDS, *supra* note 158, at 7.

¹⁷⁵ *Id.* at 6.

¹⁷⁶ *Id.* at 9.

¹⁷⁷ The Climate Trust, The Climate Trust’s Offset Portfolio, http://www.climate-trust.org/offset_projects.php (last visited Aug. 7, 2006).

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ The Climate Trust, Preservation of a Native Northwest Forest, http://www.climate-trust.org/offset_native.php (last visited Aug. 10, 2006).

¹⁸¹ The Climate Trust, Ecuadorian Rainforest Restoration, http://www.climate-trust.org/offset_rainforest.php (last visited Aug. 10, 2006).

¹⁸² The Climate Trust, Lumber Mill Cogeneration, http://www.climate-trust.org/offset_mill.php (last visited Aug. 10, 2006).

¹⁸³ The Climate Trust, Truck Stop Electrification, http://www.climate-trust.org/offset_truckstop.php (last visited Aug. 10, 2006).

tion, in order to bring about regulation of GHGs. The RGGI is an important and progressive regional example of current policy efforts. In addition, the Local Action Plan and the State of Oregon's climate policies, particularly the LEV rules and the Standard, are further examples. The remainder of this Comment examines how Oregon's current climate-change regime can be developed to regulate GHG emissions more comprehensively and effectively.

IV

UTILIZING THE PROTOCOL TO SHAPE OREGON CLIMATE POLICY

Here in Oregon, we're putting together a battle plan to reduce greenhouse gases—the primary cause of global warming We are not going to wait for federal leadership. We've got too much to lose if global warming continues unabated. And we've got too much to gain by being a leader in climate solutions.
—Governor Ted Kulongoski¹⁸⁴

Parts II and III describe two conditions that are relevant to the shape of Oregon's future climate-change regime. First, the international community has chosen the Protocol's GHG cap-and-trade system as the preferred policy mechanism for addressing climate change. Second, Oregon's existing climate policies, particularly the LEV rules and the Standard, evidence the State's willingness to address this issue in a progressive manner. This Part argues that the State's willingness would be best channeled by implementing policies reflective of the international response. Specifically, using the Standard as a foundational reference point, this Part advocates for and examines the ramifications of implementing a GHG regulatory system modeled in whole or in part after the Protocol's cap-and-trade system.

A. *A Comparative Analysis of the Standard and the Protocol*

As the first law "aimed at reducing [GHG] levels in the atmosphere,"¹⁸⁵ the Standard should be praised as a progressive policy that deliberately aims to mitigate the potentially adverse impacts of climate change. Notwithstanding this deserved recognition, a comparison of the Protocol's cap-and-trade system with the Stan-

¹⁸⁴ See GOVERNOR'S ADVISORY GROUP, *supra* note 146, at 3 (emphasis added).

¹⁸⁵ See THE CLIMATE TRUST, *supra* note 162, at 1.

standard's cap and offset provisions illustrates that the former is a more comprehensive and effective system for regulating GHG emissions.

In terms of caps, the Protocol's regulatory scope is of much greater breadth and depth than that of the Standard. Simply put, the Protocol regulates a greater number of emissions sources and a greater number of GHGs.

There are two self-evident distinctions that illustrate the Protocol's broader regulatory scope with respect to GHG-emissions sources. First, the Protocol regulates GHG emissions from all fossil-fuel-burning economic sectors: the electricity-generation, transportation, industrial, and residential- and commercial-building sectors. In contrast, as a siting standard for energy facilities, the Standard only regulates GHG emissions from the electricity-generation sector. Second, solely with respect to the electricity-generation sector, the Protocol requires accounting for GHG emissions from all existing energy facilities when determining whether an Annex I Party has met its assigned amount. By comparison, the Standard's caps apply only to energy facilities that have been proposed and constructed since its enactment. This distinction can be thought of in terms of grandfathering. The Standard exempts grandfathered energy facilities from its caps, while the Protocol does not. Again, this is to be expected as the Standard is, by definition, a siting standard.

The scope of regulated GHGs is a second difference between the Protocol and the Standard. The Protocol is also more far-reaching in this regard. The Protocol regulates and accounts for emissions of six GHGs when determining whether an Annex I Party has met its assigned amount.¹⁸⁶ In comparison, the Standard only caps CO₂ emissions. This exclusive focus on CO₂ emissions appears to be a limited approach to regulating GHG emissions in the electricity-generation sector, which, in Oregon, consists predominantly of power plants that utilize natural gas and coal.¹⁸⁷ CO₂ is the primary GHG emitted from such facili-

¹⁸⁶ To reiterate, these six GHGs include CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. See *supra* text accompanying notes 72-74.

¹⁸⁷ Or. Dep't of Energy, Power Plants in Oregon, <http://www.oregon.gov/ENERGY/SITING/power.shtml> (last visited Aug. 8, 2006). On the regional level, coal-fired power plants and natural-gas power plants respectively provided 42% and 8% of the electricity used in Oregon in 2002. GOVERNOR'S ADVISORY GROUP, *supra* note 146, at B-5 app. B tbl.2.

ties,¹⁸⁸ but emissions of methane and nitrous oxide also occur.¹⁸⁹ Although these emissions are lesser in volume, the fact that the global-warming potentials of methane and nitrous oxide are 21 and 310, respectively, evidences that these emissions are of regulatory concern.¹⁹⁰

In sum, the preceding comparison of caps illustrates the Protocol's greater regulatory breadth in three particulars. First, the Protocol regulates GHG-emissions sources in all fossil-fuel-burning economic sectors rather than just electricity generation. Second, within the electricity-generation sector, the Protocol regulates more energy facilities, applying its caps to all existing energy facilities. And third, the Protocol's caps are more comprehensive than those of the Standard, regulating emissions of six GHGs rather than just CO₂ emissions.

Similarly, in terms of offset projects, emissions credits, and emissions trading, the Protocol's flexibility mechanisms are more comprehensive than the Standard's offset provision. Although the two actually have similar offset provisions, they are distinctly different in terms of emissions credits and trading.

The Standard's offset provision is arguably its most progressive aspect. It is essentially the equivalent of the Protocol's CDM and JI mechanisms. Under the Protocol, the main distinction between JI and CDM projects is project location. Annex I Parties host JI projects; Non-Annex Parties host CDM projects.¹⁹¹ Aside from this distinction, CDM and JI projects serve the common purpose of enabling investing countries to meet their assigned amounts by implementing projects that offset CO₂ emissions. The Standard's offset provision has the same purpose applied to energy developers. These developers can meet the relevant CO₂-emissions standard by directly or indirectly implementing offset projects in any geographical location.¹⁹² Essen-

¹⁸⁸ See ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2004 32 tbl.11, 47 tbl.19, 63 tbl.29 (2005), available at <http://www.eia.doe.gov/oiaf/1605/ggrpt/pdf/057304.pdf>.

¹⁸⁹ U.S. ENVTL. PROT. AGENCY, INVENTORY OF GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2001 2-22 tbls.2-13 & 2-14 (2003), available at [http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/LHOD5MJQ6G/\\$File/2003-final-inventory.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/LHOD5MJQ6G/$File/2003-final-inventory.pdf).

¹⁹⁰ *Id.* at 1-6 tbl.1-2. Section II.B contains a description of the concept of "global warming potential" in the text accompanying notes 74-75.

¹⁹¹ See *supra* text accompanying notes 85-88.

¹⁹² See *supra* text accompanying notes 171-74.

tially, the Standard's offset provision encompasses the Protocol's JI and CDM mechanisms.

The distinct difference between the Protocol and the Standard is that the latter does not provide for emissions credits or trading. As described above, the Protocol allows Annex I Parties to earn emissions credits by implementing CDM or JI projects, and to sell those credits, or buy additional ones, under emissions trading.¹⁹³ Furthermore, Annex I Parties may utilize emissions trading to buy and sell assigned-amount units in the same way.¹⁹⁴ The Standard implements no equivalent system. Energy developers invest in offset projects solely to meet the relevant CO₂-emissions standard in order to acquire site certificates for their proposed facilities. These developers do not invest in offset projects in order to earn emissions credits, and there is no emissions trading system in place where such credits, or assigned-amount units, can be bought or sold. In short, such a system simply just does not exist under the Standard.

This discussion of offsets, emissions credits, and emissions trading illustrates one striking similarity and two distinct differences between the Protocol and Standard. On one hand, the Standard's offset provision essentially encompasses the Protocol's CDM and JI provisions. On the other hand, the Standard only allows developers to utilize offset projects to meet the CO₂ emissions limit, and no emissions credit or trading systems are implemented.

B. The West Coast Governors' Global Warming Initiative: Momentum for a Regional GHG Cap-and-Trade System

The comparison above illustrates that, although the Standard is a progressive means of regulating GHG emissions from the electricity-generation sector, the Protocol's cap-and-trade system is a more comprehensive regulatory mechanism. Thus, the comparison suggests that Oregon could more effectively reduce GHG emissions if it were to implement a regulatory program that resembles the Protocol's cap-and-trade system. There is growing momentum for such a system, extending from Oregon's

¹⁹³ See *supra* text accompanying note 89.

¹⁹⁴ See *supra* text accompanying note 90.

participation in the West Coast Governors' Global Warming Initiative (Initiative).¹⁹⁵

The Initiative was created in 2003 by the Governors of Oregon, Washington, and California.¹⁹⁶ It was formed based on the mutual recognition that climate change "will have serious adverse consequences on the economy, health and environment of the West Coast states."¹⁹⁷ The West Coast states' combined CO₂ emissions rank seventh globally when compared to other countries.¹⁹⁸ Accordingly, the Initiative represents the states' commitments to act "individually and regionally to reduce [GHG] emissions through strategies that provide long-term sustainability for the environment, protect public health, consider social equity, and expand public awareness."¹⁹⁹ Like the RGGI, the Initiative is currently one of the most progressive climate-policy efforts in the United States.

In accord with the Initiative, Governor Kulongoski appointed a Governor's Advisory Group on Global Warming (GAGGW) to develop the next phase of Oregon's climate policy.²⁰⁰ The GAGGW prepared a report in December 2004 setting forth recommendations for consideration by the Governor.²⁰¹ Based on these recommendations, Governor Kulongoski announced five new initiatives in April 2005, including implementation of the LEV standards discussed above.²⁰² In addition to the GAGGW report, the Initiative's Executive Committee prepared a report containing recommendations for similar regional policy measures.²⁰³ For the purposes of this Comment, the critical recommendation discussed in both reports is the implementation of a regional GHG cap-and-trade system.²⁰⁴

¹⁹⁵ See EXECUTIVE COMM., WEST COAST GOVERNORS' GLOBAL WARMING INITIATIVE, WEST COAST GOVERNORS' GLOBAL WARMING INITIATIVE STAFF RECOMMENDATIONS TO THE GOVERNORS 14 (2004), <http://www.oregon.gov/ENERGY/GBLWRM/docs/WCGGWINov04Report.pdf>.

¹⁹⁶ *Id.* at 1.

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* at 4.

¹⁹⁹ *Id.* at 1 (internal quotations omitted).

²⁰⁰ See GOVERNOR'S ADVISORY GROUP, *supra* note 146, at vii.

²⁰¹ *Id.* at iii-v.

²⁰² Press Release, Governor Ted Kulongoski, Governor Announces New Steps to Curb Global Warming in Oregon (Apr. 13, 2005), available at http://governor.oregon.gov/Gov/press_041305a.shtml.

²⁰³ See EXECUTIVE COMM., *supra* note 195, at 1.

²⁰⁴ The Initiative's recommendation is contained in the Executive Committee's report. *Id.* at 14. Notably, the Initiative has begun to send observers to the RGGI

C. Implementing a Regional GHG Cap-and-Trade System Modeled After the Protocol

*It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.*²⁰⁵

—Justice Louis Brandeis

Thus far, this Comment has asserted that the comparison between the Protocol's cap-and-trade system and the Standard's cap and offset provisions is useful because it demonstrates the Protocol's broader regulatory scope. However, in conjunction with the information contained in Part II, the comparison is also useful because it identifies the Protocol's distinct features and regulatory approach. Oregon policymakers who are interested in implementing a regional GHG cap-and-trade system, even one that exclusively regulates the electricity-generation sector, should consider this information when determining that system's design.

Like the comparison, this discussion about modeling is structured into two sections based on the Protocol's cap provisions, and emissions credits and trading systems. With respect to caps, there are at least four aspects of the Protocol's regulatory approach and its features that should be considered for integration into a regional system.

First, policymakers should consider emulating the Protocol's comprehensive regulatory approach. Specifically, this would entail (1) regulating emissions of the six GHGs covered under the Protocol, and (2) imposing caps on emissions sources in the electricity-generation, transportation, industry, and commercial- and residential-building sectors. This approach would extend the scope of regulatory coverage far beyond that of the Standard. Ultimately, although there would be both obstacles and costs associated with implementing a regulatory system of this breadth, this approach seems to be the most deliberate method for actually achieving reductions in GHG emissions.

design meetings in order to examine the political and economic issues associated with implementation of a regional cap-and-trade system. *See id.* at 10. The GAGGW's recommendation is contained in its report. *See also* GOVERNOR'S ADVISORY GROUP, *supra* note 146, at 68-71.

²⁰⁵ *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

Second, a top-down approach should be considered for setting emissions-reduction goals. Reflective of Oregon's GHG-emissions inventory, the regulatory system would tailor sector-wide emissions targets to statewide reductions goals. Overall, this top-down approach would be a straightforward means of translating the State's broad goals into tangible terms.

Third, in relation to the Protocol's commitment periods,²⁰⁶ policymakers should consider implementing a timetable whereby GHG-emissions standards would be lowered incrementally over set durations based on the State's progress in meeting its emissions goals. Policymakers could synchronize this timetable with the Protocol's commitment periods in order to pace the economic transformation resulting from GHG regulation with that occurring within the Annex I parties that have ratified the Protocol. Despite its technology-forcing effect, the regulated community would likely appreciate a timetable structured in this fashion because it would provide an even and predictable playing field and promote gradual capacity building.²⁰⁷

Fourth, policymakers should consider establishing enforcement provisions that punish violators for exceeding their caps. These consequences may resemble those imposed under the Protocol's enforcement mechanism,²⁰⁸ but ideally the measures would be more stringent, including imposition of substantial fines, requiring installation of emissions-reduction technologies, or even ordering violators to cease or reduce operations. Overall, adequate enforcement provisions would be central to the success of the regulatory system in achieving actual reductions in GHG emissions.

In light of the substantial increase in regulatory coverage that would accompany implementation of a regional system modeled as set out above, it may be wise for Oregon, like the RGGI, to begin by implementing this system solely in the electricity-generation sector. As described in Part III, this sector is the primary

²⁰⁶ Kyoto Protocol, *supra* note 64, art. 3, paras. 1 & 7.

²⁰⁷ The remarks of Wayne H. Brunetti, the CEO and Chairman of Xcel Energy, the fourth-largest electricity and gas utility in the United States, illustrate the favorable reception that industry may have to an incremental timeline: "Give us a date, tell us how much we need to cut, give us the flexibility to meet the goals, and we'll get it done." John Carey, *Global Warming: Why Business Is Taking It So Seriously*, Bus. Wk., Aug. 16, 2004, at 60, 64.

²⁰⁸ See *supra* notes 93-94 and accompanying text.

source of GHG emissions in Oregon.²⁰⁹ This reason alone provides good cause to start here. In addition, Oregon is fortunate in that energy developers' experience with the Standard may actually make this sector the easiest in which to begin regulation. The knowledge that the State has already gained under the Standard, as well as that which the State would gain by initially implementing the cap-and-trade system here, could both be utilized when extending the system into sectors that have not yet been regulated.

In addition to considering the Protocol's cap provisions, policymakers designing a regional system should also reflect on the Protocol's flexibility mechanisms. These mechanisms present three features that should be considered for integration.

First, policymakers should consider implementing an emissions-credits system that enables regulated entities to earn credits for investing in carbon-offset projects. Fortunately, the Standard's offset provisions already provide a good model for such a system, and it may be feasible to transplant this model beyond the electricity-generation sector. If this model were followed, the Climate Trust could foreseeably continue to serve as a third-party implementer and would likely provide an abundance of knowledge on issues such as accounting, verification, and registration of emissions credits.

Second, an emissions-trading system should be considered in conjunction with the emissions-credits system. Like the Protocol's Annex I Parties, regulated entities should be able to use this system to buy and sell earned emissions credits and assigned-amount units.²¹⁰ At a minimum, emissions trading could occur at the regional level among the West Coast states. It may also be possible to connect a West Coast emissions-trading system to the RGGI to facilitate bicoastal trading.²¹¹ At the broadest level, although mixed information appears on this point,²¹² the Initiative's Executive Committee indicates that "the European Union has inserted a clause into their trading rules that will allow [emis-

²⁰⁹ See *supra* text accompanying note 159.

²¹⁰ See *supra* text accompanying notes 84-90.

²¹¹ See GOVERNOR'S ADVISORY GROUP, *supra* note 146, at 70-71.

²¹² The Marrakesh Accords establish that emissions trading under the Protocol is only available to Annex I Parties that have ratified the Protocol, suggesting that the United States' decision to not ratify will prevent the West Coast states from participating in such emissions trading. Marrakesh Accords, Decision 15/CP.7, *supra* note 83, para. 5.

sions trading] between EU countries and U.S. states with comparable programs, such as RGGI”²¹³ Taken together, the emissions credits and trading systems would enable regulated entities to meet their emissions limits in the most cost-effective manner and would be critically important if caps were set such that they could not be met by employing state-of-the-art technologies.

Third, policymakers should consider setting limits on the extent to which regulated entities may use the emissions credits and trading systems in order to meet the caps. In order to provide certainty and consistency, it would be wise to set these limits at a fixed percentage rather than just requiring use of the two systems to be supplementary as does the Protocol.²¹⁴ Overall, establishing these limits would be beneficial because it would force regulated entities to meet the caps by installing newer and cleaner technologies. This would promote the development and broad diffusion of such technologies. It would also promote equal distribution of the ancillary benefits associated with reductions of GHG emissions such as reduced air pollution.

D. Obstacles to Implementing a Regional GHG Cap-and-Trade System

Oregon’s implementation of a regional GHG cap-and-trade system that contains all, or even some, of the foregoing features would likely produce numerous benefits. However, as discussed in this section, obstacles and costs would also likely appear. This section primarily focuses on economic issues that might arise, but also identifies some interesting legal issues. As will appear evident from the information below, the core reason for the potential, or even probable, existence of these obstacles and costs is the absence of a federal GHG regulatory program.²¹⁵

In the short term, implementation of a regional cap-and-trade system might be detrimental to Oregon’s economy, promote economic development in nonregulatory states, and ultimately fail to achieve reductions in GHG emissions. The core reason that these results may occur is that regulated entities may “run for the border” in order to escape Oregon’s GHG regulations. The GAGGW has already recognized this concern with respect to the

²¹³ See EXECUTIVE COMM., *supra* note 195, at 10.

²¹⁴ Kyoto Protocol, *supra* note 64, art. 17.

²¹⁵ See McKinstry, *supra* note 102, at 13-14.

electricity-generation sector.²¹⁶ Simply put, energy developers seeking to avoid Oregon's GHG-emissions limits may develop power plants in nonregulatory neighboring states.²¹⁷ Ultimately, this avoidance would increase Oregon's dependence on out-of-state energy sources, diminish employment opportunities, and hinder the generation of tax revenues.²¹⁸ These concerns are equally valid when considered in relation to other economic sectors where regulations might be imposed. Oregon's GHG-emissions limits may influence regulated industries, commercial and residential property developers, and manufacturers in the transportation sector to react in the same manner that the GAGGW envisions energy developers might—causing these entities to not enter, or even leave, the State. In the end, this behavior would seemingly result in a pattern of displaced development that does not correlate with an overall decrease in GHG emissions but rather merely alters the locations of emissions sources.²¹⁹

Implementation of a regional cap-and-trade system might also have adverse economic effects on Oregon consumers. This result may occur due to regulated entities' internalizing their adaptation costs into the market prices of their goods. For example, the costs incurred by a regulated energy facility that has installed GHG-friendly technologies might be passed on to consumers in the form of higher electricity rates. This internalization could foreseeably occur with respect to goods produced by regulated industries throughout the State. In sum, at least in the short term, it appears Oregon consumers may have to pay to mitigate climate change via a regional system.

In addition to the potential adverse economic effects, Oregon's implementation of a regional cap-and-trade system may also result in litigation being brought under the U.S. Constitution. The following cursory discussion focuses on three constitutional challenges that may arise, each of which involves issues of federalism.

First, a challenge to the regional system may be presented under the Commerce Clause.²²⁰ Oregon's imposition of caps on emissions sources may be construed as interfering with interstate

²¹⁶ See GOVERNOR'S ADVISORY GROUP, *supra* note 146, at 70.

²¹⁷ *Id.*

²¹⁸ See *id.*

²¹⁹ *Id.*

²²⁰ The Commerce Clause provides: "The Congress shall have Power To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes." U.S. CONST. art. I, § 8, cl. 3.

commerce and implicate Dormant Commerce Clause issues.²²¹ In the absence of facial or operative discrimination, the courts would foreseeably use the balancing test set forth in *Pike v. Bruce Church* to determine the constitutionality of Oregon's caps.²²² Ultimately, it is likely that the caps would be upheld under the *Pike* test because the incidental impacts that they may potentially impose on interstate commerce would not be excessive in proportion to Oregon's legitimate interest in protecting itself from the potential adverse impacts of climate change.²²³

Second, if Oregon's regulatory system interfaces with a West Coast regional effort, it may be challenged under the Compacts Clause on the grounds that congressional approval is lacking.²²⁴ As announced in *Virginia v. Tennessee*, the critical determination would be whether the regional system is intended to "increase and build up the political influence of the contracting states, so as to encroach upon or impair the supremacy of the United States, or interfere with their rightful management of particular subjects placed under their entire control."²²⁵ In short, if this is not in fact the West Coast states' intention, the regional system is not the type of compact that requires congressional approval.²²⁶ Based on *U.S. Steel Corp.*, where the Court applied this rule to uphold a multistate effort to develop tax policy that was implemented on a statewide basis, it is likely that the regional system would survive a Compacts Clause challenge.²²⁷

Finally, pursuant to the Supremacy Clause,²²⁸ Oregon's regulatory program might be subject to a federal preemption chal-

²²¹ See McKinstry, *supra* note 105, at 67-69.

²²² *Pike v. Bruce Church, Inc.*, 397 U.S. 137 (1970). The *Pike* Court described the applicable balancing test for determining the constitutionality of non-discriminatory and non-protectionist state laws that affect interstate commerce as follows: "Where the statute regulates even-handedly to effectuate a *legitimate local public interest*, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is *clearly excessive* in relation to the putative local benefits." *Id.* at 142 (emphasis added).

²²³ See McKinstry, *supra* note 105, at 68-69.

²²⁴ *Id.* at 67, 69-70. The Compacts Clause provides: "No State shall, without the Consent of Congress, . . . enter into any Agreement or Compact with another State, or with a foreign Power . . ." U.S. CONST. art I, § 10, cl. 3.

²²⁵ *Virginia v. Tennessee*, 148 U.S. 503, 518 (1893).

²²⁶ See *id.*

²²⁷ *U.S. Steel Corp. v. Multistate Tax Comm'n*, 434 U.S. 452, 496 (1978); see also McKinstry, *supra* note 105, at 70 n.320.

²²⁸ The Supremacy Clause provides: "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme

lenge.²²⁹ Specifically, this is a foreseeable problem with respect to Oregon's implementation of the LEV standards, where the federal Clean Air Act or the fuel-economy standards set under the Energy Policy and Conservation Act may have preemptive effect.²³⁰ In *Central Valley Chrysler-Jeep, Inc. v. Witherspoon*,²³¹ California's GHG-emissions standards for vehicles have been challenged by thirteen California automobile dealers and the Alliance of Automobile Manufacturers on preemption grounds of this exact nature.²³² The outcome of that litigation will be telling.

E. Benefits of Implementing a Regional GHG Cap-and-Trade System

Notwithstanding the obstacles and costs discussed above, a number of benefits would also potentially result from implementing a regional GHG cap-and-trade system modeled after the Protocol. This section identifies three types: policy benefits, economic benefits, and environmental benefits.

The term "policy benefits" is used to describe the beneficial effects that implementation of a regional cap-and-trade system could have on the development of local, state, national, and international climate policy. These policy benefits could come in at least two forms.

First, implementation of a regional system may stimulate the development of climate policy within the United States. Specifically, it may motivate the federal government to implement a regulatory program either independent of, or in conjunction with, ratifying the Protocol.²³³ Implementation of a regional system would reinforce the existing message that Oregon and other

Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." U.S. CONST. art. VI, cl. 2.

²²⁹ See McKinstry, *supra* note 105, at 67-68, 70-72.

²³⁰ See *id.* at 70-71.

²³¹ *Cent. Valley Chrysler-Jeep, Inc. v. Witherspoon*, No. 1:04-CV-06663 (E.D. Cal. filed Dec. 7, 2004).

²³² See McKinstry, *supra* note 105, at 70-72; Laura Kosloff & Mark Trexler, *State Climate Change Initiatives: Think Locally, Act Globally*, NAT. RESOURCES & ENV'T, Winter 2004, 46, 47-48 (2004).

²³³ The express intent of the Initiative is to incite the development of state and federal climate policy: "The Governors of the West Coast states have concluded that our states must act individually and regionally to reduce greenhouse gas emissions, and to *establish precedents that will spur the development of climate policies in other states and at the federal level.*" EXECUTIVE COMM., *supra* note 195, at 4 (emphasis added).

states have sent to the federal government on this issue: climate change is a priority that must be addressed. Notwithstanding this reinforcing effect, the patchwork regulatory environment that could result due to implementation of a regional system may hold even greater weight in motivating the federal government to act.²³⁴ The existence of GHG regulations in West Coast states, and the absence of them in adjacent states, would create a variable regulatory scheme that would likely inconvenience and deter regulated entities. Accordingly, the federal government may choose to assume the regulatory helm in order to provide the regulated community with uniform and predictable GHG regulations.²³⁵

In addition to promoting the development of a federal regulatory program, a regional system would also be beneficial as a reference model for governmental entities at all levels seeking to develop or refine GHG cap-and-trade systems. Such a system could provide a direct model for other states and municipalities.²³⁶ Furthermore, it may provide useful information to facilitate the development of a federal regulatory system.²³⁷ This would be particularly true if the federal system were designed in a decentralized form whereby national GHG-emissions limits were established and states were individually responsible for implementing programs to meet the federal limits. The pre-existence of a regional system would simply expedite implementation of the federal system. Finally, at the international level, a regional system might provide valuable experiential information that could be used to refine the Protocol. Such information might include: successful accounting, verification, and registration methods for the emissions credits and trading systems, as well as feasible limits to impose upon the use of these systems for meeting emissions limits.

Economic benefits are the second form of benefits that would result from implementation of a regional GHG cap-and-trade system. I have grouped these into two categories: (1) first-mover-advantage benefits, and (2) adaptive-advantage benefits.

²³⁴ See Kosloff & Trexler, *supra* note 232, at 49 (discussing how the Standard contributes to the type of disjunct regulatory environment that may promote imposition of federal GHG regulations within the electricity-generation sector).

²³⁵ See *id.*

²³⁶ Kosloff, *supra* note 1, at 181-82.

²³⁷ *Id.*

Companies in Oregon and the other West Coast states might gain first-mover-advantage benefits by being the first to enter previously underdeveloped or nonexistent markets. The primary such benefit is the potential for these companies to develop the novel technologies and services needed to comply with a GHG regulatory system. Ultimately, the development and diffusion of these technologies and services may result in substantial economic growth and job creation.²³⁸ The Initiative has recognized this possibility with respect to the renewable energy segment of the electricity-generation sector.²³⁹ Simply put, the regional system's emissions-limits and emissions-credits provisions would likely promote the development of renewable energy technologies associated with wind, solar, geothermal, and hydroelectric facilities.²⁴⁰ The reasons for this growth are twofold: (1) renewable energy facilities will not be required to adhere to emissions limits because they do not emit GHGs, and (2) fossil-fuel-based energy facilities may invest in renewable energy facilities as offset projects. The potential for technological development and job creation is also relevant in other regulated sectors, including the potential for the development of energy-conservation and energy-efficiency technologies in the industrial and commercial- and residential-buildings sectors, and the development of low- or zero-emission vehicles and other forms of transit in the transportation sector.²⁴¹ Finally, in addition to the potential for technological development, another noteworthy first-mover-advantage benefit is the potential for regulated entities to secure the most inexpensive carbon-sequestration projects prior to possible federal GHG regulation.²⁴²

In addition to the first-mover-advantage benefits, the enactment of a regional system would also be economically beneficial because it would prepare regulated entities within Oregon and

²³⁸ Dernbach, *supra* note 2, at 194-95.

²³⁹ See EXECUTIVE COMM., *supra* note 195, at 5.

²⁴⁰ See *id.* The Executive Committee states that the global renewable-energy sector is "poised to expand more than tenfold over the next twenty years, to more than \$180 billion a year." *Id.* It should also be noted that development in the renewable-energy sector would be beneficial because it would likely decrease domestic dependency on oil imports, see *id.*, and diminish the associated national-security risks.

²⁴¹ See Dernbach, *supra* note 2, at 194-95; Carey, *supra* note 207, at 61-63 (describing progressive actions taken by companies to invest in new GHG-friendly technologies and thereby reap the associated benefits and dominance in the marketplace).

²⁴² See McKinstry, *supra* note 105, at 67.

the other West Coast states for the implementation of a federal GHG regulatory system. This is referred to as “adaptive advantage.” Although it remains to be seen whether the federal government will implement a regulatory program, either independent of, or in conjunction with, ratifying the Protocol, several reasons suggest that such regulation will occur. First, U.S. businesses may desire to participate in emissions trading with other Annex I Parties, but would be prevented from doing so due to non-ratification.²⁴³ Second, the United States may wish to avoid the trade restrictions that Annex I Parties that have ratified the Protocol could impose on imports from non-ratifying countries.²⁴⁴ Third, the potential economic growth associated with the development and diffusion of GHG-reducing technologies may prompt federal regulation to stimulate this market. And fourth, as discussed above, the existence of a patchwork pattern of state or regional GHG regulatory systems may necessitate uniform federal regulations. Ultimately, irrespective of which factor motivates federal action, presently implementing a regional system would familiarize regulated entities within Oregon and the other West Coast states with the regulatory environment, giving them a preparatory advantage over nonregulated entities located elsewhere.

Environmental benefits are the third type of benefits that would likely result from implementation of a regional system. The central point in this area is simply that GHG emissions would likely be reduced. In turn, these reductions would mitigate, to a small extent, the potential impacts of climate change discussed in Part I. To reiterate, in the Pacific Northwest, these potential impacts include increased flooding, landslides, erosion, coastal inundation, risk to forest areas from fires and pest infestation, heat waves, heat-related illnesses and deaths, risk of insect-transmitted water-borne diseases; and decreased municipal and agricultural water, water quality, and salmon populations.²⁴⁵

²⁴³ See *supra* note 91 and accompanying text.

²⁴⁴ Olav Schram Stokke, *Trade Measures, WTO and Climate Compliance: The Interplay of International Regimes*, in IMPLEMENTING THE CLIMATE REGIME: INTERNATIONAL COMPLIANCE, *supra* note 5, at 147, 148-50. Mr. Stokke points to three possible trade measures that may be imposed on imports from nonratifying countries: import restrictions, border taxes, and energy-efficiency standards. *Id.* at 149. If Oregon and the other West Coast states were able to avoid imposition of these trade measures on their respective exports, this would be an additional economic benefit of implementing a regional system modeled after the Protocol.

²⁴⁵ Nat'l Assessment Synthesis Team, *supra* note 37, at 70-73.

In addition to the slight mitigation of these impacts, reduced GHG emissions would also mean reduced air pollution,²⁴⁶ and may also indirectly result in reduced water and land-based pollution due to decreased extraction and storage of fossil fuels.

In sum, the comparison of the Protocol's cap-and-trade system and the Standard's cap and offset provisions reveals that the Protocol is a more comprehensive and effective mechanism for regulating GHG emissions. Extending from Oregon's involvement in the Initiative, policymakers in the State should reference the Protocol as a model when designing the regional GHG cap-and-trade system currently under consideration. Ultimately, although the State would likely have to contend with some of the aforementioned obstacles and costs associated with implementing such a system, the potential for substantial policy, economic, and environmental benefits provides a powerful incentive to harness Oregon's pioneer spirit in this manner.

V

CONCLUSION

The scope, magnitude, and inequity of the potential impacts of climate change mandate that policymakers on all governmental levels presently accept the daunting task of regulating GHG emissions in a fossil-fuel-dependent world. In the process of implementing climate policies tailored to mitigate these adverse impacts, it appears inevitable that the existing global economy and development model will be forced to undergo significant changes. It seems that the future must hold a carbon-constrained world. The Protocol's entry into force facilitates this historical transition. The Protocol's GHG-emissions limits, credits, and trading systems will have a gradual and marked influence on the global economy and path of sustainable development. Unfortunately, although the United States is both the historic and current leader in GHG emissions, it has not assumed a premier leadership role in this monumental international effort, as evidenced by its decisions to not ratify the Protocol and to not implement a federal GHG regulatory system.

In light of these considerations, the State of Oregon is placed in an unsettling position. On one hand, current climate policies in the State demonstrate a concern, willingness, and spirit akin to

²⁴⁶ See EXECUTIVE COMM., *supra* note 195, at 5.

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those of the ratifying Annex I Parties, the RGGI states, and the states and localities presently involved in climate-change litigation. On the other hand, current federal inaction discourages and potentially constrains Oregon from implementing more aggressive climate policies. This is an untimely dilemma. There is a finite window of opportunity in which it would be ideal for Oregon to act in order to mitigate the adverse impacts of climate change in the most effective manner and maximize the associated economic and policy benefits.

This Comment has described how implementing a regional GHG cap-and-trade system modeled after the Protocol is a preferable course of action for Oregon and the West Coast states to take at this critical time. Notwithstanding the potential obstacles and costs, which should not be overlooked or understated, such implementation would foreseeably spur the development of climate policy on all governmental levels, promote lucrative economic growth associated with the development and diffusion of GHG-friendly technologies, and mitigate the numerous and severe impacts that climate change will potentially inflict in the Pacific Northwest. Ultimately, by implementing a regional system shaped in light of the Protocol, Oregon and the other West Coast states will be poised to become part of a federal GHG regulatory program, as well as to join the Annex I Parties in the international response, should such implementation and ratification occur.

