



## University of Colorado at Denver

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Dear Colleague:

The Wirth Chair is pleased to provide you with a brief summary report of the May 16th Forum on *Addressing Energy Use and Climate Change: Corporate Action, Media Coverage and Policy Options*.

The Forum was attended by over 60 leaders from business, government, University, and nonprofit groups.

We were privileged to hear presentations from several national, regional and local leaders during the one day Forum. Their names are included in the report.

Several themes emerged from the Forum. Among them:

- The U.S. has not played a leadership role either internationally or nationally with respect to climate change and GHG reduction issues.
- Unlike other states, the State of Colorado has not initiated or defined relevant climate change policies and programs.
- Other states, besides Colorado, have begun to take the lead with respect to GHG emission reduction policies and programs. They have been joined by many businesses and local governments.
- The Kyoto Protocol is likely to become operational soon. Combined with emission regulations put in place by many nations and the European community, it will act as a stimulus to global businesses to put in place emissions reduction strategies.
- The Bush Administration may be willing to consider several post Kyoto strategies: among them, a GHG cap and trade policy; a harmonized international regulatory policy; an effective national GHG registry etc.

The Forum was interesting and important. Participants were able to develop a reasonable summary in a relatively short time of the current status of climate change initiatives. Hopefully, this report will help extend the discussion in the State of Colorado and across the nation.

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I would like to thank Jim Martin, Director of The University of Colorado's Natural Resources Law Center for collaborating with the Wirth Chair in convening the Forum. Heidi VanGenderen, Senior Associate of the Chair, David Olsen, Senior Wirth Chair Fellow, and Diane Wittenberg, President of the California Climate Action Registry contributed their memory and pens to the content of this report. Tom McCoy provided editorial support.

I want to complement the presenters and participants for making the Forum significant. They were responsible for the substance of the dialogue. As the author of the summary report, I assume responsibility for any errors of omission and inadvertent commission.

The Chair would welcome your comments.

Sincerely,

Marshall Kaplan  
Executive Director  
Wirth Chair

Wirth Chair: <http://www.cudenver.edu/wirthchair/>

Colorado Business Energy Partnership: <http://www.cudenver.edu/cbep/>



**University of Colorado at Denver**

## **Summary Report**

***Leadership Forum on Addressing  
Energy Use and Climate Change:  
Corporate Action, Media Coverage and  
Policy Considerations***

***Sponsored by the  
Wirth Chair in Environmental and Community  
Development Policy with support from  
the Natural Resources Law Center  
at the University of Colorado***

***May 16, 2003***

## ***Leadership Forum Addressing Energy Use and Climate Change: Corporate Action, Media Coverage and Policy Considerations***

On May 16, 2003, key business, government, academic and nonprofit leaders attended a one day Forum in Denver to discuss energy and climate change challenges. The Forum was convened by the University of Colorado's Wirth Chair in association with the University of Colorado's Natural Resources Law Center.

This brief report summarizes the always vigorous, sometimes provocative discussions among participants. It provides a snapshot of current climate change dialogue concerning problems, policies and programs in the U.S. and, where relevant, Colorado.<sup>1</sup>

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### **THE MAGNITUDE OF THE CHALLENGE**

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Issues related to global disparities concerning energy use, cost and access as well as issues concerning the impact on emissions from the use of alternative energy sources will help shape international and U.S. public policy debates concerning climate change for decades.

Currently, the 6.3 billion people on the planet consume 12 terawatts of primary energy; 85% of which is derived from the use of fossil fuels – 16 times greater than 100 years ago.

By 2050, at current rates of growth, it is estimated that the global population will consume on the order of 30 terawatts of energy – 2 to 3 more planet's worth of energy.

Recognition of the role of fossil fuel consumption in causing global warming has evolved during more than two decades of research. Most scientists now agree that climate change is occurring and that most of the change has resulted and will result from human activity. In 2001, the Intergovernmental Panel on Climate Change concluded that "Concentrations of atmospheric greenhouse gases...have continued to increase as a result of human activities."<sup>2</sup> The same report goes on to observe that "there is new and stronger evidence

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<sup>1</sup>See Appendix A for full list of participants. The speakers and panelists included: Ralph Peterson, CEO, CH2M Hill; Eileen Claussen, President, Pew Center on Global Climate Change; Ken Hamm, Special Projects Manager, Holcim (US) Inc; Terry O'Connor, Director, Corporate Affairs Group, Shell Oil Company; Lisa Nelowet Grice, Director, Carbon Program, CH2M Hill; Lucinda Smith, Senior Environmental Planner, City of Fort Collins, Colorado; Rob Reuteman, Business Editor, *Rocky Mountain News*; Heather Draper, Business reporters, *Rocky Mountain News*; Al Lewis, Business Editor, *The Denver Post*; Steve Raabe, Business reporter, *The Denver Post*; Diane Wittenberg, President, California Climate Action Registry; David Olsen, Senior Fellow, Wirth Chair; Jim Souby, Executive Director, Western Governors' Association; Bob Noun, Deputy Associate Director, External Relations, National Renewable Energy Laboratory; Matthew Brown, Energy Program Director, National Conference of State Legislatures.

<sup>2</sup> Summary for Policymakers: A Report of Working Group 1 of the Intergovernmental Panel on Climate Change, <http://www.ipcc.ch/pub/spm22-01.pdf>, p. 7.

that most of the global warming observed over the last 50 years is attributable to human activities.”<sup>3</sup>

One of the key greenhouse gases (GHGs) causing global warming is carbon dioxide (CO<sub>2</sub>). Carbon dioxide stays in the atmosphere for more than one hundred years.<sup>4</sup> Atmospheric carbon concentrations are now at an unprecedented level. The more CO<sub>2</sub> emissions, the greater the atmospheric concentration of greenhouse gas. Failure to immediately start to reduce CO<sub>2</sub> levels will significantly magnify the cost of doing so in the future. Regrettably, the absence of meaningful carbon reduction policies and actions has helped produce carbon levels that are now 12-13% above 1990 levels.

As noted by Forum presenters and participants, there are four basic ways to reduce CO<sub>2</sub> emissions. They are:

- Increased energy efficiency;
- Increased reliance on renewable energies;
- Nuclear power;
- De-carbonizing and sequestration.

Although the world possesses tremendous science and technological capability, no silver bullets exist to reduce carbon. Increasing energy efficiency has enormous potential. Some credible economists and scientists, however, believe that given future energy needs and likely consumption patterns, the ultimate impact of efficiency based strategies, given energy need projections, while important, will be limited. Renewable energy sources (ocean, biomass, geothermal, solar and wind) are promising, but will require sustained costly research and development. Nuclear power is the largest scale commercially available low-emission source of energy. Political debate over radioactivity, human error and waste will impede reliance on increased nuclear fission.

Nuclear fusion reduces waste and storage concerns. But even assuming massive research and development, nuclear fusion is still probably 35 years away. Indeed, nuclear fusion faces insurmountable obstacles. Even assuming availability of cost efficient technology, gaining public support will be difficult. While de-carbonizing and sequestration offer potential to reduce emissions, the technological and political issues are real.

America and other nations, including developing nations, clearly need to reach consensus on climate change policies if significant emission reduction is to occur and if stabilization of GHG is to result.

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## **SOCIAL AND ECONOMIC CONSIDERATIONS**

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Development of climate change policies will take place within a world beset by economic and social inequities. Switching from fossil fuels to renewables and or use of new

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<sup>3</sup> Ibid, p.10.

<sup>4</sup> “...several centuries after CO<sub>2</sub> emissions occur, about a quarter of the increase in CO<sub>2</sub> concentration caused by these emissions is still present in the atmosphere.” Ibid, p. 17.

technologies to improve energy efficiency may not be popular in nations with relatively low standards of living. Many developing nations have raised and will raise issues concerning fairness. They have asked and will ask, “Why should we reduce our dependence on accessible cheaper fossil fuels if in doing so our rate of economic growth is slowed down and or our rate of un- or underemployment is increased? It was the industrialized nations that created the problem...Why shouldn’t these nations accept the responsibility to do more to solve the problem?” The politics of climate change and GHG reduction will not be easy. Leadership will be required to forge meaningful international climate change policies.

Today, the United States has a population of roughly 280 million people. The Gross Domestic Product (GDP) is \$9.4 trillion (or \$92 per capita per day). GDP averages \$2 per capita per day in the rest of the world. At 3% growth per year, real GDP will double in 24 years or approach \$190 per day per capita for the United States and \$4 per day GDP for the rest of the world. This does not seem a formula for world prosperity or an easy path to effective climate change policies and peace.

The income gap is a clear and present danger to global security and a clear threat to goals related to GHG stabilization.

The need to acknowledge social inequities and the uneven characteristics associated with international economic growth and energy use is central to the climate change challenge. The developed world, which controls the vast majority of financial and technological resources, likely will be required to bear a large share of the initial costs related to forging an effective response to problems associated with increases in GHG emission.

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## **THE ROLE AND RESPONSIBILITY OF BUSINESSES**

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Twenty-three of the world’s largest economies are corporations, not nations. Business and industry must be included in and must play a leadership role with respect to initiatives to increase energy efficiency, extended use of renewables, reduce energy use and GHG emissions.

Businesses around the world have begun to concern themselves with climate change and GHG emission reduction. Many have internalized energy strategies aimed at carbon reduction. Many have joined international, national, and recently, state organizations focused on developing effective greenhouse gas reduction policies. Business initiatives are driven by a complicated set of factors. Among them:

- Recognition of the volatility of energy prices.
- Anticipation of national GHG regulations and a desire to help shape GHG policies.
- Liability related to environmental damage and carbon emissions resulting in part from legal and regulatory requirements (e.g., SEC and shareholder concerns).
- Compliance requirements particularly related to the Kyoto Protocol and within the European Community.
- A desire to be a good corporate citizen.

Increasing numbers of large companies and a diverse range of smaller ones have initiated voluntary actions to reduce GHG emissions. Voluntary national efforts have been stimulated by groups such as the World Business Council on Sustainable Development and the Pew Center's Business Environmental Leadership Council.<sup>5</sup> Efforts at the state level have been fostered by business, public sector and nonprofit organizations such as the Colorado Business Energy Partnership<sup>6</sup>.

### **Some Mini Cases: The Wave of the Future?**

Participants noted that several large companies have set and some have achieved GHG targets. For example, Dupont has already met its GHG reduction goal of 65% below 1990 levels by 2010. SC Johnson has made a commitment to a 10% reduction in the use of fossil fuels and a 23% reduction in GHG by 2005. Since 1995, TransAlta has achieved a 20% improvement rate in net GHG emissions.

Holcim, Inc., the world's second largest cement manufacturer, is implementing sustainable development plans in 60% of its plants around the world. As one of the most carbon intensive industries (one ton of cement produces one ton of CO<sub>2</sub>), Holcim has stated that "CO<sub>2</sub> emissions have to drop." Plants in the U.S. and elsewhere are implementing measures such as fuel switching to reduce those emissions. Holcim has indicated that it will voluntarily reduce its carbon emissions 20% by 2010. It has already reduced coal use by 70,000 tons a year and water use by 190 million gallons at their new Florence, Colorado facility.<sup>7</sup>

In 1997, The Royal Dutch/ Shell Group publicly announced that despite uncertainties in modeling and prediction, it recognized that global climate change is a serious threat. It acknowledged that action must be taken to reduce GHG emissions. Simultaneous with its growth as a company, Shell, already, has reduced its global GHG emissions by 10% from 1990 levels.

Shell now internally prices the cost of carbon at \$5.50 per metric ton to encourage the company's economic units to reduce carbon emissions.

Shell has also established renewables as a "fifth" core business. Shell believes that adequate fossil fuel supplies will likely be available globally for another 25 years and perhaps longer given technological advances. But given its commitments concerning reduction of carbon emission and in light of the need to fill in possible supply gaps as the world exhausts accessible and reasonably priced fossil fuel, Shell has spent nearly \$.5 billion developing its new renewable business. It intends to spend up to \$1 billion more dollars in the next five years, particularly with respect to wind, solar, gas to liquids and hydrogen energy sources.

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<sup>5</sup> <http://www.pewcenter.org/>

<sup>6</sup> <http://www.cudenver.edu/cbep/>

<sup>7</sup> Holcim is committed to making all its plants ISO 14001 certified. It also has set a zero waste stream goal.

Shell is now a partner in the production of some 200 MW of wind power, primarily in the United States. According to Shell, the improved economics of wind generation provide a key example of how CO<sub>2</sub> emission-free sources of energy can and are becoming more cost effective.<sup>8</sup>

Shell also acquired Siemens Solar in 2001, making the company the world's largest photovoltaic (PV) manufacturers in the world. They now have six PV manufacturing plants in the world.

Shell has a proprietary synthetic fuels-to-natural gas program underway and Shell Hydrogen division expects to be a major force by the mid 21<sup>st</sup> century. Renewably produced hydrogen is currently in use in Iceland in the Ecological City Transport System (ECTOS). A joint venture with GM to test hydrogen fuel cell vehicles and refueling stations is underway. Shell hopes to open its first hydrogen fueling pump station in Washington, DC relatively shortly.

### **Setting Targets:**

Thirty-five of the thirty-eight companies participating in a Pew emission reduction initiative have set specific targets to reduce their emissions. In a similar vein, forty-five business, public sector and nonprofit organizations signed a "Statement of Commitment" developed by the Colorado Business Energy Partnership and Wirth Chair. It was published in *The Denver Post* and *The Rocky Mountain News* (see Appendix B). Signatories promised "voluntary actions within (their) own companies and organizations that will result in increased energy efficiency, energy conservation, and the reduction of carbon emissions."

While Colorado is not among them, forty-two states have initiated GHG reduction strategies. Examples range from New York Governor George Pataki's recent announcement that his state aims to secure 25 % of its electricity from carbon-free renewable energy sources within a decade to state regulatory actions mandating reductions in power plant emissions.<sup>9</sup> 14 states now have Renewable Portfolio Standards.<sup>10</sup> A number of states have either begun or are contemplating beginning carbon registries.

The City of Fort Collins, Colorado is acting in two key ways to reduce GHG emissions. First, the City Council passed a resolution in 1997 committing the City to a greenhouse gas audit. It established a reduction target. The City inserted a specific goal in its comprehensive plan to "employ strategies to increase energy efficiency and the use of renewable energy sources in order to reduce the impact of the Fort Collins community on

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<sup>8</sup> According to the representative of Shell at the Forum, the costs of wind power production have come down 60-70% just in the past decade. Wind turbine technology has expanded the power produced by single turbines.

<sup>9</sup> Hassol, Susan and Randy Udall, "A Change of Climate," *Issues in Science and Technology*, Spring 2003.

<sup>10</sup> One presenter expressed the opinion that there will "eventually be a federal RPS" mandating electrical utilities to produce a certain percentage of their power from renewable resources. Advocates of state level RPS measures believe state initiatives will encourage action at the federal level.

global warming.” Ft. Collins hopes to achieve a 30% reduction in GHG emissions below possible worst case levels by 2010.

The City also oversees a Climate Wise program. As part of the program, 14 local companies have agreed to reduce GHG emissions. Their goal is to reduce 93,390 tons of carbon emissions by 2010. They have already reduced CO<sub>2</sub> by 50 tons in 2002.

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## THE POLITICS AND POLICIES OF CLIMATE CHANGE

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Many political leaders who once argued that “there is no scientific certainty” now accept the increasing evidence linking the burning of fossil fuels to increased atmospheric carbon concentrations and global warming.

The Bush Administration, however, still appears to reflect doubt that there is scientific consensus regarding climate change. The Administration rejected the Kyoto Treaty essentially based on its perceptions concerning: remaining scientific uncertainty; high economic costs; the lack of involvement by large developing nations like India and China.

Based on recent studies fostered by the National Academy of Sciences, EPA, as well as other respected organizations, the Administration now at least at times appears to recognize that climate change is a problem. However, according to Forum participants, no sustained visible policy leadership has emerged from the White House or any federal agency. The President’s climate change proposals rely primarily on research and a voluntary response from emitters.<sup>11</sup>

Although the United States has rejected the Kyoto Protocol, 115 other countries have ratified the treaty. It’s likely to become operational without participation by the U.S.

An active carbon trading market is beginning to emerge based on the anticipation that Kyoto will be implemented and that individual nations and blocs of nations such as the European community will continue to develop GHG regulations. European countries are experimenting with tax shifting as a means of encouraging GHG emission reductions. They believe that taxing emitters of pollution and emissions and using the revenue to reduce or eliminate taxes on labor and income will accelerate adoption of measures to reduce carbon emissions by business.

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<sup>11</sup> The White House and many key leaders in the Administration appear to still be uneasy about climate change issues. Various recent reports have been sought by the Administration from respected national organizations and or authored by agencies within the Administration. They acknowledge the relationship of GHG emissions to climate change and they indicate that climate change is a problem caused in part by human activity. But the Administration’s position remains relatively lukewarm concerning initiation of policies that would emphasize more than research and voluntary action concerning GHG emission reduction. The White House significantly edited a section in a draft EPA report about environmental problems and scientific knowledge. According to the *New York Times* (see editorial, June 20<sup>th</sup> 2003), the Administration reduced a proposed “long section on the risks posted by rising global temperatures to a non committal paragraph....All that is left in the report is some pablum about the complexities of the issue and the research that is needed to resolve the uncertainties.”

Until recently, Congress has traveled the same road as the Administration. Its response to climate change issues and the need for GHG reductions has been at best underwhelming. Perhaps because a national election is pending and there is increasing consensus among the public that climate change is real, a number of legislative proposals that include climate change and GHG emissions provisions are pending before the 108<sup>th</sup> Congress.

The proposals range from provisions in a comprehensive energy bill that would require the President to establish a database for voluntary GHG emission submissions to an amendment to the Administration's energy bill that would set up a cap and trade approach for six GHGs.<sup>12 13</sup>

Most Forum participants felt that Congress will not enact strong GHG related enactments this year. While surveys indicate rising public concern over GHG emissions and climate change, a concern probably heightened by drought situations in the West and "peculiar" weather in the midwest, south and east, the concern is not yet politically relevant to most in Congress.

The likelihood of the Bush Administration and the Congress returning to the Kyoto Treaty and endorsing it is remote. The Administration may be open to a dialogue concerning creation and ultimately harmonizing national regulations, a cap and trade system for emission credits, and significant new money to encourage energy efficiency and use of renewables. It also may be willing to consider an effective national carbon registry.

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## THE ROLE OF THE MEDIA

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A panel of Denver journalists primarily from the business sections of their papers responded to participant questions related to why energy and climate change issues were not covered more broadly, in depth and more continuously by the media.

Their observations were interesting and strategic. Among them, the media, particularly the business journalists:

- frequently do cover energy subjects. The California energy "crisis," the

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<sup>12</sup> The House Energy Bill did not address climate change. Senator Domenici's proposed legislation (now withdrawn) called on the President to implement a national strategy to manage risks posed by climate change. It required the President to establish a database for voluntary GHG emissions submissions. Senators McCain and Lieberman proposed that the U.S. electrical, transportation, industrial and commercial sectors cut GHG emissions to year 2000 levels by 2010 and 1990 levels by 2016. Both Senators also proposed that a cap and trade approach be developed for six GHGs in the same sectors. Senator Jeffords has proposed a cap and trade plan for SO<sub>2</sub>, NOX and CO<sub>2</sub>. He also sought an allocation formula that benefits renewable energy and energy efficiency actions. The President's Clear Skies Plan sets an 18% GHG intensity reduction objective over the next ten years. It relies on voluntary action.

<sup>13</sup> See power point presentation from Bob Noun of the National Renewable Energy Laboratory on climate change legislation in the 108<sup>th</sup> Congress, see <http://www.cudenver.edu/wirthchair/>

Administration's and Congress' ability or inability to enact a comprehensive energy bill, the fight over drilling in the Arctic National Wildlife Refuge (ANWR) have secured much attention as general news and in the business pages. Climate change and GHG reduction is a more difficult subject for the media...It is complicated...hard to compress into a story...and "frankly" not much of significance is happening policy wise...Most times, "we get proposals for stories from advocacy groups."

- will grant increased attention to energy and carbon stories if they have a regional, state or local angle...if they suggest a local economic or business impact that is clearly defined and understood...
- do not like canned stories from public relations firms retained by businesses, groups or individuals...they are not in the business of providing free advertising.
- will frequently use stories from national wire services, *The New York Times*, *Wall Street Journal* if the national story has a vital significance to the local economy and can be converted into a news piece that appeals to local readers or viewers.
- will look for ways to break down what is an often complicated story ("subjects related to energy efficiency and carbon reduction are generally not easy to digest and make clear in the limited space or time provided journalists"). Advocates or proponents of stories must often reduce them to their lowest common denominator if they are to be understood by readers or viewers.

Over time, as the climate change issue becomes more vital to readers and as businesses respond to and are affected by climate change and GHG issues, media coverage will increase significantly.

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## TRADING AND REGISTRIES

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Governor Pataki (R-NY) has called for a regional GHG cap and trading regime. Many leading business, NGO, and academic leaders have expressed a preference for a cap and trade system, analogous to the successful SO<sub>2</sub> emissions program enacted under the Clean Air Act Amendments. They view cap and trade as the most expedient and economic means of encouraging GHG emission reductions. The McCain-Lieberman proposal now before the Congress would initiate a national cap and trade program.

Participants noted that expectations concerning the near term profitability of carbon reduction credits have stimulated a number of important initiatives. For example, a new Climate Exchange has started in Chicago. The Chicago Exchange, like other international and U.S. efforts, will facilitate the trading of carbon credits. It is a voluntary pilot program. (See [www.chicagoclimatex.com/](http://www.chicagoclimatex.com/)). Another group of eight mega-companies that includes Dupont, Entergy and Shell is establishing a trading system.

These companies have vowed to cut their CO2 emissions by 80 million metric tons no later than 2010.

Significantly, a number of states<sup>14</sup>, encouraged by California's and the northeast region's efforts have begun to look at establishment of GHG registries. State registries encourage companies to monitor and track their emissions – a crucial first step because “you can't manage what you don't measure.” They are establishing consistent principles for measuring greenhouse gas emissions and setting in motion verification procedures. They are operating under the assumption that reductions will be valuable upon enactment of future state, regional or national regulations concerning GHG reduction.<sup>15</sup>

California's Climate Action Registry is administered by a board and staff independent of state government. However, legislative enactment of the law creating the registry grants it legitimacy. According to participants involved in the creation of the registry, legislative approval lends confidence to businesses using it that reductions will have value and can be traded in the market place. To help assure the value of reductions, California uses an independent auditing or credit verification process.

Advocates of state level registries believe that establishing state and regional registries will encourage action at the federal level. Although DOE administers reporting of reductions through the 1605(b) program, its efforts have generated widespread dissatisfaction, particularly with respect to verification.<sup>16</sup> Hopefully, what is learned from state and regional experiences can and will be translated into strengthened and expanded federal initiatives.<sup>17</sup>

While a clear majority of participants at the Forum appeared to support the establishment of state and regional registries as the “first step” toward a well functioning national registry, not all participants endorsed the concept. Some were worried that state and regional registries would delay the implementation of a national registry. They were also concerned with methodology. How can you count the carbon emission reductions or credits from firms that have multiple offices or buildings in different states? In different nations? What baseline reporting mechanism will be used? Will it win consensus among various groups and individuals concerned with measurement and verification?

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<sup>14</sup> Up to now, the state of Colorado has not made GHG reduction strategies and climate change issues a priority.

<sup>15</sup> See Olsen, David, “State Climate Change Initiatives: Creation of the California Climate Action Registry, April 2003, a publication of the Wirth Chair, University of Colorado in Denver.

<sup>16</sup> Section 1605(b) of the Energy Policy Act of 1992. Although the 1605(b) program is currently being revamped, skeptics at the Forum did not hold out much hope that improvements will be significant.

<sup>17</sup> Senior U.S. Department of Energy officials have indicated that under current law the Bush Administration cannot require participants in its voluntary greenhouse gas registry (1605b) to seek independent verification of emissions. As a result, it will be difficult for companies to participate in trading credits resulting from greenhouse gas emission reductions. Mandatory independent verifications will be required to facilitate trading.

## Status of Western Regional Initiatives

The Western Governors' Association (WGA) and the participating states have initiated many strategic energy related and environmental initiatives. For example, WGA has set long-term objectives (10 and 20 years out) to increase use of renewables. They are designing a renewable energy certificate trading system for the interior west. The anticipated impact will be greater investment in renewables and in offsetting carbon emissions.

WGA is participating in a western consortium to demonstrate carbon sequestration. When fully operational, the demonstration related projects will help resolve measurement as well as policy issues related to sequestration.

Clearly, the major WGA initiatives focus on energy and the environment. With respect to climate change, WGA and most of the participating states, want to create a level GHG reduction policy playing field. Coal as well as oil and natural gas are important economic variables in the Rocky Mountain West. The WGA and member states want to be involved in addressing national climate change policy as well as policies related to energy efficiency and renewables. Governors believe that climate change is and will be an issue that must be discussed. At this time, however, the politics, while supportive of experiments, do not support major GHG reduction initiatives except as a residual of energy and environmental initiatives.<sup>18</sup>

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## CONCLUSIONS

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Regrettably, despite the aggressive petitioning of many respected national and state groups, climate change and GHG reduction have not taken center stage with respect to national policy-making. In this context, many states have or will soon become the laboratories of democracy. As important, although counterintuitive, they will be joined by many businesses and local governments. But the sum-of-the parts do not add up to a needed, cohesive, coordinated national response to climate change. Hopefully, in addition to reducing carbon emissions, state government, local government and business initiatives will generate a continued national dialogue concerning national public policy options and a sustained discourse within Congress and the Administration concerning the need for more powerful national climate change policies and legislation than now exist.

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<sup>18</sup> The WGA anticipates that goals embedded in its energy efficiency and 10/20 year goals will reduce carbon emissions by over 50 million metric tons relative to business as usual.