ANALYSIS, COMMENT AND CONSTRUCTIVE SUGGESTIONS TO THE WESTERN CLIMATE INITIATIVE

Ideas For Reducing GHG Emissions
While "Keeping The Lights On" and
The Economy Growing in the West

February 2009

This analysis was conducted by Management Information Services, Inc., of Washington, D.C. Individual members of the Western Business Roundtable do not necessarily endorse the findings of this analysis.

PREFACE

The members of the Western Business Roundtable are engaged in a wide variety of research, development and deployment efforts for greenhouse gas (GHG) control technologies. All are desirous of greater legal and regulatory certainty with regard to future GHG regulations. All believe that any climate policies should be federal in nature and should promote economic growth, create new jobs, strengthen the nation's power grid and enhance America's fuel diversity and energy security. All believe that GHG mitigation strategies must unleash America's technological innovation and "can do" spirit to be successful.

With these goals in mind, the Roundtable commissioned an independent analysis of the Western Climate Initiative (WCI), a proposed framework for a Western regional GHG cap-and-trade program released in September 2008. This analysis evaluates the WCI GHG framework relative to four basic objectives:

1. Would it contribute to increased reliability of the region's energy production and delivery infrastructure – would it help "keep the lights on" as the West works to create new jobs and pull itself out of economic recession?

2. Would it stimulate new technology investment across the region, especially on carbon capture and sequestration technologies, so that the West can participate in, and benefit from, the deployment of these technologies?

3. Would it deliver measurable and recognizable environmental benefits – measured in terms of reduced future global temperature – to consumers who will pay the costs of these programs and who often view the efficacy of government mandates through the lens of costs versus benefits?

4. Does it strengthen the West's bargaining position in the upcoming federal policy debates over national GHG mitigation measures?

Regrettably, this analysis concludes that the WCI framework does not, to date, meet these goals. However, the Roundtable believes that the plan can be improved and that WCI stakeholders should additionally join with a broader array of Western interests in supporting a consensus package of principles and recommendations that can be presented to Congress in order to constructively influence the federal climate policy debate.

To facilitate consensus agreement on a package of common sense Western principles and recommendations for federal action, the Roundtable offers, in this report, a draft set of these principles and recommendations. The Roundtable is committed to rolling up its collective sleeves and helping Western Governors, WCI stakeholders and a broad array of Western interests and citizens ensure that federal action on GHG reduction is realized in a manner that recognizes the unique assets and challenges of the American West.

Jim Sims
President and CEO
Western Business Roundtable
February 17, 2009

Executive Summary

This study is intended to give elected officials, policymakers, news media representatives and the general public the following:

1. An independent, third-party analysis of the Western Climate Initiative's *Design Recommendations for the WCI Regional Cap and Trade Program*;

2. Insights into the possible costs of a WCI-like greenhouse gas (GHG) cap-and-trade plan, including often-overlooked costs associated with the transmission system expansion and upgrades necessary to support a massive build-out of renewable energy systems;

3. An estimate of the benefits of the WCI plan, expressed in terms of future temperature change, derived entirely from the climate change science, assumptions and formulas of the United Nations' Intergovernmental Panel on Climate Change (IPCC;.

4. A realistic assessment of the challenges and "ground-truth" realities involved in a massive build-out of renewable energy technologies, such as that called for in the WCI;

5. Constructive suggestions for Western "common sense" principles that should guide federal GHG reduction legislation, as well as specific recommendations behind which a broad range of Western stakeholders can rally.

1.A. Why This Analysis Was Conducted

The WCI cap-and-trade program proposes that Western states and several Canadian provinces change the way they produce and consume energy, in order to achieve an aggregate 15 percent reduction of greenhouse gas (GHG) emissions below 2005 levels by 2020. The WCI plan utilizes an economic model that assumes that the region will meet virtually all future electricity demand growth through intermittent renewable energy generation and demand-side management. This model, if implemented into policy, would effectively forestall deployment of any new baseload power plants that derive energy from any of the following:

- Renewable hydropower;
- Nuclear energy;
- Clean coal, whether GHG emissions are captured or not.

Additionally, the WCI's economic model assumes only a one percent cumulative growth rate in the use of natural gas for electricity generation from now until 2020.

The WCI did not provide a thorough, independent analysis of the macroeconomic impacts of its recommendations prior to calling for their implementation. As a result, dozens of leaders from across the region – including elected officials of both major parties and leaders in the agriculture, small business, industry sectors and consumer groups – requested that this analysis be commissioned. Specifically, there was interest in an analysis of the potential costs of a WCI-like plan compared to the likely benefits of such a plan, expressed in terms of impact on future climate temperature.

This analysis was conducted by Management Information Services, Inc. (MISI), an internationally recognized, Washington D.C.-based economic research and management consulting firm with broad expertise in both renewable and fossil energy technologies, as well as in virtually all aspects of the electric utility industry.[1]

1.B. Major Findings

This analysis finds that:

- The WCI plan could impose significant new costs on consumers and retard job creation in the Western U.S. over the coming decade while delivering no scientifically measurable benefit in terms of reduced global climate temperatures as far out as the year 2100. This "benefit" calculation is based entirely on the scientific findings, assumptions and formulas of the United Nations' Intergovernmental Panel on Climate Change.[2]

- The WCI plan is based on an economic model which uses assumptions that, if implemented as policy, would largely preclude the installation of virtually all new electric generation capacity in the region except for highly intermittent wind and solar resources.

- The WCI plan's economic model does not take into account the fact that additional hydropower, nuclear and advanced fossil baseload power plants could be deployed, almost immediately and prior to 2020, that can meet expected growth in electricity demand while dramatically reducing GHG emissions.

- If the WCI economic model's assumptions reflect actual policy recommendations by Western governors, it sends a signal to industry and the investment community that will almost certainly chill the very

[1] MISI recently completed a study entitled "Green Collar Jobs in the U.S. and Colorado," on behalf of the American Solar Energy Society.
[2] See Chapter 5.

investment in low-carbon generation and carbon capture and sequestration (CCS) technologies that nearly all Western governors desire.

- If the WCI economic model's assumptions are implemented as policy, the plan could further weaken the West's already over-burdened high-voltage transmission grid. Reserve capacity margins in the Western Electricity Coordinating Council (WECC) are already expected to drop below the minimum recommended levels as early as the winter of 2009. Rapid introduction of massive amounts of highly intermittent generation from large wind farms, as envisioned by the WCI plan, could easily destabilize the West's grid if appropriate technology upgrades are not made quickly enough.

- The WCI plan could increase energy costs to consumers and, thus, disproportionately harm low-income and minority families. In essence, it may unintentionally have the effect of a discriminatory tax based on economic status and race.

- The WCI's plan to establish and monitor emissions caps would require the establishment of a large and powerful new government bureaucracy. This could trigger the type of influence-peddling and system "gaming" that has plagued European GHG mitigation regimes.

- The laws, regulations, mandates and bureaucracy the WCI is proposing go so far as to give WCI climate officials authority over even private companies' organization and reorganization functions.

1.C. Specific Concerns With WCI Assumptions And Data

- The WCI plan did not estimate economic impacts at the state or provincial level; rather it calls for each jurisdiction to estimate those impacts. This represents a significant deficiency in the analysis.

- The WCI plan's emission targets continue to change.

- A number of choices were made during the WCI's economic modeling effort that are difficult to understand or are not in the project budget.

- There are numerous problems with the design of the WCI project itself. Many of those issues derive from the limited size and non-contiguous nature of the partner jurisdictions.

- The WCI project does not adequately forecast and analyze economic impacts on the state, provincial, and local regions (i.e. impacts on jobs,

employment, unemployment rate, personal income, disposable personal income, taxes, revenues, consumer and wholesale prices, etc.).

- Numerous studies have found that the economic impacts of mandatory GHG emissions controls are likely to be significant, yet the WCI plan does not address this issue.

- Residents of the WCI jurisdictions may face increased costs for energy, utilities and other goods and services and may experience an increased cost of living, beginning in 2010. This is not reflected in the WCI economic analysis.

- Historically, there has been a strong relationship between business energy costs in a given state and that state's rate of economic growth and job creation. States with lower business energy costs tend to grow more rapidly and create more jobs than those with higher business energy costs. This is not reflected in the WCI economic analysis.

- It is not realistic to assume that the West can, within 10 or 12 years, install the amount of wind and solar generating capacity projected by the WCI plan, nor the transmission necessary to support that capacity. The WCI electricity transition scenario is, at best, unrealistic.

1.D. What Would The WCI Plan Cost?

WCI contends that implementation of its recommendations will result in the economic version of a "free lunch" – GHG emissions will be significantly reduced with positive impacts on the jurisdictions' economy and jobs. While such an outcome would certainly be welcomed by all parties, it is more likely an expression of wishful thinking than an accurate prediction of the WCI plan's economic impact.

Carbon dioxide (CO_2) is the unavoidable byproduct of the fossil fuel combustion technologies which currently provides 85 percent of U.S. energy. It will be very difficult, and costly, to replace this economically preferred energy source, especially as rapidly as the WCI plan requires.

Policymakers need only look to Europe's ongoing efforts to impose such emissions protocols to see their impact. The European experience shows that this approach incurs significant costs, while failing to appreciably reduce GHG emissions.

Contrary to WCI's prediction of an economic stimulus from "green investment" and "green-collar" job creation, the WCI plan would almost certainly retard economic growth, Gross Domestic Product (GDP) and job creation in the West.

Contrary to WCI's prediction of an economic stimulus from "green investment" and "green-collar" job creation, the WCI would almost certainly retard economic growth and GDP and slow the creation of jobs in the West.

The WCI model's assumption that the region will rely almost exclusively on wind and photovoltaics for new baseload power until the year 2020 is technically problematic, at best. These technologies are inherently intermittent, which means that electric power production from each can vary from zero to full name-plate output over time, and that transmission capacity must be sized to at least the full name-plate power levels of the generators.[3] However, if the region were to overlook new natural gas or other baseload fueled generation to couple with solar thermal or wind or photovoltaics, there is little hope for a viable electric power grid.

In all cases, new or expanded transmission lines are certain to be needed to accommodate the envisioned new generation, because the power levels are expected to be well above the capacities of existing transmission lines. Many of the region's renewable resources, located significant distances from load centers, will require extensive transmission build-out to tap. Further, the existing regional transmission system must be massively upgraded to so-called "smart grid" capabilities, which will require significant amounts of new financing, permitting, federal, state and local regulatory approvals, technology development and other challenges to be overcome. All of these challenges can be met; however neither the length of time required to meet them (even on an expedited basis) nor the significant costs involved were factored into the WCI plan.

The WCI model's assumption that the West can and will minimize the use of reliable, baseload electric power generators (coal, natural gas and nuclear) appears to contradict the bulk of worldwide experience in large power systems. Given the high levels of intermittency associated with wind and solar resources, this approach is not currently viable operationally. Wind, photovoltaic (PV) cells and solar thermal cannot, at present, support a viable grid backbone, and would result in inherently unreliable power delivery. Furthermore, if Western states were to utilize existing hydroelectric power capacity for electric energy storage for intermittent power sources, related hydroelectric generators would be taken out of the reliable generation mix and would have to be replaced by new power generators. In periods of drought, when hydropower capacity is reduced, such a system could become inoperable.

Diversity of electric power sources is important and a significant backbone of baseload generators is essential, not only to support system reliability, but also to ensure reasonable costs to industrial and other consumers.

[3] Solar thermal coupled with on-site natural gas-fired backup can be a different story and must be separately considered.

This report is not able to provide a comprehensive assessment of the economic and jobs impact on the jurisdictions of the WCI plan, because of the lack of significant economic impact detail in the WCI plan. However, relevant analyses of the likely impacts of similar GHG control regimes shed light on potential consequences for Western states.

For example, Table 1-1 summarizes the impact of one cap-and-trade regulatory regime, proposed in last year's Lieberman-Warner federal bill, on the Western jurisdictions. The effects are projected to be highly significant.

Table 1-1 Impact of the Lieberman-Warner Bill on the Western Jurisdictions

	2020			2030		
	GSP (billions)	**Household Income**	**Jobs** (thousands)	**GSP** (billions)	**Household Income**	**Jobs** (thousands)
Arizona	-$3.2	-$1,745	-29	-$105	-$4,775	-75
California	-$24	-$2,640	-163	-$81	-$7,290	-394
New Mexico	-$1	-$1,540	-10	-$3.5	-$4,220	-24
Oregon	-$2.1	-$1,935	-18	-$7.1	-$5,350	-42
Washington	-$4.3	-$2,300	-30	-$13.6	-$6,350	-72

NOTE: Dollar estimates are in 2007 dollars.
Source: SAIC and Management Information Services, Inc., 2008.

In addition to directly harming consumers, the higher energy prices likely to result from a WCI-like plan could seriously affect the production side of the West's economy. Contrary to claims that the WCI plan would spur an economic stimulus from "green investment" and "green-collar" job creation, the approach is much more likely to retard economic growth, GDP and job creation.

Business investment could be undermined by the negative effects of higher energy prices. Investment contributes to the economy when it increases future productivity and income, and the greater and more effective the investment, the greater the increase in future income. Since income could decline as a result of the WCI plan, it is possible that more income and jobs would be destroyed than would be created.

WCI's prediction of millions of new "green-collar" jobs would likely meet a similar fate. Firms could be burdened with significantly higher energy costs that must be reflected in their products' prices. The higher prices could make their products less attractive to consumers and thus less competitive. As a result, job creation and growth could be reduced from what normally would occur.

1.E. What Are the Benefits Of The WCI Plan?

The WCI calls for absolute, cumulative GHG emission reductions by the year 2020 of 383 million tons of CO_2 equivalent ($MMtCO_2$-eq) from Arizona, British Columbia, California, New Mexico, Oregon and Washington combined. The benefit of reducing these emissions, in terms of projected climate temperature changes, can be readily measured by factoring these avoided emissions directly into the formulas used by the United Nation's Intergovernmental Panel on Climate Change (IPCC) to estimate future average global temperature increases. This analysis finds that the very science now driving climate action predicts that the WCI plan will produce a future temperature benefit of in approximately the year 2100 of **one ten-thousandth of a degree Celsius**.

In order to provide a broader context to such benefit measures, this report applied the same analysis to other GHG reduction scenarios:

The very science now driving climate action predicts that the WCI plan will produce a future temperature benefit of in approximately the year 2100 of one ten-thousandth of one degree Celsius. This temperature benefit is too small to be accurately measured.

- Eliminating all CO_2 emissions through approximately the year 2100 from the commercial, industrial, residential, transportation and electric power sectors in all of the Western states that are either partners or participants in the WCI would result in an average global temperature decrease of **three-one hundredths of one degree Celsius**.

- Shutting down all U.S. fossil- fueled power plants – coal, natural gas and diesel – from now until approximately the year 2100 results in a temperature decrease of **six one-hundredths of a degree Celsius**

- Eliminating all GHG emissions from the U.S. and continuing to avoid those emissions until approximately the year 2100 yields a temperature decrease of **eighteen hundredths of a degree Celsius**.

Clearly, none of these scenarios results in a temperature "benefit" that is accurately measured.

Neither this report, nor the Roundtable, passes judgment on the value of these benefit measurements per se, nor does this study intend to imply that this is only benefit to be delivered by GHG mitigation efforts. However, these findings do illustrate that claims that the U.S. power sector is the primary driver of global warming are without merit.

1.F. Disproportionate Impact On Low-Income Households And Minorities

Rising energy prices especially hurt low-income families because they must devote a much higher share of their personal income to energy. Since a larger percentage of minority families are among low-income households, they are disproportionately burdened by rising energy prices. The WCI plan could exacerbate this economic disparity by raising energy prices, and the costs of goods and services that are energy-sensitive. The plan appears to ignore options that would lower energy prices and safeguard the welfare of low-income families – particularly baseload electricity technologies that tend to be substantially lower in cost than alternative technologies.

Energy cost increases are extremely regressive, and increased energy costs impact the already-strained resources of the lowest-income households. Rising energy costs inflict particular harm on many minority families: lower-income families are forced to allocate larger shares of their budget for energy expenditures and a larger percentage of minority families are among the lower-income brackets. This disparity between minorities and others means that rising energy costs have a disproportionately negative effect on the ability of low income, minority families to acquire necessities -- food, childcare, and healthcare. Unless energy costs are kept affordable, or unless steps are taken to ameliorate the impacts of rising energy costs on vulnerable and minority populations, these costs can have the effect of a discriminatory tax based on income and race.

Table 1-2 Share of Income Consumed by Increase in Energy Prices Since 2001

Income Category	Less than $10K	$10K-$30K	$30K-$50K	More than $50K	Totals
Increase in Energy Costs Since 2001	$1,525	$2,353	$3,983	$4,190	$3,403
Increase as % of 2008 After-tax Income	29.5%	13.5%	12.4%	5.4%	6.5%

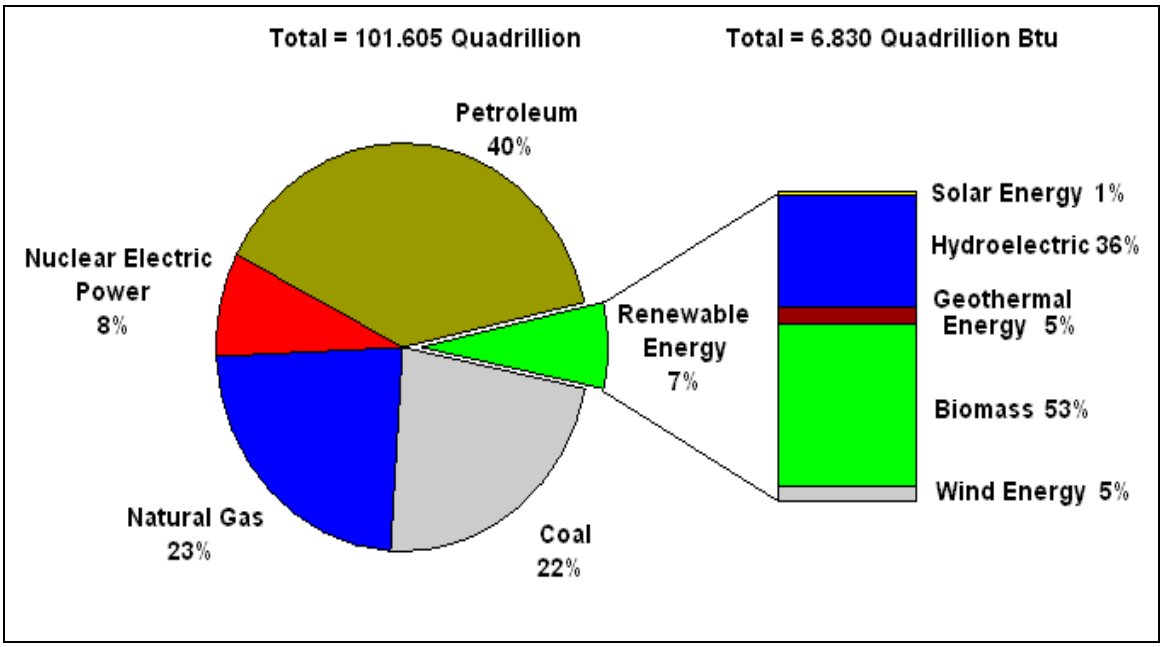
Source: Sources described in Chapter III.

1.G. Separating Renewable "Facts" From "Wishful Thinking"

The WCI's economic model assumes that the West can meet nearly all of its increased electricity demand through 2020 with wind and other renewables (excluding hydropower), and energy efficiency/demand responses. This is, at best, wishful thinking. At worst, limiting the West's options for electricity generation to intermittent renewable resources such as solar and wind puts the entire regional electricity grid at risk.

Renewable energy produced about seven percent of total U.S. electricity in 2007, and 90 percent of that contribution was primarily hydropower and industrial biomass – Figure EX-3.

Figure 1-1 Renewable Energy in the U.S., 2007



Source: U.S. Energy Information Administration, 2008.

The U.S. Energy Information Agency (EIA) forecasts that, by 2030, renewable energy will produce about 11 percent of U.S. electricity requirements. However, most of this renewable energy contribution will consist of the traditional renewable energy sources of hydropower (22 percent) and industrial by-product biomass (60 percent). Even in 2030, wind, photovoltaics, solar thermal, and all other renewable energy technologies will meet only about two percent of total U.S. energy requirements.

In sum, according to EIA, renewables are likely to remain niche applications for many years to come. Thus, the West – and the U.S. – cannot rely on renewables solely or even primarily for its near-term energy future.

Further, a dramatic build-out of wind and solar power facilities will require significant amounts of fossil-fuel power generators – primarily natural gas-fired units – to integrate the renewable facilities into the grid and even out the intermittent nature of their power generation. A case in point: utilities in the West that are now adding new wind generation have found that, for every one megawatt of new wind, one megawatt of fossil fuel generation needs to be built or dedicated to making that wind generation work.

1.H. Administrative And Bureaucratic Implications

The WCI plan would lead to the establishment of a bureaucracy to set a cap for emissions and then monitor the CO_2 emissions of every producing entity. It is likely that such a regime would institute an expensive and intrusive bureaucracy and create opportunities for entities to manipulate the system by setting up non-producing companies which could then obtain unused cap space that they could trade with others. Such a large bureaucracy, paid for and funded by tax dollars, may require higher taxes to pay for its administration. Such new government agencies may restrict economic activity and could be prone to corruption.

The laws, regulations, mandates and bureaucracy the WCI is proposing would go so far as to give WCI climate officials authority over private companies' organization and reorganization.

The laws, regulations, mandates and bureaucracy the WCI is proposing would go so far as to give WCI climate officials authority over private companies' organization and reorganization.

1.I. Constructive Suggestions For An Alternative Approach

Given the likelihood that the federal government will take action in the near-term to implement federal standards for GHG emission reductions, the challenge facing the West is not in implementing its own regional solution, but in helping shape a federal plan in a manner that recognizes the unique attributes and challenges of the American West.

Toward this end, the Roundtable invites Western policymakers, community leaders, business leaders and non-governmental organizations to engage in a constructive dialogue to develop consensus Western recommendations and principles that should guide federal legislators. Our suggested "Western Principles to Guide Federal Climate Policy Development" follow:

1. Federal action on GHG reduction programs should be developed and implemented by the U.S. Congress on a bipartisan basis – not by federal agencies acting unilaterally to implement policy outside of the Congress;

2. Federal action should aim to reduce emissions of CO_2 while the economy continues to grow, new jobs are created and the standard of living for all Americans increases;

3. Federal action should incorporate a fully transparent cost-benefit assessment yielding a net positive outcome and achieving wide consensus as part of any

CO_2 emission reduction program, so that consumers can be made aware of the potential economic impacts of policies prior to their implementation;

4. Federal action should encourage the rapid research, development, demonstration and deployment, through public-private partnerships, of a broad spectrum of supply-side and demand-side technologies and practices, including energy efficiency, renewable technologies, fossil energy technologies (with and without carbon capture and storage), carbon sequestration and nuclear energy;

5. Federal action should allow the electric utility sector to continue to supply consumers with adequate supplies of clean, affordable and reliable energy and to recover all costs necessary to achieve any GHG reduction levels sought by public policies;

6. Federal action should involve all sectors of the economy, all sources and sinks and all types of GHGs;

7. Federal action should recognize that climate variability is a global phenomenon that requires comprehensive, long-term and worldwide responses;

8. Federal action should recognize that the time frame for implementation of any GHG reduction requirements must be tied to technology availability, reliability and economic feasibility in order to avoid unacceptable impacts on consumers and the electricity grids;

9. Federal action should target revenues generated by a climate change program to the rapid development and deployment of technologies to capture and store GHGs and to appropriate assistance programs that help end-use consumers deal with higher energy costs;

10. Federal action should allow greater access to public lands (both onshore and offshore) for the development of domestic energy resources -- such as renewables, oil and gas, oil shale and coal -- that can be used in power generation technologies that can help America reduce its GHG intensity; and

11. Federal action should recognize and protect existing (past) investment decisions for generation resources such that the net costs of owning and operating existing resources are not increased as a result of any program; rather, any carbon emission reduction program must be limited in its impact to future investment decisions, tailored to the actual net future growth in demand for energy after application and full use of existing resources.

Our specific recommendations for inclusion in federal GHG reduction legislation are these:

- **Coal with CCS Demonstration Projects** – Federal assistance and incentives necessary to construct at least six 500-MW pilot zero-emission coal-fired power plants that can demonstrate a variety of technologies related to CO_2 capture and sequestration technologies at altitude in the West.

- **Coal-To-Clean-Fuels Demonstration Projects** – Federal assistance and incentives to construct at least three coal-to-liquids or coal-to-gas facilities that can demonstrate a variety of technologies related to CO_2 capture and sequestration technologies at altitude in the West.

- **Compressed Natural Gas and Electric Vehicle Fleet Vehicle Demonstration Projects** – Federal assistance and incentives to support at least six demonstration projects to enhance the ability of vehicle fleets to use compressed natural gas and/or electricity as fuel.

- **Emissions Reductions Through Process Efficiency Incentives** – Legislative and tax incentives to encourage greater energy efficiency gains through technology deployment by the utility, power production, manufacturing, natural resource development and transportation sectors.

- **Clean Energy Deployment Incentives** – Legislative, tax and regulatory incentives to spur investment in a broad suite of clean energy generation technologies, including renewables, hydropower, clean coal with CCS, oil and gas and nuclear.

- **"Apollo-Program-Level" Funding for Western CO_2 Capture, Transportation and Sequestration Deployment –** Legislative, tax and regulatory incentives to dramatically speed up development and deployment of GHG capture, transportation and sequestration technologies for use by all industries in the West.

- **Limit Legal Risks Related To CO_2 Sequestration** –Legislation and regulatory reforms that ensure that CO_2 sequestration project proponents can move forward without fear of endless liability lawsuits.

We need legislative and regulatory reforms that ensure that CO2 sequestration project proponents can move forward without fear of endless liability lawsuits.

- **Reduced Foreign Oil Dependence Through CO_2 –Driven Enhanced Oil Recovery** – Provisions to encourage the rapid build-out of the infrastructure necessary to allow greater use of CO_2 sequestration for enhanced oil recovery.

- **Clean Energy Infrastructure Build Out** – Incentives for new investment in transmission lines supporting all Western generation sources, oil and natural gas pipelines, CO_2 pipelines and other infrastructure facilities.

- **Cost-Benefit Assessments** – Provisions that require a rigorous, independent cost-benefit assessment to be conducted before any GHG legislation be approved by the Congress.

1.J. Conclusions by the Roundtable

This analysis shows that the WCI plan, as currently drafted, does not any meet the four objectives set out by the Roundtable in its review of this framework.

Objective 1: *Would the WCI plan contribute to increased reliability of the region's energy production and delivery infrastructure – would it help "keep the lights on" as the West creates new jobs and pulls itself out of economic recession?*

The economic model on which the WCI plan is based is reliant on several very problematic assumptions. It assumes that:

- ☒ No carbon capture and sequestration (CCS) technologies deploy in the West before 2020;

- ☒ No new baseload power plants deploy fueled by renewable hydropower, nuclear power or clean coal (with or without CCS), and very little new natural-gas fired facilities, deploy before 2020; and

- ☒ The region relies entirely on mostly intermittent renewables and demand destruction to meet growing energy needs.

It is the Roundtable's hope that these assumptions do not reflect actual policy recommendations by the WCI partner states and provinces. Such a policy path would be technically infeasible and economically unwise, as this analysis shows.

Objective 2: *Would the WCI stimulate new technology investment across the region, especially on carbon capture and sequestration technologies, so that the West can participate in and benefit from the deployment of these technologies?*

It can be argued persuasively that the WCI's adoption of the assumptions in its economic model sends a message to industry and the investment community that the West's political leadership is not desirous of attracting the investment necessary to

rapidly develop and deploy the cutting-edge low-carbon power generation technologies that can help move our region to a less carbon-intensive economy. We believe that this message is not what Western governors want to send. Virtually all governors in the West continue to express strong public support for the rapid deployment of low-carbon power facilities, including gas- and coal-fired plants with CCS. President Obama shares this objective with Western elected officials.

The Roundtable believes that there is strong, bipartisan support across the region – and in the Oval Office – for an approach that recognizes that economic growth and job creation are closely tied to availability of affordable energy and to a stable and reliable energy infrastructure, and that GHG management policies must balance environmental goals with the demands of economic recovery and job creation.

Objective 3: *Would the WCI deliver measurable and recognizable environmental benefits, in terms of reducing future increases in global temperatures, to those consumers who will pay the costs of these programs and who often view the efficacy of government mandates through the lens of costs versus benefits?*

This report provides an answer to this question by applying the data, assumptions and formulas of the United Nations' Intergovernmental Panel on Climate Change. Such an analysis concludes that a WCI-like plan would reduce climate temperatures over the next 100 years by only one ten-thousandth of one degree Celsius – a virtually immeasurable reduction. Moreover, extending this analysis to other carbon reduction scenarios finds that the IPCC's science predicts that shutting down all fossil-fuel power plants in the U.S., and keeping them off for the rest of this century, would reduce average global temperatures by only seven-one-hundredths of one degree Celsius around the year 2100 – again, a barely measurable amount.

This is not to say that the WCI plan, or any other proposed GHG mitigation policy, would not deliver measurable benefits to the region, or that the WCI has not served a constructive role in facilitating federal action on GHG emissions mitigation strategies. It does, however, provide an IPCC-science-based rebuttal to those who claim that the U.S. power sector – and fossil-fired power plants in particular – are the primary drivers of global climate change. Clearly, this is not the case.

Objective 4*: "Does it strengthen the West's bargaining position in the upcoming federal policy debates over national GHG mitigation measures?"*

This objective obviously states a subjective question. For the reasons outlined in this report, we argue that the WCI plan would weaken the West's negotiating position in the federal debate. Specifically, we note the following:

- ✓ The WCI seems to recommends that the West – and, by proxy, the nation – artificially restrict the diversity of energy resources used to meet growing demand to highly intermittent technologies. This is a policy path that

virtually all energy infrastructure experts agree would have serious, negative implications for the operation of the nation's electricity grids.

- ✓ The WCI sends a message to industry and the investment community that the West is not interested in attracting technology investment in next-generation fossil and nuclear energy power plants. This would give other regions of the country an upper hand in attracting that investment and the job growth it would stimulate.

- ✓ The WCI communicates that the West is unwilling to contribute the use of its vast fossil, hydropower and nuclear energy resources to the nation's efforts to advance energy technologies, increase energy independence and grow America of the current economic recession

1.K. Where We Go From Here

The Roundtable believes that Western governors and WCI stakeholders can produce a highly influential framework for the coming federal debate if they join with a larger base of stakeholders across the West to do the following:

WCI stakeholders should call for the rapid deployment of the full range of low-carbon-emission power generation technologies across the West – including coal, natural gas, nuclear and hydropower – in order to fuel economic growth and job creation while reducing emissions.

- ✓ Re-examine the assumptions in the WCI's economic model and consider re-fashioning the WCI framework, without the problematic model assumptions noted in this report;

- ✓ Call for the rapid deployment of the full range of low-carbon-emission power generation technologies across the West – including those fueled by coal, natural gas, nuclear and hydropower – in order to fuel economic growth and job creation while reducing emissions;

- ✓ More closely examine the technological challenges and costs of allowing greater penetration into the electricity grid of intermittent renewable power facilities, including the necessary pairing of those technologies with fossil energy technologies. The WCI should consider doing so outside of the constraints of the WCI's current economic model;

- ✓ Support legislative and regulatory incentives necessary to stimulate the rapid deployment of a full range of carbon capture, transportation and sequestration technologies;

- ✓ Support efforts to resolve legal and regulatory hurdles and uncertainties that hamper private investment in large-scale carbon capture, transportation and sequestration technologies;

- ✓ Call for an open, honest and transparent discussion at the federal and state levels of the relative costs and benefits of any climate action proposal. If, after imposition of a GHG regulatory regime, consumers conclude, en masse, that the cost-benefit ratio of such a regime is not acceptable, the movement to a low-carbon economy could be greatly complicated or even rejected by the American people; and

- ✓ Work with the Roundtable and a broader range of interests across the West – agriculture groups, small business advocates, industry representatives, consumer groups and others – to develop a package of principles and recommendations on federal climate legislation that can be jointly presented to Congress as soon as possible in order to constructively influence the current federal climate legislative debate.

To stimulate the dialogue called for above, we present a list of constructive principles and recommendations for federal action, listed above and in Chapter 11. We welcome your reaction to this analysis and to our suggested principles and recommendations. We thank you for taking time to read and digest this report.