Carbon Emissions Reduction Taskforce

Report to the Washington State Governor's Office

Submitted by the
Carbon Emissions Reduction Taskforce
on November 14, 2014

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Executive Summary

Governor Jay Inslee's Executive Order 14-04 (issued in April 2014) established the Carbon Emissions Reduction Taskforce (CERT or Taskforce) and charged it to "provide recommendations on the design and implementation of a carbon emissions limits and market mechanisms program for Washington." In the preamble to his Executive Order, the Governor noted that a recent independent review of existing State and Federal policies prepared for the Climate Executive and Legislative Workgroup (CLEW) concluded that "Washington will not meet our statutory limits without additional action." Additionally, the Governor stated that "it is critical to Washington's economic future that greenhouse gas reduction strategies be designed and implemented in a manner that minimizes cost impacts to Washington citizens and businesses" and that our State "needs to take additional actions now, to meet our statutory commitment, to do our part in preventing further climate change, to capture the job growth opportunities of a clean energy economy, and to meet our obligation to our children and future generations." The Executive Order thus framed and guided the CERT member discussions and the perspectives and findings contained in this report. CERT members intend that this report will serve as a valuable resource to inform effective public policy.

The Executive Order further framed the CERT's charge by stating that a carbon emissions reduction program in Washington must:

- "establish a cap on carbon pollution emissions, with binding requirements to meet our statutory emission limits";
- "include the market mechanisms needed to meet the limits in the most effective and efficient manner possible";
- "be designed to maximize the benefits and minimize the implementation costs, considering our emissions and energy sources, and our businesses and jobs".

In developing recommendations for the Governor, the Executive Order asks Taskforce members to participate in the "best interests of the current and future citizens of the State". The Taskforce included 21 individuals drawn from business, labor, public interests, public health, and federal, tribal, and local government entities. Each member served on the CERT as an individual and his or her support for this report should be understood in that context. The Taskforce (See Appendix 1) met in person six times between April 29 and October 28, 2014. Meetings provided for presentations on and discussions of the workings of both emissions-based (cap-and-trade system) and price-based (carbon tax) market mechanisms; current examples of market mechanism design and implementation in the United Kingdom, British Columbia, California, and Quebec; a review of how each market mechanism's approach could be designed to achieve the objectives of the Executive Order; initial thinking about market mechanism design for Washington State; an overview of health-related effects of climate change; and very preliminary economic analysis of the impact of placing a price on carbon in Washington.

The CERT structured its discussions around eight topics that comprised an Evaluation Framework reflecting the Executive Order's requirements and the CERT's assessment of the critical interests and factors that would reflect what is most important for Washington to understand when considering either market mechanism. The topics (See Table 1 in the main report text) included: confidence in meeting emissions reduction limits; sufficiency of a carbon price to drive investment shifts; minimizing cost and competitiveness impacts; maximizing economic development and job growth; minimizing cost impacts to consumers and low-income communities; reducing public health risks; effective administration; and influencing national and international action. Section 3 of this report provides background context and the CERT perspectives on each

Evaluation Framework topic. The text strives to provide a balanced presentation of both emissions-based and price-based approaches, with the full range of CERT perspectives synthesized to guide and provide a foundation for further, thoughtful consideration of the design and implementation of a market mechanism program for the State of Washington.

CERT deliberations, in addition to providing for a range of perspectives on the design aspects of emissions-based and price-based market mechanism approaches, supported the development of four Findings (presented in full in Section 4). These findings reflect CERT members' common perspective on the key aspects of, and potential role in State policy for, a market mechanism program. The highlights for these findings appear below.

CERT Finding 1: Emissions-based or price-based market mechanisms add unique features to an overall carbon emissions reduction policy framework. Both mechanisms internalize a price on carbon, can provide coverage across a full or nearly full range of emissions sources, and do not dictate specific, and can provide for a range of, strategies to meet compliance obligations and reduce emissions. Both mechanisms thus share important similarities, and CERT deliberations indicate that both come with advantages, while their disadvantages can be mitigated such that the differences between the two can be minimized.

CERT Finding 2: Thoughtful and informed policy design, drawing on the lessons learned from other jurisdictions, CERT member perspectives, and additional analysis (see Finding 4), will be required to achieve either an emissions-based or price-based policy approach that is workable for the State of Washington. CERT perspectives indicate that either an emissions-based or price-based policy adopted by the State can help the state build a coherent carbon emissions reduction strategy that aligns private incentives in support of reaching the State's emissions limits. Development of such policy does, however, have substantial design challenges, and although these mechanisms can serve uniquely important functions, their design and implementation requires thoughtful harmonization with Washington's existing and potential future policy framework. To meet the objectives reflected in the Evaluation Framework topics, specific design elements available under these mechanisms will need to address: generating confidence in the strength and integrity of the State's emission reduction commitment; establishing carbon prices that limit volatility and provide long-term certainty; addressing competitiveness impacts; considering a range of revenue recycling options to address equity and affordability concerns especially for low and moderate income communities and communities of color, competitiveness and cost impacts to businesses, support growth strategies, facilitate a sound transition to a lower carbon economy (thereby enabling the lifestyle changes that sustained carbon emissions reduction requires), reducing public health impacts and supporting adaptation particularly for vulnerable communities and heavily impacted economic sectors; and examining coordination/linkage with other jurisdictions that have policies placing a price on carbon.

CERT Finding 3: Reaching the State's statutory carbon emissions limits will require a harmonized, comprehensive policy approach. The thoughtful and informed design of an emissions-based or price-based market mechanism, along with a well harmonized set of complementary policies, can help align incentives and provide a foundational, long-term signal in support of economically efficient shifts in energy uses and investment patterns. A market mechanism can have a special role as the "economic infrastructure" for an overall policy design by establishing a common price signal across all emission sources and emissions reduction opportunities. Any overall suite of policies will be highly interactive and needs to be built and harmonized in a cohesive and comprehensive manner to align both the short-term and long-term incentives as efficiently as possible. Particular attention needs to be given to the transportation sector as the largest source of carbon emissions in the State. With an explicit cost placed on carbon, the price of transportation fuel will increase. At the same time, complementary policies, along with the targeted use of revenues, will be

designed to create downward pressure on overall transportation costs by incentivizing innovation and investment which diversify fuel sources, expand the use of low and zero emissions vehicles, and expand accessible public transit. Overall, a policy design going forward needs to address an integrated approach which considers such items as: land-use policies; equitable transit oriented development; alternatives to current single occupancy vehicles such as adequate transit, zero emissions vehicles, and alternative fuel infrastructure; the different needs of rural communities and industries that require long distance travel; the effects on and needs of low-income communities; and the incentives for the electric sector to take on activities like vehicle electrification infrastructure that reduce societal emissions while potentially increasing emissions in the electric sector.

CERT Finding 4: Certain important questions remain unanswered and further analysis will be important to provide the foundation for a well informed and well-functioning policy approach. The CERT members understand that the State is doing further analysis as it proceeds toward a thoughtful policy design, and CERT members encourage this further work. CERT members further believe that continued analytical work as any policy is implemented will help define and characterize the impact of the policies on the objectives captured in the Evaluation Framework. CERT members have compiled a useful, though not prescriptive or comprehensive, list of the information and analysis that could be helpful in shaping policy. The information and analysis items fall into four categories (specific areas of further information and analysis are provided for each in Appendix 4 of this report): completing and validating macroeconomic analysis; refining the understanding of comparative advantage/disadvantage dynamics for Washington State business; identifying and analyzing the impacts (including job loss particularly for vulnerable fossil fuel dependent industries) to low/moderate income and vulnerable communities of both climate change and carbon pricing; and refining the anticipated revenue picture.

The members of the CERT appreciate the opportunity to serve the State in this capacity as the question of how best to reduce carbon emissions in Washington is considered by policy makers and our elected leaders. The CERT members represented a broad range of interests and expertise, and individual members have varying opinions about the basic policy choices and specific design elements best suited to Washington State's carbon emissions context. With this in mind, Appendix 6 provides individually attributed comments submitted by CERT members to make clear their specific interests and recommendations to the Governor's Office for proceeding forward with a carbon emissions reduction market mechanism for the State of Washington.

1. Introduction

Governor Jay Inslee's Executive Order 14-04 (issued in April 2014) established the Carbon Emissions Reduction Taskforce (CERT or Taskforce) and charged it to "provide recommendations on the design and implementation of a carbon emissions limits and market mechanisms program for Washington." In the preamble to his Executive Order, Governor Inslee states: "…the University of Washington, as required by statute, recently released its summary of existing knowledge regarding causes, impacts, and effects of climate change on Washington State, concluding:

- Human activities have increased atmospheric levels of greenhouse gases to levels unprecedented in at least the past 800,000 years;
- Washington has experienced long-term warming, a lengthening of the frost-free season, and more frequent nighttime heat waves. Sea level is rising along most of Washington's coast, coastal ocean acidity has increased, glacial area and spring snowpack have declined, and peak streamflows in many rivers have shifted earlier in the year;
- Three key areas of risk, specifically changes in the natural timing of water availability, sea level rise and ocean acidity, and increased forest mortality, will likely bring significant consequences for the economy, infrastructure, natural systems, and human health of the region; and
- Decisions made today about greenhouse gas emissions will have a significant effect on the amount of warming that will occur after mid-century."

The Governor further noted that a recent independent review of existing State and Federal policies prepared for the Climate Executive and Legislative Workgroup (CLEW) concluded that "Washington will not meet our statutory limits without additional action." Additionally, the Governor stated that "it is critical to Washington's economic future that greenhouse gas reduction strategies be designed and implemented in a manner that minimizes cost impacts to Washington citizens and businesses" and that our State "needs to take additional actions now, to meet our statutory commitment, to do our part in preventing further climate change, to capture the job growth opportunities of a clean energy economy, and to meet our obligation to our children and future generations." The Executive Order thus framed and guided the CERT member discussions and the perspectives and findings contained in this report. CERT members intend that this report will serve as a valuable resource to inform effective public policy.

A. Background - Climate Policy Context in Washington State

The 2008 Washington State Legislature enacted E2SHB 2815 codified in the Public Health and Safety Chapter 70.235 which specifies limits to greenhouse gas (GHG) emissions in Washington. RCW 70.235.020 details the following statutory GHG limits for Washington State:

> "(1)(a) The state shall limit emissions of greenhouse gases to achieve the following emission reductions for Washington state:
>
> i. By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels;
> ii. By 2035, reduce overall emissions of greenhouse gases in the state to twenty-five percent below 1990 levels;
> iii. By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emissions to fifty percent below 1990 levels, or seventy percent below the state's expected emissions that year."

RCW 70.235.005 provides further framing of the policy context in which the CERT has undertaken its charge.

1. "The legislature finds that Washington has long been a national and international leader on energy conservation and environmental stewardship, including air quality protection, renewable energy development and generation, emission standards for fossil-fuel based energy generation, energy efficiency programs, natural resource conservation, vehicle emission standards, and the use of biofuels. Washington is also unique among most states in that in addition to its commitment to reduce emissions of greenhouse gases, it has established goals to grow the clean energy sector and reduce the state's expenditures on imported fuels."
2. "The legislature further finds that Washington should continue its leadership on climate change policy by creating accountability for achieving the emission reductions established in RCW 70.235.020, participating in the design of a regional multi-sector, market-based system to help achieve those emission reductions, assessing other market strategies to reduce emissions of greenhouse gases, and ensuring the state has a well trained workforce for our clean energy future."
3. "It is the intent of the legislature that the state will: (a) Limit and reduce emissions of greenhouse gas consistent with the emission reductions established in RCW 70.235.020; (b) minimize the potential to export pollution, jobs, and economic opportunities; and (c) reduce emissions at the lowest cost to Washington's economy, consumers, and businesses."
4. "In the event the state elects to participate in a regional multi-sector market-based system, it is the intent of the legislature that the system will become effective by January 1, 2012, after authority is provided to the department for its implementation. By acting now, Washington businesses and citizens will have adequate time and opportunities to be well positioned to take advantage of the low-carbon economy and to make necessary investments in low-carbon technology."
5. "It is also the intent of the legislature that the regional multi-sector market-based system recognize Washington's unique emissions portfolio, including the state's hydroelectric system, the opportunities presented by Washington's abundant forest resources and agriculture land, and the state's leadership in energy efficiency and the actions it has already taken that have reduced its generation of greenhouse gas emissions and that entities receive appropriate credit for early actions to reduce greenhouse gases."
6. "If any revenues that accrue to the state are created by a market system, they must be used to further the state's efforts to achieve the goals established in RCW 70.235.020, address the impacts of global warming on affected habitats, species, and communities, and increase investment in the clean energy economy particularly for communities and workers that have suffered from heavy job losses and chronic unemployment and underemployment."

Additionally, as outlined in RCW 70.235.040, The Washington Department of Ecology will make recommendations to the Legislature regarding whether the greenhouse gas emissions reductions required under RCW 70.235.020 need to be updated based on the science on human-caused climate change reported in global or national assessments of climate change science. As directed in the Executive Order 14-04, the Department of Ecology has reviewed the limits, and the report is expected to be available in late 2014.

In 2010 and 2011, Washington GHG emissions totaled 96.1 and 91.7 million metric tons carbon dioxide equivalent ($MMTCO_2e$)[1] respectively (See Figure 2 in Appendix 2 for a graph of historical emissions back to 1990, as well as business-as-usual projected emissions through 2050). The transportation sector accounts for 46 percent of this total, and electricity consumption and industrial sources each comprise 17 percent.

[1] The following six GHGs are included in Washington's inventory: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). Emissions of these gases are converted to the common unit of carbon dioxide equivalent (CO_2e), based on their relative global warming potential, in accordance with methods used by US EPA.

Additional sector sources include residential (6 percent), agriculture (6 percent), waste (4 percent), and commercial (4 percent)[2]. (See Appendix 2: Washington State GHG Emissions, 2011 for further details.)

Washington has implemented several policies to reduce emissions in the transportation, electricity, and residential and commercial sectors. These policies include, but are not limited to, the Renewable Fuel Standard, Washington State Energy Code, closing the State's only coal-fired electric generating plant (Centralia), GHG Emissions Performance Standards, Appliance Standards, Energy Independence Act (I-937), Energy Efficiency and Energy Consumption Programs for Public Buildings, Conversion of Public Fleet to Clean Fuels, Purchasing of Clean Cars, and Growth Management Act. Several federal policies also may contribute to meeting the State's limits on GHGs. These federal policies include, but are not limited to: renewable fuels standards; tax incentives for renewable energy; tailpipe emissions standards for vehicles; Corporate Average Fuel Economy (CAFE) standards for cars and light trucks; and Clean Air Act requirements for emissions from stationary sources and fossil-fueled electric generating units, including the proposed Clean Power Plan rule.

In 2013, the Washington Legislature passed E2SSB 5802, an act relating to developing recommendations to achieve the State's GHG targets. The Climate Legislative and Executive Workgroup, composed of the Governor and four members of the Washington Legislature, was created and charged with developing recommendations. This effort included an independent review of the estimated emission reductions contribution of the existing State and Federal policies. The Workgroup examined several potential policies that the State could implement, including: Low Carbon Fuel Standard; Zero Emissions Vehicle Mandate; five percent Renewable Fuel Standard; Public Benefit Fund; Property Assessment Clean Energy; Appliance Standards; and Feed-in-Tariff, 375 MW Cap. This assessment concluded that Washington is unlikely to meet its statutory emission reductions for 2020, 2035, or 2050 with the current State and Federal policies, nor is Washington likely to meet its limits with the potential State policies (See Appendix 2).

On April 29, 2014, Washington State Governor Inslee issued Executive Order 14-04 on Washington Carbon Pollution Reduction and Clean Energy Action. The Executive Order outlines a series of steps to meet the statutory limits on carbon emissions enacted by the 2008 Washington State Legislature. The Executive Order established the CERT and directs State agencies to lead efforts to reduce emissions related to coal-fired electricity, clean transportation, clean technology, energy efficiency, State government operations, a review of the carbon pollution limits, intergovernmental relations and public outreach, and State agency coordination.

The Taskforce was established to "provide recommendations on the design and implementation of a carbon emission limits and market mechanisms program for Washington." The Executive Order states that a carbon emissions reduction program in Washington must:

- "establish a cap on carbon pollution emissions, with binding requirements to meet our statutory emission limits";
- "include the market mechanisms needed to meet the limits in the most effective and efficient manner possible";
- "be designed to maximize the benefits and minimize the implementation costs, considering our emissions and energy sources, and our businesses and jobs."

[2] For Washington State, 2011. Source: Washington State Department of Ecology.

In developing recommendations for the Governor, the Executive Order asks Taskforce members to participate in the "best interests of the current and future citizens of the State" and states that the Taskforce must consider measures to:

- "help offset any cost impacts to consumers and workers";
- "protect low-income households";
- "assist energy-intensive trade-exposed businesses in their transition away from carbon-based fuels";
- "provide oversight and regulation of the markets";
- "be fair in allocating responsibility to emission sources";
- "minimize shifting of emissions and jobs to out-of-state locations ("leakage");
- "provide clear accountability for, along with appropriate flexibility in, compliance"; and
- "provide for ongoing monitoring, evaluation, and adjustment of the program, as needed to secure benefits and minimize unintended consequences."

B. Background on Emissions-based and Price-based Market Mechanisms

A market mechanism program aims to align private economic incentives with a public policy commitment to reduce GHG emissions. Under a market mechanism, entities have flexibility to either pay the internalized carbon price or reduce their emissions to reduce their exposure to carbon prices. In contrast, direct regulation would generally require specific emissions standards or installation of particular technologies. Market mechanisms aim to provide greater compliance flexibility at a lower overall cost.

The CERT was asked to focus its discussions on two market mechanism options: emissions-based (also known as cap-and-trade) and price-based (also known as carbon tax) approaches. An emissions-based system typically sets a limit or "cap" on the total quantity of carbon[3] that can be emitted in a specified timeframe. The system issues a fixed number of *emissions allowances*, tradable certificates that permit a covered entity to emit a specified amount of carbon (one ton CO2e per allowance), which are then auctioned or freely distributed. The ***quantity*** of allowances is fixed, and the price of allowances may vary depending on demand. After the end of a compliance period, covered sources must submit a number of allowances equal to their emissions. A price-based system typically sets a price on each unit of carbon emitted. Covered entities must pay an amount equal to the carbon price times their carbon emissions. In contrast to an emissions-based system, a price-based system typically fixes the carbon ***price*** in advance, while the amount of carbon emissions may vary. Either approach can work in concert with other tax changes to be, in effect, "revenue neutral" to society, as a whole.

C. Roadmap of this Report

This report is designed to:

1. Review background information shared with the CERT to support their evaluation of the two market mechanism policy design options.
2. Collect and synthesize the perspectives shared verbally and in writing by CERT members into a set of observations for Governor Inslee's consideration relative to the design and implementation of a carbon emission limit and market mechanism program in Washington.

[3] Throughout this report, the term 'carbon' is used interchangeably with the term 'greenhouse gases': each is meant to encompass the full suite of gases covered by state statute.

3. Provide findings, where appropriate, on the design and implementation of a carbon emissions limit and market mechanism program in Washington.
4. Provide an opportunity for individual CERT members to deliver attributed perspectives on the design and implementation of a market mechanism for carbon emissions reduction.

Section 2: Carbon Emissions Reduction Taskforce – Introduces the Taskforce and describes the process and content of the meetings.

Section 3: Taskforce Evaluation Framework for Consideration of the Design and Implementation of a Market Mechanism in Washington – Presents the Evaluation Framework developed to structure the Taskforce's review and evaluation of policy design elements; reviews the background information Taskforce members heard related to how policies can be designed to address each of the Evaluation Framework topics; and synthesizes the verbal and written observations made by CERT members regarding how well market mechanism policy design features can address each Evaluation Framework topic.

Section 4: Taskforce Findings – Presents the four findings of the Taskforce, drawing on Taskforce discussions and written comments.

Appendix 1 – Carbon Emissions Reduction Taskforce Members

Appendix 2 – Washington State GHG Emissions in 2011 and Washington's Historical GHG Emissions, Business-As-Usual Projection, and Emissions Limits

Appendix 3 – Carbon Emissions Reduction Taskforce Preliminary Economic Analysis – Update October 2014

Appendix 4 – CERT Finding 4 Information and Analysis Items

Appendix 5 – Provides links to the materials presented to the Taskforce during the CERT process.

Appendix 6 – Provides attributed comments submitted by individual CERT members for consideration by the Governor's Office.

2. Carbon Emissions Reduction Taskforce

A. Taskforce Background

The Taskforce included 21 individuals drawn from business, labor, public interests, public health, and federal, tribal, and local government entities. The Taskforce (See Appendix 1) met in person six times between April 29 and October 28, 2014. Over the course of the CERT meetings, presentations included the following:

- Introduction to carbon markets by technical policy experts.
- Overview of emissions trading and market mechanisms approaches in the United Kingdom by representatives of the United Kingdom.
- Summary of emission trading systems and detailed information on the tools and strategies available to Washington to achieve emission reductions in the transportation, buildings, and electricity sectors by the Washington Governor's Office and Department of Ecology.
- Presentation on the policy choices California made and why in the design of their emissions-based approach by a representative from the California Air Resources Board.
- Presentation on the policy choices British Columbia made and why in the design of their price-based approach by a representative from the Province of British Columbia, Ministry of the Environment, Climate Action Secretariat.

- Background information, from technical policy experts, on how a number of the key, widely-recognized attributes of emissions-based and price-based approaches align or differ with respect to the Evaluation Framework topics and on how an emissions-based and a price-based system could be designed to address each of the Evaluation Framework topic areas.
- Background information, from technical policy experts, on the program features and options for a Washington State linked emissions-based system and a price-based system. The assessment indicated which of the policy design features of a Washington emissions-based system linked to the California-Quebec market would need to be identical or harmonized to the California-Quebec system or would allow significant flexibility for Washington to tailor the design and operation.
- Background information, from technical policy experts, on why and how the transportation sector could be incorporated into a market mechanism in Washington.
- A very preliminary economic analysis of the impact of placing a price on carbon in Washington.
- An overview of health-related effects of climate change by the Dean of the University of Washington School of Public Health.

During the first two CERT meetings, CERT members received presentations and background information designed to provide for consideration of both an emissions-based and price-based policy approach. Through presentations provided at the third and fourth CERT meetings, the Washington State Governor's Office indicated a "starting point" inclination towards an emissions-based approach as the market mechanism potentially best suited to meet the objectives set forth in the Executive Order. CERT meeting agendas, presentations, and discussions provided for and invited a balanced consideration by CERT members of both emissions-based and price-based policy approaches within the context of the Evaluation Framework (See Appendix 5 for link to *WA CERT Evaluation Framework, Review of Topics: Version 2* in Meeting 4 Materials).[4] In addition, the transportation sector received substantial attention during CERT discussions given its prominence in the State's carbon emissions profile. CERT members were also invited to provide written input throughout the process.

CERT members represented and provided individual perspectives unless specifically stated otherwise as an organizational or other perspective, and the perspectives provided here reflect individual perspectives captured on a non-attributed basis. Fully attributed individual comments submitted by CERT members are provided in Appendix 6. CERT members believe it is important to note that the Taskforce was asked to assess a complex issue and formulate their perspectives over a short period of time. Important questions could benefit from further evaluation in order to gain a more complete understanding of the specific impacts of different policy approaches (see Section 4, Finding 4 below). As dialogue proceeds forward beyond the CERT and further analysis is undertaken, the results will ultimately influence CERT member perspectives on, and participation in, the discussions about these policy instruments.

[4] Meeting materials including agendas can be found on the CERT website at http://www.governor.wa.gov/issues/climate/cert.aspx

B. Preliminary Economic Modeling Scenarios

At the September 9 and October 28 CERT meetings, the State's OFM modeling team presented preliminary economic analysis of two carbon emission pricing scenarios. These presentations intended to illustrate the models' capabilities and to spur CERT dialogue on how the State should design further analyses to inform policy design. They were not calibrated to reflect any existing policy preferences of either the CERT or the Governor's Office. The State is performing these and future analyses to inform policy design and the public on the potential economic implications of different design strategies.

The State used two models (Carbon Tax Analysis Model (CTAM) and REMI) in sequential fashion to characterize the effects of a carbon price on emissions levels and the broader economy through 2035 when the State must meet its second carbon emissions reduction limit. The preliminary analysis looked at two scenarios modeled starting in 2015: a low carbon price scenario beginning at $12 a ton (approximately the current price in the California market) and increased $.60 annually through 2020, and by $2/ton annually thereafter until 2035; and a higher carbon price scenario ($12 a ton in 2015, increasing by $8/ton annually thereafter). The higher price scenario reflects the CTAM model's estimate of the price levels required to meet the State's statutory emission limits for 2020 and 2035, *assuming price was the sole driver of emissions reductions and no price volatility as a function of market manipulation or other factors.*

Additionally, one approach to reinvesting program revenues back into the economy was modeled[5] to examine the potential economic impacts of the State's use of program proceeds (See Appendix 3 for more information on the revenue reinvestment formula). The modeled approach was also intended to be illustrative, does not reflect a particular desired policy outcome, and is one of numerous scenarios that will be run by OFM in the future.

Under both preliminary modeling scenarios (and their associated assumptions), fossil fuel prices rise accordingly; statewide economic impact on jobs, GDP, and personal income are likely to be close to zero (in the noise) or slightly positive. Results vary more at the industry level with some industries negatively affected and some positively affected. Again, the changes are small under both pricing scenarios. During the presentation to the CERT on October 28th, OFM emphasized that how revenue from either allowance sales or tax receipts is allocated will be an important determinant of how impacts are distributed across economic sectors and income groups.

Additionally, CERT members recognized how the assumptions underlying the model (See Appendix 3) are critical to interpreting results. In particular, certain CERT members pointed out that the scenarios anticipated no exceptional innovation or structural shifts in the economy that significantly shift energy demand and supply patterns. For future iterations, the State is working to better understand the role of innovation in shaping demand, increasing the availability of new fuel options, and lowering overall energy costs.

These and other observations from the CERT will help guide further iterations of the economic analysis, and these will be made publicly available as they are completed.[6] *These presentations helped frame and influence the CERT member perspectives provided under each of the Evaluation Framework topics presented in Section 3.*

[5] These scenarios used one revenue reinvestment formula to model potential impacts: 30% to Working Families Tax Credit; 15% B&O tax cut to trade exposed industries; 40% B&O tax cut to construction sector; 10% Public Utilities Tax cut to electric power generation, transmission, and distribution; and 5% to state General Fund. As mentioned above, the modeled approach was also intended to be illustrative, does not reflect a particular desired policy outcome, and is one of numerous scenarios that will be run by OFM in the future.

[6] See Appendix 3 for more information.

3. Taskforce Evaluation Framework for Consideration of the Design and Implementation of a Market Mechanism in Washington

The Governor's Executive Order outlined several requirements for the market mechanisms program and criteria for use in the Taskforce's deliberations. CERT members shared their interests and priorities for the design and implementation of any potential market mechanism during the first two CERT meetings. From those discussions the Evaluation Framework emerged bringing together the criteria outlined in the Executive Order and the interests and priorities shared by CERT members. The eight topics in the Evaluation Framework (Table 1) reflect topics of substantial relevance to any market mechanism system (including for Washington) and served as the basis for CERT member review and consideration of policy design and implementation options for a carbon emission limits and market mechanisms program in Washington.

Table 1: CERT Evaluation Framework Topics

Topic #	Evaluation Framework Topics
1	Reach WA's emissions reduction limits with high confidence and consideration of WA's emissions and energy sources
2	Establish a carbon price signal sufficient to stimulate a shift in investment patterns
3	Minimize the implementation costs and competitiveness impacts to our businesses and industries (flexibility)
4	Maximize the economic development benefits and opportunities for job growth in WA
5	Minimize cost impacts to consumers and protect low-income communities from increased energy costs
6	Reduce the public health risks associated with carbon pollution, especially for vulnerable populations
7	Allow for effective administration (oversight, regulation, monitoring, evaluation, and adjustment) of the program and markets created or affected by it
8	Influence and catalyze national and international action

The remainder of this section addresses each of the Evaluation Framework topics providing first background information on the topic, followed by CERT member perspectives.

- **Background Information** reflects presentations provided to CERT members during meetings, with this information informing CERT member perspectives and findings for the design and implementation of a carbon emissions limit and market mechanisms program in Washington. This section draws heavily on the presentations and background materials that were prepared for the deliberations including *WA CERT Evaluation Framework, Review of Topics: Version 2* (See Appendix 5 for link to Meeting 4 Materials).
- **CERT Perspectives** capture CERT member observations shared verbally during CERT meetings and in written feedback following each meeting. These perspectives are designed to provide guidance to the Governor if a particular carbon emissions limit and market mechanism program is designed and

implemented. This synthesis seeks to provide the full range of perspectives shared by CERT members and is designed to provide a foundation for further, thoughtful consideration of a carbon emissions limit and market mechanism approach in Washington. CERT members agree that a thoughtful policy going forward needs to take these perspectives, and others in the broader community, into account.

1. Reach WA's emissions reduction limits with high confidence and consideration of WA's emissions and energy sources

***Background**:*

Reaching the State's emission limits with high confidence depends on several key design factors, including the setting or targeting of a specific cap on emissions, coverage of key emissions sources, and accounting for expected emissions from those sectors not covered by the market-based program. An emissions-based approach establishes a statutory declining cap on aggregate emissions across covered sectors. The cap on emissions provides a long-term market signal to all emitters of the requirement to reduce emissions consistent with the emissions cap schedule. A price-based approach does not set an explicit cap on emissions, but the carbon price (i.e., tax rate) could conceivably be adjusted (increased or lowered) should the pace of carbon emissions reductions vary from the target trajectory. Each approach has the ability to cover the same emissions sources and greenhouse gases. The greater the coverage of emission sources, the greater the confidence will be in achieving the State's emissions limit. In the State of Washington, inclusion of transportation fuels, the largest contribution to the State's emissions, is central to achieving broad coverage and can be achieved under either approach, although a price-based system, in principle, should be easier to administer for a larger number of emission sources. Either system can align incentives and serve as a backstop to spur additional emission reductions in case other emission-reducing ("complementary") policies deliver fewer benefits than expected. Confidence in meeting the State's limits also depends on careful consideration of future emissions from sectors not covered by a carbon pricing policy.[7]

CERT Perspectives:

CERT members shared a range of perspectives regarding the contribution of emissions-based and price-based approaches to help achieve the State's emissions reductions limits with high confidence. Central to the discussions is CERT member recognition that confidence in the strength and integrity of the emission reduction commitment made through State policy, along with a clear and meaningful price signal, can act as a foundation for achieving Washington's statutory carbon emissions limits. Certain CERT members also emphasized that Washington must comply with its statutory limits.

Certain CERT member observations signaled that an emissions-based approach is generally considered to provide greater confidence that a specific emissions reductions limit will be achieved. In particular, certain CERT members observed that:

1. By establishing a statutory and declining cap on emissions, an emissions-based approach makes the State's carbon emissions over time predictable and enforceable; and
2. An emissions-based approach draws on the power of the market to establish a price for carbon emissions in support of meeting the State's emission limits.

[7] For example, sectors such as waste or agriculture are generally not covered by carbon pricing policies. However, all sectors are included in the State's overall emissions limit. Therefore, when setting the cap under an emission-based approach or a carbon tax under a price-based approach, expected increases or decreases in emissions from covered sectors need to be taken into account to ensure the State meets its overall emissions limit.

At the same time, certain CERT member observations highlighted that there are ways to design a price-based approach to support confidence in achieving the State's carbon emissions limits, while other CERT members emphasized that, comparatively, an emissions-based approach can be anticipated to provide greater inherent emissions reduction confidence. In particular, certain CERT perspectives highlighted the policy design options, such as adjustment to the tax rate in response to emissions levels, that can provide greater confidence in achieving the State's emissions limits. Certain CERT members also indicated that a price-based system is generally considered to provide greater confidence in the predictability of the economic impacts on the State's economy and can be more easily constructed to be revenue neutral if this emerges as an element of a program. A further CERT perspective indicated that a transparent (e.g., public disclosure) reporting and independent verification element for emissions reduction will be important to influence behavior. For example, the ability of the public to know the energy efficiency status of a building could be a key ingredient in driving material emissions reductions in this important emissions sector. This led certain CERT members to conclude that adequate transparency will depend heavily on thorough monitoring.

CERT members also discussed the importance of the scope (or coverage) of a market mechanism in relation to the level of confidence that the State will achieve its emissions limits. Considering that the transportation sector represents a substantial portion of the State's carbon emissions (46 percent in 2011), CERT members specified the importance of including the transportation sector in any market-based approach that emerges in the State. Certain CERT members observed that phasing in the coverage of different sectors could be a means to provide for a more stable transition from business-as-usual to improved carbon emissions performance. An additional CERT member perspective indicated that investing in low-carbon alternatives to covered emitters, including transportation fuels, will be critical to the system's success.

2. Establish a carbon price signal sufficient to stimulate a shift in investment patterns

Background:

Emissions-based and price-based market mechanisms seek to establish a common price signal across all covered emissions sources and emissions reduction opportunities. Conceptually, the price signal can serve to level the playing field among sectors and prompt emissions reducing behavior in the near-term. Under either an emissions-based or price-based approach, the strength of the price signal to stimulate investment depends on the carbon price level, price certainty, and long-term stability established by the policy. Under a price-based approach, the price level is fixed in advance, and this can be useful for informing long-term investment decisions. Under an emissions-based approach, the carbon price level, as reflected in allowance trading prices, can fluctuate depending on the allowance market. An emissions-based approach can be designed for greater price certainty through the use of price containment mechanisms, such as a floor and soft ceiling for prices (this is usually accompanied by a tradeoff of lower emissions certainty). Price certainty in an emissions-based approach will also depend on policy design features such as how the emissions cap is set, the availability of alternative compliance mechanisms (e.g., offsets), as well as other factors such as economic conditions, relative fuel prices, and the ability of Washington residents and businesses to adopt lower-carbon behaviors.

CERT Perspectives:

Underlying CERT deliberations was a common theme that the use of either market mechanism approach needs to support carbon prices that are sufficiently stable to protect consumers as well as support and attract investment. Certain CERT members highlighted Washington businesses' successful experience reducing their emissions and indicated that additional policy signals, such as a price on carbon, can help spur

additional emissions reductions. To be most effective, a carbon price should provide both low short-term volatility and long-term certainty, as excessive volatility and long-term uncertainty can undermine the effectiveness of a carbon price in promoting investment.

Certain CERT members suggested that a price-based approach could provide more price certainty because a specific tax rate is placed on a unit of carbon emissions. In this context, CERT members provided the following specific observations that a price based approach:

1. Could provide more cost effective emissions reductions and aid long-term business decision-making;
2. Makes setting a price on carbon more transparent than an emissions-based system; and
3. Appears to provide a more targeted means to reduce emissions from the transportation sector.

The potential for price volatility within an emissions-based approach was a consistent concern raised by certain CERT members. Others suggested that the tendency of the price to respond to economic conditions (moving downward when the economy is low and demand is soft) can be a positive feature. After hearing from other jurisdictions about their experience, certain CERT members highlighted that a variety of policy design options are, in theory, available to increase price stability of allowances when implementing an emissions-based approach. In particular, the options discussed include price controls such as setting a floor and/or ceiling on allowance prices, and market linkage to promote liquidity. However, other than a price floor, these approaches largely remain untested in practice. Certain CERT members further suggested that an emissions-based approach may be more stable over time, and this policy "stickiness" would provide greater certainty to business decision-making and may result in a stronger long-term price signal. CERT members did recognize that either approach could be vulnerable to future alterations and observed that stability of the policy commitment over time is important to provide predictability to businesses and consumers. CERT members also discussed the potential to provide the Governor with the flexibility to influence allowance prices under specified conditions. Certain CERT members indicated support for this type of flexibility, particularly to control price spikes, while other CERT members registered concern that this option, structured into policy, would create uncertainty for both reaching emissions targets and for sustained business investments in, for example, clean energy.

3. Minimize the implementation costs and competitiveness impacts to our businesses and industries

Background:

A comprehensive emission reduction program in Washington will have costs and benefits. While some industries will gain competitive advantage relative to other regions, others have concerns about adverse impacts to competitiveness due to the costs of emissions reduction. As compared to direct regulation based on facility-specific emissions standards or particular technologies to be installed, market mechanisms aim to provide greater compliance flexibility in an effort to lower overall cost. Market mechanisms aim to put a price on carbon that gives businesses the option to either pay the carbon price at their current emissions level or reduce their own emissions through any means they choose (e.g., efficiency improvements, fleet upgrades) and pay a lower overall cost of compliance. A price-based approach, in general, provides business with two compliance options: reduce emissions or pay the carbon price for GHGs emitted. An emissions-based approach often provides additional options for compliance, such as allowance trading (the ability to sell and purchase allowances), banking (buying allowances in one compliance period and holding them for use in a later compliance period), acquisition of offsets (reducing one's compliance obligations by purchasing carbon credits from other sectors that are not required to do so for their own compliance obligations), allowance price containment, and multi-year (e.g., three year) compliance periods. Also, to the extent that a

price-based system is inherently simpler, many of the cost containment and flexibility design features of an emissions-based system would not be applicable. The use of offsets or banking could be, in principle, applied to both approaches, and both approaches can offer revenue neutrality to all or select sources and individuals, by providing, for example, a commensurate reduction in non-carbon taxes, or through a dividend/rebate approach.

Internalizing carbon costs in Washington may be a source of competitive advantage for some businesses in Washington, particularly insofar as Washington has a rich endowment of clean energy resources. However, from a competitiveness impacts perspective, under either approach, certain businesses and industries in Washington could face higher production costs compared to competitors in regions where carbon costs have not been accounted for and internalized. In particular, energy-intensive and trade-exposed businesses and industries are likely to face greater competitiveness risks due to a carbon price. Companies could choose to relocate to those regions without a carbon price to maintain their competitiveness in the global marketplace; this would lead to relocation rather than reduction of emissions, a risk referred to as "carbon leakage." By directing revenues (or tax rebates or exemptions or free allowances) to energy-intensive and trade-exposed industries in Washington, market mechanisms can reduce or eliminate competitiveness concerns. Free allowance distribution, under an emissions-based system, or tax rebates or exemptions as mentioned above, under a price-based system, can be energy efficiency-based (or production-based). Companies would have the potential to raise revenue by selling allowances if they reduce emissions through increases in energy efficiency.

CERT Perspectives:

CERT members expressed substantial interest in and concern about the potential competitive impacts to Washington industries of placing a price on carbon and expressed a need (see Finding 4) for the State to undertake analysis to sharpen the understanding of impacts and the potential for mitigating these impacts, including recognizing the risks to globally competitive industries. In this context, CERT members shared their (at times differing) perspectives related to a variety of policy design features available to mitigate impacts of concern (competitiveness and leakage impacts).

1. Regional Approach: Certain CERT members highlighted the need for Washington to take a regional approach to better level the playing field between in-state and out-of-state companies. For example, certain CERT members noted that there is an open question about the potential to apply border adjustments, or border taxes, to products imported to Washington so that they face a similar effective carbon price. Certain CERT members shared that a price-based system could be more effective at targeting emissions from imports to the Washington economy. Other CERT members emphasized that there are Washington industries that must compete beyond the region in national and global markets – a regional approach would have limited or no impact on the playing field for these companies.
2. Compliance Flexibility: Overall, CERT members understood that either a price-based or emissions-based approach provides for greater flexibility than direct regulation and can provide for more economically efficient emissions reductions and can add to price stability (that in turn lowers risk to long-term business investments) as a result. Certain CERT members, however, highlighted that emissions-based systems provide a greater range of compliance options. However, an emissions-based program would likely have higher overall administrative costs compared to a price-based approach – an effect potentially partially mitigated by linkage with other systems.

3. Offsets: CERT members discussed the use of offsets as one means to lower compliance costs (note: although often associated with emissions-based approaches, offsets can play a role in a price-based approach). Generally, CERT members' observations focused on the trade-off of the flexibility offsets can provide with the concern that they could undermine emission reductions in the covered sectors (e.g., reduce actual emissions reductions within a state) and fail to address public health impacts, in general, and particularly on vulnerable communities. Certain CERT members provided specific perspectives on the use of offsets in an emissions-based policy context:
    a. Strict offset protocols (e.g., stricter than those used for the California market) are desirable to protect vulnerable communities from the potential negative consequences of offset use.
    b. The State should consider adopting the California eight percent limit on the fraction of an entity's compliance obligations that can be met through offsets.
    c. Forestry and agricultural offsets could help reduce carbon in the atmosphere while providing new business opportunities for these economic sectors.
    d. A key to maximizing the benefits of forestry offsets is to maintain the health and vitality of Washington's working forests.
    e. It is important that all offsets be located within the United States, Mexico, or Canada (this is the same approach as California, but it is stricter than what was suggested as part of the WCI design framework).
    f. Trading outside of the cap (or "offsetting") can undermine the integrity of the system, can raise environmental justice concerns, can reduce public confidence in the policy, and may discourage necessary investments for transition and job creation in the energy sectors.
    g. Offsets can support allowance price stability and thereby help reduce risk to long-term business investments.
4. Allowances: The CERT also discussed the lessons from other emissions-based programs regarding the distribution of allowances under an emissions-based approach. Certain CERT members provided the following observations:
    a. All or a substantial portion of allowances should be auctioned, and transportation fuels should not receive free allowances.
    b. Free allowance distribution should not lead to windfall profits for covered entities.
    c. Free allocations for energy-intensive, trade exposed industries should be phased in to provide time for a stable transition and should be pegged to efficiency.
    d. The program could have initially low allowance price minimums and ceilings and/or more modest emissions reductions requirements for initial compliance years.
    e. In general, policy makers should avoid negative outcomes for early adopters. An allowance allocation system should not disadvantage jurisdictions (in the case of multi-state programs) or entities with a long history of investment in low-emission resources and energy efficiency programs.

Some CERT members did express concerns that measures targeted to address costs and competitiveness for businesses could harm consumers and communities even while they protect business interests. From this perspective, allowing the excessive use of offsets could mean minimal actual emissions reductions in the State of Washington, thereby excluding communities from the public health benefits associated with emissions reductions. These CERT members further observed that rebating revenues directly to emitters does very little to mitigate increased costs to consumers and misses the opportunity to invest in projects that will allow Washingtonians to decrease their emissions, particularly in the transportation sector where individual carbon emissions play a big role.

4. Maximize the economic development benefits and opportunities for job growth in WA

Background:

Both price-based and emission-based approaches can spur investment and employment growth in some sectors as the shift from carbon-intensive to clean energy sources moves forward. This shift in private investment patterns – how we spend our energy dollars – is a critical driver for the transition to a low-carbon economy. Both price-based and emissions-based approaches can also generate revenue for the State. A price-based system will generate tax revenues and can provide tax exemptions or commensurate tax reductions in non-carbon taxes. An emissions-based system can generate allowance auction proceeds and provide for targeted allowance distributions. The amount of revenue generated will depend on the carbon price, the coverage of the policy, and the amount of tax exemptions or free allowance distributions offered by the program. Revenues from either an emissions-based or price-based system can be directed to a variety of purposes. These include economic development and opportunities for job growth, mitigating impacts to consumers and low-income populations, and investments in alternative energy technologies and modes of transportation. For example, revenues could be redirected toward small businesses and corporations by reducing other taxes such as Washington's B&O tax. Investment in projects that improve energy efficiency, such as building retrofits, and reduce the carbon intensity or use of fuels, such as green infrastructure development, public transportation, renewable energy, and low carbon fuels, could support job growth. Revenue policy can seek to help Washington citizens avoid the rising price of fossil fuels by providing practical, affordable energy and transportation alternatives. Job training programs targeted at Washington residents, particularly low-income and minority residents and current employees in impacted industries and emitting facilities, can be directed toward the needs of infrastructure investment projects and support maximum job creation and existing job security. The degree to which either market mechanism will spur private sector investment and contribute to economic development and job growth will depend, as noted above, on the strength of the carbon price signal as well as the accessibility of low-carbon alternatives. The carbon price level, price certainty, long-term stability of the carbon pricing program, and the strength of the commitment to achieve emission limits are primary drivers of the overall effectiveness of the policy to stimulate a shift in investment patterns and behavior.

CERT Perspectives:

CERT members in their discussions acknowledged that emissions-based and price-based systems have the potential to generate revenue and the use of these revenues can be an important part of the design of the market mechanism. In general, CERT member discussions reflected five areas for the possible use of any revenues generated:

1. Address competitiveness impacts for trade exposed industries (e.g., fruit and aluminum producers).
2. Support the central emission reduction objectives of the policy.
3. Address any prospective adverse impacts on racial and economic equity.
4. Provide for measurable improvements to public health impacts, particularly in communities impacted by emissions and low-income and minority communities.
5. Support adaptation investments to help, for example, communities strengthen resilience and agriculture to adjust to temperature and precipitation impacts.

General observations made by certain CERT members related to the potential role and use of revenues in support of market mechanism policy included:

1. The point of a carbon price is not to pay it – it is a signal to reduce carbon emissions and thereby avoid it. Not everyone, however, is in an equal position with respect to their opportunities to reduce emissions or their economic exposure to carbon prices. In response, policy should be designed to facilitate the transition to an energy economy that systematically reduces carbon emissions, with particular focus on the transition needs of workers, businesses, consumers, families, and communities for whom the transition presents the greatest challenges. For example, workforce development and job training development for "green jobs" could be part of policy.
2. Revenues from either system have a history of not going to the intended purposes (e.g., some states have "raided" or "swept" these funds when economic conditions became difficult or non-supporters assumed office). There is a need to protect the integrity of original revenue use intentions.
3. Revenue must not fund projects that could lead to increased or sustained carbon emissions.
4. Any use of revenues needs to be calculated with the assumption that emissions will in fact decline per the statutory limits. To avoid creating constituencies with an interest in prolonged emissions, revenues can be recycled directly to consumers and used to provide consumers with more practical and affordable alternatives, as well as create sustainable jobs, in order to ensure that the program delivers results over the long haul.
5. How revenues are spent is just as important, or more so, than the actual price on carbon emissions. The focus should be on using revenues to maximize economic efficiency. This drives a need for an economic analysis of the impacts of revenue options that can enhance economic growth and opportunity without risking the carbon emission reduction goals. Consideration should be given to reducing the capital and marginal labor tax.

Certain CERT members provided the following perspectives on how revenues could be invested to maximize economic development opportunities particularly in the context of a transition to a low carbon economy:

1. Spurring economic development in the energy efficiency/clean energy sectors, supporting complementary actions by local governments to pursue smart growth, equitable transit oriented development (TOD), and development of alternative transportation modes (e.g., transit, rail, bikes, pedestrian).
2. Preservation, maintenance, and completion of major transportation corridor projects already underway in the State that provides an equitable share between maintaining and improving transportation infrastructure.
3. Caution was expressed about the emission impacts if the focus of transportation projects is strictly on increased capacity, with the suggestion that, to realize a reduction in greenhouse gas emissions from transportation will require some shift in how transportation corridors are finished and modified (e.g., transportation corridors that prioritize high capacity vehicles and goods movement over single occupancy vehicles, finishing HOV and transit only lanes, and providing additional vehicle electrification infrastructure).
4. Local GHG reduction strategies such as energy efficiency retrofits, waste prevention, recycling infrastructure, and forest protection and restoration initiatives.
5. Revenue allocation programs that include incentives and/or regulations that reward business for energy efficiency investments made at energy intensive facilities beyond "business as usual" (there will need to be careful accounting for real, verified emission reductions – incentives should be narrow, focused, targeted, and have an evaluation mechanism), as well as training to ensure existing and new workers can participate in emerging sectors.
6. Investments in electricity grid modernization.

7. Deployment of clean energy technologies, such as wind, biomass, solar, and nuclear.
8. Exemptions, rebates, and/or direct allocation to public transportation systems to address the impacts of increased fuel costs due to carbon pricing.
9. Protecting agriculture from fuel price spikes, supporting ports to utilize clean fuels, and creating dedicated goods movement corridors to address vulnerable community impacts.
10. Support traffic congestion management strategies that can also protect and provide high wage jobs, such as building dedicated clean goods movement corridors that will allow our ports to continue to efficiently move goods through the area.
11. Recognize that Washington State is one of the most beneficial places to invest in vehicle electrification as our electricity is low in greenhouse gas emissions and is scheduled to become more so with phase outs of coal fired power plants.
12. Carbon revenues should be used in ways that are consistent with the purpose of the policy – helping to lower emissions where possible, and in no case exacerbating the problem by increasing emissions.

5. Minimize cost impacts to consumers and protect low-income communities from increased energy costs

Background:

Carbon market policies have the potential to be regressive, that is, impact lower income households disproportionately. Revenues from either an emissions-based or price-based system can be directed at the cost impacts to consumers and energy cost increases experienced by low-income communities**.** Using revenues to reduce preexisting taxes (e.g., sales tax, business and occupation tax, or property tax) are a means to adjust the net costs faced by consumers, while reductions to these taxes require taking into account the overall tax structure. Directing revenues to fund tax rebates to low-income households or equal lump-sum rebates (e.g., California's "Climate Credit" to electricity ratepayers) has been directed to offset regressive effects to lower income households. Revenues could also be used to subsidize electricity and natural gas rates for lower income households, and/or invested in job training and infrastructure projects.

CERT Perspectives:

CERT discussions recognized the reality that adoption of a market mechanism that will set a price on carbon will, at least in the near term, increase fossil fuel and potentially other prices to consumers and can be regressive in nature, thereby impacting low-income communities more substantially. Within this context, certain CERT members provided the following observations to emphasize the importance of managing for the potential equity impacts of an emissions-based or price-based carbon emissions reduction policy.

1. Climate disruption is inequitable: those who have done the least to cause it generally suffer the worst of its consequences – not only financially, but from a human health standpoint. Climate policy must be designed to ease rather than exacerbate that inequity. At a bare minimum, climate policy cannot further disadvantage low-income residents and communities of color, and policy must seek opportunities to aim higher than the status quo. Affordable energy and transportation services and shared economic opportunity are vital. Where climate policy might otherwise adversely affect these imperatives, that effect must be mitigated. Where it can advance these imperatives – ensuring that the changes necessary to tackle the climate crisis are practical and affordable for all – it must.
2. Adopt a model, perhaps comparable to the one used in California, to distribute revenue to disadvantaged communities. Set aside 25 percent of revenues for the benefit of disadvantaged

communities, with 10 percent reserved for direct investment in these communities. An added CERT reflection on this perspective pointed out the importance of defining "disadvantaged communities" and "direct investment," with the suggestion that, for electricity consumption, allocating funds to customers eligible for low-income energy assistance programs could be one approach, while direct payments could be an interpretation of "direct investment."

3. Investment should be designed to increase access to non-carbon alternatives for low-income communities and communities of color by reducing cost barriers and providing education about options. In anticipation of the impending effects of climate change in low-income communities, investment should also fund resiliency efforts.
4. Adjust for any disproportionate impacts due to increases in transportation costs for rural communities that have a greater average Vehicle Miles Traveled.
5. Use revenues to invest in targeted mitigation strategies that help vulnerable communities meet the increased cost of basic needs (e.g., Working Families Tax Rebate, investments in basic food, utilities, and transportation subsidies).

6. Reduce the public health risks associated with carbon pollution, especially for vulnerable populations

Background:

To the extent that either an emissions-based or price-based approach reduces carbon emissions, they also can support reduction in any associated public health risks of global climate change and conventional local air pollutants for Washington residents. The degree to which either an emissions-based or price-based approach lowers these emissions depends on the contribution to reducing carbon emissions globally and other air pollutant emissions (e.g., carbon monoxide, nitrogen oxides, sulfur oxides, and hydrocarbons) associated with carbon pollution locally. The design of a market mechanism can affect the location at which carbon and other pollutant emissions reductions occur. This is important as often those most adversely affected by, for example, lung health effects of climate change are living in closest proximity to pollution sources such as transportation corridors and manufacturing facilities. Both systems are designed to provide the market with the flexibility to reduce emissions at the location where they can be achieved at lowest cost. Whether or not Washington's system is linked can have implications on the degree of flexibility in the location of emissions reductions. In a linked system, the extent to which emissions reductions will occur within Washington State communities would be uncertain. In a price-based approach, emission reductions would have a greater certainty to occur within the State's borders. As a benefit to public health, revenues from either policy approach, in principle, could be directed to alter air quality in vulnerable communities that have a high burden of pollution.

CERT Perspectives:

CERT discussions acknowledged the potential impacts lowering carbon emissions could have on lowering the public health impacts of other air pollutants on local communities. CERT members further recognized that the policy actions taken by Washington will need to help spur broader action from other jurisdictions for relief from climate impacts to emerge.

Regarding contributing to the reduction of public health impacts, certain CERT member observations regarding the importance of reducing the public health impacts associated with carbon pollution and other air pollutants, especially for vulnerable populations included the following.

1. In addition to the impacts from increases in ozone and fine particulate matter (for example, from the four-fold increase in wildfires in the Western states in recent years), climate change will impact human health from extreme weather events (droughts/floods); animal, water, and food-borne diseases; food production (agricultural yields and fishing); and other factors.
2. It is a priority to ensure the environmental integrity of the cap on emissions and ensure that emitters that have a negative environmental impact on their neighboring communities are held accountable to those communities. It will be impossible to meet equity goals without also striving to generate positive impacts for the communities most disproportionately impacted by emitters.
3. To ensure benefits to public health, revenues from either policy approach should be directed to alter air quality in vulnerable communities that have a high burden of pollution. Additionally, accountability measures that limit compliance flexibility (preferably without increasing the costs of abatement) for emitters in highly polluted areas can provide further protections for vulnerable communities.
4. There are important short-term public health gains related to the reduction in black carbon emissions from diesel exhaust and wood smoke. There are a number of environmental justice communities that are close to ports and transportation corridors that have high cancer risk and high rates of juvenile asthma that could see substantial public health benefit from black carbon reduction efforts. This is one area where revenue from a carbon limit should be directed.
5. An important design element of any program would be the creation of a strong Environmental Justice Advisory Board (EJAB). For example, if the State were to adopt offsets or offer free allowances under an emissions-based strategy, an EJAB could have the authority to review and approve the impact of such policies on so-called EJ communities. An additional CERT perspective indicated that EJAB authority to approve/disapprove allowances could create great uncertainty for energy intensive globally competitive industries.
6. Climate adaptation measures should be funded. Washington must recognize that some climate impacts are inevitable and these impacts will likely have disproportionate impact on low-income communities and communities of color. Furthermore, the hardening of vulnerable infrastructure (such as sewage treatment and water treatment facilities, transportation corridors, and levies and dikes) is a much needed investment and would be a linkage the public would understand and support.
7. A linked cap-and-trade system by definition does not guarantee that all required emissions reductions occur within state boundaries; thus, losing some of the ancillary benefits of in-state emissions reductions (e.g., air quality improvements) is better ensured by a price-based mechanism.

7. Allow for effective administration (oversight, regulation, monitoring, evaluation, and adjustment) of the program and markets created or affected by it

Background:

An emissions-based approach or a price-based approach can build on existing administrative structures in the State or the region to implement and administer the program. A price-based approach could use existing State tax collection and enforcement structures. Drawing on existing administrative structures provides the potential for more efficient overall administration. An emissions-based approach is administratively more complex and would require new staffing and organizational structures but could benefit from administrative systems already in place to service existing emissions reductions markets such as those supporting the Quebec and California markets where allowance tracking tools, an allowance auction platform, and offset registries exist. Using these existing administrative systems for a Washington emissions-based program

would very likely require linking to an existing market. (Information on the specific administrative structures that would likely need to be identical or harmonized to a linked California-Quebec market is reviewed in the Meeting 4 Materials. See Appendix 5.) Either approach is likely to require that Washington State agencies develop certain new capacities and expertise to administer the program, however, a price-based approach would very likely require significantly less than an emissions-based approach.

CERT Perspectives:

In general, CERT observations surfaced a series of themes related to the administration of a market mechanism program:

1. A price-based approach, because of its ability to leverage existing tax administrative infrastructure and the greater, overall simplicity would be more streamlined and efficient for the State to implement. Related observations included:
    a. The concept of a tax is better understood than a cap-and-trade system making messaging related to a tax much more straight forward (though not necessarily uncontroversial).
    b. A tax is simpler, more efficient, and a better match for Washington's carbon emission circumstances.
2. An emissions-based approach that is linked to the Quebec and California market would create an opportunity to leverage existing administrative infrastructure already created by those jurisdictions, thereby improving the efficiency of implementing the program.
3. An emissions-based program would necessitate the creation or expansion of an administrative agency responsible for constantly monitoring market structure and constantly course correcting as new issues arise. The costs and complexity of such a structure under the emissions-based approach could therefore reduce revenue recycling prospects.
4. Under an emissions-based approach, there is substantial potential for market manipulation, and thus a need for a market monitor with teeth and the costs associated with it. A market monitor and a price cap are needed to avoid market dysfunction and associated economic dislocation.

Certain CERT members shared observations related to the importance of simplicity in policy design indicating that political pressures will tend to drive any policy mechanism toward complexity, while simplicity is critical for public understanding as well as for both effectiveness in the short-term and sustainability in the long-term. Related to the administration and oversight of an emissions-based approach, certain CERT members shared that the State should consider whether it is possible to limit trading further, for instance, to only those entities with compliance obligations.

8. Influence and catalyze national and international action

Background:

Emissions-based or price-based policy approaches provide a potential opportunity for Washington State to contribute to, influence, and catalyze greater regional, national, and international action on carbon emissions reduction. Broader action is vital to address the climate challenge at scale, and state and regional action has historically played an important role in building collective will. Neighboring jurisdictions have (British Columbia) or are discussing (Oregon) a price-based system, while other jurisdictions in the U.S. (California and Northeast States) have an emissions-based system. If either an emissions-based or price-based system is adopted in Washington this would serve as an example of carbon pricing as a policy designed to reduce carbon emissions. An emissions-based approach adopted in Washington could be "linked" to the existing Quebec and California markets (which are already linked), or a price-based approach adopted in Washington

could be coordinated with British Columbia to harmonize efforts and establish a common price signal across jurisdictions. In either case, Washington would serve as an example of the potential to adopt policy approaches that can be coordinated and, if suitably harmonized, managed for competitive disadvantages among the linked jurisdictions that have internalized a price on carbon.

CERT Perspectives:

Overall, CERT discussions signaled that if a market mechanism is adopted in Washington, then examining "linking" with other emissions trading markets and/or policy programs will be important, as a regional approach can help address certain critical competitiveness concerns as well as create an important foundation for catalyzing broader carbon emission reduction efforts by other jurisdictions. CERT input clarified that competitiveness concerns do exist as well with jurisdictions that are unlikely to adopt price- or emissions-based programs anytime soon. CERT perspectives on the ability of either an emissions-based or price-based system to better support broader regional and national efforts were mixed. Certain CERT members shared an interest in stimulating broader emissions reduction action and shared the observation that adoption of a carbon emissions limit and market mechanism program in Washington could have the potential to do so. Certain CERT members suggested that evaluating how well Washington's policy complements and integrates with other jurisdictions and how effectively it encourages greater total investment in solutions while minimizing any additional capital investments that exacerbate the problem will be important.

Certain CERT members observed that an emissions-based approach provided a clearer path and opportunity to link and provide momentum to a growing regional/national market through association with the Quebec and California market. Certain CERT members observed that a price-based approach provides comparable opportunity through coordination with the existing British Columbia carbon tax system, and certain CERT members noted that if discussions in Oregon lead to a price-based approach, Washington runs the risk of missing an opportunity to participate in and show leadership for a regional price-based initiative. Certain CERT members observed that there is also the risk, if an emissions-based policy is pursued in Washington, of creating a programmatic checkerboard among Oregon, Washington, and British Columbia, depending on policy developments in Oregon.

Possible linkage with the Quebec and California market received focused attention by the CERT, not only in the context of the opportunity to build momentum for further regional or national efforts, but also from the standpoint of economic and administrative efficiency. CERT discussions about the prospects of linking to the Quebec and California market produced the following observations in support of linkage.

1. Linkage is the only way to make a cap-and-trade system viable for Washington. The universe of covered sources in Washington is not large enough to stand alone; linking will create a larger, more stable market. The market will be more robust for trades and offsets, thereby increasing compliance options and reducing compliance costs.
2. Linkage to the California system allows for leveraging existing administrative structures, thereby lowering market operational costs relative to a Washington State-only cap-and-trade system, and with lower administrative costs, the opportunity increases to devote resources to ensure, for example, environmental justice priorities are met.
3. Linkage creates "stickiness" – a program in cooperation with others potentially is a more durable commitment.

Certain CERT members observed the following considerations and concerns about linking with the Quebec and California market.

1. Washington would be adopting a program designed through WCI but then primarily tailored for another State (California) that may not well reflect Washington's hydro-based system and transportation-heavy carbon emissions profile.
2. The California offset approach has remained controversial and has not met objectives for availability (as a percent of the cap), and this gap will take on more pressure with changes to the cap in 2015. Washington will require a different approach if offsets are to be a meaningful part of the program.
3. Quantifying and capturing the benefits of the forest products sector remains a contentious issue in the California cap-and-trade program. This creates a concern over offset opportunities, and concern that the Washington forest products industry would be at a competitive disadvantage to California offset projects due to a different, though no less effective, regulatory framework.
4. There will be a need to seek fair treatment for early and aggressive adopters of energy efficiency as Washington is a leader in this arena.
5. Before launching a program, it is critical for the State to have a better understanding about how allowances and offsets would flow between capped entities, and the comparative carbon emission reduction cost advantage or disadvantage on Washington covered entities and the resulting pattern of revenue flows and investments between jurisdictions participating in the market.
6. An alternative perspective was that Washington's offset protocols must be at least as strong as those in California if offsets are allowed at all, and that using allowance revenue to support biosequestration in forests might be a more promising pathway than offsets.
7. Linkage represents a fundamental trade-off between increased liquidity in larger markets and loss of autonomy. Washington State should strive to retain an appropriate degree of autonomy over any program so that it can rapidly respond to market dysfunction if necessary.
8. Design of a linked cap-and-trade system cannot be separated from EPA's 111(d) rule (Clean Power Plan) for greenhouse gas emissions from existing power plants. Before deciding on a linked cap-and-trade program, Washington State must have clear guidance from EPA on the conversion process between EPA's rate-based carbon goal and the mass-based approach. In addition, policy makers need to understand how linked markets can average the compliance cost for participating states, and what impacts this may have on Washington State compliance costs and energy process.

4. Taskforce Findings on the Design and Implementation of a Carbon Emissions Limits and Market Mechanism Program in Washington

CERT member perspectives and findings for the design and implementation of a carbon emissions limit and market mechanisms program in Washington have been informed by the CERT's discussions and information provided by other jurisdictions and technical experts throughout the CERT process. Several common themes emerged from the discussions, and they are presented below as CERT findings.

CERT Finding 1: ***Emissions-based or price-based market mechanisms add unique features to an overall carbon emissions reduction policy framework.***

Market mechanisms, such as the emissions-based and price-based systems examined during CERT deliberations, internalize a price on carbon, can provide coverage across a full or nearly full range of emissions sources, and do not dictate specific, and can provide for a range of, strategies to meet compliance

obligations and reduce carbon emissions. Market mechanisms aim to provide greater compliance flexibility at a lower overall cost. In this way, both mechanisms share important similarities in the context of creating incentives for carbon emissions reductions. Utilizing either of these market mechanisms if properly structured also holds the potential to position the State to build momentum for further action by additional jurisdictions, thereby helping to address competitiveness concerns and broaden efforts to reduce overall carbon emissions to a point where Washington's economy, communities, and environment would be less subject to the impacts of extreme weather and other greenhouse gas-related impacts. Through examining the emissions-based and price-based approaches implemented by other jurisdictions, CERT deliberations indicate that both come with advantages, while their disadvantages can be mitigated such that the differences between the two can be minimized. Importantly, although these mechanisms provide unique features, their design and any implementation requires thoughtful harmonization with Washington's existing and potential future policy framework.

CERT Finding 2: *Thoughtful and informed policy design, drawing on the lessons learned from other jurisdictions, CERT member perspectives, and additional analysis (see Finding 4), will be required to achieve either an emissions-based or price-based policy approach that is workable for the State of Washington.*

A market mechanism, either emissions-based or price-based, can be a foundational element of the State's overall carbon emissions reduction framework in support of meeting emissions reduction targets. It is in part in this context that the CERT has considered the design and implementation of a market mechanism policy approach for Washington. CERT perspectives, as captured in Section 3, indicate that either an emissions-based or price-based policy adopted by the State can help the state build a coherent carbon emission reduction strategy that aligns private incentives in support of reaching the State's emissions limits, while development of any such policy also has substantial design challenges. To effectively meet the objectives outlined in the Evaluation Framework, specific policy design elements available under either an emissions-based or price-based policy approach will need to address the following.

1. Generating confidence in the strength and integrity of the emission reduction commitment made through State policy to establish the certainty businesses and consumers need to achieve Washington's statutory carbon emissions limits.
2. Establishing carbon prices that are sufficiently stable to protect consumers as well as support and attract investment by limiting volatility and providing long-term certainty.
3. Ensuring that the policy addresses the potential competitiveness impacts that a price placed on carbon in Washington State (but not in other jurisdictions) might otherwise create, while maximizing the opportunity for competitive benefits from leadership in climate solutions.
4. Considering revenue recycling options (and other incentives such as allowance distribution if an emissions-based approach is adopted) including: 1) supporting the core emission reduction objectives of the policy; 2) addressing any adverse impacts on vulnerable communities and competitiveness; 3) supporting adaptation to a more resilient state in the face of more extreme weather and other climate impact challenges; and/or 4) mitigating negative economic impacts on people (particularly the most highly impacted, including low-income communities and communities of color) and business and supporting economic growth strategies through targeted reductions of existing taxes.
5. Structuring policy design to support improving local public health impacts associated with a full range of air pollution emissions associated with burning fossil fuels.

6. Examining "linkage" with other jurisdictions that have established a price on carbon (either through an emissions-based or price-based approach), as a more regional approach provides both challenges and opportunities. Linkage can have the downside of transferring other jurisdictions' policy priorities and regulatory frameworks, while at the same time linkage can help address certain critical competitiveness concerns, provide for greater administrative efficiency, as well as create an important foundation for catalyzing broader carbon emission reduction efforts by other jurisdictions so critical to the overall health of Washington's economy, communities, and environment.

CERT Finding 3: *Reaching the State's statutory carbon emissions limits will require a harmonized, comprehensive policy approach. A clear policy commitment and alignment of private incentives will increase the efficiency and effectiveness of that approach.*

The thoughtful and informed design of an emissions-based or price-based market mechanism, along with a well harmonized set of complementary policies, can help to align incentives and provide a foundational, long-term signal in support of economically efficient shifts in energy uses and investment patterns. Such a suite of policies will be highly interactive and needs to be built and harmonized in a cohesive and comprehensive manner to align both the short- and long-term incentives as efficiently as possible. With a better alignment of private incentives with the emission limits, other elements of a comprehensive policy approach can be simpler and work more efficiently.

A market mechanism can have a special role as the "economic infrastructure" for an overall policy design by establishing a common price signal across all emissions sources and emissions reduction opportunities. Market mechanisms can also complement measures to improve fuel and energy efficiency by helping to dampen the potential "rebound effect" of consumers increasing their fuel and energy usage in response to more efficient vehicles, lighting, appliances, or other changes. Overall, the policy framework will work better and more cost-effectively if incentives are aligned properly. With the introduction of either policy approach, a review of the existing (and anticipated) policies will be needed to ensure the overall policy framework that is created is well harmonized, integrated, and streamlined in order to avoid redundancy and unnecessarily burdensome requirements, while achieving meaningful and sustained emissions reductions.

In light of Washington's emissions profile, particular attention needs to be given to the transportation sector. With an explicit cost placed on carbon, the price of transportation fuel will increase. At the same time, complementary policies, along with the targeted use of revenues, will be designed to create downward pressure on overall transportation costs by incentivizing innovation and investment which diversify fuel sources, expand the use of low and zero emission vehicles, and expand accessible public transit. Overall, a policy design going forward needs to address an integrated approach which considers items such as land-use policies; equitable transit oriented development with alternatives to single occupancy vehicles such as adequate transit, zero emissions vehicles, and alternative fuel vehicle infrastructure; the different needs of rural communities and industries that require long distance travel; the effects on and needs of low-income communities; and the incentives for the electric sector to take on activities like vehicle electrification that reduce societal emissions while potentially increasing emissions in the electric sector.

CERT Finding 4: *Certain important questions remain unanswered and further analysis will be important to provide the foundation for a well informed and well-functioning policy approach.*

During CERT discussions and in written material submitted by CERT members, Taskforce members raised questions and expressed interest in additional analysis to better inform development of specific design

elements of any potential market mechanism for Washington State. CERT members understand that the State is doing further analysis as it proceeds toward a thoughtful policy design, and CERT members encourage this further work. CERT members further believe that continued analytical work as any policy is implemented will help define and characterize the impact of the policy on the issues described in the Evaluation Framework. CERT members have provided a useful, though not prescriptive or comprehensive, list of the information and analysis that could be helpful in shaping policies in Appendix 4. In general, these information and analysis items can be grouped into four areas: completing and validating macroeconomic analysis; refining the understanding of comparative advantage/disadvantage dynamics for Washington State business; refining the understanding of impacts to low/middle income and vulnerable communities; and refining the revenue picture.

Appendices

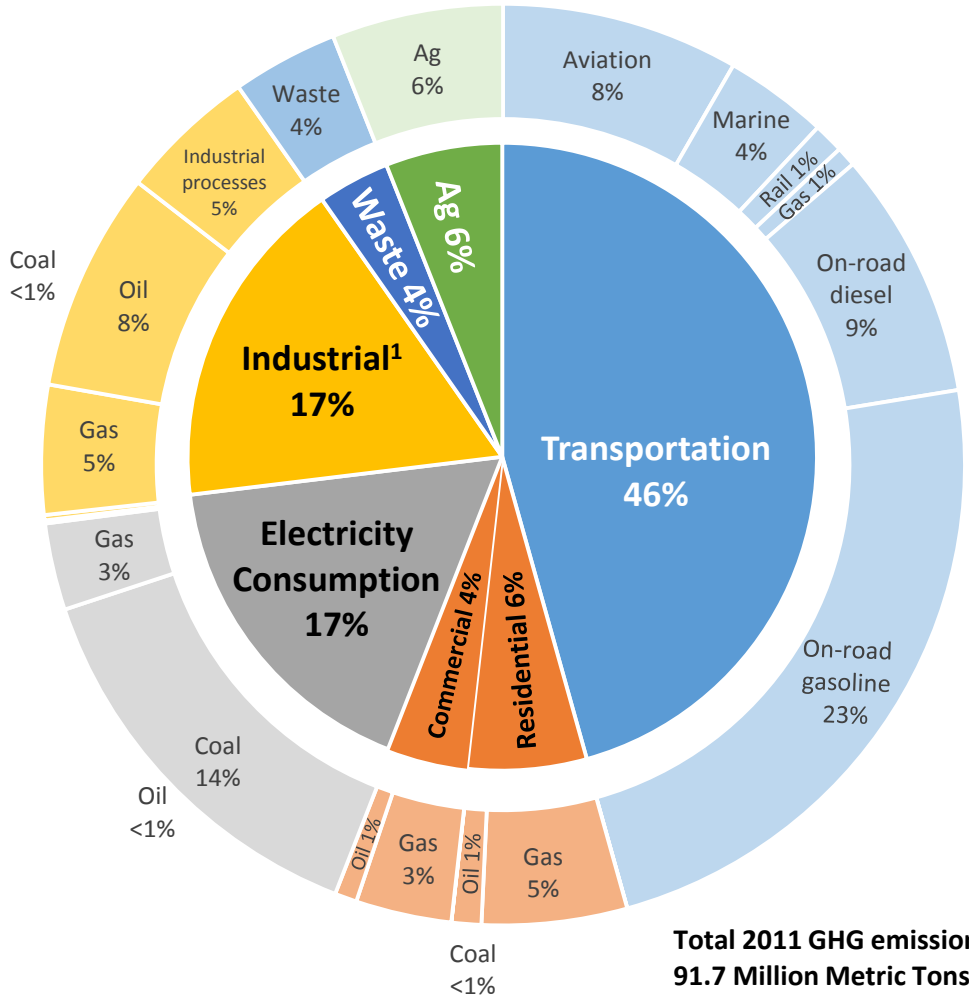
Appendix 1: Carbon Emissions Reduction Taskforce Members

Rod Brown, Cascadia Law Group (Co-Chair)
Ada Healey, Vulcan (Co-Chair)
Dow Constantine, King County Executive
Perry England, MacDonald-Miller
Adam Glickman, SEIU Healthcare 775NW
KC Golden, Climate Solutions
Jay Gordon, Washington State Dairy Federation
Kimberly Harris, Puget Sound Energy
Jeff Johnson, Washington State Labor Council
Renee Klein, American Lung Association
Dennis McLerran, Environmental Protection Agency
Colin Moseley, Green Diamond Resource Company
Dave Myers, (formally of) Washington State Building Trades Council
Mark Reddemann, Energy Northwest
Fawn Sharp, Quinault Indian Nation
Virinder Singh, EDF Renewables
Rich Stolz, OneAmerica
Brad Tilden, Alaska Airlines
Remy Trupin, Washington State Budget and Policy Center
Steve Wright, Chelan County Public Utility District
Chris Youngmark, United Steelworkers District 12

Appendix 2: Washington State GHG Emissions in 2011 and Washington's Historical GHG Emissions, Business-As-Usual Projection, and Emissions Limits

Figure 1. Washington State GHG Emissions, 2011. Source: Washington State Department of Ecology

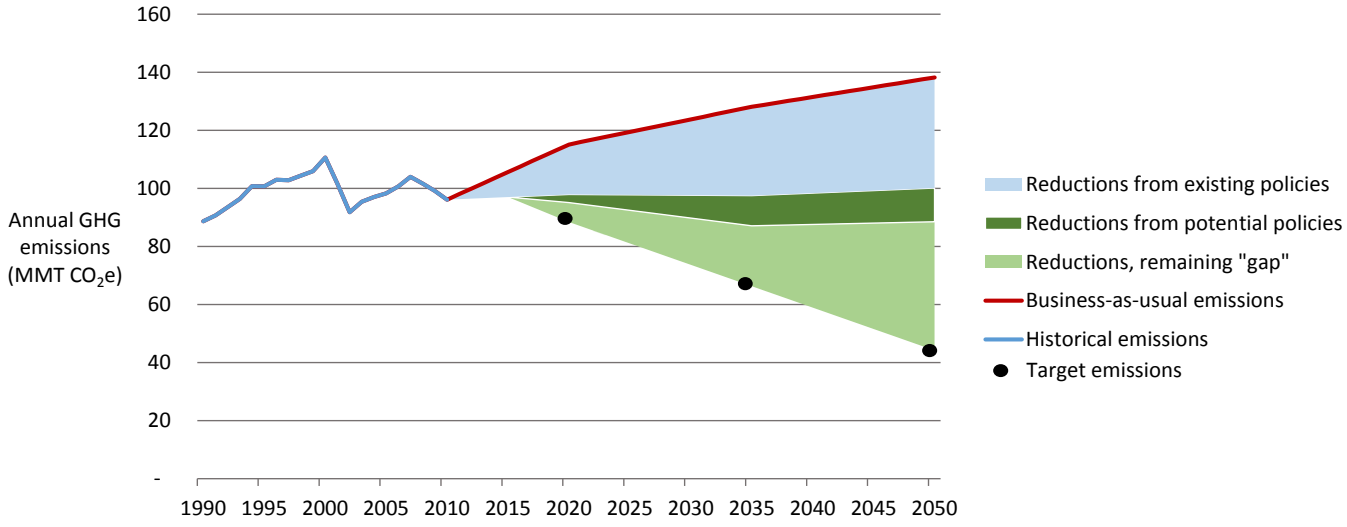
[1]Industrial includes fossil fuel industry (natural gas), industrial processes (e.g. cement, aluminum production, ODC substitutes, semiconductor manufacturing and SF6 from electrical power), as well as the industrial component of the RCI sector. Source: Washington State Department of Ecology. 2011 Inventory reflects correction made by the Department of Ecology in September 2014.



Total 2011 GHG emissions: 91.7 Million Metric Tons CO_2e

Figure 2. Washington's Historical GHG Emissions, Business-As-Usual Projection, and Emissions Limits.[8]

Shaded areas show expected reductions from existing[9] and potential policies[10] and the remaining "gap"[11].



[8] Sources: Washington State Department of Ecology. 2007. Greenhouse Gas Inventory and Reference Case Projections, 1990-2020. Olympia, WA: Washington State Department of Ecology, http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf; Washington State Department of Ecology. 2013. "2013 Inventory Projections."; Leidos. 2013. Evaluation of Approaches to Reduce Greenhouse Gas Emissions in Washington State - Final Report. Prepared for State of Washington Climate Legislative and Executive Workgroup (CLEW).

[9] Estimates of emission reductions from existing federal and state policies are drawn from Leidos (2013). Existing policies include the Energy Independence Act (1-937), Washington State Energy Code, GHG Emissions Performance Standards, Energy Efficiency and Energy Consumption Programs for Public Buildings, Purchasing of Clean Cars (Pavley/LEV II), Federal Renewable Fuels Standard, State Renewable Fuel (Diesel) Standard, Purchasing of Advanced Clean Cars (LEV II), Conversion of Public Fleet to Clean Fuels, and the Growth Management Act.

[10] Estimates of emission reductions from proposed state policies are drawn from Leidos (2013). Potential policies include Low Carbon Fuel Standard, Zero Emissions Vehicle Mandate, 5% Renewable Fuel Standard (incremental), Public Benefit Fund, Property Assessed Clean Energy, Appliance Standards, Feed-in-Tariff, and 375 MW Cap. Note these policies are NOT yet in place and estimates of emission reduction potential subject to revision.

[11] Further reductions needed to meet Washington's statutory GHG emissions limits. Under Executive Order 14-04, the Taskforce is charged with providing advice and recommendations to the Governor on the design and implementation of a carbon emission limits and market mechanisms program to ensure these limits are met.

Appendix 3: Carbon Emissions Reduction Taskforce Preliminary Economic Analysis – Update October 2014

Carbon Emissions Reduction Taskforce Preliminary Economic Analysis – Update October 2014

At the September 9, 2014, meeting of the CERT, the state's OFM modeling team presented preliminary economic analysis of two examples of carbon emission pricing. The analyses were intended to illustrate the models' capabilities and to spur CERT dialogue on how the State should design further analyses to inform policy design and the public debate. They were not calibrated to reflect any existing policy preferences of either the CERT or the Governor's office. Errors in the presentation of results reflecting the GDP impacts of the two pricing scenarios have been corrected and the updated presentation is available for public review at the Governor's CERT webpage.

Analysis Objective: The goal of the Washington State Office of Financial Management, working with consultants from ICF, was to identify a modeling approach that would improve understanding of the impacts to household income, job growth, state productivity and energy prices of putting a price on carbon through any of the policy mechanisms under consideration by the CERT (a carbon tax and a cap and trade program). CERT members also asked, what sectors will experience job growth or loss? Will there be impacts as the state transitions from more carbon-intensive processes to a greener economy? How might the revenues from a carbon policy be best used to create jobs or income, or both?

Model Selection: The State selected two models, which, when combined, can characterize the effects of a carbon price on emissions levels and the broader economy. These models were selected because they are the most current tools available to characterize the dynamic relationships between energy costs and the economy in a way that is sensitive to the particular dynamics of Washington's economy.

1. Carbon Tax Analysis Model (CTAM): This open-source Microsoft Excel-based model initially built for the Washington Department of Commerce is designed to forecast how energy consumption and CO2 emissions shift when the price of those emissions changes. CTAM calculates the price impact of a given price on carbon on each energy source in each sector of the economy and estimates the change in consumption levels for each energy source. CTAM captures economy wide price impacts and emissions reductions by modeling four main sectors of energy demand: residential, commercial, industrial, and transportation, and treats the electricity generation as an intermediate sector.
2. REMI is a best in class, dynamic forecasting and policy analysis tool. REMI is an econometric, input-output model that can characterize complex relationships between industries in an economy. REMI is being used here to analyze economic growth as well as income distribution impacts - negative to positive – of different carbon prices as well as different approaches to recycling revenue obtained through carbon pricing policy back into the economy. REMI uses the carbon pricing and emissions data generated by CTAM as inputs in its analysis of the broader economy.

Key Assumptions & Inputs: Two scenarios, a high and low carbon price, were modeled, starting in 2015 (for modeling purposes) and running through 2035 when the state must meet its second emission reduction limit. The following assumptions and source data are important to interpreting the results.

1. CTAM requires the input of carbon prices for each year in the model run. Carbon prices in the low price scenario began at $12 a ton (approximately the current price in the California market) and increased $.60 annually through 2020, and $2 annually thereafter through 2035. For the higher price scenario, prices began at $12 a ton and increase by $8 annually thereafter. The higher price scenario reflects the model's estimate of the price required to generate emissions sufficient to attain the emissions reductions limits set in statute for 2020 and 2035 as if price was the sole driver of emissions reductions.
2. CTAM also requires fuel costs be input. Fuel costs were derived from Pacific Region forecast of the Annual Energy Outlook published by the Energy Information Agency, an office of the US Dept. of Energy that generates some of the most sophisticated energy forecasts available. Regional gasoline and diesel prices were adjusted by modeling staff in the Commerce Department to estimate Washington prices.
3. The "business as usual" (BAU) reference scenario assumes that a number of federal energy efficiency policies that halt, or are set to sunset, during the modeled period, are in fact extended. It does not incorporate the impacts of new policies under consideration such as EPA's newly released Clean Power Plan proposal (111D).
4. Revenue estimates assume 100% of emissions are paid for, either in the form of a carbon tax or a in the form of 100% auction of allowances under a cap and trade program. .
5. Models do not provide for exceptional innovation or structural shifts in the economy that significantly shift energy demand and supply patterns.
6. Additional emissions reductions from spending of revenues are not estimated.
7. Revenue recycling formula used B&O tax cuts to simulate attempts to combat leakage through support to affected sectors. "Trade exposed industries" were identified through a preliminary consideration of businesses that produce sizable quantities of carbon dioxide; have significant outside competition not subject to the WA emission-reduction program or to an equivalent program implemented in other jurisdictions; and face a substantial percentage increase in its costs as a result of the emission-reduction program. The rest of the recycled revenues were allocated to addressing impacts on low income communities, transportation needs and clean electricity.

Key Findings:

- Economic: **The net effects of both scenarios are positive.** The net statewide economic impact on jobs, GDP and personal income under both pricing scenarios is, however, small.
- Results vary more at the industry level with some industries negatively affected and some positively affected. Again, the changes are small under both pricing scenarios.
- Fuel and Energy Costs: Increasing but at different rates: natural gas the most and gasoline increasing at a slower rate.
- Emissions Under Low Price Scenario: Under the low price scenario we do not reach the 2020 or 2035 emissions reduction limits.

- Emissions Under High Price Scenario: Under the high price scenario we hit both limits because the carbon price was chosen so that the limits were met.
- Sectors gaining most jobs (~6-20% over BAU) under both pricing scenarios include traditional industries such as construction, chemical manufacturing, electric power generation and transmission and iron/steel manufacturing; sectors losing jobs (~2-5% over BAU) include natural gas, pipeline transportation and apparel manufacturing.

Next Steps: The State is working with its consulting team to prepare a second round of analyses that may include additional pricing scenarios, model additional revenue recycling formulas and provide additional detail on impacts to households of various income levels. Round two analyses will ask what does the income distribution look like for the lower quintiles with energy prices up? And, to what extent do the rebates offset the increased energy prices, gas prices and other costs of transportation? Also, the analysis team is working to better understand the role of innovation in shaping demand, increasing the availability of new fuel options and lowering their cost. While these analyses will not be complete in time for CERT consideration, they will be made publicly available by the end of the year to support continued debate over carbon pricing in Washington State.

Appendix 4: CERT Finding 4 Information and Analysis Items

1. Completing and Validating Macroeconomic Analysis
    a. Effects on Washington State trade activity.
    b. Net job impacts by sector.
    c. Impact on personal income by income level (e.g., quintile), especially the lowest quintile, and how different types of revenue recycling impact personal income.
    d. Impacts across economic sectors, geographic areas, and social groups.
    e. Impacts of reduced health care costs (e.g., fewer ER visits and less lost productivity due to better air quality) on economic analysis outcomes.
    f. Impacts of a covered source threshold lower than 25,000 MT CO2e per year.
    g. How revenue can incentivize the transition to a new energy economy.
    h. Overall economic impacts without any revenue recycling (to isolate the potential impact of a price on carbon under a worst case scenario where such factors as innovation and future policy changes are not considered).
    i. The impacts of a range of revenue recycling strategies to understand impacts on the economy.
    j. Present modeled impacts in the context of climate impact costs.
2. Refining the Understanding of Comparative Advantage/Disadvantage Dynamics for Washington State Business
    a. Marginal abatement cost curves for Washington State emitters to support better understanding of the comparative position of WA covered sources in any system potentially linked to California and Quebec. Moreover, this analysis allows a better understanding of the total cost of implementing emissions reductions, assuming no change in current technology thereby helping to identify least cost options for emissions reductions that should be pursued first and where technology enhancement efforts should be focused to keep total costs as low as possible.
    b. Analysis to inform what industry sectors may be given allowance allocations.
    c. Information on transaction and administrative activities and associated costs to understand market participation complexity and burden.
    d. Identify sectors that experience specific advantages/benefits under various modeled scenarios.
    e. Analysis to inform the impact of exempt emissions on the reductions needed from covered sectors.
3. Refining the Understanding of Impacts to Low/Middle Income and Vulnerable Communities
    a. Identify current environmental conditions – particularly with respect to air quality, public health, and demographic data – in communities located near facilities emitting more than 25,000 MT CO2e.
    b. Identify the locations of disadvantaged communities to enable anticipating and preempting some of the social costs of implementation.
    c. Characterize impact to workers, particularly in the vulnerable fossil fuel dependent industries.
    d. Examine how auction or carbon tax revenues can offset potential impacts to populations that might be unfairly or disproportionately impacted by price increases.
    e. Examine how low-income and vulnerable communities can gain greater and more affordable access to low-carbon energy and transportation services.
    f. Better characterization of public health impacts under a market mechanism.

4. Refining the Revenue Picture
    a. Anticipated revenues of a price on carbon and how this revenue picture can differ between an emissions-based and price-based approach.
    b. Policy mechanisms for assuring the State's ability to maintain integrity of the original purpose for the distribution of revenues.

Appendix 5: Links to All CERT Materials

Main Carbon Emissions Reduction Taskforce Website:
http://www.governor.wa.gov/issues/climate/cert.aspx

Meeting 1 Materials:

Agenda and advance meeting materials:
http://www.governor.wa.gov/documents/issues/climate/CERT_meeting1_advance_materials.pdf

Taskforce member list: http://www.governor.wa.gov/documents/issues/climate/CET_members.pdf

Executive Order 14-04: http://www.governor.wa.gov/office/execorders/documents/14-04.pdf

Request for Qualifications and Quotations:
http://www.governor.wa.gov/documents/issues/climate/CERT_RFQQ.pdf

Meeting 2 Materials:

Agenda and advance meeting materials:
http://www.governor.wa.gov/documents/issues/climate/CERT_meeting2_advance_materials.pdf

Summary of Emission Trading Systems:
http://www.governor.wa.gov/documents/issues/climate/ETS_Matrix_20140508.pdf

Ecofys U.K. presentation on emissions trading and market mechanisms:
http://www.governor.wa.gov/documents/issues/climate/Ecofys_ETS_20140515.pdf

Meeting 3 Materials:

Agenda and meeting materials:
http://www.governor.wa.gov/issues/climate/documents/20140624_CERT_MeetingMaterials.pdf

Michael Gibbs, California Air Resources Board presentation:

http://www.governor.wa.gov/issues/climate/documents/20140624_CERT_Gibbs_Presentation.pdf

Tim Lesiuk, British Columbia Ministry of Environment presentation:

http://www.governor.wa.gov/issues/climate/documents/20140624_CERT_Lesiuk_Presentation.pdf

Meeting 4 Materials:

Agenda and meeting materials:
http://www.governor.wa.gov/issues/climate/documents/20140729_CERT_MeetingMaterials.pdf

Presentation slides - Governor's Office Starting Point Proposal for Carbon Emissions Reduction:
http://www.governor.wa.gov/issues/climate/documents/20140729_CERT_Presentation.pdf

Meeting 5 Materials:

Agenda and meeting materials:
http://www.governor.wa.gov/issues/climate/documents/20140909_CERT_MeetingMaterials.pdf]

OFM modeling presentation – updated 9/23:
http://www.governor.wa.gov/issues/climate/documents/20140909_CERT_OFMModelingPres.pdf

CERT economic modeling memo – 10/15:
http://www.governor.wa.gov/issues/climate/documents/20141017_CERT_Econ_modeling_memo.pdf

Meeting 6 Materials:

Agenda: http://www.governor.wa.gov/issues/climate/documents/20141028_CERT_Agenda.pdf

OFM Forecasting & Research: Modeling Carbon Pricing Presentation:

http://www.governor.wa.gov/issues/climate/documents/20141028_CERT_Pres_ofm_modeling_carbon_pricing.pdf

Renee Klein, American Lung Association of the Mountain Pacific: Climate Change and Public Health Presentation:

http://www.governor.wa.gov/issues/climate/documents/20141028_CERT_Pres_klein_lung_assoc.pdf

Dr. Howard Frumkin, University of Washington: Climate Change and Human Health Presentation:

http://www.governor.wa.gov/issues/climate/documents/20141028_CERT_Pres_frumkin_UW.pdf

Handout: Climate Change: Challenges and Opportunities for Global Health (Journal of the American Medical Association):

http://jama.jamanetwork.com/data/Journals/JAMA/930955/jsc140007.pdf?v=635488244461900000

Handout: National Climate Assessment, Chapter 9, Human Health:
http://nca2014.globalchange.gov/system/files_force/downloads/high/NCA3_Full_Report_09_Human_Health_HighRes.pdf?download=1

Appendix 6: Attributed Submissions from CERT Members

King County

Dow Constantine
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November 10, 2014

The Honorable Jay Inslee
Office of the Governor PO
Box 40002
Olympia, WA 98504-0002 Dear

Governor Inslee:

Thank you for the opportunity to serve on the CERT, to conduct a thorough review of different models for cap and trade and carbon taxes, and to hear a wide range of perspectives on the design of a market-based price on GHG Emissions.

The CERT was charged with providing recommendations on the design and implementation of a carbon emissions limit and market mechanisms program for Washington State. The CERT spent significant time reviewing cap and trade and carbon taxes that have been implemented in Europe, Canada, and California. Much of the CERT's discussion about key design elements is captured in the member perspectives, but is not reflected in the high-level consensus findings. I would like to take this opportunity to weigh in with specific recommendations on the design, consistent with the original charge of the CERT.

Need for Action
Climate change is the paramount challenge of this generation and has far-reaching and fundamental consequences for our economy, environment, public health, and safety. Across Washington – and in King County and its cities – we are already experiencing the impacts of climate change: warming temperatures, acidifying marine waters, rising seas, decreasing mountain snowpack, and less water in streams during the summer. These changes have the potential for significant consequences for public and private property, resource-based economies like agriculture and forestry, health of vulnerable populations, and numerous other issues that are important to our environment, economy, and quality of life.

We are not on track to meet Washington State's greenhouse gas (GHG) emissions limits, as committed to by state law. Based on the information provided to the CERT and King County's own assessments of "what it will take" to achieve local GHG targets, I have concluded that internalizing the cost of GHG emissions – whether through a cap-and-trade

program similar to the one adopted in California or a carbon tax as adopted in British Columbia – is essential to the State's overall strategy to reduce GHG emissions.

Initial modeling done by the State in support of the CERT indicates a net minor, but positive, statewide effect of modeled carbon pricing scenarios on jobs, GDP, and personal income.
These findings are consistent with other market-based programs around the U.S. and world that are showing economic benefits to establishing a market based price on carbon. By internalizing the cost of climate pollution, both a cap and trade and carbon tax should spur innovation, investment, and growth in the clean energy and technology sectors in Washington State.

In addition to the direct economic benefits that will come with a thoughtfully implemented market-based policy, there will be concurrent and important co-benefits from Washington's effort to reduce GHG pollution. For example, reducing fossil fuel use in transportation will not only reduce GHG emissions, but will also reduce air pollution and associated health impacts, such as asthma risk.

We have enough information about the performance of models from other regions, as well as analysis of likely outcomes in a Washington State context, to proceed with thoughtful, informed design and enactment of a successful and effective Washington State policy.

Relationship to Local Actions
The decisions we make locally and regionally, such as where our communities will grow and how they will be served by transportation, will set the stage for success or failure in reducing GHG pollution and ensuring our communities are livable and resilient to climate change impacts.

Local governments will play a critical role in progress towards the State GHG requirements, and many Washington cities and counties are taking action. In July 2014, the King County Growth Management Planning Council – a formal body of elected officials from across King County and its 39 cities – voted unanimously to adopt a shared target to reduce countywide sources of GHG emissions, compared to a 2007 baseline, by 25 percent by 2020, 50 percent by 2030, and 80 percent by 2050. These goals are even more ambitious than the State's reduction limits.

Since these targets were adopted, elected officials from many of these cities – through a regional partnership known as the King County-Cities Climate Collaboration (K4C) – have come together to chart out and formally agree to a set of joint actions to help reach these targets. There is much we can and must do at the local level to reduce emissions, from pursuing transit-oriented development to adopting green building standards. But we've also highlighted the essential role of a market-based price on carbon pollution and other GHG emissions to send a broader price signal that would reduce fuel use and drive investment in energy efficiency and clean technologies. Reinvestment of a portion of the revenue from the

market-based programs would further leverage local GHG reduction efforts, such as expanded transit service, energy efficiency projects, and forest protection and restoration initiatives.

Recommendations

- **Ease the transition:** While the shift to a market-based approach to reduce GHG pollution is essential, the state should reduce impacts to low income families and individuals through provisions such as offsetting tax reductions and credits.

- **Include transportation:** The transportation sector is the largest source of GHG emissions in Washington State, comprising almost half of the State's emissions, and must be covered under a market-based policy. Because of the heavy reliance in Washington State on fossil fuel energy for transportation, additional complementary actions will be needed to achieve deep reductions for this sector. Overall, a policy design going forward needs to consider an integrated approach which supports efficient land-use policies, transit oriented development, and alternatives to current single occupancy vehicles such as transit, zero emissions vehicles, and alternative fuels.

- **Carefully design allowances and exemptions:** It will be important to design a market- based program that ensures a smart transition to cleaner energy sources for fossil fuel based industries, but also a program that learns from other cap and trade and carbon tax programs and does not give windfall profits to fossil fuel based industries or delay action to reduce emissions in these sectors of the economy. In addition, the design should provide allowances or exemptions for actions that are fuel and energy dependent, but provide significant community scale reductions in GHG emissions, such as transit service.

- **Reinvest in actions that reduce GHG emissions:** A substantial share of revenues generated by either an emissions or price-based market mechanism should be invested in actions that reduce GHG emissions and help communities prepare for the impacts of climate change. For example, California's cap and trade program helps fund local transit service and operations, recognizing the GHG reduction benefits that transit provides by reducing congestion, providing alternatives to cars, and supporting efficient land use and transit-oriented development. Because a market-based solution should not be relied on to achieve all the State's GHG reductions, it will be important to reinvest a significant portion of the program's revenue into efforts that support further reductions beyond the impact of the price on carbon.

The time for action is now to protect the future of our environment and public health and safety, and to position Washington State to attract investment and economic development in clean energy and 21st century technology.

Sincerely,

Dow Constantine
King County Executive

cc: Rod Brown, Co-Chair, Governor's Carbon Emissions Reduction Task Force Ada Healey, Co-Chair, Governor's Carbon Emissions Reduction Task Force Rob Greenwood, Principal, Ross Strategic
Chris Davis, Governor's Advisor on Carbon Markets, Office of the Governor

MacDonald-Miller
FACILITY SOLUTIONS

DATE: November 10, 2014

TO: Governor Jay Inslee

FROM: Perry England, MacDonald-Miller Facility Solutions, Inc.

CC: CERT Members and Legislators

RE: CERT REPORT ATTRIBUTED COMMENTS

I thank you, Governor Inslee, for the opportunity to participate in the Carbon Emissions Reduction Taskforce. I also want to thank the other taskforce members, who brought strong and varied perspectives to the taskforce proceedings. I appreciated the opportunity to share my thoughts and opinions to this important public policy development.

Our charge was to provide recommendations "on the design and implementation of carbon emissions limits and market mechanisms program for Washington." After six months of deliberations, our final report takes an important step in that direction but falls short on recommending a specific market mechanism. I agree with the findings in the report, even though my expectation was for the Taskforce to act more decisively in recommending a particular market mechanism for carbon reduction.

During our deliberations, the world has again been reminded by its most prominent scientists that action on reducing carbon emissions is imperative if we are to avoid catastrophic impacts to our global ecosystems. As stated by the Intergovernmental Panel on Climate Change (IPCC), *"Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term, and contribute to climate-resilient pathways for sustainable development."*

In the northwest, we are just beginning to experience the effects of a changing climate. Industries in Washington State such as shellfish, forestry, agriculture and health care are dealing with the adverse effects of climate change today.

There are some who argue that Washington's emissions are a small part of a global problem, and that our efforts will lack meaning and effectiveness. I argue the opposite. The tragedy of the commons that we are experiencing can only be solved by universal action. Our leadership in this respect is not only essential, but will serve our region well as early adopters.

Given the magnitude of the challenge in front of us, I urge you to authorize the appropriate analyses called for in Finding 4 of this report, and then to work with haste to put forward a

market mechanism to reduce carbon emissions. As concluded last year by the Climate Legislative and Executive Workgroup (CLEW), Washington will not be able to achieve its carbon reduction targets without additional, market-wide actions. Furthermore, as the IPCC notes, every year we delay in implementing policies, the magnitude of the challenge escalates.

Beyond the environmental issues, I believe that we have an economic imperative to be a leader in creating a clean energy economy. Currently, Washingtonians spend $20 billion on energy to heat and cool our buildings, power our industries and fuel our transportation system. Upwards of 86% of this energy spend is wasted through inefficiencies—that's over $16 billion. Imagine the economic development potential of reinvesting $16 billion into our local economies every year.

Much of this wasted energy is emitted as carbon pollution into our atmosphere. Putting a price on this carbon pollution will send the correct market signals across our economy to reduce wasted energy. As we do this, our economy will be strengthened. The economic analysis conducted during the CERT confirms this. Even at the highest estimate of a carbon price, rising to over ten times the current cost in California, the modeling confirms that every economic indicator for Washington is improved—personal income, State GDP and jobs.

One of the reasons this will occur is that we are able to dramatically increase the efficiency of how we use energy. Despite a rise in price, we can reduce how much we spend on energy by investing in more efficient technologies.

Emissions in the transportation give us one example. The economic modeling suggests that a price on carbon will increase gasoline prices between 40 cents and $1.50 by 2030. That translates into an annual increase between .67% and 2.5%. During the next ten years, however, the average fuel efficiency of new vehicles will improve 5%. We can further increase the efficiency of our transportation energy by transitioning to electricity. An electric-drive vehicle is 3 to 4 times as efficient as an internal combustion, mechanical-drive vehicle.

A similar situation occurs in our built environment. A carbon price will increase the cost of heating, cooling and lighting buildings, based on the fossil content of the fuels used. We know, however, that homes and commercial buildings routinely waste 20-50% of the energy they consume. By investing in building efficiencies, we can re-direct our wasted spending into creating family wage jobs in our local communities.

This imperative for economic sustainability is what is driving, in part, many leading Washington businesses to call for immediate action on climate change. Representing MacDonald Miller, I joined over 100 Washington businesses this month in signing the Washington Business Climate Declaration. The declaration begins with the statement that "there is a clear and present need for climate action to protect our region's natural assets, its vibrant communities and its growing economy."

MacDonald-Miller
FACILITY SOLUTIONS

In addition to MacDonald- Miller, companies like Microsoft, Virginia Mason, Seattle Chamber, Saltchuck and REI urged policymakers to "support using energy efficiently, investing in cleaner fuels, advancing renewable energy and reducing greenhouse gases". These companies understand that squeezing the waste out of our economy will spur investments in innovation and will create jobs in our communities. Our competitive advantage is to be first movers and to benefit from the innovations that we will develop.

As one of the business owners at this table, I know that price is key. We cannot fully unleash our innovative potential if we continue to allow unmitigated carbon pollution for free. It is costing all of us in the degradation of our economy and our planet. Putting a price on carbon pollution—either through a direct price or through an emissions mechanism—is a reasonable policy to invigorate a rational economic response to carbon emission and $16 billion of wasted energy just in our very own Evergreen State.

I remain optimistic and confident that the know-how to construct an effective carbon emissions reduction policy framework exists today. Without any question, it will require additional research and business testing prior to formalizing; however, there is no reason we cannot craft this policy framework based on what is already known and effectively consolidated in the draft CERT Report.

I look forward to being a catalyst of sound business reason to move this discussion forward into real and meaningful policy action.

Sincerely,

MACDONALD-MILLER FACILITY SOLUTIONS, INC.

J. Perry England
Vice President, Building Performance

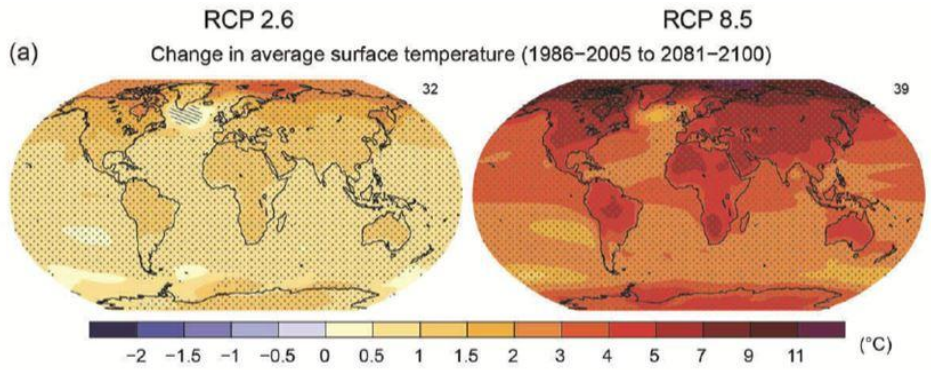
MEMORANDUM

To: Governor Jay Inslee, Chris Davis, Keith Phillips, the Carbon Emissions Reduction Taskforce
From: KC Golden, Senior Policy Advisor, Climate Solutions
Re: Comments on the CERT Report

Thank you for the opportunity to serve on the CERT. Having served on a number of such task forces, I particularly appreciate that this one squarely tackled the core issue – how to put responsible limits on climate pollution and internalize the cost of emitting it. It is no surprise that this is the toughest climate policy issue, because it's the most important one.

In the CERT process, we consciously skipped the science, because the "debate" has already gone on for too long. But as we go forward, our success depends on the strength of our commitment to overcome political obstacles. So it's worth a quick look what happens if we don't. (Bummer alert.) The most pressing question, in the wake of the recent IPCC report, seems to be: "Is it too late?" I get this question all the time, and there's a simple answer: No! *But it sure as hell isn't too early*.

The slightly more complicated answer is that our weak response to date guarantees that we will experience some costly and disturbing climate impacts. We already are. But the difference between a) doing what is necessary to stabilize the climate from here forward and b) failing to do so *is the difference between two quite different planets*. The IPCC's synthesis report illustrates this difference clearly:



On the left is a planet we can recognize as Earth, a planet that will have to cope with very significant but potentially manageable climate impacts. The opportunity for our grandchildren to live on this Earth can only be preserved with a rapid and bold transition from fossil fuels to clean energy. We obviously can't do it all in Washington, but the fact that we have already taken some meaningful steps – and that we enjoy a relatively low-carbon, low-cost electric power system – should give us the confidence to lead, rather than an excuse to dither.

On the right we have a planet that would be so radically transfigured *in this century* by climate disruption that we would have to give it a new name, say, planet Toast. It is roughly the path we're on. Kevin Anderson, director of UK's Tyndall Center for Climate Change, says this path "is incompatible with organized global community, is likely to be beyond 'adaptation', is devastating to the majority of

ecosystems and has a high probability of not being stable (i.e. 4-degrees Centigrade, [7-degrees Fahrenheit] would be an interim temperature on the way to a much higher equilibrium.)"

Millions of people are scrambling now to rebuild their lives in the wake of intensifying climate-related disasters, and we've "only" raised the average global temperature by less than 1 degree C. This isn't hypothetical. There are victims, now. And there are the *prospective* victims of *still preventable* disasters – our kids and theirs. If my comments reflect impatience, it's because I'm increasingly disturbed by how comfortable, fortunate people (myself included) – people with immense capacity and responsibility for delivering solutions – inch forward so timidly while significant and growing populations who did little to cause the problem are ravaged by floods, storms, droughts.

Our report is cautious and tentative, as any consensus document on this politically charged subject is apt to be. But if our collective determination to move forward with a responsible climate policy is no stronger than the language in this report, then make your reservations for Toast. Because – cue elephant in room – serious climate action is contrary to the interests of the fossil fuel industry, and they will fight with all their concentrated economic and political power to stop it.

This is to be expected. Asking them to do otherwise would be like asking bees to get out of the honey business. And if this were just another "win some, lose some" business proposition or political contest, maybe we wouldn't have to get too worked up about it. But since the choice is between Earth and Toast, we might want to consider whether we will let the financial interests of fossil fuel companies continue to dominate our climate policy. So, I feel compelled[1] to ground us back in physical reality. One way or the other it will trump whatever stories we tell ourselves about "political reality."

Now, if the financial interests of the fossil fuel industry and the economic interests of Washington State were the same, then we would have a much more complicated problem. But the modeling conducted for the CERT shows clearly that they are not. Even in the extremely unrealistic case where carbon prices were very high and we did *nothing* else to respond – no new policies, no innovation, no rational adjustments – the impact on the economy would be very modest and on balance positive. (And that's without even counting the benefits of living on Earth instead of Toast.)

More realistically, instead of paying higher prices for fossil fuels, we would continue to develop better, cheaper alternatives to fossil fuel. We would reduce the immense drain on Washington's economy – over $15 billion annually – associated with importing fossil fuels. Instead of surrendering that money at the gas pump, where most of it is directly evacuated from our communities and businesses, we'd spend more of it here, creating more jobs and economic opportunity for Washingtonians. As the clean energy transition gains momentum globally, we'd position ourselves to compete and win in the biggest energy technology markets of the future. It's not hard to imagine a smarter and more robust strategy for shared prosperity and healthy communities than resigning ourselves to fossil fuel dependence.

[1] My professional obligation to remind us of this depressing situation may explain the pathetic state of my social life. I promise, if you invite me to your party, I won't mention the IPCC report once. But here, well, I kind of have to. Because it affirms that there is something more difficult and distasteful than overcoming the political obstacles to climate policy. And it's barreling toward us as we waffle. Washington has had its share of previews – fires, floods, ocean acidification…. Those who would forestall action can quibble about attribution of a specific event, but the science is clear: unless we tackle climate change hard, we will careen into more of this misery.

Oil interests will stoke fear with the claim that internalizing the cost of carbon will increase energy costs to consumers. (And on the subject of raising gas prices, their expertise should not be underestimated.) But the purpose of internalizing these costs is precisely so we DON'T have to pay them. The idea that we will sit still for higher gas prices (and climate devastation) rests on the assumption that oil companies have us over a barrel – that we have no choice but to pay whatever they charge and suffer the climate consequences. And indeed, with or without an explicit carbon price, they will always charge as much as they can, optimizing near-term profits and long-term dependence on fossil fuels. That's just business.[2]

The truth of course is that only where costs are internalized can markets function to minimize them. The total cost of fossil fuels – including the cost of escalating climate and health impacts – is exorbitant, and all the more unbearable because we foist most of it onto our kids. These "external" costs amount to an enormous subsidy for fossil fuels, on top of the direct subsidies they enjoy. Only when prices tell the truth about those costs can we efficiently deliver and choose cost-effective alternatives.

The only genuinely powerful, effective strategy available to consumers and businesses to reduce our exposure to fossil fuel prices is to give ourselves more good choices – to develop an array of convenient, affordable alternatives to fossil fuels. An explicit climate policy – responsible limits on climate pollution and an end to free carbon dumping – would unleash our power to develop more and better alternatives, to gradually and economically end our dependence on fossil fuels. It would send a clear, technology-neutral market signal for greater private and public investment in efficiency, clean fuels, transit, electric vehicles, renewables, and other transportation and energy choices. It would generate revenue that could be used to give us more and better options – especially for those businesses and individuals who are most exposed to fossil fuel costs and most in need of good alternatives. And it would signal to other jurisdictions – who also worry about competitive position – that we are prepared to move forward together, as our neighbors in BC and California have done[3].

As we reduce demand globally for fossil fuels, we will apply *downward pressure* on the price that producers can charge (hence their steadfast opposition). Only when we lack alternatives can fossil fuel suppliers run their prices up. And once again, according to the modeling done for the CERT, even if we do nothing to adapt, innovate, and deliver better solutions*, an explicit carbon price – even a very high one – would have a modest and positive net economic impact.*

It would, however, result in changes. And even if the *net* impacts are positive, they won't necessarily be positive for everyone. So it's absolutely imperative that climate solutions be fair, opening pathways to sustainable, broadly-shared prosperity and a just transition. The opportunities here are exceptionally bright, since fossil fuel expenditures produce fewer jobs and more narrowly concentrated benefits than any other energy strategy. Climate policy must start from the recognition that climate disruption itself is a grave injustice. Those who do the least to cause it often suffer the worst of its impacts. Policy design must address that injustice squarely. Briefly, it must:

[2] Their war on reason, however, is beyond the pale. See, e.g., "The Self-Interest in Climate Denial"; Merchants of Doubt; "'Dark Money' Funds Climate Change Denial Effort"; "Steve Coll: How Exxon Shaped the Climate Debate"….ad nauseum.

[3] National leadership would of course be ideal. But suggesting that we should wait for it no longer passes the laugh test. Concerted action on the west coast can lead the way.

- maximize the opportunity for broadly-shared prosperity and public health in the transition from fossil fuels to clean energy;
- accelerate private and public investment in practical alternatives to fossil fuel dependence;
- alleviate potential adverse impacts on the most economically exposed people, workers, and industries, facilitating a just and effective transition. I echo and support the principles for climate justice that Rich Stolz has offered, as well as the accommodations for trade-exposed industries that others have offered.
- reliably and transparently deliver on our commitment to achieve responsible, science-based emission limits. No loopholes, no negotiating with physics.

I will refrain from further comments on policy design, appreciating and supporting the many good insights of the group, and anticipating plenty of discussion to come. I would refer folks to the excellent ongoing work of the Sightline Institute in analyzing our options and clarifying our choices.

…Look, this isn't easy, but it's not as hard as we're making it. The concerns and reservations we've aired are fair and legitimate. Climate policy and the energy transition it will drive represent a significant economic shift; we *must* take care to avoid new hardships and seize new economic opportunities, especially for economically vulnerable people, communities, and businesses. After this process and the many task forces that preceded it, we are better prepared to move forward thoughtfully.

That word "thoughtful" appears a great many times in our report, and no one could fairly accuse us of less. But they *could* accuse of being too hesitant, too complacent, too slow to tackle the challenge with all the determination we'll need.

Our deliberations to date, and for decades, are the kind of conversations they might have had up until December 6, 1941, about the gathering storm of fascism. Only now it's December 7; that's the takeaway of the IPCC report. I've been tempted on many occasions as we discussed one or another potential pitfall of climate policy to say, "Well, what if we *had* to?"… in the same way that our parents and grandparents "had to" after Pearl Harbor, and rose up from a tentative, Depression-scarred national funk to become America's "greatest generation" in response to that *necessity*.

Any fair reading of the science says *we have to*. Any serious analysis of the costs and benefits of climate solutions relative to climate chaos says *we have to*. Any defensible interpretation of the intergenerational contract says *we have to*. And anyone with a healthy confidence in the extraordinary capacity of the people and businesses of Washington to deliver solutions knows *we damned well can*.

So, with immense appreciation and respect for the genuine commitment of everyone who spent so much time and effort on this process, for Heaven's sake, let's go.

November 10th 2014

To: Governor Jay Inslee

From: Jay Gordon, Dairy Farmer

RE: Perspective for CERT report carbon reduction and pathways forward

Dear Governor Inslee,

Thank you for the opportunity to serve on the Carbon Emission Reduction Taskforce (CERT) the past 6 months. The question of how we as a state respond to climate change, carbon emission reduction and future energy supplies is important, complex and daunting. I generally agree with the four broad findings in the CERT report with the usual caveat that the devil is in the details. You asked me to advise you on the impacts and opportunities that I saw to and for Agriculture from the proposals considered in the CERT process. We were asked and I offer these personal perspectives on challenges, opportunities, questions, concerns and process as one of the CERT committee, as a farmer and as a rural citizen of our state.

Here is a quote that provides a backdrop of my perspective of how daunting the pathway is:

"Today's farmer will have to double the global food supply using half the water, far less land area and exhausted soils, without fossil fuels, with very costly fertiliser, with limited technology, spreading diseases and pests, under the hammer of an erratic climate."
Julian Cribb, Author "The Coming Famine"

In addition to feeding a hungry planet we add the challenge of finding massive energy sources to replace carbon-based fuels. Moving away from fossil fuels across this planet after hundreds of years of use will be neither easy nor fast. That being said it is nevertheless important for a multitude of reasons. How and which pathway to choose on this challenging transition is a core question. I believe the private sector can and will play the major role. As such my first suggestion is that this discussion should be enlarged significantly to include a much broader group of stakeholder such as innovators, businesses, policy makers and more sources of information about solutions. Our country and definitely our state is one that welcomes discovery through and from debate and discussion.

The CERT process and report left me with more questions than answers. But here are some thoughts, starting with the most most intuitive directions:
Transportation improvements are needed. – congestion costs time, money, productivity and carbon. Encourage innovation, deployment and support for alternative transport fuels. We are seeing offerings of electric cars and CNG trucks, while government policy shouldn't pick winners in alternative fuels, it can assist. Your Executive Order outlines this pathway as well.
Continued incentives and encouragement for conservation – There are federal funds to partner with on these conservation efforts across a broad spectrum – housing, business, farms and industrial. Broader awareness of of these incentive opportunities would be helpful.

Now into the weeds a bit.

A cap and trade process does not seem a good fit for Washington. Washington emissions are already very low and moving lower, thanks to broad adaptation of energy reduction investments, more efficient vehicles, and a transition from coal to natural gas for electricity generation. Reducing already low Washington State emissions across very few emitting sectors requires different considerations than say New England or California. Cap and Trade is an incredibly complex, bureaucratic process that I submit will be administratively costly and a poor fit for our economy or state. Transportation is our largest carbon emitter. Cap and trade schemes have not proven, yet, to be a viable model alone to reduce transportation based carbon. California will engage in finding out if it works in 2015.

The simplicity of a carbon tax scheme – especially a strict revenue neutral program such as British Columbia – is appealing...but simple may not mean correct. But the CERT process left me with unanswered concerns and questions on carbon taxes. The CERT process was not extensive enough for me to answer – with any confidence- the very question you charged me with answering. I.e. *What impacts are there to Agriculture*? A carbon tax scheme was modeled but it was a simplistic model. At the very last CERT meeting there were still significant unanswered questions about impacts on our economy from loading large carbon taxes on fuel – the modeling was too simplistic and left CERT members wanting more. My specific concerns within rural Washington and agriculture are for economic viability/vitality specifically if natural gas and transportation fuels are heavily taxed. Natural gas is essential to food processors, such as drying dairy products, potato processing, pulp and paper, etc. There is no viable replacement today for CNG that I know of. I am not an expert and suggest the important specific sectors like timber, food processors and more farm sectors MUST be engaged in discussion on short and long term impacts to these important sectors of our economy, especially our rural economy.

Rural driving patterns are different than urban areas with little solution to be found in public transportation or electric cars. Without a viable energy replacement and the time to make capital investments for these sectors the carbon tax simply becomes a tax without an avoidance plan or "off-ramp". The rural community I live in, is timber dependent, the same concerns for viability in agriculture applies to timber. These two significant portions of our rural economies are at risk of reduced competitiveness since they both are inextricably tied to international prices and competition. I am not comfortable speaking on the impacts to all farm sectors, let alone our food processors or the other important sectors of our rural economy. The economic modeling must be deepened and the discussions and modeling inputs broadened to gain the understanding we must have before we take additional policy steps in carbon reduction like a carbon tax.

Innovation - I submit that Washington has done a good job of encouraging alternative fuel, but we are not there yet....Consider accelerating – where budgets allow – more innovation and incentives to develop and deploy commercially viable technologies that offer alternatives to transition to especially in transportation. If history is any guide, it's impossible for us to know today what breakthrough technologies will be present 10 years from now that revolutionize the transportation sector. As referenced in the last CERT meeting, government and economist forecasting of the impact of future technologies on energy use is limited or imprecise. They normally undervalue the impact considerably.

I am familiar with the process of using taxes to alter behavior, having experienced the transition away from ozone depleting freon. The goal of eliminating R-12 was similar and just as critical as carbon reduction but there are differences. There were readily available alternatives to R-12. The time line of increasing tax load on R-12 was gradual such that capital purchases of replacement equipment – which used new, ozone safe, refrigerants could be phased out – without significant economic effects.

Carbon based fuels are much more insidious than Freon in our lives and economy. Fuel substitutes, while available and being adopted are not nearly sufficient. The goal is to reduce carbon, in lieu of collecting taxes or auction proceeds – BUT right now the alternative choices to fossil fuel energy supplies are NOT growing fast enough. Example, while we have seen new vehicles offered that are low carbon (high mileage) or low carbon electrics. Battery technology has not advanced yet to entice adoption of electric cars significantly. We have only just seen truck manufacturers release natural gas power options in semis and farm tractors. Adoption and deployment of CNG powered heavy equipment will face the economic scrutiny of thousands of businesses as they ponder the capital equation of re-powering and consider fueling station availability. To repeat- alternatives to high carbon fossil fuels are needed. Let's make sure we have different "Lilly pads" for folks to jump to.

I must mention one big caveat – biofuel crops may well have a place in the mix, but caution must be exercised – we are limited to the farmland we have- they don't make it anymore. I have seen the changes that corn based ethanol mandates have brought across America, costs have gone up for feed. I have heard about the similar feed cost increases of biofuel crops in Europe. Farmers are asked to provide Food, Fiber and Feed or the world, adding more Fuel crops to this list should be done cautiously. I am not saying not to look to biofuels like cellolostic ethanol or bio-diesel, just urging caution. I am optimistic we will soon make advances into renewable compressed natural gas from methane digesters on dairy farms that do not add crop competition to existing cropping.

Adaptation- while the CERT process was tasked with exclusively emission reduction, adaptation simply has to be part of any discussion. Budgets are tight and choices are inevitable. The Federal help - for projects and communities – has diminished in both capacity and ability. Given these realities and given what is increasingly clear data and evidence that the climate has and is changing. (I.E. Data clearly shows increased flooding frequency and flood levels in Western Washington since the 1980's. Science indicates these increases are consistent with increasing atmospheric particulates. The same particulate science that shows increased wetter wet events ALSO indicates that increased atmospheric particulates also tend to make dry patterns drier...increased frequency of drought on the east side or drier summers on westside).

The question arises how to prioritize adaptation such as flood and drought preparation, or wildfire preparation/prevention. Floods, droughts and fire affect the rural communities and the farms and forests that provide the jobs or taxes in much of rural Washington. Based on my very limited experience I submit that carbon reduction is a separate but related issue to adaptation. Decisions on carbon reduction policy, implementation, deployment, or revenues should be kept separate. Carbon reduction means continuing to learn how to live with less fossil fuel, dealing with particulate enhanced floods and droughts now and in the foreseeable future is urgent. One is a snake in the grass, the other is in your shirt!

November 11, 2014

To: Governor Jay Inslee and the CERT Taskforce

From: Jeffrey Johnson, President, Washington State Labor Council, AFL-CIO

Re: Comments and Policy Considerations

We face two systemic crises today, climate disruption and extreme inequality, and, thus far, a failed public response adequately addressing either of them.

Disruptive climate change threatens our jobs, our health, our economy and our communities. It is an existential crisis that in the words of U.N. Secretary General Ban Ki-moon must be addressed now since "there is no plan B, because we do not have planet B." Nonetheless tens of billions of dollars in tax incentives are given to fossil fuel companies to search for more oil, gas, and coal reserves, while to prevent global climate temperature from rising two degrees, two-thirds of current reserves need to be left in the ground.

Extreme income and wealth inequality has expanded the ranks of the poor, dismantled the middle class, and far too often has eroded our sense of common purpose and the belief that we can make big changes that restore a measure of shared prosperity.

The impact of climate disaster, while bad for everyone, will fall disproportionately on the poor and communities of color, the very people who will be least able to afford the cost of transitioning to a new energy economy.

The impacts of mitigating climate disaster will also significantly affect workers and communities that have been fossil fuel dependent. Workers and their families whose wages, health care and pensions are dependent on fossil fuel production and distribution and their communities need to be provided a real social safety net not vague references to a "just transition."

Given my limited background in climate policy and the brevity of the CERT process, I can't claim to know whether a carbon tax or a cap and trade system or some hybrid model is best suited for lowering Washington's carbon emissions, I would, however, like to suggest some thoughts and core values that I think must be addressed in any carbon reduction regime.

At the outset for purposes of full disclosure, I have read both One America's report and the report submitted by the Budget and Policy Center and SEIU 775 and find myself in agreement with most of their comments and specific policy suggestions.

Thoughts and Core values:

1. The science on climate is settled. We have a crisis and we need to deal with it now or suffer the consequences - with those who had the least to do with causing the problem bearing the greatest cost.
2. Reversing climate crisis and extreme inequality are inextricably linked. The lens through which we need to look is one that views a future in which our public policy decisions, and the private investment decisions they leverage, create a shared prosperity while we create a sustainable environment for the future.
3. The sooner a price is set on carbon, the sooner we will be able to lower carbon emissions. Which market mechanism is best, should be determined by what actually lowers carbon emissions enough to meet the goals that we have set for ourselves as a State. The actual carbon emission target levels we are trying to hit ought to be re-evaluated and reset on a regular basis.
4. We need a set of policies that minimize leakage - the movement of production and jobs out of state - and that treat imports of energy as if they were produced in Washington State. The goal needs to level the playing field between in-state and out-of-state producers so that we can maintain jobs and truly meet our carbon emission levels.
5. Create an Economic Justice and Environmental Equity Board made up of representatives from highly impacted communities (low income, communities of color, front line workers in fossil fuel dependent communities) from around the state to monitor the suite of policies aimed at reducing carbon emissions and to recommend policy changes with regards to investing carbon revenues in a way that

maximizes equity, job creation, positive health outcomes, and further carbon emission reduction.

6. Revenues from carbon pricing need to be used to:
7. Protect low income, middle income, and communities of color from rising fuel and energy costs as the transition to a new energy economy proceeds and subsidize energy retrofits.
8. Provide income and benefit protection and retraining funds for fossil fuel dependent workers.
9. Protect the social safety net in fossil fuel dependent communities impacted by a transition to a new energy based economy.
10. Create public investment (and leveraging private investment) in new energy economy infrastructure (solar, wind, geothermal, wave, bio-mass, smart grids, etc), transit-oriented development, mass transit, high speed rail, repairing Washington State's infrastructure, and taking to scale public, commercial, and residential energy retrofits, etc.
11. Prioritize public investment in environmental "hotspots" to address serious pollution related public health issues and to create new energy economy job growth and economic benefit
12. Promote domestic content and domestically sourced products when investing public dollars in infrastructure development
13. Promote the use of state certified highly trained and skilled labor, and apprentice utilization standards, in rebuilding infrastructure projects
14. Build into the state's carbon price economic modeling the impact of the full suite of existing carbon reduction policies and potential policies to get the best measure of price needed to meet carbon emission reduction levels.
15. Act now.

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MEMORANDUM

To: Carbon Emissions Reduction Taskforce; Governor Jay Inslee

From: Renee Klein, President & CEO, American Lung Association of the Mountain Pacific

Re: Comments on the CERT Report

It has been a privilege to participate in the Carbon Emissions Reduction Taskforce. As we submit our report to the governor and he considers legislative recommendations, my concern is not which market mechanism will best meet our statutory carbon limits (each has merits and weaknesses), it is that our state has the political will for action.

Too often when we are deep in debate over cap-and-trade vs. carbon tax we lose sight of the single greatest reason to act: *to protect human health.* Poor air quality, rising sea levels, melting glaciers, stronger storms, more intense and longer droughts, more frequent heat waves, wildfires and other public health threats will affect the lives of Washingtonians for generations to come.

The most vulnerable populations include the elderly, pregnant women, low income and minority communities, people with chronic illnesses … and of course our children. Looking just at the respiratory impacts of climate change, children breathe deeper than adults so pound for pound they inhale more toxic pollutants than adults; what can make an eight year old cough can literally make an infant stop breathing.

The American Lung Association's 2014 State of the Air Report found that nearly half of the people in the United States (147.6 million) live with unhealthy levels of ozone or particle pollution, nearly 16 million more than in the previous year's report. This confirms that warmer temperatures increased ozone pollution in large areas across the U.S. Ground level ozone is associated with many respiratory diseases and is even harmful to healthy people. Ozone can also affect the heart, leading to cardiac arrhythmia and heart attacks. It also can increase the number of low birth-weight babies in mothers exposed to high levels during pregnancy, as well as contribute to other infant health issues.

Episodes of drought, and particularly for our state, wildfires, threaten public health as clouds of dust and smoke with particulate matter can shorten life. Extreme weather events leave families living in damp homes, inhaling mold or soot as they recover. Longer pollen seasons release allergens that can worsen lung diseases.

Asthma, for example, has become an epidemic over the last three decades. It is the most common chronic pediatric disease, and Washington already has one of the highest adult asthma rates in the nation. In 2010, more than 100 Washingtonians were hospitalized every week from asthma, and we paid $73 million in asthma-related hospital expenses. 60% of those expenses were paid for via public funds – Medicare and Medicaid – and nearly one-quarter of asthmatic adults missed work for $4.3 million personal days of lost productivity. So in addition to the human toll, there is a cost – a hidden tax if you will – associated with our dependence on fossil fuels and climate warming. And that's just looking at one chronic disease.

Fortunately there is also a return on investment for taking action. Numerous studies show how investments in reducing climate change produce near-term health co-benefits from reduced air pollution, offsetting a substantial

fraction of mitigation costs. So as we reduce greenhouse gases, we improve health and dramatically lower health care costs.

The Task Force developed these eight criteria by which we would evaluate policy design and implementation options for carbon emission limits and market mechanisms. I have added our priority, looking at these criteria from a public health lens, in the right hand column.

Topic Number (not indicative of priority)	**Evaluation Framework Topics**	**Public Health Lens/Priority**
1	**Reach WA's emissions reduction limits with high confidence and consideration of WA's emissions and energy sources**	**#2**
2	Establish a carbon price signal sufficient to stimulate a shift in investment patterns	
3	Minimize the implementation costs and competitiveness impacts to our businesses and industries (flexibility)	
4	Maximize the economic development benefits and opportunities for job growth in WA	
5	Minimize cost impacts to consumers and protect low-income communities from increased energy costs	
6	**Reduce the public health risks associated with carbon pollution, especially for vulnerable populations**	**#1**
7	Allow for effective administration (oversight, regulation, monitoring, evaluation, and adjustment) of the program and markets created or affected by it	
8	**Influence and catalyze national and international action**	**#3**

Not unexpectedly, we suggest that Topic Number 6, "Reduce the public health risks associated with carbon pollution, especially for vulnerable populations," is the highest priority around which a market mechanism should be selected, and that Topic Number 1, "Reach WA's emissions reduction limits with high confidence and consideration of WA's emissions and energy sources" is the next most critical criteria. Topic Number 8, "Influence and catalyze national and international action," is the next highest priority inasmuch as Washington alone cannot combat the effects of climate change, and we share a collective responsibility to protect the public … everywhere.

Washington policy makers have an opportunity and a choice. The opportunity is to be a leader in demonstrating the need for comprehensive action, and joining other states and regions already working to stem the impacts of a warmer climate.

The choice is for both political parties and the executive and legislative branches to work together for the health of all Washingtonians, because the worst climate change scenarios may be avoidable with aggressive policy measures. The only stumbling block, and this would be unthinkable, is if our state has insufficient political will.

Our elected officials must take action for the health of our state and to spur other jurisdictions to do the same. Those same officials can feel confident that the public will support this action. Our citizens are savvy, and they understand this is not a choice of a healthy planet or a healthy economy; they know we can have both and, indeed, that many climate strategies both reduce costs that can pay for mitigation, as well as spur innovation that creates jobs.

I look forward to the governor and legislature taking near-term action to protect our health and our future.

Forestry's Role in Carbon Reduction:
Recommendations from Forest Products Industry
To Carbon Emissions Reduction Task Force

Washington State's abundant forests are a unique and considerable resource in combating climate change. In fact, the Washington Department of Ecology reports that each year, Washington's forests absorb 28% of the state's total carbon emissions[1]. Supporting our state's forest products industry represents the best possible outcome for reduction of carbon emissions.

Over ½ of Washington's total land area is forested; approximately 47 percent of that total, or 10 million acres, is considered working forest while the other 53 percent is preserved due to various policies at local, state and federal levels, or due to practical matters. Nearly 90 percent of the annual timber harvest in Washington State comes off state and private lands, which are managed under a federal Habitat Conservation Plan (HCP) known widely as the Forests & Fish Law. Several individual companies have their own Habitat Conservation Plans as well. These HCPs represent some of the toughest forest practices laws and rules in the world, protecting clean water, fish and wildlife and soils. At the same time, harvest and regeneration cycles ensure carbon storage both in forest growth and in forest products.

Recommendation #1: Protect and Promote Washington's Forest Products Industry

Working forests in Washington State are a contributor to carbon reduction. Therefore, all segments of the forest products industry should be protected in order to maintain a viable industry throughout the state. Existing statutes recognize the need to protect and promote working forests in our state

- Provide incentives for maintaining working forests, such as expanding Transfer of Development Rights programs and creating a Forest Legacy-type program in Washington to purchase development rights on working forests. Incentives should be developed to maintain working forests, as required by law in RCW 76.09.010.
- Protect against disincentives such as changes in tax status and regulatory takings.
- Current government ecosystem services programs; such as the Rivers and Habitat Open Space Program, the Forestry Riparian Easement Program and the Family Forest Fish Passage Program, are grossly underfunded. The state's commitment to funding these programs should be fulfilled, and while the industry is interested in other ecosystem services programs, priority should be placed on funding these programs before creating new ones.
- Maintain sawmill infrastructure.
- Maintain the pulp and paper infrastructure. Protect against leakage of pollution and jobs, as required by RCW 70.235.005; the majority of fuel used by Washington's pulp and paper facilities is biomass, which is carbon neutral. The world's demand for paper products will continue to increase. If these facilities move out of Washington, they may well burn coal instead of biomass. Use Washington's high environmental standards as a reason to keep pulp and paper in the state rather than forcing facilities offshore.

Governor Inslee could position himself as a promoter of wood products as a green building material and encourage innovative uses of wood products and increasing markets for Washington wood products by issuing

[1] Washington Department of Ecology. 2007. Greenhouse Gas Inventory and Reference Case Projections, 1990-2020. Center for Climate Strategies, pg. ES-5. http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf

an executive order, similar to Governor Kitzhaber's Executive Order 12-16[2], and the Obama administration's support [3] for innovative, sustainable wood building materials to protect the environment and create jobs.

National Forest Products Week is traditionally celebrated the third week in October and was signed into law in 1960. In September 2014, Governor Kitzhaber proclaimed October 19-26 as the first-ever Oregon Forest Products Week, setting Oregon up as the nation's leader in lumber production, and a world leader in using innovation and advanced technology in all facets of forest management, research and production. Washington is the second only behind Oregon in lumber production. We should be leading the world in innovation and technology for forest management, research and production.

Recommendation #2: Protect Biomass Carbon Neutrality

The use of biomass to create energy is deemed carbon-neutral in state law (RCW 70.235.020(3)). Trees grow through solar power and soak up carbon dioxide as they grow. Carbon dioxide and other greenhouse gases stored in plants and trees are released to the atmosphere through decomposition, wildfires, prescribed fires, or the burning of logging debris. Using forest bioenergy simply captures the energy potential of the carbon dioxide as it moves through the natural carbon cycle.

- Preserve this carbon neutrality.
- Champion this position at regional and federal levels.

Recommendation #3: Advocate for Wood Construction to Store Carbon

Wood frame construction provides two important advantages toward reduction of carbon in the atmosphere: Wood stores carbon for the life of the project, and embodied energy costs are lower in manufacturing wood products, thereby saving energy. Yet in Washington State, barriers exist to expanding the use of Washington wood in buildings.

- Advocate for building code changes to expand the use of cross laminated timber and other wood products in multi-story buildings. In Europe and Canada, multi-story wood frame structures have received acclaim, yet current building codes here in Washington limit the height of wood buildings. Cross laminated timber is a practical answer to these code restrictions; Washington should act decisively and creatively to remove code barriers. Governor Kitzhaber has become a market advocate for Oregon wood, British Columbia too is a leader in support of wood building practices; the forest products industry asks that Washington State's leaders advocate for increased manufacturing and use of technologically advanced wood products for their role in storing carbon.
- Empower the Technical Advisory Group of the State Building Code Council with a mission to assess and recommend code changes to ensure best practices for carbon reduction in buildings, rather than relying on current certification schemes with their inherent bias against Washington wood.

Recommendation #4: Implement Forest Health Treatments

Catastrophic wildfire poses a considerable threat in terms of carbon emissions here in Washington State. Since 1990, CO_2 emissions from wildland forest fires in the lower 48 United States have averaged about 67 million tons per year.[4] Forest management treatments, particularly on federal lands, can reduce fuel loads and increase disease resistance.

[2] Oregon Executive Order 12-16: http://www.sfiprogram.org/files/pdf/oregon-executive-order/
[3] USDA News Release No. 0041.14: http://www.usda.gov/wps/portal/usda/usdahome?contentid=2014/03/0041.xml
[4] National Climate Assessment, http://nca2014.globalchange.gov/report/sectors/forests)

- Governor Inslee could position himself as a protector against carbon pollution by joining with Governor Kitzhaber in providing substantial incentives for forest health treatments on (particularly federal) forest lands. Incremental harvest on these lands would serve the dual purpose of protecting mill infrastructure as stated above. The 2008 Climate Action Team Forest Sector Workgroup recognized this need and suggested additional exploration. Some capital funding has been provided; building on this foundation, with the cooperation of stakeholder groups such as the Northeast Forestry Coalition, can make substantial strides in reducing the risk of catastrophic wildfire.
- We applaud Governor Inslee's request to the US Secretary of Agriculture to designate 720,000 acres of federal land in Washington to allow for expedited and prioritized forest health treatments and restoration efforts. Continued follow-through to ensure this restoration is completed to request a specific designation would further signal his interest in mitigating this potential carbon pollution source.

Response to carbon pricing proposals:

Governor Inslee issued EO 14-04 and created the CERT to provide advice and recommendations to inform the Governor's 2015 carbon emissions reduction legislative proposal in order to achieve the intent of RCW 70.235. The intent statement in RCW 70.235.005 is clear that the state will, in addition to meeting the limits established in RCW 70.235.020, *minimize the potential to export pollution, jobs, and economic opportunities, and reduce emissions at the lowest cost to Washington's economy, consumers and businesses*. The CERT has heard from British Columbia on a carbon tax, and California on their cap and trade program, but we do not yet have enough information to provide advice and recommendations to the Governor for his 2015 legislative proposal on how Washington can achieve its long-term greenhouse gas emission reductions that will ensure pollution, jobs and economic opportunities are not leaked to other states or countries, and what measures should be taken that will be at the lowest cost to Washington's economy. There are many questions yet unanswered, but Washington's businesses are clear that we want to work collaboratively with the government to protect our environment and economy for future generations.

Cap and Trade

From the timber industry's perspective, linkage to the California cap and trade market-based mechanism would have significant drawbacks for Washington's forest industry. California does not have a pulp and paper sector. Washington forest landowners rely on our pulp and paper sector to help maintain the economic viability of our forest lands. The timber industry is Washington's third largest manufacturing sector, with an exemplary regulatory structure. If our wood products manufacturing facilities are regulated under a cap, there is an extremely high risk that those facilities, many of which are owned and operated by international companies, would relocate to other states and nations with lower environmental and labor regulatory standards. In addition, the majority of the fuel used in Washington's facilities is biomass. If those facilities leave the state, they may well be rebuilt in an area that uses coal for energy.

Quantifying and capturing the benefits of forest offsets remains a contentious issue in the California Cap and Trade program. Using the California model would likely import the same divisive arguments to Washington and impact the very sector that is both a significant economic driver and an important asset in reducing carbon emissions in this state.

- The Department of Ecology, in its 2008 “Comparison of the impacts of forest practices on carbon storage in Washington, Oregon, California and British Columbia” acknowledges the issues with Washington’s competitive position. Use this report to level the playing field.

Carbon Tax/Alternative fuels

Business interests in Washington State have advocated for a transportation package which essentially taxes carbon, using revenues to fund preservation, maintenance and completion of major corridor projects already underway. The forest products industry remains committed to this goal.

It should be recognized that a carbon tax disproportionately affects rural areas, which tend to travel farther for work, shopping and other services, and tend not to have critical mass to make transit schemes effective. Many forest products businesses have been established for generations as the economic heart of rural communities throughout the state.

If Washington adopts a tax approach, we must:

- Ensure farm equipment (and other off-road diesel use, already included by statutory definition) is exempt.
- Ensure that an equitable share of the tax is dedicated to maintaining and improving the transportation infrastructure in Washington State, reducing emissions caused by wait times.

A low carbon fuel standard is an attractive option for some business sectors. While not covered in the CERT process, shifting to lower carbon in transportation fuels does focus on the transportation sector, which targets the area of most concern here in Washington:

- Focus on fuels currently available.
- Providing research funding for new alternatives, including forest-derived biomass.
- Phase in alternative fuel standards on a timeline that recognizes the considerable cost to business.
- Provide incentives to shift vehicle fleets to alternative fuels, recognizing that fleet shifts can offer significant carbon reduction yet can negatively impact transportation-dependent industries.

Combined Recommendations for the
Washington Carbon Emissions Reduction Task Force
and Joint Select Task Force on Nuclear Energy
from the Energy Northwest Executive Board
(October 2014)

BACKGROUND

Energy Northwest

The Washington Public Utility Districts Association prompted establishment of Energy Northwest in 1957 to aggregate the collective needs and resources of public power, and, through cooperative action, to build and operate electrical generating facilities.

Today Energy Northwest operates five clean generating sources – nuclear, wind, hydro and solar – that produce more than 1,300 megawatts of power, including the Northwest's only nuclear power plant. These projects provide enough reliable, affordable and environmentally responsible energy to power more than a million homes annually – or a city the size of Seattle – and that carbon-free electricity is provided at the cost of generation.

As a state joint operating agency, Energy Northwest comprises 27 public power member utilities that serve more than 1.5 million Washington ratepayers. The agency continually explores new generation projects to meet its members' needs.

Current Nuclear & Gas Generation

The electricity annually generated by Columbia Generating Station represents nearly five percent of the state's electric utility fuel mix, and annually prevents about 4.4 million metric tons of CO2 from entering our atmosphere. The facility is also recognized by the region's Public Power Council, among others, as the best economic value for the Northwest compared to the next best possible replacement option – combined-cycle natural gas.

Some Energy Northwest member utilities operate or take power (approximately 370 MWs total) from two combined-cycle natural gas-fired plants. Currently providing affordable power – like Columbia – but with half the carbon emissions of coal generation. Natural gas accounts for 11 percent of the state's electric utility fuel mix.

DISCUSSION

Carbon Pricing & Future Generation Options

Given the significant contribution by currently operating natural gas plants to the state's energy mix, carbon pricing will result in a cost impact to some electric ratepayers. As such, the Energy Northwest Executive Board believes a diverse mix of low-carbon and carbon-

free generation – an “all-of-the-above” approach – will satisfy the complex economic and social pressures that will continue to shape our state’s energy infrastructure.
Regional energy demand is growing very slowly in Washington – a result of lagging industrial growth and efficiencies gained through energy conservation – and will likely stay that way for the foreseeable future. Nevertheless, Washington enjoys among the lowest electric rates in the nation, in great part due to low-cost, clean hydro generation, which provides 70 percent of Washington’s baseload electricity, followed by low-cost natural gas and low-cost, clean nuclear.

However, hydro is built out close to capacity, and intermittent wind and solar sources do not provide required baseload generation. Although Energy Northwest is a regional leader in demand response and energy storage development, these innovations are still in their infancy, and in the near term will not provide the efficiencies and storage necessary to satisfy the eventual baseload power requirements of significant regional growth.

When energy demand increases in the Northwest, the only likely available baseload development options will be natural gas and nuclear. The Energy Northwest Executive Board believes these generating sources should be evaluated based upon their proven capability to meet carbon emission performance goals consistently, reliably and cost-effectively.

Nuclear Value Studies
Economically, both natural gas and nuclear are uniquely attractive – natural gas has low up-front costs, while nuclear, which requires significant up-front investment, is considered by leading economists to be the best long-term value.

Environmentally, natural gas lifecycle emissions are about half those of coal (approximately 620 tons of carbon dioxide equivalent per gigawatt hour). Nuclear lifecycle emissions (17 tons per gigawatt hour), on the other hand, are less than hydro, and considered second only to hydro (and not by much) in reducing global emissions to date.

All credible analyses of carbon reduction – by the Energy Information Administration and independent international institutions like the Intergovernmental Panel on Climate Change, the International Energy Agency, and even the Environmental Protection Agency – demonstrate unequivocally that the United States and world cannot achieve meaningful reductions in carbon emissions without preservation of our existing nuclear energy assets and large-scale construction of new nuclear power plants.

Energy Department Secretary Ernest Moniz recently underscored those results by stating “nuclear energy, as an important low-carbon energy source, must play a major part in meeting the most pressing challenge of climate change.”

Small Modular Reactor Team

Energy Northwest is currently working with NuScale Power and Utah Associated Municipal Power Systems to meet that challenge; Energy Northwest has first right of offer to operate a small, multi-modular reactor facility in southeastern Idaho. The facility will be developed by NuScale and owned by UAMPS. Federal funding and project momentum have helped move the original 2025 operational target date forward to end-of-year 2023.

When energy demand increases in Washington, Energy Northwest's experience with the Idaho project will position us to bring this technology to Washington and the Tri-Cities.

Clean, Reliable & Cost-Effective Nuclear Power

Massive Amounts of Electricity

Each fission, or splitting of an atom, provides nearly one hundred million (100,000,000) times as much energy as the "burning" of one carbon atom in a fossil fuel; one uranium pellet is equivalent to the energy provided by 149 gallons of oil, 1,780 pounds of coal, or 17 million British thermal units of natural gas.

The electricity annually generated by Columbia Generating Station alone represents nearly five percent of the state's electric utility fuel mix, nearly 10 percent of the electricity generated within the state, and more than 12 percent of the Bonneville Power Administration's firm energy (12-month annual average).

Cost Effective

Columbia is recognized by the Bonneville Power Administration and the region's Public Power Council as the best economic value for the Northwest compared to the next best possible replacement option – combined-cycle natural gas.

The agency's most recent fuel purchase – well below other market options and predictable through 2028 – is now showing tens of millions of dollars in current rate case savings, and will generate tens of millions more through 2028.

Reliable

During fiscal 2014, Columbia sent more than 9.7 million megawatt hours of electricity to the grid – a station generation record.

The plant's average availability for 2012 through 2014 – which includes a refueling outage year – is 95 percent; fiscal year 2014 alone was 100 percent.

Columbia has been on line for nearly five years without an unplanned shutdown.

Clean: Columbia annually prevents about 4.4 million metric tons of CO2 from entering our atmosphere.

EXECUTIVE BOARD POSITION STATEMENT

In order to satisfy economic and social demands upon the energy sector, the Energy Northwest Executive Board believes regional future energy resources must represent a diverse mix of low-cost and clean energy sources, of which nuclear – including the potential of small modular reactors – is a key component.

RECOMMENDATIONS

Regarding carbon policy and the potential for new nuclear development

The executive board of Energy Northwest recommends that the state implement the following energy policy principles to help guide legislative discussions on Washington state energy policy:

Promote legislative energy strategies that are performance-based and technology neutral.
Do not compromise the reliability of the electric grid.
Protect the current mix of low-cost generation to enable rate case stability.
Support existing baseload generation provided by clean hydro and clean nuclear, as well as natural gas, to balance wind, solar and other clean electricity technologies already supported by the state.
Promote the development of new low-cost and low- or non-carbon emitting resource solutions as needed to meet load demand.
Recognize that hydro and nuclear generation are part of the nation's clean energy mix, and take action to promote their development.
Recognize that power generation within the state is nearly carbon free.
Recognize that Washington carbon is produced primarily from transportation, not energy, and that electrifying the transportation sector is part of the carbon solution.
Consider any proposed new carbon emission policies within the context of existing state and federal policies (such as the Washington Energy Independence Act).

Regarding the potential for new nuclear development

The executive board of Energy Northwest recommends that the state consider legislation to support the potential development of new nuclear energy facilities in Washington. Such legislation may, among other initiatives:

Encourage the development and use of clean energy resources by modifying Washington statutory language to support a clean energy standard, including nuclear generation, in place of a renewable energy standard (Example: South Carolina's comprehensive energy plan).

Educate Washington citizens about a diverse future energy mix by establishing, through legislation, that the planning and development of new nuclear generation facilities may be in the public interest. Such a position by the state would help facilitate:
Washington state leadership in technological and industrial innovation
State influence upon national nuclear energy policy and dialogue (Example: Virginia legislature established the Virginia Nuclear Energy Consortium for one such a purpose)
Economic development and significant jobs creation in the state

Encourage legislative committees to address K-12 and college curriculum changes that would include studies on nuclear energy in science programs.

Quinault Indian Nation
POST OFFICE BOX 189 ☐ TAHOLAH, WASHINGTON 98587 ☐ TELEPHONE (360) 276 - 8211

October 22, 2014

The Honorable Governor Jay Inslee State of Washington
P.O. Box 40002
Olympia, WA 98504-0002

RE: Draft Comments to Governor Inslee concerning CERT

Dear Governor Inslee:

Thank you for the opportunity to be part of the Carbon Emissions Reduction Task Force (CERT). Your regard for the environment of the Northwest and your concern regarding climate change, even in the face of criticism from those who do not seem to quite comprehend the scope of the challenge, is commendable.

You established this Task Force to advise you on a market-based greenhouse gas emission program that will allow Washington to meet statutory greenhouse gas emission limits in the most effective way while minimizing costs, supporting the economy, and promoting fairness. You asked Task Force members to consider the "best interests of the current and future citizens of the state" and to promote equity, accountability, and competitiveness in the transition away from carbon-based fuels. Another critical consideration, of course, is that the state must comply with the terms of treaties between the United States and the tribal governments in the State of Washington, as well as all associated case law and the co-management responsibilities.

As you know, I agreed to participate on the Task Force in an advisory capacity only. It is important for me to underscore that fact because Tribes are co-managers of natural resources with the state and federal governments and, as such, implementation of any state actions which impact tribal treaty rights and resources must first undergo a government-to-government process with federally recognized treaty Indian Tribes, and there must be agreement at that policy level.
It could be that Tribes will request a meeting with you to discuss this issue prior to the passage of your 2015 carbon emission legislation, in the spirit of the Centennial Accord and co- management. That remains to be seen.

That being said, the Tribes have been concerned about climate change issues for many years, and we have been strongly engaged in the effort to respond to the challenge. I'm sure you have found Tribes to be supportive of your efforts in this regard, and that they are typically anxious to push harder and do more. This shouldn't come as any surprise, because we are so directly connected with the land, water and natural resources of the Northwest. We are affected by climate change every day. We are first in line to feel its impact, and we know full well that greenhouse gas emissions are a major challenge.

So what is to be done? Discussion by the Task Force bounced back and forth between a carbon tax, a cap and trade program and a hybrid of the two. I have comments on all three of these options.

Carbon Tax

In CERT discussions, the need for stability and simplicity in any mechanism was emphasized. The carbon tax offers simplicity because it can be implemented through existing fuel tax structures that are already in place. It is also more easily constructed to be government revenue neutral by reducing other taxes or through rebates. A number of Task Force members suggested that a carbon tax, or price-based approach, could provide more price certainty for businesses and consumers because the tax rate placed on a unit of carbon emissions is set and gradually ramped up in pre-determined amounts. In this context, CERT members provided the following specific observations that a price based approach:

1. Could provide more cost effective emissions reductions and aid long-term business decision making;
2. Makes setting a price on carbon more transparent than an emissions-based system; and
3. Appears to provide a more targeted means to reduce emissions from the transportation sector because it can provide a clear price signal at the pump.

The carbon tax is easier to administer for a broad range of emission sources, especially transportation fuels. It has always been clear that particular attention needs to be given to the transportation sector as the largest source of carbon emissions in Washington. With a price on carbon, the cost of transportation fuel will increase. Complimentary policies, along with targeted use of revenues from the tax, can encourage innovation and investment in the long-term supply and delivery of cost competitive low carbon alternative energy sources and public transit. Overall, a policy design going forward needs to consider an integrated approach which considers such items as land-use policies, transit oriented development, and alternatives to current single occupancy vehicles. This includes adequate mass transit, zero emissions vehicles, and alternative fuel infrastructure.

These are all points well made in the CERT report to the Governor's Office. I do wish to add some emphasis here. There are many transportation-related laws and regulations in this state that truly do require updating, such as substantially increased incentives for the purchase and use of hybrid and electric as well as other ultra-low and zero emission vehicles, the expanded use of HOV lanes, increased incentives for carpooling and use of transit, increased investments in transit and improved road, rail and ferry infrastructure, etc. This is our number one problem area, so this state should surge forward and set the pace with solutions.

Countries, states and provinces that have introduced a carbon tax to cut greenhouse-gas emissions have mostly found that the policy works, and that jobs and incomes don't suffer. In fact, the opposite is often true. The prospect of a carbon tax almost always gives rise to political resistance. We could certainly expect that to be the case in Washington. Yet, in many countries, carbon taxes have not only resulted in reduced emissions, carbon taxes have ended up reducing other taxes by more than they collect. When operated well, they boost economies and result in increased employment. That was the case in the United Kingdom and in British Columbia, for example. That impact hasn't been universal, but it has largely been the case. It can be a regressive tax, however-an impact that can and must be safeguarded against with measures to reimburse or reduce taxes for low-income populations. Also, it is important to remember that tribal sovereignty can come into play with any form of taxation, and thus structures such as the existing tribal fuel tax agreements must be put into place.

Cap and Trade

There are also advantages to cap and trade, or an emissions-based approach. The cap is set scientifically and businesses that have an easy time meeting the cap will have extra allowances to sell to heavier polluters. This serves as an economic encouragement to reduce emissions. The cap and trade system allows for the setting of specific limits to emissions, but can have high uncertainty and volatility in the costs. This uncertainty can dampen incentives for businesses to invest in alternatives to carbon-intensive practices. The potential for price volatility within a cap and trade system was a consistent concern raised by certain CERT members.

Of course, the cap must be set at an appropriate level, which is not a given in Washington State. The Tribes' experience with the state's politically-based mishandling of the fish consumption rate and acceptable cancer rate in setting water quality standards is an example that shakes the confidence level. Furthermore, the necessary complexity of a cap and trade structure, including the use of offsets, makes this system more susceptible to loopholes and lobbying pressure that can reduce how effective it is in changing behavior. Offsets can also adversely affect vulnerable communities, exacerbating issues around environmental justice.

Although administrative cost and effort depends on how the program is designed, in general a cap and trade program would require more administration to monitor emissions, create a registry of permits, and keep track of trades and ownership of allowances. Although administrative costs can be reduced by linking to existing programs, such as those in California and Quebec, that could shift emission reduction out of the state and prevent us from meeting the statutory requirement. In addition, linking to an existing program could make for a less efficient system that does not take into account Washington's specific and unique circumstances.

Hybrid

Both the carbon tax and the cap and trade approach have strengths and weaknesses. There could be some advantages to forming a hybrid system. The hybrid system places a cap on the quantity of emissions while allowing adjustments to the maximum and/or minimum price for the permits. In another type of hybrid, there is a minimum tax to purchase a permit and a higher tax on emissions not covered by the permit. Both approaches would likely have to be applied across the board. It would be an administrative nightmare, it seems, for the state to tax some energy users

and not others while also tracking cap and trade levels. By having a cost ceiling and/or floor, a hybrid system addresses the volatility of carbon costs while still having the benefit of a set emission limit. However, enforcing the price limits in a hybrid system can lead to less incentive for reducing emissions and lower environmental performance. Also price controls of this nature have not been widely tested in practice.

Options for Use of Revenue

The revenue generated from either a price based or emission based system should be used to offset costs to consumers and businesses and to help energy-intensive industries transition from carbon-based energy sources. Relief for low-income households and vulnerable sectors of the economy would promote equity and stimulate economic vitality. A carbon tax would also have better political momentum if the revenues were used for tax reductions that clearly resulted in neutral government growth.

The advantage of any market-based approach is that it creates incentives for reducing greenhouse gas emissions while allowing businesses and consumers to choose how they do so. In keeping with this, revenues could be used to spur innovation and investment in climate-friendly solutions. Job growth and economic benefits would result from investment in energy efficiency, green infrastructure, and modernizing our transportation system to reflect our transition away from carbon-intensive fuels. These measures would intersect with issues of environmental justice as vulnerable communities would have increased access to carbon-free energy alternatives, energy efficiency programs, and training for green jobs.

Revenues should also be applied to developing actions to improve the resilience of communities and natural resources to the impacts of climate change. Protection and restoration of forests, wetlands, and estuaries promotes carbon sequestration and serve the public interest in multiple ways. Healthy ecosystem function can protect the citizens of Washington from the adverse effects of climate change, so any adaptation actions must not be at the expense of environmental quality or tribal treaty rights. In a recent article in The Olympian, you were reported to have said that "raising revenue through a cap and trade carbon emissions program may be one way to pay for flood reduction projects." The comment was made in the context of your recent visit to the Chehalis River watershed and the article purported that an agreement on a "flood fix" there is near, including the possibility of a dam. It is imperative that you understand the treaties and the principles of the government-to-government process, and your comment is a case in point. The Quinault Nation is the Tribe with treaty-protected rights on the Chehalis River. We oppose the construction of a dam there, and we have made our position very clear to you. Whether the issue is a dam or carbon emissions, the government-to-government relationship must be fully considered, from both the perspective of the Tribes as well as the state.

Conclusion

Ultimately, the specific design of any approach will strongly determine the performance, both economically and environmentally. All things considered, it does seem that implementation of a carbon tax system would be the most logical course of action, if endorsed by tribal governments and if appropriate tax agreements with Tribes are agreed upon. The carbon tax could be gradually eased into place, resulting in reduced emissions across a variety of sectors, including transportation. Yes, this would mean paying some more at the pump for the average consumer.

And yes, it would require some education for the public and the legislature. But, with sufficient education, and with the possibility of reduced taxes in other areas, similar to the program in British Columbia and in other countries, people would experience a substantial economic and environmental benefit. With proper management, those benefits would compound over time. As stated, British Columbia is a great example of this. There, the government has substantially reduced its income tax rate, decreased its corporate taxes, and offers rebates to low-income families using revenues from the carbon tax. It now has the lowest personal income tax rate in Canada and one of the lowest corporate rates in North America. At the same time, the carbon tax has been extraordinarily effective in tackling the root cause of carbon pollution: the burning of fossil fuels. Since the tax came in, fuel use in B.C. has dropped by 16 per cent. In the rest of Canada, it's risen by three per cent (counting all fuels covered by the tax). To put that accomplishment in perspective, Canada's Kyoto target was a six-per-cent reduction in 20 years. The evidence points to the carbon tax as the major driver of these gains. The B.C. carbon tax has gradually increased since it was instituted in 2008, and today the carbon tax of $30 (Canadian) per metric ton of carbon equates to 30 cents per gallon of gasoline at the pump (23 cents in U.S. dollars).

The CERT Task Force also discussed the prospect of "binding" or joining with other states and British Columbia in the effort to reduce carbon emissions. I see no problem with this, as long as it can be done with administrative efficiency and as long as Tribes and First Nations support it. Carbon emissions and other causes of climate change do not recognize borders.

A robust and visionary approach is needed to meet the 2008 statutory emission limits and to protect Washington from the worst impacts of climate change. Concerns about reduced competitiveness are valid, but it should be noted that many countries, states, and provinces around the world are instituting greenhouse gas emission policies already. The GLOBE Climate Legislation Study, a collaboration between Globe International and the London School of Economics, found that of the 66 countries that are responsible for 88 percent of global greenhouse gas emissions, 61 have passed laws to promote domestic sources of clean energy, 54 have legislated to increase energy efficiency, and 52 have policies to improve their resilience to the impacts of climate change. Washington is poised to take a leadership role in devising a practical and efficient program that will benefit residents for generations to come.

Again, I do appreciate being appointed to the CERT Task Force. I look forward to helping you work toward improved relations with the Tribes in Washington in the months and years to come.

Sincerely,

Fawn R. Sharp, President
Quinault Indian Nation

MEMORANDUM

To: Governor Jay Inslee, Chris Davis, Keith Phillips, the Carbon Emissions Reduction Taskforce

From: Rich Stolz, Executive Director, OneAmerica

Re: Comments on the CERT Report

Washington State's strategy to address climate change through a carbon price must be guided by racial equity, deliver net-environmental and economic benefits to people of color and communities with lower incomes, and ensure accountability and transparency. Below I have included a set of principles for climate justice prepared by communities of color across Washington.

I also wish to stress that Washington State's carbon price must generate revenue that will be spent on measures that have a strong nexus to the goals of carbon emissions reduction, climate change mitigation or adaptation, and that mitigate the impact of costs to low-income consumers. Through the CERT process, we have learned from the experiences in other jurisdictions that reducing carbon pollution depends on making low-carbon alternatives affordable and accessible for all residents, and that without strong efforts to reduce the financial burden to low-income consumers, carbon pricing systems can be regressive. There will be strong temptation to spend carbon price revenue on programs or projects that may have little relationship to the goals of a carbon price policy. We urge that such deals be viewed with great skepticism, and that whatever may emerge be held to high standards consistent with the priorities listed above and in the CERT report with regard to the framework for outcomes.

Principles for Climate Justice

Climate change poses one of the greatest threats to social, economic, and racial equity here in Washington State and across the world. Our jobs, health, and communities where we live are threatened by the consequences of climate change and without bold interventions, we can expect more severe heat-waves, flooding, exposure to air pollutants and allergens, extreme weather events, food scarcity, and increased spread of disease. Our communities are not starting on an even footing since environmental and health outcomes are already negatively and disproportionately impacting our communities. These conditions will have the most direct impact on communities with lower incomes, indigenous people, and people of color. We are united by a deeply felt urgency to take immediate action to reduce carbon emissions in ways that address social, economic, health, and food justice.

Time and time again opponents of workers' rights, environmental protection, economic justice and public health have successfully pitted workers, environmentalists, people of color, and other communities against each other. We, as organizations and community leaders committed to racial, environmental, and economic justice call for a climate change policy that cuts carbon emission and addresses poverty, invests in disadvantaged communities, creates good clean energy jobs, and improves both air quality and public health.

We are collectively committed to achieving climate justice through the following principles:

Racial equity must be at the center of policies that address climate change.

- Policy choices and implementation approaches must be informed by and responsive to racial, environmental, and economic analysis.
- Communities most impacted[1] by climate change must be fully engaged in policy design and implementation to ensure equitable outcomes.

People of color and communities with lower incomes must receive net-environmental and economic benefits.

- Environmental Benefits: The policy should ensure the reduction of carbon emissions. Reducing emissions now will lessen the problem of climate change, and therefore the burdens of adaptation, later on. Climate change is a public health issue that disproportionately impacts people of color and communities with lower incomes. The policy's environmental outcomes must therefore prioritize improvements to public health, especially through the equitable distribution of better air quality. Achieving this goal requires that Washington identify environmental justice "hotspots," or areas with high exposure to pollution and related social instability. This information should be publicly accessible, inform efforts impact climate change, and address existing disparities.
- Economic benefits: Revenue raised through any program should be used on strategies with a strong nexus with policies and programs that address climate change, and should be invested directly in lower-income communities, indigenous communities and communities of color so that the economic benefits outweigh the policy's economic burdens. Reinvested revenue should work to accomplish the following:
    1. The highest priority for reinvestment must be to mitigate financial costs of implementation to communities with lower incomes.
    2. Further reduce our reliance on fossil fuels.
    3. Create clean, living wage jobs that open pathways for people with lower-incomes, people of color, and local residents to enter the green industry workforce.
    4. Enable people to live where they work with access to clean transportation, an affordable place to live, and clean and secure food sources.

Ensure accountability and transparency through public, accessible, and culturally appropriate participation and strong enforcement

- Effective engagement with lower-income communities, indigenous communities, and people of color in both policy design and implementation will help ensure equitable outcomes. A successful policy will require the state agencies responsible for its implementation to monitor its impacts on climate change indicators on an ongoing basis, and to make this information publicly available.

These Principles were adopted on October 17, 2014 by: Asian Pacific Islander Coalition, El Centro de la Raza, Climate Solutions, Community to Community, Got Green?, the Latino Community Fund, OneAmerica, Puget Sound Sage, and Washington CAN!

[1] We define the communities most impacted by climate change as the following communities: people of color, people with lower incomes, indigenous communities, and farm workers.

In addition to these principles, please find below further thoughts on program and policy design.

Use racial and economic equity analyses to inform policy design:

Designing a carbon price that fits Washington State's unique demographic, emissions, and environmental profiles will require thorough consideration of each in this context. As the CERT process revealed, there are still too many gaps in data to make an informed decision about policy options. Specifically, further research must focus on:

- Economic modeling on the implications of a carbon price for incomes broken down by quintile; net-income is not a useful metric in quantifying the anticipated economic gains and losses.
- A database of environmental justice (EJ) "hotspots" like California's CalEnviroScreen (see Michael Gibbs' presentation to the CERT on June 24th) and use this information to identify areas of greatest need for revenue expenditures. EPA will soon release a similar tool, EJSCREEN, and the Governor's policy staff should be trained to use this free resource. This tool will give badly-needed data around environmental health indicators, which could all improve dramatically if the carbon price is well-designed.

Dedicate a portion of the revenue to impacted communities:

The aforementioned "hotspot" data and income quintile analysis will guide efforts to use revenue to first benefit communities most negatively impacted by both climate change and the economic burdens of carbon pricing. California sets aside 25% of carbon revenues to benefit EJ hotspot communities and directly invests 10% in projects located within those communities. Washington should adopt a similar policy but could do better by designating more of the revenue to benefit our own hotspot communities. The following projects and show how Washington can spend a portion of its revenue to create jobs, improve air quality, upgrade infrastructure for resiliency, mitigate the policy's financial burden to low-income Washingtonians, and further reduce carbon emissions in our own hotspot communities, as identified by EPA's EJSCREEN.

1. Mitigate costs of compliance to low-income consumers

This policy must make compliance affordable, especially to those consumers who already spend a large proportion of their income on commodities and services whose prices will rise as a result. Washington should therefore use a significant portion of carbon revenues to provide direct cash rebates to lower- and moderate-income families. Direct cash rebates would provide the flexibility necessary for all families to adapt to the policy. Options for providing direct cash rebates to disadvantaged communities include:

- **Funding and increasing the Working Families Tax Rebate.** Based on the federal Earned Income Tax Credit (EITC), the Working Families Tax Rebate (WFTR) would provide more than 400,000 lower-income Washingtonians with new resources to help them address rising fuel and energy prices. The WFTR was enacted in 2008, but has yet to be implemented. To improve its effectiveness policymakers should consider funding it at a higher level – up to 50 percent of the EITC – and expanding eligibility for lower-income childless workers.
- **Enacting a state Child Tax Credit:** The Working Families Tax Rebate is a powerful economic tool because it primarily benefits lower-income working families with children who benefit most from additional income. However, policymakers should also find ways to provide direct cash rebates to lower-income and middle-class families who are not eligible for the WFTR because their incomes are too high or they cannot work due to a disability. Adopting a state version of the federal Child Tax Credit would boost the impact of the WFTR and would extend rebates to more Washington families.

2. Invest in public transportation and equitable transit-oriented development

Nearly half of all greenhouse gas emissions in Washington State come from transportation. Meeting Washington's statutory emission limits requires a serious overhaul to transportation so that low-carbon alternatives to single-occupancy vehicles are affordable and accessible for all Washingtonians. The state should expand existing public transit options, using revenue from the carbon price to fund these projects. In order to adequately reduce emissions, however, transit projects must also be designed to reduce urban sprawl and promote dense development through equitable transit-oriented development. Both of these goals require specific attention to affordability so that low-income residents will not be displaced by rising property values following innovations to transportation. Increasing Washington's stock of affordable housing and designing transit projects to serve these areas will allow people to live where they work and reduce their reliance on fossil fuels.

Using carbon revenue to implement a low-income fare throughout the state will make this service more accessible to all Washingtonians and incentivize higher participation among low-income riders. Currently, those jurisdictions in which a majority of riders would qualify for such a fare reduction cannot implement it for lack of funding, despite desperate need and high demand.

Fumes emitted through transportation also pose serious threats to public health for residents near major highways, especially in the Puget Sound Region. Reducing on-road traffic and requiring clean fuels for transit, school buses, and freight vehicles will have significant public health benefits for populations who already suffer from disproportionate rates of asthma and other respiratory illnesses.

3. Create green jobs for local people

Washington must embrace the opportunity to create new jobs in the low-carbon and carbon-free industries, and a portion of those jobs must go to local people. As research through Seattle's Targeted Local Hire initiative shows, hiring local people for construction and other projects significantly diminishes carbon emitted through commuter traffic and bolsters local economies. Increasing our green infrastructure must mean job opportunities for low-income communities and people of color that are proportional to their representation in the state.

The technological innovations that reduction in carbon emissions will require of many industries will require facilities to adopt new technologies. Revenue from the carbon price should also be set aside to help such companies transition their existing workforces into these new roles and provide them with necessary job training. This will keep rates of unemployment down and facilitate the transition for businesses with high emissions. It will also prevent some of the forecasted leakage in trade-exposed industries by making the transition to low-carbon technologies affordable in Washington.

4. Fund adaptation projects for communities threatened by climate disruption

The UN's Intergovernmental Panel on Climate Change has found that climate disruption is now inevitable and governments and communities must prepare for significant environmental changes. Following Seattle Public Utilities' lead, Washington State must commission a comprehensive study forecasting to the extent possible the impacts of rising sea levels; ocean acidification; shifts in seasonal precipitation; increases in temperatures and natural disasters; flooding, drought; and other effects of climate disruption. This database should inform the state's resiliency efforts, and a portion of the carbon revenue should also directly fund adaptation projects in the communities identified by the EJ screening tool that are also most vulnerable to climate disruption. Such adaptation measures could include: improving residential water infrastructure to accommodate increases to stormwater; retrofit houses and public buildings for energy efficiency; move houses threatened by rising sea levels away from the water's edge; supplement nutrition assistance programs (in anticipation of increased food prices).

5. Create a grant fund for low-carbon community-led projects

A portion of the revenue will be set aside for community-led initiatives to achieve energy independence, improve local access to healthy food, create urban forestry projects, conserve water, etc. Inviting

communities to apply for funding will encourage them to take ownership over the low-carbon economy, identify the best projects for their own communities, and could even spur local job growth if the grants are large enough.

Create effective transparency, accountability, and oversight mechanisms

Without careful measures to limit compliance flexibility, carbon prices—particularly cap-and-trade systems—give emitters too much opportunity to manipulate markets and avoid emission reductions. The following options describe important measures to ensure a successful, fair policy in Washington. Unless otherwise indicated, each option applies to any type of carbon price (a cap, a tax, or a combination of the two).

1. Create an Environmental Equity Board

Washington must create an oversight board to work with state agencies to review the carbon price before implementation. Membership will consist of representatives of highly impacted communities from across Washington State, who will engage in a dialogue with the staff of state agencies involved in policy implementation to anticipate and pre-empt the policy's unintended, negative consequences for their communities. This group will also advise state efforts to invest revenue in ways that will benefit communities *and* contribute to emissions reductions. This board will convene to review the initial policy plan and the appropriate state agency will solicit the board's feedback. The board will continue to meet on a regular basis to monitor the environmental and economic impacts of the carbon price, related policies (including the Clean Fuels Standard and other aspects of the Executive Order), and other environmental policies.

2. Do not allow offsets

If the Governor should propose a cap-and-trade system, his policy must exclude the option of offsets. Any purchase of offsets decreases emission reductions within the state, thereby missing important opportunities to improve public health. At best, even the strictest offset protocols are very difficult to monitor. Proving any externality (a key component to offset protocols set forth by the Western Climate Initiative) is difficult, and quantifying it is nearly impossible. It also requires that certain sectors be exempt from the cap in order to serve as options for offsets, including agriculture. Other jurisdictions, including California, have found that offsets in other countries have led to serious human rights abuses by pushing indigenous populations off their land to increase forestry. If Washington is to approach climate change mitigation with long-term goals in mind, any "short cuts" or loopholes like offsets allow industries to procrastinate their commitment to carbon emission reductions.

3. Limit market manipulation

The CERT explored multiple ways to avoid market manipulation in a cap-and-trade system, specifically in markets that auction off allowances. If Washington adopts such a system, the state must place limits on stockpiling carbon allowances, build in an automatically escalating floor price, auction allowances only to emitters, keep auctions public and transparent, and maintain a reserve of allowances for cost-containment. These measures will keep the cost of abatement low enough to guard against leakage for all emitters, while simultaneously generating necessary revenue to adopt the low-carbon alternatives Washington needs to meet its statutory emissions reduction goals.

Bradley D. Tilden
President & Chief Executive Officer

November 10, 2014

Carbon Emissions Reduction Task Force
Co-Chair Rod Brown
Cascadia Law Group

Co-Chair Ada Healey
Vulcan

Dear Co-Chairs Brown and Healey:

I am pleased to have had the opportunity to serve on Governor Inslee's Carbon Emissions Reduction Task Force ("CERT"), alongside very able individuals from a variety of sectors within the state. The following comments are provided to further the consideration of this important topic.

We support the Governor's objective of reducing carbon pollution in the state of Washington and, more specifically, meeting the statutory limits on carbon emissions enacted by the 2008 Washington Legislature. Put simply, addressing the problem of climate change is the right thing to do for current and future generations of our state, and we believe the business community should be a part of the solution to that problem.

As to the CERT's very specific mission "to provide recommendations on the design and implementation of a carbon emission limits and market mechanisms program for Washington," we do not endorse a market mechanism program at this time. More specifically, we believe further analysis is needed to better define and characterize the wide-ranging impacts and potential unintended consequences of an emissions-based or price-based market mechanism approach. Further, from what we have learned thus far, if a cap and trade system is implemented with a low carbon price, it will not significantly influence behavior (but it will add administrative complexity and cost). If a cap and trade system is implemented with a high carbon price, it will influence behavior but it could be highly regressive. We share the view of many on the CERT that a balanced approach, involving a suite of well-harmonized policy approaches, is needed to most effectively achieve carbon reduction in the state. There is no silver bullet.

Like many businesses in the state, at Alaska Airlines, we are firmly committed to reducing our impact on the environment. We are proud to have reduced our Co2 emissions over 30% per passenger mile since 2004, even as we have grown our fleet of aircraft and expanded our service to more points across North America. This reduction is in large part due to maintaining a young, all-Boeing fleet, installing winglets on our aircraft, using cutting-edge satellite navigation technology to fly more efficient routes, and transitioning to electric ground service equipment. In fact, Alaska Airlines ranked #1 in fuel efficiency among U.S. domestic air carriers in 2013 by the International Council on Clean Transportation. We are also pleased to have cut in half the amount of passenger waste we have sent to landfills since 2010, through our robust recycling programs at Alaska and our regional airline subsidiary, Horizon Air. But there is much more to do.

One key area of focus for Alaska Airlines is to accelerate the development of an aviation biofuels industry in the state of Washington. We know that fuel efficiency can only achieve so much in the way of carbon reduction, and that alternative sustainable fuels provide one of the most promising solutions for reducing airline emissions. Our interest in aviation biofuels dates back to our involvement, as a founding stakeholder, in Sustainable Aviation Fuels Northwest (SAFN). Following SAFN, in 2011, we were the first U.S. airline to fly a series of regularly scheduled flights using biofuels. Alaska and Horizon Air flew 75 flights, from Seattle to Portland, as well as Seattle to Washington DC, with each flight using a 20% blend of sustainable biofuel made from used cooking oil. Of note, these biofuels flights cost six times more than conventional fuel, and the biofuel was refined in Texas. In the near future, we want to partner with local producers and suppliers, who can supply commercial quantities of biofuel that meet the required quality standards and are cost-competitive with conventional fuels.

To that end, as we look at addressing climate change as a state, at Alaska Airlines, we are interested in working with other stakeholders to identify and promote the most effective policies to help galvanize the aviation biofuels industry in the state. Important work has already been done in this policy arena: The Aviation Biofuels Work Group, in its December 2013 report to the Washington Legislature, provides valuable input on how to promote this industry. Three of their recommendations are worth highlighting as the state considers how to support a biofuels industry: Section 5.1 of the report discusses the importance of aligning state tax policies to support the development of aviation biofuels, pointing out the well-accepted notion that tax incentives can reduce risks and increase the likelihood for investment in all parts of the supply chain. Section 5.3 recommends state support for specific Research and Development efforts in this field, noting how important R&D capacity is to the state's ability to be a leader in aviation biofuels. Finally, Section 5.5 discusses the value of public-private partnerships to enable attractive financing mechanisms to accelerate commercial deployment of aviation biofuel facilities.

Alaska Airlines looks forward to continuing to engage with interested parties in how to spur development of the aviation biofuels industry in our state.

Regards,

Brad Tilden
President and CEO
Alaska Airlines, Inc.

November 10, 2014
To: CERT Taskforce
From: Remy Trupin, Executive Director, Washington State Budget & Policy Center, and Adam Glickman, Vice President, SEIU Healthcare 775NW
Re: POLICY CONSIDERATIONS FOR THE CARBON EMISSIONS REDUCTION TASKFORCE

Addressing income inequality is crucial to reducing carbon emissions

Two major challenges pose the biggest threat to Washington state's ability to deliver on the promise of a better future for our kids and grandkids – climate change and income inequality. At the intersection of climate change and income inequality is what happens to the resources that everyone needs to live – clean air, adequate food, safe water, abundant land, and energy – and who has access to them. The consequences of climate change will dramatically affect the quality and availability of resources; income inequality will affect how people are protected from and adapt to those consequences.

Climate change policies that do not address rising income inequality are less likely to achieve sufficient reductions in carbon emissions for the following reasons:

- **Washingtonians with lower incomes cannot afford to reduce their reliance on carbon-intensive energy sources:** Without additional resources, it would be especially difficult for people with fewer social and economic resources to make the expensive investments in retrofitting homes for energy efficiency, fuel-efficient cars, and other low-carbon infrastructure and technologies needed to make the program a success.

- **All Washingtonians – especially those with lower incomes and people of color – are essential partners in the movement to address climate change:** Nearly one-third (two million) of Washingtonians have incomes below 200 percent of the federal poverty line, of which a disproportionate share are people of color. Faced with sharp increases in fuel and energy costs, communities with lower incomes may be unable and/or unwilling to support the long-term goals of carbon reduction.

Successfully addressing climate change, therefore, is dependent on also addressing income inequality. An effective carbon reduction program must ensure equity by providing Washingtonians from lower income backgrounds and in communities of color the opportunity to benefit from and participate in the low-carbon economy of the future. To accomplish this, they must be actively engaged in designing a carbon reduction program from the outset. In addition, a substantial majority of new carbon revenues should also be dedicated to helping households with lower incomes and communities of color transition to a low-carbon economy and ensuring they have access to good-paying "green jobs."

Climate change and income inequality are closely linked

Climate change will profoundly affect the lives of all Washingtonians, but the impact will not be absorbed equally. Higher income Washingtonians are better able to mitigate or adapt to the impact of a changing climate than those with lower incomes. Compared to Washingtonians with lower incomes, for example, families with higher incomes can more easily: afford the costs of resettling in the face of geographic displacement due to rising sea-levels; absorb the costs of rising food and energy prices; and afford the advanced technologies that would reduce energy bills, such as solar panels and electric cars, which are too expensive for people with lower incomes.

An equitable and effective approach to reducing carbon emissions

For any carbon reduction effort to be successful, the needs of communities of color and those from lower income backgrounds must be recognized and supported in the transition to a low-carbon economy. ***Equity, therefore, must be at the forefront of any policy that aims to address climate change*.** Incorporating the following strategies while developing and implementing climate change policy will ensure that all Washingtonians can support the long-term effort to reduce carbon emissions, and be protected from the threat of climate change:

- **Invest the vast majority of carbon revenues in ways that further reduce carbon emissions.** The overarching goal of a carbon pricing mechanism is to reduce carbon emissions. Therefore, the bulk of carbon revenues should be used to ensure reductions are achieved as quickly, efficiently, and painlessly as possible. Devoting a large portion of carbon revenues toward provisions to help communities with lower incomes absorb higher energy costs and reduce fossil fuel consumption would be an effective way to achieve long-term carbon reductions.

  Policymakers should avoid using carbon revenues to fund broad-based Business and Occupation (B&O) tax reductions. Business tax cuts would provide no incentive for businesses to reduce carbon emissions. And, because these taxes represent a very small share of total business revenues (less than 1 percent on average, according to the Office of Financial Management), reducing them would not meaningfully offset higher business costs associated with a carbon reduction program. Sweeping B&O tax rate reductions would also be expensive, sapping resources that would be more effectively spent on cash rebates and other targeted programs to help lower income communities thrive in a low-carbon economy.

- **Give communities with lower incomes and communities of color top priority for new investments funded by carbon revenues.** A sizeable portion of the revenues from the carbon pricing mechanism *must* be set aside for targeted investments in communities of color and those with lower incomes to mitigate both the environmental impacts of climate change and the higher costs associated with a carbon pricing mechanism. Furthermore, these communities should be first in line to benefit from new investments in an efficient energy and transportation infrastructure.

- **Engage and involve communities of color and communities with lower incomes from the start.** In order to ensure the success and sustainability of a carbon pricing mechanism, the most directly impacted communities must be actively involved in the policy design and mitigation strategies from inception. These communities know best what works for them and they need policymakers to listen. Moreover, *a growing share of Washington's population will be disproportionately impacted by these policies and policymakers will need their support in the long-term.*

Policy options to reduce carbon pollution and fight income inequality

Offset higher energy costs by providing direct cash rebates to families

Using a significant portion of carbon revenues to provide direct cash rebates to people with lower-to-moderate incomes would be a simple, cost-effective way to help all Washingtonians transition to a low-carbon economy. Because every household is situated differently, policies that allow families to be flexible in how they adapt to higher energy prices are crucial. Direct cash rebates would allow families to adjust their spending in ways that best suit their individual circumstances.

Options for providing direct cash rebates to disadvantaged communities include:

- **Funding and increasing the Working Families Tax Rebate.** Based on the federal Earned Income Tax Credit (EITC), the Working Families Tax Rebate (WFTR) would reduce taxes for more than 400,000 Washingtonians, providing them with additional resources to address rising fuel and energy prices. The WFTR was enacted in 2008, but has yet to be implemented. To improve its effectiveness policymakers should consider funding it at a higher level – up to 50 percent of the EITC – and expand eligibility for workers without children.

- **Enacting a state Child Tax Credit:** Policymakers should find ways to provide direct cash rebates to families with lower- to moderate-incomes who are not eligible for the WFTR because their incomes are too high or they cannot work due to a disability. Adopting a state version of the federal Child Tax Credit would boost the impact of the WFTR and would extend rebates to families with incomes as high as $120,000 per year.

- **Adopting a state version of the Making Work Pay Credit:** Although the federal Making Work Pay Credit expired in 2010, it remains a good framework for providing cash rebates to middle class families that would be impacted by rising energy prices under a carbon reduction program. The Making Work Pay Credit provided credits to workers up to $500 per year. The maximum credit applied to workers with incomes up to $75,000 per year ($150,000 for a married couple).

Make targeted infrastructure and energy-efficiency improvements

To help reduce carbon emissions quickly and efficiently, policymakers should also invest a sizable portion of carbon revenues toward improving Washington state's energy and transportation

infrastructure. Communities that are low income, particularly those of color or in rural areas, should be first in line when it comes to receiving these upgrades. Examples of such investments include:

- **Expanding public transit and transit oriented development**. Better access to affordable and reliable public transportation would allow people to reduce the amount of time they spend driving to work and other appointments. Transit subsidies for people with lower incomes would further reduce the number of carbon-emitting cars on the road.

- **Assistance purchasing fuel efficient cars**. Carbon revenues could be used to help people living in rural areas – who cannot efficiently be served by public transit – purchase fuel-efficient cars. Finding ways to help people purchase or lease electric cars at affordable rates could help stimulate demand for these vehicles, spurring greater carbon reduction. A general sales tax reduction or other untargeted tax breaks for electric cars would be far less effective, as much of the value would go to higher-income people who don't need a tax break.

- **Building new energy infrastructure in depressed areas.** New, efficient energy generation and distribution technologies – such as "smart grids" or "solar highways" -- should be built in areas with high unemployment or below average incomes first.

- **Improving in public health infrastructure**. New mapping technologies can help identify communities that would be hardest hit by climate change, and resources can be targeted to those at the greatest risk. In addition, strategic communications and outreach can help prepare Washingtonians most at-risk educating them on how best to protect themselves from the consequences of climate change, such as rising temperatures or flooding.

- **Offer free or low-cost energy retrofits to communities with lower incomes**. Utilities are a significant component of overall housing costs for households with lower incomes. Providing direct assistance for weatherization and other home energy efficiency improvements would help struggling families reduce their natural gas and electricity bills while reducing carbon emissions statewide. The policies must also take into account that many of these families are renters and be designed accordingly.

- **Expanding investments that help families meet basic needs.** In addition to direct cash rebates, carbon revenues could be used to increase funding for the Basic Food Program and other anti-hunger efforts, and to provide utility subsidies for families with lower incomes, all of which would help to counteract the damaging effects of basic needs.

Ensure all Washingtonians have a stake in the low-carbon economy

For people from lower income backgrounds and communities of color to embrace carbon reduction efforts, they must be convinced that doing so will benefit their kids and grandkids. Therefore, it is essential to ensure these communities have opportunities to shape and participate in the low-carbon

economy policymakers seek to build. To create these opportunities, any carbon reduction policy should include:

- **Efforts to include residents of communities with lower incomes in "green technology" research and development.** Extra tuition supports should be provided to for college students from low income backgrounds seeking careers in developing and building advanced, environmentally technologies. Furthermore, new environmental technology research facilities should be located in areas with high unemployment or below average incomes. A new research center located in Yakima, Aberdeen, Federal Way, or South Park, for example, could have a much bigger impact on the local community than adding another facility in South Lake Union or Bellevue.

- **Access to new green jobs that pay a living wage**. To the greatest extent possible, residents of communities with lower incomes and people of color should be hired to build and maintain a new energy infrastructure. To do so, they should also have access to specialized training programs.

November 10, 2014

To: CERT co-chairs
From: Steve Wright
Re: Supplemental Comments to Carbon Emissions Reduction Task Force

I want to begin by thanking Governor Inslee for the opportunity to participate in this important task force.

1. Taskforce Charter - It is important to understand this task force in terms of the charter provided by the Governor. The CERT Task Force was not asked whether a price should be placed on greenhouse gas emissions but how. Relative to the CERT's mission, the salient portion of the Governor's Executive Order states:

   > The Governor's Carbon Emissions Reduction Taskforce is hereby created to provide *recommendations on the design and implementation* of a carbon emission limits and market mechanisms program for Washington. The Taskforce's advice and recommendations will inform legislation to be requested by the Governor for consideration during the 2015 legislative session. The carbon emissions reduction program must establish a cap on carbon pollution emissions, with binding requirements to meet our statutory emission limits, and it must include the market mechanisms needed to meet the limits in the most effective and efficient manner possible. The program must be designed to maximize the benefits and minimize the implementation costs, considering our emissions and energy sources, and our businesses and jobs.

   This charter led the Task Force to focus its efforts on the choices regarding various forms of carbon pricing. Hence, the report does not speak to whether a price on carbon should be adopted.

2. Program design details are crucial - A fundamental issue discussed by the Task Force was whether a cap/trade versus tax approach was preferable. Based on what we learned through this process, I believe that the most important question is not which approach, but rather what associated policies will be adopted with either approach. Under either approach, success or failure will depend on design details and how they interact with related public policies. The challenges, however, of ameliorating the downsides of a cap and trade system are greater than those associated with a tax. There are inherent difficulties in managing a market that create a larger administrative burden than managing a tax and more opportunities for unintended consequences that are difficult to remedy.

3. Additional analytics needed to assess the relative benefits of program linkage - A cap-and-trade system also must address the issue of whether to link to other programs in order to increase the market size and liquidity necessary for reducing price volatility risk given that the Washington State market is not that large. Yet there was not enough time to

appropriately address the analytics behind this issue to determine whether Washington State would be advantaged by the market size advantages of liquidity or disadvantaged due to the relative cost of carbon emissions in Washington State compared against other jurisdictions. There should be a significant advantage to be gained because clearly linkage would lead to a loss of autonomy compared against a Washington State-focused program.

4. Economic impacts need further analysis - Much of the information the CERT reviewed summarized experiences in other places. The economic analysis performed by OFM, however, was a unique contribution that directly addresses impacts of a carbon price in Washington State. This analysis addresses the most important question at a macroeconomic level - How much carbon reduction can be achieved, at what price, and at what cost to the economy? The analysis is preliminary and incomplete, but it identifies some very intriguing results:

    a. *Revenue recycling choices are critical to economic outcomes* - There is the potential that the statewide net macroeconomic impact (employment, personal income, and GDP) of any price on carbon can be effectively neutral. This seems to be because the underlying assumption is revenue removed from the economy is effectively recycled. An area that the Task Force did not have an opportunity to explore is the effect of various approaches to revenue recycling. The impacts on individual economic sectors also appeared to be small but this may also have been because of the assumptions for how revenues are recycled or because of the limited ability to explore individual economic sectors. A tentative conclusion is that the structuring of revenue recycling is critical to both macroeconomic and individual sector effects.

    b. *Effectiveness of various tax reduction policies should be analyzed* - The analysis provided to the Task Force assumed that 95% of the revenues collected from a carbon price are recycled in the form of a reduction in existing taxes with a spreading approach between business and personal tax reductions. This approach appears to have produced a mostly neutral economic impact compared against no price on carbon, suggesting it should be used as a starting point for discussion to compare alternative strategies against. There are, however, important considerations that deserve further discussion. For example, agriculture does not pay the B&O tax and hence would not derive the benefits from revenue recycling, although clearly it would be impacted by increases in fuel prices. These sorts of adjustments based on further analysis would be critical to a successfully designed program. Moreover, there is a very important macroeconomic discussion to be had about what types of tax reduction policies (e.g. reducing marginal capital vs. labor tax rates reductions) create the most economic benefit and equity.

    c. *Carbon pricing should achieve cost-effective and efficient reductions* - - The analysis indicates that a price that rises from $12 to $15 by 2020 and then to $45 by 2035 will not be adequate to meet the carbon emissions reductions target in current state law. The charge given to the Task Force was to identify means to achieve this target.

Alternatively, a price that rises from $12 to $52 by 2020 and then to $172 by 2035 may achieve the state target for the sectors covered according to the OFM analysis. A 2035 price at this level would produce roughly $6.5 billion annually. These are 2014 dollars. The analysis suggests: (a) prices well beyond those currently experienced in other jurisdictions that have adopted a carbon price would be necessary to achieve the state targets using current technology; (b) prices of this magnitude would suggest a substantial need for technology initiatives to reduce the cost of carbon emissions reductions; and (c) programmatic efforts to reduce carbon outside of pricing mechanisms should be measured against the prices suggested in this analysis to determine whether they are adding value compared against a carbon price or are duplicative of what would be accomplished with a pricing regime. This last point is particularly important because the overarching goal of placing a price on carbon is to achieve emissions reductions targets in the most cost-efficient manner. Complementary programs that address carbon emission reductions should be evaluated for whether they are increasing or decreasing efficiency compared against a carbon price.

d. *Marginal abatement cost curves need to be analyzed* - I want to specifically endorse the Task Force conclusion that additional work should be done on carbon emission marginal abatement curves, a term that only economists could love. To put it more simply, if we are going to seek out the most cost-effective means to reduce carbon emissions, we must have an analysis that provides a supply curve of potential carbon emissions reductions compared against price. This would allow policymakers to: (1) assess the best means for achieving emissions reductions, including where market mechanisms may fail; (2) consider the best opportunities for investments in technology that can reduce future carbon emissions reductions; and (3) get a sense of the likely total cost of achieving various targets.

e. *Further work should tackle the question of which sectors are covered* - An important question that the Task Force did not get a sufficient answer to is whether all sources of GHG emissions were covered by the analysis and if, in fact, the high price scenario will accomplish the statewide emissions target. There was some discussion, but not a clear conclusion, that some portions of the transportation sector may have been excluded from the analysis. This issue should be a high priority for further analysis.

5. <u>Climate adaptation strategy can address risk, identify opportunities</u> - While the analysis would suggest revenue recycling that focuses on reduction of existing taxes produces neutral economic impacts, the Task Force report identifies other forms of spending as options to be considered. If these ideas are pursued, then options for addressing adaptation strategies should be part of the discussion. Adaptation strategies that employ good planning and incentives would create means to minimize negative impacts and seek out opportunities to take advantage of an altered climate. For example, with agricultural production being a significant component of the Washington State economy, it would be worthwhile considering whether a threat can be turned into an opportunity.

6. There are a set of modeling issues that are likely to have significant impacts and are worth pursuing as the analysis is further developed: (1) REMI models generally have difficulty addressing export industry competitiveness which is critical to Washington state industries (e.g. tree fruit and aluminum production), (2) how the working families tax credit will work in practice, (3) there are counter-intuitive results that carbon-emitting industries will see job growth with a carbon price, (4) the price shock of higher price increases are difficult to model, and (5) the cost and effectiveness of carbon abatement options embedded in the model have been subject to substantial debate in other analyses.

As it was made clear from the beginning of the exercise, the Governor wanted to hear a variety of views on this subject and was not seeking "votes" on the policies being discussed. I am comfortable that the Task Force report provides a fair representation of the discussions held by the Task Force and would ask that these views be considered as a supplement to the report. I want to specifically thank the co-chairs and the facilitator for their management of the process to assure all Task Force member voices were heard.

Steve Wright
CERT Task Force member

UNITED STEELWORKERS
USW
UNITY AND STRENGTH FOR WORKERS

District 12

Robert LaVenture
District Director
Chris Youngmark
Assistant to the Director

November 10, 2014

Ada Healey, Co-Chair
Rod Brown, Co-Chair
Carbon Emission Reduction Taskforce
Office of the Governor
PO Box 40002
Olympia, WA 98504-0002

Dear Ms. Healey and Mr. Brown,

On behalf of the United Steelworkers (USW) and our 850,000 members, I want to thank you for your efforts leading the 21-member Carbon Emissions Reduction Taskforce (CERT). USW has been an active member of the CERT and we are eager to see the state of Washington develop an effective, flexible approach to reducing carbon emissions and while maximizing job creation and job security.

As we have stated in prior communications to Governor Inslee, USW support for carbon emission policies is guided by the principle that Americans deserve both environmental sustainability and economic prosperity. We see that approach as consistent with the preamble of Governor's Executive Order 14-04 establishing the CERT, which states "it is critical to Washington's economic future that greenhouse gas reduction strategies be designed and implemented in a manner that minimizes cost impacts to Washington citizens and businesses." We believe USW's approach is also consistent with the Executive Order's aim to "be designed to maximize the benefits and minimize the implementation costs, considering our emissions and energy sources, and our businesses and jobs."

USW believes we do not have to choose between economic and environmental progress, but that we can and must implement solutions to ensure both. Indeed, if the state of Washington implements a carbon reduction policy that reduces carbon but harms working people by sending jobs out of state or overseas, we all will have failed. We must therefore chart a policy course that simultaneously achieves science-based carbon reduction targets while creating and securing jobs, including those in the state's existing energy-intensive and trade-exposed manufacturing sector.

Last week we received the November 3 draft CERT Report to the Washington State Governor's Office and we have conducted an internal review. In this memo we will share some specific comments on that draft as well as broader comments and recommendations on the state's overall approach.

To begin, we are pleased to see that the draft report includes language responding to earlier USW comments and inputs, including – but not limited to – the following examples:

1. There is now mention of the need to further identify and analyze specific impacts (including job impacts) on "vulnerable industries dependent on fossil fuels."
2. There is new language summarizing CERT discussions about the use of carbon pricing revenues that incorporates competitiveness challenges in trade-exposed industries, including those in which our members work, including aluminum.
3. The description of job training is now improved and states that such programs can be "targeted at Washington residents, particularly low-income and minority residents and current employees in impacted industries and emitting facilities (and) can be directed toward the needs of infrastructure investment projects and support maximum job creation and existing job security." The reference to existing job security is important for the USW.
4. There are additional improvements to the workforce development language, including the need to fund training programs to develop skills needed to perform the duties of "green jobs."

We have also reviewed the report and will flag for fellow CERT members the following:

1. In Finding 4 (Page 3), the report says that one of the areas needing further analysis is "… identifying and analyzing the impacts (including job loss particularly for vulnerable fossil fuel dependent industries) to low/moderate income and vulnerable communities of both climate change and carbon pricing." We agree with this need, but we want this section to make clear that workers in fossil fuel dependent industries should be considered vulnerable. We suggest these changes: "… identifying and analyzing the impacts (including job loss particularly ~~for~~ IN vulnerable fossil fuel dependent industries) to VULNERABLE POPULATIONS, INCLUDING WORKERS, low/moderate income and vulnerable communities of both climate change and carbon pricing."
2. Regarding the Preliminary Economic Modeling Scenarios (Pages 9 and 10), we refer fellow CERT members to a September 30, 2014 memo – and accompanying summary document – sent to Governor Inslee's staff on October 6. The memo was prepared for USW District 12 by Heidi Garrett-Peltier, PhD, Political Economy Research Institute (PERI), University of Massachusetts, Amherst, and catalogues a series of questions and concerns about the economic modeling.
3. In Section 3 addressing the Evaluation Framework (Page 10), we strongly support the third of the eight framework topics that proposes a strategy to address the particular vulnerability of some of USW's key employers:

… certain business and industries in Washington could face higher production costs compared to competitors in regions where carbon costs have not been accounted for and internalized. In particular, energy-intensive and trade-exposed business and industries are likely to face greater competitiveness risks due to a carbon price. Companies could choose to relocate to those regions without a carbon price to maintain their competitiveness in the global marketplace; this would lead to relocation rather than reduction of emissions, a risk referred to as "carbon leakage". By directing revenues (or tax rebates or exemptions or free allowances) to energy-intensive and trade-exposed industries in Washington, market mechanisms can reduce or eliminate competitiveness concerns. Free allowance distribution, under an emissions-based system, or tax rebates or exemptions as mentioned above, under a price-based system, can be energy efficiency-based (or production-based). Companies would have the potential to raise revenue by selling allowances if they reduce emissions through increases in energy efficiency.

USW also continues to maintain that the fourth of the eight framework topics should more clearly express the perspectives of CERT members and not only address job growth, but also "job security."

Overall, as CERT prepares final recommendations, we believe the following underlying concepts should be built into any comprehensive policy designed to reduce carbon emissions:

- **Investments in Jobs**

Revenue generated by market programs should be allocated to create and secure family-sustaining job opportunities for all workers. Revenue allocation programs should include incentives and/or regulations that reward business for energy efficiency investments made at energy intensive facilities beyond "business as usual" – as well as workforce development training to ensure existing and new workers can participate in emerging sectors.

Beyond energy efficiency, generated revenues should be used to spur investment in grid modernization and the development and deployment of clean energy technologies, such as wind, biomass, solar and nuclear.

- **Leakage Protection**

Leakage, the phenomenon whereby production of various goods moves out of state – along with jobs and carbon pollution – to areas with weaker environmental laws, poses a real threat to job security for USW members. Washington's carbon reduction policies should address and combat leakage to ensure a level playing field between in-state and out-of-state companies and prevent jobs from leaving.

Washington State should also consider incentivizing carbon reduction opportunities in carbon-intensive industries through a tiered rebate approach that takes a portion of the allowance pool and provides rebates tied to the direct and indirect compliance costs to energy intensive industries. These rebates would be pegged to efficiency, so the more efficient a producer, the greater the rebate.

Spurring direct and timely capital investment in appropriate technologies can reduce lifecycle emissions of facilities in Washington. Such an incentive program should ensure new investments are above-and-beyond other requirements or business-as-usual and include careful accounting for real, verified emission reductions. In addition to reducing GHGs and preserving industries in Washington, spurring these technologies and investments could have additional benefits in terms of reduced criteria pollution beyond carbon emissions.

Additionally, Washington should try to harmonize its leakage policies with other states and regions. A regional approach will strengthen the region's ability to address leakage issues stemming from products imported from states or other countries that lack carbon reduction laws and/or regulations.

- **Promote Domestic Content**

As Washington considers the use of incentives and/or regulations to address carbon reduction goals, the state should determine policies that promote and maximize the use of domestic content. For example, potential carbon-reducing policies may incentivize and/or regulate investments in new infrastructure development and/or retrofits including renewable or clean energy, building energy efficiency retrofits (residential, commercial and industrial) and public transportation. Where tax dollars are used, Washington should place a preference on domestically-sourced products such as steel and cement for the construction and modernization of infrastructure associated with meeting WA carbon mitigation goals.

In addition, *we urge funding for research to support the study of the carbon footprint of imported goods used for major infrastructure and building efficiency projects*. Research is needed to analyze the costs of those imports (e.g. the carbon emissions associated with imported steel made in highly energy intensive facilities) and the overall environmental benefits of domestically manufactured goods.

- **Compliance Flexibility**

Carbon reduction for energy intensive industries should provide regulated parties with the ability to comply with requirements through various means throughout the production cycle of finished goods. Washington state should also consider a phased in approach for regulated sectors similar to California's AB 32 and Waxman-Markey.

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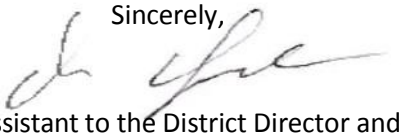
Again, we thank you for leading the CERT as it prepares recommendations for Governor Inslee addressing policy approaches to reduce greenhouse gas mitigation policies. We look forward to working together on the successful creation and implementation of Washington state policies that reduce climate change while creating and maintaining family-sustaining jobs.

Sincerely,



Chris Youngmark, Assistant to the District Director and CERT Member
United Steelworkers (USW), District 12

CY/jcl

cc. Robert LaVenture, District 12 Director
Gaylan Prescott, Sub-director
Roxanne Brown, Assistant Legislative Director
Jim Frederick, Assistant Director, Department of Health, Safety and Environment
Jim Young, Principal, The Labor Institute & Senior Advisor, BlueGreen Alliance
Chris Davis, Senior Advisor
Rob Greenwood, Principal, Ross Strategic

Carbon Emissions Reduction Taskforce

Report to the Washington State Governor's Office