RE: SB 1574 Oregon Senate Committee on Environment and Natural Resources (2.2. 2016)

From Tom Bowerman, PolicyInteractive Research

1. How to summarize my 9 years of intense focus on climate policy research? While 75% of us are ready to make the change, here is what I observe how 25% have shifted their stance in the last decade:

- climate is not changing
- climate is changing but it's not us
- climate is changing, it's us, but it won't be bad
- climate is changing, it's us, it will be bad, but there's nothing we can do about it.
- climate is changing, it's us, it will be bad, we can do something (but not what you're proposing and my proposal doesn't have a chance).

If the legislature cares about where Oregon's general or electoral public, we have solid evidence of public support. [attachment 1]. From the 2013 Oregon Values Project survey of 3000 Oregonians we find 72% saying action is required now to 21% saying we can deal with it later. A 2014 DHM Research study found 2:1 support requiring businesses selling or producing greenhouse gas products to reduce those emissions. In a PolicyInteractive 2015 survey we observed 70% over 28% for stronger government policies to reduce green house gas emissions, and over 2:1 level of support for Oregon's legislature adopting a policy like SB1574. In each of these surveys, we observe broad demographic support including age, income, geographic location and political party identity.

2. SB1574 is a stick and carrot policy. The stick is a definitive cap which ratchets down across 35 years - to achieve the goals Oregon's legislature declared in 2007. The carrot is a market trading system which creates value out of emission reductions stimulating innovation and in-state investment in-lieu of perpetual fuel importation costs. Our research evidence finds that this will quickly yield a net economic benefit of over $1 billion per year to Oregon. If we are successful in forgoing climate instability costs (fires, flooding, drought, irreparable ecosystem disruptions) we will save over $1 billion. Evidence finds that action vs. inaction yields a net benefit over cost of over $2 billion per year. [Attachment 2]

3. In a conference call including over 20 Oregon bipartisan policy oriented organizations, SB1574 was summarized. At the end of the conversation a roll call of support or opposition was taken. It was unanimous minus one, the organizations gave their support to this bill. This support was not without grievance however. I believe each organization representative had one or more concerns about key items removed from earlier bill drafts or not getting personal priorities into the legislation. Nonetheless, in balance, the conclusion was that the perfect should not obstruct the possible. Recognizing that getting a functional emission regulatory pricing mechanism will take almost four years to bring on-line means two things:

- We are increasingly getting off-course and we must initiate the administrative chores now rather than later;
- Each of us, whether individual, organization or legislature will have considerable opportunity for more involvement, even at the pre-formative stages.

It may not be ideal for us to be pushing a policy like this in a legislative short session but the circumstances of climate urgency combined with the character of the Oregon's legislative process gives us no valid choice.

What I took from the conference call's main observed complaints of the bill were:

- The five year delay of inclusion of transportation emissions in implementation scheduling, we'd prefer - at most - a 2 year delay.
- The omission of a five year periodic update of the emission cap trajectory based on best available science. This issue itself was the cause of the sole party to withdraw their support although many of us see this as a serious loss.
- Concerns about how well the act presently defines and insures equitable protections for low income and distressed communities in Oregon.

While the slow (but increasing) impact of human caused climate change may explain our delayed reaction, action is imperative that we temper the worst of what we've already set in motion. Let us admit, however, that we cannot predict with any certainty when or what will occur. This reality of uncertainty shouldn't produce paralysis or even delay. We now have enough solid basis to make a fully informed decision while still recognizing that course corrections are not just desirable but inevitable.

We will never get it perfect because we know we will be responding continuously to new impacts as well as best practices. I'm certain this will be true through my grandchildren's lifetime. As we might say in football, we need to up-our-game in "open field running" but that doesn't mean delaying adopting game plan with what we now know. So let's get on with it.

Attachments for the record:

Oregon Climate Policy Opinion Summary
How SB1574 works Q&A
Oregon Studies California AB32 on Jobs and Economy
How much would the HCA cost Oregonians?

How much would the HCA cost Oregonians?

Tom Bowerman, PolicyInteractive Research, 1.29.16 v6

How much would the HCA cost Oregonians? This question was asked by Oregon Senator Olsen in a 1/14/16 legislative hearing.. The question is important although it as more than one answer depending on how "cost" is computed. "Cost" is often defined differently, such as: initial cost, net cost, and cost-benefit. When risk factors are accounted, there may also be a cost of failure to act.

1. **Sixty-two dollars per Oregon resident yearly is one reasonable estimate of simple out-of-pocket"cost," if measured at year three of implementation.** However, This $62 annual per Oregon capita is based on another state using the same program, extrapolating for population difference. Using this approach **we estimate that the gross cost at the third year of full implementation would total around $250 million or $62 per Oregon resident**. This figure is based on the proposed implementation method of the policy, using a current WCI allocation price of $13/ton of CO2e, 53% of allocations being given away for program, fairness and economic stability purposes, based on Oregon's current 64 million metric tons of CO2e emissions.

2. **We expect at least a 3:1 return on the "cost". By the third year, we can estimate more than $186 per $62 cost.** The HCA up-front cost is really a fee paid by entities which emit more than 25,000 tons CO2e per year (comprising less than 100 Oregon companies) for the privilege of polluting our common air-shed . The pollution fee is rebated to Oregon residents and businesses in the form of targeted investments to reduce negative pollutant impacts. The rebate includes low-income support to offset price increases that the emitters would pass through to the public, as well as investments in renewable energy, conservation, adaptation measures, and research. These targeted investments yield returns, which more than offset the costs incurred. Analysis of evidence finds a **net-positive economic benefit ranging from 3:1 to 50:1**[1] above the initial cost**.** Partly this is because our consumption of CO2 emitting products (e.g. fossil fuels) are almost exclusively purchased from outside Oregon, while the investments will be made inside Oregon, yielding a positive benefit.

3. **Not addressing climate change has a bigger cost to Oregon's economy**. "Based on a leading aggregate damage estimate in the climate economics literature, a delay that results in warming of 3° Celsius above preindustrial levels, instead of 2°, could increase economic damages by approximately 0.9 percent of global output. To put this percentage in perspective, 0.9 percent of estimated 2014 U.S. national Gross Domestic Product (GDP) is approximately $150 billion nationally per year. The incremental cost of an additional degree of warming beyond 3° Celsius would be even greater. Moreover, "these costs are not one-time, but are rather incurred year after year because of the permanent damage caused by increased climate change resulting from the delay."[2] Proportionally, not taking action will cost Oregon over $1 billion per year. This may be understating it.

The Pentagon released a study in 2014 stating climate change is placing immediate costs on US defenses and threats to low elevation instillations, potentially running into hundreds of billions of dollars.[3] Worldwide, populations in low-lying areas are facing displacement of hundreds of millions of people, a catastrophe of unheard-of dimension. There are other costs of inaction.

Conclusion: Addressing climate change smartly will yield a strong net positive benefit immediately. Applying a conservative net benefit ratio, near term benefit could exceed $1 billion per year. Not taking action has a future cost to Oregon of over $ 1 billion per year, expressed in current value of money. Delaying action cancels benefits and increases long-term costs. Faster action has far stronger benefits.[4] **The spread between our collective action or non-action in addressing climate change translates to at least two billion dollars per year to Oregonians.**

---

[1] http://www.policyinteractive.org/OreStudiesCalAB32JobsEconomyFinal.pdf

[2] https://www.whitehouse.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change.pdf (p.2)

[3] http://registerguard.com/rg/news/32285528-76/climate-change-will-challenge-u.s.-military-defense-secretary-says.csp

[4] https://www.whitehouse.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change. (pp5-7)

Climate Stability and Justice Act of Oregon (SB 1574) Questions and Answers:
(last edit: PI-2.1.2016; blue text links to evidence; request electronic version at info@policyinteractive.org)

Why is SB1574 necessary? Oregon is not meeting its goals to reduce greenhouse gas emissions because the existing 2007 law was a goal without effective implementation. That law intended Oregon to reduce statewide greenhouse gas emissions to be 10% below 1990 emission levels by 2020 and at least 75% below 1990 levels by 2050. Those goals were based on recommendation by the International Panel on Climate Change, comprising 3000+ qualified climate scientists. Without controlling greenhouse gas emissions, the scientific consensus predicts catastrophic worldwide consequences. While early signs are observed, the big risk is reaching climate tipping points causing intense global temperature rise. SB1574 defines a comprehensive strategy. Below is a short summation of how key components may be implemented.

How does SB1574 accomplish the objectives? To obtain performance consistent with Oregon's 2007 goals, SB1574 creates a legally binding cap on emissions along with comprehensive implementation strategy to gradually reduce emissions. It authorizes a "cap and trade" market based mechanism of trading and selling emission allowances which drives down emissions using innovation and pricing incentives. The law requires Oregon's Department of Environmental Quality to adopt rules and timelines to meet the cap. It stipulates that Oregon work with other states and jurisdictions to increase effectiveness through economies of scale and shared implementation when practical. Multi-state implementation would logically be through the Western Climate Initiative (WCI), to which Oregon already belongs along with Washington, Utah, New Mexico, California and Arizona in the US and British Columbia, Manitoba, Ontario and Quebec in Canada. Three existing WCI members have adopted a cap and trade approach involving a market mechanism which is self-supporting and yields revenue for investments to transition us to a low emission future.

In sum, SB1574 actualizes the 2007 aspirational goals by law. Implementation is assigned to an Oregon agency. It must be emphasized that the agency operates under rules adopted by the Environmental Quality Commission, a citizen based commission appointed by the Governor. Precise implementation details are reached through agency research, public hearings, legislative oversight and commission rule making. To respond to public requests about how we expect the policy to be fully implemented, the following is based on findings from the three current jurisdictions using the WCI cap and trade mechanism, anticipating that the agency would follow a similar approach.

What would Oregon's involvement in a market mechanism such as cap and allocation look like? Permission to emit large quantities of CO2 type gasses into the atmosphere would be defined under regulatory "allowance". One allowance (unit) authorizes an emitter to discharge one ton of CO2e gas. The allowances are purchased in a quarterly open market auction. As in a standard auction, a minimum value is set for an allocation to insure tangible value, such as $12 per ton of CO2e. The act stipulates that entities which emit above 25,000 metric tons carbon dioxide equivalency (MtonsCO2e) per year (CO2e) would be subject to the regulation, representing an estimated 85% of Oregon's conventional emissions. This approach involves major fossil fuel users like larger utilities and industries and fuel distributors but not local gas stations, small businesses such as farms, nor individual consumers. It is estimated that less than 100 businesses would be included in the 25,000 MtonsCO2e.

How does the allowance auction work? WCI, mentioned above, operates the non-profit WCI Inc. auction market program, saving states the costs of running individual programs. Under the rules of the cap-and-trade program, every regulated facility must acquire at auction and surrender allowances equal to their emissions. So Portland's General Electric coal generating station, for example, would need to turn in something like 4 million allowances to cover 4 million tons of CO2 equivalent annual greenhouse gas emissions. The total number of allowances available in the program in any year is exactly equal to the cap for that year. As the cap declines, so too does the number of allowances. As allowances become scarcer, their value will tend to increase--creating an incentive for businesses to reduce emissions in the most cost-effective manner. Most auction proceeds are turned over to the state and invested in lowering greenhouse gas emissions, such as conservation, renewable energy and research or offsetting the burden for low-income earners. This builds a low emission economy while creating jobs in clean technology. Businesses that reduce energy can sell and pocket their surplus allowance proceeds, incentivizing conservation.

How much would the state earn and what does it do with the auction income? Current experience from other states shows the bid price to be stable and currently at about $13 per ton of emitted greenhouse gas, about 2% the cost of energy. If this approach were applied in Oregon today it is estimated that it would yield about $250 million per year if

the program were administered similarly to California. Administration cost of the program is estimated at one half percent. The mechanism is essentially a hybrid regulatory and free market mechanism which stimulates business to find least cost ways to reduce emissions. The auction costs encourage business efficiencies but also yield funds for public discretionary investments toward a low emission future, like renewable energy, conservation and research. Other jurisdictions report these investments leverage job growth in clean industries at 2 to 3 times the national average and a net benefit above program cost above a 3:1 ratio.

What would this cost the average Oregonian? Please see:
http://www.policyinteractive.org/How.much.would.HCA.cost.Oregonians.v6.pdf

How can we be sure this won't turn into another Enron boondoggle? Enron was a for-profit corporation dedicated to maximizing profit. SB1574 is a regulatory mechanism dedicated to lowering emissions. WCI, Inc. has put a number of safeguards in place to deter and detect any attempts to manipulate the market. Every market participant must register with the agency and submit to Oregon's jurisdictional regulation. Every transaction in the market is tracked in a central database (each allowance contains a unique serial number). Hoarding rules and purchase limits prevent any one actor from cornering the market. The agency will employ an independent third party monitor with extensive experience monitoring energy markets which are similar to carbon markets, especially in terms of analyzing the bids and activities of participants. SB1574 prevents loopholes and sleight-of-hand.

I've heard talk about a carbon tax as a different way to go. What's the difference between a carbon tax and a cap-and-trade program? A carbon tax is a straight tax on fossil fuels, with the idea that polluters will pay an incentive to reduce emissions. But a carbon tax does not actually guarantee greenhouse gas reductions; the tax could be passed onto consumers, and the incentive hinges on the level of the tax. Public opinion evidence shows that the public isn't supportive of the level of tax necessary to lower greenhouse gasses effectively. A carbon tax is commonly described as "revenue neutral", whereas SB1574 is a pollution fee in which revenue is reinvested in lowering future emissions. Public opinion surveying finds more than 2:1 favor toward reinvestment of emission fees over refunding a tax. A carbon tax also fails to address the full range of other greenhouse gasses (e.g. methane and oxides of nitrogen), estimated to be causing more than 20% of global warming.

Successful cap-and-trade programs, in contrast, specifically require greenhouse gasses to go down over time, because there is an actual declining cap set on those emissions. This type allows the market to determine the price through the trading system. Companies that reduce emissions can sell or trade unused allowances to companies that exceed theirs. Over time the total cap decreases, making allowances scarcer and providing an incentive to find cost-effective ways to cut emissions. This approach is working successfully in ten states to lower emissions. Current Oregon voter polling opinion shows strong majority support for regulating carbon emissions in the manner of SB1574.

What about low income people who don't have flexibility to adjust to changes? SB1574 strives for equity through specified protections and investments in and for low income and impacted economically distressed rural communities.

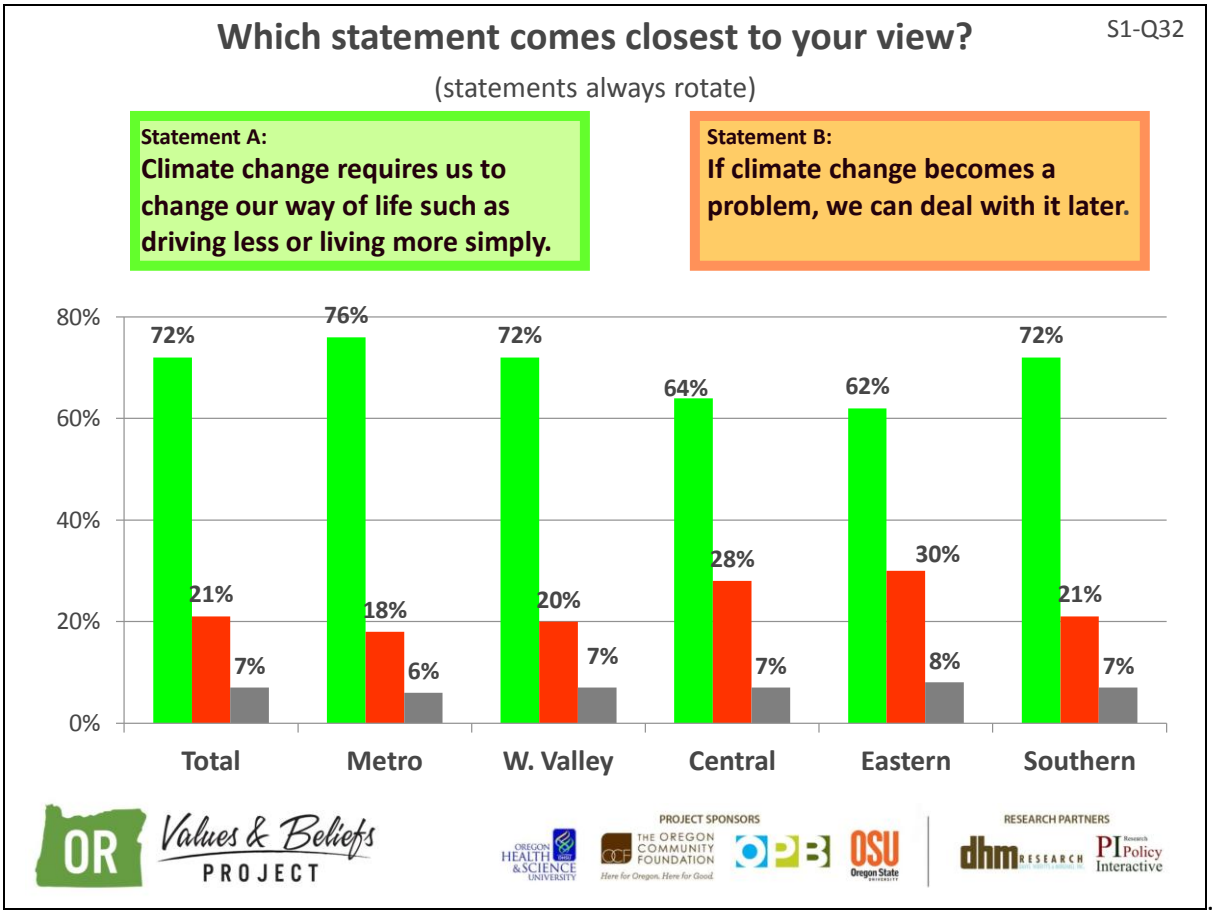
If Oregon emits only a quarter of a percent of the world's emissions, why should we do anything at all? Emissions are a worldwide collective action problem. Without leaders to address a challenge, no solutions are ever possible. By joining the Western Climate Initiative group, Oregon enters a solution representing the fifth largest economy in the world. This contributes to a larger outcome as well as encourages our nation and other countries to take greater action to regulate emissions to stabilize global warming. Failure of federal leadership necessitates that states take responsibility. SB1574 proponents think Oregonians should take the moral high ground and economic high road in addressing this paramount global problem.

By assigning agency responsibility to meet the goals, authorizing new implementation tools, and agency course-correction for unforeseen circumstances or discoveries, the Act implements the 2007 goals. It achieves emission reductions incrementally in a self-supporting way and stimulates the market to find the best methods at least cost. Three WCI members using the market based mechanism, California, Quebec and Ontario, report effective emission reductions as well as job growth above their national averages.

end (PI-2.1.2016) ///

Three Different Sources of Oregon Opinion on Climate Change (2013 -2015)
(all unabridged results available: info@policyinteractive.org)

I. 2013 Oregon Values and Beliefs Study N=2974 random sample, age 18 and above, five regions segmentation. Eastern over sampled to n=400. (survey S1 Q32) (Link Oregon Values)



II. April 2015 DHM Research Media Partners Survey Oregon Random Phone Sample Age 18 and older N=340

Thinking about global warming, would you support a law in Oregon requiring businesses that sell or produce greenhouse gas producing products to reduce their greenhouse gas emissions? **(Wait and ask: Is that strongly or somewhat?)**

Response Category	N=340
Strongly support	40%
Somewhat support	20%
Somewhat oppose	11%
Strongly oppose	20%

[DNR] Don't know	7%

III. May 2015 PolicyInteractive Survey N=402 MOE 4.9% Random Sample Registered Voters Telephone Age 18 and older. Full unabridged survey or methodlogy on request: info@policyinteractive.org

Q5. How much do you agree or disagree with this statement: there should be stronger government policies to reduce greenhouse gas emissions.	N	PERCENT	AGGREGATE PERCENT
Strongly agree	180	44.8%	**69.7%**
Somewhat agree	100	24.9%	
Somewhat disagree	49	12.2%	**28.4%**
Strongly disagree	65	16.2%	
(DO NOT READ) Don't know	6	2%	2%

Q6. In 2007 Oregon's legislature adopted greenhouse reduction goals. Oregon agencies report these goals are not being met. With this in mind:

Would you support or oppose Oregon legislation to enforce existing state greenhouse gas reduction goals -- by adopting policy found to be successful in other states? Would you:	N	PERCENT	AGGREGATE PERCENT
Strongly Oppose	66	16.4%	**30.3%**
Lean toward Oppose	56	13.9%	
Lean toward Support	112	27.9%	**64.2%**
Strongly Support	146	36.3%	
Undecided ((DO NOT READ): neutral, don't know, need more information, etc)	12	4.3%	4.3%

Q8 After describing 8 components of SB1574 (Q7), retest public support (segmented by Oregon congressional district) (n=80, segments MOE 10%) (unabridged results available: info@policyinteractive.org

Congresional District Segmentation	1 Northwest	2 Eastside +Jackson	3 Metro	4 Southwest	5 Will.val.+mid-coast	All Oregon Combined
Support	64%	66%	75%	54%	61%	64%
Undecided	4%	7%	9%	10%	6%	7%
Oppose	31%	27%	11%	34%	31%	27%

Q9. If revenue were collected from large greenhouse gas emitters, do you think proceeds should be:	N	PERCENT OF TOTAL
Distributed to all tax payers equally.	67	**22.1%**
Re-invested in projects to lower greenhouse gas emissions like renewable energy, conservation and research	272	**67.7%**
(DO NOT READ): Some other response	41	10.2%

Oregon Studies Economic Impacts of California AB32 Cap and Invest Policy

Lessons from a jurisdiction with experience
PolicyInteractive Research (updated January 29, 2016)

Why should Oregon look at California's Cap and Trade Climate Stability Act? *Because some business entities are claiming that SB1574, modeled after California's AB32, will negatively affect Oregon's job and economic picture. When California passed AB32 into law, major business interests similarly objected, claiming it would destroy the California's economy. Even before AB32 was brought into implementation the California Chamber of Commerce paid to collect signatures to repeal AB32; that initiative was rejected by California citizens by a 24% margin, allowing AB32 to be implemented. Contemporary results show the naysayers were wrong.*

Overview of California Economic performance under AB32 Cap and Trade policy law. (Primary sources: CAdelivers - Jobs Fact Sheet Final4915pdf (2015), CAdelivers - Business Fact Sheet Final33115pdf (2015) and California Business Alliance, The Economic Case for AB32, March 2015. All citations were double checked for accuracy.

Labor Perspective: California leads the nation in job growth

- California had a job growth rate of 3.1% in 2014 – adding jobs faster than the overall national rate of 2.3% in the same period.[1]
- California's jobless rate fell more than any other states in the 24-month period ending in September 2014.
- California has created more than 15,000 job years with pay scale above $70,000 over the past five years in the utility-scale solar sector alone.[2]
- California's 35 year history with energy efficiency shows that 50 new jobs are created for every job foregone in the oil, gas and central electric power sector.[3]
- In 2014, California's advanced energy sector employs 431,800 Californians – an increase of 5 percent over 2013, about three times the national job growth rate of 1.6 percent. Growth in the sector is estimated at 17% for 2015[4]
- In 2014, the California **solar industry grew 15.8%, adding nearly 7,500 new jobs**. And this year, it's expected to produce an even higher number of jobs—some **9,400 solar workers**.[5]
- California surpassed Texas in job growth in 2014, adding **498,000 jobs** between January 2014 and January 2015, **creating more positions than any other state in the nation**.[6]
- California has the **largest advanced energy industry in the United States** – and it just keeps growing[7], set to reach **500,000 workers across 40,000 companies** in 2015.[8]
- AB 32 creates **quality jobs through the investment of cap and trade proceeds,** spurring growth in clean energy and contributing to:
    - o More affordable housing, facilitating construction jobs across the state, as well as affordable living opportunities for working families.
    - o Inter-city and high-speed rail that creates demand for well-trained, high-skill union workers, beginning in the Central Valley where unemployment remains high.
    - o Increased recycling and composting facilities that create more jobs and reduce pollution.
    - o Better public transit and more frequent bus services, providing ways for Californians to get to work without relying on personal vehicles.
    - o California is reshaping and expanding our existing jobs to be cleaner and greener. Jobs in **building maintenance and transit services** are key players in reducing greenhouse gas and other pollutants that impact communities.[9]

> *"CA's pioneering policies have added up to opportunity – opportunity that didn't happen by accident."*
> **Mike Mielke**, Silicon Valley Leadership Group

Economic Growth Performance While Lowering GHG Emissions:

California's pioneering clean energy and climate law (AB 32) is advancing a strong economy and healthy environment – proof that a thriving, low-carbon economy can work together. AB 32 encompasses the state's collective efforts to reduce carbon pollution and transition to a clean, efficient economy. After nearly a decade in effect, it's a powerful engine of innovation, creating a vibrant clean economy, growing efficiency savings for business, and leveling the playing field for renewable energy to compete fairly with polluting sources of energy.

AB 32 is helping make California's economy more productive

- California's GDP has increased at a much faster rate than its energy use over the past 20 years and **energy productivity has increased 36% since 1990**.[10]
- California produces **1.7 times as much economic activity** as the rest of the U.S. from the same amount of energy.[11]
- California's economy is the **world's seventh largest** and continues to grow – expanding in 2014 by almost every measure.[12]
- Contrary to fears that AB 32 would stifle manufacturing – **California leads the nation with the highest total manufacturing output of any state**[13], producing $239 billion.[14]
- Prior to 2010, before AB 32 began having positive economic impacts, the manufacturing sector was in a state of decline for a decade.[15]
- The U.S. has a **15% share of the trillion-dollar global clean energy market**[16] and California is the epicenter of the U.S. clean tech market.
- California **dominates every clean tech index category**, including clean electricity generation, electric/hybrid vehicle adoption, green buildings, policy outlook, solar power capacity, and venture capital.[17]
- California continues to lead in both solar employment and installed solar capacity. Of the 54,690 solar workers in the state, nearly 60% are found in the installation sector. By the end of 2015, California is expected to account for just over 64,000 solar workers.[18]
- Analysts forecast a **70% gain for California clean tech companies** in the next 12 months.[19]
- California's commitment to clean technology is resulting in more jobs, with a **median rate of employee growth in clean tech jobs of 7.5%** in the past two years, **compared with 2.3%** for similar U.S. companies.[20]
- **$27 billion of venture capital** and other financing has flowed into California clean technology companies since 2006 – in part because policies like AB 32 are driving demand for renewable energy and energy efficiency, shifting the emphasis of corporate investors.[21]
- California clean tech companies account for the **most venture capital of any state**, with **$1.6 billion** flowing into the sector in 2013 alone, the same year AB32 auctions began yielding revenues from auctions, suggesting AB32 leveraging effect.

AB32 Investments for CA
- 2014-15 = $832 million
- 2015-16 = more $1.7 billion
- Min. 25% to disadvantaged

Energy efficiency brings savings to small business

• AB 32 has resulted in energy efficiency measures that **save California consumers and businesses billion**s on utility bills.
• Small businesses especially benefit from energy efficiency policies with rebates, incentives and other programs that allow them to **lower their energy costs significantly**.[22]
• California state economists suggest small service businesses – half of all small businesses in the state – will see **$4.6 billion in increased revenues from efficiency**. That's an extra **$1,115 per employee** for California small service businesses.[23]

The economic advantage of carbon markets

• Business knows best how to adapt and be competitive, so AB 32's cap and trade program is an excellent **free market tool** to let businesses do what they do best, reducing carbon emissions at the least cost.
• By putting a price on carbon, AB 32 effectively prices inefficiency and waste, **incentivizing conservation and efficiency**. As a result, California businesses are more efficient and innovative.
• A carbon market helps **drive economic activity** including hundreds of millions of dollars in private investment in California.

The next industrial revolution – fueled by thoughtful investments from a cap and trade program – can **transform our energy system** to one that's efficient, innovative, affordable, and diverse.

Where is Oregon? Will we choose to move into the future or be stuck in the past?

AB32 is endorsed by labor organizations such as:

Richard Barrera, Secretary-Treasurer, San Diego and Imperial Counties Labor Council, AFL-CIO
BlueGreen Alliance
Communications Workers of America (CWA) – District 9
Communications Workers of America (CWA) – Local 9003
Benigno Delgado, Associate Director, Homecare Division, SEIU UHW
IBEW Local 569
United Food and Commercial Workers Western States Council
Utility Workers Union of America, AFL-CIO (UWUA)

CITATIONS:

[1] "Job growth in California soars", Chris Kirkham and Tiffany Hsu, March 6, 2015, LA Times, http://www.latimes.com/business/la-fi-california-jobs-20150307-story.html
[2] "Environmental and economic benefits of building solar in California," Peter Philips, November 10, 2014, Donald Vial Center on Employment in the Green Economy, Institute for Research on Labor and Employment, University of California, Berkeley, http://www.irle.berkeley.edu/vial/publications/building-solar-ca14.pdf (pp. 31,32)
[3] Energy Efficiency, Innovation, and Job Creation in California. David Roland-Holst, 2008. http://are.berkeley.edu/~dwrh/CERES_Web/Docs/UCB%20Energy%20Innovation%20and%20Job%20Creation%2010-20-08.pdf (p.5)
[4] AEE News, Dec 4, 2014 https://www.aee.net/articles/california-has-largest-advanced-energy-industry-in-u-s-with-over-430-000-workers-according-to-first-ever-state-employment-survey.
[5] California Advanced Energy Survey, Advanced Energy Economy Institute, Dec 2014. http://info.aee.net/ca-jobs-report-14
[6] Chris Jennewein, Times of San Diego, March 17, 2015.
[7] Aee Institute, Dec 4, 2014. http://www.prnewswire.com/news-releases/california-has-largest-advanced-energy-industry-in-us-with-over-430000-workers-according-to-first-ever-state-employment-survey-300004990.html
[8] Ibid
[9] CAdelivers Jobs Fact Sheet Final 4915pdf, 2015. http://www.cadelivers.org/wp-content/uploads/2014/11/CAdelivers-JobsFactSheet-Final4915.pdf
[10] California Green Innovation Index, 6th Edition, May 2014 http://next10.org/2014-california-green-innovation-index p.40
[11] *Ibid p13..*
[12] Brown's California Overtakes Brazil with Companies Leading the World." Bloomberg Business. Jan, 2015. http://bloom.bg/1uBcxqT
[13] 2014 State Manufacturing Data Table, National Association of Manufacturers. http://www.nam.org/Data-and-Reports/State-Manufacturing-Data/2014-State-Manufacturing-Data/2014-State-Manufacturing-Data-Table/
[14] "Best State for Business? Yes, California". Matthew A. Winkler, Bloomberg View. 12 March, 2015. http://www.bloombergview.com/articles/2015-03-12/best-state-for-business-yes-california
[15] "California Zooms Past Russia, Italy and Soon Brazil in Economic Might", Michael B. Marois and Shin Pei, Bloomberg, Jan 15, 2015. http://bloom.bg/1Cu7ywx
[16] "Governors Wind Energy Coalition, Umair Irfan, March 11, 2015. http://www.governorswindenergycoalition.org/?p=12084
[17] http://cleanedge.com/sites/default/files/CTU-2013-report.pdf
[18] State Solar Jobs Census, Solar Foundation, 2014. http://www.thesolarfoundation.org/wp-content/uploads/2015/02/Solar-State-Fact-Sheet_FINAL.pdf
[19] "Best State for Business? Yes, California". Matthew A. Winkler, Bloomberg View. March 12, 2015. http://www.bloombergview.com/articles/2015-03-12/best-state-for-business-yes-california
[20] http://www.bloombergview.com/articles/2015-03-12/best-state-for-business-yes-california
[21] http://next10.org/sites/next10.huang.radicaldesigns.org/files/2014%20Green%20Innovation%20Index.pdf
[22] "The Economic Impact of AB 32 on Small Business: An Update," The Brattle Group, October 2010
[23] Economic Opportunity for Small Business Under AB 32. http://www.smallbusinessmajority.org/energy/index_CA_AB-32.php

\

\: \

RE: SB 1574 Oregon Senate Committee on Environment and Natural Resources (2.2. 2016)

From Tom Bowerman, Director, PolicyInteractive Research

1. How to summarize my 9 years of intense focus on climate policy research? While 75% of us are ready to make the change, here is what I observe how 25% have shifted their stance in the last decade:

- climate is not changing
- climate is changing but it's not us
- climate is changing, it's us, but it won't be bad
- climate is changing, it's us, it will be bad, but there's nothing we can do about it.
- climate is changing, it's us, it will be bad, we can do something (but not what you're proposing and my proposal doesn't have a chance).

If the legislature cares about where Oregon's general or electoral public, we have solid evidence of public support. [attachment 1]. From the 2013 Oregon Values Project survey of 3000 Oregonians we find 72% saying action is required now to 21% saying we can deal with it later. A 2014 DHM Research study found 2:1 support requiring businesses selling or producing greenhouse gas products to reduce those emissions. In a PolicyInteractive 2015 survey we observed 70% over 28% for stronger government policies to reduce green house gas emissions, and over 2:1 level of support for Oregon's legislature adopting a policy like SB1574. In each of these surveys, we observe broad demographic support including age, income, geographic location and political party identity.

2. SB1574 is a stick and carrot policy. The stick is a definitive cap which ratchets down across 35 years - to achieve the goals Oregon's legislature declared in 2007. The carrot is a market trading system which creates value out of emission reductions stimulating innovation and in-state investment in-lieu of perpetual fuel importation costs. Our research evidence finds that this will quickly yield a net economic benefit of over $1 billion per year to Oregon. If we are successful in forgoing climate instability costs (fires, flooding, drought, irreparable ecosystem disruptions) we will save over $1 billion. Evidence finds that action vs. inaction yields a net benefit over cost of over $2 billion per year. [Attachment 2]