

# Economic Cost of Climate Change and Strong Support for HB4001, SB1507 and HB4001-12 – Oregon Legislators: Protect What You LOVE!

Testimony By Ron Schaaf, Deb Evans and Hair on Fire Oregon

February 21, 2018

Chairs Burdick and Williamson, members of the Senate and House Committees on Rules,

We are writing on behalf of ourselves and Hair on Fire Oregon—a determined group of friends and concerned citizens we helped found, to express our strong support for HB4001, HB4001-12 and SB1507. Three years ago, in 2015, we presented information to various committees at the Oregon Legislative Assembly asking that you move forward HB3470, a similar bill to set binding limits on Greenhouse Gas (GHG) emissions in our home state of Oregon. At that time, here in southern Oregon and across the state, we were facing one of the worst droughts following the winter of 2014-2015 producing virtually no snow pack. Fast forward 3 years, we are once again facing drought conditions with 1/3 the normal precipitation since Oct 1, 2017 and virtually no snowpack thus far here in our Greensprings community 16 miles east of Ashland. The longer hotter, drier accumulated conditions which we have been experiencing, have further compromised our timber assets which are experiencing insect infestations and drought-stress die off at unprecedented levels.

Over the past seven months, we have watched the incredible work of legislative leaders putting their heads together and diligently working with stakeholders for 1000 of hours to hone the language of both HB4001 and SB1507. As the session started, we also took note of the many letters of support and opposition as well as public statements, op-eds and letters to the editor from citizens and legislative leaders of this state. For those of us who, similar to the U.S. Department of Defense, believe that climate change is the biggest threat we face simply because of the sheer magnitude of who and what will be affected and the increasingly costly damage and threat it poses to livelihoods, health and security, **there is no more important piece of legislation before you** and there is nothing that will have a more devastating affect on those that come after us than inaction to address this crisis.

The recent pleas of businesses and industries that are worried how these bills will affect their bottom line and their asks for the bills' rejections, are shortsighted in the much larger chaos climate will wreak on vast numbers of Oregonians, many of whom are already feeling the consequences. What we should be doing is figuring out collectively what is good for the whole, and these bills do just that with careful thought and consideration having gone into the costs of inaction versus the cost of action.

In order to bring this point home, we would like to share with you some of the economic cost research we have conducted which recognizes that the brunt of climate change costs fall on ordinary citizens. Energy intensive industries, advocating against this bill, do not want to pay for the externalities that they incur daily, but the fact is, we, the citizens of Oregon, already are paying for those costs and the price tag will continue to go up. To say, 'let us keep doing what we are doing' and pollute using fossil fuel-sourced energy at ever increasing rates, is both irresponsible and a denial of the facts that we face.

In the historic 2015 Paris Climate Agreement<sup>1</sup>, countries agreed to work together to reduce greenhouse gas emissions to hold the increase in global average temperatures to well below 2 degrees Celsius (C) as well as

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<sup>1</sup> Text of Paris Climate agreement 2015 - [https://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf)

pursue efforts to keep temperatures below 1.5 degrees Celsius (C) above pre-industrial levels to significantly reduce the risks and impacts of climate change. Current science says that to have a 50% chance of reaching the 1.5 degree C goal we must strive for zero emissions by 2050. In light of this, both current GHG emitters and the public interest determinations for any new, large fossil fuel infrastructure projects at the local, state and federal levels must consider the negative impacts and costs to society associated with adding GHG emissions for the predicted life of these projects.

A flurry of reports released in late 2017 paint a sobering picture of the increased impacts and economic costs attributed to greenhouse gas emission-caused climate change. The Governmental Accounting Office reported that more than \$350 billion dollars were spent by the United States Government over the past decade in response to extreme weather and fire events. These costs are estimated to rise far higher if global emission rates do not go down.<sup>2</sup>

A separate study found that “[e]conomic losses from weather events influenced by human-induced climate change and health damages due to air pollution caused by fossil fuel energy production are currently causing an average of \$240 billion a year—or about 40% of the current economic growth of the United States economy.”<sup>3</sup> These costs are predicted to rise to \$360 billion in the next 10 years and are largely born by individuals, not Government or the private sector.

Data collected in the United States show a steady climb in extreme weather events triggering \$1 billion dollars or more of damage rising from **21** events in the 1980s, **38** in the 1990s to **92** this past decade (2007-2016).

During 2017, the U.S. experienced a historic year of weather and climate disasters. In total, the U.S. was impacted by 16 separate billion-dollar disaster events tying 2011 for the record number of billion-dollar disasters for an entire calendar year. In fact, 2017 arguably has more events than 2011 given that our analysis traditionally counts all U.S. billion-dollar wildfires, as regional-scale, seasonal events, not as multiple isolated events.

More notable than the high frequency of these events is the cumulative cost, which **exceeds \$300 billion in 2017** — a new U.S. annual record. The cumulative damage of these 16 U.S. events during 2017 is \$306.2 billion, which shatters the previous U.S. annual record cost of \$214.8 billion (CPI-adjusted), established in 2005 due to the impacts of Hurricanes Dennis, Katrina, Rita and Wilma.<sup>4</sup>

Overall, the 16 disaster events in 2017 claimed the lives of 362 people. Table 1 below shows the number of billion-dollar or greater disasters from 1980 through 2017. The annual average over the entire time span is 5.8 events (CPI-adjusted) and the annual average for 2013-2017 is 11.6 events (CPI-adjusted).

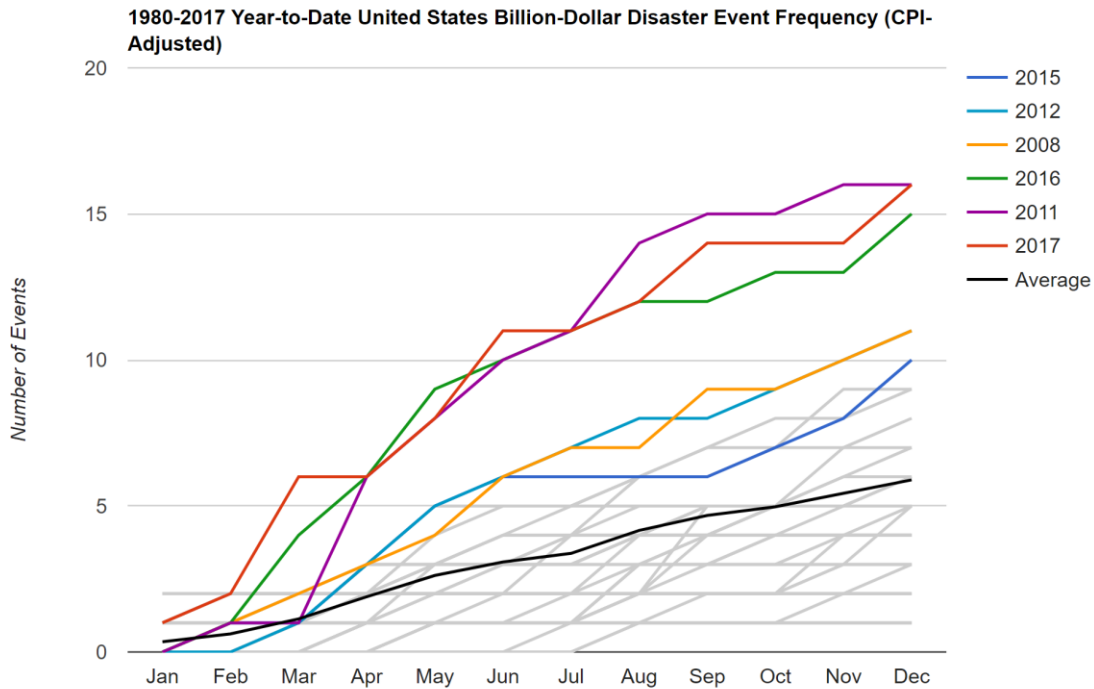
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<sup>2</sup> Information on Potential Economic Effects Could Help Guide Federal Efforts to Reduce Fiscal Exposure GAO-17-720: Published: Sep 28, 2017. Publicly Released: Oct 24, 2017. <https://www.gao.gov/products/GAO-17-720>

<sup>3</sup> The Economic Case for Climate Action in the United States. Robert Watson, James McCarthy, Liliانا Hisas. Sept 2017. <https://feu-us.org/case-for-climate-action-us/>

<sup>4</sup> NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2017). <https://www.ncdc.noaa.gov/billions/>

**Table 1 – 1980-2017 Year-to-Date United States Billion-Dollar Disaster Event Frequency<sup>5</sup>**



*Event statistics are added according to the date on which they ended.*

Oregon did not escape unscathed. The state was challenged with its own climate-related disasters in 2017 with over 2000 wildfires burning a total of 665,000 acres and costing \$454 million dollars—triple the 2010-2015 average annual cost of \$146 million for Oregon wildfires.<sup>6</sup> The bottom line is that greenhouse gas emissions world-wide are increasing and that increase is influencing costly extreme weather events – like drought and wildfire-related economic losses experienced in Oregon.

In a presentation given to Oregon legislators on November 13, 2017<sup>7</sup>, Oregon DEQ director Richard Whitman presented data based on modeling of two scenarios: a steady increase in GHG emissions through 2100 and a more successful peak and then lowering of emissions on a global scale by 2040.<sup>8</sup> Increased temperatures along with increased rain in the winter and decreased rain in the summer will be the drivers for impacts in Oregon resulting in far less snowpack and water shortages negatively impacting forestry, agriculture and fisheries, increased acidification threatening shellfish, and a significant change in Oregon vegetation. Models show shifts away from Douglas Fir, the softwood dominated lumber that Oregon leads the nation in producing, to a mixed

<sup>5</sup> NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2017). <https://www.ncdc.noaa.gov/billions/>

<sup>6</sup> <https://www.opb.org/news/article/oregon-2017-wildfire-costs/>

<sup>7</sup> Richard Whitman, DEQ director Presentation before the Oregon Senate Interim Energy and Natural Resources Committee and the Oregon House Interim Energy and Environment Committee Meeting. Nov. 13 2017. [http://oregon.granicus.com/MediaPlayer.php?clip\\_id=24257](http://oregon.granicus.com/MediaPlayer.php?clip_id=24257)

<sup>8</sup> Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, B. DeAngelo, S. Doherty, K. Hayhoe, R. Horton, J.P. Kossin, P.C. Taylor, A.M. Waple, and C.P. Weaver, 2017: Executive summary. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 12-34, doi: 10.7930/J0DJ5CTG.

conifer and hardwood forest the length of the coastal range similar to California which is much less productive. Douglas fir is projected to shift North and inland which will have a significant effect on Oregon’s economy.

These changes in Oregon’s natural resources will have negative consequences on public health (smoke, heat and disease), private and public property damage (fires and floods); economic implications of less productive and more fire-prone forests, particularly for rural communities; economic implications of less productive shellfish and crab industries; significant reduction in water supplies during the summer and early fall – economic implications for agriculture; deteriorating water quality and aquatic habitat (warmer streams, algal blooms); and impacts to resources will affect rural communities disproportionately and lead to intergenerational inequality.

Whether GHG emissions come from transportation, industrial, fossil fuel-powered utilities or other sectors that generated the 62 million metric tons (MMT) of CO2 equivalent (CO2e) emissions in Oregon in 2016, there is an economic cost associated with those GHG emissions. An estimate of these costs, shown in Table 2 and often referred to as the Social Cost of Carbon (SCC), was developed by a federally mandated Interagency Working Group in 2013 and amended in 2016.<sup>9</sup>

**Table 2 – Social Cost of CO2, 2015-2050**

**Social Cost of CO<sub>2</sub>, 2015-2050 <sup>a</sup> (in 2007 dollars per metric ton CO<sub>2</sub>)**

Source: [Technical Support Document](#): Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013, Revised August 2016)

Year	Discount Rate and Statistic			
	5% Average	3% Average	2.5% Average	High Impact (95th pct at 3%)
2015	\$11	\$36	\$56	\$105
2020	\$12	\$42	\$62	\$123
2025	\$14	\$46	\$68	\$138
2030	\$16	\$50	\$73	\$152
2035	\$18	\$55	\$78	\$168
2040	\$21	\$60	\$84	\$183
2045	\$23	\$64	\$89	\$197
2050	\$26	\$69	\$95	\$212

<sup>a</sup>The SC-CO<sub>2</sub> values are dollar-year and emissions-year specific.

Using the 3% discounted rate for 2020 shown in Table 2, the cost per metric ton of greenhouse gas emissions is \$42. For Oregon, the cost to all of us for those 62 MMTs of 2016 GHG emissions that comes in the form of health, extreme weather events, ocean acidification, wildfires, etc. is \$2.6 billion dollars. These are the “externality costs” we citizens of Oregon are ALREADY paying—both individually and as taxpayers whose tax

<sup>9</sup> [https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon\\_.html](https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html)

dollars go toward government assistance programs like FEMA and others to mitigate climate related damage. It is a classic case of the fuel suppliers, industry and utility sectors building in their profits on the backs of all of the collective.

However, passage of HB4001, SB1507 or HB4001-12 would change the dynamic and signal to Oregon emitters that we will transition away from the business-as-usual practices we have been undertaking since the industrial revolution and move to sustainable, clean energy—**at decreased overall cost to society**. This not only makes sense for the collective, it is increasingly looking like it will be the only thing we can do to avert losing all that we love. We would do well to heed the adage: a stitch in time saves nine. We can pay now the upfront costs of what many say will be 1% GDP to convert to clean energy technologies or we can pay what some predict will be 20% of GDP indefinitely later to mitigate climate change impacts going forward if we continue to increase human-generated GHG emissions.

When you hear businesses say, ‘this is not the way’, ‘this will be impossible’, ‘passage of this bill will damage Oregon’, this is exactly opposite of the truth. To do nothing, to delay putting real limits on GHG reduction in a responsible cap and market-based mechanism that allows business to trade for the lowest cost path to transition, **IS** the best for industry and it is the best way forward for citizens whose health, livelihoods and state’s prosperity will depend on it. We all, including businesses, have to face the truth of what our actions are doing and be willing to use current technologies to solve this problem as a collective, not as individual entities wanting to avert the short-term costs and serve only our own interests.

For the 4<sup>th</sup> time in 4 years, we ask you, regardless of your political persuasion, to think about ALL of the citizens of Oregon, recognize the very real threat we face as well as the real solutions for clean energy jobs these carefully crafted bills will provide. Most of all, we call on your help, courage and leadership to **protect what you love**.

Sincerely,

Deb Evans and Ron Schaaf  
Hair on Fire Oregon

P.S. The following ads were run in the Statesman Journal by Hair on Fire Oregon in 2016. The bill numbers and some of the legislators have change, **the message remains the same**.



It's simple...my future is in your hands.

**Dear Senators Edwards and Beyer,**

On behalf of myself and individuals of my generation across the world, thank you for taking a significant step in fighting the climate crisis and championing **Senate Bill 1574, the Healthy Climate Act.**

As we grow into adulthood, my generation faces both the weight of great responsibility and the possibility of immense hope. While our generation is not the first to be born into a world affected by climate change, we quite possibly may be the last with the opportunity to change the current trajectory of the planet before it is too late. We must be prepared to reach across the world and the aisle to achieve the immense task at hand.

**For young adults in the world today, the brightness of our future will be determined not by our academic or professional achievements, but by our commitment to fighting for the health of the planet.** I thank you for exhibiting your commitment to preserving the world you are passing into our hands.


Sincerely,  
Dana Greenblatt  
Senior, University of Oregon

Paid for by Hair on Fire Oregon | [www.HairOnFireOregon.org](http://www.HairOnFireOregon.org)

**Fellow Oregonian, contact your legislators and ask them to  
PASS the Healthy Climate Act NOW!**

**LEARN MORE AT:**

**<http://www.sightline.org/2016/02/16/why-oregon-needs-the-healthy-climate-act/>**



It's simple...

The world our children  
will inherit tomorrow,  
depends on our  
decisions today.

Dear Senator Edwards,  
On behalf of our children and the children of Oregon who are not yet old enough to vote but who will inherit the results of our actions today, we want to express our gratitude to you for your outstanding leadership and vision in championing Senate Bill 1574, the Healthy Climate Act. We also want to emphatically thank Senators Beyer, Prozanski and Dembrow and Representatives Barnhart and Buckley for your courage and conviction. This bill is a landmark in Oregon legislation. It demonstrates the will of the people of Oregon to protect our state, our nation, our planet and our people from the worst of the ravages of climate change. Future generations will see this as a critical moment in the fight against climate change and will judge us on whether we were part of the problem or part of the solution. We thank you for being on the right side of history—the side of our children and grandchildren.

Sincerely,  
Hair On Fire Oregon

**Fellow Oregonian, please  
thank these six champions and  
urge your Representative and  
Senator to pass the Healthy  
Climate Act NOW!**

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