



LEAGUE OF WOMEN VOTERS® OF OREGON

The League of Women Voters of Oregon is a 97-year-old grassroots nonpartisan political organization that encourages informed and active participation in government. We envision informed Oregonians participating in a fully accessible, responsive, and transparent government to achieve the common good. LWVOR Legislative Action is based on advocacy positions formed through studies and member consensus. The League never supports or opposes any candidate or political party.

February 5, 2018

To: Senate Committee on Environment and Natural Resources
Chair Senator Michael Dembrow
House Committee on Energy and Environment
Chair Representative Ken Helm

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Re: HB4001 and SB1507 – Clean Energy Jobs Bill – SUPPORT

The League of Women Voters has been at the forefront of national efforts to protect air, land and water resources. The League's position is to "Preserve the physical, chemical and biological integrity of the ecosystem, with maximum protection of public health and the environment" and a focus on demanding pollution prevention. Specific to this position, the League of Women Voters of the United States (LWVUS) jointly with League of Women Voters of Oregon (LWVOR) filed two (Sept 2016 and Sept 2017) *Amicus* Briefs in the U.S. District Court for the District of Oregon in the (Our Children's Trust), case of *Julianna et al v. United States*. Additionally, the LWVOR signed in March 2016 with 22 other groups and elected officials an *Amicus* Brief in the [State of Oregon](#) lawsuit. These lawsuits require the state and federal government to implement a climate recovery plan.

[HB 4001](#) and [SB 1507](#) both reflect first steps towards becoming the cornerstone of a comprehensive climate policy framework based on a greenhouse gas cap, price and investment program that:

- creates local well-paying family jobs in our growing clean energy sector
- puts a cap on greenhouse gas emissions
- builds healthier communities by reducing medical bills and sick days from chronic disease like asthma
- ensures fairness by assisting and investing in disadvantaged and rural communities
- reduces Oregon's risk of drought and record-breaking wildfires
- safeguards our agriculture, tourism, fisheries and shellfish industries
- creates a structure of financial accountability for major emitters of greenhouse gases
- uses the free market for the greenhouse cap and invest program that allows Oregon the flexibility to link to other successful market-based programs

As mentioned above, Our Children's Trust has a climate change lawsuit in Oregon's U.S. District Court. According to former [Senator Chris Edwards](#), "this bill [SB 1574- now SB 1507 and HB4001] is a mechanism to accomplish what the lawsuit says we ought to accomplish – an umbrella policy that provides certainty that Oregon will be meeting its greenhouse gas reduction goals. It's one more shoulder to the wheel." In the Nov 2016 U.S. Court ruling, U.S. District Judge Ann Aiken wrote, "Exercising my 'reasoned judgment,' I have no doubt that the right to a climate system capable of sustaining human life is fundamental to a free and ordered society."

The economic and health effects of climate change have been explored in detail in the [2017 OCCRI Climate Assessment Report](#), [PSU/NERC 2013 Carbon Tax study](#), [2017 Oregon DEQ Cap and Trade study](#),

2017 Oregon Global Warming Commission Report, and 2017 Oregon Climate and Health Resilience Plan. These reports detail widespread negative impacts of global warming for Oregonians: firefighters, the timber industry, eastern Oregon wheat growers and ranchers, farmers, fisheries, the recreation industry, the medically vulnerable, those with fewer resources to stay cool or warm, and all who drink the water and breathe the air.

Average global temperature now exceeds 1°C (1.8°F) relative to the “preindustrial” temperature. These average temperatures are accompanied by extremes of summer heat. Realistic scenarios for targeting to an average global temperature maximum rise of 1.5°C (2.7°F) by 2100 requires that we reach zero emissions in about 2040. Climate stabilization is made markedly more difficult by a delay in emission reductions of even 8 years (from 2013 to 2021). Through feedback loops, the increased atmospheric emission load provides additional heat-related emission releases and destruction of temperature-modulating reflective ice. These effects are happening now, as predicted more than a decade ago by climate modeling. Our pollution reduction goals must be based on current science and updated regularly to correlate with the Paris Agreement 1.5°C maximum warming aspirational goal. Each year that we delay meaningful emissions reductions, our burden for future years is exponentially increased.

Respected economists are recommending a predictable carbon/GHG pricing mechanism. Globally, the reporting of “climate risk” is changing. The Securities and Exchange Commission and the Insurance industry are both moving towards more robust reporting requirements. An example: Bank of England Governor Mark Carney, chairman of the G20’s Financial Stability Board, is spearheading an initiative to standardize financial-sector guidelines on how to disclose risks arising from climate change. The fiscal importance to governments and industries all over the globe is reflected in the implementation of a price on carbon in seven of the world’s 10 largest economies. (5-ways-businesses-are-turning-up-the-heat-on-climate-change, World Economic Forum)

From a recent Harvard Business Review: “Swallow hard — and raise the price of carbon.”

If we are to meet climate pledges made under the Paris climate agreement, the cost of emitting carbon dioxide must rise to \$50–\$100 per ton by 2030, dramatically higher than the current EU price of less than \$6. This was the conclusion of the Commission on Carbon Prices, a group of leading economists supported by the World Bank. Supporting the call for a worldwide carbon pricing strategy is a group of more than 200 businesses and governments, including major oil producers Shell and BP.

We cannot just have adaptation. The world is on track to be uninhabitable by 2100 if our remediation measures are not immediate, encompassing both science-based GHG emission reductions AND measures to capture CO₂. League members are actively working across the country to address this urgent moral issue. Oregon must join other states to form a climate stabilization network to bring us back down from our current CO₂ level of over 408 ppm to 350 ppm no later than 2100. We must adopt robust development of clean energy and the grid to integrate it.

Oregon needs to do our share to protect our planet. The League of Women Voters of Oregon strongly recommends the passage of Clean Energy Jobs / ‘Price on Carbon’ legislation. We owe it to our children.

Thank you for the opportunity to discuss this legislation.

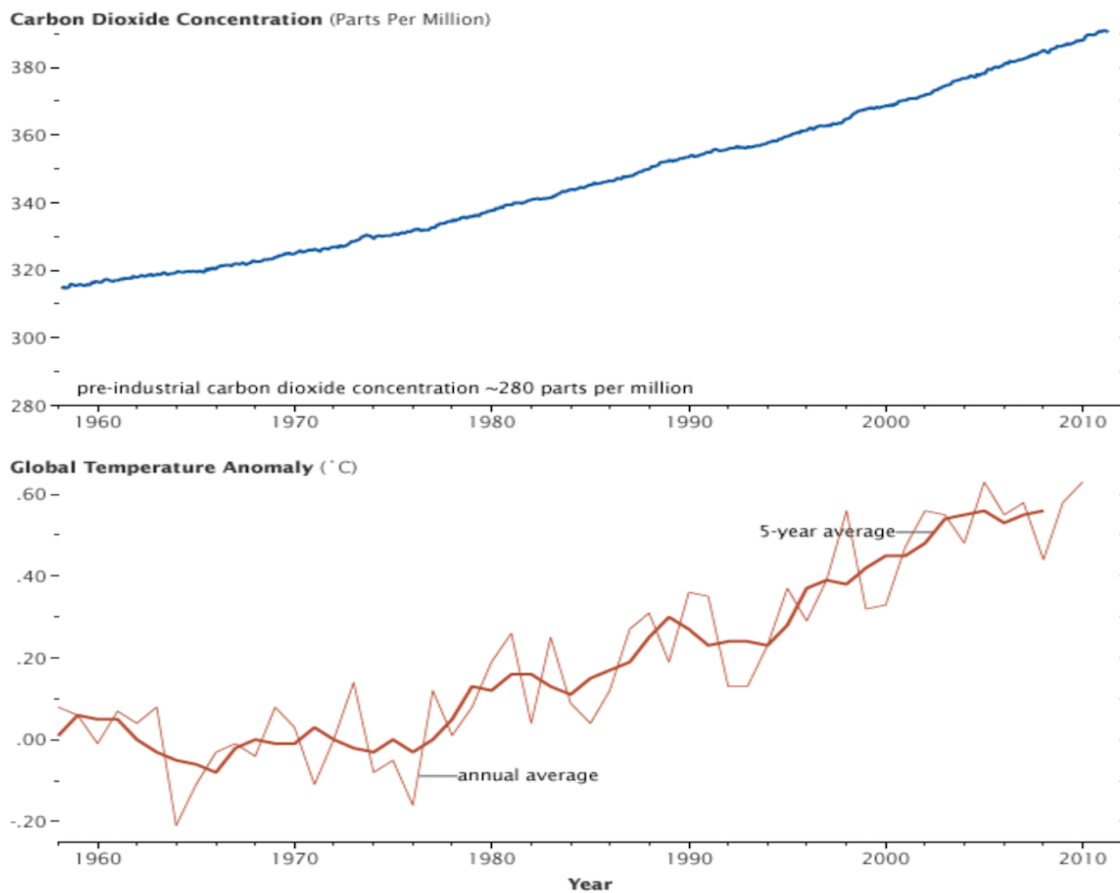


Norman Turrill
LWVOR President



Julie Chapman & Claudia Keith
LWVOR Climate Portfolio

Comparison CO₂ Concentrations and Temperature



<http://earthobservatory.nasa.gov/Features/CarbonCycle/page5.php?src=share>

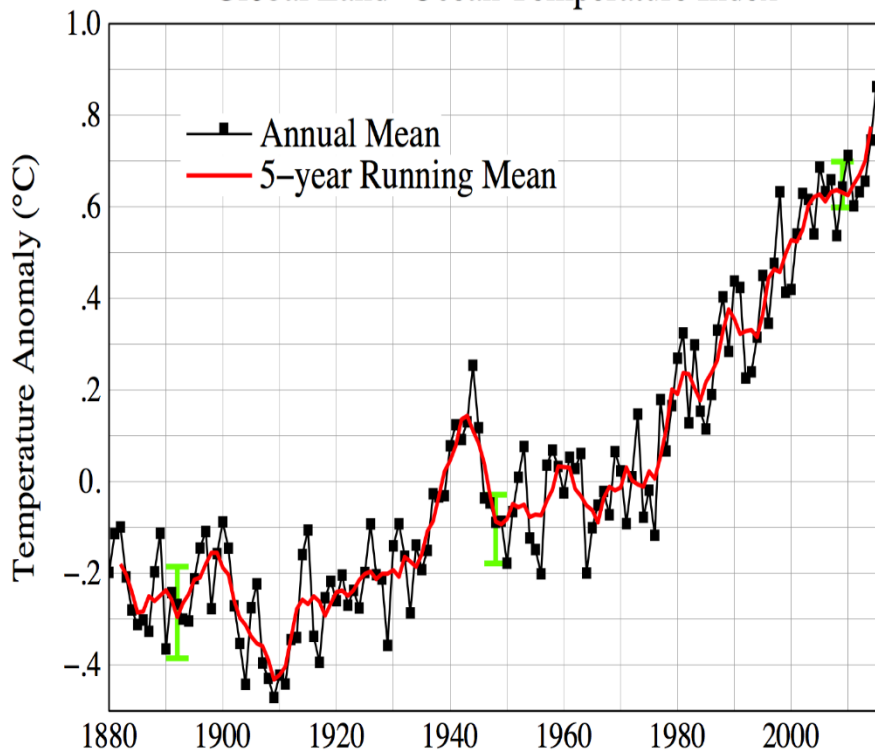
Climate Modeling

[Climate Modeling](#) has been used for 40 years to predict weather and climate. It correctly predicted the following outcomes:

- Warming of the earth over the past 3 decades (temperature elevation has been faster than predicted)
- Spatial characteristics of the temperature rise with stratosphere cooling and lower atmosphere warming (which is inconsistent with natural causation)
- High latitudes (polar) warm more than low latitudes (tropics), partly due to the ice albedo feedback (reflective ice replaced by dark radiation-absorbing ocean and land)
- Northern hemisphere (more land mass) warming faster than Southern (ocean heat sink) Night warms up more than day
- Shift of precipitation patterns and changes of atmospheric wind, shift in storm tracks with the rain moving out into the ocean, away from the land in the southern hemisphere.

“It has been over 50 years since climate scientists formally warned a US president of the dangers of climate change.” Katharine Hayhoe, PhD, Texas Tech University.

Global Land–Ocean Temperature Index



Green bars show uncertainty estimates

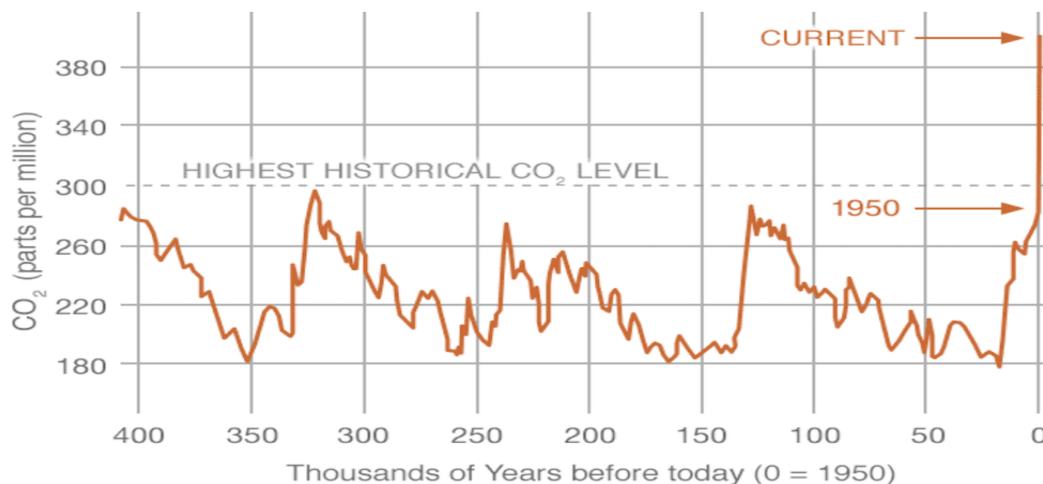
GISS Surface Temperature Analysis - Data and Images - NASA
https://data.giss.nasa.gov/gistemp/graphs_v3/








One of the most prominent climate researchers is former NASA Goddard scientist, Dr. James Hansen. In following Hansen’s predictions since the early 1980’s, derived from climate modeling, we find that he has been correct, and, if anything, conservative about the negative outcomes. Most recently, his team has brought forth research about [tipping points](#), in which [feedback loops](#) lead to rapid, radical climate change. Rapid polar and Greenland ice melt and changes in ocean circulation are predicted to accelerate sea level rise with dramatic impacts for coastal cities by the end of the century.

This prediction of rapid ice melt is extended in the work of geoscientist Robert DeConto and paleoclimatologist David Pollard, who use computer modeling of past geologic evidence to explore the impact of warming ocean currents [destabilizing the West Antarctic ice sheet](#), with additional surface ponding, fissuring and break up of ice shelves due to increased atmospheric heat.

PROXY (INDIRECT) MEASUREMENTS

Data source: Reconstruction from ice cores.
 Credit: NOAA <https://climate.nasa.gov/vital-signs/carbon-dioxide/>



	Climate Driver	Exposure	Health Outcome	Impact
 Extreme Heat	More frequent, severe, prolonged heat events	Elevated temperatures	Heat-related death and illness	Rising temperatures will lead to an increase in heat-related deaths and illnesses.
 Outdoor Air Quality	Increasing temperatures and changing precipitation patterns	Worsened air quality (ozone, particulate matter, and higher pollen counts)	Premature death, acute and chronic cardiovascular and respiratory illnesses	Rising temperatures and wildfires and decreasing precipitation will lead to increases in ozone and particulate matter, elevating the risks of cardiovascular and respiratory illnesses and death.
 Flooding	Rising sea level and more frequent or intense extreme precipitation, hurricanes, and storm surge events	Contaminated water, debris, and disruptions to essential infrastructure	Drowning, injuries, mental health consequences, gastrointestinal and other illness	Increased coastal and inland flooding exposes populations to a range of negative health impacts before, during, and after events.
 Vector-Borne Infection (Lyme Disease)	Changes in temperature extremes and seasonal weather patterns	Earlier and geographically expanded tick activity	Lyme disease	Ticks will show earlier seasonal activity and a generally northward range expansion, increasing risk of human exposure to Lyme disease-causing bacteria.
 Water-Related Infection (<i>Vibrio vulnificus</i>)	Rising sea surface temperature, changes in precipitation and runoff affecting coastal salinity	Recreational water or shellfish contaminated with <i>Vibrio vulnificus</i>	<i>Vibrio vulnificus</i> induced diarrhea & intestinal illness, wound and bloodstream infections, death	Increases in water temperatures will alter timing and location of <i>Vibrio vulnificus</i> growth, increasing exposure and risk of water-borne illness.
 Food-Related Infection (<i>Salmonella</i>)	Increases in temperature, humidity, and season length	Increased growth of pathogens, seasonal shifts in incidence of <i>Salmonella</i> exposure	<i>Salmonella</i> infection, gastrointestinal outbreaks	Rising temperatures increase <i>Salmonella</i> prevalence in food; longer seasons and warming winters increase risk of exposure and infection.
 Mental Health and Well-Being	Climate change impacts, especially extreme weather	Level of exposure to traumatic events, like disasters	Distress, grief, behavioral health disorders, social impacts, resilience	Changes in exposure to climate- or weather-related disasters cause or exacerbate stress and mental health consequences, with greater risk for certain populations.

Health 2016 Global Change Report