

Climate Science and Emission Limits

Recent reports have continued to advance our understanding of the causes and consequences of climate change, including reports from:

- The University of Washington (December 2013¹),
- The United Nations' Intergovernmental Panel on Climate Change (September 2013 and March 2014²), and
- The US National Climate Assessment (May 2014³).

Human activities, especially the rapid growth in combustion of coal, oil and other fossil fuels, have increased the global emission rate of greenhouse gases to levels higher than ever before. These reports conclude:

- The Earth climate system is warming,
- Global sea level is rising,
- Snow and ice are declining,
- Ocean chemistry is changing, and
- The frequency and magnitude of extreme weather events are on the rise.

These impacts reveal significant vulnerability and exposure of the young and elderly, individuals suffering from respiratory and cardiovascular disease, and economically disadvantaged peoples. The reports document how changes have affected human and natural systems on all continents, and warn that continued emissions of greenhouse gases will cause further warming and long-lasting changes on our climate system.

Washington and the Pacific Northwest have 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 stream flows in many rivers have shifted earlier. In addition, climate extremes (floods, drought, fires, and landslides) are already costly to Washington State.

MORE INFORMATION

Learn more at Ecology's Climate Change web site
<http://www.ecy.wa.gov/climatechange/index.htm>

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Some of the changes will have far-reaching consequences for people, infrastructure, and natural resources across the state. For example:

- Irrigation and drinking water supplies are projected to decrease, increasing the frequency of water shortages and conflicts;
- The size of forest areas burned is projected to increase;
- The risks from floods and landslides are projected to increase;
- Sea level rise will increase the potential for damage to important commercial and industrial areas and loss of culturally important sites;
- Ocean acidification is expected to threaten coastal and marine species and ecosystems, and the livelihood of commercial and tribal shellfish growers; and
- Human health and well-being of our communities are threatened by an increase in extreme weather events, wildfires, and decreased air quality.

Current greenhouse gas emissions trends show that globally greenhouse gases have continued to increase since 1990. To have a reasonable chance to avoid unprecedented risks to peoples' lives and wellbeing, the Intergovernmental Panel on Climate Change has concluded that action is needed now, and that if action is delayed by even a few years, the rate of reduction needed to stabilize the global climate would be beyond anything previously observed and would be more costly. To achieve this stabilization, the Panel concludes that emission reductions in excess of what have been pledged or committed by nations are required.

In 2008, the Washington Legislature recognized that climate changes posed serious threats to the economic wellbeing, public health, natural resources, and the environment of the state. It required that the state reduce its greenhouse gas emissions by setting limits on those emissions for the years 2020, 2035 and 2050. The limits were the state's commitment to do its part to stabilize the global climate by reducing its greenhouse gases. The limits adopted were lower than levels committed by several nations and states. A year after Washington's greenhouse gas emission limits were set, the United States committed to even lower emission levels.

No comprehensive greenhouse gas emissions reduction program was created to achieve the statutory limits. However, since 2005, the state has taken several actions to reduce greenhouse gas emissions. For example:

- As a state, we are buying cleaner cars.
- We are building more efficient new buildings, and pursuing retrofit of existing buildings.
- We are increasing the use of renewable energy to produce our electricity, and focusing on all cost-effective energy efficiency.

- We are producing and using renewable transportation fuels.
- And we have local governments who are national leaders in land use and transportation planning to reduce congestion, increase transportation efficiency, and reduce costs and emissions.

As a result of these actions, the forecasted emissions for 2020 have gone down since 2005. However, additional actions will be needed to meet these required limits.

As required by statute, Ecology recently completed a review of Washington's existing statutory limits (RCW 70.235.040⁴). Ecology concluded in its report⁵ that our emissions limits should be adjusted to better reflect the current science. The limits need to be lower in order for Washington to do its part to address climate risks and better align the state's efforts with those of other jurisdictions that are taking action to reduce emissions. However, Ecology recommends that no changes be made to the state's statutory emission limits at this time. International negotiations are under way regarding new emissions reductions targets, in preparation for the UN climate conference in December 2015, to be held in Paris. Ecology recommends waiting until the negotiations are concluded, as the result could better inform how Washington's limits should be adjusted.

¹ <http://cses.washington.edu/cig/reports.shtml#sok>

² <http://www.ipcc.ch/report/ar5/>

³ <http://nca2014.globalchange.gov/>

⁴ <http://app.leg.wa.gov/rcw/default.aspx?cite=70.235&full=true>

⁵ <https://fortress.wa.gov/ecy/publications/SummaryPages/1401006.html>