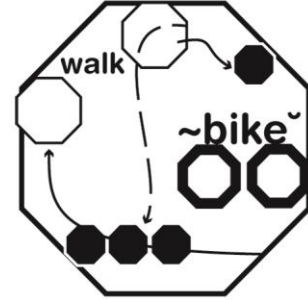


Greenhouse Gas Emission Reduction Strategies



Background

Definition

Greenhouse gas (GHG) emission reduction strategies identify ways in which local governments can assess greenhouse gas contributions and set priorities to reduce the reliance on fossil fuels. A key component of this includes how governments can encourage and incentivize more sustainable behavior among residents.

The [U.S. Environmental Protection Agency](#) (2014) studies show that greenhouse gases trap heat and make the planet warmer, contributing to climate change. Human activities are responsible for almost all of the increase in greenhouse gases in the atmosphere over the last 150 years. The largest source of greenhouse gas emissions from human activities in the United States is from burning fossil fuels for electricity, heat, and transportation.

Health, equity and sustainability considerations

A warming climate is expected to impact the availability of basic necessities like fresh water, food and energy, as outlined in the Intergovernmental Panel on Climate Change's [Fourth Assessment Report](#) (2007). Sea level rise may displace communities and businesses. Climate change will influence these and other human living conditions and the basis for social and economic development, but priorities on sustainable development will also influence emissions of greenhouse gases as well as vulnerability to impacts.

Climate change is likely to have an impact on human health, particularly for sensitive populations such as the elderly, those with respiratory ailments, and young children, from increases in extreme heat events, forest fires, and increased summer air pollution. An increase in rates of heat-related illnesses, respiratory illness, and infectious disease is also likely.

Washington state is expected to experience decreases in snowpack, increases in stream temperatures, and more frequent summer water shortages. Crops and livestock will also be affected by rising temperatures and impacts to water quality and supply. The University of Washington [Climate Impacts Group](#) provides more information on climate change considerations specific to the Pacific Northwest and Washington state.

More than **30** cities in King County have helped to reduce greenhouse gas emissions since 2007.

Rising temperatures and the resulting changing streamflows threaten forests, agriculture and salmon populations in the Northwest. According to King County, in 2012, more than 80% of surveyed streams and rivers in King County exceeded

the state temperature standard for protection of salmon habitat.

The Washington State Department of Ecology's [Greenhouse Gas Emissions Inventory](#) (2013) shows that despite state and countywide reduction plans, Washington State GHG emissions went up approximately 8.7% between 1990 and 2010. However, some key trends include the following:

- There is a decreasing trend in GHG emissions since 2007
- Washington state's GHG emissions per capita are significantly lower than U.S. emissions per capita, in large part due to our reliance on hydropower
- Between 2008 and 2010 the transportation sector showed a 6.6% decrease in GHG emissions

This trend is consistent in King County, with community level GHG emissions rising by 5% between 2003 and 2008, and an 11% decline in per person GHG emissions from vehicle travel by cars and light trucks ([King County Greenhouse Gas Emissions Inventory](#), 2012). Many other counties and cities in Washington state have developed inventories and/or action plans to address climate change.

Program and Policy Examples

Program examples

There are many strategies a local jurisdiction can undertake to help reduce GHG emissions and minimize the expected impacts of climate change. These include:

Energy use: Buildings, equipment, and infrastructure all use energy. Buildings can be made more efficient by upgrading to more efficient fixtures and retrofitting the building. In the City of Seattle, the [Energy Benchmarking and Reporting Program](#) (Ordinance 123226 and 123993) requires non-residential and multifamily building owners to conduct annual energy performance tracking. Building owners and operators must disclose the data and ratings to potential buyers, renters or lenders for buildings greater than ten thousand square feet.

Green power purchases are another strategy to reduce emissions from fossil fuels and support the creation of alternative energy resources. Utility providers, including Puget Sound Energy, offer a green electricity option through their [Green Power Program](#).

Waste and recycling: There are also GHG emissions associated with the energy involved in waste handling. To reduce emissions from their own operational waste stream, local jurisdictions can improve access to recycling and composting. According to the King County Cities Climate Collaboration, every 1 ton of waste sent to a landfill translates to roughly 2.97 metric tons of CO₂ produced. Setting aggressive recycling goals can lead to significant carbon savings.

Water delivery and wastewater treatment: The movement, storage, and treatment of water and wastewater use significant amounts of energy. Low-flow fixtures can help to reduce water consumption. Water reclamation and graywater systems can also help to reduce water use.

Transportation: Replacing older vehicles with more efficient vehicles can reduce GHG emissions. Instituting programs to encourage alternate modes of transportation including walking, bicycling, and carpooling can also limit GHG emissions from fossil fuel burning vehicles. The City of Snoqualmie ([5.G.2.6](#)) is working to retrofit its fleet of vehicles to “improve fuel efficiency and reduce costs [and] consider vehicles that use alternative fuel sources for greater energy efficiency and lower pollution.”

The built environment: More efficient construction and building practices can also reduce GHG emissions. Many communities are building or retrofitting facilities to green building standards, such as [Leadership in Energy and Environmental Design](#) (LEED) certification. Building codes also provide an opportunity for local jurisdictions to change the energy used in construction. The City of Seattle’s 2013 [Commercial Energy Code update](#) includes a Target Performance Path, an optional energy code compliance path that allows the design team, contractor, and owner to determine the most effective methods to achieve energy efficiency.

Mitigation projects: Mitigation projects undertake projects or actions for the purpose of mitigating or offsetting GHG emissions. Maintaining healthy urban forests and street trees, and reforesting open spaces can help with urban carbon sequestration—the capture and long-term storage of atmospheric carbon dioxide.

Existing Regulations

Washington state legislation set GHG Emissions Limits to the following: return to 1990 levels by 2020; reduce emissions to 25% below 1990 levels by 2035; and reduce emissions to 50% below 1990 levels by 2050.

King County has set community level targets to reduce countywide GHG emissions by at least 80% below 2007 levels by 2050. Two overarching plans govern GHG emission reductions in King County: the 2015 [Strategic Climate Action Plan](#) (SCAP) and the 2012 [King County Comprehensive Plan](#) (Policy E-210-211).

In addition to King County, many cities in the region have adopted GHG reduction targets and have, or are developing, climate action plans and incorporating GHG emission reduction strategies within their comprehensive planning processes.

Implementation

Developing policy language

Policies related to climate change and the reduction of GHG emissions within local, regional and state planning processes vary in breadth and focus, as do available resources and technical capabilities. Policies may be directly related to the reduction of emissions and/or the adaptation to climate change, or may address cross-cutting issues such as water quality, waste reduction, renewable energy, health, etc.

Model policy language

The California Air Pollution Control Officers Association (CAPCOA) 2009 guide on [Model policies for GHG emission in General Plans](#) includes model language for nine categories of GHG emission reduction policies: GHG reduction planning; transportation; land use and urban design; energy efficiency; conservation and open space; education; waste reduction and diversion; municipal operations; and alternative energy. The

[Climate Pathways](#) from ICLEI, Local Governments for Sustainability USA, provides resources to local governments to measure, plan for, and reduce emissions and energy use.

Considerations for local implementation

There are currently no specific requirements or protocols to address climate change at the local government level. Each jurisdiction is unique and will therefore need to customize its adoption of policies. Jurisdictions should consider available resources when deciding if and how to establish various targets or goals for sustainability and GHG reduction.

Resources

ICLEI's [Climate Pathways Tool](#) (2014)

U.S. Conference of Mayor's [Climate Protection Agreement](#) (2005)

Puget Sound Regional Council's [Plan Review Manual](#) (2010)

Tacoma-Pierce County Health Department's Healthy Community Planning Toolbox—Policy Intervention Tool: [Natural Environment](#) (2013)