

Environment Element: Additional Information Regarding Greenhouse Gas and Tree Canopy Targets

Greenhouse Gas Targets

What does the science say?

According to an ongoing temperature analysis conducted by scientists at NASA's Goddard Institute for Space Studies (GISS), the average global temperature on Earth has increased by about 0.8° Celsius (1.4°Fahrenheit) since 1880. In the past 60 years, Alaska has warmed more than twice as fast as the rest of the United States, with average temperatures up by nearly 3°F. By 2050, temperatures are projected to climb an additional 2-4 degrees. The effects of this are both present and dramatic.

A recently published National Climate Assessment localizes the following climate change impacts to the Pacific Northwest: changes in the timing of streamflow will reduce water supplies for competing demands; sea level rise, erosion, inundation, risks to infrastructure, and increasing ocean acidity pose major threats. Increasing wildfire, insect outbreaks, and tree diseases are causing widespread tree die-off.

Information outlined by the United Nations Intergovernmental Panel on Climate Change and the National Academies, among others, indicates that atmospheric CO2 concentrations need to be stabilized at roughly 450-475 ppm. This would require a global reduction in emissions of roughly 80% by 2050.

More near-term targets are helpful to ensure that progress is on track and, more importantly, help front-load reductions for greater compounding savings over time. Interim targets established by King County Countywide Planning Policy EN-17 are 25% by 2020 and 50% by 2030, which are consistent with regional and global targets.

What is achievable?

Many cities and countries are making significant progress toward “net carbon neutral” targets, pursuing carbon neutrality or 100% renewable energy by 2050. Nationally, cities and states in the U.S. are progressing on a similar track:

- Seattle claims to have the nation’s first carbon neutral utility, generating electricity from renewable sources only;
- Burlington, VT, announced last year that it is generating enough renewable energy to power the whole city;
- Georgetown, TX, will be powered by 100% renewable energy within the next few years;
- Vermont has a statewide goal of receiving 90% of its energy from renewable sources by 2050.

Near term progress is occurring largely through investments in cleaner energy where hydropower, bioenergy, wind, and solar comprise the bulk of production but also through cleaner fuels, vehicle and building efficiencies, and other industry improvements.

Carbon markets are also resulting in emissions reductions. British Columbia has reduced fossil fuel consumption by 16% since 2008 partially through the implementation of what is considered the world's best model of carbon pricing.

In Bellevue, emissions from City municipal operations have decreased 22% since 2006 through careful attention to energy use, fleet fuels, and employee transit use for commuting. Solar production across the city grew 145% in 2014-2015 and could continue to grow at that rate each year in the foreseeable future. A large portion of Bellevue's community greenhouse gas emissions are attributed to the Colstrip, Montana coal plant which provides electricity to PSE. Phasing out this plant will result in substantial GHG reductions.

What else can the city do?

Bellevue is in an excellent position to lead the region on climate change issues, which require innovation and technology applications that will have direct and positive impacts on our local economy. A roadmap of actions has been agreed to by members of the King County Cities Climate Collaboration, which Bellevue has signed, and includes actions in the following areas:

Collaboration – e.g. Adopt science-based countywide GHG reduction targets that help ensure the region is doing its part to confront climate change.

Transportation and Land Use – e.g. Partner to secure state authority for funding to sustain and grow transit service in King County.

Energy Supply – e.g. Increase countywide renewable electricity use 20% beyond 2012 levels by 2030; phase out coal-fired electricity sources by 2025; limit construction of new natural gas based electricity power plants; support development of increasing amounts of renewable energy sources.

Green Building and Energy Efficiency – e.g. Reduce energy use in all existing buildings 25% below 2012 levels by 2030; achieve net-zero GHG emissions in new buildings by 2030.

Consumption and Materials Management – e.g. By 2020, achieve a 70% recycling rate countywide; by 2030, achieve zero waste of resources that have economic value for reuse, resale and recycling.

Forests and Farming – e.g. Reduce sprawl and associated transportation related GHG emissions and sequester biological carbon by focusing growth in urban centers and protecting and restoring forests and farms.

Conclusion

City efforts across a spectrum of activities can result in significant and achievable reductions in GHG emissions. Doing so will mitigate risk and help realize a number of economic, public health and environmental benefits.

Urban Tree Canopy Targets

The 40% target recommended in the Comprehensive Plan policy comes from the leading national standard established by American Forests and used by cities nationwide. It is based on a methodology that considers storm water retention and other ecosystem services that trees provide to urban areas.

Increasing canopy across a variety of land use types will help solve the core issue of impervious surfaces causing streams to be overburdened by scouring flows, as well as issues related to aesthetic appeal, shading and energy conservation, habitat improvements, etc.

The proposed policy includes language about developing and maintaining an action plan to meet tree canopy objectives across multiple land use types. There are many proven program, policy, and procedural approaches that should be vetted broadly to contribute to this “action plan.” Some of these include:

- Business and government partnerships to create and maintain treed landscapes along highways (e.g. Chicago Gateway Green);
- Neighborhood partnerships to plant and maintain trees (e.g. Friends of Trees, Vancouver, WA) ;
- Adopt a tree and landmark tree programs;
- Transportation ROW design standards that improve tree planting and vegetation within city-owned projects;
- Codes to clarify or improve tree retention standards in appropriate land use classifications;
- Designation of specific city property for receiving new trees in order to offset removals elsewhere, contributing to a “no net loss” approach;
- Tree removal tracking and mapping through the permitting process;
- Required permitting for the removal of significant trees;
- Adjustment of utility storm water rates to reflect costs associated with pervious/impervious surface on a property;
- Funding urban forestry programs through utility rates, recognizing the benefit to storm water retention systems (City of Kirkland);
- Improved signage and protection requirements at construction sites to prevent unintended damage or removal of preserved trees;
- Low impact development and green building practices.

Significant opportunity exists to increase canopy on public lands in Bellevue, with over 5000 acres of land owned between Bellevue Parks and Transportation Departments. Parks is currently replanting 10-20 acres per year and these sites will start appearing in the canopy analysis as the trees mature. Discussions of canopy improvement opportunities in partnership with WSDOT and commercial businesses along the I-90 corridor in Eastgate have also taken place. Other recognized canopy improvement areas include the Bel-Red corridor as industrial properties are up-zoned and the Rails to Trails corridor.