



## Climate Action Committee Interim Report December 9, 2019

### I. Introduction

An estimated 70% of the world's energy-related greenhouse gas (GHG) emissions are likely to continue to increase as two-thirds of all people are expected to live in urban areas by mid-century.<sup>1</sup> Mayors, city councils, and community leaders, who understand local needs and resource constraints, can take a lead in combatting the climate crisis by tracking the performance of city services, guiding change, and setting appropriate regulations regarding land use, transportation, infrastructure, and building codes.

### II. Committee Goals

According to Resolution 2019-02, the Climate Action Committee's goals are to:

- *identify the benefits and costs of adopting policies and programs that promote the long-term goal of greenhouse gas emission reduction while maximizing economic and social benefits of such action.*
- *provide input and independent analysis regarding the City's interest in making a clean energy commitment, as well as identifying a goal for renewable energy usage.*
- *develop an action plan, including options, methods and financial resources needed and an associated timeline and milestones to achieve the renewable energy goals.*

### I. Process

The committee has met five times (once each month) since July. Over that time, members submitted actions they viewed as important to meet the goals of the committee. Through their discussions, committee members learned the difference between mitigating GHG emissions and adapting to the impacts of climate change. Mitigation is defined as actions taken to reduce and stabilize the levels of heat-trapping greenhouse gases in the atmosphere. Adaptation is defined as those actions taken to adapt to current impacts of climate change.<sup>2</sup>

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<sup>1</sup> The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), 2014. <https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities>

<sup>2</sup> Global Climate Change, NASA Global Climate Change, "Solutions," <https://climate.nasa.gov/solutions/adaptation-mitigation/>

In September, three team members organized, streamlined and assigned these suggested actions into 12 categories. When the entire committee met next, they ranked the categories according to which, if immediately implemented at 100%, would have the highest impact in reducing GHG emissions for Mukilteo.

Committee members also calculated their household carbon footprint and found that transportation and natural gas were the biggest contributors to GHG (primarily CO<sub>2</sub>) emissions on a household level. Air travel was not included in the carbon footprint calculator used.

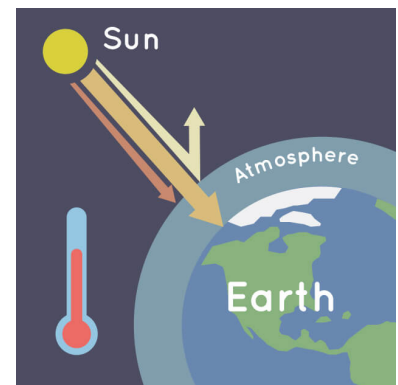
In October, committee members divided into sub-teams representing each mitigating high impact category and met offsite to research and discuss specifics on how their category could best mitigate climate change.

Goals and details for the top three categories—*Planting Trees and Plants, Switching to Electric Vehicles, and Changing Hearts and Minds*—are listed below with their “genie goal”—the goal at which each of these actions could be implemented at 100% and suggested actions to achieve this goal.

## II. Background Information: Potential Impacts of the Climate Crisis in Mukilteo

According to the Northwest Chapter of Fourth National Climate Assessment, the warming climate is impacting the Pacific Northwest’s natural resource economy, cultural heritage, built infrastructure, recreation, and the health and welfare of Northwest residents.<sup>3</sup>

For decades, the burning of fossil fuels has been releasing excess GHGs into the atmosphere, including CO<sub>2</sub> and methane, blanketing the earth in a cumulative layer of heat. Ninety-three percent of this heat is absorbed into the ocean, resulting in increased water vapor and precipitation, more acidic waters, sea-level rise, and shifts in the marine ecosystem. Toxic algal or algae blooms and oxygen-depleted dead zones threaten our salmon and shellfish industries, especially Dungeness Crab, and krill which is an important organism to the marine food chain. Warming rivers and streams and the decreasing snowpack interfere with salmon spawning sites, leading to a loss of habitat and an inability to migrate.



Sea-level rise from melting glaciers and snowpack puts high-population coastal areas at risk from flooding, landslides, increased storm surges, and infrastructure damage. In 2003, a storm surge

<sup>3</sup> Fourth National Climate Assessment, Ch.24 Northwest, Volume II: Impacts, Risks, and Adaptation in the United States. <https://nca2018.globalchange.gov/chapter/24/>

caused \$3.5 million damage to Ivar's Restaurant, closing it for 471 days. A similar surge caused damage to Ivar's in 2012.<sup>4</sup> Projections for sea-level rise in the Puget Sound ranges between two to four feet by 2100.

Increased temperatures, pollution, and smoke from surrounding wildfires pose an increasing threat to both physical and mental health, including an increased risk of heart attacks, cancer, respiratory disease, and heat-related deaths.

Economic impacts such as the closing of fisheries due to algal blooms, losses in outdoor recreational revenue, depletion of the salmon and shellfish industry, and infrastructure damage from sea-level rise increase, increase risk of income loss and food insecurity, particularly for low-income and minority coastal populations. In 2015, a harmful algal bloom extended from Alaska to California, closing shellfish fisheries for a prolonged period of time due to the high-level of neurotoxins in the water. An Advancing Earth and Space Science study links this algal bloom to warming, low-nutrient ocean waters.<sup>5</sup>

### III. Initial Committee Findings and Recommendations

#### A. Planting Trees and Plants

##### *Statement*

The restoration of forested land at a global scale could help capture atmospheric carbon and mitigate climate change.<sup>6</sup>

##### *Genie Goal*

*100% of any available space converted to CO<sub>2</sub> sequestering plants*

##### *Actions recommended*

- Partner with Community Transit to convert bus stops to green roofs
- Create at least one new park/rain garden/protected wetland per year
- Plant 100 trees per year
- Create higher goal for acquiring more open space and land

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<sup>4</sup> Komo News, "Geyser in the middle of the restaurant' shuts down Ivar's," 26 January 2012, <https://komonews.com/archive/geyser-in-the-middle-of-the-restaurant-shuts-down-ivars>

<sup>5</sup> Ryan M. McCabe, Barbara M. Hickey et al, "An unprecedented coastwide toxic algal bloom linked to anomalous ocean conditions," Advancing Earth and Space Science, 20 Sep 2016, <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016GL070023>

<sup>6</sup> Jean-Francois Bastin, Yelena Finegold, et al, "The Global Tree Restoration Potential," Science, July 5, 2019, Vol. 365, Issue 6448, pp. 76-79.

## B. Switching to Electric Vehicles

### *Statement*

A city-wide transition to electric vehicles will reduce: CO<sub>2</sub> pollution, risk of oil spills and oil dependency, and health risks (including cancer and respiratory issues).

### *Genie goal*

*100% of vehicles on the road in Mukilteo are electric vehicles*

### *Actions recommended*

- Transition city, businesses and all household vehicles to electric by 2030
- The optimal amount of Level 2 or Level 3 EV charging stations will be installed throughout the city and supplied through on-site battery storage.<sup>7</sup> This would ensure consistent delivery of electricity and reduce kW usage<sup>8</sup>
- Advocate with federal and state representatives for 100% subsidies for electric vehicles and eliminate all subsidies for fossil fuel-dependent vehicles
- Encourage the school district to transition to the use of electric school buses

## C. Changing Hearts and Minds

### *Statement*

We can't get things done without the hearts and minds of Mukilteo residents, businesses, and government behind efforts to combat climate change

### *Genie Goal*

*100% of Mukilteans embrace climate change actions*

### *Actions recommended*

- Erect "Sea Level Circa 2100" signs
- Host a climate change booth at the Lighthouse Festival and Farmer's Market
- Sponsor a Climate Change forum
- Establish a Mukilteo Climate Change YouTube channel and an online presence

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<sup>7</sup> Quantifying the Electric Vehicle Charging Infrastructure Gap Across US Markets White Paper, ICCT, Jan 2019, [https://theicct.org/sites/default/files/publications/US\\_charging\\_Gap\\_20190124.pdf](https://theicct.org/sites/default/files/publications/US_charging_Gap_20190124.pdf)

<sup>8</sup> Stefan Knupfer, Jesse Noffsinger, and Shivika Sahdev, "How battery storage can help charge the electrical vehicle market, McKinsey & Company, February 2018. <https://www.mckinsey.com/business-functions/sustainability/our-insights/how-battery-storage-can-help-charge-the-electric-vehicle-market>.

#### IV. More About Mitigation vs. Adaptation

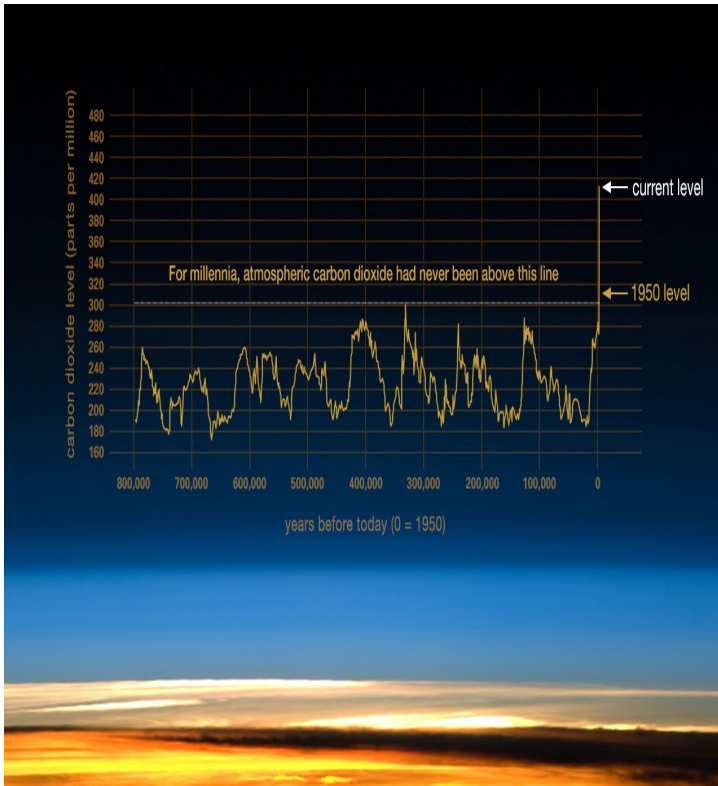


Figure 1 NASA CO<sub>2</sub> Atmosphere Chart

The committee’s focus is to identify mitigating actions that will decrease the rate of GHG emissions released by Mukilteo residences, businesses, and government—in other words, keeping the ‘dot’ at the end of the NASA CO<sub>2</sub> Atmosphere chart (figure 1) from continuing its steep climb. Adaptation was not identified by the City Council for the initial focus for the Committee. However, the Committee discussed the importance and relevance of adaptation.

Adaptation should start to be a focus of planning for impacts that are felt now as well. Droughts, floods, 100-year storms every year, and sea-level rise will contribute to power outages and brownouts, system failures of water/sewer infrastructure, shore

washouts and slides, sea life stress and death, windstorm damage, and more. Over the next 50 years, one billion people will be displaced by climate change impacts (including Washington State local indigenous tribes which have already been displaced); 50% of animals will be impacted globally. Ocean acidification and harmful algal blooms are already impacting shellfish and fisheries. The City needs to seriously consider taking actions with regard to these present and future impacts as soon as possible.

#### Climate Change Effects on Indigenous Peoples

Indigenous peoples and marginalized populations are particularly exposed and sensitive to climate change impacts due to their resource-based livelihoods, and the location of their homes in vulnerable environments. Unlike most citizens who form opinions about climate change based on television, internet or newspaper/magazine articles, American Indian and Alaska Native awareness of climate change is a basic life experience and sensitivity to the rhythms of seasons that make them particularly knowledgeable about what is going on where they live<sup>9</sup>. They have simply learned to adapt to their changing environment and understand that the human response to climate change will require diverse strategies, not a one-size-fits all solution.

<sup>9</sup> Wildcat, Daniel R, “Climate Change and Indigenous Peoples in the United States” (Climatic Change, 2013), 509-511.

## V. Additional Suggested Actions Considered

The Committee discussed other categories of ideas that relate more to adaptation than mitigation. Here are the remaining mitigation/adaptation topics discussed by the Committee:

- 100% renewable energy for the City of Mukilteo
- Increased use of solar panels by easing restrictions from City and/or HOAs
- Renewable energy incentives such as tax credits, solar rebates, etc.
- Implementing composting and recycling in schools
- Battery storage facility for storing and releasing solar-generated electricity to meet customer demand
- Increase bike/walk paths throughout the City
- Ban fossil fuel use
- Converting to 100% LED lights

The Committee has determined that transitioning the City's electrical supply and installing solar panels on city buildings, including Rosehill Community Center, fall into both categories. According to the definition of mitigation, both of these actions would reduce the rate of CO<sub>2</sub> released into the atmosphere by city facilities, businesses, and residences. However, as the Snohomish County PUD states that their electrical supply currently comes from clean electricity, the goal of bridging that final 2% gap would be considered adaptation.

## VI. Next Steps

The Committee plans to continue to review the initial findings and relate them to specific actions that they can recommend to the City Council by the end of 2020.