Olympia School District Greenhouse Gas Emissions Reduction Plan

Background

Scientific studies assert that human activities contribute to the greenhouse effect and if left unaltered, this will cause climate change posing serious risks to our health, economy and environment. The Olympia School District plans to reduce its greenhouse gas emissions to reduce its contribution to climate change.

The Greenhouse Effect

The climate on Earth is determined by a balance of naturally-occurring gases dispersed in the atmosphere that trap solar heat. The phenomenon is known as the greenhouse effect. As sunlight passes through our atmosphere, the incoming solar radiation is re-radiated from the earth's surface as heat energy. Greenhouse gases like carbon dioxide, methane, nitrous oxide, chlorofluorocarbons and water vapor trap some of this re-radiated energy. This trapped heat warms the earth, much as the glass of a greenhouse traps re-radiated energy from sunlight and thereby warms the interior of the structure.

Global Warming

Natural levels of greenhouse gases play a vital role in maintaining the necessary conditions for life on Earth. Yet human activities have increased the amount and concentration of these gases resulting in a rise in global temperature. The Intergovernmental Panel on Climate Change (IPCC) states that water vapor is the most abundant greenhouse gas; it occurs naturally and makes up about two-thirds of the natural greenhouse effect. Fuel burning and other human activities have added additional greenhouse gases to the atmosphere. The gases of greatest concern are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_20), and hydrofluorocarbons (HFCs).
These gases are generated as waste products primarily from:

1. Burning fossil fuels: Carbon dioxide is produced when gasoline is burned in automobiles and when coal and natural gas are burned to produce electricity heat and power.

2. Deforestation: When vegetation is cleared, burned or left to decay, carbon dioxide is released into the atmosphere. Vegetation helps reduce greenhouse gases because the growing process absorbs carbon dioxide. When vegetation is gone, less carbon dioxide will be absorbed out of the air.

3. Decomposition of organic matter: When organic wastes decay in a landfill, they release carbon dioxide and methane gases. Methane is more than 21 times more potent than carbon dioxide as a greenhouse gas.

4. Livestock: Animals such as cows and sheep also release methane.

Greenhouse Gas Emissions Reduction Plan

The Olympia School District will proceed through five milestones to reduce its greenhouse gas emissions:

1. Analyze greenhouse gas emission levels. Determine current greenhouse gas emissions and forecast the growth in emissions that will occur without preventative action.
2. Set a reduction target, for instance, 20 percent greenhouse gas reduction by 2020.
3. Develop an action plan of measures that we might implement to meet our target.
4. Implement the action plan.
5. Monitor the progress and report results.

The Olympia School District has been monitoring resource use for over seven years. This information has been converted into a carbon footprint equivalent and reported to the cabinet and building administrators for two years. We seek to find opportunities to continue to reduce our carbon footprint by reducing our greenhouse gas emissions. An action plan outlines activities that can help us achieve our target.

The District generates the greatest amount of greenhouse gases through its use of energy for buildings, transportation and waste management. The Olympia School District relies on electricity, natural gas and fuel oil for energy. Our greenhouse gas emission reduction opportunities are outlined below; programs that have already been enacted are marked with an asterisk.

- Reduce greenhouse gas emissions resulting from energy use in buildings;*
- Reduce greenhouse gas emissions resulting from transportation;
- Reduce methane emissions released from waste disposal;
- Encourage the planting of trees;
- Educate staff and students on how they can reduce their green house gas emissions;*
- Offer energy efficiency information, technical assistance, training and incentives;*
- Generate renewable energy in schools;*
- Divert construction waste;*
- Offer recycling education;*
- Support alternate work schedules;
- Promote transportation alternatives;*
- Ensure safe routes to schools;*
- Support irrigation alternatives;*
- Practice Integrated Pest Management;*
- Support water conservation efforts;*
- Purchase and use environmentally preferable supplies;*
- Serve locally produced and organic foods;*
- Use reusable trays and silver ware for school lunches;*
- Offer vegetarian options at all school functions* and,
- Use the least toxic cleaning supplies possible.*

Proposed Measures

Energy Efficiency and Conservation

- Conduct an energy audit of all facilities;*
- Implement an energy tracking and management system;*
- Install energy-efficient exit sign lighting;*
- Perform energy-efficient lighting retrofits;*
- Institute a lights-out-at-night policy;
- Install occupancy sensors;*
- Perform heating, cooling and ventilation system retrofits;
- Install energy-efficient vending machines;*
- Continue the "conservation challenge" campaign for schools;*
- Promote green building practices;
- Promote the purchase of ENERGY STAR appliances;
- Distribute CFL bulbs to staff;*
- Offer a space heater exchange;*
- Promote energy conservation through behavioral modification;*
- Implement monitor and maintain district heating and cooling control systems;*
- Implement monitor and maintain strategies to reduce demand during time-of-use or peak demand energy pricing;*
- Purchase green power;* and,
- Install solar panels.*

Food and Maintenance Services

- Serve locally produced and organic foods;*
- Use reusable trays and silverware for school lunches;*
- Offer vegetarian options at all school functions;*
- Use the least toxic cleaning supplies possible;*
- Minimize use of water for cleaning;*
- Plant trees for shade and energy savings;*
- Encourage sales of food items in recyclable or compostable containers; and,*
- Require groups using OHS and the main kitchen to recycle and compost.*

Transportation

- Increase vehicle fuel efficiency of fleet;
- Retire old and under-used vehicles;
- Purchase fuel efficient and/or smaller fleet vehicles;
- Promote purchase of compact and hybrid vehicles;
- Choose vehicles powered by Alternative Fuels;
- Encourage car-pooling or van-pooling by employees;*
- Encourage telecommuting by employees;
- Encourage use of mass-transit by employees;
- Promote car-pooling, telecommuting and the use of mass-transit by community members;
- Provide high school students with complimentary bus tickets;

- Expand school bus service as needed;*
- Expand bicycle parking;*
- Support a "safe routes to school" program;* and,
- Limit idling of District and community vehicles.*

Recycling and Waste Management

- Establish/expand recycling programs;*
- Establish/expand composting programs;*
- Reuse or recycle of construction and demolition materials;*
- Reuse or recycle of surplus equipment, supplies, books and unwanted items;*
- Any surplus items left after surplus sale may be donated to charity;*
- Implement environmentally preferable purchasing program;* and,
- Purchase and use environmentally preferable supplies.*

Water

- Encourage water conservation;*
- Install water efficient fixtures;* and,
- Minimize irrigation and select drought tolerant plants.*

How to Choose Which Measures to Pursue

The District may implement the proposed measures included in this plan based on the following selection criteria:

- Initial cost;
- Percent pay-back per year;
- Long-term cost effectiveness;
- Potential emissions reduction;
- Uniformity with existing priorities;
- Ease of implementation;
- Assistance/support available; and,
- Educational value.