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## Energy & Carbon

What are **carbon emissions** and why are they important?  
What is meant by **energy independence**? **Energy conservation**?

Carbon emissions from oil and petroleum fuels endanger human health, and also threaten national security, the economy, and the environment with significant impacts to flora, fauna, air, water, and natural habitat due to leaks, spills, emissions, and discharges of petroleum-related toxins.

Energy Independence is a two-fold approach to reducing dependence on foreign sources of energy, particularly oil and petroleum fuels: First, through energy conservation; and, second, through development of domestic, alternative energy sources. In turn, energy independence helps reduce environmental impacts related to carbon emissions.

Energy efficiency, alternative energy sources, and reduction of carbon emissions are objectives that align with Shoreline Sustainability Strategy Guiding Principle #10:

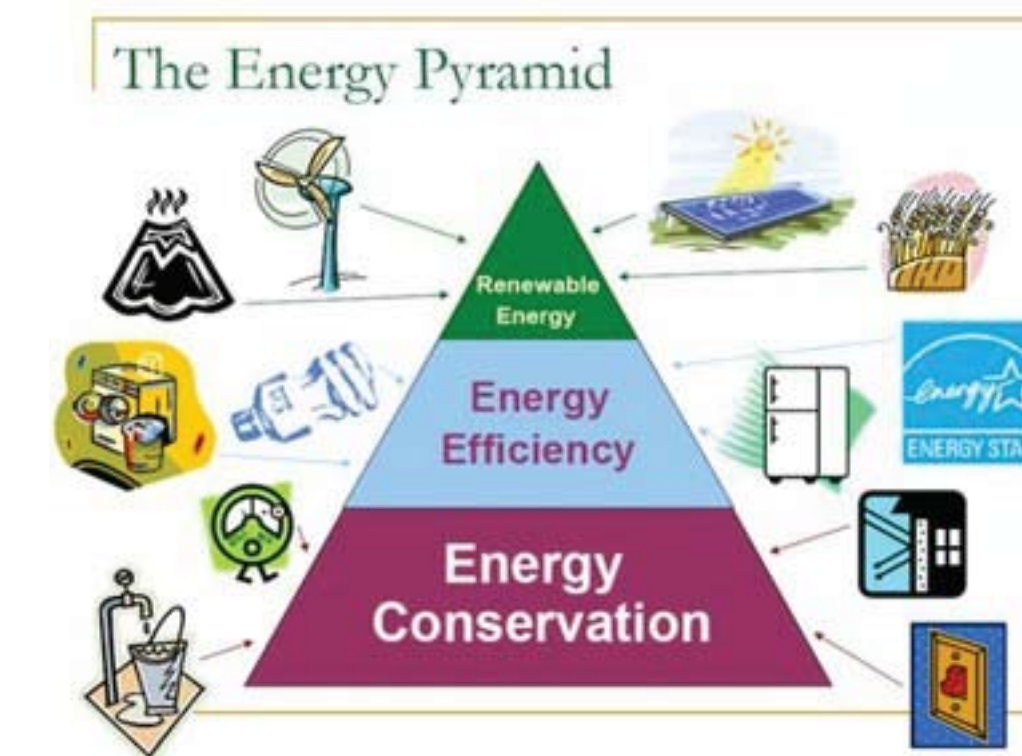
### Energy Solutions are Key to Reducing Our Carbon Footprint

The City will reduce the amount of energy used in facilities and operations and promote sustainable sources of energy. The City will use a carbon scorecard to evaluate energy use and carbon emissions of the Shoreline community and develop and promote conservation targets. Other ways in which the City can promote conservation goals include compact development that supports transit, non-motorized transportation improvements and coordination and advocacy for efficient transit solutions and walkability that serve both the people of Shoreline and the region.

What are the possibilities in Shoreline?  
What do **you** want to see?

What does it look like?

### Energy Conservation



### Developing Renewable Energy Sources



### Reducing Greenhouse Gases & Carbon Emissions



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### What is Shoreline already doing?

One of the specific objectives of Shoreline City Council Goal #6 is to implement the goals of the U.S. Conference of Mayors Climate Protection Agreements.

On February 16, 2005 the Kyoto Protocol, the international agreement to address climate disruption, became law for the 141 countries that have ratified it to date. On that day, Seattle Mayor Greg Nickels launched this initiative to advance the goals of the Kyoto Protocol through leadership and action by at least 141 American cities.

By the 2005 U.S. Conference of Mayors Annual Meeting in June, 141 mayors had signed the Agreement – the same number of nations that ratified the Kyoto Protocol. In May of 2007, Tulsa Mayor Kathy Taylor became the 500th mayor to sign on.

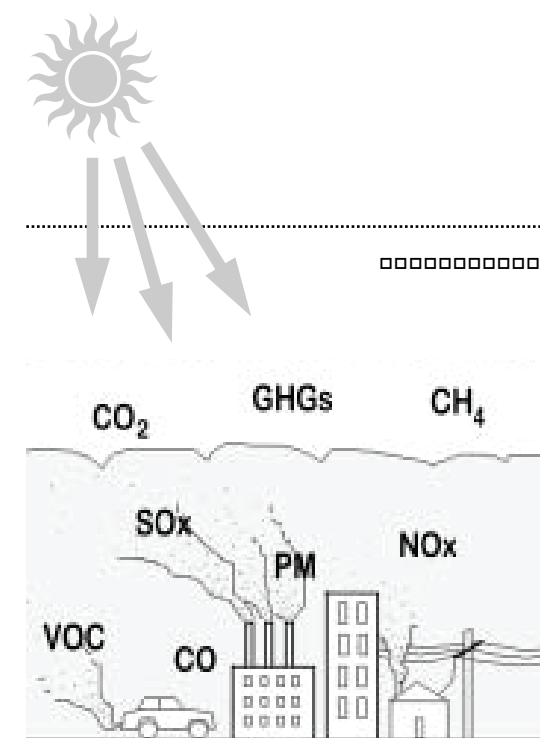
Under the Agreement, participating cities commit to take following three actions:

- 1) Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;
- 2) Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol -- 7% reduction from 1990 levels by 2012; and
- 3) Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.

### What is the Clean Air and Climate Protection Software ?

The Clean Air and Climate Protection (CACP) software by STAPPA/ALAPCO and ICLEI can help cities:

- Create emissions inventories for the community as a whole or for the government's internal operations.
- Quantify the effect of existing and proposed emissions reduction measures.
- Predict future emissions levels.
- Set reduction targets and track progress towards meeting those goals.



### What is a carbon calculator ?

Carbon calculators are tools to help individuals, households, businesses, and organizations evaluate greenhouse gas emissions and take action to reduce them.

Most carbon calculators are Internet based, and they vary in complexity. However, most calculators can be useful as components of a sustainable city strategy. They can be used by individuals and households, and data can be aggregated to evaluate community or city-wide carbon emissions and environmental impacts.

The Environmental Protection Agency (EPA) provides a free, detailed calculator on its website, a sample of which is shown here. The EPA calculator first provides an estimate of your personal greenhouse gas emissions or your family's greenhouse gas emissions. Users can then explore actions to lower emissions while reducing energy and waste disposal costs. For each action, the calculator displays the amount of emissions that might be avoided, and how that amount relates to total emissions.

	Enter your data	Pounds of carbon dioxide/year*
<b>The Basics</b>		
How many people live in your home?	<input type="text" value="1"/>	
How do you heat your house?	<input checked="" type="radio"/> Natural Gas <input type="radio"/> Electric Heat <input type="radio"/> Oil	
<b>Transportation</b>		
On average, how many miles do you put on your car(s)?	<input type="text" value="0"/> <input checked="" type="radio"/> Per Week <input type="radio"/> Per Year 231 miles/week is about average in the United States per vehicle.	
What is the average gas mileage for your car (miles per gallon)?	<input type="text" value="0"/> If you don't know your car's fuel economy, you can look it up at <a href="http://fuelconomy.gov">fuelconomy.gov</a> .	<input type="text" value="0"/> 12,100 pounds is about average per vehicle over a year.
<b>Home Energy</b>		
What is your average monthly gas bill?	<input type="text" value="0"/> \$105 is about average in the United States for a household of two people. Our calculations assume that you pay \$13.83/thousand cubic feet	<input type="text" value="0"/> 11,000 pounds is about average for a household of two people over a year.
What is your average monthly electric bill?	<input type="text" value="0"/> \$100 is about average in the United States for a household of two people. Our calculations assume that you pay 10 cents/kWh. We estimate your emissions based on the national average mix of fuels used to generate electricity. Your actual emissions may be higher or lower depending on your electricity provider's power mix.	<input type="text" value="0"/> 16,290 pounds is about average for a household of two people over a year.
What is your average monthly fuel oil bill?	<input type="text" value="0"/> \$130 is about average in the United States for a household of two people. Our calculations assume that you pay \$2.37/gallon	<input type="text" value="0"/> 14,500 pounds is about average for a household of two people over a year.