



A full report on climate change and energy issues is available on the City of Victoria's website for the *Official Community Plan* review at: [www.ShapeYourFutureVictoria.ca](http://www.ShapeYourFutureVictoria.ca)

### Definition and Description

The Government of Canada defines **climate change** as a long-term shift in climate measured by changes in temperature, precipitation, winds and other indicators. The leading world scientists on the Intergovernmental Panel on Climate Change (IPCC) have determined that climates around the world are changing and attribute the majority of the causes to human activity, primarily greenhouse gas emissions from burning fossil fuels for energy consumption, deforestation and waste.<sup>1</sup>

**Energy** is a usable source of power, obtained from the transformation of renewable sources (such as sunlight or wind) and non-renewable sources (such as oil or coal).

### Why Is This Topic Important?

Cities are home to the majority of global energy use, making them important players in addressing climate change. Land use profoundly influences the big emission sectors of transportation and buildings. Land use policy and planning of neighbourhood design, land use mix, density, and connectivity are key variables having an impact on transportation-

related greenhouse gas emissions (GHGs). Building type, size and access to renewable or lower impact energy sources for heating are land use variables with powerful impacts on energy and emissions in buildings.

As a result, climate action and preparedness are most effective when integrated into strategic and long term land use and transportation plans documents, like Official Community Plans (OCP), and represent the area where local governments can most greatly influence climate protection.

### Did You Know?

Approximately 45 per cent of the City of Victoria's GHGs come from transportation, 26 per cent from commercial buildings, 23 per cent from residential buildings and five per cent from solid waste.

Beginning in May 2010, all OCPs must include **local government targets**, policies and actions for the reduction of GHGs. The BC Government has committed to reducing provincial GHG emissions 33 per cent below 2007 levels by 2020 and 80 per cent by 2050.

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1. Intergovernmental Panel on Climate Change. 2007. Fourth Report of the IPCC

### FOR MORE INFORMATION

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Victoria's GHG emissions have grown 10 per cent over the last 15 years, largely from transportation. Of total transportation emissions, **88 per cent** come from daily travel in private vehicles, only 12 per cent from public transit.

**Buildings** account for approximately half of Victoria's GHG emissions, and two-thirds of energy use, mainly from space and water heating.

Victoria's per capita **carbon emissions** are 4.7 tonnes per person, lower than most North American cities, but higher than the global levels that are necessary to reduce climate change and its impacts.

Residential GHG emissions – those from **daily travel, residential buildings** and **solid waste** – are significantly higher in more suburban neighbourhoods such as Gonzales, Fairfield, and parts of Hillside Quadra and Oaklands (over 7.3 tonnes per household per year). They are lower in more central areas including parts of Vic West, James Bay Fernwood, Harris Green and Downtown (under 4.8 tonnes per household per year).

## Issues and Trends

### Compact, walkable neighbourhoods:

- People living in more compact, walkable neighbourhoods have lower residential household GHG emissions in Victoria. These neighbourhoods are typically closer to the downtown core, have greater density, and offer shops, services, offices and recreation in the immediate vicinity.
- Neighbourhoods in Victoria with higher residential density have lower residential household GHG emissions. In fact, some parts of Victoria have among the lowest annual residential GHG emissions in the country (as low as 3.0 tonnes per household or 1.8 tonnes per capita).

### Energy efficiency of buildings:

- Buildings account for approximately half of Victoria's GHG emissions, and two-thirds of energy use, mainly from space and water heating. Downtown Victoria has the highest level of GHG emissions due to the energy used and solid waste produced in commercial or institutional buildings.
- Nearly half of Victoria homes use fossil fuel energy sources for heating, namely fuel oil (31 per cent) and natural gas (16 per cent). 53 per cent use hydro-electricity, an energy source associated with lower GHG emissions.
- Multi-family residential homes such as apartments and townhouses release fewer GHG emissions and use less energy than single-family homes, as shared walls and fewer exposed surfaces reduce heat loss.
- Victoria residents currently spend approximately \$200 million per year on household energy – about \$2,500 per capita, a value that is expected to rise due to constrained supply and increased demand which will drive up energy prices.

### Adapting to climate change:

- The National Research Council has stated that climate change is occurring across the country and local governments must have plans for adaptation, particularly with respect to extreme weather events.<sup>2</sup>
- Research suggests that the key climate change events for Victoria may include: damage to property and infrastructure from higher or more intense wind and rain storms; potable water contaminated by floods; interruptions to the food supply; and impacts to local tourism, fishing and other economic sectors.
- Local, renewable energy sources are not widely used, and may help to address future energy shortages. Potential sources of local, renewable energy include tidal, geothermal, solar, wind and wave.

## The City in Action: What We Do Now

The City of Victoria can address climate change and the need for greener sources of energy through land use plans, policies and operations. New legislation requires the City to establish targets, policies and actions to slow climate change and reduce its impacts. Land use plans retain and enhance Victoria's compact, walkable neighbourhoods and connectivity. Plans and policies promote green buildings and encourage transportation alternatives through public realm improvements such as bike lanes and sidewalks.

## Share your thoughts and ideas:

Victoria's plans and policies can help to both slow down the process of climate change, and prepare a community to adapt to impacts. Energy-conscious planning and policies can meet bigger goals for the economic, social and ecological health of a community.

- What changes would you make to the way you live now and in the future to lessen your carbon footprint at home, work, and on the road?
- How do you get around Victoria on a weekly basis? What affects your decisions around how and where you travel, work and live?
- What actions do you think the City of Victoria, its residents and businesses could take to adapt to the possible impacts of climate change?

2. National Research Council of Canada. 2007. From Impacts to Adaptation: Canada in a Changing Climate 2007

## WANT TO LEARN MORE?

- Additional topic sheets are available online at [www.shapeyourfuturevictoria.ca/research-facts](http://www.shapeyourfuturevictoria.ca/research-facts)