

# Climate Change and Energy

# 12



## GOALS

- › 12 (A) Victoria and Victorians are more resilient to climate change and energy scarcity and costs.
- › 12 (B) New and existing buildings are energy efficient, and produce few greenhouse gas emissions.
- › 12 (C) Transportation options reduce fossil fuel dependence, help conserve energy and produce low greenhouse gas emissions and other air contaminants.
- › 12 (D) The waste stream to the regional landfill is reduced to a minimum, with recovery, re-use, recycling and composting of resources undertaken as standard practice.
- › 12 (E) Victoria relies on clean, renewable, diverse and efficient energy sources.

## OVERVIEW

The Intergovernmental Panel on Climate Change has determined that climates around the world are changing and identifies the human activities of deforestation, waste decomposition and fossil fuel combustion as the primary causes. If greenhouse gas emissions continue to rise worldwide, the earth is projected to warm more rapidly. At the same time, fossil fuel energy scarcity is a mounting concern with recognition among scientists and nations that the global supply of oil is depleting. Cities are positioned well to help slow the pace of climate change and adapt to peak oil realities through land use management and related policies for improving energy performance in buildings and for supporting alternative transportation modes.

In Victoria in 2007, sources for total greenhouse gas emissions were: 43% from transportation, 29% from commercial buildings, 22% from residential buildings and 6% from the management of solid waste. Per capita emissions are significantly lower in compact urban neighbourhoods such as Harris Green and Downtown, where shorter trip lengths from homes to destinations enable walking and cycling, and multi-unit building forms are more energy-efficient. Some examples of potential climate change impacts in Victoria include: damage to property and infrastructure from more frequent and intense storm events or sea level rise; adverse health impacts in vulnerable populations due to increased incidence and intensity of heat waves; and, loss of ecosystem functions due to warmer, drier summer weather.

This plan provides direction for the development of a Climate and Energy Resiliency Plan that will identify effective mitigation and adaptation strategies and prioritize actions. With respect to climate change mitigation, the City's 2020 target for greenhouse gas emissions is to reduce levels by 33% from 2007 levels. Achievement of this outcome depends on compact and complete urban development that supports alternative modes of transportation, renewable energy and heating systems, and better performance in new and existing buildings. Climate change adaptation aims to lessen the vulnerability of the community to climate change impacts such as severe wind storms that pose a hazard to the built and natural environment.

## BROAD OBJECTIVES

[SEE ALSO SECTION 7 – TRANSPORTATION AND MOBILITY AND SECTION 11 – INFRASTRUCTURE]

The climate change and energy policies of this plan address four broad objectives:

- 12 (a) That climate change is mitigated through the reduction of greenhouse gas emissions from buildings, transportation and solid waste.
- 12 (b) That the community is prepared for climate change through adaptation planning that reduces future impacts on public health, property and the natural environment.
- 12 (c) That community energy consumption and generation are managed to give priority to conservation and efficiency, diversification of supply, renewable energy, and low carbon fuels.
- 12 (d) That the supply, distribution and efficient use of energy, including the provision of renewable energy at the district scale, is achieved in alignment with the Urban Place Guidelines in this plan.

## CLIMATE CHANGE AND ENERGY RESILIENCY

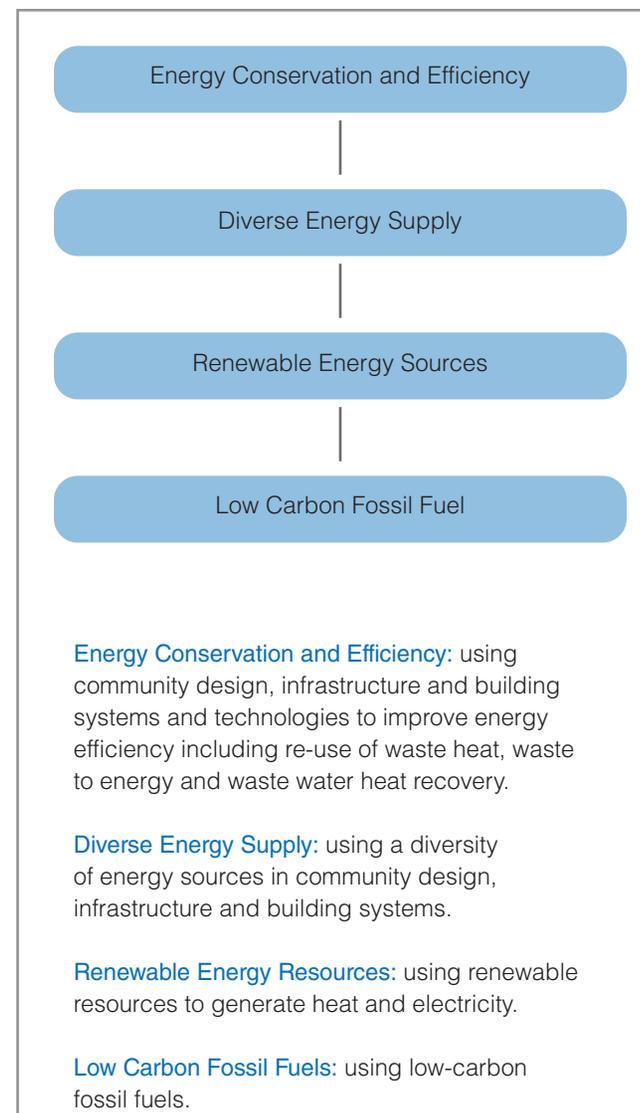
- 12.1 Continue and enhance partnerships with senior, regional and local governments, public agencies, community organizations, businesses and individuals for the efficient and effective coordination of climate change and energy resiliency plans, policies and initiatives including:
  - 12.1.1 Greenhouse gas reporting; and,
  - 12.1.2 Risk and vulnerability assessment of local climate change impacts.
- 12.2 Continue to work with the Capital Regional District on coordination and integration of regional and local mitigation and adaptation planning.
- 12.3 Provide direction for climate change mitigation and adaptation planning and actions through the development and regular update of a Climate and Energy Resiliency Plan, that:
  - 12.3.1 Guides the integration and consideration of climate change mitigation and adaptation into City plans, policies and projects;
  - 12.3.2 Identifies policies, targets and actions for reductions in greenhouse gas emissions by sector;
  - 12.3.3 Identifies policies, targets and actions for energy resiliency including, but not limited to, conservation and diversification;
  - 12.3.4 Identifies policies and actions for climate change adaptation that strengthen community resiliency to future impacts including, but not limited to, public health, protection of land development from hazardous conditions and environmental protection [SEE ALSO SECTION 10 – ENVIRONMENT AND SECTION 18 – EMERGENCY MANAGEMENT];
  - 12.3.5 Develops and maintains a comprehensive greenhouse gas inventory that measures, analyzes and reports on emission levels in the community and evaluates the progress toward reduction targets on a routine basis; and,
  - 12.3.6 Develops and maintains a risk and vulnerability assessment of local impacts of climate change to inform policies, targets and actions for adaptation planning.

- 12.4 Continue to promote the reduction of community greenhouse gas emissions, through:
- 12.4.1 Compact land use patterns such as walkable and complete centres and villages [SEE ALSO SECTION 6 – LAND MANAGEMENT AND DEVELOPMENT];
  - 12.4.2 Transit-oriented development [SEE ALSO SECTION 6 – LAND MANAGEMENT AND DEVELOPMENT, SECTION 7 – TRANSPORTATION AND MOBILITY]; and,
  - 12.4.3 Networks and amenities for cyclists, pedestrians and other forms of personal mobility [SEE ALSO SECTION 6 – LAND MANAGEMENT AND DEVELOPMENT].
- 12.5 Explore the feasibility and effectiveness of the designation of Development Permit Areas for the purposes of the establishment of objectives to:
- 12.5.1 Promote the reduction of greenhouse gas emissions;
  - 12.5.2 Promote energy conservation; and,
  - 12.5.3 Promote water conservation.
- 12.6 Consider climate change and energy resiliency in infrastructure asset management with respect to maintenance, repair and replacement over time [SEE ALSO SECTION 11 – INFRASTRUCTURE].

## SUSTAINABLE ENERGY PRINCIPLES

- 12.7 Use the Sustainable Energy Principles as shown in Figure 15 as a conceptual framework for energy consumption and generation, and develop policies, regulations and initiatives broadly consistent with it.

**Figure 15: Sustainable Energy Principles**



## ENERGY CONSERVATION AND EFFICIENCY

- 12.8 Continue to work with the Capital Regional District on energy conservation and efficiency through participation in the Capital Region Community Energy Plan, and the alignment of the regional plan and policies, targets and actions with the City's Climate and Energy Resiliency Plan.
- 12.9 Work with the Capital Regional District, utility providers, the private sector and community organizations to encourage energy conservation and efficiency.
- 12.10 Engage citizens, business and community groups to increase public literacy and community initiatives that foster and result in reduced household and workplace energy consumption in Victoria and the Capital Region.
- 12.11 Work with community and business partners to explore opportunities for on-site technologies that re-use waste heat and to generate energy from waste recovery.

## RENEWABLE ENERGY

- 12.12 Support and enable the feasibility of renewable energy on a distributed basis or at district scale through objectives and policies for land management and development in this plan, that [SEE ALSO SECTION 6 – LAND MANAGEMENT AND DEVELOPMENT]:
  - 12.12.1. Encourage large-scale mixed use development with adequate density to support district energy systems, and where energy demand is diverse; and,
  - 12.12.2. Consider all available tools and incentives that could enable and support on-site renewable technology and district energy systems.
- 12.13 Seek opportunities for district energy systems and identify effective and appropriate locations for facilities.
- 12.14 Work with the Capital Regional District, utility providers, businesses and private developers to explore the feasibility of renewable energy as a utility on a district scale through:
  - 12.14.1 Partnership for utility provision and ownership of district energy system facilities; and,
  - 12.14.2 Development opportunities for district energy systems such as bio-mass and geo-exchange.

## BUILDING PERFORMANCE

- 12.15 Require new civic facilities and retrofits to existing facilities to satisfy a high standard for green building performance.
- 12.16 Continue to monitor and evaluate the performance of civic facilities through energy audits and to improve low-performing buildings.
- 12.17 Continue to support and enable the private development of green buildings, subject to development control and building regulation, with features that may include but are not limited to:
  - 12.17.1 Alternative transportation facilities;
  - 12.17.2 Sustainable landscaping;
  - 12.17.3 Building retention and re-use;
  - 12.17.4 Passive building systems;
  - 12.17.5 Energy efficiency technology;
  - 12.17.6 On-site renewable energy technology;
  - 12.17.7 District renewable energy systems; and,
  - 12.17.8 Efficient plumbing fixtures and systems.
- 12.18 Continue to support and enable green features and practices in new development through the periodic review of the Zoning Bylaw and Engineering bylaws.
- 12.19 Encourage new developments that are designed to adapt to future sustainable technologies for solar thermal, district energy systems and grey water reclamation fully aligned with the BC Building Code.
- 12.20 Support and enable the re-use and retrofit of buildings through municipal regulations and incentives, as appropriate.
- 12.21 Develop and maintain partnerships that promote the replacement of inefficient heating and cooling systems through high efficiency system upgrades and renewable heating systems.
- 12.22 Advocate for senior government to enable the construction of green buildings and energy retrofits through incentives and supportive legislation.

## MEASURING PROGRESS

- 12.23 The following target should be considered in measuring progress towards the plan's climate change and energy objectives:
  - 12.23.1 That greenhouse gas emissions within Victoria are reduced by a minimum of 33% below the 2007 levels by 2020.