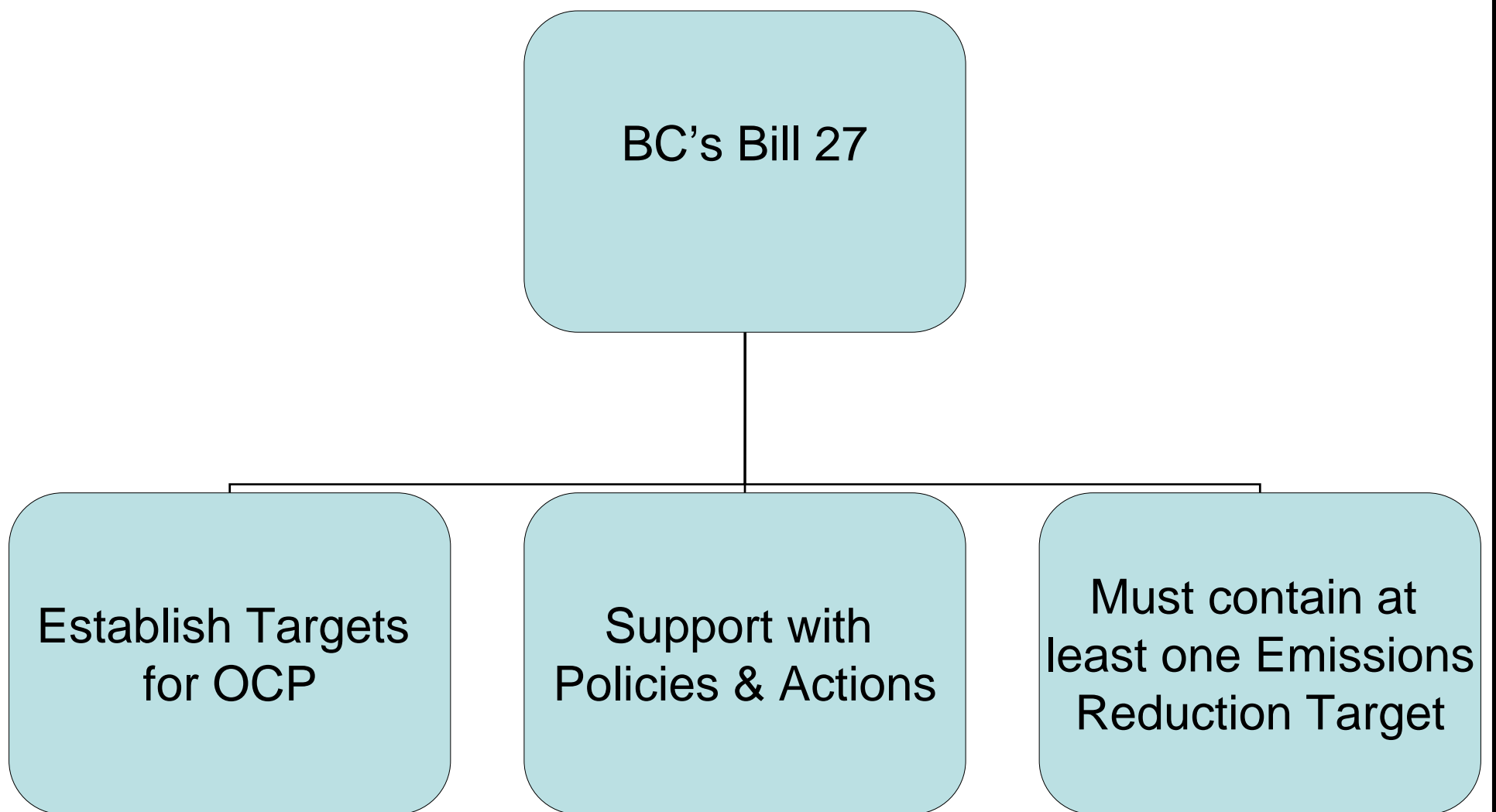


# Official Community Plan Update GHG Emissions Reduction Target



- Bill 27, the *Local Government (Green Communities) Statutes Amendment Act* was passed by the Provincial Government on May 29, 2008.
- The requirements for local governments to reduce greenhouse gas emissions is intended to be flexible.
- Each BC community is to decide how it will approach the greenhouse gas emissions reduction target requirements.
- The deadline for incorporating into local government OCPs is May 31, 2010.

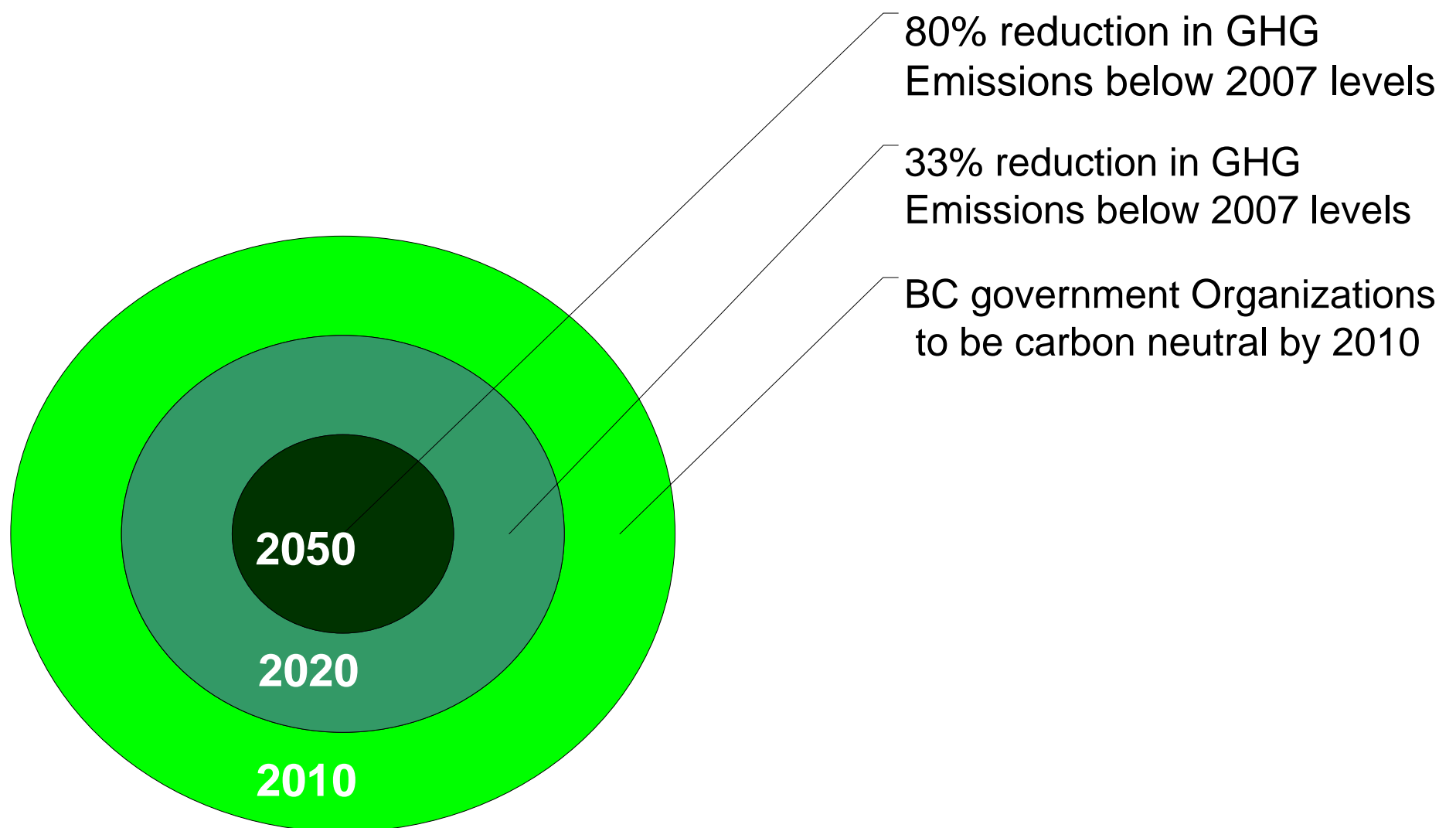


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UPDATING THE OCP

# Provincial GHG Emission Reduction Targets



- The BC government has set targets for the entire province to achieve a 33% reduction in GHG emissions below 2007 levels by 2020 and by 80% below 2007 levels by 2050.
- The Provincial government and related organizations are required to be carbon neutral by 2010.
- The above targets were established through Bill 44, the *Greenhouse Gas Reduction Targets Act*, which was enacted by the Province in 2007.



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PROVINCIAL TARGETS

# Provincial Targets

## Visionary vs. Pragmatic Approach

- Provincial targets are based on scientific information indicating the amount of reduction needed to counter existing trends toward climate change.
- Generally, there are 2 approaches when setting a target – a visionary approach and a pragmatic approach:
  - Visionary Approach is based on a general acceptance of the task required, or the opportunities available. For example, the “atmosphere” is telling us that we need to make substantial reductions and so a target of 80% by 2050, is driving by preserving the atmosphere. Also, knowledge of “what’s possible” can drive a target. For example, we waste substantial amounts of energy in our daily lives so establishing a target of 20% by 2020 is justified by knowing that there is easily this much excess.
  - Pragmatic Approach is based on a more quantifiable approach. A pragmatic derivation can range from a simple estimate (e.g. “what are the savings if 10% of residences retrofit their homes?”) to a detailed exploration of the pricing and incentive signals (e.g. the BC Government did economic modeling and determined that 73% of the GHG reduction target could be achieved through the defined programs and the carbon tax).



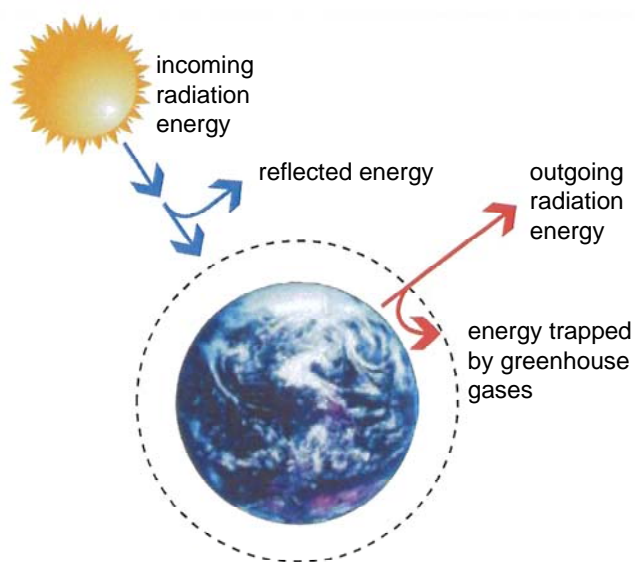
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PROVINCIAL TARGETS

# What are Greenhouse Gases?

- Defined in BC's Bill 44 as "carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, and any other substance prescribed by regulation under the Act."
- Greenhouse gases occur naturally in the atmosphere, but human activities also result in additional greenhouse gas emissions.
- Greenhouse gases are generated by:
  - Electricity and fossil fuel use;
  - Transportation (such as vehicle kilometres travelled, fleet composition and fuels consumed); and
  - Quantity and composition of waste and disposal methods.



## The Greenhouse Effect

When the sun's energy reaches earth, most of the energy warms the atmosphere and the earth's surface. The earth then radiates some of this energy back into space as infrared rays. Greenhouse gases in the atmosphere trap some of the infrared rays before they escape resulting in additional warming of the earth.

Burning fossil fuels, and other human activities, have increased levels of greenhouse gases in the atmosphere. This has increased the atmosphere's capacity to trap energy by accentuating the greenhouse effect and raising global temperatures.



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GREENHOUSE GASES

# What are the Impacts?

*“Many parts of British Columbia have been warming at a rate that, in some cases, is more than twice the global average. Over the last 50-100 years, B.C. has lost up to 50 per cent of its snow pack, and total annual precipitation has increased by about 20 per cent. At the same time, our communities have been experiencing longer summer droughts as weather patterns grow increasingly erratic.”*

Source: BC Climate Action Plan

## Average Annual Temp Increase in BC in the 20<sup>th</sup> Century

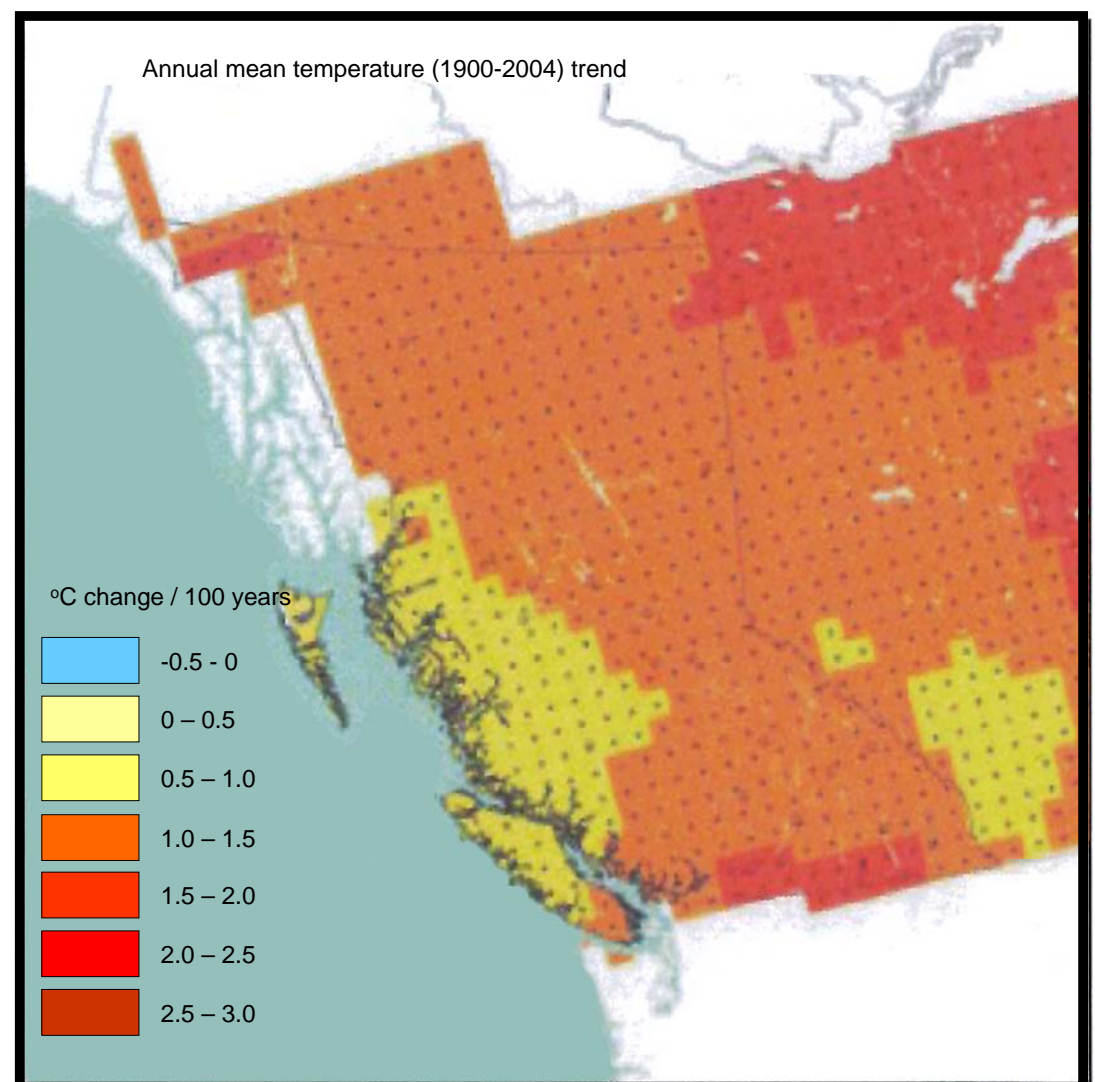
Global warming has its greatest impact on jurisdictions in the Northern Hemisphere, including BC. This illustration shows the change in average temperatures in BC's regions in the 20<sup>th</sup> century.

The numbers may appear small, but what they show is that parts of BC are warming at a rate more than twice the global average of 0.6 degrees during the same period.

For more information on the impacts of climate change in BC – including interacting maps that let you make your own projections visit:

[www.pacificclimate.org](http://www.pacificclimate.org).

BC Climate Action Plan



Source: BC Climate Action Plan



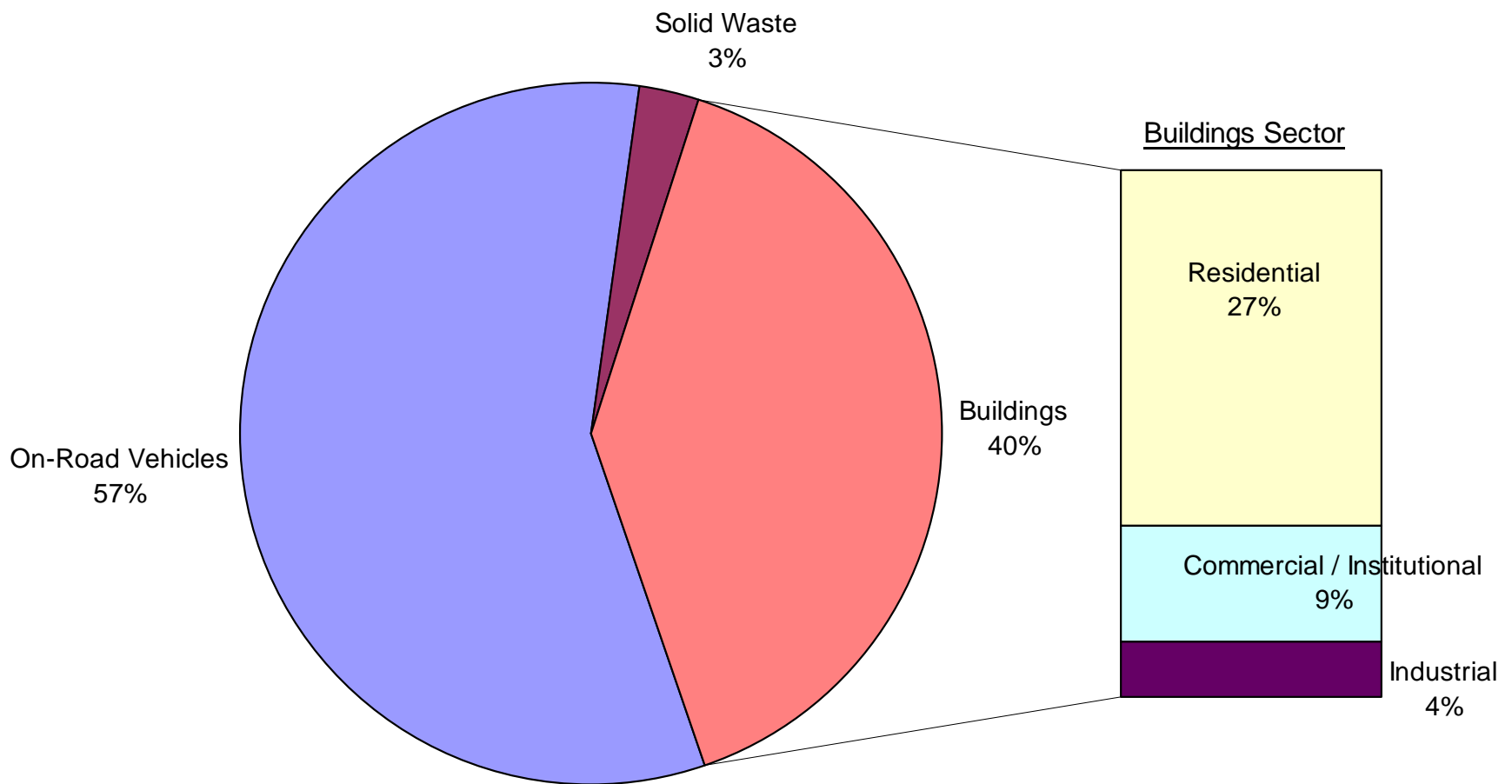
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IMPACTS OF  
CLIMATE CHANGE

# GHG's In Maple Ridge

## Maple Ridge Community Greenhouse Gas Emissions (2007) by Sector



Total Greenhouse Gas Emissions = 381,979 tonnes CO<sub>2</sub>e

### Sector Descriptions:

**Buildings Sector:** includes emissions from electricity and natural gas consumption (BC Hydro & Terasen Gas). Does not include emissions from combustion of other fuels such as oil, propane, or wood.

**On-Road Vehicle Sector:** includes estimated emission from all registered on-road vehicles. Does not include vehicles not licensed for public roads, such as bulldozers, forklifts, all-terrain vehicles, or slow moving heavy equipment vehicles (rollers, graders, etc.). Also excluded are marine, rail and air transportation vehicles. Calculation of emissions is based on registered vehicles (source: ICBC) multiplied by fuel consumption figures by vehicle (source: Natural Resources Canada) multiplied by odometer readings (source: AirCare and vehicle transfer records) multiplied by emission conversion factors (Intergovernmental Panel on Climate Change).

**Solid Waste:** includes emissions from estimates of the annual mass (tonnes) of municipal solid waste disposed of at all regional district landfills and facilities and attributed to Maple Ridge (source: Metro Vancouver Regional District). It does not include materials disposed of using other methods, such as compost, green waste, and waste taken to recycling facilities.

For a full breakdown of sector emissions see handout or visit <http://www.toolkit.bc.ca/ceei>



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British Columbia

GHG's in MAPLE RIDGE

# Reducing Our GHG Emissions

Community-wide greenhouse gas emissions will be influenced by many factors that include:

- BC Building Code
- Improvements in building design
- More energy efficient mechanical systems
- The use of alternative and renewable fuels
- More fuel efficient vehicles
- Transportation network and transit system
- Existing and future land-use policies and decisions
- Local jobs
- Changes to solid waste disposal methods
- Personal behaviour changes and social norms.
- Population growth
- Economic development

## How much CO<sub>2</sub> do British Columbian's emit?

In B.C., our per-capita emissions from all sources are 15 tonnes. Approximately 4.5 tonnes of this is associated with individual actions such as driving and home heating. 4.5 tonnes of greenhouse gas would fill five average two-storey, three bedroom houses. Put another way, that's enough to fill about 90,000 party balloons.

BC Climate Action Plan



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British Columbia

REDUCING EMISSIONS

# What is Maple Ridge Doing Right Now?

- Current Official Community Plan contains numerous policies that support the reduction of greenhouse gas emissions in the sectors of transportation and land-use, buildings, infrastructure, and natural resource protection (see handout).
- The new Fire Hall utilizes ground source heating and reduce GHG emissions by 67% in 2011.
- Retired municipal vehicles are being replaced with hybrid vehicles throughout the fleet.
- The Leisure Centre has been retrofitted with high efficiency energy systems with a goal of reducing GHG emissions by 54% in 2010.
- Through the Community Ecosystem Restoration Initiative, there is a goal to plant 300,000 trees on conservation land under the District's control over the next 5-10 years.



## The Benefits of Urban Forests

In addition to taking carbon out of our atmosphere, urban forests have a wide range of other benefits including improving local air quality, reducing topsoil erosion and helping to ensure that groundwater supplies are continually replenished. Urban forests also increase property values and help to enhance communities' economic sustainability. For example, studies have shown that people are more likely to linger and shop in business areas where the streets are lined with mature trees.

BC Climate Action Plan



MAPLE RIDGE

British Columbia

DMR EMISSIONS  
REDUCTION INITIATIVES

# Proposed GHG Emissions Reduction Targets for Maple Ridge

## How the proposed targets were selected

The development of a Community Energy and Emissions Plan involves detailed analysis of emission sources, and an evaluation of the impact of potential programs, incentives, etc. This may be undertaken in future.

In the interim, an alternative approach was taken. Four different scenarios were used to calculate the impact of various targets on community greenhouse gas emissions.

The scenarios are described below, and results are illustrated on the subsequent poster board.

1. **Static Per Capita** – For this scenario, it was assumed that the amount of greenhouse gas emissions per person, calculated at 5.3 tonnes CO<sub>2</sub>e in 2007, would remain the same through to 2031. This is the most conservative case, as it is likely that land-use policies, technology, and personal behaviour will cause per capita emissions to decrease over time.
2. **Static Aggregate** – For this scenario, it was assumed that the aggregate community-wide emissions of 380,000 tonnes CO<sub>2</sub>e in 2007 would remain the same through to 2031. Stabilizing overall emissions while experiencing growth in the community may be a challenge, if not offset by other emissions reduction influences.
3. **Provincial Target** – For this scenario, the Provincial targets of 33% from 2007 levels by 2020, and 80% by 2050 were used. These targets drive a 50% reduction target for 2031. This is the most aggressive scenario and may not be appropriate for a growing community.
4. **34/50 Model** – This scenario is a hybrid of the Provincial Target and Static Aggregate scenarios, based on achieving the Provincial targeted reductions, but on a per capita basis, rather than on the aggregate emissions as intended by the Province. **The 34/50 Model is the target that is being proposed for Maple Ridge.**



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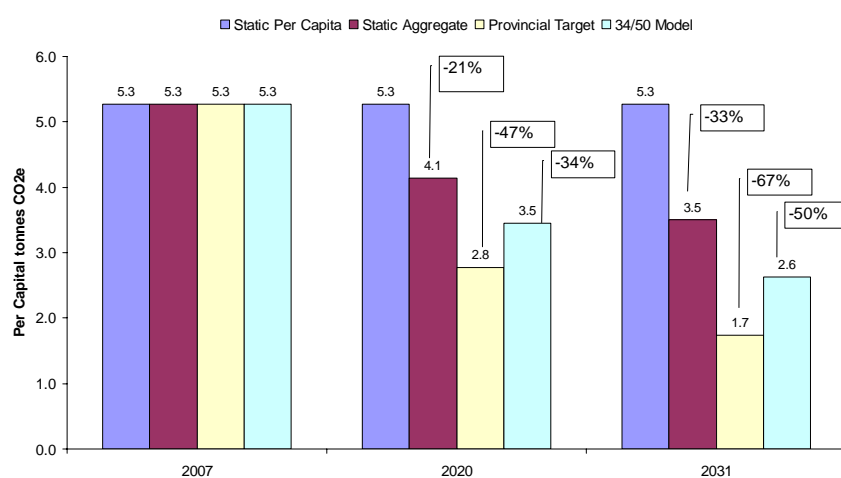
British Columbia

PROPOSED TARGETS

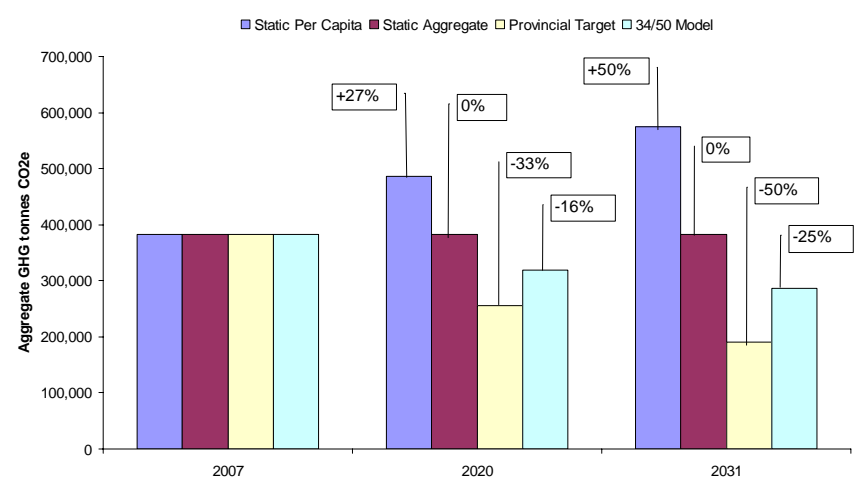
# Proposed GHG Emissions Reduction Targets for Maple Ridge

## Emissions Under 4 Scenarios

### Per-Capita Emissions



### Aggregate Emissions



These graphs show the results of the four scenarios, illustrating the impact each scenario would have on per-capita and aggregate greenhouse gas emissions.

- Static Per Capita** – Under this scenario, overall emissions would rise from 380,000 to 574,000 tonnes CO<sub>2</sub>e by 2031, which is a 50% increase.
- Static Aggregate** – Overall emissions would remain stable, but per capita emissions would need to drop from 5.3 in 2007 to 3.5 tonnes CO<sub>2</sub>e by 2031. This represents a 21% drop by 2020 and 33% by 2031.
- Provincial Target** – Aggregate emissions drop from 380,000 to 190,000 tonnes CO<sub>2</sub>e by 2031, and per capita emissions decrease from 5.3 in 2007 to 1.7 tonnes by 2031. This represents a 47% drop by 2020 and 67% by 2031 per capita.
- 34/50 Model** – As the title implies, the 34/50 model achieves a 34% reduction in per capita emissions by 2020 and a 50% reduction by 2031. In the aggregate, emissions drop by 16.5% by 2020 and 25% by 2031. Selecting the per capita targets removes the population variable from the indicator, which may be more appropriate in a growing community. **The 34/50 Model is the target that is being proposed for Maple Ridge.**



MAPLE RIDGE

British Columbia

PROPOSED TARGETS

# Next Steps

Event	Date
Public Open House	March 4, 2010
Compile and summarize comments from Public Open House	
Prepare OCP Amendment Bylaw & Report to Council	
OCP Amendment Bylaw with Recommendations at Committee of the Whole	March 15, 2010
1 <sup>st</sup> Reading for OCP Amendment Bylaw	March 23, 2010
Public Hearing	April 20, 2010
2 <sup>nd</sup> & 3 <sup>rd</sup> Reading	April 27, 2010
Final Reading	May 11, 2010
Report out to Province	May/June, 2010



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**NEXT STEPS**