Newfoundland Labrador

Overview of Findings: Government's Carbon Footprint Analysis

March 2014

Office of
Climate Change &
Energy Efficiency

Introduction

- **A carbon footprint analysis is a means to assess the amount of greenhouse gas (GHG) emissions released by an organization or for a set of activities**

- **Many large organizations and governments undertake a carbon footprint analysis**

- **Key benefits include:**
  - Increased awareness of environmental impacts of activities
  - Increased knowledge to formulate realistic goals aimed at reducing environmental impacts *(you can't manage what you can't measure)*

Overview of Approach

- **The Office of Climate Change and Energy Efficiency contracted the Department of Finance (Economics and Statistics Branch) to complete a Provincial Government carbon footprint analysis**
  - Includes agencies, boards and commissions
  - Separate analysis was completed for municipal governments at the same time
  - Analyses focuses on energy-related GHG emissions only (excludes waste)

- **Objective of project was to develop a high-level longitudinal analysis of Government's carbon footprint**
  - Provides baseline to inform Greening Government Action Plan as committed to in 2011 Climate Change Action Plan
  - Complements MMSB waste audit of Government buildings

Defining and Categorizing Carbon Emissions

- **Analysis includes three GHG emissions – carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)**
  - Other GHG emissions (sulfur hexafluoride, hydrofluorocarbons and perfluorocarbons) not consumed by Government

- **Analysis includes three categories of emissions as per ISO 14064**
  - Direct sources (Scope 1) – fuel use in buildings, fuel purchases for transportation fleet
  - Indirect electricity emissions (Scope 2) – purchased electricity (e.g., from Holyrood)
  - Other indirect emissions (Scope 3) – purchased services (e.g., leased office space, rental cars, airline tickets, courier services, contracted ferries, etc)

- **For Scope 3 emissions, only indirect emissions from Government's purchase of transportation services can be estimated**
  - Excludes leased space and other non-transportation related purchases

Methodology

- **Analysis based on Statistics Canada Input-Output (I-O) data supplemented with fuel, electricity and administrative data**
  - I-O data available from 1997-2010 (2011 estimated based on 2010 data)
  - Statistics Canada I-O data framework modified in 2009 (data before 2009 not directly comparable to data starting in 2009)

- **Analysis does not meet ISO-14064 standard for carbon footprint analysis**
  - Required data for ISO analysis not organized and readily available within Government, requiring significant time and resources to develop
  - Approach was to develop a high level longitudinal estimate within time and resource constraints
  - Estimates produced are *best available* based on rigorous data analysis techniques used by the Department of Finance for other customized analysis

- **Findings based on 3-year moving averages**
  - Removes one-time events impacting emissions in any given year

GHG Emissions Associated with an Activity Can Vary from Year to Year

- **Longitudinal analysis was developed to examine trends over time, however, various factors may influence emissions in any given year, e.g.:**

Internal Factors

- Periods of budgetary expansion and constraint
- School, hospital and other facility construction and re-organization
- Investments in the vehicle fleet and ferries
- Changes in service delivery (e.g., use of leased space, contracted services)

External Factors

- Annual variability in temperature and snowfall*
- Changes in private sector commercial and industrial electricity demand*
- I-O data constraints (i.e., series break in 2009, preliminary data for most recent years)

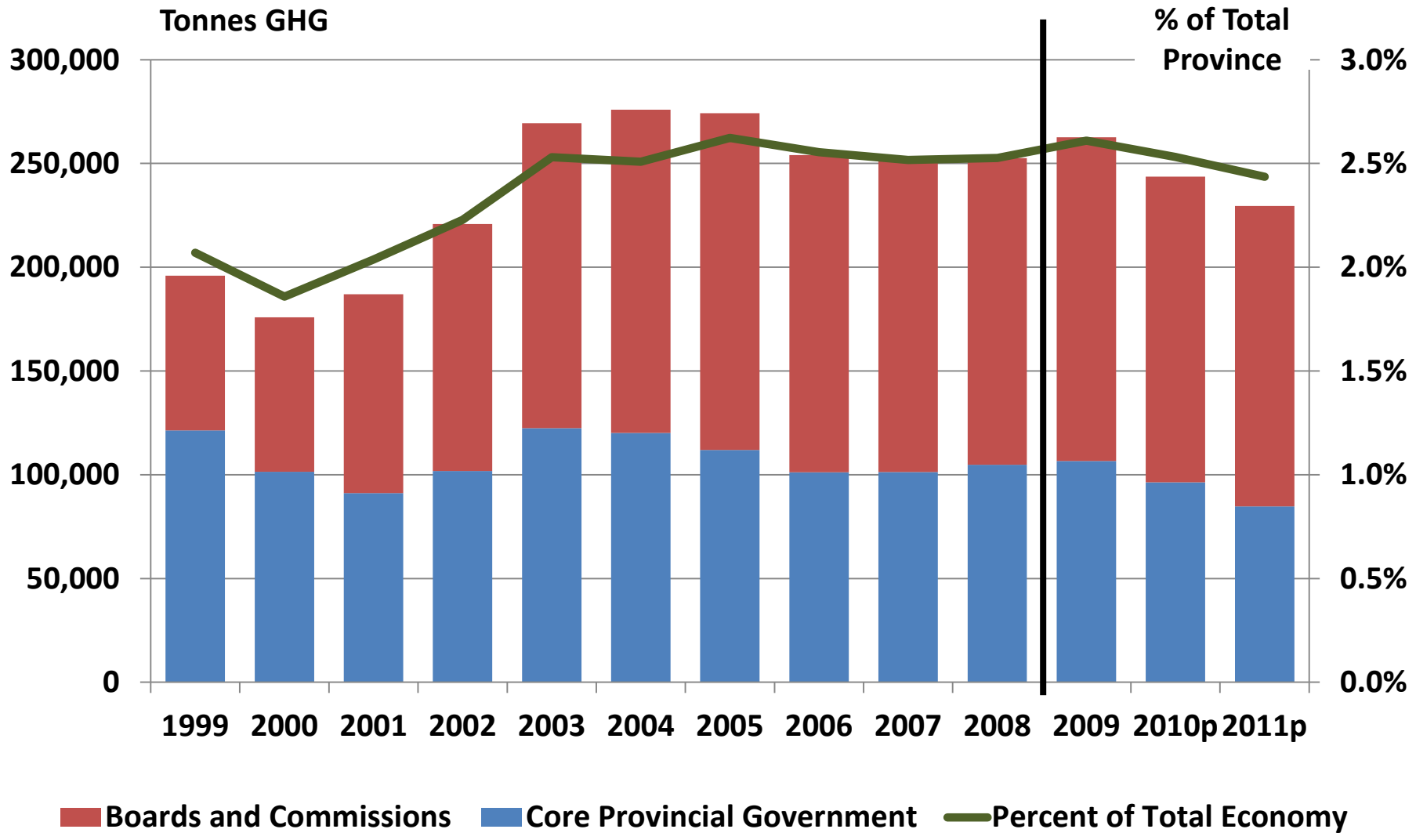
** Electricity purchases from Holyrood (Scope 2 emissions) are dependent on, among other factors, winter temperatures and demand from industrial customers*

Key Findings
Total Provincial Government*

- **GHG emissions grew from late 1990s to early 2000s**
  - Averaged 186,000 tonnes from 1999 to 2001
- **GHG emissions peaked in early to mid 2000s**
  - Averaged 273,000 tonnes from 2003-2005
- **GHG emissions now 10% lower than peak**
  - Averaged 245,000 tonnes over last 3 years
  - Driven, in part, by lower output at Holyrood (warmer winters, lower industrial demand)
  - I-O methodological change may also impact the findings starting in 2009
- **Share of Provincial Government GHG emissions relatively stable at about 2.5% of total provincial emissions since 2003**

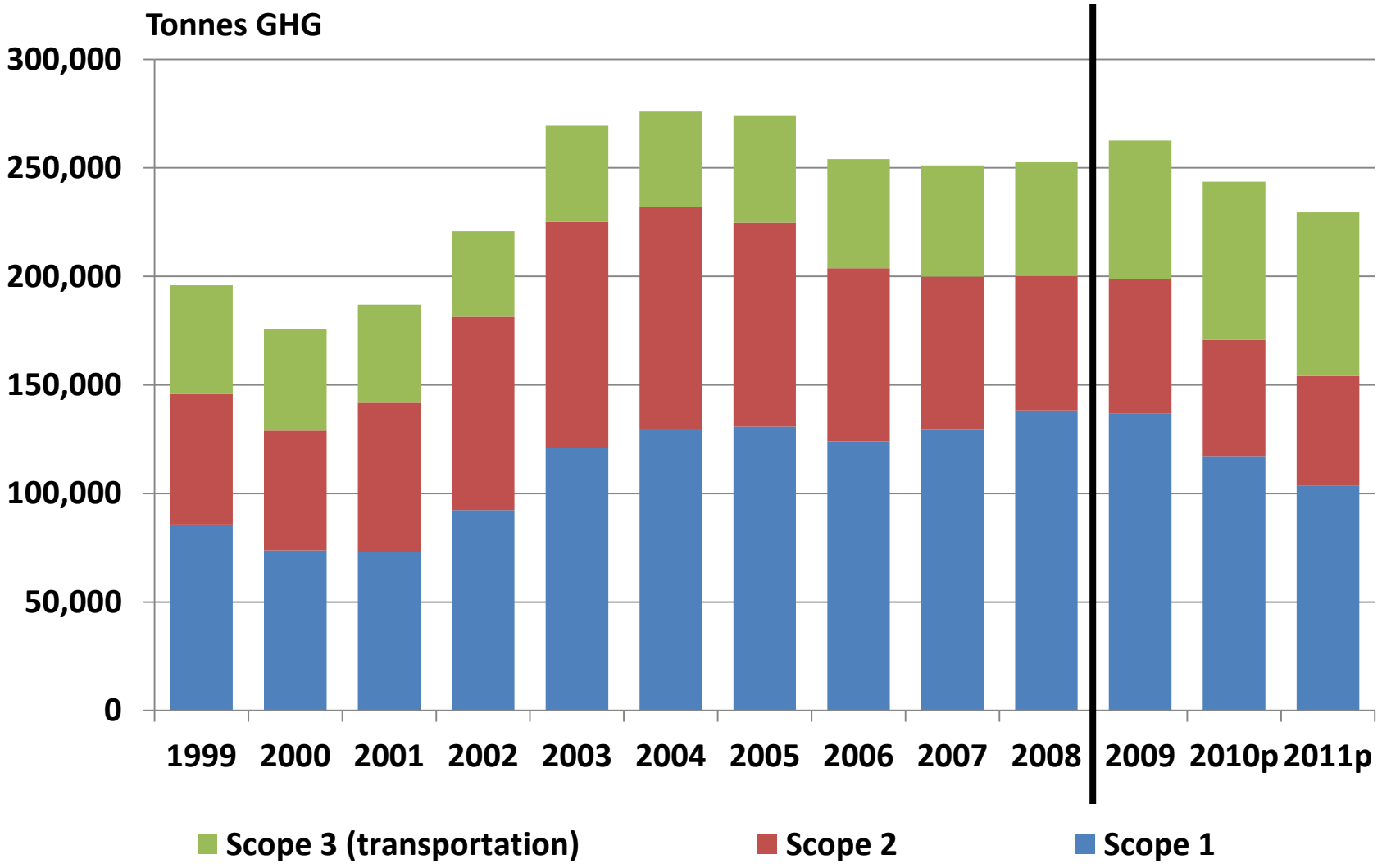
*** Includes core departments plus boards and commissions**

Total Provincial Government *
Carbon Footprint Analysis by Entity



* Includes core departments plus boards and commissions

Total Provincial Government*
Carbon Footprint Analysis by *Scope*



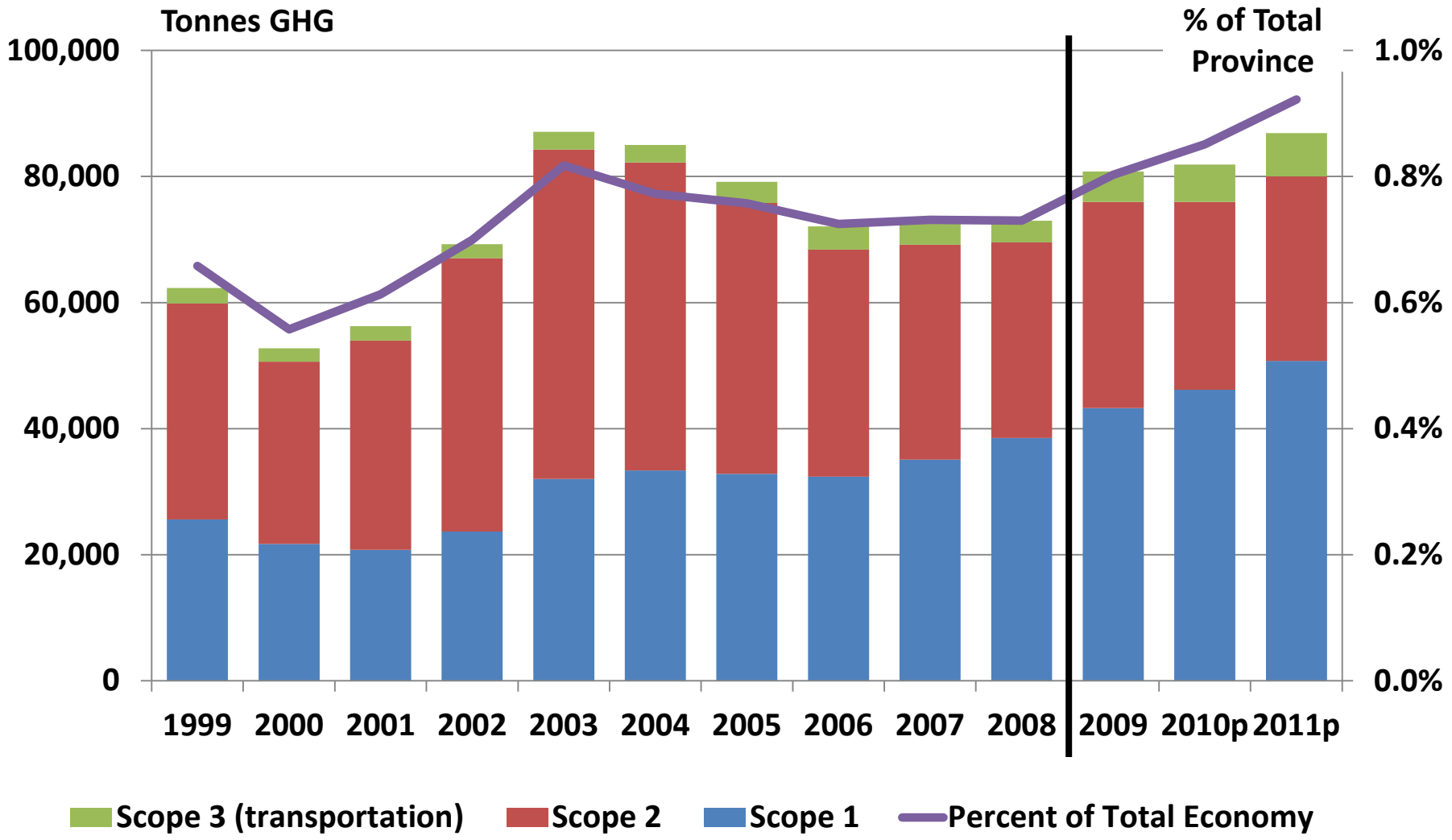
* Includes core departments plus boards and commissions

Key Findings:
Municipal Governments*

- **GHG emissions grew from late 1990s to early 2000s**
  - Averaged 57,000 tonnes from 1999 to 2001
- **GHG emissions first peaked early to mid 2000s**
  - Averaged 84,000 tonnes from 2003-2005
- **GHG emissions peaked again starting in 2009**
  - Averaged 83,000 tonnes from 2009 to 2011
- **Share of municipal government GHG emissions currently in range of 0.9% of total provincial emissions since 2003**

*** Excludes Metrobus**

Municipal Governments
Carbon Footprint Analysis by *Scope*



Conclusions

- **Data suggests that Provincial Government GHG emissions are declining**
  - Positive impacts from improved building construction and operating practices, and improved vehicle efficiencies
  - Assisted by milder winters and reduced industrial demand for electricity

- **Data suggests that municipal governments' carbon footprint is increasing**
  - Absolute numbers are smaller, so change over time is relatively small
  - Trend line analysis complicated – service delivery in municipalities is subject to change over time (e.g., garbage collection, snow clearing)

- **Findings provide a baseline to monitor GHG emissions over time**
  - There is uncertainty as to what changes to I-O data framework will mean to longer term trends
  - The closure of Holyrood in 2017 will further reduce Government's carbon footprint