Successfully Bridging the Science-Policy Gap: the BC carbon policy experience and needs

Dennis Paradine
BC Ministry of Environment
Climate Action Secretariat
January 28, 2014

Presentation to North American Carbon Partnership

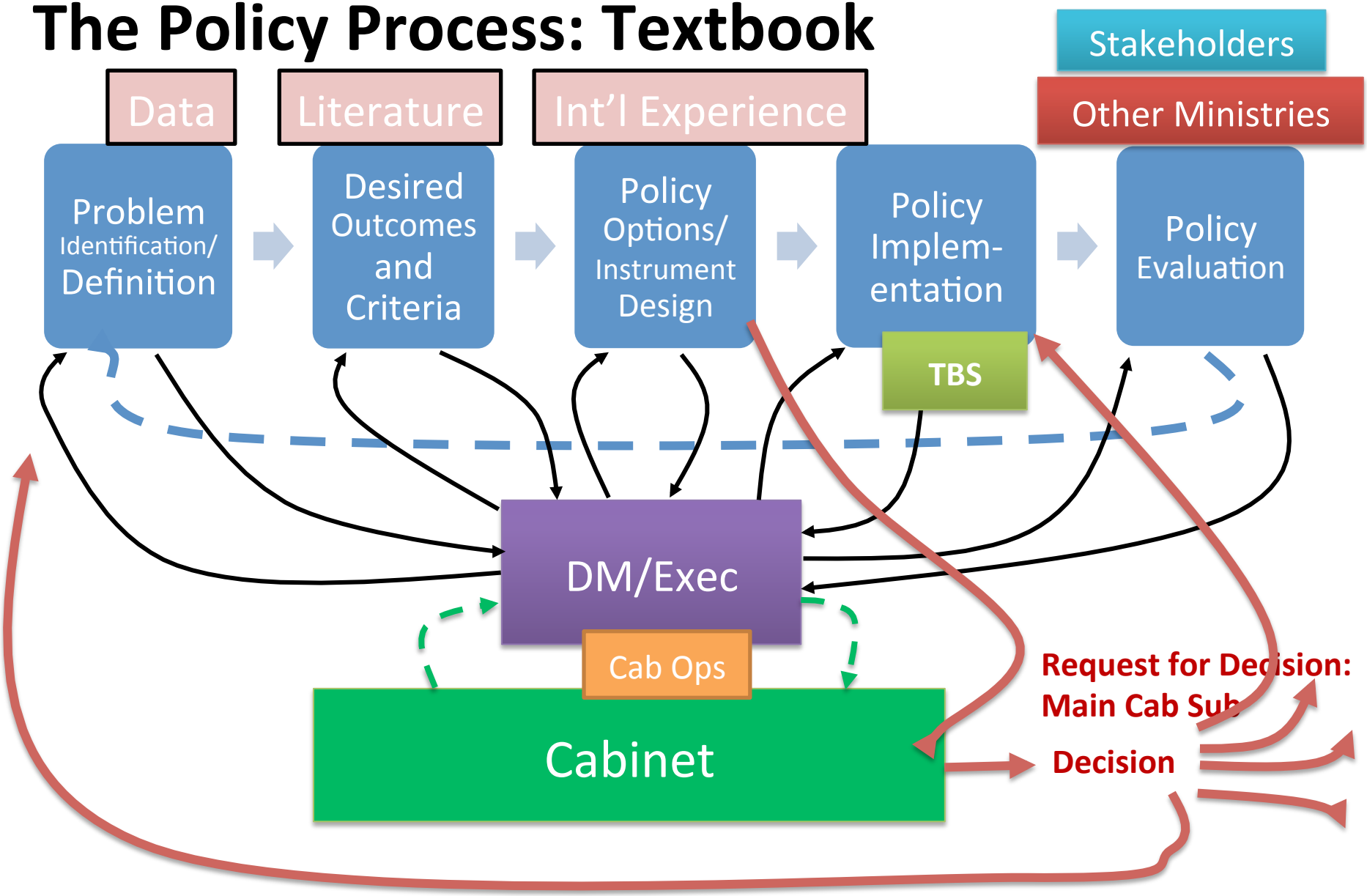
BRITISH COLUMBIA

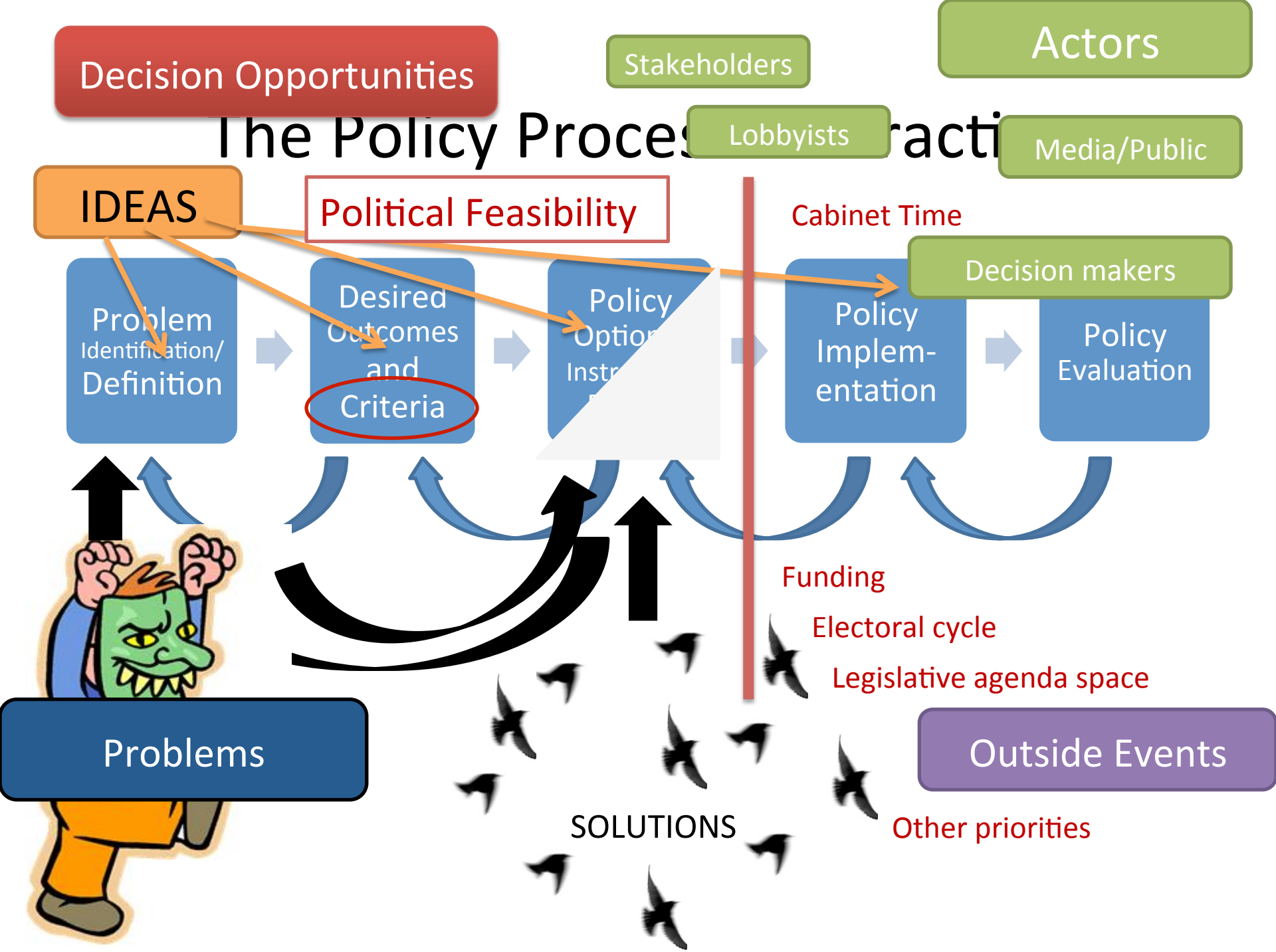
What is Science, what is policy?

- **Science** – factual, detailed, many sub disciplines, testing of hypotheses, development of theories, takes time, needs to be independent, journal publications, peer reviewed, economics.

- **Policy** – interdisciplinary, generalized, evaluation of options, briefings, responds to political direction, science, consultation, stakeholders, briefings, direction, rapid response, lobbying, economics.

The Policy Process: Textbook




Decision Opportunities
Stakeholders
Actors
The Policy Proces
ract
Lobbyists
Media/Public
IDEAS
Political Feasibility
Cabinet Time
Decision makers
Problem Identification/ Definition
Desired Outcomes and Criteria
Policy Option
Instr
Policy Implem-entation
Policy Evaluation
Funding
Electoral cycle
Legislative agenda space
Problems
Outside Events
SOLUTIONS
Other priorities

Decision Opportunities

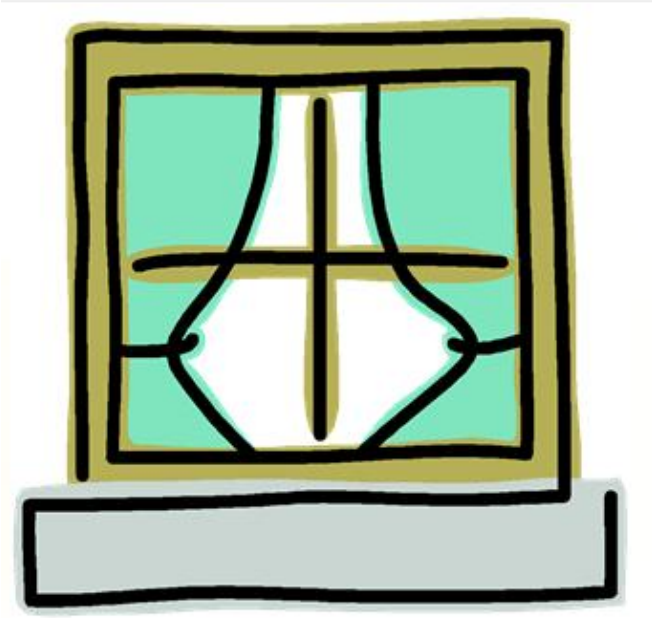
Stakeholders

Actors

Media/Public

IDEAS

Decision makers



Policy Windows

Problems

Outside Events

BRITISH COLUMBIA

Government of British Columbia

Citizen's Conservation Council

Cabinet's Committee for Climate Action

Climate Action Team

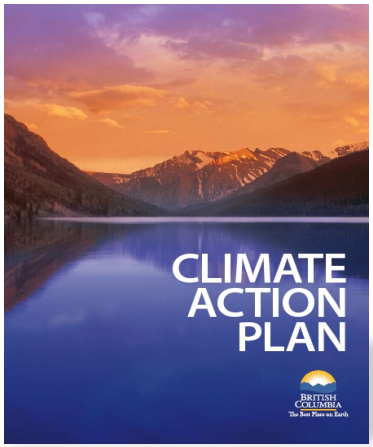
Climate Action Secretariat

Partners

- Business/Industry
- Local Government
- Western Climate Initiative
- The Climate Registry
- Int'l Carbon Action Partnership
- Federal Govt

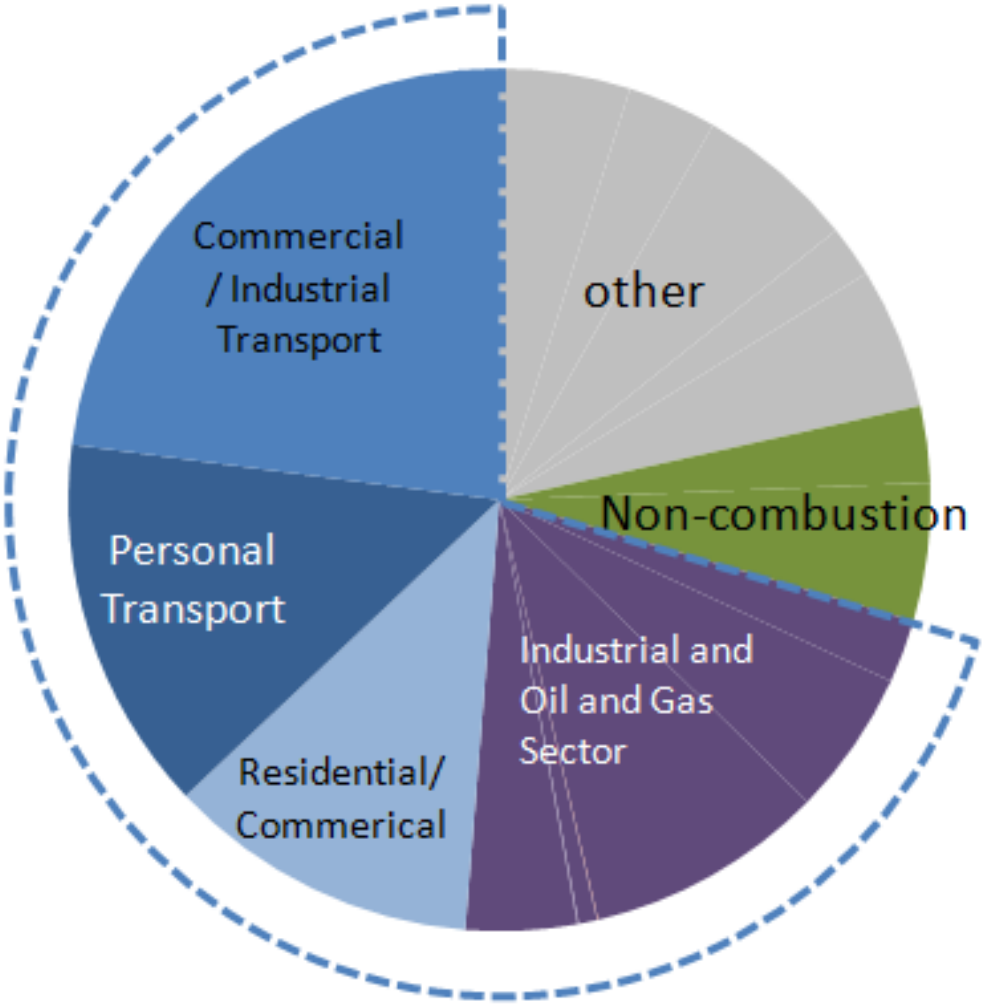
Outreach

- Schools
- Public Sector
- Youth
- Labour
- Business/Industry
- Faith
- ENGOs
- Local Government

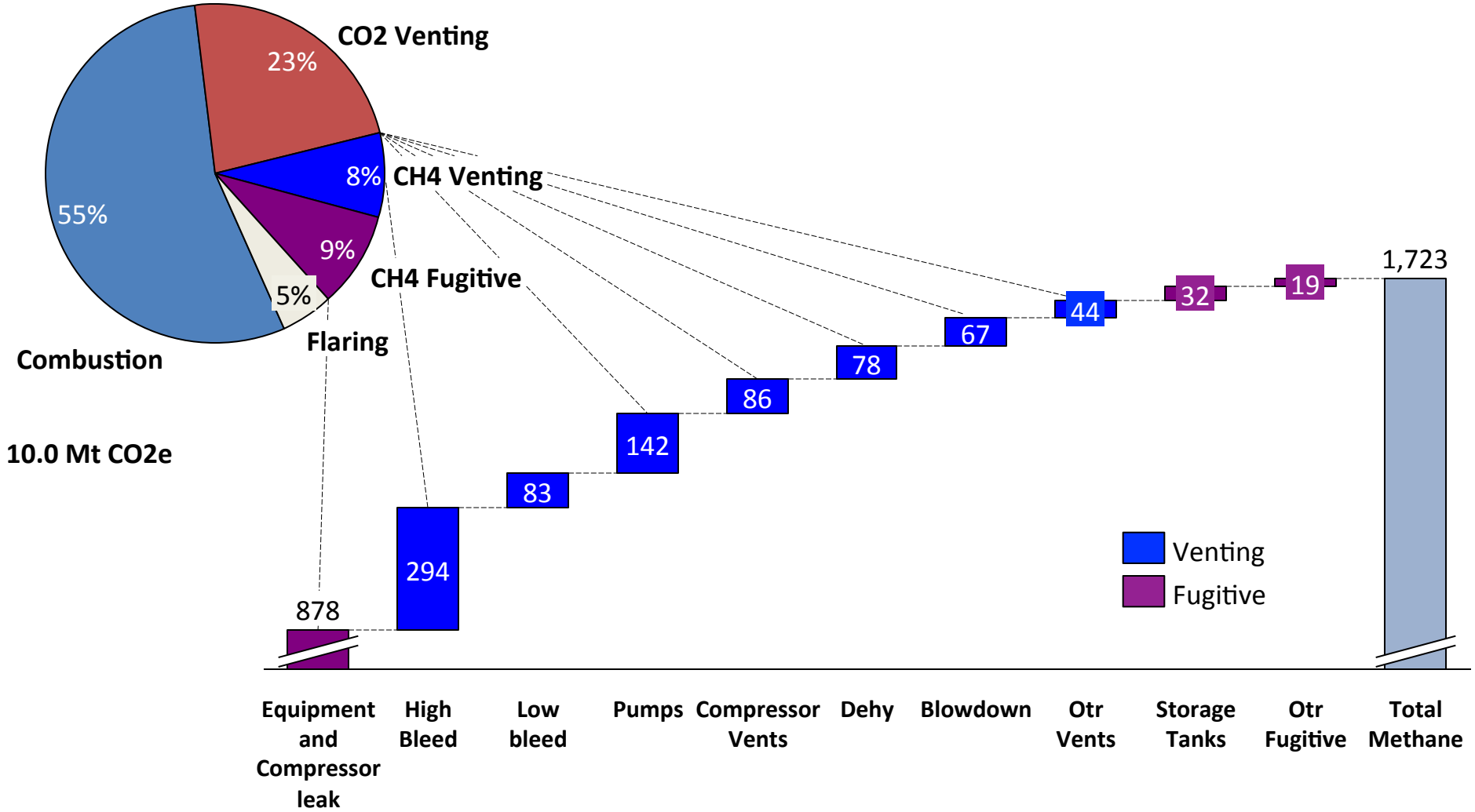


BC's revenue neutral carbon tax

- Foundational policy for energy efficiency, conservation, fuel switching, innovation
- Covers 70% of BC's emissions
- Implemented in 2008 at $10/ tonne CO_2e
- 5 year schedule of $5/tonne annual increases (price certainty)
- $30/tonne as of July 1, 2012, no further increase planned
- Uniform price per tonne
- Applies to fossil fuel combustion, peat, tires



BC Oil and Gas Vented and Fugitive Methane Emissions



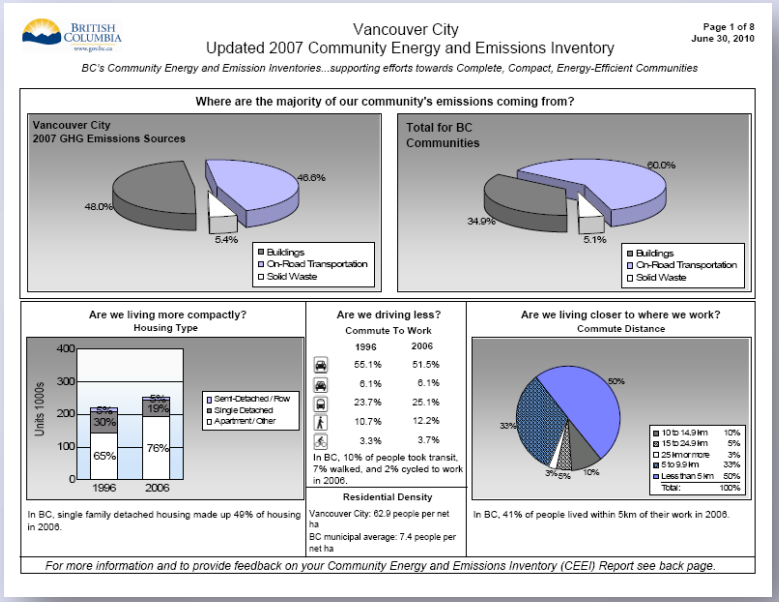
http://www.env.gov.bc.ca/cas/mitigation/ggrcta/reporting-regulation/emissions-reports-qa.html

Community Energy and Emissions Inventories

Core Sectors
- Buildings
- Transportation
- Solid Waste

Memo Items
- Agriculture
- Deforestation
- Large Industrial Buildings

Supporting Indicators
- Housing Type
- Commute Mode
- Commute Distance
- Residential Density
- Parks and Protected Areas



CEEI GOAL: continuous improvement

Pacific Institute for Climate Solutions
Knowledge. Insight. Action.

Phase II-Major Research Projects (January 2014 onwards):

- The 2060 Project: Integrated Energy System Pathways for British Columbia and Canada
- The Scale of Natural Gas Development and Maximizing Net Social Benefits
- Transportation Futures for BC
- Energy Efficiency in the Built Environment
- The Forest Carbon Management Project

University of Victoria | SFU Simon Fraser University Engaging the World | UBC a place of mind The University of British Columbia | UNBC University of Northern British Columbia

Pacific Climate Impacts Consortium: Climate science with a regional focus

DATA DELIVERY

USER NEED: ENABLE THE OPEN EXCHANGE OF PAST AND FUTURE CLIMATE AND HYDROLOGIC DATA IN A VARIETY OF DATA FORMATS

Since 2008, PCIC has worked to establish data provision as a core service. At one time available only as an on request service, we have begun to fully automate complex data delivery on the PCIC website. This allows users to access both point and gridded data on demand for any purpose.

PAST OBSERVATIONS

PCIC STATION DATA PORTAL

370 million weather observations collected at more than 6700 BC locations available on a web portal and updated in "near real time."

HISTORICAL BASELINE CLIMATE AVERAGES

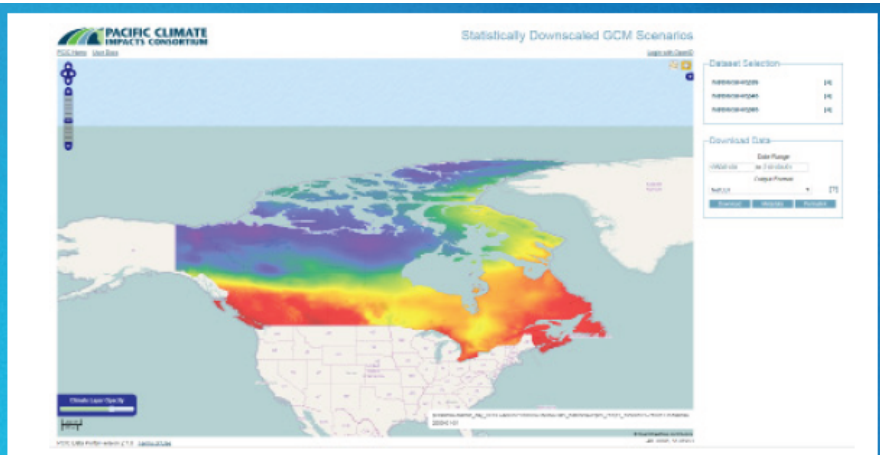
HIGH RESOLUTION PRISM CLIMATOLOGY

Expertly produced very high (800m) resolution 30-year averages of temperature and precipitation representing our best estimates of normal climate conditions in BC in visual representations of climate variables as well as numerically in the form of quantitative climatological data

FUTURE PROJECTIONS

STATISTICALLY-DOWNSCALED SCENARIOS OF FUTURE CLIMATE CHANGES

Statistical Downscaling is a core PCIC service; now users can access numerous downscaled scenarios online to conduct their own analyses of the impacts of future change. Global and regional climate change simulations from the international climate modelling community are downscaled to a 10-km resolution for all of Canada using a variety of well tested methods.



USER INTERFACE OF THE STATISTICALLY DOWNSCALED CLIMATE SCENARIOS PAGE
This image shows one of the pages that make up our Data Portal. With an easy to use, point-and-click interface, users can quickly access data for their region(s) of interest.

HYDROLOGIC PROJECTIONS

HYDROLOGIC MODEL OUTPUT

Scenarios of future surface water resources for the Fraser, Peace, upper Columbia and Campbell River basins can be accessed. This data is available in both gridded format (e.g. snow water equivalent) at 1/16-degree resolution and point format (e.g. streamflow) for select locations.

PROJECTIONS OF EXTREMES

STATISTICALLY DOWNSCALED EXTREMES

A further addition to the Data Portal that we will be able to offer to users in the coming year is a service to provide scenarios of future changes in extremes using the so-called ETCCDI extremes indices. PCIC provides scenarios of future changes in a wide range of indices of temperature and precipitation at high spatial resolution.

PACIFIC CLIMATE IMPACTS CONSORTIUM

http://www.pacificclimate.org

How do science and policy best work together?

- Science provides the essential foundation for good policy. Pure, long term science needs to occur and then be translated into policy relevant material.
  - e.g. MAC curve libraries, estimation and quantification standards, reduction of uncertainties, standard economic analysis methods
- Policy timeframes can be very short. 1 hour or ½ day turnaround can occur and the best information on hand or that can be accessed with 1 or 2 phone calls to experts must be used
- The policy analyst may know little about the subject area – the information must be at a level that a generalist can understand and act upon

Science / Policy Interface Success: Learnings

1. It is about the how, not necessarily the what
2. The BC scientific community was accessed early in the policy development process and included some excellent communicators
3. The policy community included multiple staff with high level scientific and economic backgrounds

Common language, relationships, engagement, communication, shared purpose, endowment, understanding, responsiveness.

Key Science Questions Outstanding – from a BC Policy Perspective

1. **Forest carbon:** valuation of forest carbon with new accounting rules, growth and yield changes with climate change, soil carbon, forest fire intensities
2. **Oil and gas:** top-down vs. bottom up, distribution of emissions from given sources, surface case venting, gas migration, old emission factors
3. **Economics:** open normalized MAC library for actions, economic impacts of valuation of forest carbon and various policies, cost-benefits for different forms of urban design, carbon divestment risk / risk management.
4. **Others:** impact of carbon pricing throughout all government decisions, blue carbon, permafrost, changes in energy flows with grid electricity storage, electric vehicles, reduced costs for renewables.