



Climate Change Central

# TAKING ACTION ON CLIMATE CHANGE IN ALBERTA

Cold Climate Construction  
Conference and Expo

April 16, 2007

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# C3 BACKGROUND

- **A not-for-profit private-public partnership**
- **Core staff of 21 in Calgary and Edmonton**
- **Multi-stakeholder board**



# C3's ROLE

- **Work on climate change solutions**
- **Deliver effective programs**
- **Take action**
- **Partner**
- **Provide innovation**
- **Align initiatives to Alberta's and the federal government's plans**
- **Leverage**



# IMPLEMENTING C3's ROLE

- **Providing Leadership**
  - to encourage action in Alberta on climate change
  - to develop climate change partnerships and alliances
- **Providing Strategic Intelligence**
  - to identify climate change priorities and appropriate policy frameworks
  - to assist with technology and market opportunities
- **Providing Outreach**
  - to increase public awareness of the issue
  - to communicate Alberta's accomplishments and solutions available



# Areas of Focus

- Energy Efficiency and Conservation
- Emission Trading and Offsets
- New Technology Demonstration and Piloting and Promotion
- Consumer and Corporate Outreach
- Enabling Stewardship

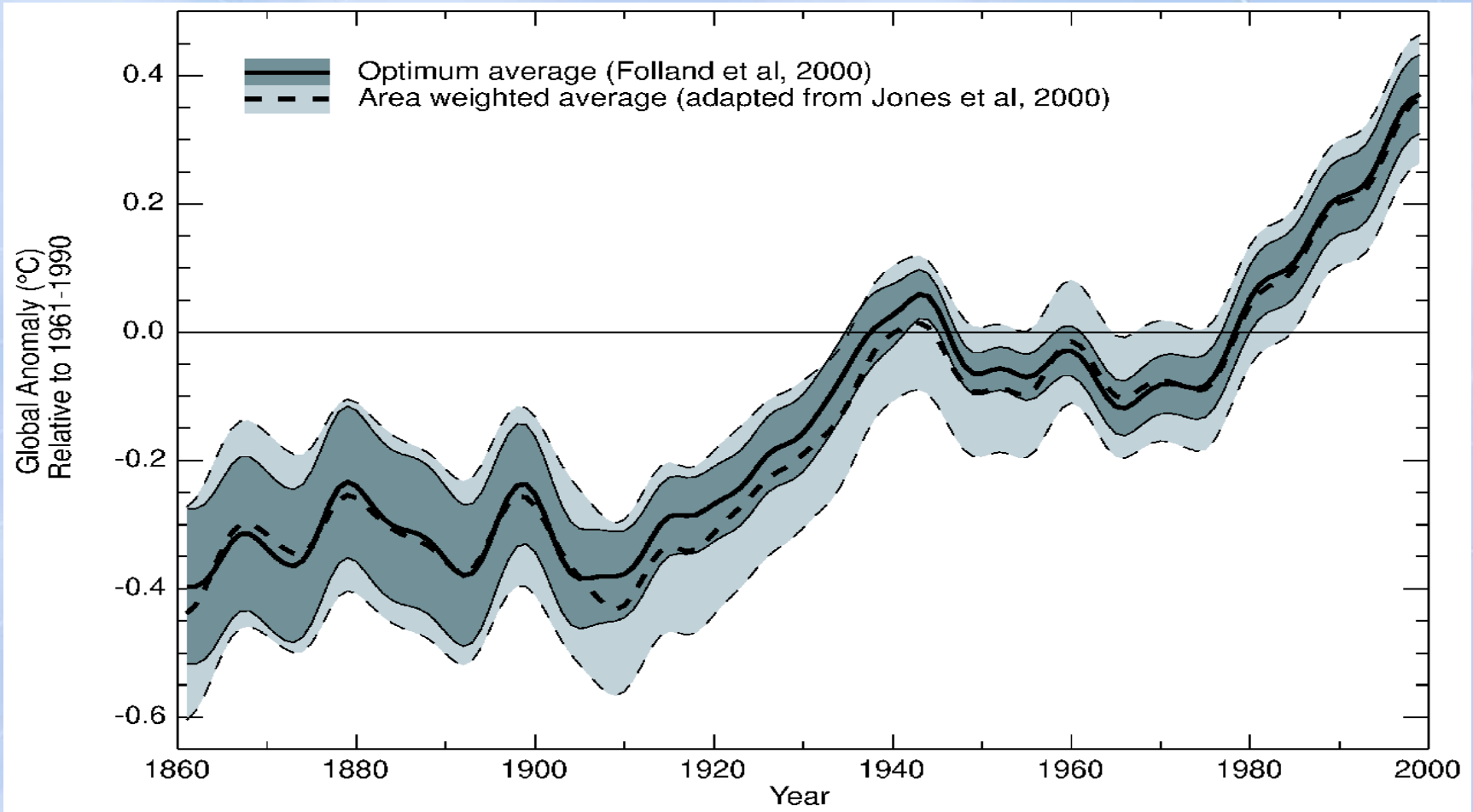


# ENABLING STEWARDSHIP

- Canada Green Building Council, Alberta Chapter
- The Net Zero Energy Home Coalition
- Alberta Energy Efficiency Alliance (in development)
- The Ecosolar Home Tour
- The Sustainable Building Symposium
- National Offsets Quantification Team
- Industry Province Offsets Working Group
- Emerald Awards

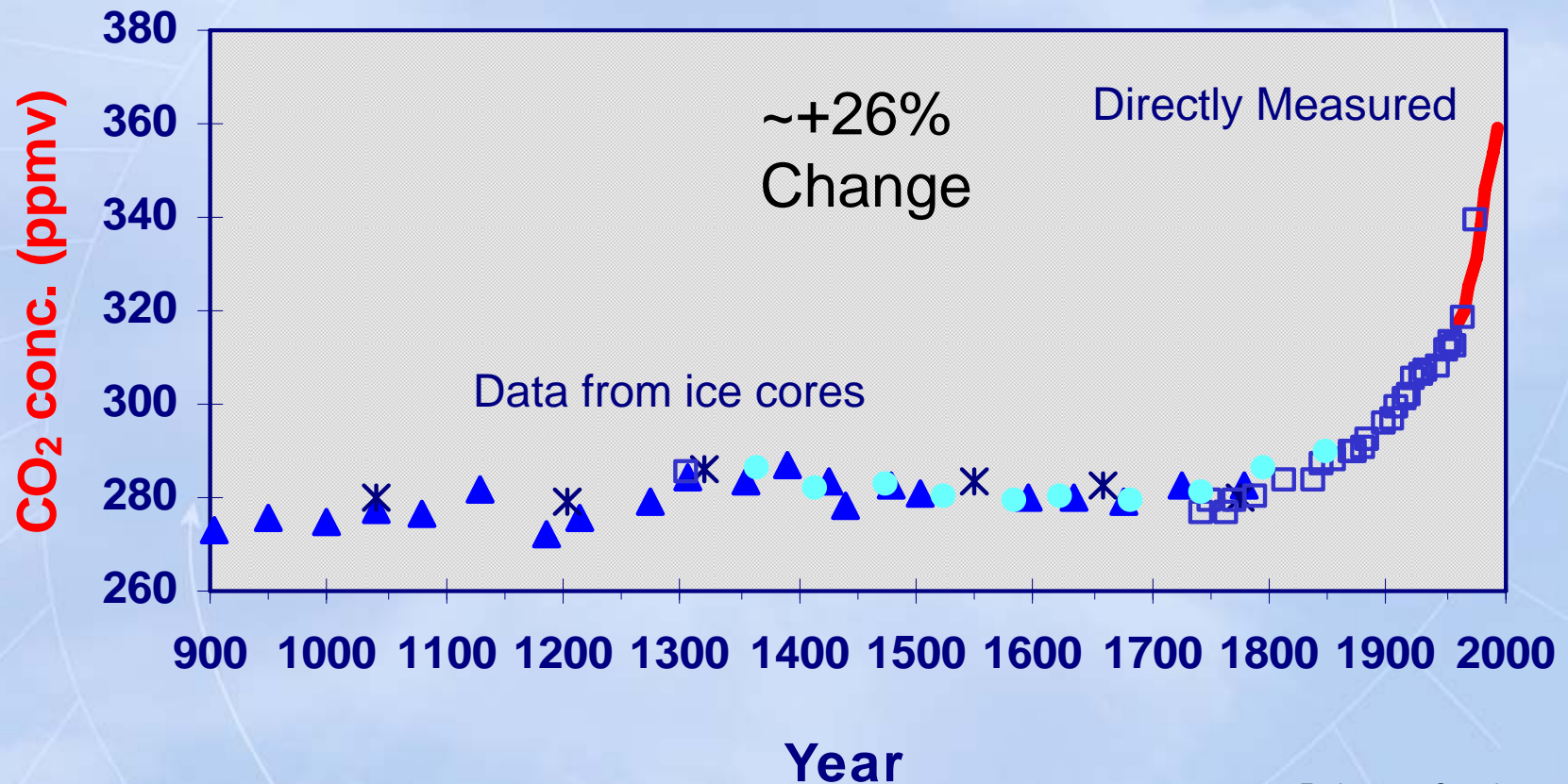


# GLOBAL TEMPERATURE CHANGE



IPCC,

# CO<sub>2</sub> CONCENTRATIONS



Environment Canada

# Climate Change Impacts

## Heat



Corbis/Magnum



Climate Change Central

# Climate Change Impacts

## Storm Events



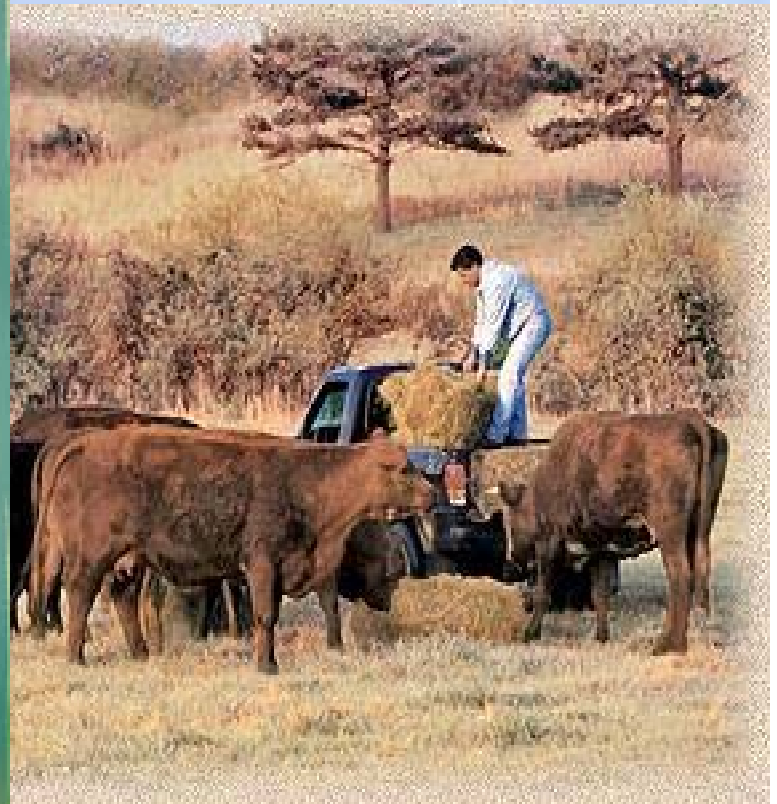
# Climate Change Impacts

## Wind



# Climate Change Impacts

## Droughts

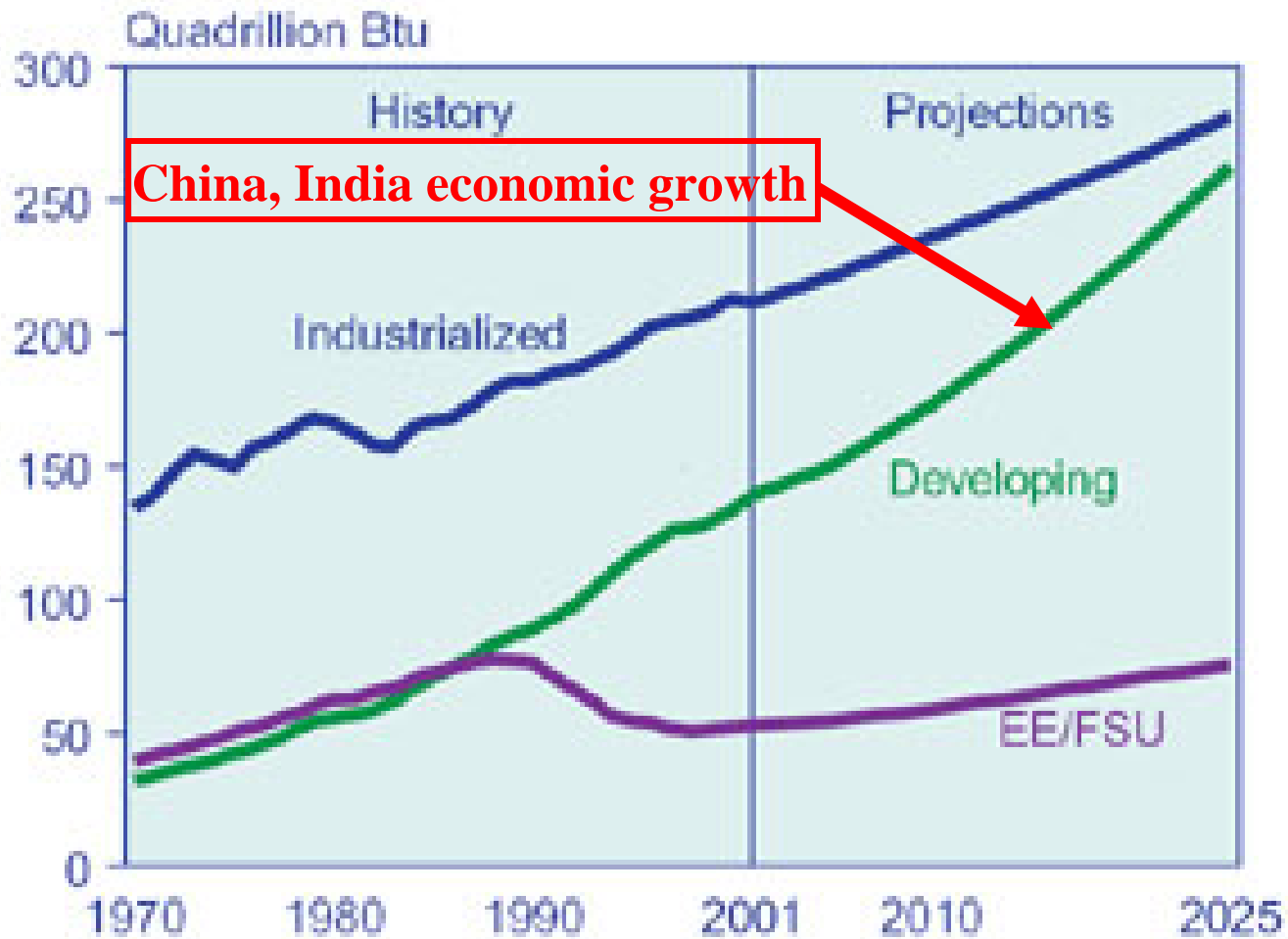


# ADDITIONAL ISSUES

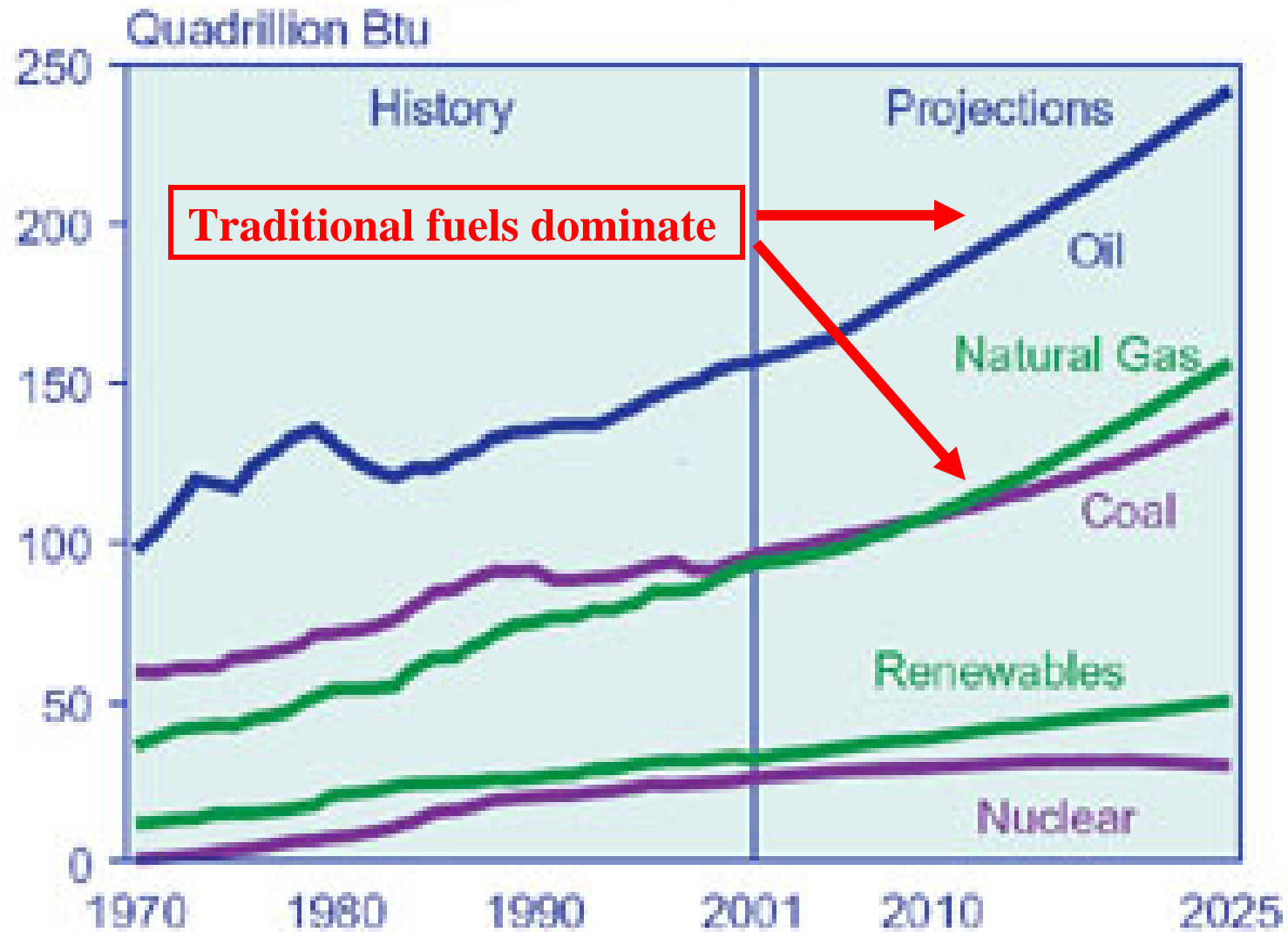
Figure 12. World Primary Energy Consumption, 1970-2025



**Figure 13. World Energy Consumption by Region, 1970-2025**

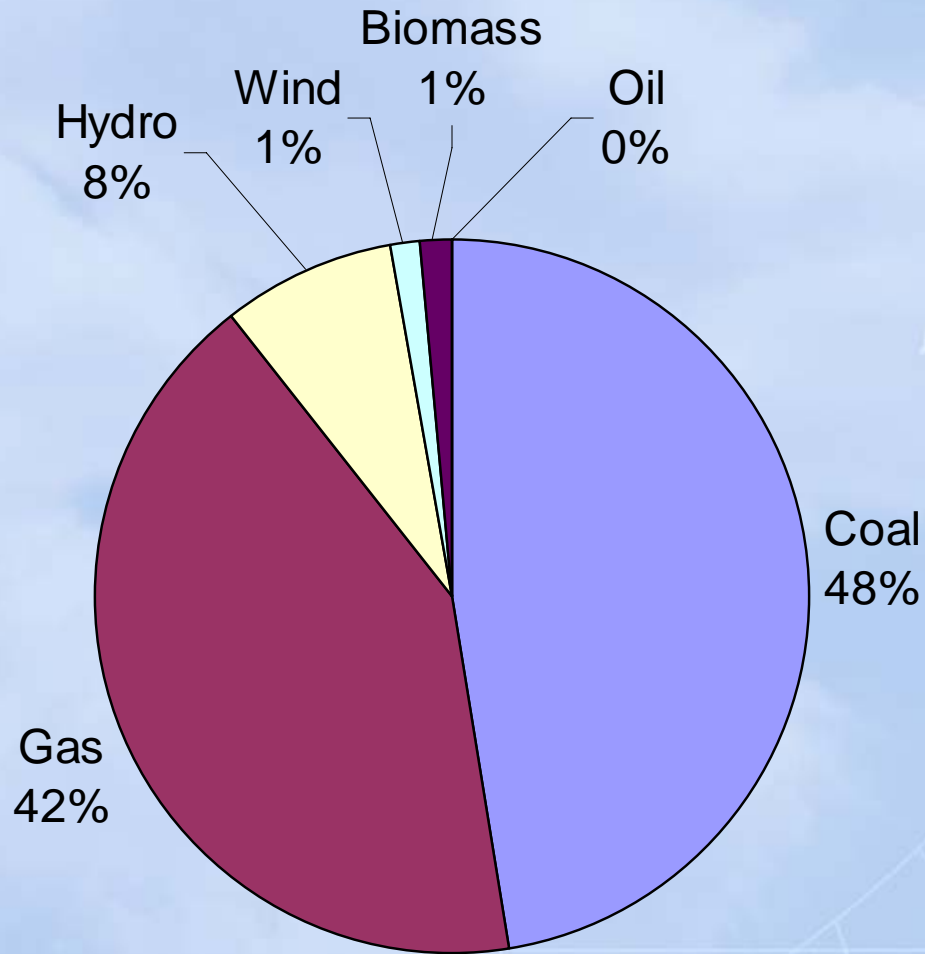


# Figure 14. World Primary Energy Consumption by Energy Source, 1970-2025





# ALBERTA ENERGY SOURCES



Source: Alberta Energy (2004)





# THE ALBERTA CONTEXT

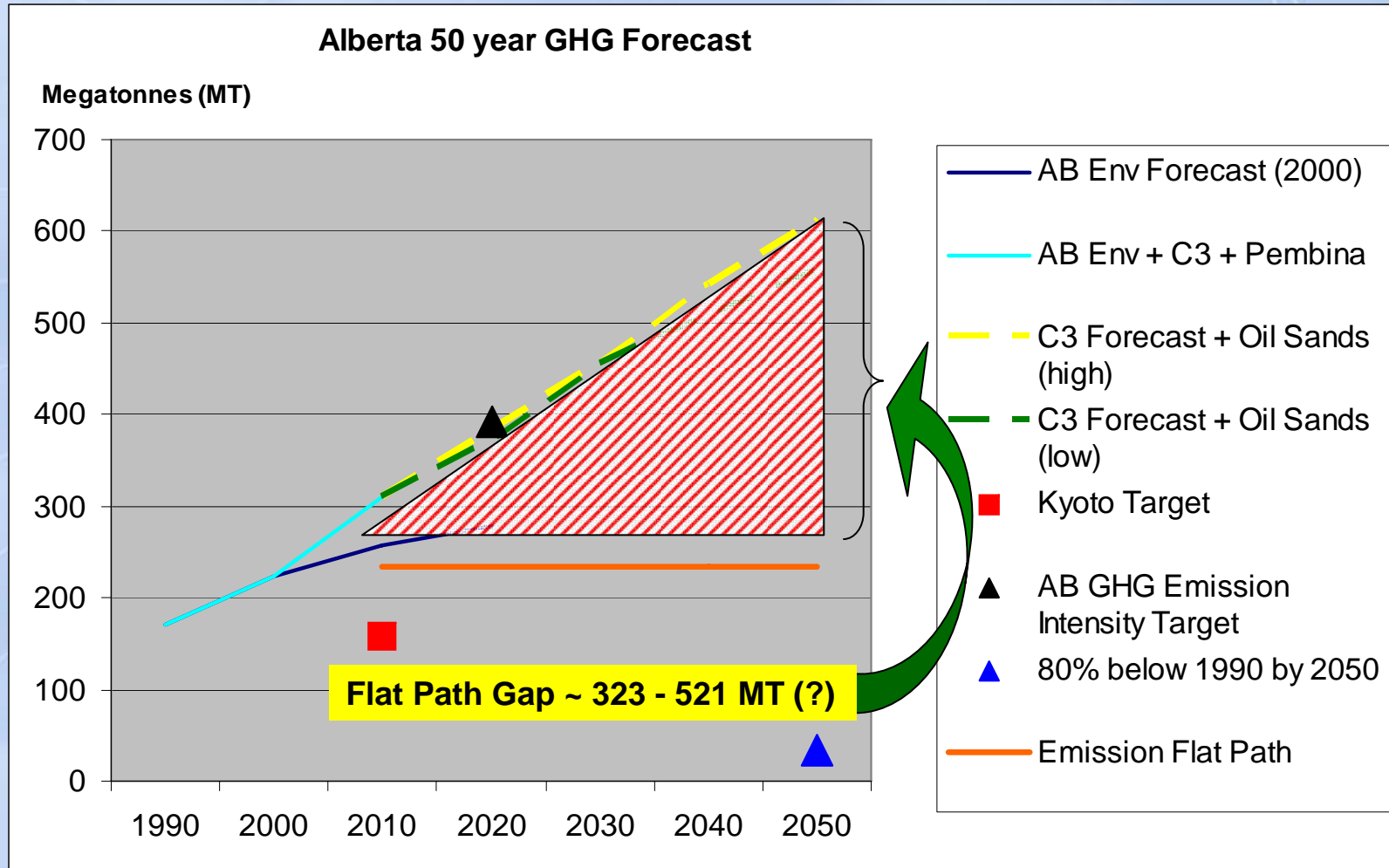
Energy Source for Electricity Generation	Canadian Average (2000)*	Alberta (2001)**
Coal	19%	67%
Natural Gas	5%	30%
Hydro	61%	2%
Nuclear	12%	0%
Oil	2%	9%
Other	1%	<1%

•Source: Canadian Electricity Association

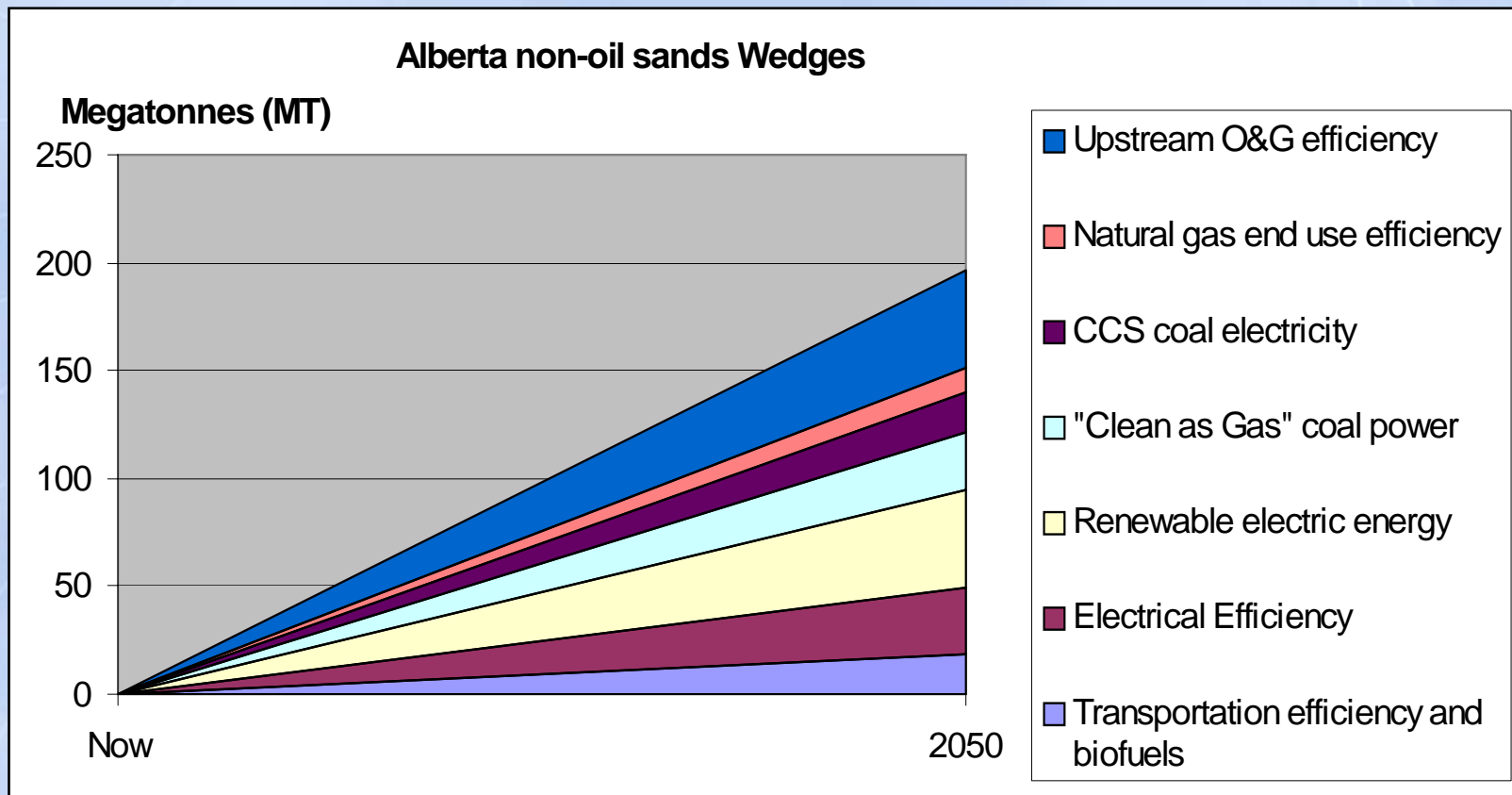
•\*\* Source: Alberta Energy (Jan. 2002)



# ALBERTA 50 YEAR GHG FORECAST

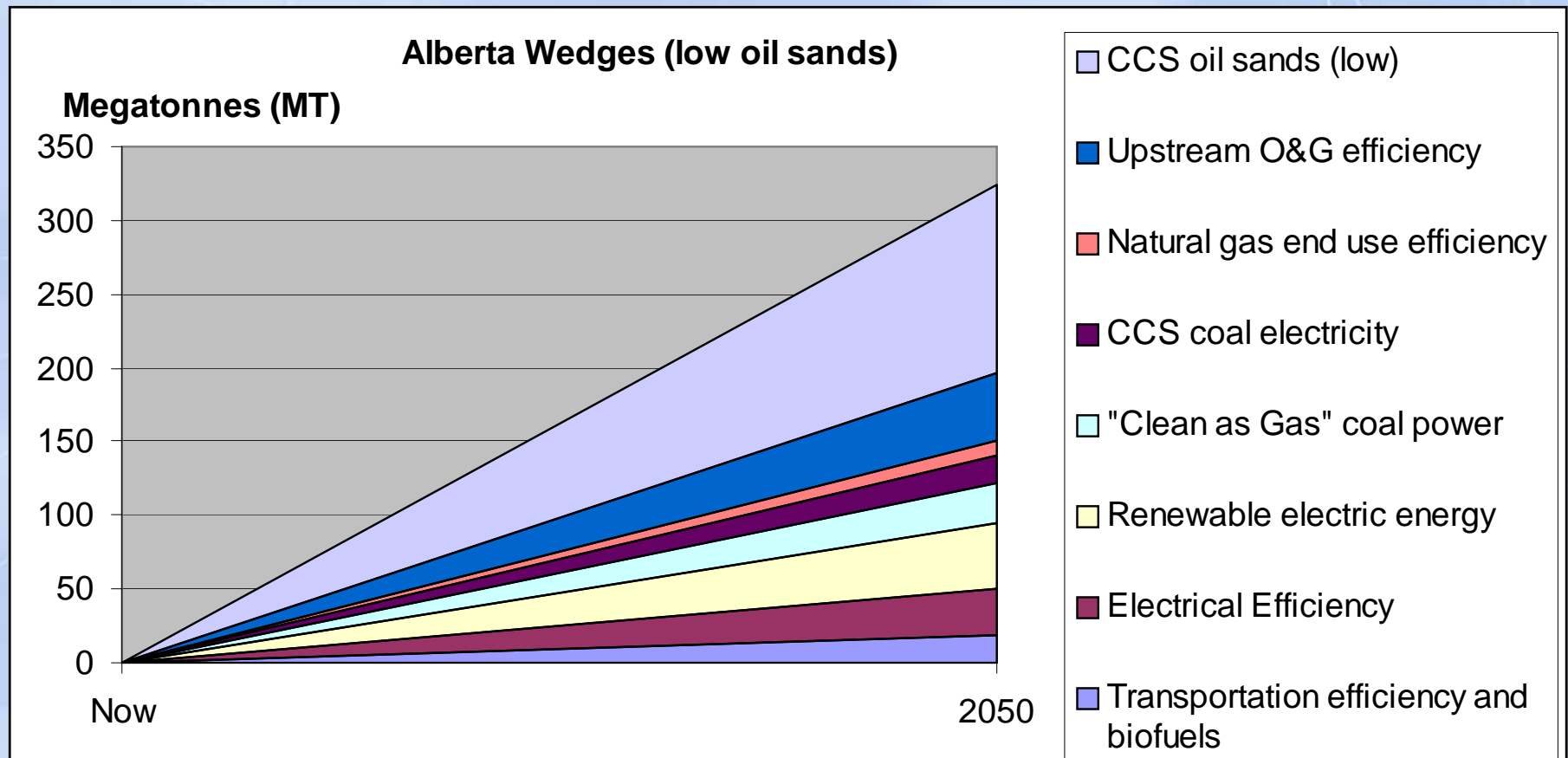


# ALBERTA NON-OIL SANDS WEDGES (preliminary)



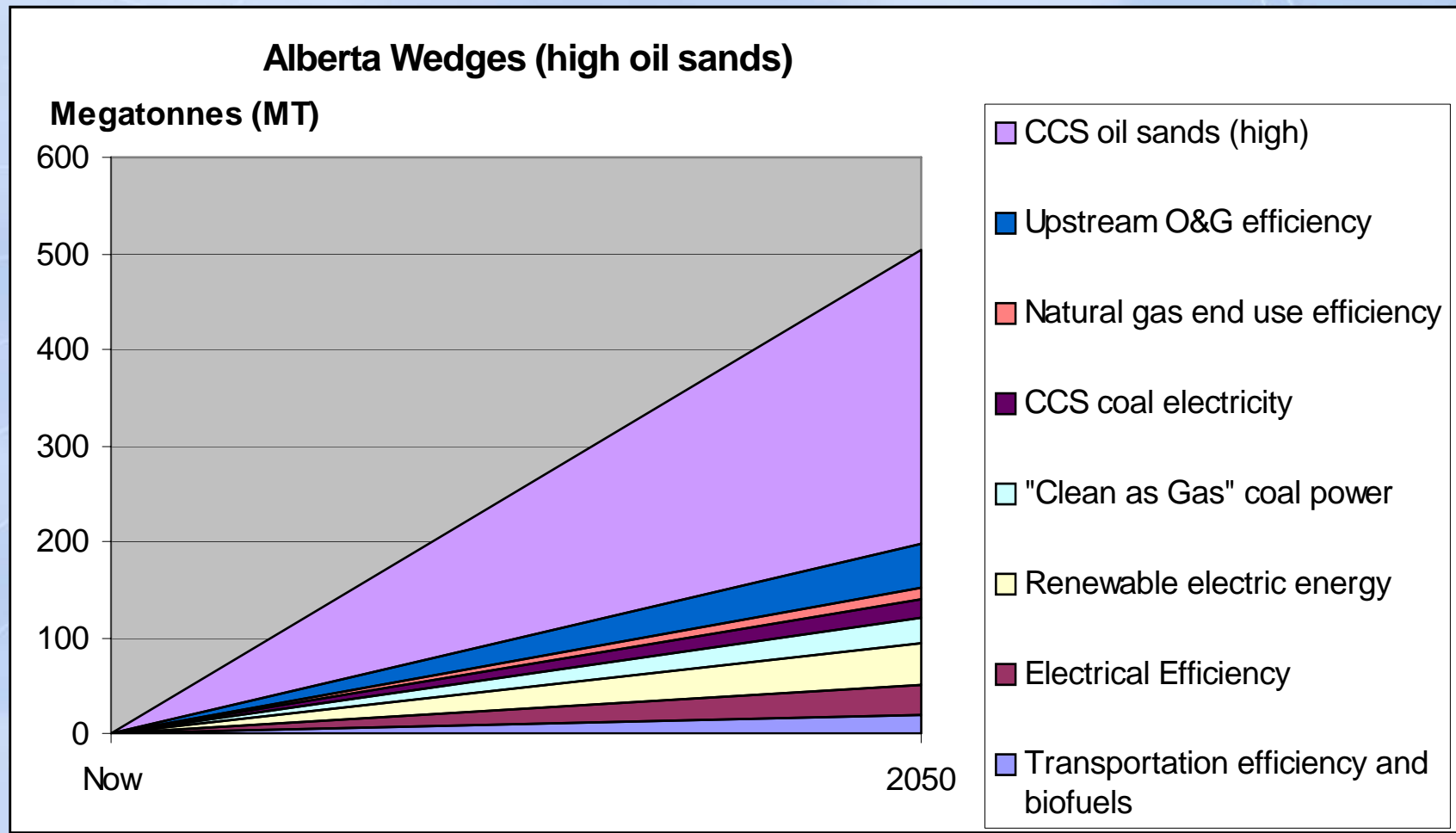
*Disclaimer: All numbers are preliminary and have not been reviewed or finalized.*

# ALBERTA WEDGES SCENERIO (LOW OIL SANDS)

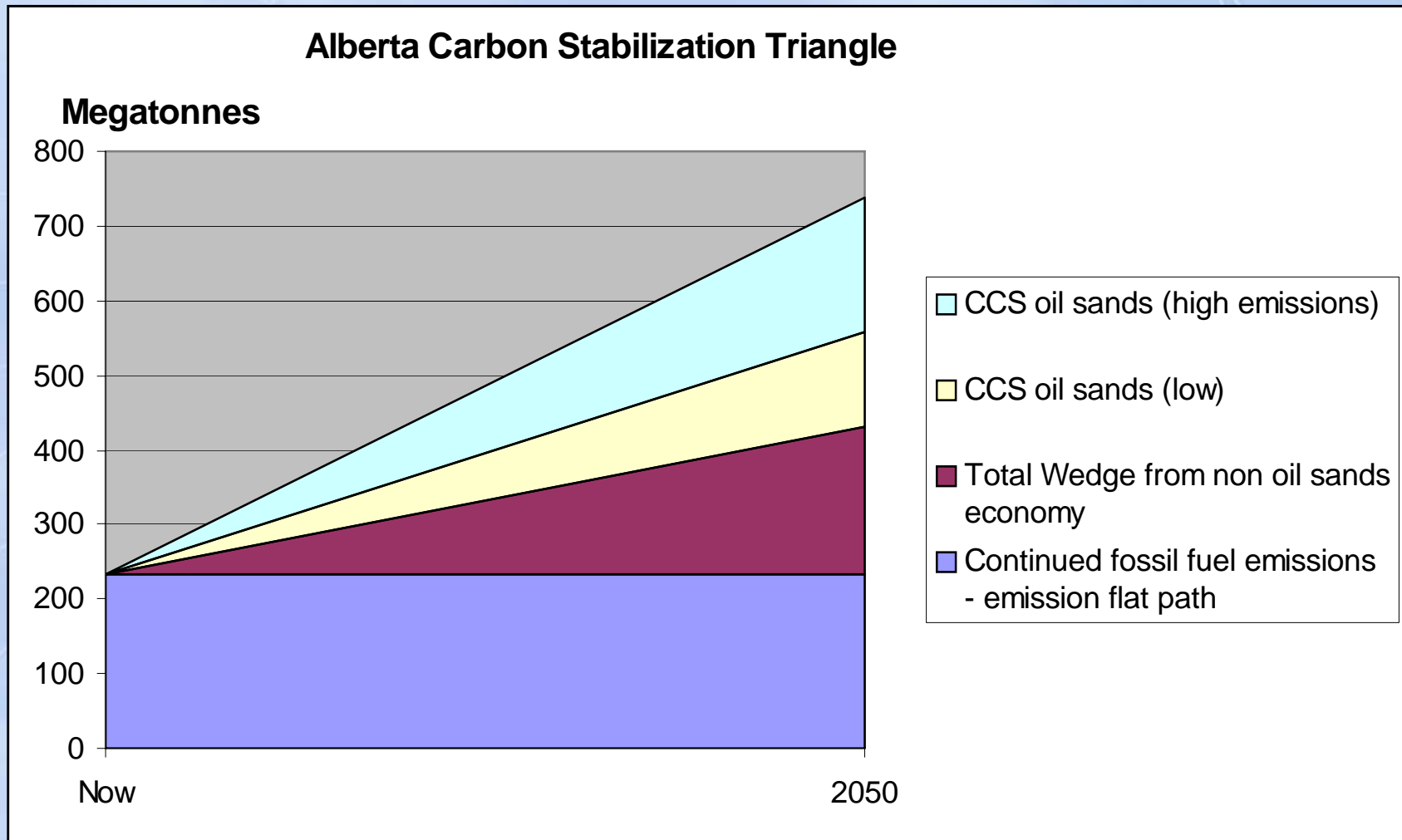


*Disclaimer: All numbers are preliminary and have not been reviewed or finalized.*

# ALBERTA WEDGES SCENERIO (HIGH OIL SANDS)



# ALBERTA CARBON STABILIZATION TRIANGLE



# WE NEED TO REFRAME THE ISSUE

- Previously only discussed as an environmental issue with a massive price tag
- Stern Review: The Economics of Climate Change reframes the issue in terms of the economics of action vs inaction
- The Stern conclusion is that the benefits of strong early action considerably outweighs the costs



# WHERE ARE THE ANSWERS FOR ALBERTA?

- Energy efficiency and conservation
- Green buildings, new community designs
- Alternative and renewable energy
- Emission trading and offsets
- Carbon capture and storage
- Clean coal
- Alternative fuel sources
- Transportation alternatives



# IPPC's Forecast

- “Climate Change 2007: Impacts, Adaptation and Vulnerability Report released April 6, 2007
- UN panel of 2,500 scientific experts from around the world
- Conclusions for the Prairies
  - Warming in western mountains is very likely to reduce snow pack, bringing more floods in winter and reduced water supplies in summer
  - Water supplies stored in glaciers and snow cover are projected to decline
  - Increased severe weather and storm surges
  - Twice as many forest fires
  - More heat waves



# Impacts on Buildings

- Structural integrity of buildings may be affected
- Higher temperatures will dictate the need for more cooling air conditioning system requirements.
- Localized flooding may impact drainage around buildings
- Tornadoes may damage different types of building structures: steel- and wood-framed buildings as well as concrete buildings
- Heavy rainfall events could overload the storm sewer system resulting in infiltration into the sanitary sewer mains and causes flooding of residents' basements
- Forest fires could destroy homes and buildings

*Source:* Adaptability of Prairie cities: The role of climate current and future impacts and adaptation strategies  
[http://www.parc.ca/pdf/research\\_publications/communities6.pdf](http://www.parc.ca/pdf/research_publications/communities6.pdf)



# Canada Green Building Council

- Chapters across the country including Alberta
- LEED NC and LEED CI
- Soon LEED for new homes, LEED for neighbourhoods, LEED for renovations
- Growing rapidly and endorsed in Alberta by the City of Calgary, Government of Alberta, University of Calgary and now the City of Edmonton



# 2030 Challenge

- Promoting sustainable design including resource conservation to achieve a minimum 50 percent reduction from the current level of consumption of fossil fuels used to construct and operate new and renovated buildings by the year 2010.
- Promoting further reductions of fossil fuel consumption by 10 percent or more in each of the following five year intervals so that the cumulative reduction from today's baseline is:
  - 60% in 2010, 70% in 2015, 80% in 2020, 90% in 2025 and
- Carbon-neutral by 2030 (Meaning that the construction and operation of buildings will no longer require the consumption of fossil fuel energy or the emission of greenhouse gases.)
- Driving these reductions through: 1) creating building performance standards in building codes and standards to address private sector structures, and 2) creating governmental mandates that federal and state buildings meet energy efficiency targets.
- Supporting government action to use incentive-based regulatory means to reduce greenhouse gas emissions.



# BOMA's Go Green and Go Green Plus

- Resource Consumption
- Waste Reduction & Recycling
- Building Materials
- Interior Environment
- Tenant Awareness



# Net Zero Energy Coalition

- All new homes in Canada will be net zero energy by 2030
- Current program by CMHC is called Equilibrium and includes 14 demonstration homes across Canada
- Four homes as part of the Equilibrium program soon to be under construction are in Alberta



# Emerging Trends

- A new trend has emerged within the insurance companies - To provide a discount rate on property policies to owners whose properties meet environmental standards.
- Fireman's Fund, a US unit of German insurer Allianz AG begun providing such property product called "Green Coverage."
- 5 per cent discount on property policy to insurance buyers whose property meets environmental standards
- Owners of private, commercial real estate across the US qualify
- If building is destroyed during an extreme event, the insurer would pay for a property to be rebuilt to a certified environmental standard
- The company has since January sold half a dozen of its new property product,
- The company plans to eventually introduce similar property policies for homeowners.



# Insurance for “Fortified” Buildings

- Led by IBHS, the Institute for Building and Home Safety, supported by 220 insurance companies. **www.IBHS.org**.
- A “Fortified” building is constructed to resist damage from earthquakes, wind, flood, fire, hail, etc.,
- The “Fortified” standard significantly beat existing code
- The “Fortified” specification of course depends on location – for example both Turkey and the US West Coast face seismic risk.
- IBHS writes the standards, and trains and certifies inspectors, but the marketing and discounts in annual insurance are left to member insurance companies.
- For example, Google **Florida Windstorms Underwriting Association**



“We did not get here by making one or two bad decisions but millions of uninformed decisions. Now we need to make millions of better informed decisions to reverse the outcome.”

Simon Knight  
yesterday



**Simon Knight**

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