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# Developments in Environmental Policy: Climate Change and Beyond

2008 Energy Futures Workshop  
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Environment  
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Canada

# Introduction

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- Climate change and greenhouse gas emissions issues are dominating the international and domestic environmental policy landscape
- Internationally, this has increased emphasis on the need for a post-Kyoto framework accord to addressing rising greenhouse gas emissions
- Domestically, in April 2007, the federal government announced *Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution* and made public the regulatory framework for air emissions
- The federal government is also moving on several others environmental issues, including taking on toxic chemicals and protecting species at risk



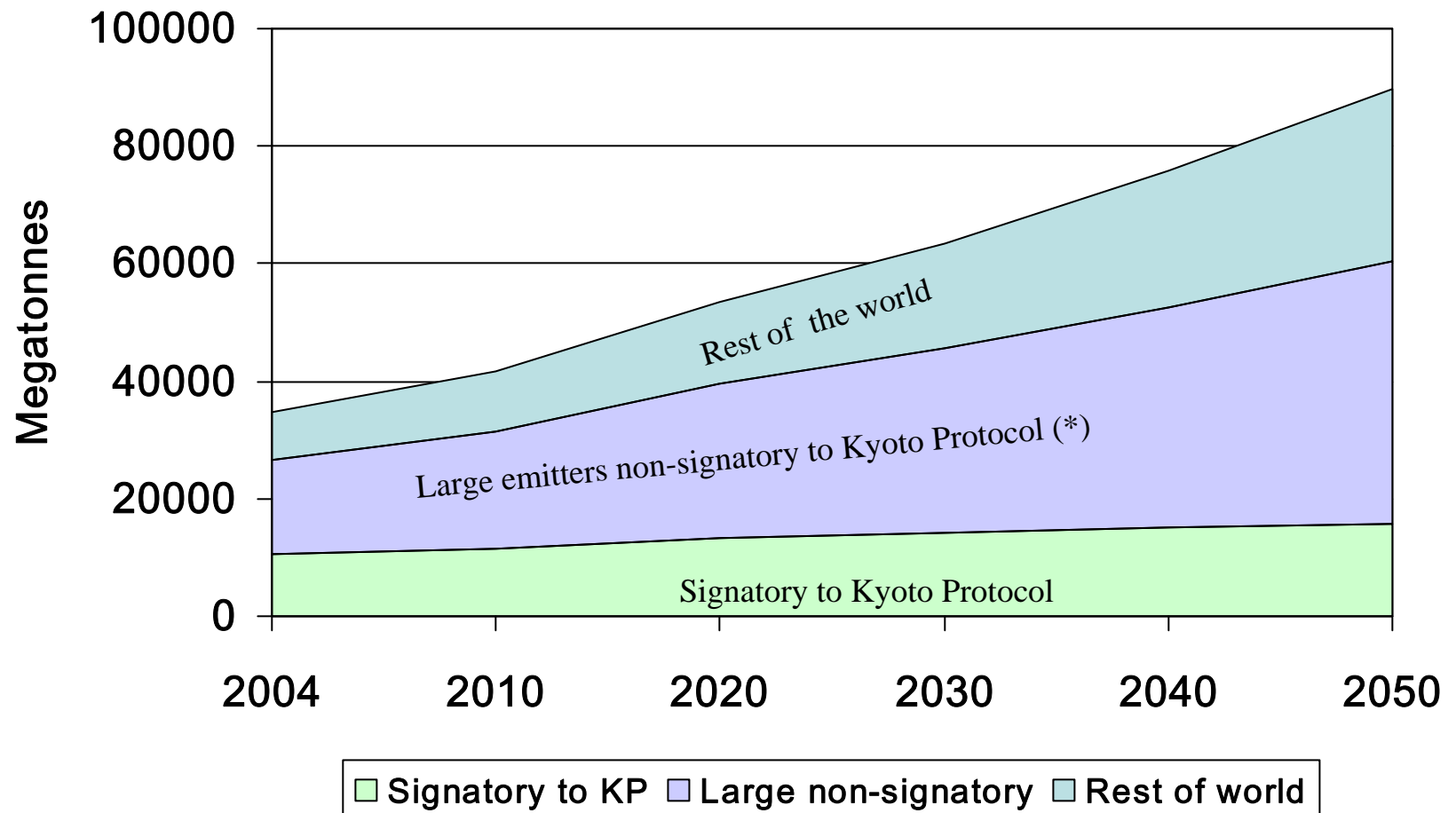
# Some Context - Climate Change



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- The IPCC 4<sup>th</sup> Assessment Report underscored the importance of acting quickly to reduce greenhouse gases
- At the same time, countries are coming to grips with the reality that solving this problem requires action by all countries and not only a few



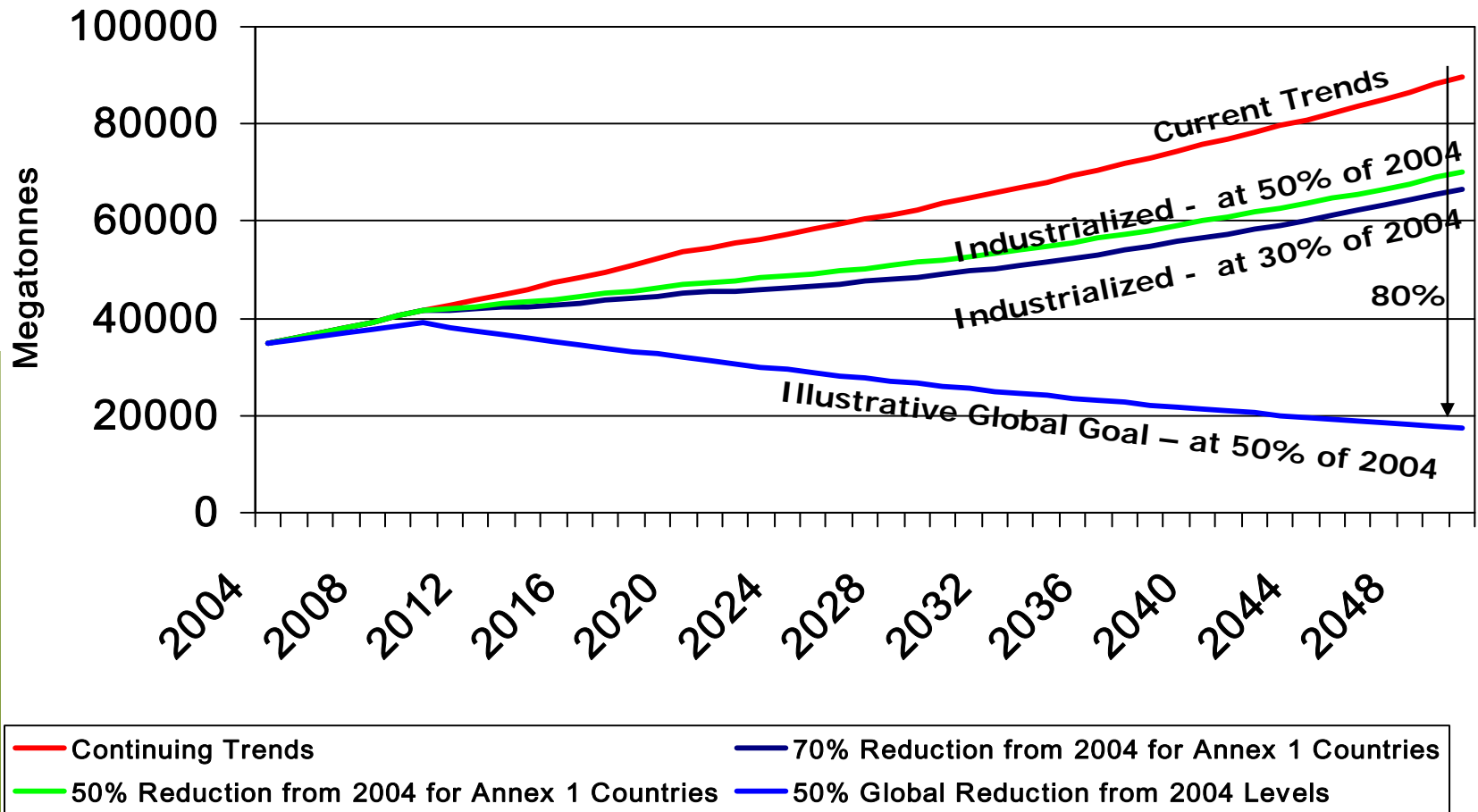
# Without aggressive actions, global GHG emissions will more than double by 2050



(\*) USA, China, India and Brazil: Source: Data for 2004 to 2050 Australian Bureau of Agricultural and Resource Economics (ABARE)  

# The rise in absolute emissions from non-industrialized countries means that even very aggressive action by only industrialized countries cannot deliver an ambitious 2050 global goal

Projected emissions for China alone exceed the Global Goal of 50% below 2004 levels by 2050



Industrialized countries defined as Annex 1 plus "other CIS" states – non-industrialized countries made up of remaining states  
 Source: Data for 2004 to 2050 Australian Bureau of Agricultural and Resource Economics (ABARE)



# Climate Change

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- Canada's unique economic, geographic, and demographic circumstances raise particular challenges
- The goal, therefore, is to find a way to reduce GHG emissions that responds to the collective global threat while respecting those circumstances
- At the federal level, this requires balancing a myriad of interests – to name but a few ...
  - Environmental sustainability and economic growth
  - Industry and environmental organizations
  - Federal and provincial/territorial/First Nations priorities and jurisdictions
  - Canada in North America and Canada in the world



# Turning the Corner is designed to address industrial sector greenhouse gas emissions through significant medium-term targets

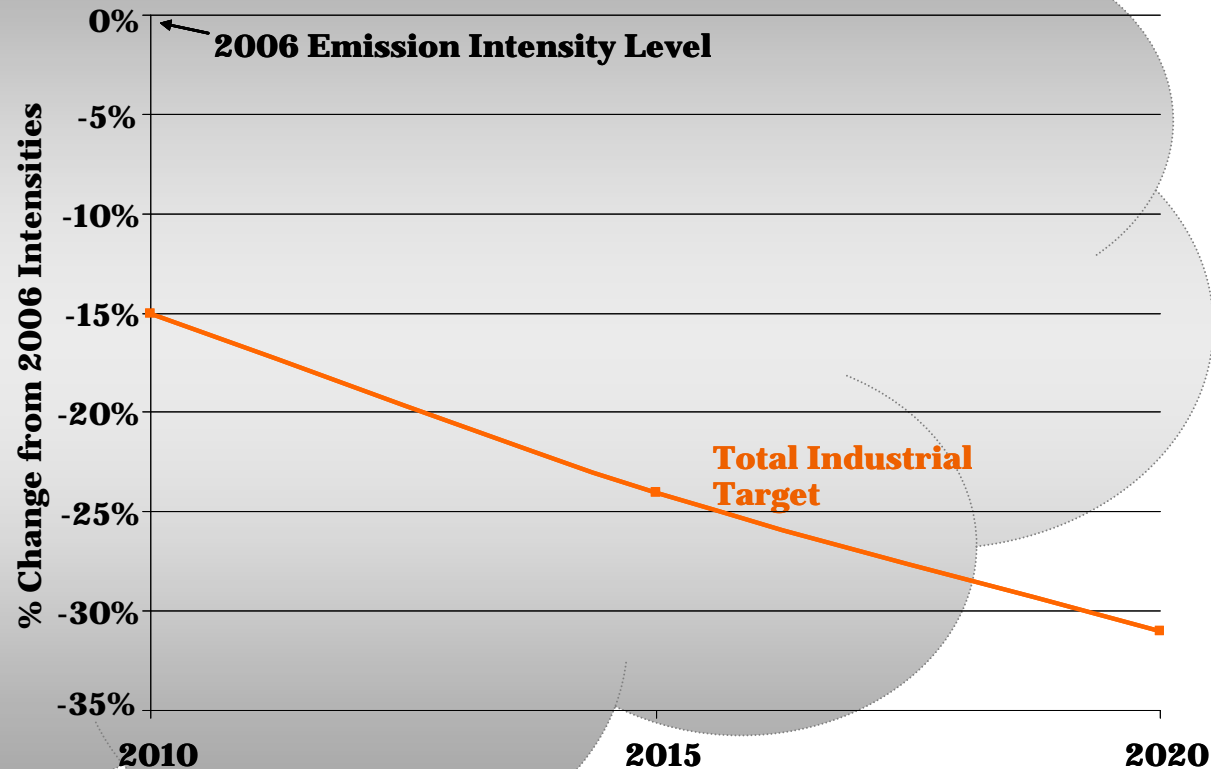
## Target

### Existing facilities

- 6% improvement each year from 2007 to 2010, giving an enforceable 18% reduction from 2006 emission intensity in 2010
- 2% annual improvement thereafter

### New facilities

- 3 year grace period
- Clean fuel standard
- 2% annual improvement



# Greenhouse gas compliance options

## Ways to comply

### In-house reductions

#### Climate Change Technology fund: one fund/two components

- Deployment & Infrastructure: focus on opportunities for near term emission reductions: access as % of total target over 2010-2017 period - 70%, 65%, 60%, 55%, 50%, 40%, 10%, 10%
- Research & Development: focus on new transformative technologies: access over 2010-2017 period - 5 Mt annually
- Explore credit for certified project investments
- Contribution rate to funds (\$/tonne over 2010-2017 period) - \$15, \$15, \$15, \$20, \$20 escalating with GDP

### Trading

- Domestic inter-firm trading
- Access to domestic offsets
- Access to the Clean Development Mechanism at 10% of firms' total target
- Actively explore Canada-US linkages

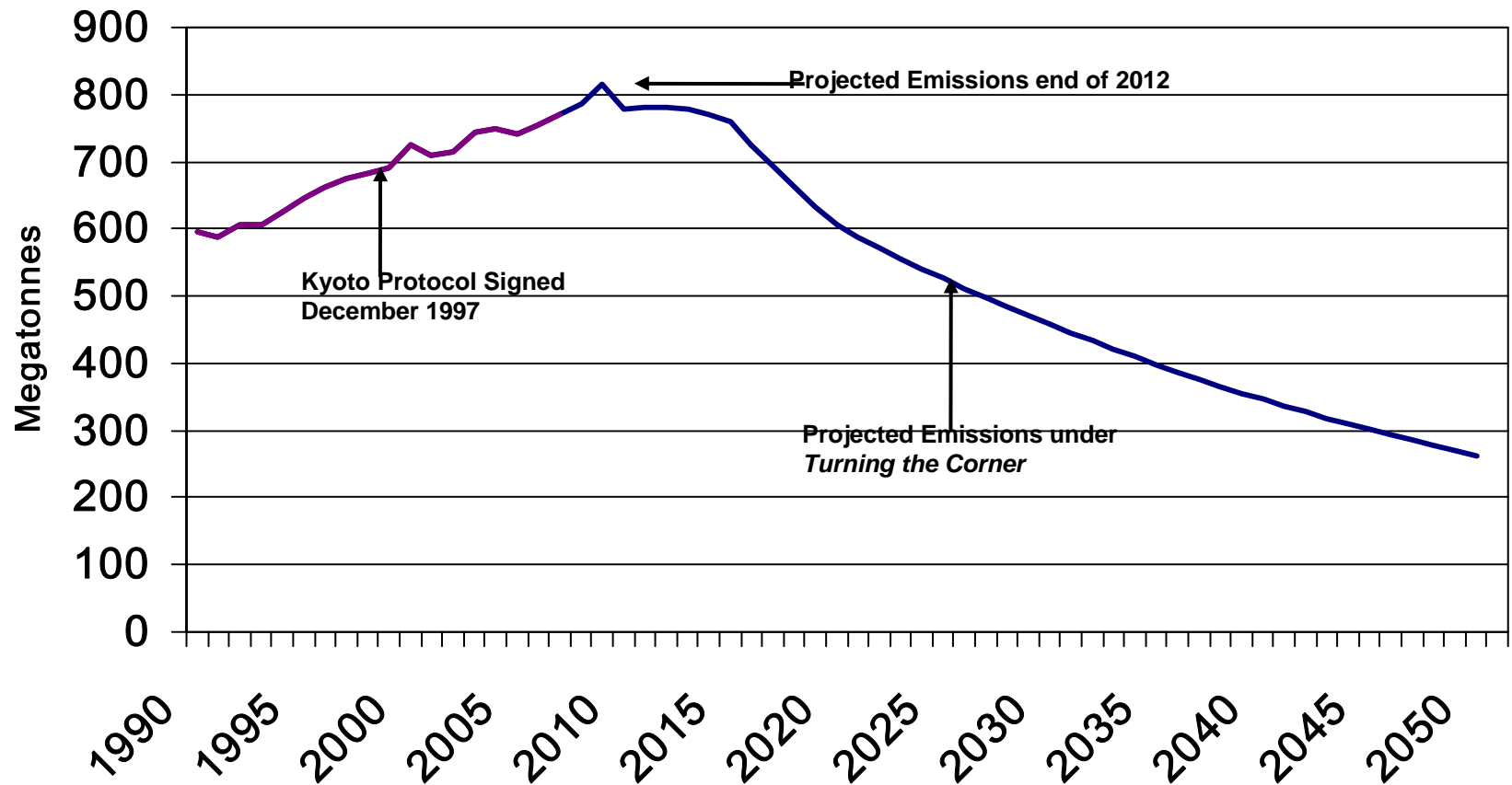
### Credit for early action of 15 Mt

- With a maximum of 5Mt any given year



**Turning the Corner** compels immediate, mandatory reductions on the pathway to an ambitious 2020 target, and commits Canada to a 2050 goal that is wholly consistent with what the science tells us is necessary

## Canada's emissions projection



Source: Current trends data for 2004 to 2050 Australian Bureau of Agricultural and Resource Economics (ABARE)



# Provincial actions are an important contributor to Canada's overall 20% target

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- Like most of environmental policy, progress on climate change also has a strong provincial/territorial dimension
- Provinces are starting to take actions, and several have announced their own plans
  - Ontario has committed to reducing GHG emissions by 15% relative to 1990 by 2020
    - 26% below current levels
  - British Columbia has committed to a 33% reduction in GHG emissions by 2020 relative to 2007
  - Alberta has announced its own emissions intensity targets, analogous to those put forward by the Government of Canada
- These provincial plans are crucial when one considers that the provinces have exclusive authority in many sectors to make the decisions necessary to reduce GHG emissions
  - e.g., electricity generation, building standards and public transit
- The Government of Canada has put in place a \$1.5 billion trust fund to support provincial actions



# Turning the Corner also commits to action on Atmospheric pollutants

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- The Government's *Turning the Corner* plan is not limited to GHG emissions abatement
- Firms are also being asked to reduce emissions of atmospheric pollutants. Specifically,
  - Nitrogen oxides
  - Sulphur oxides
  - Volatile organic compounds
  - Particulate matter
- While the specific targets for industries are still being validated, the goal is to reduce emissions of these pollutants overall by more than half by as early as 2012



# Industrial air pollutant emission reductions

## Targets

NATIONAL CAPS for 2012 to 2015  
(% reduction from 2006  
emissions)

- NOx – 600 kt Cap (~40%)
- SOx – 840 kt Cap (~55%)
- VOCs – 360 kt Cap (~45%)
- PM – 160 kt Cap (~20%)

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SECTOR SPECIFIC CAPS for 2012 to  
2015

ALL TO BE VALIDATED, INCLUDING  
THE DATE OF COMING INTO FORCE

## Ways to comply

In-house Reductions

Domestic Trading for NOx  
and SOx

- Cap and trade system
- Feasibility of offsets will be assessed

Pursue discussions on  
Canada- US trading for  
NOx and SOx

# Health Benefits will be significant

	Heath Benefits (2015)	Value(\$ 2006 millions)
Deaths	1,200	\$6,000
Chronic Bronchitis Cases	920	330
Hospital Admissions and Emergency Visits	1,260	3
Child Acute Bronchitis Episodes	5,600	2
Asthma Days	170,000	10
Restricted Activity Days	1,000,000	57
Minor Restricted Activity Days	210,000	5
Minor Symptom Days	3,400,000	34
	<b>TOTAL</b>	<b>\$6,400</b>

- Estimated health impacts indicate that benefits will occur across a range of health conditions sensitive to air quality
- These benefits include an estimated 1,200 fewer premature deaths per year as a result of the air pollution reductions foreseen under regulations.
- Avoided deaths also account for the lion's share of the \$6.4 billion in monetized benefits of regulating clean air, with an expected annual value of \$6 billion by 2015



# National economic impacts will be manageable

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- Total package (regulations and eco-Action initiatives) has impacts that are below -0.5% of GDP for any given year throughout the forecast period
  - Costs are highest in post-2015 period when package is mature
  - Regulatory package for climate change and air pollutants the largest contributor to GDP impacts
- Compliance options provide the time and flexibility to meet targets through technology improvements rather than output changes
  - Complements normal capital turnover cycles
  - Permits relatively cost-effective roll-out of major technologies such as carbon capture and sequestration by 2016 or so
- As a result, GDP impacts in the pre-2015 period in particular are somewhat offset by increased investment activity
  - Energy efficiency savings dampen cost impacts throughout the forecast period



# Multiplicity of actions

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- Taken together, the Government's actions on greenhouse gas emissions, atmospheric pollutants and hazardous chemicals represent a formidable series of new responsibilities for firms
- But the multi-pollutant approach being taken also provides enterprises with a clearer understanding of what they will face in the way of environmental policy, well into the future
  - This will help firms in their capital budgeting decision making process
- The multi-pollutant approach is also important in minimizing perverse environmental outcomes
  - i.e., reducing one pollutant at the expense of an increase in another
- Indeed, there is broad recognition that the future of environmental policy lies in achieving balance between competing environmental and human health outcomes



# Final remarks

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- Action on the environment is more significant today than it has been at any other point in our nation's history
- Inevitably, that means firms in Canada, including those with a role to play in Canada's energy future, will be confronting a variety of new environmental obligations
- The environment, therefore, and how we address challenges to it, will play an important role in determining the growth and economic success of many industries, not the least will be those involved in the supply of energy or those that are highly dependent upon its use

