

# Strategic Assessment of Climate Change under Canada's 2019 IAA



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# Climate Change in 2019 Impact Assessment Act

Climate Change

- Domestic pressure
- International commitments

2019 IAA

Consider “the extent to which the effects of the designated project hinder or contribute to the Government of Canada’s ability to meet its environmental obligations and its commitments in respect of climate change.”

SACC

‘Strategic Assessment of Climate Change’ (ECCC)

Tech Guide

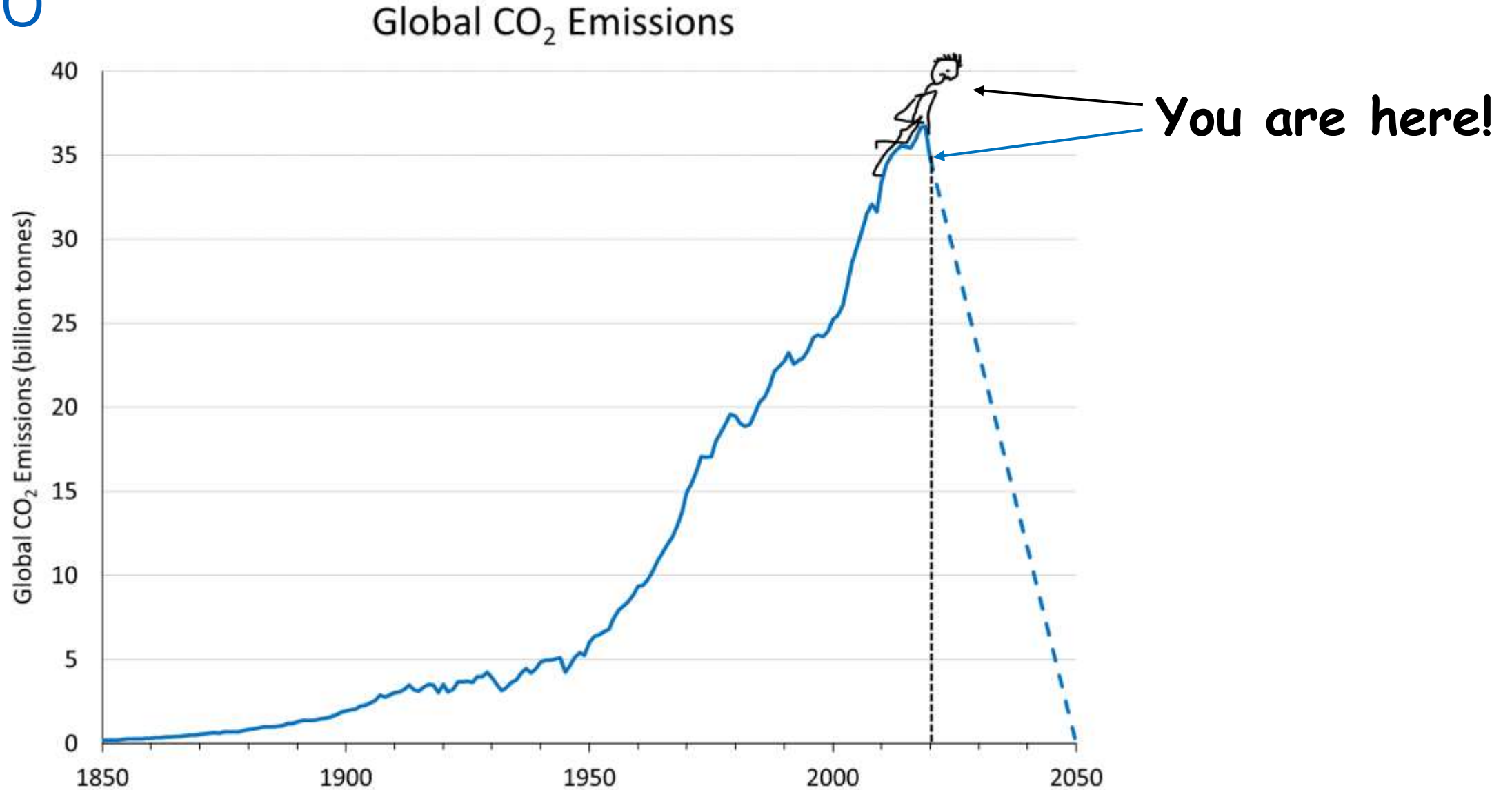
‘Technical Guide Related to the Strategic Assessment of Climate Change’ (ECCC)

# Agenda

1. Net-Zero Plan by 2050
2. Front-Loaded GHG Estimation
3. Offset Measures
4. Electricity Emission Intensity
5. Decommissioning Emissions
6. Downstream Emissions
7. Additional Challenges

# Net-Zero Plan by 2050

# International Commitment: Net-Zero by 2050



# Net-Zero Plan by 2050: Challenges

“...we're not going to stop all flying, all buildings, all transport, all livestock. We need to be able to multiply by zero.” (Bill Gates)

How “credible” are government plans (such as increasing renewable natural gas, hydrogen and renewable electricity generation)? Burden on proponent to justify assumptions.

How to factor in the economic benefit of a project versus the cost of implementing Best Available Technologies/Best Environmental Practices (BAT/BEP)?

BAT/BEP scenarios: Technology trade-offs and co-benefits change over time.

# Front-Loaded GHG Estimation

# Breaking It Down

Net GHG Emissions	= Direct GHG Emissions	= Stationary and Mobile Combustion
		+ Land-Use Change
		+ Industrial Processes
		+ Flaring, Venting, Fugitive
		+ Waste
	+ Acquired Energy GHG Emissions	= Electricity
		+ Hydrogen as Fuel
		+ Steam
		+ Waste-Derived Energy
	+ Avoided Domestic GHG Emissions	
	+ Offset Measures	= Offset Credits
		+ CO <sub>2</sub> Captured and Stored
		+ Corporate-Level Initiatives



# Breaking It Down Further

- By Phase
  1. Construction/commissioning.
  2. Operations.
  3. Decommissioning.
- By Year
- By (Technology) Scenario

# Front-Loaded GHG Estimation: Challenges

- Quantitative breakdown required in Initial and Detailed Project Description.
- Other components of the project (e.g. air quality) still qualitative.
- Engineering design very uncertain.



# Offset Measures

# Offset Measures

Net GHG Emissions	=	Direct GHG Emissions	=	Stationary and Mobile Combustion	
			+	Land-Use Change	
			+	Industrial Processes	
			+	Flaring, Venting, Fugitive	
			+	Waste	
		+	Acquired Energy GHG Emissions	=	Electricity
				+	Hydrogen as Fuel
				+	Steam
				+	Waste-Derived Energy
		+	Avoided Domestic GHG Emissions		
	+	Offset Measures	=	Offset Credits	
			+	CO <sub>2</sub> Captured and Stored	
			+	Corporate-Level Initiatives	

# Offset Credits: Challenges

- Last resort: mostly applicable starting in 2050.
- Indication of offset programs that will be used for credits.
- Terms, conditions, requirements of offset programs.

# Corporate Initiatives: Challenges

Must meet requirements of any acceptable offset program:

- Assigned exclusively to project.
- Removals in Canada.
- Real, additional, quantifiable, verifiable, unique, permanent.

# Electricity Emission Intensity

# Electricity Emission Intensity

Net GHG Emissions	=	Direct GHG Emissions	=	Stationary and Mobile Combustion	
			+	Land-Use Change	
			+	Industrial Processes	
			+	Flaring, Venting, Fugitive	
			+	Waste	
		+	Acquired Energy GHG Emissions	=	Electricity
				+	Hydrogen as Fuel
			+	Steam	
			+	Waste-Derived Energy	
	+	Avoided Domestic GHG Emissions			
	+	Offset Measures	=	Offset Credits	
			+	CO <sub>2</sub> Captured and Stored	
			+	Corporate-Level Initiatives	



# Electricity Emission Intensity: Challenges

- After 2050: Power sector not net-zero?
- Vastly different electricity EI:
  - ECCC (Tech Guide): only emissions in Canada.
  - BC (Ministry): includes GHG emissions from net imports.



# Decommissioning Emissions

# Decommissioning Emissions: Challenges

- Decommissioning uncertainties:
  - Demolition and rehabilitation?
  - Upgrade, expansion?
  - Retrofitting, conversion?
- After 2050: Demolition industry not net-zero?

# Downstream Emissions

# Downstream Emissions: Challenges

- Lifecycle analysis is non-trivial:
  - Boundaries
  - Methodologies
  - Data availability
  - Uncertainties and assumptions

# Downstream Emissions: Challenges (cont.)

- Downstream emissions assessment not required but often inevitable:
  - Project economics
  - Global GHG benefits
  - Leakage
  - International comparison
  - Public pressure
- Public consultation opens Pandora's box.



# Additional Challenges

# Avoided Domestic Emissions

GHG emission reductions in Canada as a result of the project:

1. Assessment scope: only direct or acquired energy emissions.
2. Baseline scenario (w/o project): not hypothetical, time series, market conditions, regulatory measures.
3. Project scenario (with project): time series, market conditions, regulatory measures.
4. Avoided domestic emissions.

Irrelevant by 2050!



# Yardsticks

- How to compare to:
  - existing facilities;
  - other industrial facilities (emissions versus socio-economic value);
  - other sectors; and
  - total GHG emissions and reduction targets?
- Reference emissions of a new project with initial BAT/BEP mitigation?

# Jurisdictional Interests

- Levels of government, regulatory authorities:
  - E.g.: City of Burnaby – Metro Vancouver – BC – AB – Canada
  - Port of Vancouver
  - First Nations and other indigenous groups
- Differences:
  - Authority
  - Responsibilities
  - GHG reduction targets and policies
  - Socio-economic impacts

# Fairness

- Local, regional competition:
  - Bar rising for new projects (e.g. new vs. recently approved LNG projects)
  - Grandfathering old facilities vs. cost of retrofitting, stranded assets, bail-out
- International competition:
  - Leakage
  - Markets for low emission intensity products
  - International commitments (e.g. China: 2060 net-zero target)

# Upstream Emissions

- Lifecycle analysis is non-trivial:
  - Boundaries
  - Methodologies
  - Data availability
  - Uncertainties and assumptions
- Tech Guide provides clarity: production, storage, processing, transportation of non-renewable resources (“energy products”).
- Public consultation opens Pandora’s box.

# Let's continue the conversation!

Post questions and comments via chat in the IAIA22 platform.



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