

**THE CONSIDERATION OF  
CLIMATE CHANGE MITIGATION  
IN  
ENVIRONMENTAL ASSESSMENT**

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# Outline

1. Introduction and objective
2. What is climate change mitigation?
  - Mitigation hierarchy
3. GHG emissions outside of the EA process
4. Findings from the literature review
5. Case study
  - Methodology
  - Results
6. Conclusions and recommendations

# Introduction

- Greenhouse gases (GHGs) contribute to climate change
- Global-scale action plans (Kyoto Protocol, Paris Agreement)
- Adoption of GHG reduction targets
- Projects have a potential to generate GHGs during all phases -> need for GHG consideration in EA

# Objective

- Inventory of tools and guidance for Canadian EA practitioners
- Trends for considering GHGs in EA
- Influence of EA on meeting GHG reduction targets

# What is climate change mitigation?

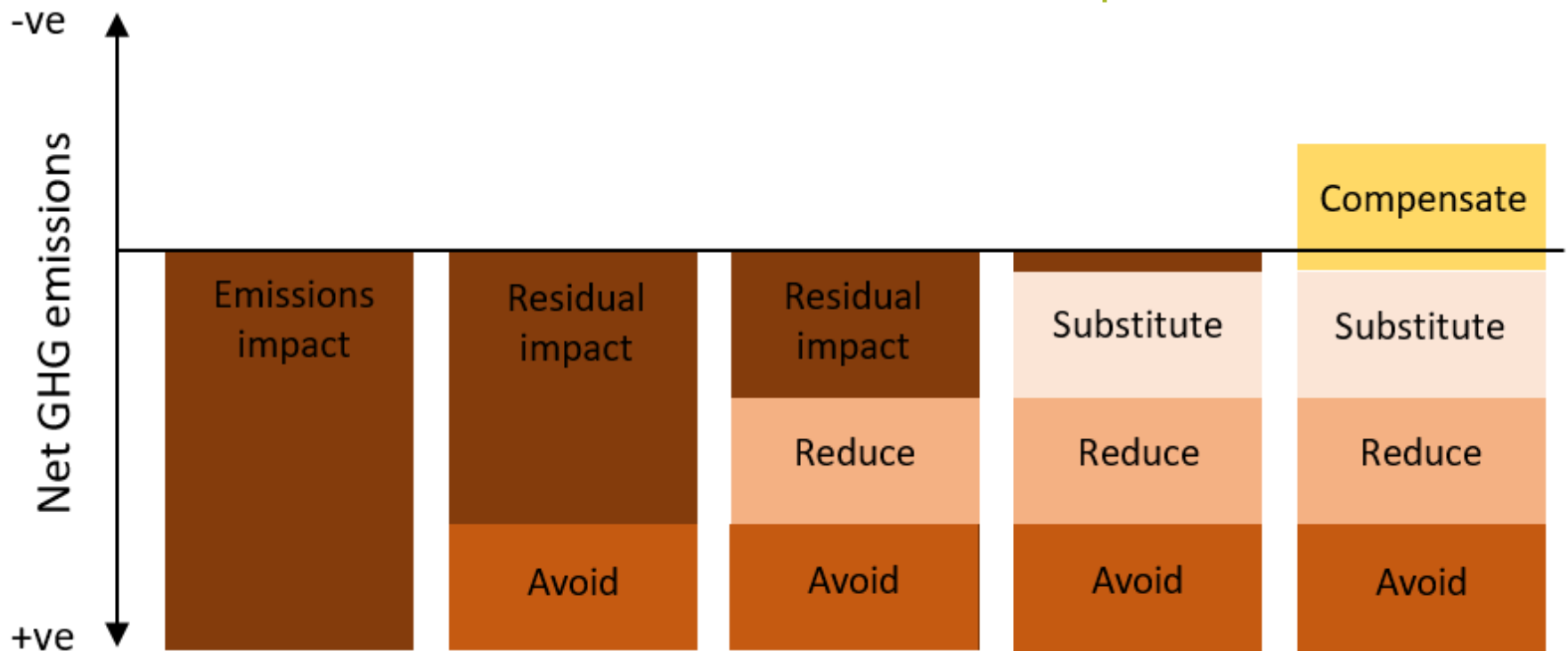
- Adaptation: identifying vulnerabilities and reducing consequences
- Mitigation: reducing GHGs in the atmosphere



Source: <http://www.cbc.ca/news/canada/how-canada-s-provinces-are-tackling-greenhouse-gas-emissions-1.3030535>

# Mitigation hierarchy

Avoid > Reduce > Substitute > Compensate

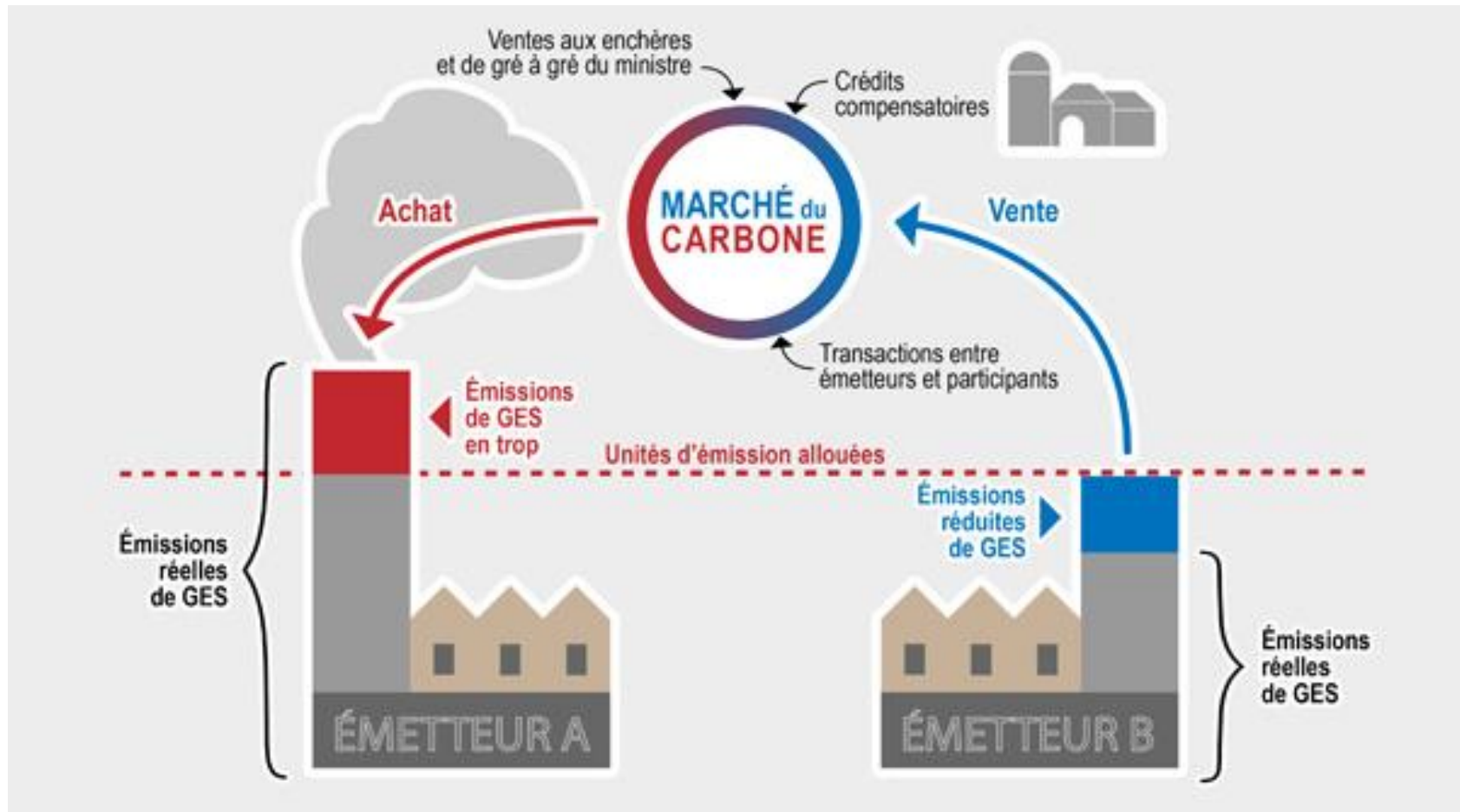


# GHG emissions outside the EA process GHG inventories



# GHG emissions outside the EA process

## Cap and trade programs



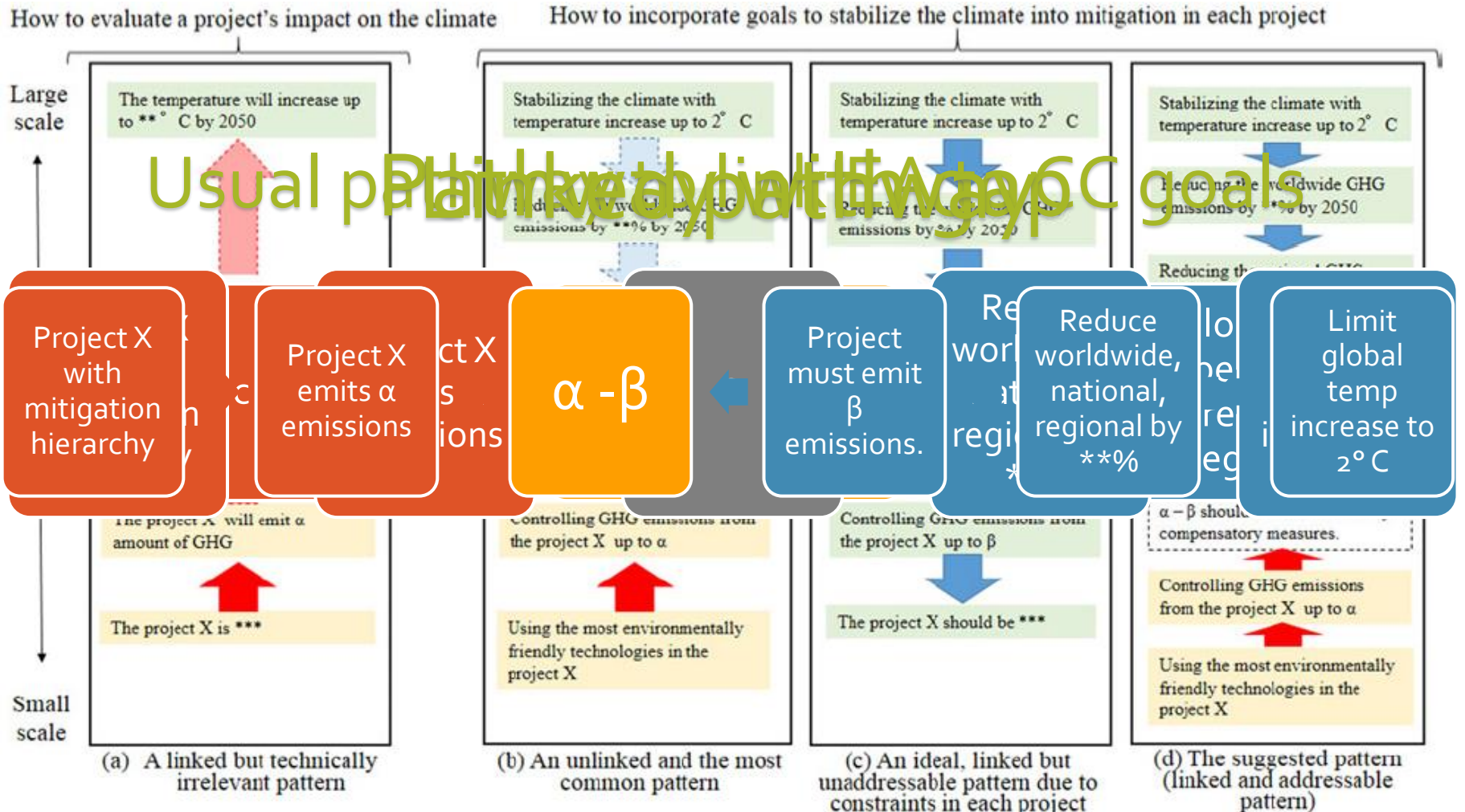


# Findings from the literature

- 1990s: No systematic method for considering climate change in EA<sup>1</sup>
- Climate change a priority for CEAA – guide produced in 2003
- Guide is outdated and applied inconsistently<sup>2</sup>
- Significance of GHGs is undefined<sup>3</sup>

<sup>1</sup>Lee (2001) ; <sup>2</sup>Groulx (2012); <sup>3</sup>EMA and Arup (2017)

# Findings from the literature



# Case study

## Methodology – Step 1

- Chose 5 Canadian jurisdictions



**Canada (federal)**



**British Columbia**



**Ontario**



**Quebec**



**Nova Scotia**

# Case study

## Methodology – Step 2

- Determine how developed climate change mitigation consideration is by selecting parameters that characterize **intention**

Emissions types	Effect on reduction targets
Quantification methods	Entry points
Use of mitigation hierarchy	Guidelines
Thresholds	Regulations and/or policies

# Case study

## Methodology – Step 3

- Determine how the parameters will manifest in EISs

Intention	Implementation
Examine the effect of the project on GHG reduction targets	Discussion of how the project will affect regional and/or national GHG reduction targets.

- Examine EISs to see if EA authorities' **intention** has resulted in **implementation** by practitioners
- Three EISs per jurisdiction examined

# Results

Jurisdiction	Intention	Implementation
Canada	High	Medium
British Columbia	Low	High
Ontario	Medium	Low
Quebec	High	High
Nova Scotia	High	Low

# Results

## British Columbia

Parameter	Intention: Developed by EA authority?	Implementation: Manifests in EIS?		
		BC-1	BC-2	BC-3
Types of emissions		✓	✓	✓
Quantification method		✓	✓	✓
Mitigation hierarchy		✓	✓	✓
Thresholds		✓	✓	✓
Effect on reduction targets	✓	✓	✓	✓
Entry points	✓	✓	✓	✓
Guidelines		✓	✓	✓
Regulation/policy		✓	✓	✓

# Conclusion

- Differences in how EA authorities convey their intentions
- Intentions do not necessarily translate into implementation
- GHGs not a factor in project's acceptability
- Unclear how current EA process will help meet GHG reduction targets



# Recommendations

- Adopt mitigation hierarchy policies
- Keep compensation measures linked to the project – no fracturing
- True shift away from fossil fuels: GHG emissions must affect a project's acceptability

# References

- FPTCCCEA. "Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment". Presentation, ECCC-CNRC MOU Workshop, Ottawa, Ontario, 2016.
- Groulx, Erin. "Consideration of Climate Change in Environmental Assessments Under the Canadian Environmental Assessment Act, 2012". In *36th Annual Conference of The International Association for Impact Assessment*, 2016. Accessed June 15, 2017. <http://conferences.iaia.org/2016/Final-Papers/Groulx,%20Erin%20-%20Consideration%20of%20Climate%20Change%20in%20Environmental%20Assessme....pdf>.
- IEMA. *Principles: CCM&EIA - Version 1.1*, 2010. Accessed September 8, 2017. <https://www.iema.net/assets/templates/documents/climate20change20mitigation20and20eia.pdf>.
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- Lee, Rick J. *Climate Change and Environmental Assessment - Part 1: Review of Climate Change Considerations in Selected Past Environmental Assessments*. Government of Canada, 2001. Accessed September 16, 2017. <http://publications.gc.ca/collections/Collection/En105-69-2002-1E.pdf>.
- Ohsawa, Takafumi, and Peter Duinker. "Climate-Change Mitigation in Canadian Environmental Impact Assessments". *Impact Assessment and Project Appraisal* 32, no. 3 (2014): 222-233.

# Thank you!

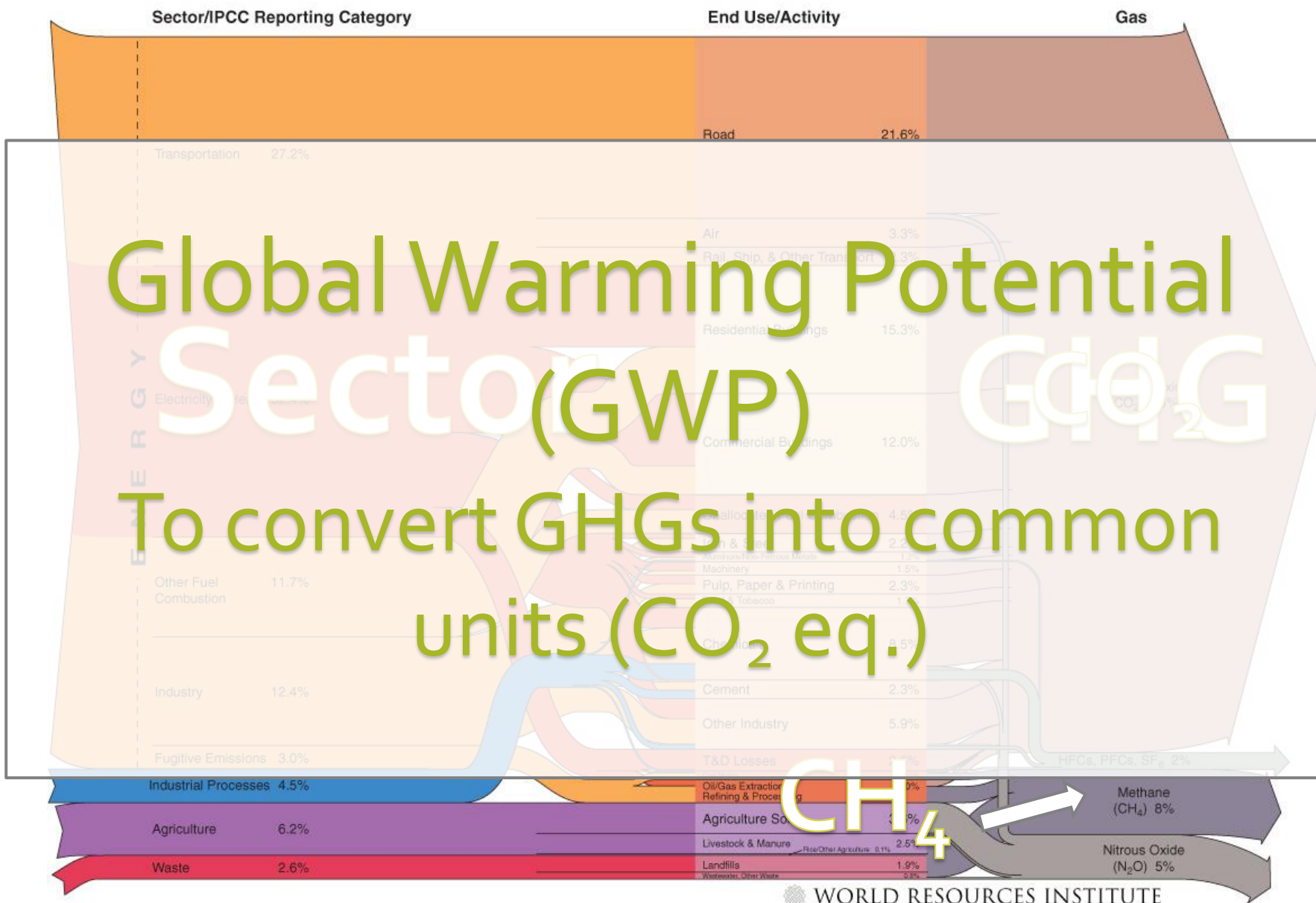


Source: K. Hetmanshuk 2017

# SUPPLEMENTARY SLIDES

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# U.S. GHG Emissions Flow Chart



Global Warming Potential  
Sector (GWP)  
GHG

To convert GHGs into common  
units (CO<sub>2</sub> eq.)

CH<sub>4</sub>

# Results

## Nova Scotia

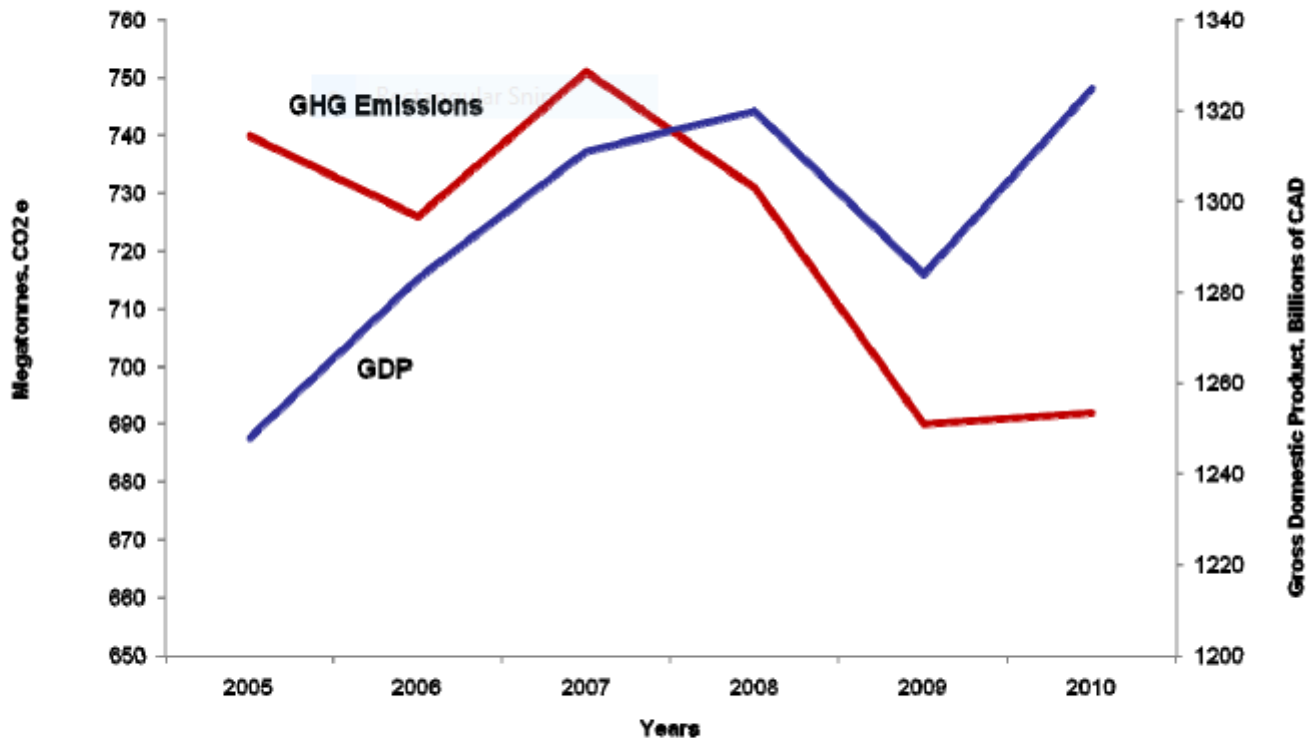
Parameter	Intention: Developed by EA authority?	Implementation: Manifests in EIS?		
		NS-1	NS-2	NS-3
Types of emissions	✓		✓	✓
Quantification method	✓	✓	✓	✓
Mitigation hierarchy	✓			
Thresholds	✓			✓
Effect on reduction targets	✓	✓	✓	✓
Entry points	✓			✓
Guidelines	✓			✓
Regulation/policy	✓	✓	✓	✓

# Results

## Ontario

Parameter	Intention: Developed by EA authority?	Implementation: Manifests in EIS?		
		ON-1	ON-2	ON-3
Types of emissions	✓	✓	✓	
Quantification method		✓		
Mitigation hierarchy	✓		✓	
Thresholds	✓			
Effect on reduction targets		✓	✓	
Entry points	✓			
Guidelines	✓	✓		
Regulation/policy	✓	✓	✓	

## In recent years Canada has de-linked economic growth from emissions



Government of Canada  
Gouvernement du Canada

<sup>6</sup> Canada

Source : [https://unfccc.int/files/bodies/awg-lca/application/pdf/20120517\\_canada\\_1749.pdf](https://unfccc.int/files/bodies/awg-lca/application/pdf/20120517_canada_1749.pdf)