



International Transportation Forum 2014 Working Group on Assessment of Policies for Long-Term Transition to Sustainable Transportation

Case Study:

Canada's approach to infrastructure
investments serving growing trade

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OUTLINE

- **Non-infrastructure policy: Clean Air Agenda**
- **Asia-Pacific Gateways and Corridors: overview**
- **Infrastructure investments: ex-ante assessments of projects**
- **Carbon footprint of a supply chain**
- **Looking forward: new policy tool to internalize climate change benefits**

APGCI

The Asia-Pacific Gateway and Corridor Initiative:

- Launched in 2006 and based on Canada's National Policy Framework on Strategic Gateways and Trade Corridors**
- An integrated set of investment and policy measures focused on trade with the Asia-Pacific Region**
- Established an integrated transport infrastructure facilitating global supply chains between North America and Asia**
- More than 45 strategic infrastructure projects, together with our public and private sector partners, totaling \$3.5 billion, including \$1.4 billion in federal funds**

CANADA'S ASIA-PACIFIC GATEWAY



North America's closest major ports to Asia



- Burlington Northern Santa Fe (BNSF)
- Canadian National (CN)
- Canadian Pacific Railway (CPR)

FEDERAL GOVERNMENT GUIDELINES

- **Government of Canada has established federal guidelines for Cost Benefit Analysis for all investments projects**
- **FV and costs were discounted to 2005 PV**
- **A discount rate was determined at 10% (real, net of inflation, constant)**
- **Construction periods: varied per project**
- **25-50 year operating horizon**
- **Economic evaluation model: discount rate, initial capital costs and travel time savings growth rate**

EX-ANTE ASSESSMENTS

- **Cost-Benefit Analysis: necessary part of application process on each project, to ensure effective spending of public finance**
- **High level projects important at municipal, provincial and federal levels**
- **Project's benefits and costs: climate component plus co-benefits were quantified**

CLIMATE CHANGE UNCERTAINTY

Original CBA on each project included:

Environmental benefits quantified:

- Travel time savings
- Vehicle operating cost savings
- Safety benefits

Not quantified:

- Reduced GHG emissions
- Impact on economic growth

Value of each 25-year old asset, with planned rehabilitation in 2031, estimated as approximately 50% of its original capital cost.

NEW POLICY TOOLS FOR SUSTAINABLE TRANSPORTATION

- **Internalizing climate change benefits through calculating carbon footprint of a supply chain**
- **Fluidity Indicator Project: optimization of usage of transportation infrastructure through computing of transit times for cargo**
- **Carbon Footprint Methodology: innovative policy tool to measure CO₂ and find new opportunities to reduce CO₂ emissions**
- **Emissions data available for the established transportation network serving trade between Asia and North America and Canadian**
- **System-wide approach to monitor and forecast economic activity and report on performance of transport system, including fluidity, competitiveness and resilience.**

CARBON FOOTPRINT METHODOLOGY:

- **Highly feasible and innovative policy measure that can be applied to future investments into transportation infrastructure to forecast emissions**
- **Applied to APGCI transport infrastructure projects**
- **Forecasted carbon footprint can be included into pre-investment cost benefit analysis for future transportation infrastructure projects to optimize spending of limited public funds.**

Ocean & Port

Ocean transit [1]

Marine Terminal Dwell [2]

Rail

Dwell at origin rail yard [1]

Rail transit time (intra-urban) [2]

Rail transit time (inter-urban) [3]

Dwell at dest. rail yard [4]

Trucking

Truck from marine terminal to origin rail yard [1]

Truck from marine terminal to end customer [2]

Truck from marine terminal to transload facility [3]

Truck from transload facility to origin rail yard [4]

Truck from transload facility to end customer [5]

Truck from shipper warehouse to origin airport [6]

Truck from primary destination airport to secondary destination airport [7]

Truck from destination airport to DC/warehouse [8]

Air

Dwell at origin airport [1]

Air transit [2]

Dwell at destination airport [3]





Dwell at secondary destination airport [4]

Logistics and Warehousing








Dwell at transload facility

SYSTEM FLEXIBILITY: SEVERAL COMBINATIONS






SUPPLY CHAIN 1  +  +  +  *Direct-rail*

SUPPLY CHAIN 2  +  +  +  +  *Rail Inner-harbour - Drayage*

SUPPLY CHAIN 3  +  +  +  +  *Rail Inner-harbour - Urban Rail*

SUPPLY CHAIN 4  +  +  +  +  +  +  *Transload - Rail*

SUPPLY CHAIN 5  +  +  *All-Truck - without transload*

SUPPLY CHAIN 6  +  +  +  +  *All-Truck - with transload*

CARBON FOOTPRINT METHODOLOGY:

- **The methodology allows to measure the energy use and greenhouse gas (GHG) emissions performance of a supply chain:**
 - **Internalizes environmental dimension to complement the fluidity project performance metrics tools.**
 - **Initial focus on the APGCI as the most advanced gateway initiative with pioneering performance measures being developed.**
- **GHG emissions measurement (via energy use) and activity from the main supply chain elements, including:**
 - **ocean transit;**
 - **cargo handling and ports, transloading;**
 - **rail and truck long haul movements; and**
 - **truck local movements at intermodal terminals and to final destinations.**

NEXT STEPS

- **Inter-sessionally:**

Draft Case Study to be provided to WG members for discussions

- **WG Report to ITF 2014:**

Case Study to be included into the final Report

For any questions, please contact:

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