Port Emissions Accounting: Canada’s PEIT

AAPA Energy and Environment Seminar

Emissions Issues Panel

Bryan McEwen, September 15, 2016
SNC-Lavalin Inc., Environment & Water
Vancouver British Columbia, Canada
Overview

1 PEIT and goPEIT

2 Developmental path in Canada

3 Applications and products of interest

4 Challenges developing and supporting an emissions tool
1 Port Emissions Inventory Tool (PEIT) v4.0
What is PEIT?

• consistent emissions estimation tool for all port-related sources
• MS ACCESS database
• follows a set of established ‘rules’, Similar, but more prescriptive than US EPA guidance
• greatly simplifies data collection (the terminal ‘Questionnaire’)  
• CACs, GHGs, HAPs
• no similar tool exists
1 global online PEIT: what is goPEIT?

• Transport Canada has licensed PEIT for use by others (Green Marine, ICCT)
• ICCT has developed a web-based version (‘global online’ PEIT)
• Same structure as PEIT but data via web entry
2. Developmental path

First developed for Transport Canada in 2008

Based on a Port Vancouver prototype used for their 2005 inventory

Applied to develop a nationwide port baseline for 2010 energy/emissions

Further applications
- Port of Prince Rupert inventories 2011-2015
- Product movement footprint assessment
- Terminal developments across Canada
- Airshed studies
2. Developmental path

Included datasets for emissions calculations:
• Internationally sourced set of ocean going vessel emission rates (IMO)
• US EPA Smartway tug emission rates
• US EPA rail locomotive fuel and emission rates by tier
• US EPA MOVES onroad emission rates by vehicle type and speed
• US EPA NONROAD cargo handling equipment (CHE) emission rates by equipment type and tier
2. Developmental path
2. Developmental path

- Tenants fill out questionnaire sheets
- Port data used for some entries (ship calls)
- Questionnaires imported to database application
3. Applications and products of interest

• 2010 baseline for Canada; East Coast/Great Lakes and West Coast (18 ports)
• Terminal data kept confidential
• Forecasts based on commodity projections and expected equipment turnover
3. Applications and products of interest

- 2010 Dataset allows specific metrics to be identified
- Performance benchmarks identified for key commodities
4. Challenges

Tenant participation
• Why should tenants provide the necessary data?
• Potential errors in data submission (garbage in = garbage out)
• Defaults for data gaps

Updates of PEIT model
• Emission rates
  ➢ New emissions data – MOVES, IMO 3rd GHG study, other
• Source characterization (e.g., vessel profiles)
  ➢ Improved information from large port studies such as LA/LB
• Step changes such as Emissions Control Area (ECA)
• New contaminants of interest
  ➢ Black carbon
4. Challenges (applications outside of Canada)

Local settings
• State rail provider details
• Energy characteristics (electricity, fuels)
• Equipment retrofits

Case study
• Port of New Orleans
  ➢ Document steps taken to collect/use local data
  ➢ Develop case study appendix for user guide
Thank-you!

Bryan McEwen, M.Sc.
Snr. Air Quality Meteorologist,
SNC-Lavalin Inc., Environment and Geoscience Infrastructure
Bryan.McEwen@snclavalin.com

Howard Posluns, P.Eng.
Chief, Advanced Technology,
Transportation Development Centre (TDC - ACAF),
Transport Canada
howard.posluns@tc.gc.ca