



## Regional Roundtable on Energy

*AAPA Energy & Environment Seminar  
September 14, 2016*

1

It's a pleasure to be here and I appreciate the opportunity to share with you a little bit about the Vancouver Fraser Port Authority and our approach to energy.

Acknowledge that we are meeting today on the traditional territories of the Coast Salish Peoples.



Mandated by the *Canada Marine Act*, Vancouver Fraser Port Authority facilitates Canada's trade objectives in a safe and efficient manner, in a way that protects the environment and with regard for local communities.

We are accountable to the federal Minister of Transport

As a Canadian port authority we:

- are required to provide the marine infrastructure to support Canada's trade and our nation's role in the global supply chain
- do not decide what gets traded through the port, but we ensure that the process is there to move goods safely, in an environmentally sound way.

Vancouver Fraser Port Authority has offices in Vancouver, De Ha and Shanghai with an extensive agent network throughout Asia.

Governance:

The port authority is governed by a diverse Board of Directors representing government and industry.

The Board of Directors for Vancouver Fraser Port Authority is composed of 11 members:

- seven are appointed by the federal government, based on industry recommendation
- one is appointed by the federal government directly
- one is appointed by the BC provincial government
- one is appointed for the Western provinces of Alberta, Saskatchewan and Manitoba
- one is appointed by our 16 neighbouring municipalities

We have an executive leadership team led by our President and CEO, Robin Silvester. This executive team include Duncan Wilson my VP, CSR. Robin and the Executive team make the day to day business decisions as guided by the Board.



## Federal jurisdiction of Canada's largest port

- Hundreds of kilometres of shoreline (around 340 km or around 210 miles)
- Borders 16 different municipalities or cities
- Intersects the asserted and established territories and treaty lands of several Coast Salish First Nations. (about 33)
- The red line on this map shows the shoreline that we manage.
- The dark blue area shows the areas where we have navigational jurisdiction.
- NOTE US Border.

**We administer (as a landlord) more than 16,000 hectares (39,536 acres) of water and nearly 1,000 hectares (2471 acres) of federal land and assets.**



**Context:**

- **The Port of Vancouver is Canada’s largest and most diversified port** and the third largest tonnage port in North America
- Responsible for Canada’s trade with more than 170 world economies

Enables the trade of approximately \$200 billion in goods annually (about 20% of Canada’s entire trade in goods (by value).

\$140 million tonnes of cargo annually

**The port generates an estimated:**

- **100,000 jobs**
- **\$6.1 billion in wages**
- **\$9.7 billion in GDP across Canada**
- \$500 million of cargo/day

Located on the southwest coast of British Columbia in a naturally beautiful setting

**Strategic location**

- Closest major North American port to Asia
- One to two day sailing time advantage to and from Asia
- Connected to three class one railways

Diversity of infrastructure, services and supply chain.

**Top ten major trading partners, by million metric tonnes:**

1. China 31.6
2. Japan 16.5
3. South Korea 13.9
4. United States 7
5. India 5.2
6. Brazil 3.6
7. Taiwan 3.1
8. Chile 2.9
9. Indonesia 2.5
10. Mexico 1.8

**We are a full service port...**

- We offer 27 major marine terminals across five cargo sectors and three class I railways.
- We have a full range of services to support the international shipping community, including shipyards, freight forwarders and shipping agents, servicing the more than 3,000 vessel calls annually.
  - Super Post-Panamax capacity and extensive on-dock rail facilities.
  - Freshwater facilities offer integrated services for the automobile and coastal forest industries
  - Short-sea shipping.



As the most diversified port in North America, the Port of Vancouver operates across five business sectors: bulk, breakbulk, automobiles, container and cruise.

2015 Business sector statistics.

- Bulk- 19 terminals, 96 million metric tonnes: coal, grain, sulphur and potash and petroleum products (anything that can be poured into the hold of a ship, could be liquid or solid)
- Breakbulk - 2 terminals, 16.5 million metric tonnes, lumber, wood pulp, logs and steel
- Automobiles – 2 terminals, Receives nearly 100% of Asian imports destined for Canada. 385,000 units in 2015
- Container - 4 terminals, 3 million TEUs
- Cruise – 1 terminal, 805,000 passengers, first in Canada
  - Third in world to implement shore power, homeport for the Vancouver-Alaska cruise industry

Twenty per cent of Canada’s goods traded move through the Port of Vancouver. Almost 95 percent of the port’s total volume serves Canadian import and export markets.

**Most of coal through the port is metallurgical coal with some smaller volumes of energy coal.**

**16,000** hectares of water

**3,215** vessel calls

**1,000** hectares of land

**27** marine terminals

**5** business sectors

**3** class one railways: CP, CN and BNSF

**We are hearing forecasts of tens of thousands more ships coming to the area due to increased trade. What impact will that have?**

About 3,200 vessels call the Port of Vancouver each year.

About 9 ships per day.

Forecast - may increase to about 12 ships per day by 2026.

Others are forecasting much higher numbers, but our analysis suggests they are not accounting for the fact that ships are getting larger and more efficient, so the growth rate in the number of ships is far less than the anticipated growth rate in trade overall.

The port authority, government and industry are preparing for this anticipated growth by increasing capacity at Port of Vancouver terminals, improving efficiency all along the supply chain, and introducing technology to keep ships moving in and around the port.



**We recently updated our vision as well as defined our approach to sustainability:**

To us, a sustainable port means:

- **Economic prosperity through trade**
  - Competitive business
  - Effective workforce
  - Strategic investment and asset management
- **Thriving communities**
  - Good neighbor
  - Community connections
  - Aboriginal relationships
  - Safety and security
- **Healthy environment**
  - Healthy ecosystems
  - Climate action
  - Responsible practices

Mission:

**To enable Canada's trade objectives, ensuring safety, environmental protection and consideration for local communities.**

Vision:

**To be the world's most sustainable port.**



Responsibility to be leaders in sustainable port operations.

**Preserving the environment is a core value for the port authority.**

- We have a tradition of innovation, accountability and leadership.
- Our programs work to minimize impacts of port operations as well as enhance the surrounding environment.

First class environmental team who oversee environmental monitoring, lead environmental enhancement initiatives and conduct project-related environmental reviews.

18 specialists in a number of areas including sustainability, air quality and atmospheric science, energy management, civil engineering, fish and wildlife, marine mammals, soil science, resource management, chemistry, and geomorphology.

We have several programs and initiatives, and a key strategic initiative for my environment team is the Port of Vancouver's Climate Action Initiative that is designed to address the key emissions sources within the port by providing either incentives or restrictions that help influence behaviour of transportation stakeholders to reduce air emissions. The following provides an overview the programs and projects within the Air and Climate Action Initiative:

- a. The Port Emissions Inventory
- b. The Non Road Diesel Emissions Program
- c. The Truck Licensing Program
- d. The EcoAction Program for Ships
- e. Shore power for cruise ships and container ships
- f. Energy Action Initiative
- g. Partnership with Climate Smart
- h. Investigation of the potential for liquefied natural gas (LNG) bunkering for ocean-going vessels

The port environment team also implements programs and processes focusing on marine mammals, water quality, environmental assessment, noise monitoring, land management, invasive species and best practices:

- ECHO Program – Enhancing Cetacean Habitat and Observation Program
- Habitat Enhancement
- Fraser River Improvement Initiative
- Contaminated Sites Management Program
- Noise Monitoring
- Project and Environmental Review and Permitting Process
- Species at risk and invasive species management
- Stormwater management



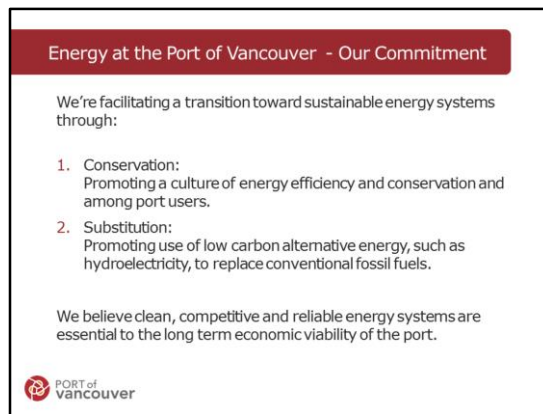
Holistic approach to energy:

1. Energy is fundamental to the global economy, and will play a key role in shaping the future of the port
2. Energy transition was identified as a key driver in Port 2050
3. Moving cargo, each step of the way, requires energy, therefore energy is a critical enabler of port activities
4. Port activities are primarily powered by fossil fuels, in particular diesel and conventional marine bunker fuels; this has significant implication for GHG emissions and climate change
5. Energy products are important cargos traded through ports that respond to global demand and supply
6. By taking a holistic view of the role that energy plays, ports can become more strategic and ensure energy is a success factor (opportunity) and not an obstacle (risk)
7. A sustainable port must therefore recognize and make plans to address:
  1. the role that energy plays in moving cargo
  2. the role that energy plays in shaping trade and the global economy
  3. the role that energy plays in climate change

In 2010 we embarked on our Port 2050 scenario planning exercise. Our Port 2050 Process was a strategic visioning process that we undertook with input from numerous diverse port stakeholders. Over two years we developed four plausible futures for the Gateway.

Our current trajectory positions us in the Rising Tide scenario but our preferred scenario and the one that our business model directs us towards is the Anticipated Future or what we call the Great Transition. This is really a triple bottom line future. The theme of Energy Transition emerged as one of the key drivers towards that future.





After nearly a decade of regulatory reforms, collaborative projects and strategic initiatives, port-related air emissions are trending downward in all areas with exception of GHG.

Reduction of port-related GHG emissions drives our fuel source preferences and overall energy consumption reduction goals.

Key to our transition to sustainable energy systems:

1. Conservation:  
Promoting a culture of energy efficiency and conservation and among port users.
2. Substitution:  
Promoting use of low carbon alternative energy, such as hydroelectricity, to replace conventional fossil fuels.

**The province of British Columbia is fortunate to have most of its electrical power provided by clean hydroelectricity. VFPA believes that clean hydroelectric energy is an asset to our Gateway. Port electrification is one of the main GHG reduction strategies.**

**1. In order to ensure energy availability for the port growing businesses our initial focus is on energy efficiency and conservation.**

We are working hard to create a culture of energy conservation among port users.

- We work hard to understand the unique nature of port operations and businesses and seek to develop helpful programs that respond to those unique operational needs
- In 2012, we worked in partnership with our local utility provider BC Hydro to introduce the Energy Action Initiative and more recently we've worked to adapt the program to maintain and improve access to financial incentives and technical support.
- We believe that leading ports around the world will need to improve energy conservation practices to remain competitive in the long-term future.

*"Fuel switching to decarbonized electricity is the single most significant pathway toward achieving deep emissions reduction globally."*

**2. And so, while our port terminals help the local utility to create new electric loads through energy conservation, this saved energy is being used for substituting or replacing conventional fossil fuels with hydroelectricity.**

- **Electrification of land side equipment.** - Encouraging terminals and distribution centers to **electrify diesel-powered cargo handling equipment** including forklifts, and replacement of RTGs with RMGs
- **Shorepower** for cruise since 2009. 2 projects at design stage for container terminals. Expect to be in operation in 2017.
- Planning for the **electric highway (E-Highway)** for port drayage trucks through a feasibility study with Siemens. Similar to LA and Sweden.

**We believe clean, competitive and reliable energy systems are essential to the long term economic viability of the port.**



- Thank you
- If you have any questions about our programs or if you'd like more details, I would be happy to discuss further.
- There are also a number of my team members here so please feel free to ask:
  - Dorota Kwasnik,
  - Gary Olszewski,
  - Krista Trounce
  - and others about the technical details.