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Some perspective:

- Port Metro Vancouver is Canada's largest port and the fourth largest tonnage port in North America, responsible for Canada's trade with more than 160 world economies.
- Located in a naturally beautiful setting on Canada's west coast, Port Metro Vancouver is responsible for the efficient and reliable movement of goods and passengers, and integrates environmental, social and economic sustainability initiatives into all areas of port operations.
- Port Metro Vancouver is committed to meaningful engagement with the communities in which it operates and the shared obligation to improve the quality of life for Canadians. Enabling the trade of approximately $184 billion in goods annually – or 20% of Canada's entire trade in goods (by value), the port generates an estimated 100,000 jobs, $6.1 billion in wages, and $9.7 billion in GDP across Canada.

British Columbia Electricity

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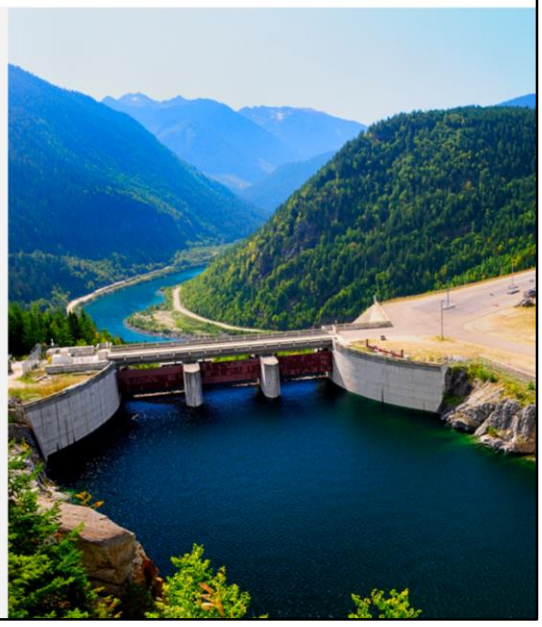
- Clean, competitive, renewable hydroelectric energy
- Regulated market utility – BC Hydro – provincial crown corporation
- 90% of energy in BC is hydroelectric



- We have a problem that I suspect most other ports would love to have – our operations are powered by an inexpensive, clean, hydro-electrical energy. Why is that a problem? Well, try to persuade any business operator to give any attention to an issue that does not significantly impact their bottom line.

Port Energy - What's at Stake?

Port-related industries account for a large proportion of the industrial energy consumed in the Vancouver area

Major tenants - PMV Classification	# Sites /Accounts	Electrical Consumption (Total GWh/y)	Terminals
Major terminals	6	102	GCT (Deltaport & Vanterm); Westshore; DP World; FSD; Western Stevedoring
Medium Terminals	9	131 + 500	Neptune; Viterra (Cascade & Pacific); Alliance; Richardson; Cargill; PCT; WCR; Canexus
Minor terminals	7	46	Kinder Morgan Van. Wharves; Fibreco; Lantic (Rogers Sugar) Suncor – Burrard Terminal); Chevron; Imperial Oil (loco); Shell;
Automobile terminals	3	4	WWL; Fraser Wharves; Adesa Auctions
Main tenants	5	271	Lafarge cement; Lehigh cement; Howe Sound P&P Chip Plant; Seaspan (Ferries, Drydock and Shipyard); Vancouver Pile Driving
TOTAL	**30**	**1054**	

The Port uses more than 1000 times the electrical energy consumed by a 20 story high-rise

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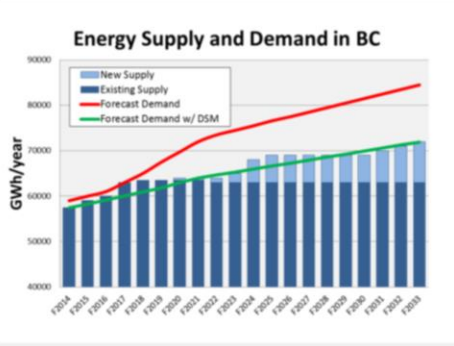
Port Metro Vancouver has currently over 1000 leasing agreements with various tenants – from container to bulk and break-bulk terminals; automotive, distribution centers, and some manufacturing plants. As a collective, we use almost 2000 GWh/y of electrical energy more than half of it being used by 30 major terminals and tenants.

Our challenge is to grow trade while preventing or minimizing our impacts

Electricity Demand vs. Supply



- Energy consumption should be brought in line with the amount of energy produced from renewable resources
  - Energy efficiency is a crucial element of the transformation of the energy infrastructure
- Saved electricity is just as good as newly generated electricity → Demand-side Management

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- Whatever your renewable energy resources are or will be – hydro in our case, might be wind and solar in yours – the consumption should be brought in line with the renewable supply.
- Although we have comfortable amount of hydro energy supply especially in Southern BC where we operate however, our operations grow substantially every year and so does electricity demand.
  - In 4 or 5 years, there is a gap between supply and demand, and that it grows over time. Utility has to address this gap
- Our utility provider, BC Hydro, calculated that the least expensive way for them to create new load is through energy conservation (1/3 of the coast of new load generation). Therefore they provide good incentives for projects that result in energy conservation and that's how we get attention of our terminal operators to energy conservation.
- Our port and probably yours is carrying around a significant amount of belly fat in the form of wasted energy. The biggest opportunity sustainable ports have is to reduce it.
- We're reducing our belly fat to bring the demand in line with available renewable hydro supply.
- Reducing the that belly fat while planning installation of other renewable energy sources like maybe those you guys consider for your ports – wind, solar, biomass, LNG – is even more important. It will enable you to design for capacity you need and reduce the cost of initial investment.

Why would the Port tenants be interested in conservation of relatively inexpensive electrical energy?

- It might be relatively inexpensive but …

BC Hydro rates are up 15% since April 1, 2014 and confirmed to rise by 27% by April 1, 2019

We're in the regulated market – limited opportunity for rate negotiations.

PMV focus is strategic – Executives and senior leaders are driving energy efficiency and conservation. That's why they launched Energy Action Initiative in partnership with BC Hydro in 2013 by creating the position of Energy Specialist, or Industrial Energy Manager as identified by the Utility, that incentivizes part of the managers' salary.

Our Strategic Energy Management Plan, which is a working document that evolves with time and information availability, outlines the Port approach to supporting our tenants in advancing their energy conservation efforts.

PMV Energy Action Initiative

- Potential for saving energy within the Port jurisdiction is considerable
- Port-based companies receive consulting and financial (utility) support to:
  - Implement energy-saving measures
  - Install energy measurement and control strategy
  - Introduce Energy Management Systems

Amongst other things, measures are supported which relate to electric-powered motors, compressed air, lighting, production technology and information technology

BC Hydro incentivizes up to 75% of a project cost if the project results in energy consumption reduction. Most incentives are available directly to the Electricity Account holder but some that require higher level of accountability and follow-up are available through a designated energy manager. PMV energy manager is available to all tenants at no additional cost to them.

How Do We Help?

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- Facilitate exchange of tenant experiences and knowledge, e.g. workshops, training sessions, resources portal
- Perform energy assessments and facilitate energy studies

- Assist tenants in to development of business case for energy conservation measures (e.g. life cycle cost analysis of a project)
- Support applications for financial incentives from BC Hydro

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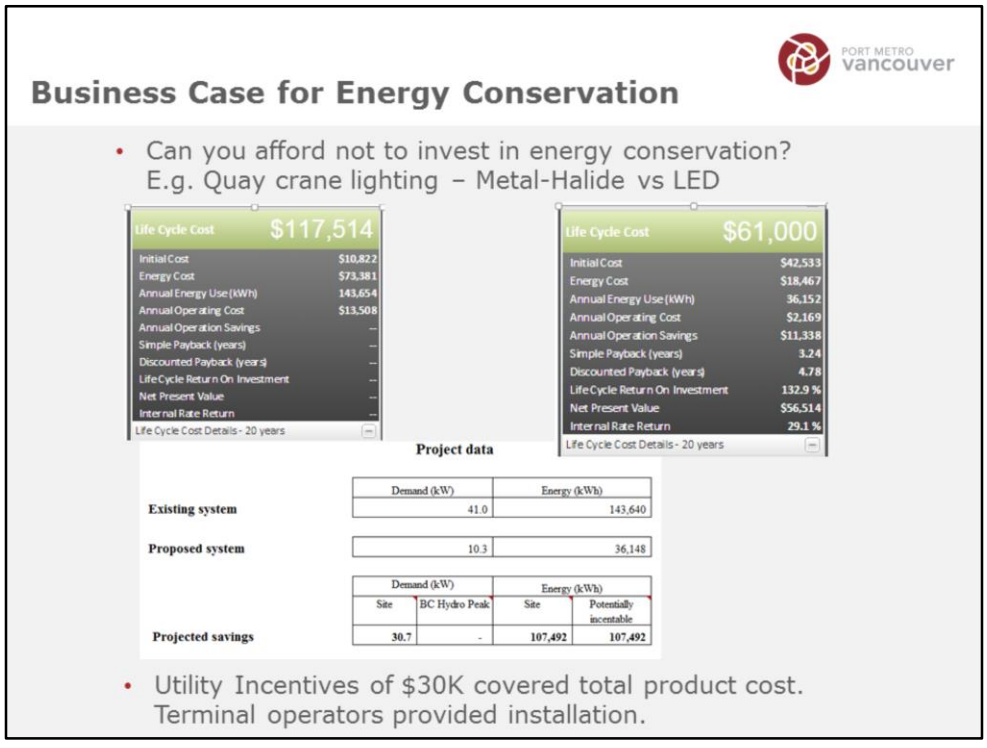
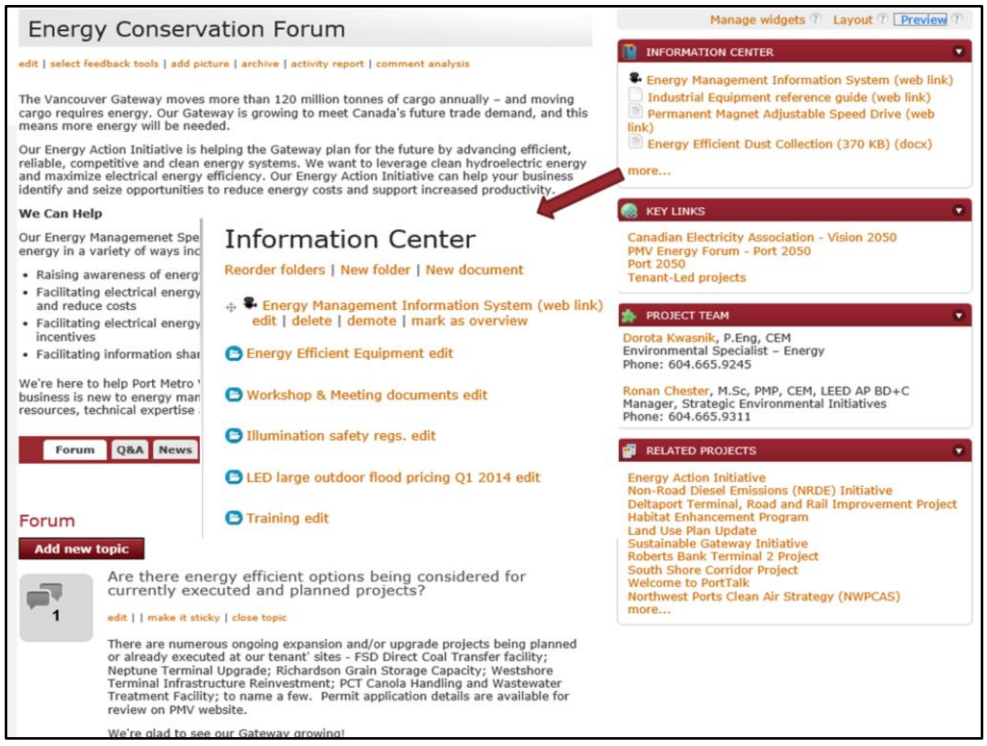
What do we do?

Sometimes there is a need for somebody to nag you to make things happen.



PMV / Terminal cooperation – Quay crane lighting retrofit

- PMV assisted all the way from initial RFP, selection of a vendor, review of the lighting design and safety requirements, to incentives application.



Our online forum is member (tenant) only web site that allows for information exchange in comfortable environment.

Members can post their project description / challenges and seek feedback

Information Center contains:

- Workshop and meetings documentation
- Results of research on port terminals related energy efficient equipment including lighting products / vendors prequalification for marine industrial outdoor environment.
- We post negotiated pricing on suitable product (primarily lights)
- Provide research on applicable safety regulations, etc.

Energy Conservation in Project Permit Application

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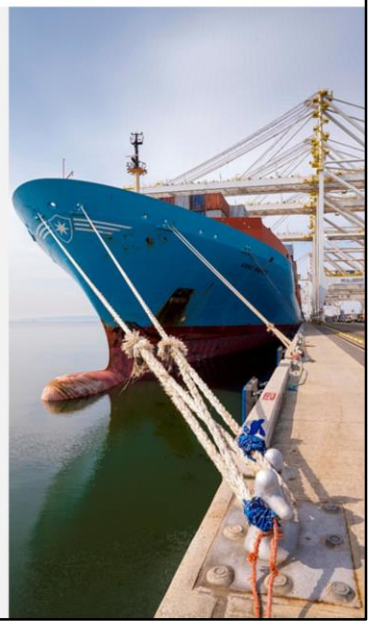
Energy efficiency study included in Project and Environmental Review

- An assessment of how the proposed development (buildings, motorized equipment, and lights) will affect electrical energy consumption levels
- Include energy modeling, demonstrate consideration of BATNEC (Best Available Technology Not Entailing Excessive Cost) energy efficient equipment



New projects taking place on land, water and air space administered by PMV are subject to our Project Review Process, which involves a rigorous evaluation of development and building plans and an environmental review.

•We plan to encourage our tenants to consider Energy Conservation Measures in their new projects

•Currently, the energy efficiency study is to be performed on voluntary basis. PMV Planners and Environmental Dept. reviewers encourage energy modeling to proponent and provide PMV energy manager contact information to support with the requirement.

Gateway Energy Monitoring System

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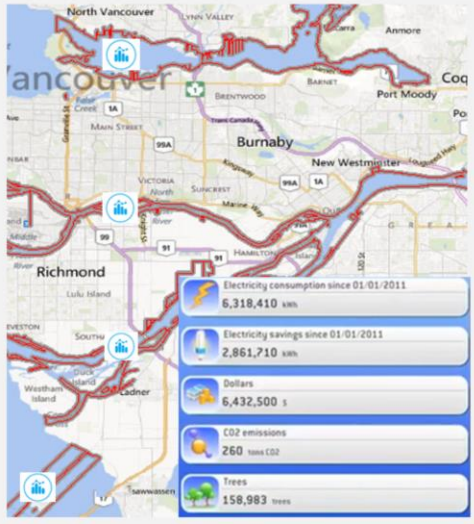
You can only manage what you can measure!

- Connecting all PMV and available tenant electricity consumption data into the **Gateway Power Monitoring Expert**
  - Benchmarking
  - Improvement targets
  - Report on sector specific and overall Gateway performance



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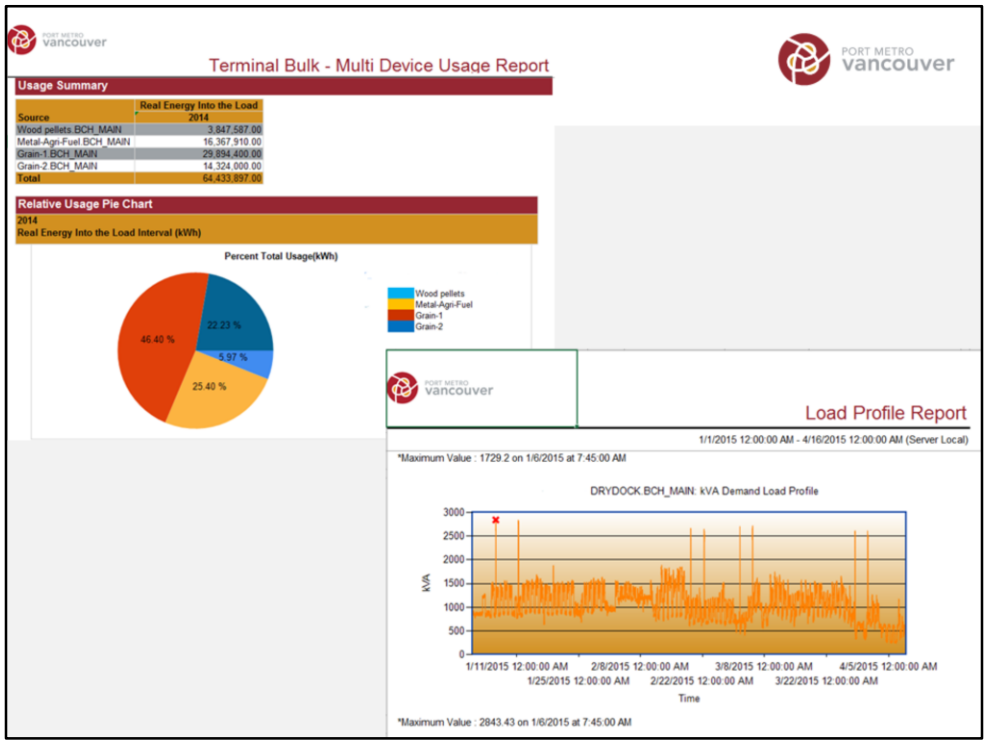
Utility incentives available to PMV energy mgr. for tenants to install metering and EMIS.



Example of preliminary reports from PMV Power Monitoring Expert.

Wrapping up I just wanted to highlight our port's mission and overlaying reason why we care about energy conservation – We do that because we recognize the need to balance port operations with community concerns and environmental protection.

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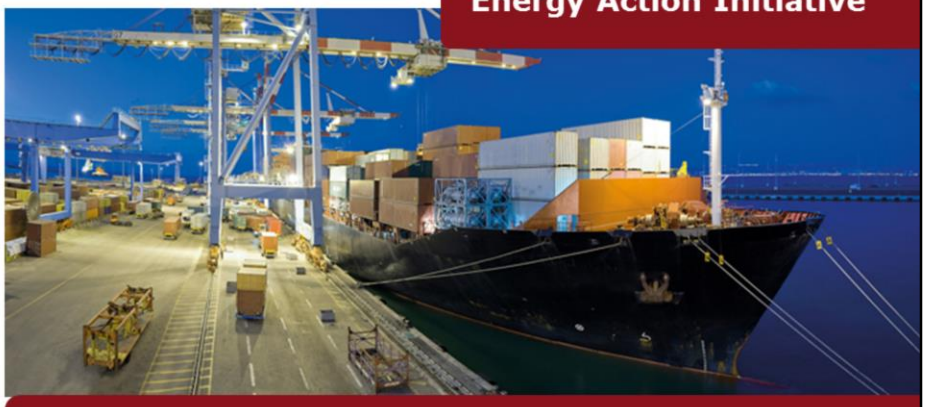
Energy Action Initiative



Our Gateway is growing to meet Canada's future trade demand – more energy will be needed