




Shore Power at Canada Place

Canada Port Authority Mandate and Role

- 
- Facilitate Canada's trade
 - Protect the environment
 - Consider local communities
 - Operate safely
 - Be commercially viable
 - Invest revenue back into the gateway

*Work for the benefit of all
Canadians*

Most diversified port in North America

trade with
170+
economies



Prince
Rupert

Vancouver

Montreal
Toronto
Minneapolis
Detroit
Chicago
Memphis
New Orleans

Busan

Tokyo
Yokohama

Shanghai

Kaohsiung

Shenzhen
Hong Kong

Ho Chi Minh City

Singapore

142 million
tonnes of cargo annually

Port Jurisdiction



Our Mission and Vision



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



Ensuring a Healthy Environment

- Project and Environmental Review
- Internationally recognized ECHO Program to reduce effects of underwater noise on whales
- Fee discounts and awards for environmental responsibility
- Shore power for cruise ships and container ships
- International collaboration on ship environmental programs
- Facilitating the use of LNG as a marine fuel
- Container trucking strategy
- Habitat enhancement

Enhancing Cetacean Habitat and Observation (ECHO) Program

- ECHO is a collaboration of industry, NGO's, governments, scientists to understand and reduce acoustic impacts of commercial vessel activities
- Incentives available for shipping lines through Harbour Dues for quiet vessel qualifications
- 50+ participants during two-month voluntary vessel slowdown trial from Aug. 7 to Oct. 6:
- Total vessel participation rate: 61%

Photo credit: Joan Lopez

Vancouver's Cruise Business is Growing



- Homeport for the Vancouver-Alaska Cruise: May to September
- 2018: 889,162 passengers on 241 calls
- 2019: 1,077,000 F passengers on 290 calls
- 2020: 1,200,000 F passengers on 314 calls
- Nearly 50% of all calls are shore power enabled in 2019!

Port of Vancouver Itineraries



Economic Benefits of Vancouver's Cruise Business

\$ 3 million of direct economic benefit per homeported call



2016
CRUISE
INDUSTRY
SPENDING

Direct Spending
\$810 M



Total Jobs
(Direct & Indirect)
12,000



Total Wages
(Direct & Indirect)
\$549 M



Total GDP
(Direct & Indirect)
\$840 M



Canada Place Shore Power: Collaborative Investment



Government
of Canada



BRITISH
COLUMBIA
The Best Place on Earth



PRINCESS CRUISES
escape completely™



Holland America Line
A Signature of Excellence



Disney
CRUISE LINE



PORT of
vancouver



Project Summary

- In 2009, it became the third cruise ship shore power installation in the world and most technically advanced at time of installation
- In 2013, additional shore power connection was installed on West berth
- Can supply two ships simultaneously @ up to 14MW per ship; dual voltage transformers supply power to 11kV or 6.6kV class ships
- Clean energy!



20,757 MT of GHG Emissions Reduced Since 2009!

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Successful Connections	11	44	35	60	82	76	77	54	54	62
Calls capable of connecting		58	58*	74	106	98	92	70	68	91
Electricity consumed (MWh)	353	2,024	1,762	2,960	3,975	3,545	3,572	2,766	2,865	3,048
Net GHG emissions reduction (tonnes)	289	1,521	1,318	2,266	3,092	2656	2811	2,185	2,126	2,493
CACs reduced (tonnes)	7	54	47	80	91	78	66	51	50	58
Fuel Savings (tonnes)	93	476	424	725	978	841	885	689	671	785

** The 20 Calls in 2011 by Disney Wonder were not included as the configuration did not allow them to connect to the equipment. In 2013 they were able to connect due to installation of additional jib on West berth*

2019 Weekly Cruise Schedule: 139 shore power calls

Weekly Schedule 2019							
Berth	Sun	Mon	Tue	Wed	Thu	Fri	Sat
CP West	Noordam (13 calls)	Disney Wonder (19 calls)		Volendam (21 calls)			Nieuw Amsterdam (22 calls)
	Westerdam (12 calls)						
CP East	Celebrity Eclipse (22 calls)	Norwegian Jewel (13 calls)		Coral Princess (12 calls)		Radiance of the Seas (10 calls)	Golden Princess (13 calls)
				Island Princess (12 calls)		Celebrity Millennium (10 calls)	Royal Princess (10 calls)
CP North			Crystal Symphony (10 calls)	Seven Seas Mariner (10 calls)	Silver Muse (8 calls)		

Various Days: Amsterdam (2), Asuka II (1), Carnival Legend (3), Celebrity Solstice (2), Emerald Princess (2), Eurodam (3), Grand Princess (2), L'Austral (1), Le Soleal (4), Maasdam (2), Norwegian Bliss (2), Oosterdam (2), Regatta (4), Ruby Princess (2), Seabourn Sojourn (8), Silver Explorer (1), Star Princess (4), Sun Princess (1), Windstar Legend (7)

New Vessels Various Days: Azamara Quest (5), Norwegian Joy (2), Ovation of the Seas (2), Queen Elizabeth (5), Roald Amundsen (1), Viking Orion (5),

**Forecast: 290 calls and
1,064,880 passengers (F)**

New in 2019

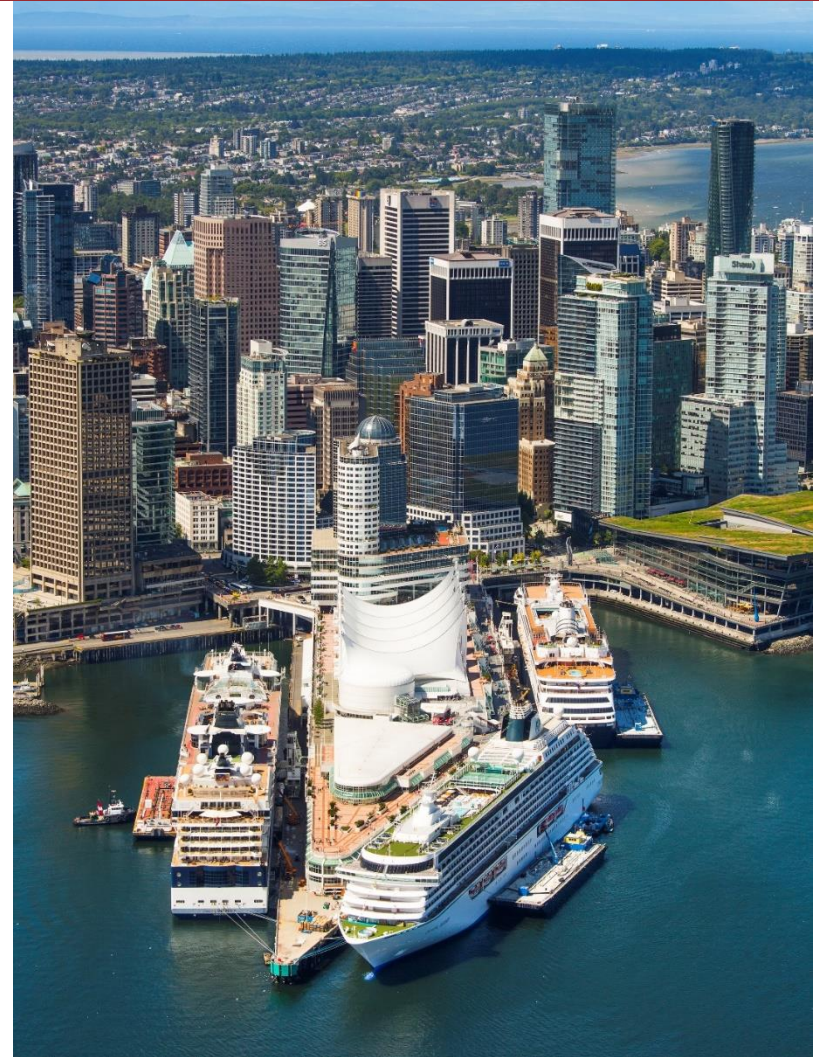
Shore Power Equipped

Challenges and Lessons Learned

- Development and regulatory approval of a commercially viable interruptible electricity rate
- Change in delivery date of the transformers and design changes to the jibs
- ILWU – BCMEA Work Jurisdiction Arbitration
- Flexibility in designing jib locations to maximize connections
- Contracts and agreements (funding, development, operating and maintenance, third party usage, construction management and procurement, end-user agreements, etc.)

Criteria For A Successful Project

- Availability of adequate supply of electricity at a reasonable cost
- Frequency of calls of cruise vessels equipped to connect to shore power
- Availability of same dock and pier facility for these vessels for every call
- Adequate dock and upland space for the equipment
- Willing partners: utility company, port, government agencies and....cruise lines!



Source: Tom Dow, Carnival Corp.

portvancouver.com/cruise