



# Committee of the Whole Workshop

Greater Victoria Harbour Authority

Dec. 5, 2019

## Acknowledgement of Traditional Lekwungen Territory



*Songhees Nation*



*Esquimalt Nation*





## Presentation Outline

1. Introductions
2. Current and future status of cruise in Victoria
3. Status of shore power and next steps
4. Emissions inventory findings and recommendations
5. Waste management at the Victoria Cruise Terminal
6. Global cruise efforts – emissions and waste management
7. Next steps

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## Introductions



### Ian Robertson

CEO, Greater Victoria Harbour Authority



### Jill Doucette

CEO & Founder, Synergy Enterprises



### Steve Hnatko

Vice President & General Manager, Tymac



### Barry Penner

Strategic Advisor, Cruise Lines International Association  
North West & Canada

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## GVHA Financials

Year Ending March 31, 2019



\$15.3M in  
Operating  
Revenues



\$3M EBITDA



\$12.3M in  
Operating  
Expenses



\$8.9M in  
Capital Spent  
& Committed

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## 2019/2020 Status of Cruise



### 2019

- 256 ship calls (264 planned)
- 709,042 passengers
- 30 different vessels
- 16 cruise lines

### 2020

- 284 ship calls
- 774,000 passengers
- 29 different vessels
- 12 cruise lines

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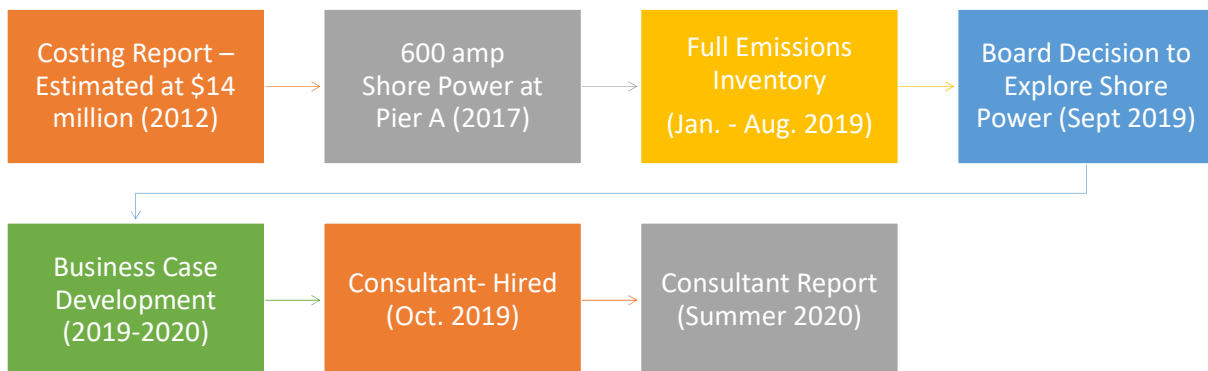
## Sustainable Growth of Cruise



Year	Pax Volume	Ship Calls	Average Pax Per Ship
2018	639,758	243	2,633
2019	709,042	256	2,770
2020*	774,702	284	2,728
2021**	~774,702-780,000	~270-280	2,783
2022***	~785,000	~275-285	2,794

\* Estimated calls for 2020, based on confirmed schedules  
 \*\* Estimate based only on berth requests, and not confirmed schedules  
 \*\*\* Estimate based on Alaskan itinerary growth signals from cruise lines

## Shore Power at the Victoria Cruise Terminal





## Victoria Cruise Terminal Emissions Inventory

- Triple-bottom line is one of the five guiding principles of the Greater Victoria Harbour Authority
- Continuous improvement for areas where we maintain and assert control and influence
- Required a baseline for emissions to move toward a business case for GHG and CAC mitigation and reduction
- Hired Synergy Enterprises to conduct the work in the spring and summer 2019
- Results show positive change, with more work to be done

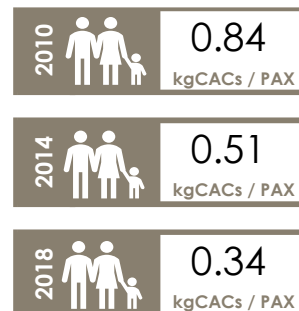
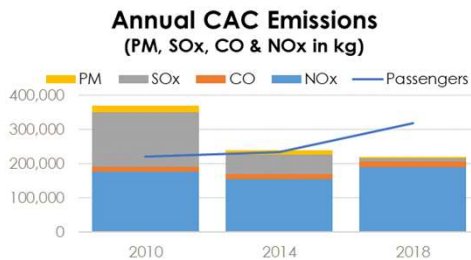


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## Emissions Inventory Findings



- Measures Criteria Air Contaminants (CACs) from ocean-going vessels at Ogden Point.

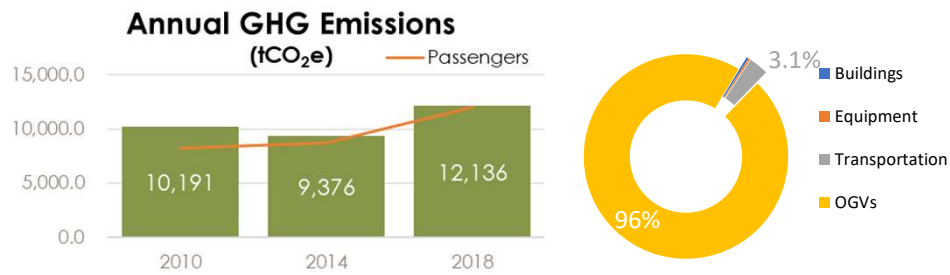


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## Emissions Inventory Findings

- Measures Greenhouse Gas (GHG) emissions from buildings, equipment, transportation and ocean-going vessels at Ogden Point.

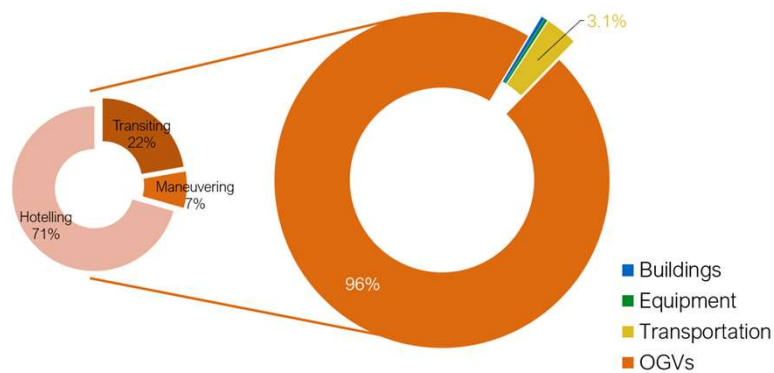


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## Emissions Inventory Findings

- The greatest portion of emissions and CACs arise from hotelling of vessels



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## Emissions Inventory Recommendations



- 45% of ship calls in 2018 were shore power capable
- **Proposed System:** Single interruptible power at Pier B with single 25kV feeder and max capacity of 12MW savings:
  - GHG Emission Reduction: 51% of hotelling, 36% of all cruise
  - CAC Emission Reduction: 47% of hotelling, 33% of all cruise
  - AECOM 2012 Study: \$13,766,577 (Current: ~ \$15M)
  - \$100/tonne of GHG emissions (over 30 year lifespan)

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**TYMAC**

## WASTE MANAGEMENT OPERATIONS

### ABOUT TYMAC

Established in 1929, Tymac is a privately held **Canadian Company** that has specialized in servicing the BC Cruise Industry since 1989. 25 local employees. Proud members International Longshore & Warehouse Union (ILWU Canada).

**Green Marine Certified Facility**, a voluntary environmental certification program whose members commit to continuously reduce their environmental footprint and carry out its operational activities in an environmentally sustainable and responsible manner.

**Two-time recipient** of the **Recycling Council of British Columbia (RCBC) Private Sector Award – Excellence in Leadership & Environmental Stewardship (2014 & 2018)**. An award that is granted annually to one private company based off nominations across all peers within the Recycling Industry in British Columbia.



Proudly Canadian



GREEN MARINE CERTIFIED

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## WASTE MANAGEMENT OPERATIONS

### ENVIRONMENTAL SUSTAINABILITY

- 'Waste' vs Recycling
- Diversion + Waste-to-Energy
- Onboard Reduction
- Repurpose + Reclamation Efforts
- Landfill Free Initiatives

### GUIDANCE & TRAINING

- Training – In Field / On-board Support → Environmental Specialists
- Auditing & Certification Process
- Cradle to Grave – Material Tracking



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## WASTE MANAGEMENT OPERATIONS

### DIVERSION & ENVIRONMENTAL RESULTS

- +98% DIVERTED AND/OR RECYCLED (2018)
- +85% RECYCLED (2018)
- <2% LANDFILL (2018)

### 2030 GOALS & INITIATIVES

- Future Technology Investment & Implementation
- Landfill Free Organizations while calling BC Ports (50% by 2025)
- Carbon Neutrality
- Alternative Fuel Roll-Out (Shoreside Equipment)
- Assist the GVHA and CRD in future Marine Waste Management System Planning

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**TYMAC**

## WASTE MANAGEMENT OPERATIONS

### RECYCLING PRODUCT EXAMPLES

- Batteries (Alkaline, NiCad, Lead Acid, Lithium)
- Broken China & Crockery
- Cardboard, Paper & Other Fiber Products
- Cigarette Butts
- Compact Fridges
- Compressors
- Cooking Oil
- E-Waste (Computers, Printers, Monitors, Entertainment Devices, Controls)
- Food Compost & Grease Trap
- Glass (all types)
- Lights (Fluorescent Tubes, Halogens, HID, Incandescent, LED, U-Tubes, Compacts, UV, Germicidal, Mercury Vapor, Mercury Halide)
- Mattresses & Carpet
- Metal & Mooring Lines
- Printer / Toner Cartridges
- Plastic (PET & Mixed)
- Styrofoam
- Used Oil, Filters & Grease
- Wood & Wooden Pallets

**+ Furniture & Other Items for Donation**

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## Waste Diversion Efforts

**CLIA annually reports on the environmental technologies and practices in place on cruise ships. The latest results show progress in several key areas, including waste management.**

- An increasing number of cruise lines are exploring ways to significantly reduce single-use plastics with corresponding commitments.
- With highly trained waste management professionals onboard, some cruise ships repurpose 100 percent of the waste generated onboard — by reducing, reusing, donating, recycling and converting waste into energy.
- Cruise lines recycle of paper, plastic, aluminum and glass each year. The extent of recycling onboard is superior to that of many cities that the ships visit.



**ONE INDUSTRY. ONE VOICE.**



# Emissions Reduction

While the cruise industry makes up less than 1% of the global maritime community, CLIA Cruise Lines are at the forefront of practices and technologies that offer significant reductions in air emissions.

- CLIA cruise lines made a fleet-wide commitment in December 2018 to reduce the rate of carbon emissions by 40% by 2030 compared to 2008.
- Worldwide, the cruise industry is investing more than \$22 billion in ships with new technologies and cleaner fuels to reduce air emissions and achieve greater energy efficiency.
- Currently 44% of ships on order or under construction are LNG-capable, with two already in service.
- Innovative technologies adopted by the cruise lines that didn't exist just five to ten years ago include LNG for passenger ships & exhaust gas cleaning systems (EGCS).
- Where clean energy is available, the industry is also pursuing the use of shore -side power. Currently shore power is available in 16 out of 1,000 ports world-wide where cruise ships call.

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# Plans for Climate Mitigation

## LIQUIFIED NATURAL GAS (LNG)

LNG has virtually zero sulfur emissions, a 95% to 100% reduction in particulate emissions, an 85% reduction in NOx emissions, and up to 20% reduction in greenhouse gas emissions.

**26 LNG-POWERED**  
ships currently ordered or under construction



**44% NEW CAPACITY**  
committed to rely on LNG for primary propulsion  
(60% increase in global capacity over 2018)

## EXHAUST GAS CLEANING SYSTEMS (EGCS)

EGCS reduces sulfur oxide levels by as much as 98%, atypical total particulate matter reduction of 50% or more, including elemental and organic carbon and black carbon, and nitrogen oxides by up to 12%.

**68% GLOBAL CAPACITY**  
utilizes EGCS to meet or exceed air emissions requirements (up 17% over 2018)



**75% NEW SHIPS**  
not relying on LNG will have EGCS installed  
(8% increase in global capacity over 2018)

## SHORE-SIDE POWER CAPABILITY

Cruise ships may operate on shore-side electricity at 16 ports worldwide, reducing overall emissions while at port.

**30% GLOBAL CAPACITY**  
are fitted to operate on shore-side electricity (up 10% over 2018)

**18% TO BE RETROFITTED**  
with shore-side electricity systems  
(up 300% over 2018)



**88% NEW SHIPS**  
will be fitted with shore-side electricity systems or configured to add shore-side power in the future

Source: CLIA 2019 Environmental Technologies and Practices Report

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**While much progress has been made, the industry recognizes that it can and must do more.**



## Our Next Steps



- On-site environmental overview for Mayor & Council, including tour of the Breakwater District at Ogden Point, onboard ship tour, and waste management transfer facility tour.
- Periodic updates on the development of the business case for shore power at the Victoria Cruise Terminal.
- Ad-hoc requests for information between both GVHA and City of Victoria.
- Semi-annual reporting to City of Victoria as one of GVHA's Member Agencies