



# R/V Spirit of the Sound<sup>®</sup>

**The practical application of a  
hybrid system in a 19 meter  
research vessel**

# The Problem:

- Replace the Aging 41 foot R/V Oceanic
- Utilize Green Technology
- Expand Capabilities
- Add Educational/Research Programing
- Expand Passenger Counts



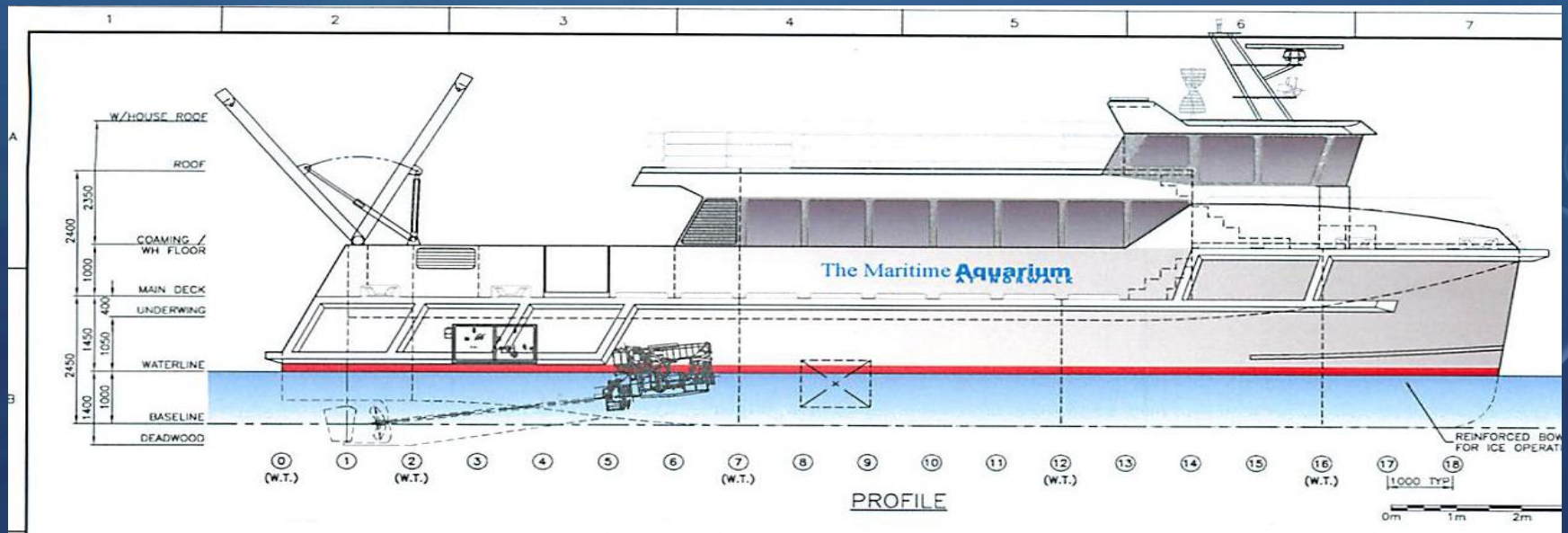
# The Solution:

- Hybrid System
- Larger Platform
- Development of New Programs
- 60 Passengers versus 30
- Seek Federal, State and Private Research Projects



# The Build:

➤ <https://www.youtube.com/watch?v=zBfQFH-2ga8>



# The Technology:

- Incat Crowther Hull
- Northern Lights Generation
- BAE Systems HybriDrive Propulsion System
- Corvus Energy Storage Systems



Photo Courtesy of Brian Gauvin

# R/V Spirit of the Sound®

## Vessel Characteristics:

- LOA: 19.5 meters / 64 feet
- Beam: 6.5 meters / 21.3 Feet
- Draft: 1.3 meters / 4.3 feet
- Height: 8.7 meters / 28.6 Feet
- Displacement: 36 GRT

# Generation & Propulsion:

- Northern Lights MH1064H Generator with ISG
  - 173hp@2400rpm
  - 200kW@2300rpm continuous
- TB200 AC Traction Motor
  - 3 phase
  - 200kW / 265 hp peak
  - Torque 5100nm / 3760 ft-lbs peak



# Energy Storage System:

ESS on R/V Spirit of the Sound®



AT6500 Module



## Corvus Energy Lithium-Polymer Packs

- AT6500 Modules (7 per side)
- 700 volts per side
- 280 kW peak per side
- 45.5 kWh per side
- 1150 lbs per side



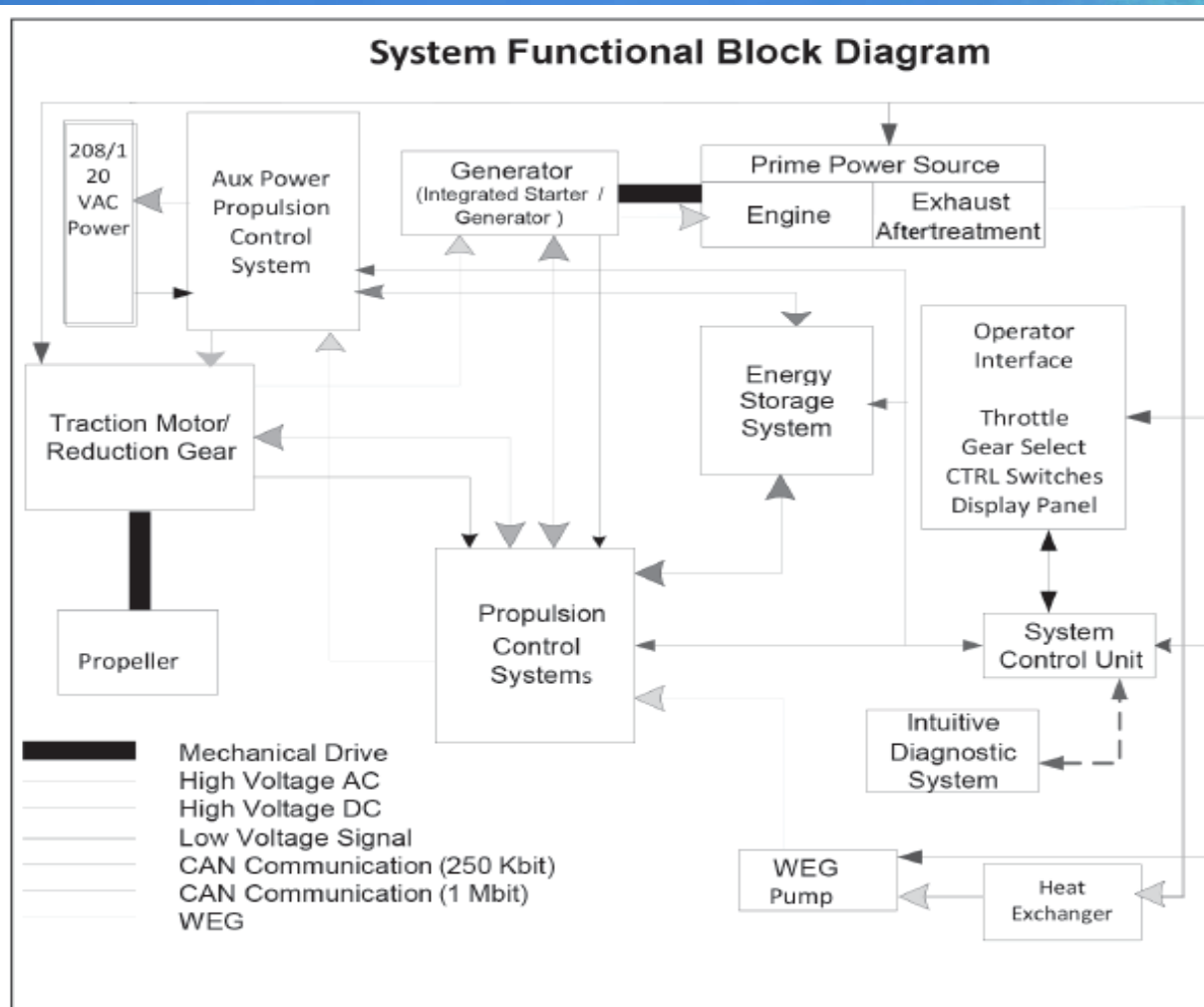


Figure 1 Maritime System Functional Block Diagram

# The Issues:

- First of its kind
- Winter Operations
- Integration
- Myths about the ESS

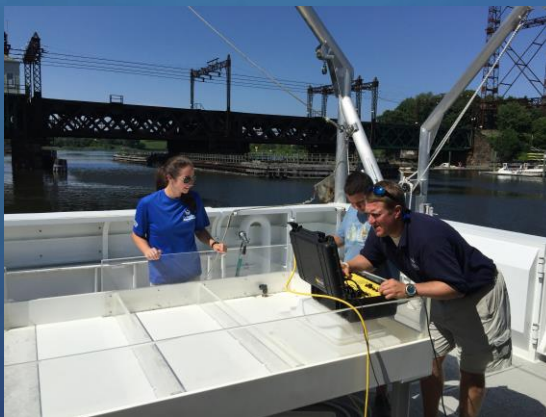


# The Way Forward:

- Continued work with system designers
- Developing Heating Solutions
- BAE Communications
- Time and Safety Records

# Our Sampling Gear and Research:

- 200ft Otter Trawl
- Bio-Dredge
- Benthic Grab
- Plankton Trawls
- Water Quality/Chemistry
- Marine Mammal and Bird  
Observation
- ROV



# The Practicality:

- Savings
- Fuel Economy
- Noise Control
- Emissions
- Speed
- Safety
- Space/Setup
- Inshore Research



Thank you

