

# Aquaculture Vessels: Electric as an Option?



**Aquaculture Association of PEI**

March 2024

**BLUEGRID<sup>4</sup>**

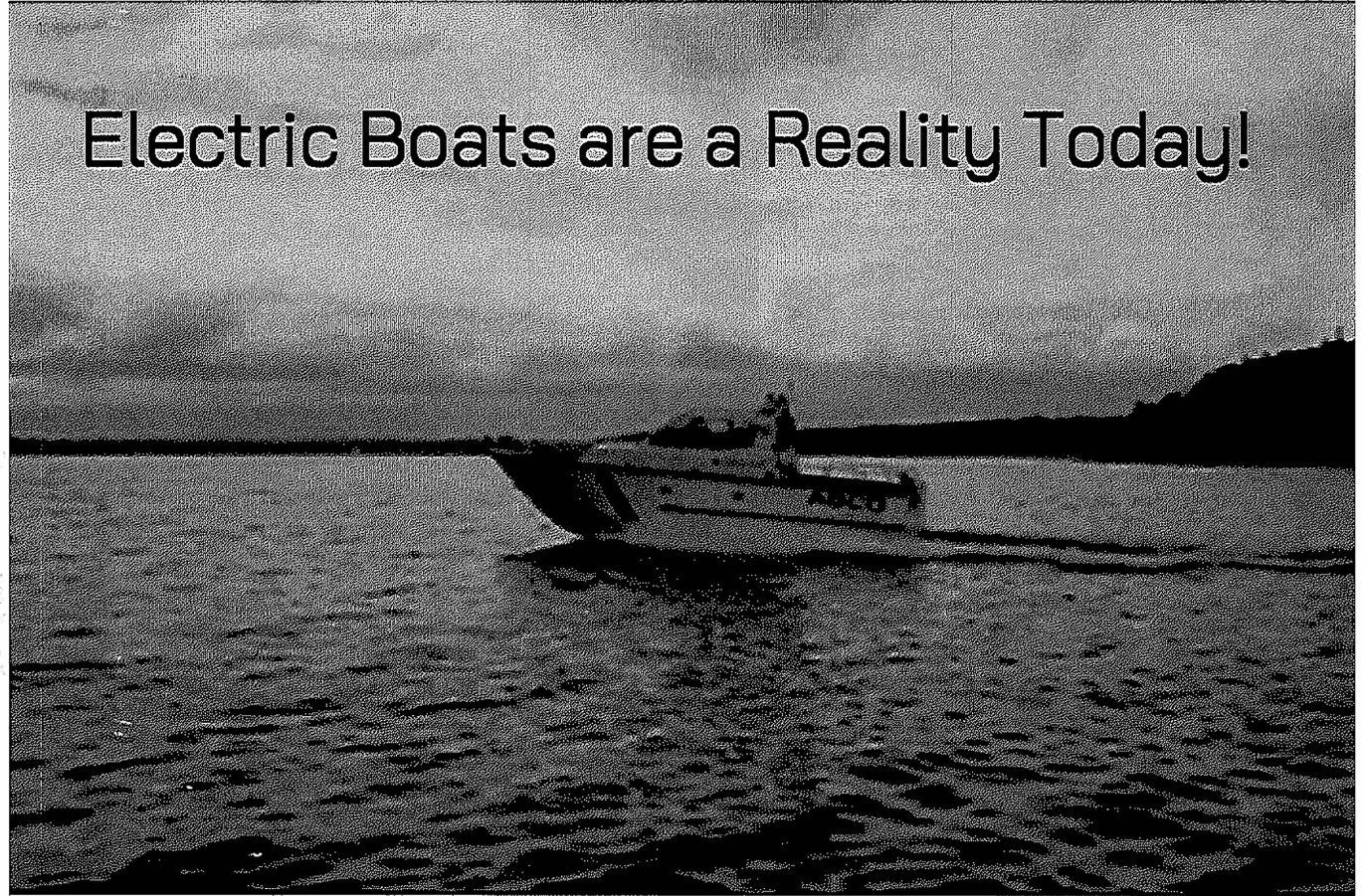
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## Agenda

- Issues You Face
- Benefits
- Typical Electric Vessel
- Challenges and Solutions
- Path Forward
- Conclusions / Q&A

Electric Boats are a Reality Today!



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# Issues You Face Can Electrification help?

## **1. Regulatory Compliance**

- Environmental Regulations
- Licensing and Permits

## **2. Environmental Sustainability**

- Impact on Ecosystems
- Climate Change

## **3. Market Access and Competition**

- Global Competition
- Access to Markets

## **4. Consumer Preferences and Demand**

- Sustainability and Traceability
- Changing Preferences

## **5. Operational Challenges**

- Disease and Parasites
- Access to Technology and Innovation
- Labor and Skills

## **6. Financial Pressures**

- Capital Intensity
- Volatility in Costs and Prices

## **7. Social License to Operate**

- Community Relations.

## **8. Climate Change and Environmental Variability**

- Adaptation to Climate Change

# Aquaculture Benefits of Electrification

## 1. Environmental Benefits:

- Reduced Emissions
- Noise Pollution

## 2. Economic Advantages:

- Fuel Savings
- Maintenance Costs

## 3. Operational Efficiency:

- Energy Efficiency
- Maneuverability

## 4. Regulatory Compliance:

- Emission Regulations
- Access to Restricted Areas

## 5. Sustainability and Corporate Responsibility:

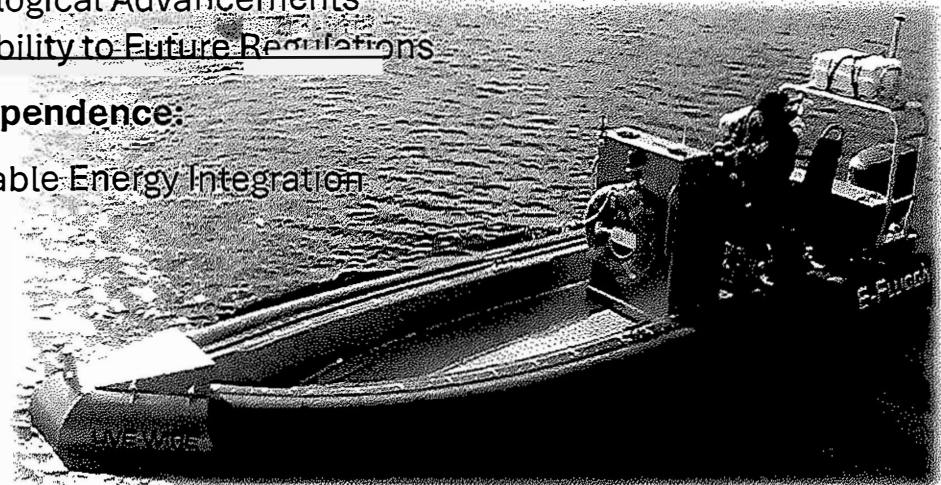
- Sustainable Practices
- Stakeholder Expectations

## 6. Innovation and Future-Proofing:

- Technological Advancements
- Adaptability to Future Regulations

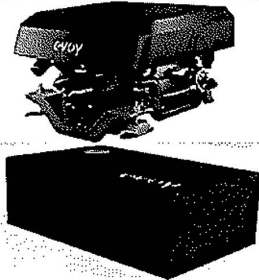
## 7. Energy Independence:

- Renewable Energy Integration





# Local Electric Vessel Example



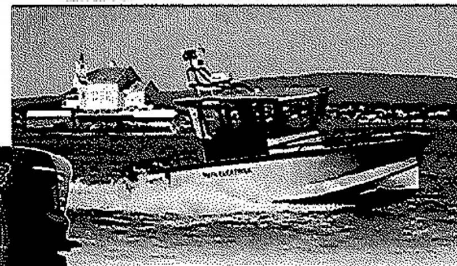
**Boat**  
(Motor, Battery, Interface)



**Shoreside Charging**  
(PCS, Dispenser, Tx)

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## Outboard + Battery



**GOT 8.0 FPV**  
GOT Marine

Top speed	Cruising speed	Est. range
35 knots	20 knots	17 - 96 nm

Evoy system:  Storm 300+ hp outboard

Length: 790 cm

Beam: 300 cm

Energy usage at cruising speed: 6.6 kWh/nm

**€151,700 (\$224k)**

## Inboard + Battery



**Arronet 30CC Electric**  
Arronet Teknik

Top speed	Cruising speed	Est. range
45 knots	30 knots	31 - 116 nm

Evoy system:  Hurricane 400+ hp inboard

Length: 940 cm

Beam: 270 cm

Energy usage at cruising speed: 8.0 kWh/nm

**€198,600 (\$293k)**

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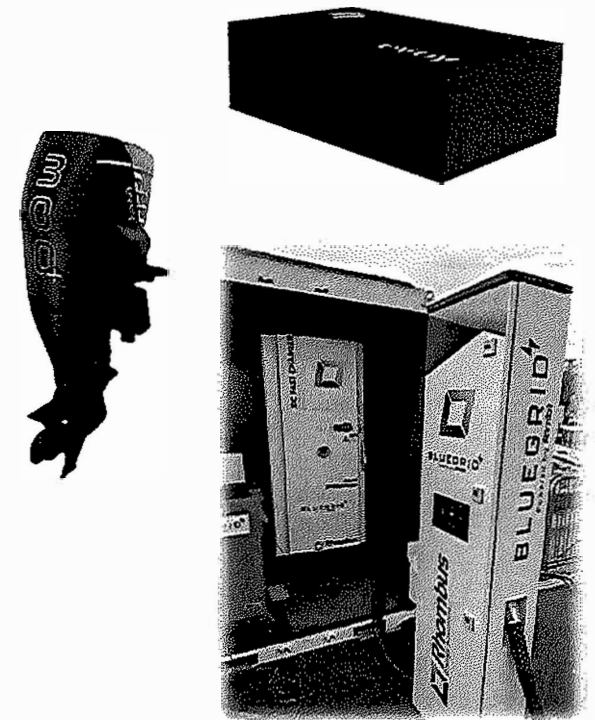
# Challenges (Solutions)

## • Initial Investment and Infrastructure

- Upfront costs
- Charging infrastructure

## • Technology and Range

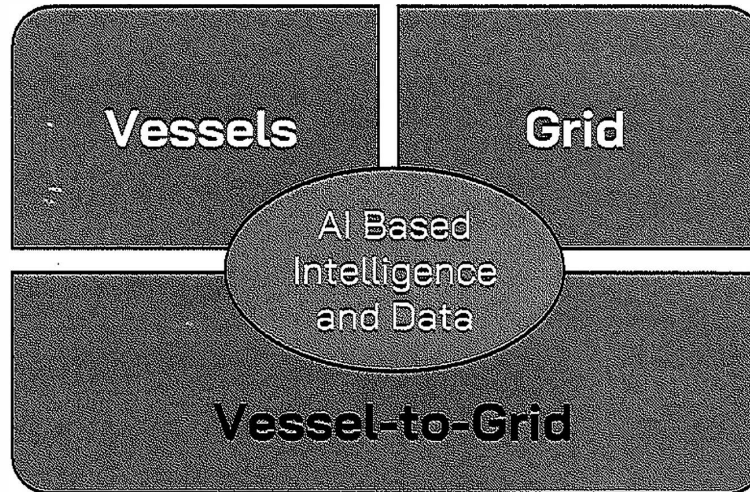
- Limitations in battery technology and range
- Innovation
- Infrastructure development



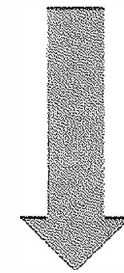
*How:* BlueGrid -- maximize grid storage value from electric marine vessels

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INSIGHTS

**BLUEGRID**<sup>⚡</sup>  
OPERATIONS



*Forecast \$  
and GHG  
Benefits*



*Realize \$  
and GHG  
Benefits*

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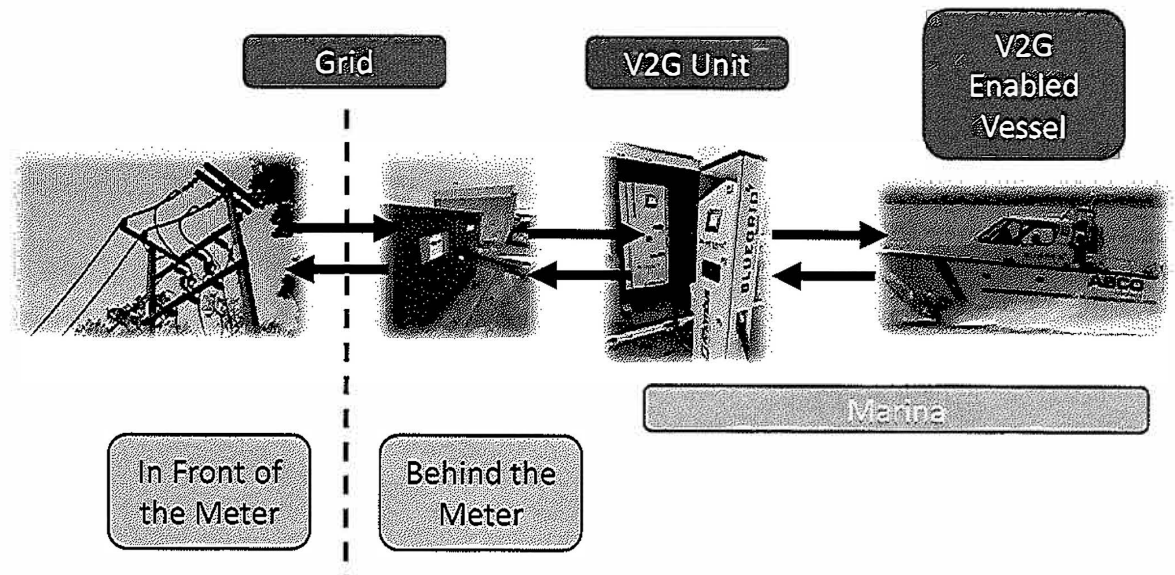
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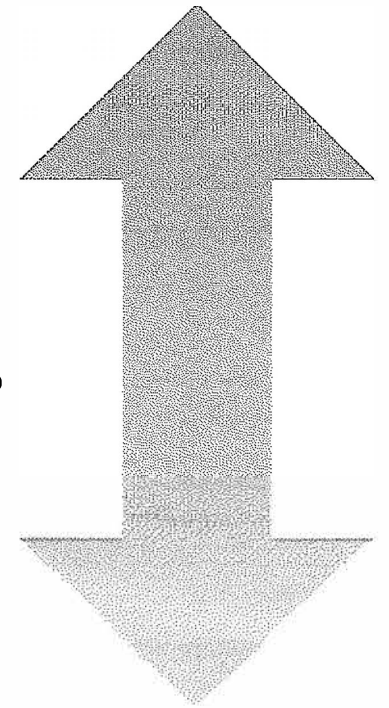
# Vessel-to-Grid: BlueGrid

- Vessel Owner Benefits:
  - Smart charging during operations
  - Lowest charging costs and not impact operations
  - Additional revenues for V2G
- Grid Operator Benefits:
  - Energy resilience in rural fishing areas
  - Obviate need to buy utility batteries
  - Saves rate payers



# Path Forward

- Initial Aquaculture Screening - Can I go electric?
  - Motor and battery size based on current operations
  - Shore side infrastructure required to support
- Detailed Feasibility Study
  - Can the motor/battery go into existing / new vessel?
  - Can the shore side infrastructure support what is needed?
- Ordering, Refit/New Build + Shore Infrastructure
  - It depends ...
- Operations
  - Running the vessel



## Conclusions / Q&A

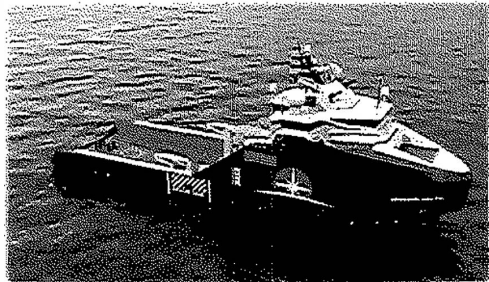
- Electric is here – now.
- Benefits are realistic
- Technology is available now.
- Support is available now.
- Next steps



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# What: NA & European Deployments and Partnerships



evoy

BORGWARNER

Nova Scotia  
**POWER**  
An Emora Company

**ELECTRIC**  
BOATS

**ABCO**

OCEANS  
**NORTH**

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