

# Powering a clean future within the Ocean Space

Market development and Product Roadmap  
Sourcing Strategies  
Second Life Scenarios



**Nils Valland**

**Senior Vice President Supply Chain**

BATMAN – Industrial opportunities within Li-Ion Batteries

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**Corvus**  **Energy**

# Powering a clean future



**71,383,994**

Liters diesel saved



**191,521**

Metric tons CO<sub>2</sub> reduced



**Safe. Trusted. Cost effective.**

Corvus Energy is the world's leading supplier of **safe, innovative** and **reliable** energy storage solutions for all segments in the maritime industry.



### Supplier of ESS

- Founded in 2009
- HQ in Norway
- 170+ employees
- Privately held ownership



### The Team

- Superior battery knowledge
- Culture for innovation
- Strong maritime DNA
- Extensive global network in the maritime industry
- Entrepreneurial skills



### Quality and Risk

- Gated processes for product development
- ISO 9001 certified
- ISO 14001 certified
- Manufacturing according to Industry 4.0
- Extensive project risk mitigation







1 electric fishing vessel



1 Zero emission ferry



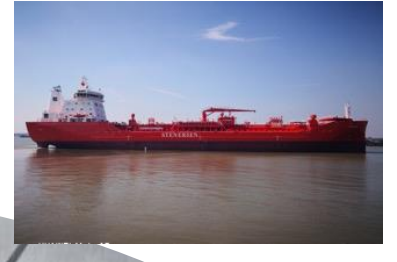
1st Zero Emission Tug



1st long range XLUUV



Worlds largest Hybrid ESS



1st hybrid Tanker



1st OCV to use battery in DP3



1st Hybrid OSV



1st Hybrid Tug



1st Hybrid Shuttle tanker



1st Offshore Drilling Rig



Worlds greenest Ro-Pax



World's first hybrid SES for crew transfer





**AIDAperla,  
Built 2017, 3300 passengers and crew of 900  
Retrofit 2020, 10 MWh installed mid-sea  
Corvus Energy delivers the largest battery pack  
ever delivered to a ship .**



# Market development Marine ESS

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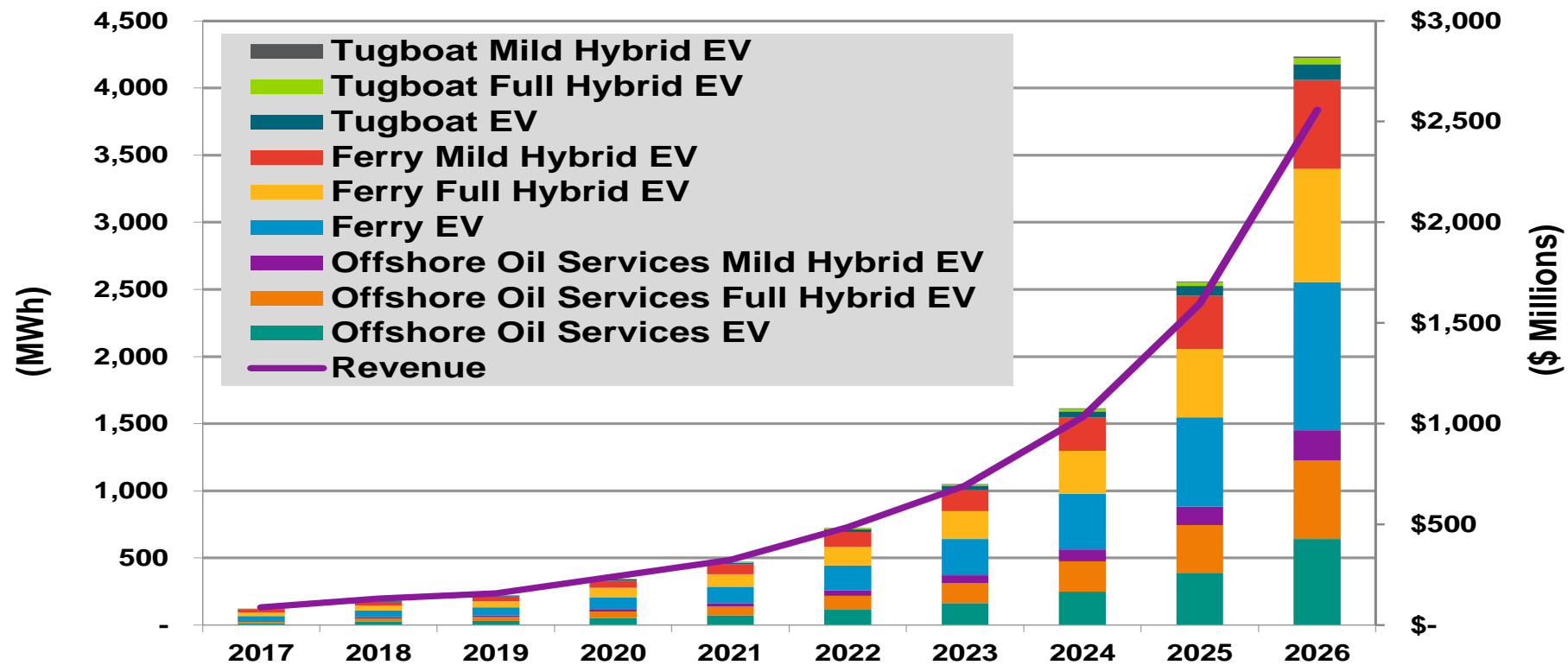
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Market Data: Non-Automotive Transportation Markets for Advanced Batteries



Chart 3.3

Marine Transportation Advanced Battery Pack Energy Capacity and Revenue by Vessel Type, World Markets: 2017-2026



Source: Navigant Research

# Our Product Roadmap



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Energy Storage Solution adapted to vesseltype

|             |  |   |   |  |   |
|-------------|--|---|---|--|---|
|             | Offshore Rig<br>Topside                | Fast Ferry<br>Workboats<br>Pleasure Craft                           | Offshore Vessel<br>Ferries<br>Port Cranes   | Subsea ESS                                       | Ro-ro/ Pax<br>Cruise<br>Yacht                                       |
| Primary Use | Energy recapture<br>Heave compensation | Load leveling<br>Peak shaving<br>Spinning reserve<br>Zero emissions | Load leveling<br>Peak shaving<br>Spinning reserve<br>Zero emissions<br>Energy recapture | Energy efficiency<br>Maintenance free operations | Load leveling<br>Peak shaving<br>Spinning reserve<br>Zero emissions |
| Product     | Corvus Blue<br>Marlin                  | Corvus Dolphin<br>Power & Energy                                    | Corvus Orca<br>Energy   | Corvus Moray<br>Power &<br>Energy                | Corvus Blue<br>Whale  |

Performance Needs



**Energy Storage Solution adapted to vesseltype**

|                         |   |   |            |                              |
|-------------------------|---|---|------------|------------------------------|
| Offshore Rig<br>Topside | Fast Ferry<br>Workboats<br>Pleasure Craft | Offshore Vessel<br>Ferries<br>Port Cranes | Subsea ESS | Ro-ro/ Pax<br>Cruise / Yacht |
|-------------------------|---|---|------------|------------------------------|

Primary Use

|   |   |   |   |   |
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|---|---|---|---|---|

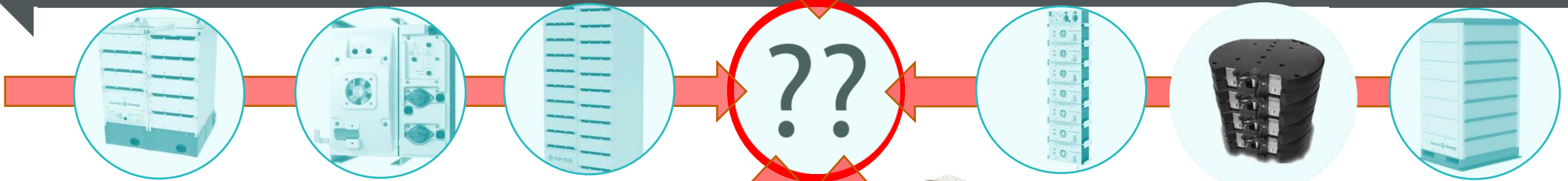
Product

|                       |                                  |                       |                                   |                      |
|-----------------------|----------------------------------|-----------------------|-----------------------------------|----------------------|
| Corvus Blue<br>Marlin | Corvus Dolphin<br>Power & Energy | Corvus Orca<br>Energy | Corvus Moray<br>Power &<br>Energy | Corvus Blue<br>Whale |
|-----------------------|----------------------------------|-----------------------|-----------------------------------|----------------------|

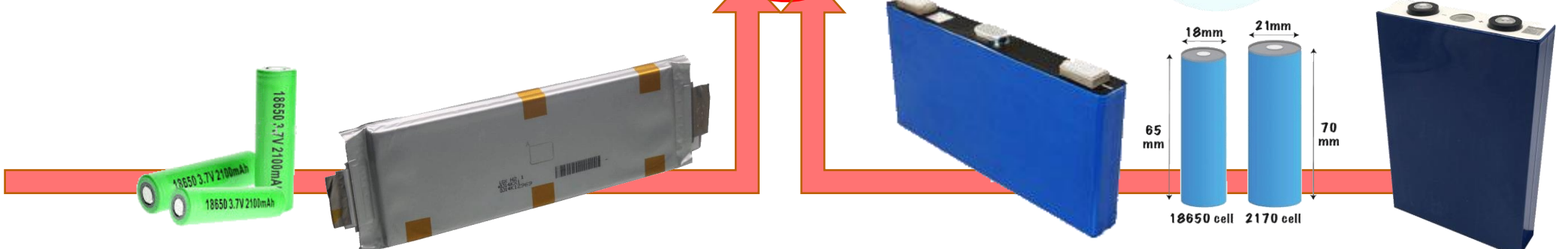
Performance Needs



Module design



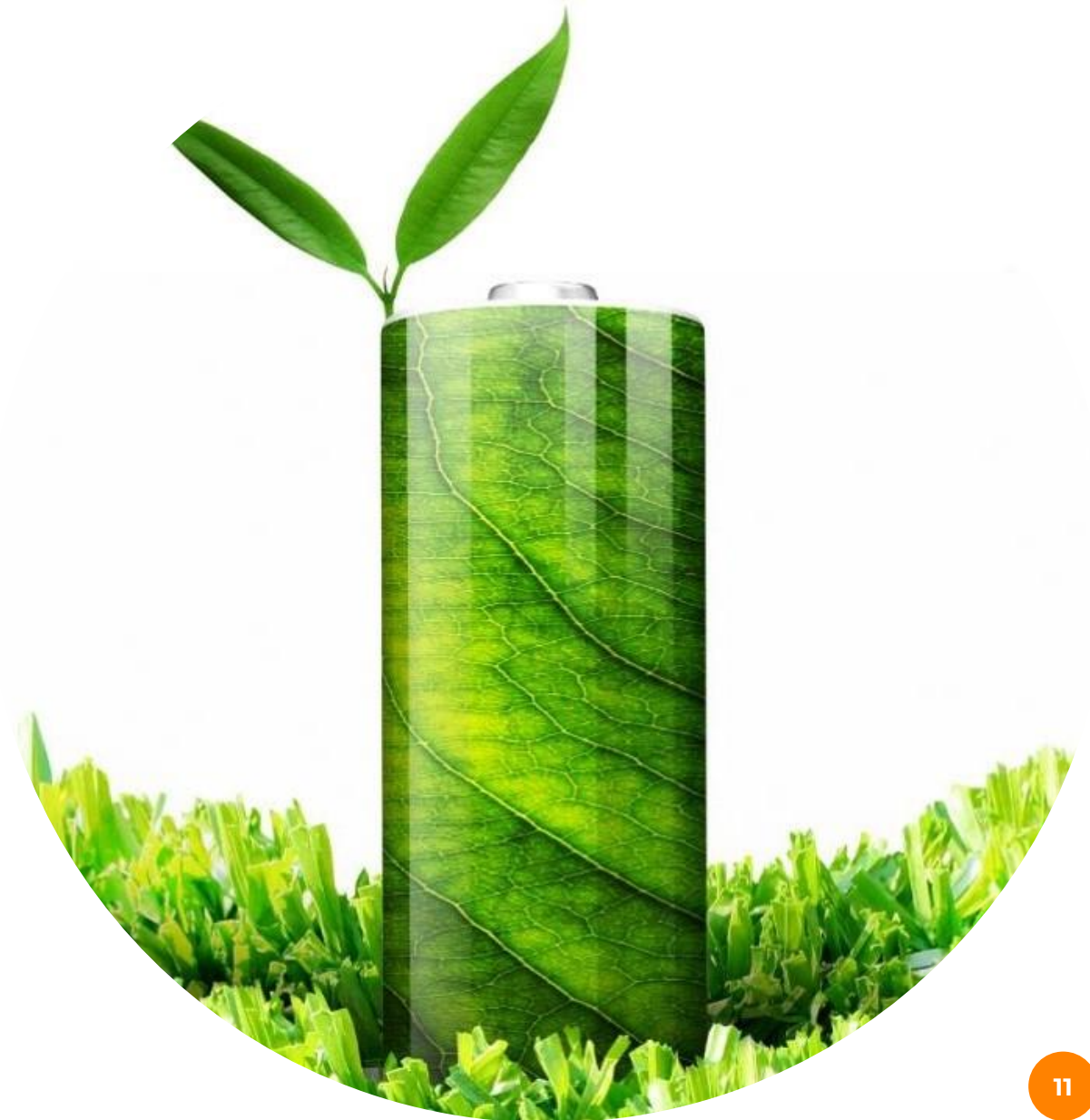
Cell selection





# Recycling of ESS

- 99% recyclable
- Recycling facilities in North America and Europe
- Second Life Use Cases
- Grid infrastructure
- Shore charging stations
- Shorter ferry routes



# God Jul

## Fra Bergen



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