Current Shipping Market Conditions

“All ships designed and built today must operate in a net zero emissions world at the end of their service life” – Paris Agreement

‘GHG emissions from international shipping to peak as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008’
Initial IMO Strategy on GHG emissions [April 2018]


Carbon Price - EU ETS, which has seen a huge increase in price, from €7/ton to €20/ton of CO2 in 2018, [€62/ton fuel] and predicted average €35-40/ton between 2020-21 [€115-125/ton of fuel]

Primary Renewable - delivers savings directly at the point of use – 5-20% & possibly up to 30% fuel & emissions as retrofit. 30%+ for optimised new builds.

Installation – Lease Options & Modular Rentals reduce CAPEX, Purchase ROI’s - $600/ton, 3rd Party Validation & Classification.

Facilitate Secondary Renewables (H2, NH3, Battery etc.) – Hybrid solutions reduce power requirements, bunkering & storage – reduces costs of OPEX & CAPEX

Predictability & Future Proofing – fuel prices & availability, emissions legislation, stranded assets, investments.
Wind Propulsion Toolbox

- Kites
- Rotors
- Hard Sail
- Soft Sail & Dynarigs
- Turbines
- Suction Wing
- Hull Form
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<td>Turbine</td>
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<td>Hull Form</td>
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</tbody>
</table>

Legend:
- Concept
- R&D
- Test & Trial
- Commercial
Ex: Rotor Development

- 2009: Award winning ‘Delta Challenger’ design (Deltamarin)
- 2014: Norsepower: retrofit 2 rotors on MV Estraden
- 2015: EU R&D Funding: Large Rotor
- 2016: C-Job Eco, Freighter Design Contract
- 2018: MV Viking Grace
- 2019: Enercon’s E-ship: 1 operational
- 2020: Wind Hybrid Coaster Design
- Anemoi: 4 x moveable rotors – MV Afros Bulker
- Eco Flettner test on MV Fehn Pollux
WHAT NEOLINE OFFERS YOU

A competitive and stable freight rate
Our company will offer to shippers a high-grade quality transport, with a stable freight rate that won’t fluctuate with bunker prices (no BVF).

A universal and flexible transport
Optimized size, loading by ro-ro ramp, designed for heavy, ro-ro or oversized cargoes as well as containers.

A commitment on commercial speed
An innovative propulsion together with an accurate weather routing and adaptive energy management using diesel-electric auxiliary propulsion

An environmentally friendly transport
On a transoceanic crossing our transport solution will yield up to 90% reduction of greenhouse gas emissions as well as eliminating SOx and NOx emissions.

A certified transport
Our transport will bear a specific identity, offering shippers a strong visibility and additional opportunities for marketing and social and environmental corporate responsibility.

A NEW TRANSATLANTIC SERVICE

WHEN AND HOW?

Shipbuilding 2020  Service starting 2021

2021 - A new maritime transport service between Europe and North America
Starting with 2 vessels ➔ 2 weeks service frequency

SAFE AND CLEAN TRANSPORT
A 100% secured loading, in roll-on / roll-off garage

Main particulars of first vessels

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>136 m</td>
</tr>
<tr>
<td>Width</td>
<td>24.7 m</td>
</tr>
<tr>
<td>Water draft</td>
<td>5.3 m (beam) / 15 m (at bow)</td>
</tr>
<tr>
<td>Air draft</td>
<td>67.9 m / 43.5 m (bollard lines)</td>
</tr>
<tr>
<td>Displacement</td>
<td>11,897 dwt</td>
</tr>
<tr>
<td>Deadweight</td>
<td>8,926 t</td>
</tr>
<tr>
<td>Safety area</td>
<td>4,650 sqm</td>
</tr>
<tr>
<td>Commercial speed</td>
<td>11 kn</td>
</tr>
<tr>
<td>Max engine speed</td>
<td>14 kn</td>
</tr>
<tr>
<td>Crew</td>
<td>14</td>
</tr>
<tr>
<td>Passengers</td>
<td>286 (total)</td>
</tr>
<tr>
<td>Container capacity</td>
<td>770 ft³</td>
</tr>
<tr>
<td>Linear motors</td>
<td>5,010 m (length)</td>
</tr>
<tr>
<td>Ramp capacity</td>
<td>1,326 m (width)</td>
</tr>
<tr>
<td>Crane</td>
<td>206 Tons</td>
</tr>
</tbody>
</table>

Visit www.neoline.eu and contact us!
2018 – Chinese VLCC Testing
**Top 10 Worst Commutes in SF Bay Area**

*source: MTC, December 2015*

## Metro comparison for time spent in congestion

<table>
<thead>
<tr>
<th>City</th>
<th>Time (in minutes per worker)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles</td>
<td>15</td>
</tr>
<tr>
<td>Bay Area</td>
<td>9</td>
</tr>
<tr>
<td>Houston</td>
<td>8</td>
</tr>
<tr>
<td>Dallas</td>
<td>7</td>
</tr>
<tr>
<td>Washington</td>
<td>6</td>
</tr>
<tr>
<td>Atlanta</td>
<td>5</td>
</tr>
<tr>
<td>New York</td>
<td>5</td>
</tr>
<tr>
<td>Chicago</td>
<td>4</td>
</tr>
<tr>
<td>Miami</td>
<td>4</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>3</td>
</tr>
</tbody>
</table>

[Map of SF Bay Area showing worst commutes]
Passenger Miles per Gallon (PMPG)….

You’re better off in your own car **ALONE** than taking a typical ferry in San Francisco!
Tourism Under the Golden Gate
- 28 Years of profitable business
- Serving 40,000 passengers per year
- 5 trips per day, 10 months per season

adventure cat
sailing charters
Wind-assist ferries are the technology of the future with the resources of today…. they could become as iconic as a San Francisco Cable Car.

Team Oracle races at 45 kts
SailDrone
Wind Assist Case Study

- Proven Autonomous Wing Technology
- Tested in harshest conditions (Bering Sea)
- Built for research and unmanned scale
- Wind power only for voyages
- Vessels have sailed around the world
Wind-assist ferries are the technology of the future with the resources of today… they could become as iconic as a San Francisco Cable Car.

Thank you for your time!
WingDrive™ for Passenger Vessels

- Proven Autonomous Wing Technology
- Hybrid System Maintains Speed + Schedule
- Proven 40% Reduction In Fuel Cost (vs Diesel)
- Scalable for All Vessel Sizes and Speeds
- Wind + Electric propulsion for Zero-Emissions
- 2nd Demonstration Vessel Launched in 2018
WingDrive™ for Passenger Vessels

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WingDrive™ for Passenger Vessels

- Proven Autonomous Wing Technology
- Wind-Assist is harvesting power at the source
- Compatible with any future fuel/engine technology (Hydrogen, LNG, etc)
- Thrust on/off functionality due to negligible resistance compared to traditional rigs – wings are slick!
HOW IT WORKS

A HYBRID SYSTEM

- NO WING
  - DIESEL/ELECTRIC
  - ANNUAL WIND AVG.
    - 100%

- WING ENGAGED
  - POWER SOURCES: DIESEL/ELECTRIC, WING
    - 60% DIESEL
    - 40% ELECTRIC
    - LIGHT WIND
      - 85%
    - NORMAL SF WIND
      - 15%

- BOAT SPEED REMAINS 15 KNOTS WHILE FUEL USAGE DROPS

SCALABILITY

SAVINGS AT ANY SIZE

- WATER TAXI
- MID SIZE
- LARGE SCALE

FUEL USAGE

- PASSENGER MILES PER GALLON (PMPG) COMPARISON
  - CURRENT DIESEL FERRY: 14
  - SUV: 18
  - TESLA: 100

- CURRENT ANNUAL USAGE
  - 490,000 gallons
    - At $2.50/gal=
      - $1.2 million in savings

- WITH WING TECHNOLOGY
  - 300,000 gallons
    - At $2.50/gal=
      - $750,000 in savings

40% REDUCTION

$450,000 in savings per vessel

IN FUEL USAGE

$450,000 in savings per year
Electric propulsion is here to stay...
Electric across all industries...

NASA has a 10 year plan to develop electric passenger planes for commercial use.

Freight locomotives have been diesel electric for years.

Hybrid oil rigs have shown 25 to 35% savings using battery packs.

Almost all new supply vessels for the OIL INDUSTRY are electric hybrid design for efficient operation.
Global Electric Ferries

Ampere Ferry by Norled

- 120 Cars + 360 Passengers
- 80m long, 20m wide
- 5.6km 34 times per day
- 800kw battery, cruising speed of 10kts
- Recharges in only 10min on each end
- Completely zero emission

Future of the Fjords
Ferry Technology in the States

Maid of the Mist – Zero Emission Electric
---------------------
First in the United States

Partial Foiling – Zero Wake
---------------------
Puget Sound, WA
Bay Area Ferry Technology

Red & White Fleet – Enhydra
---------------------
600 Passenger plug-in Hybrid, with Bio-Fuel

Red & White Fleet – WaterGoRound
---------------------
Hydrogen Fuel Cell
• 400 passenger wind + electric
• Zero emission
• 75% propulsion provided by the wind
• Double ended for increased dock efficiency
Maritime Shipping Drives Global Economy

- 90% of all global trade is moved over water (over 10 Billion Tons per year)
- 90,917 ships are in worldwide fleet (all seaborne trade sectors)
- 60% of shipping expenses are fuel costs (i.e. $105 Billion per year, for just container ships, at current prices)
- 2020 Low-sulphur fuel requirements are estimated to increase fuel cost +50%
- Maritime transport contributes the same as the aviation industry to global Greenhouse Gas emissions
Containerized Wings™ for Commercial Shipping

- Self-Contained Wings in a Standard 40ft Container – Multiple Units Per Vessel
- Patent Protected
- Turnkey – Instant Savings + No Vessel Rebuild or Retrofit Necessary
- Studies Show 10%-30% Savings of fuel consumption (route dependent)
- Universal Size for Production Scalability
Containerized Wings™ Market Opportunity

**Worldwide Fleet**
- 90,000+ Vessels

**Initial Sub-Market**
- Container Shipping
  - 5,000+ Vessels

**Future Sub-Market**
- Tankers + Cargo
  - 40,000+ Vessels

**Barges**
- Major additional mode of inland shipping worldwide

- 2020 brings fuel price increase estimated +50%
- Average vessel carries 2000-2500 40ft containers (4000-5000 TEU)
- 1% installation = 20 CW per ship

- 96 Million Tons of goods transported on the Rhine in Q1+Q2 2016 (Inland Europe)
- A single 15-barge “tow” is equivalent to about 225 railroad cars or 870 tractor-trailer trucks
Strategic Partnerships

Siemens Electric
Electric Propulsion Design + Engineering
The industry leader in marine electric propulsion worldwide, Siemens is leading the charge on all our projects that include electric propulsion packages. Siemens has been involved in nearly all the recent marine electric-drive vessel production unveiled in Scandinavia and the oil industry worldwide.

Morrelli & Melvin Design
Wing/Vessel Design + Engineering
World leading naval design + engineering firm for both wings and vessels. Based in southern California, Morrelli & Melvin have worked with countless high level projects including wings and catamarans - clients such as America’s Cup teams BMW Oracle and Team New Zealand.

California Air Resources Board
Local Grant Funding
As part of WWT’s first demonstration vessel in 2014, grant money was sourced in partnership with the ARB. As a result of that project, ARB felt that it was one of the best projects they had participated in given the amount of money vs. potential benefits to the industry.
We can’t continue to buy 30yr old diesel technology that creates exponential GHG emissions for decades.

Technology purchases need to factor in life-cycle cost (including overall GHG footprint).

Wind-Assist will help any drive train power source without compromising speed of travel.

REALITY of future emissions or diesel penalties, wind-assist technology softens fuel price shocks

End-user crew operation needs to be addressed – new technology needs commitment on all levels for safety and performance.
Reducing Fuel, Increasing Profits, Helping the Environment