

**Student
Awards
Presentation**



WORLDWIDE FERRY SAFETY ASSOCIATION DESIGN COMPETITION 2024

MV. OMNIA

SAFE & AFFORDABLE FERRY FOR NIGER RIVER



MV OMNIA

DIMENSIONS

Length Overall	: 39.96 m
Beam Overall	: 16.01 m
Draft	: 1.00 m
Displacement	: 300.6 Ton
Service Speed	: 8.5 Knot

CAPACITIES

	: 170 Person
Passengers	: 10 Person
Crew	: 16
Vehicle	: 13 Ton
Agricultural Cargo	

FLAT MONOHULL BARGE

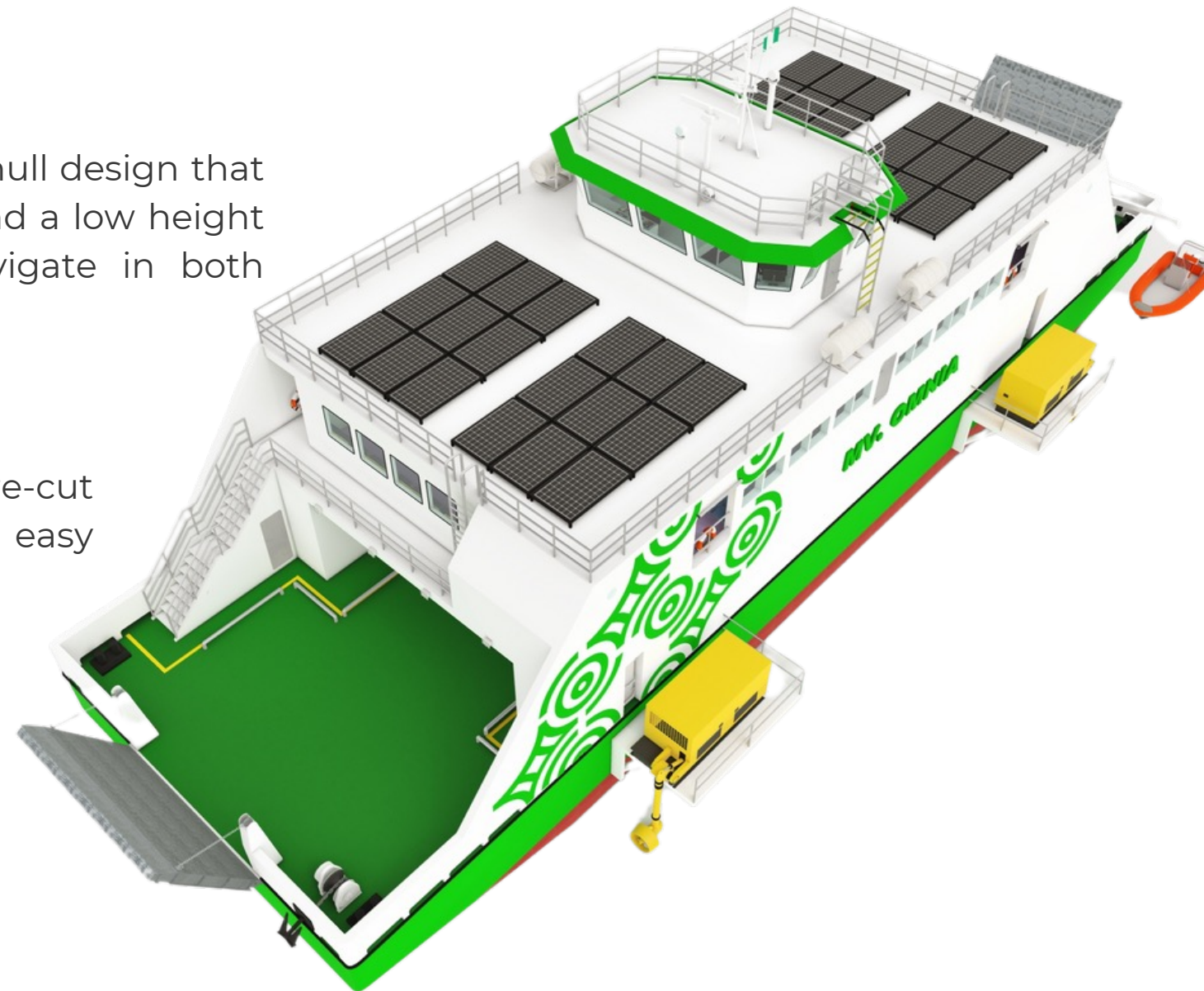
MV Omnia uses a barge hull design that provides good stability and a low height draft, allowing it to navigate in both shallow and deep waters.

EASY TO BUILD

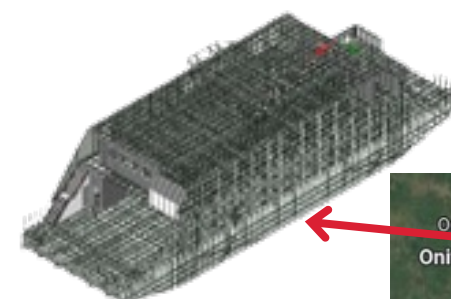
This ship uses pre-cut construction, allowing easy assembly at any shipyard.

HYBRID POWER GENERATION

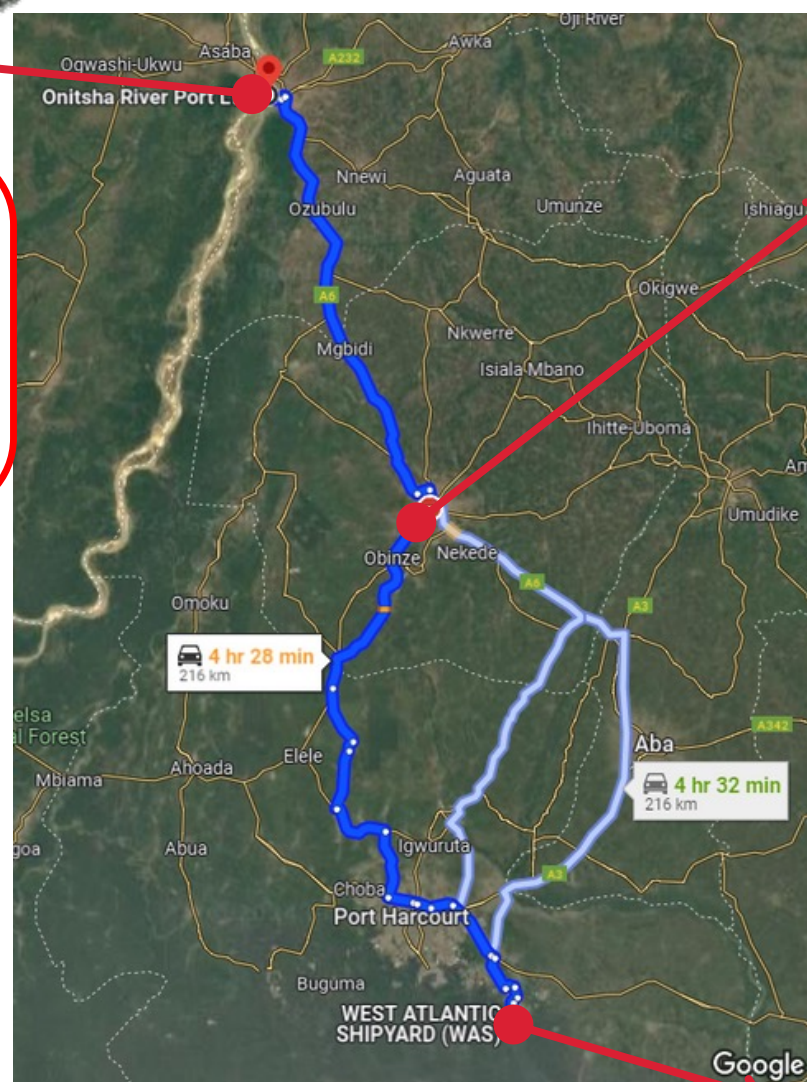
An efficient dual-fuel power generation system that reduces emissions.



Building With **PRE - CUT** Concept

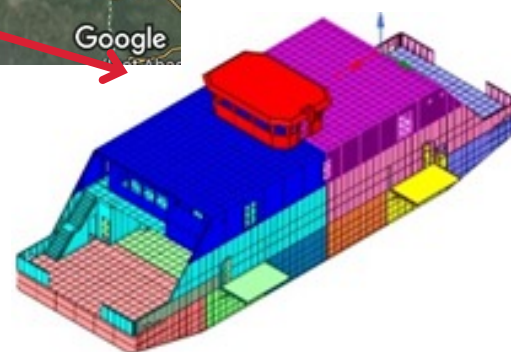


The ship was built using the desired method to assemble parts from the previous shipyard.



This structural member is delivered by 10 containers via land transport.

In a well-equipped shipyard, components are prepared in a factory, with plates and stiffeners assigned serial numbers for easy identification before delivered.



Security & Safety Feature

360 Object Detection Camera

High Pressure Water Canon

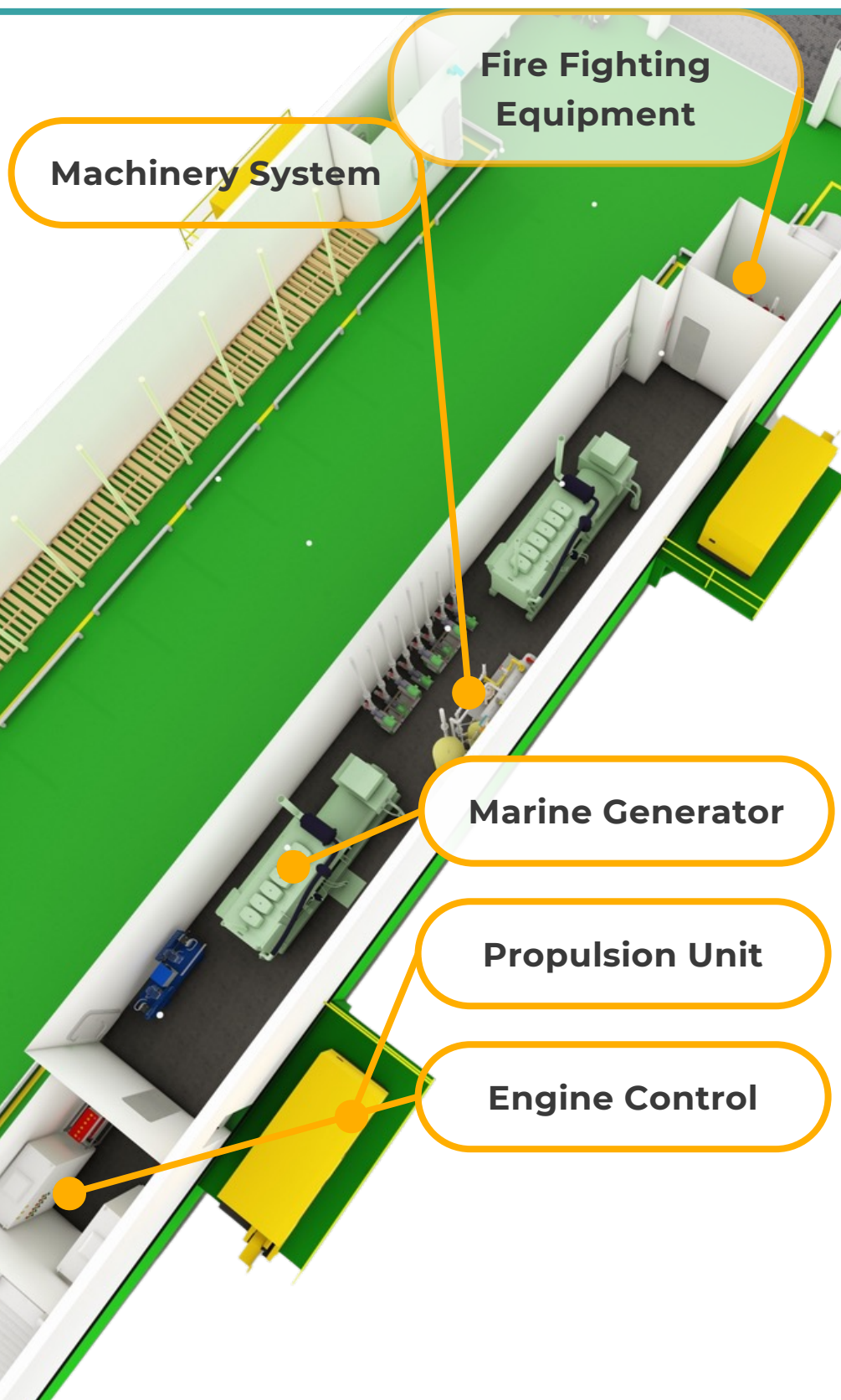


Portable Barbed Wire Fence

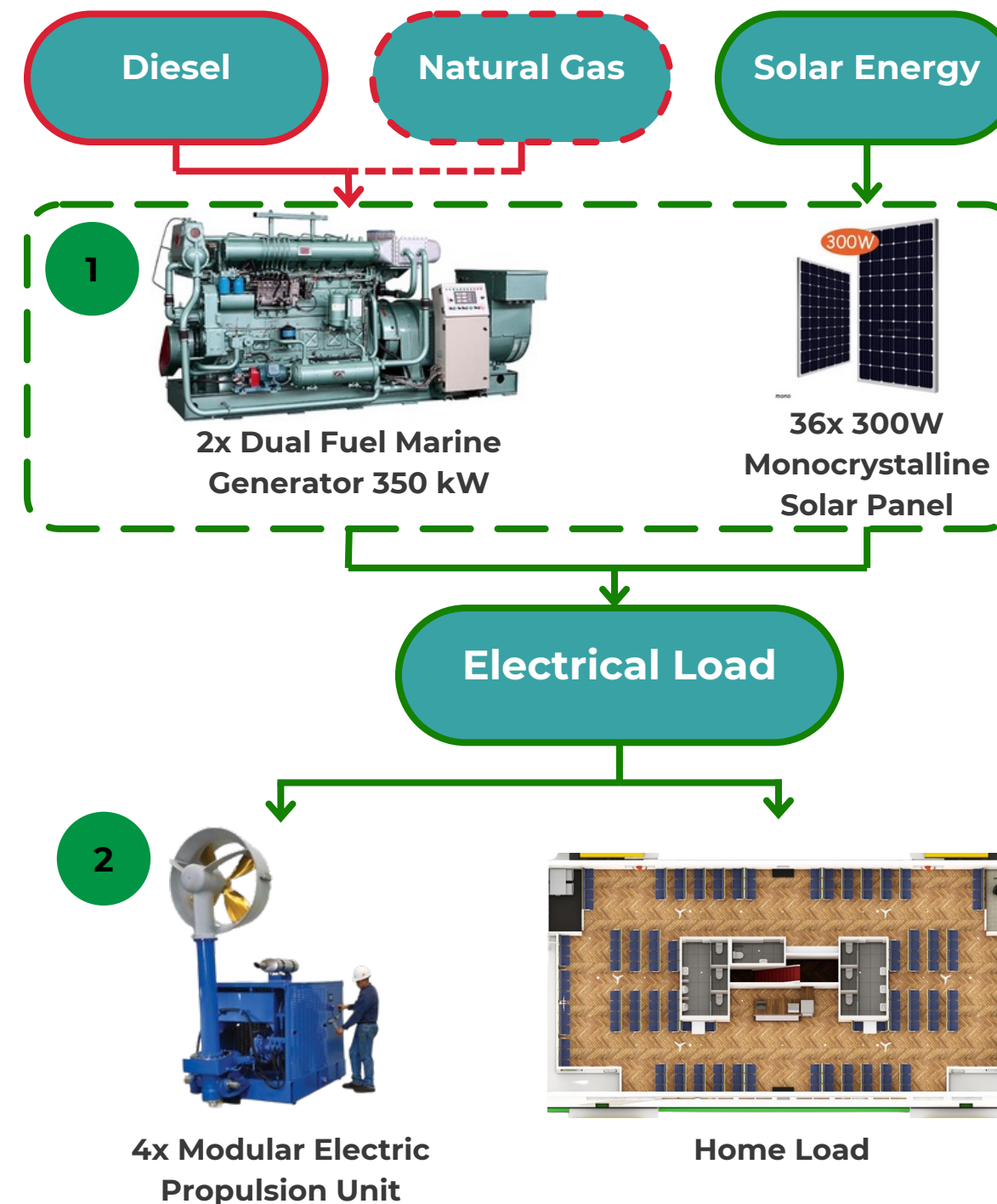
Weight Management System

- Security Feature (Anti Piracy Defend System)
- Safety Feature (Monitoring System)

Machinery Arrangement



Power Generation Schematic Diagram



Hybrid Power Generation System

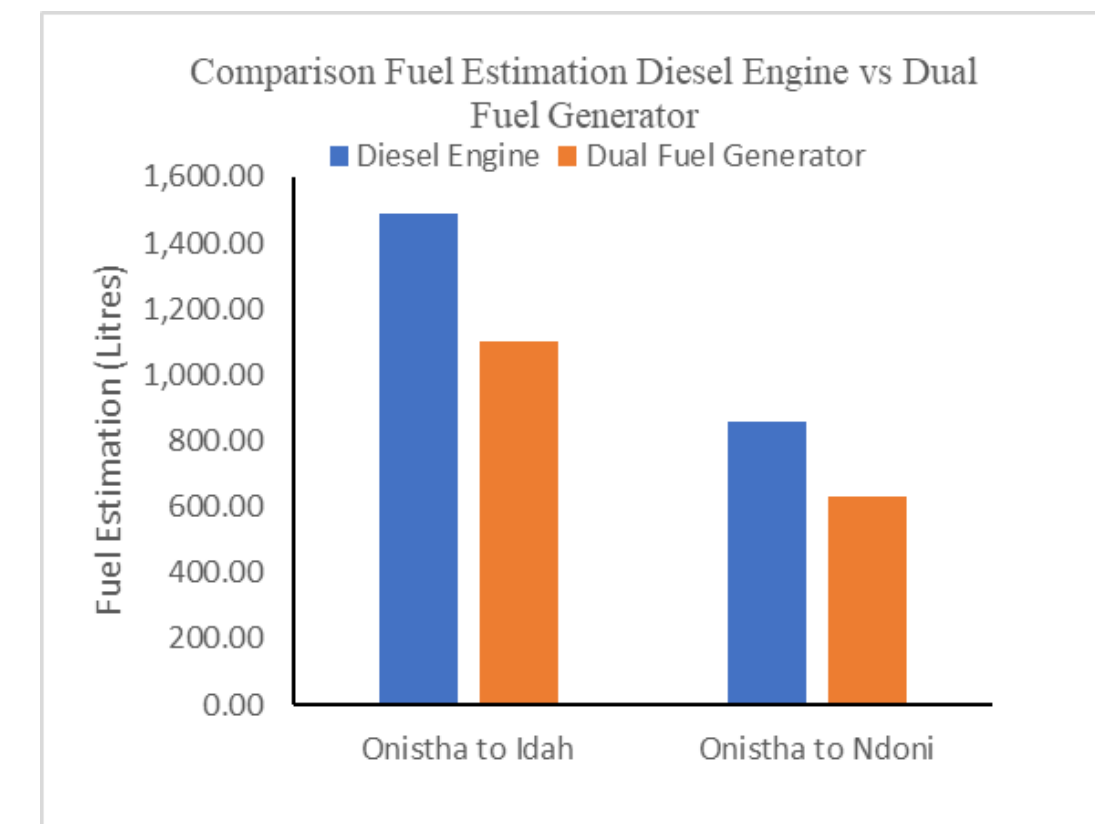
1. HYBRID POWER GENERATION

Dual-fuel diesel and natural gas generator + Solar panel for power generation supports policies for a greener future.

2. MODULAR, EASY TO BUILT

Modular deck-mounted electric propulsion unit offers flexible, safe, and reliable operation in shallow waters.

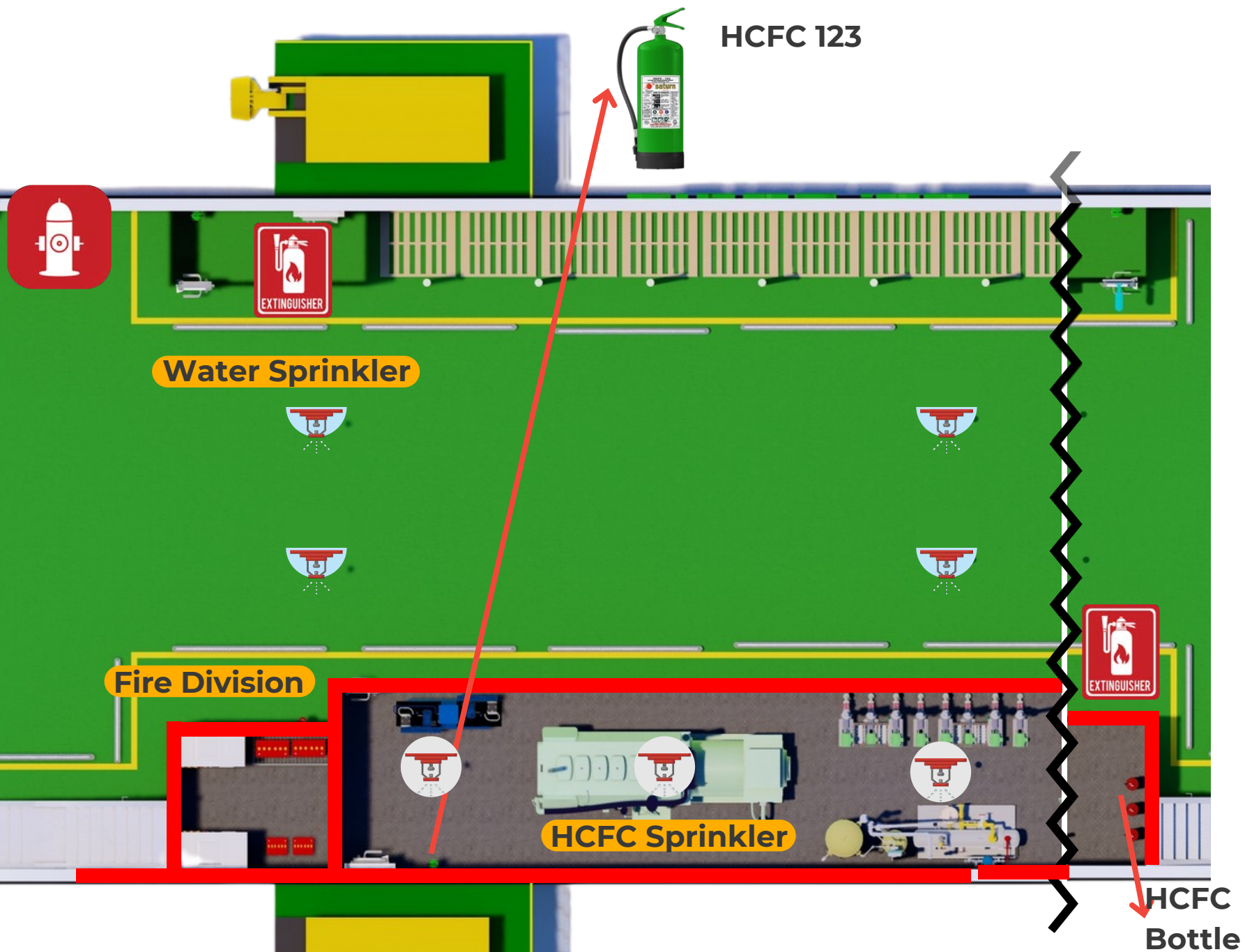
Comparison



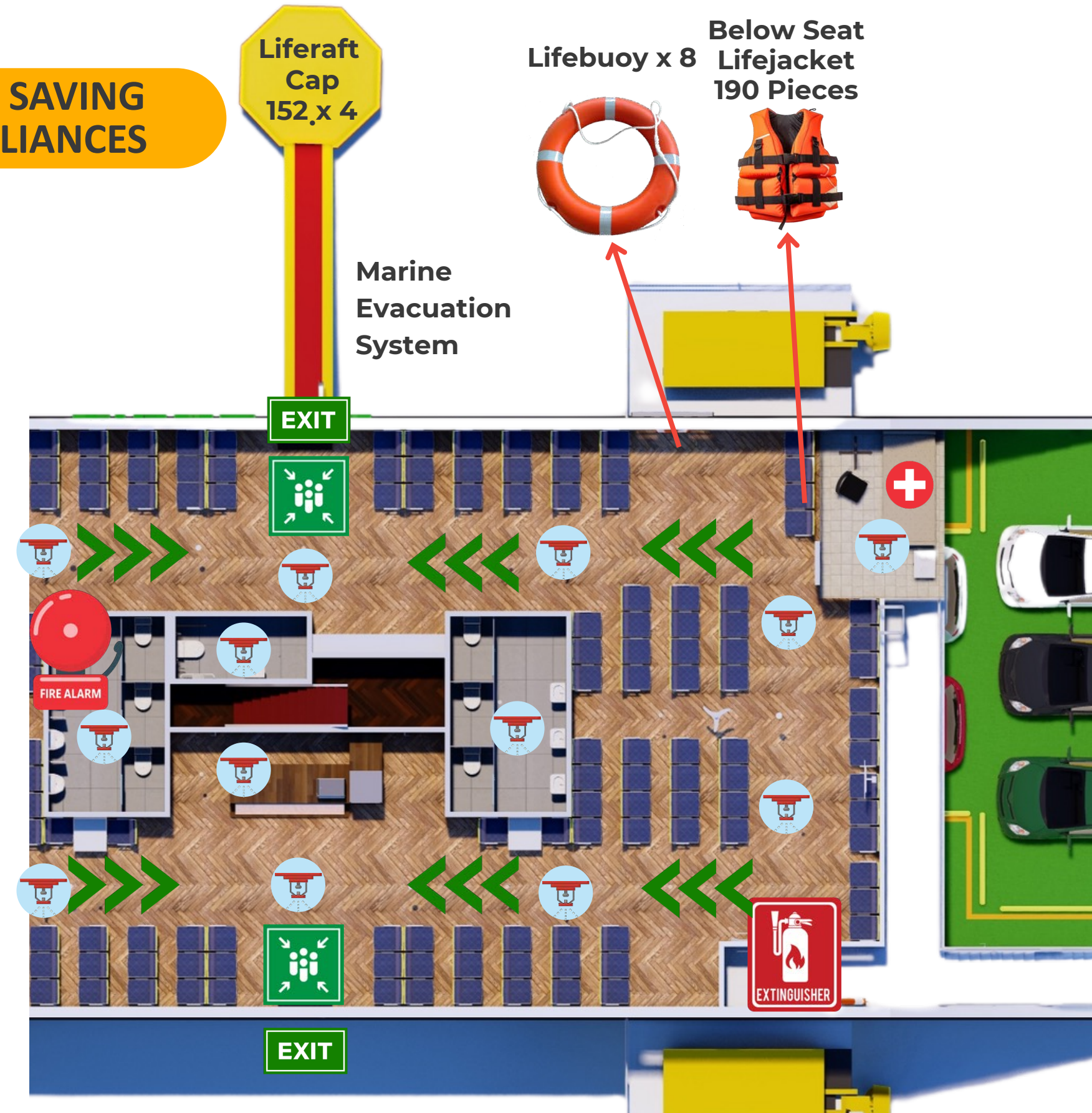
The fuel estimation shows that diesel-electric propulsion saves up to 40% more fuel compared to direct diesel engines, resulting in lower emissions from dual fuel generators.

FIRE CONTROL AND LIFE SAVING APPLIANCES

FIRE CONTROL



LIFE SAVING APPLIANCES



THANK YOU!



NAGAPASA UI TEAM

THE MOTHER OF FUTURE FERRIES, ENSURING SAFE
AND EFFICIENT RIVER SAILING.

ADVANCING
HUMANITY



ITS
Institut
Teknologi
Sepuluh Nopember



Nawasena
ITS Team



MV QUEEN NNEKA



Team Captain:

Quito Abian Iqtarib
quito.abiann@gmail.com
+49 176 87594802

Team Member:

Afwan Izzul Muttaqqin
Dewi Diaz Gitasari
Fahri Ramadhan

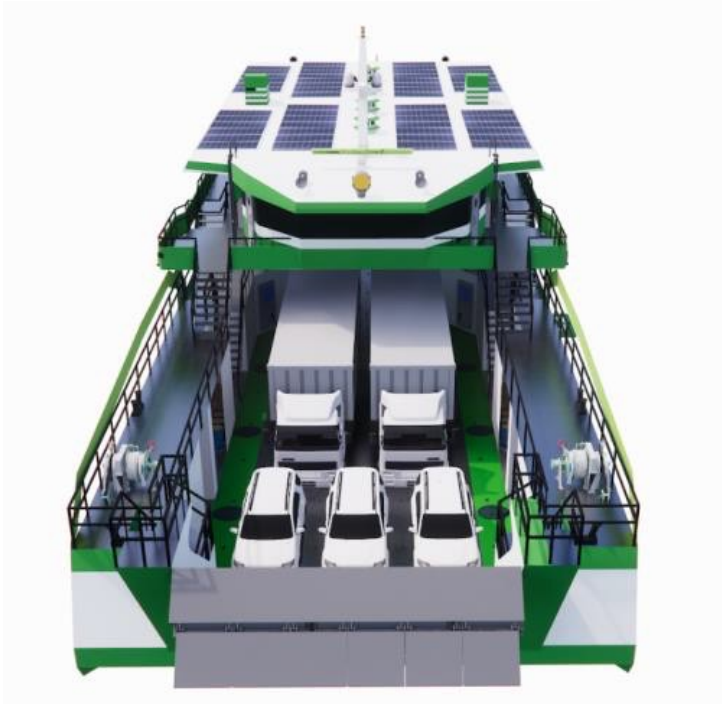
Nita Wahyuni Dwi Puspitasari
Rafi Maulana
Raif Adhi Ramadhan

Queen Nneka, a name of Igbo origin which means "Mother is Great".

Principal Dimension	
LOA	50 m
B	13 m
T	0.8 m
Displacement	209.6 tons



Color
Green's representing
the colour of Nigerian



CNG Powered

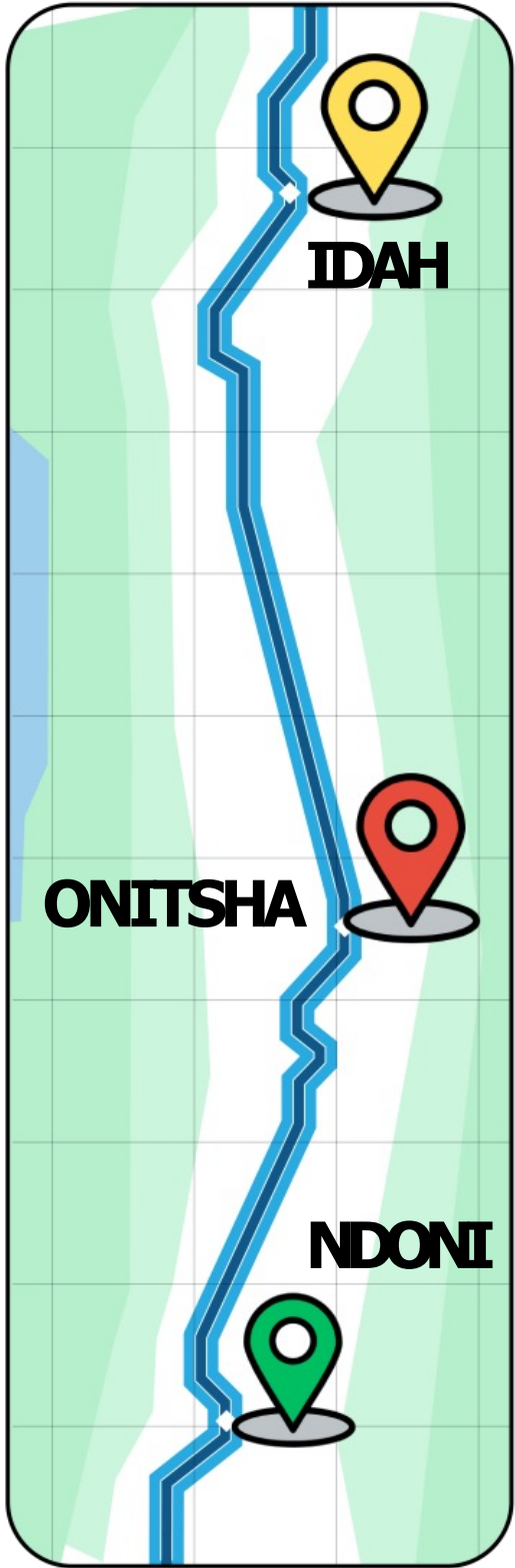


Carrying Capacity:

- 191 Persons
- 16 Vans
- 2 Trucks

Low Draft

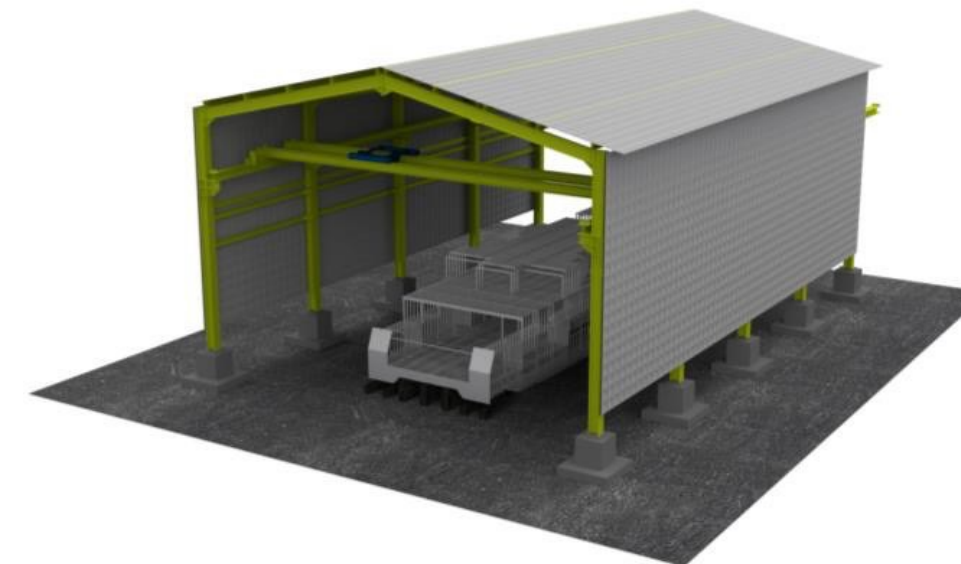
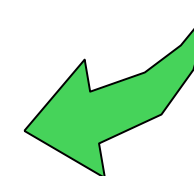
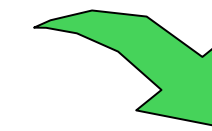
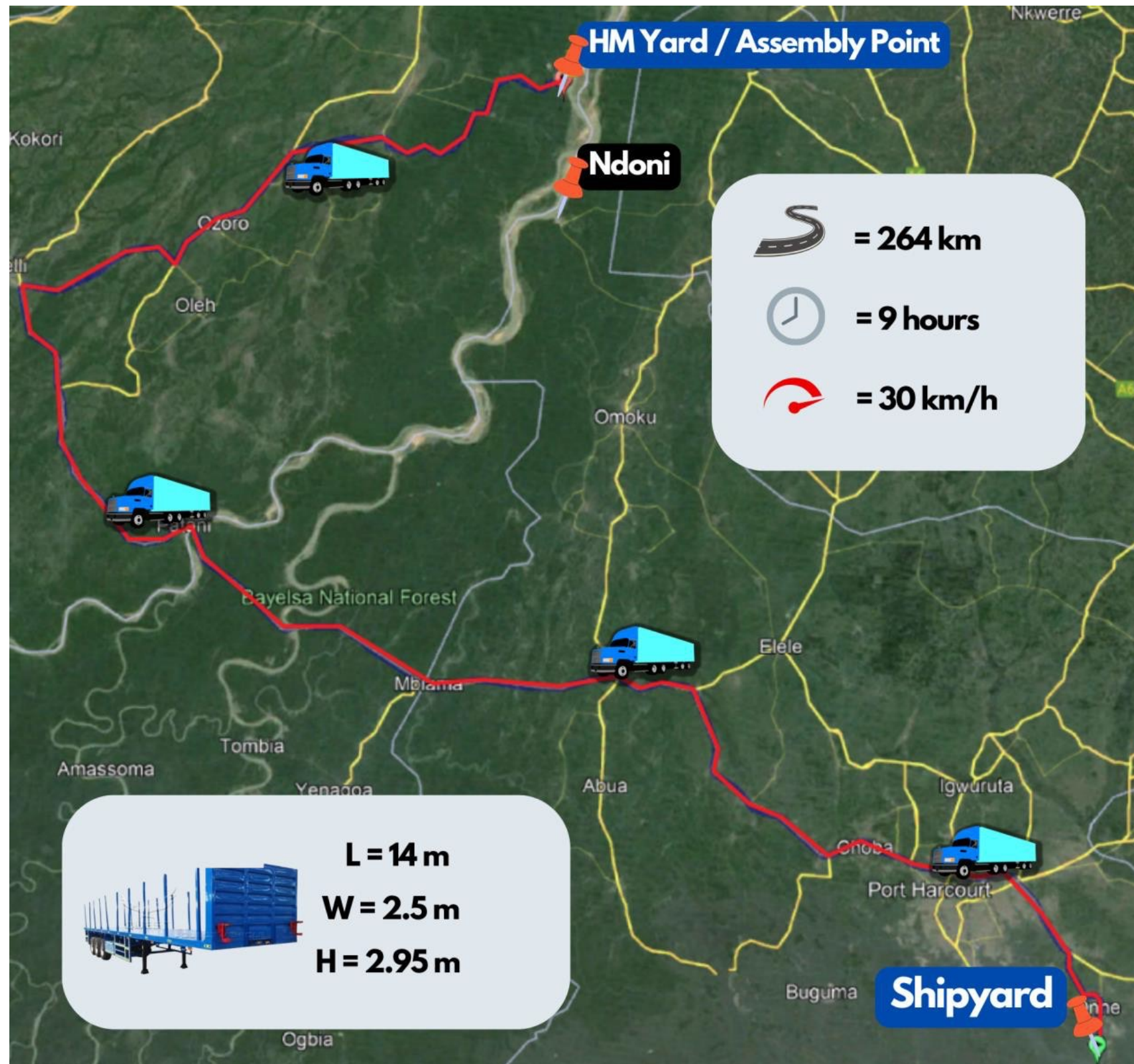
The vessel is built for shallow river conditions.





MV QUENN NNEKA

Production and Logistic



ADVANCING
HUMANITY



ITS
Institut Teknologi
Sepuluh Nopember



Nawasena
ITS Team

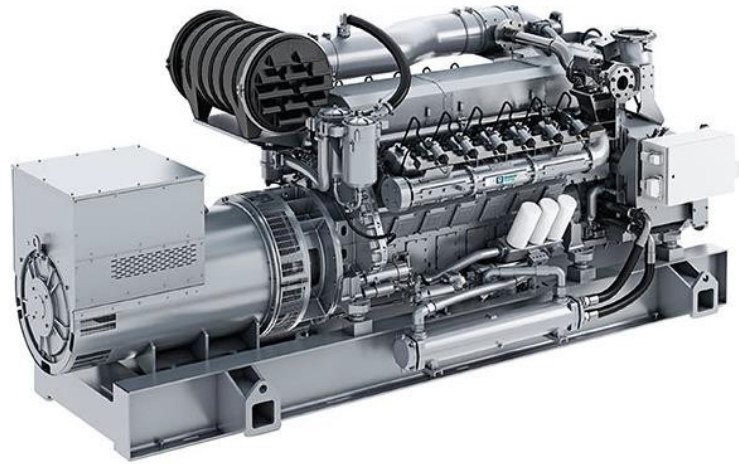


INTERFERRY

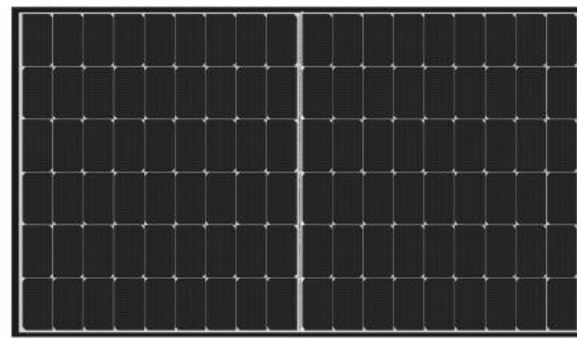
Eco Friendly Power

“The Nigerian government is shifting to CNG and electricity as power sources, supported by domestic CNG production and a strong nationwide distribution network.”

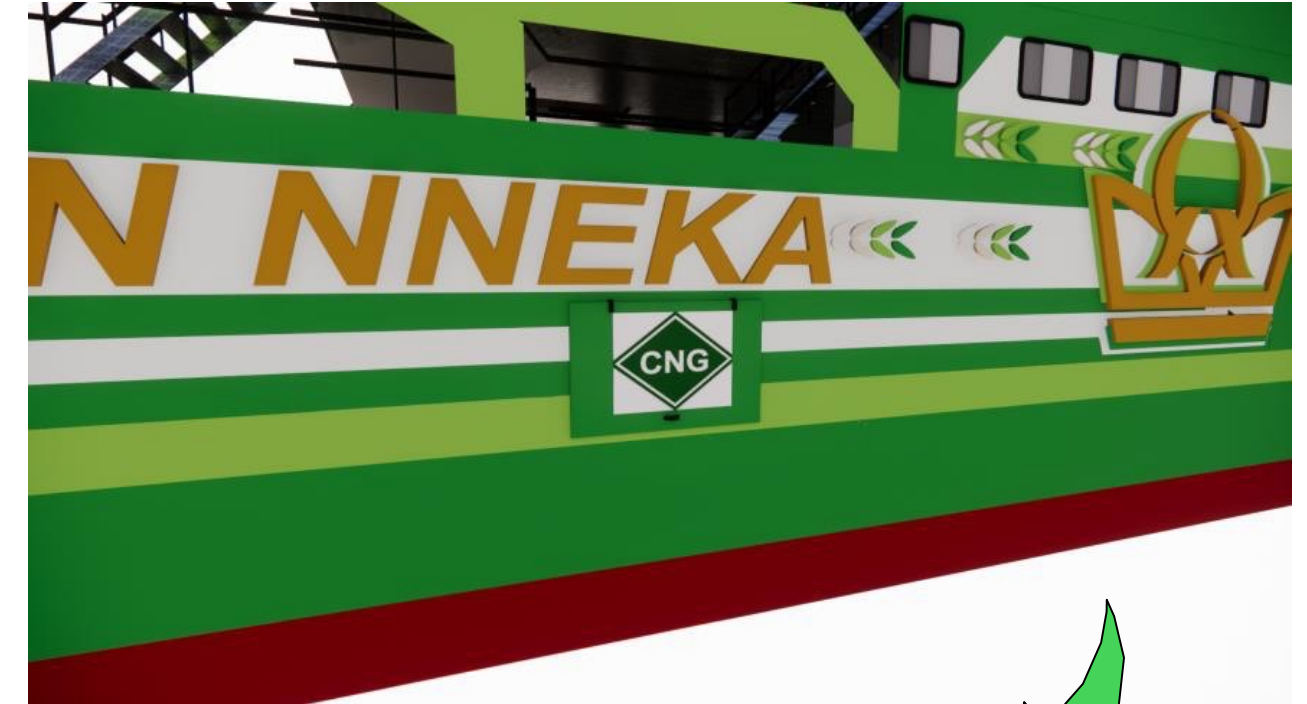
4 x Gas Generator



54 x Solar Panel



16x Battery



1CNG Tank
Each Side



A CNG refueling facility is needed at Onitsha port to support this and future CNG-powered vessels.

Shallow Water Azimuth Thruster

- Lower Emission
- Flexible Engine Room Layout
- Higher Efficiency than Diesel
- More Improved Maneuverability



Low Wake Wash Effect



WORKSHOP



Emergency Evacuation

The longest travel time obtained is **1minute 45 seconds**, which meets the SOLAS Chapter III Regulation 21.1.4 standard of a 30-minute evacuation time.



Security

Security is crucial on Niger River ferries to protect passengers and prevent threats.

