

# LIGHTHOUSE

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## R.I. INSTITUTE OF NAUTICAL SCIENCES

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### NEW GREEN HYDROGEN PROJECT TO EXPAND ACWA POWER'S PORTFOLIO IN INDONESIA

Valli Kumar Alagan - GME

**ACWA** Power, a Saudi developer, investor and operator of power generation, water desalination and green hydrogen plants worldwide, PT Perusahaan Listrik Negara (PLN), Indonesia's state-owned electricity provider, and PT Pupuk Indonesia, a state-owned fertilizer and chemical producer, are set to develop what is expected to be the largest green hydrogen facility in Indonesia.

ACWA Power said that the Garuda Hidrogen Hijau (GH2) Project, which is expected to start commercial operations in 2026, will run on 600 MW of solar and wind power and will produce 150,000 tons of green ammonia per year. Its cost is estimated to be upwards of \$1 billion.

The bidding process for engineering, procurement and construction (EPC) for the project is expected to start in the first quarter of 2024, with

relationships with the government and government entities of this vibrant, ambitious nation through this new green hydrogen project. As we expand our footprint in Indonesia, we remain committed to supporting sustainable progress, for a greener future for all."

PLN President Director Darmawan Prasodjo noted: "Green hydrogen is one of the answers to the energy transition. Therefore, the development of green hydrogen is our focus in efforts to accelerate the energy transition."

"We see a strong commitment from the government, PLN, Pupuk Indonesia and ACWA Power, therefore we are ready to support this joint development effort of green hydrogen and green ammonia to achieve common goals."

President Director of Pupuk Indonesia Rahmad Pribadi remarked: "This effort is not only for the benefit of a better environmental future but also to encourage better economic growth in Indonesia in the future."



The announcement was made on the sidelines of the 28th United Nations Climate Change Conference (COP28) underway in Dubai, UAE.

financial close planned for the end of 2025.

Marco Arcelli, CEO of ACWA Power, stated: "We are honored to deepen our

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To note, ACWA Power is expanding its green hydrogen portfolio. The company said the work is well underway at the 1.2 million ton-per-year NEOM Green Hydrogen Project in Saudi Arabia and is planned for completion in late 2026, adding that the company also broke ground on a project in Uzbekistan in November 2023.

ACWA Power is also growing its presence in Indonesia after it was awarded the contracts to develop two

floating offshore solar photovoltaic (PV) plants in October 2022.

The projects, with a combined capacity of 100 MWac and \$105 million in investment value, are expected to help Indonesia achieve its renewable energy target of 23% by 2025, under the country's National General Energy Plan.

*Courtesy: world maritime news*

## MARINE BOILERS

**Sanjay Paul - GME**

### TYPES OF BOILERS

Water Tube Steam Boiler

Smoke Tube Steam Boiler

### WATER TUBE BOILER

**Working Principle:** Water tube steam boilers operate by passing water through tubes that are heated externally by combustion gases. The hot gases flow around the tubes, transferring heat to the water inside, generating steam collected in a steam drum.

### Mountings:

**Safety Valve:** Releases excess pressure to prevent explosions.

**Water Level Indicator:** Indicates the water level inside the boiler.

**Pressure Gauge:** Measures the steam pressure.

**Steam Stop Valve:** Controls steam flow to the steam pipe.

**Feed Check Valve:** Regulates water entry into the boiler.

**Blowdown Valve:** Removes impurities to maintain water quality.

**Manhole and Handhole:** Provide access for maintenance and inspection.

### Burning Sequence:

Fuel burns in a combustion chamber, creating hot gases. These gases flow through tubes, heating water and producing steam.

Excess pressure vents through the safety valve.

### Sensors, Alarms, and Trips:

**Water Level Sensor:** Monitors the water level

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inside the boiler. If the level is too low or too high, an alarm is activated, and the boiler might trip to prevent damage.

**Pressure Sensor:** Measures steam pressure. If pressure exceeds safe limits, alarms alert operators. If the pressure continues to rise dangerously, the boiler trips to prevent an explosion.

**Flame Sensor:** Detects the presence of a flame in the combustion chamber. If the flame is extinguished unexpectedly, the alarm activates, and the boiler might trip to prevent unsafe conditions.

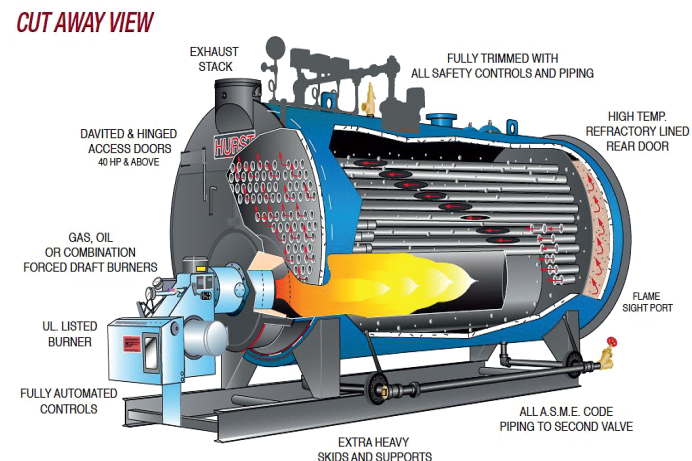
**Gas Leak Sensor:** In gas-fired boilers, this sensor detects leaks. If gas concentration becomes hazardous, alarms go off, and the boiler may trip to prevent potential explosions or fires.

**Smoke Sensor:** Monitors the exhaust gases for excessive smoke. If combustion is inefficient and produces excess smoke, the alarm activates, prompting corrective action.

**High Temperature Sensor:** Monitors temperature within the boiler. If temperatures rise to unsafe levels, alarms sound, and the boiler

could trip to prevent overheating and potential damage.

## WATER TUBE BOILER DIAGRAM



## Smoke Tube Boiler :

**Working Principle:** Smoke tube steam boilers have a shell containing water and steam, with tubes running through it. The hot gases from the combustion process pass through these tubes, heating the water around them and producing steam.

## Mountings :

**Safety Valve:** Releases excess pressure to prevent explosions.

**Water Level Gauge:** Indicates the water level in the boiler.

**Pressure Gauge:** Measures the steam pressure.

**Steam Stop Valve:** Controls the steam's passage to the steam pipe.

**Blowdown Valve:** Releases impurities and sediments from the boiler to maintain water quality.

**Burning Sequence:** Fuel is burned in a combustion chamber, generating hot gases. These gases flow through the smoke tubes, heating the water and generating steam. The steam is collected in

the upper part of the shell, and the safety valve prevents pressure buildup.

## Sensors, Alarms, and Trips:

**Water Level Sensor:** Monitors water levels. Low or high levels trigger alarms, and the boiler might trip to prevent operational issues.

**Pressure Sensor:** Measures steam pressure. High pressure triggers alarms, and if pressure becomes dangerously high, the boiler trips to ensure safety.

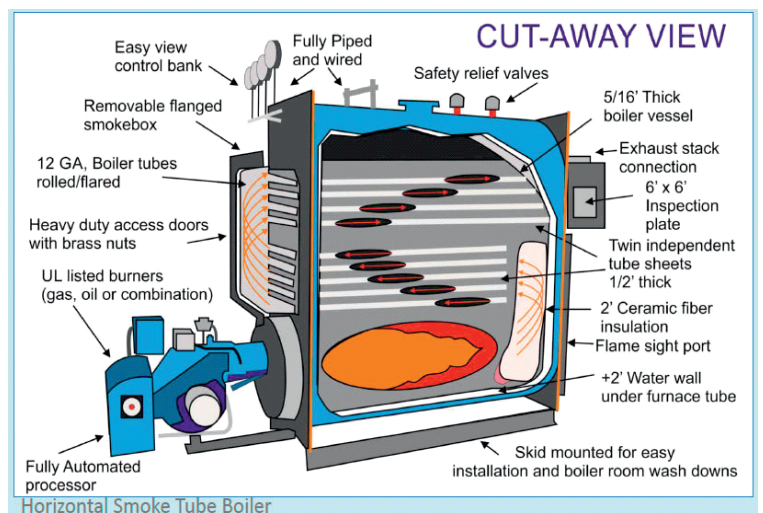
**Flame Sensor:** Detects flame presence. If the flame goes out unexpectedly, alarms sound, and the boiler might trip to prevent hazardous situations.

**Smoke Sensor:** Monitors exhaust gases for excess smoke. Alarms activate if combustion is poor, indicating potential operational problems.

**Gas Leak Sensor:** Applicable to gas-fired boilers. Detects leaks, triggering alarms and potential boiler trips to prevent safety hazards.

**High Temperature Sensor:** Monitors internal temperature. Alarms and trips occur if temperatures exceed safe limits, protecting against overheating.

## SMOKETUBE BOILER DIAGRAM:



# TOTAL ENERGIES INVESTS IN COLLABORATIVE WAVE POWER SUBSEA PROJECT

 Madan Kanakaraj - GME

Total Energies has joined the Renewables for Subsea Power (RSP) project, which is currently powering subsea equipment off the east coast of Orkney in Scotland, with wave power from Mocean Energy and intelligent subsea energy storage from Verlume.

based in France, will now join project leads Mocean Energy and Verlume, alongside industry players Baker Hughes, Serica Energy, Harbour Energy, Transmark Subsea, PTTEP and the Net Zero Technology Centre (NZTC).

Joining RSP offers Total Energies

technology that will support the decarbonization of our oil and gas production business, both here in the UK and across the world. We're pleased to be participating and look forward to seeing the results of this collaboration." Ian Crossland, commercial director at Mocean Energy, added: "TotalEnergies



Mocean Energy's Blue X wave energy converter and Verlume's Halo battery storage system for RSP project (Courtesy of Mocean Energy)

The £2 million demonstrator initiative has connected the Blue X wave energy converter – [built by Edinburgh company Mocean Energy](#) – with a Halo underwater battery storage system developed by Aberdeen intelligent energy management specialists Verlume.

The fully operational project aims to show how green technologies can be combined to provide reliable low carbon power and communications to subsea equipment, offering a cost-effective alternative to umbilical cables, which are carbon intensive with long lead times to procure and install.

TotalEnergies, supported by its ocean energy R&D team

access to all data and results from the extended test program, taking place at a site 5 km east of the Orkney mainland. TotalEnergies will also be able to offer input to test plans and will be provided with a feasibility assessment of the use of RSP technology at a location of their choice.

It is anticipated that participation will support TotalEnergies' activities both in the UK and overseas addressing the wider energy transition across their production and energy products, as it aims to become carbon net zero, together with society, by 2050.

Dave MacKinnon, TotalEnergies' technology, data & innovation manager, said: "Our participation in RSP demonstrates how important it is to us to pursue new ideas and

is a global multi-energy company and this new investment underscores the international interest in the potential of our combined technologies.

"TotalEnergies has a long history in Scotland and an incredible track record in offshore operations, and their experience will be extremely valuable as we begin to commercialize our Blue Star product line."

The Orkney deployment is the third phase of the RSP project. In 2021, the consortium invested £1.6 million into phase two of the program – which saw the successful integration of the core technologies in an onshore test environment at Verlume's operations facility in Aberdeen.

*Courtesy: world maritime news*

# EU ETS WILL COST THE SHIPPING INDUSTRY BILLIONS, SAYS ITIC

 Vinay Kumar Taranath Shettigar, GME

The cost of the European Union's (EU) new Emissions Trading Scheme (ETS) to the shipping industry could be in the billions, according to the forecasts from International Transport Intermediaries Club (ITIC).

The extended EU ETS, which comes into force on 1 January 2024, will set an annual

scheme for their owners. It is, therefore, vital that ship management agreements set out the responsibilities and liabilities for doing so. The EU ETS is likely to cost the industry billions in extra fees so ship managers and charterers should assess every aspect of the costs and legal risks associated with the scheme to ensure they are not left in a financial precarious position," Hodge noted.



absolute limit on emissions of greenhouse gases (GHG) for vessels of 5,000 gt and above calling at EU ports. However, its implementation is creating tensions between shipowners and charterers, particularly surrounding the language within charter agreements to ensure a fair distribution of costs and legal risks.

Robert Hodge, General Manager at ITIC, believes that it is vital that ship managers take necessary due diligence to ensure any of these risks are mitigated.

"Ship managers will have an important role in managing the

ITIC's warning comes on the back of the most recent meeting of BIMCO's documentary committee, which includes ITIC and other shipping stakeholders. During the meeting, BIMCO adopted an ETS allowances clause for its ship management agreement, SHIPMAN, and three ETS clauses tailored for voyage charter parties.

The clauses aim to facilitate collaboration and provide clarity and certainty between parties as new regulations come into force, changing the way the industry operates to achieve compliance and cut emissions.

"In less than one month, our industry will be included in the EU ETS, and in the future, we

can expect similar emission schemes. The new ETS clauses have been developed to help parties meet the requirements of the EU ETS as well as any applicable emission scheme we may face in the future," says Nicholas Fell, Chairperson of BIMCO's Documentary Committee.

The most recent updates to the BIMCO SHIPMAN Emission Trading Scheme Allowances Clause 2023 ensure that the costs and responsibilities for obtaining, transferring and surrendering emission allowances for ships operating under an emission scheme in a ship management context.

"The purpose of the ETS clause for SHIPMAN is to allocate costs and responsibilities between owners and managers, thereby facilitating compliance with emission trading schemes. This includes the reporting of emission data, as well as the transfer and surrender of emission allowances for ships operating under an emission scheme," says Stinne Taiger Ivø, Director, Contracts & Support at BIMCO.

In addition, a BIMCO subcommittee is currently working on the development of an ETS clause for Contracts of Affreightment.

The EU ETS comes as a result of the increasing regulatory landscape imposed by the International Maritime Organization (IMO) and the EU when it comes to reducing GHG for vessels transiting European waters and docking at European ports.

*Courtesy: world maritime news*

# PORTS OF STOCKHOLM SET TO APPLY FOR EU FUNDING

 Valli kumar- GME

Ports of Stockholm has been given the green light from the Swedish Government to apply for EU funding for three sustainability initiatives.

expansion of onshore power connections for vessels at the quayside throughout the entire Baltic Sea region. This positive decision from the Swedish

for future success in achieving environmentally beneficial results for port operations and shipping in general. We see an obvious added value in using external funding in the form of EU grants to be able to accelerate our environmental initiatives, in this case our proposals for onshore power connections at the quayside,” explains Lotta Andersson, Public Affairs and EU Coordinator.

If the projects are awarded EU funding, they will run between 2024 and 2025, or until 2026 at the latest.

The initiatives in the applications include:

Shore-side electricity supply for container ships in Core Network Ports of the North and Baltic Sea



Image credit: Swedish ports  
The major focus of the projects is the development of the electricity infrastructure, in support of the transition to greener shipping by lowering quayside air particle emissions.

The approval covers all three applications from Ports of Stockholm, in collaboration with other ports, to be submitted to the EU Connecting Europe Facility (CEF) to apply for grant funding.

“Together with other ports and stakeholders, we want to enable the rapid and safe

Government shows the increased electrification of the transport sector, with a focus on shipping, is a prioritized area. This expansion will result in a greater ability to meet our own and the EU environmental goals,” says Jens Holm, Chair of the Board of Ports of Stockholm.

The development of onshore power connections for container and passenger ships in core ports is one of the 2030

targets of the EU climate goals and “Fit for 55” conversion to greener shipping policy.

“National and international collaborations with other ports and stakeholders in these types of projects are important factors

1. The goal is to meet the EU 2030 targets as soon as possible for onshore power connections for container ships at the quayside in TEN-T ports for more than two hours.

2. In addition to Ports of Stockholm, the collaboration also involves the ports in Gothenburg, Århus, Bremerhaven, Oslo and Hamburg, as well as the Danish container shipping company Unifeeder.

Baltic Ports for Climate – onshore power supply pre-investment phase

1. The goal is to accelerate and ensure the development of onshore power supply (OPS) in the Baltic Sea region.
2. Ports of Stockholm will focus on pilot studies of onshore power development at the Värtahamnen, Frihamnen and Stadsgården Ports.
3. The collaboration includes six other TEN-T core ports: Klaipėda, Riga, Tallinn, Hamburg, Gdynia and Gdańsk.

4. Ports of Stockholm, with support from the Baltic Ports Organisation (BPO), is the coordinator for the application.

Upgrade of the Motorways of the Sea (MOS) connection Stockholm-Riga

1. The goal is to reduce the climate impact of the passenger terminals in Stockholm and Riga and to create a sustainable basis for the future reintroduction of the extremely important shipping services between both capital cities.

2. The infrastructure at the Värtahamnen Port in Stockholm will be upgraded and the existing ferry terminal in Riga will be relocated to a site outside the city centre.

The majority of the regular ferry services to and from Stockholm and Nynäshamn already connect to onshore power. During 2023 the Port of Kapellskär and the Stadsgården quays were equipped with new onshore power connections at the quays for ferries and cruise ships.

*Courtesy: world maritime news*

## IRAN CONVERTS CONTAINERSHIP INTO DRONE CARRIER

 Vinay Kumar Taranath Shettigar, GME

Iran is preparing for the launch of a boxship converted into a drone carrier named Shahid Bagheri. Due to this disturbing development, security concerns are heightened in the Arabian Sea.

The Shahid Bagheri drone carrier is a boxship formerly known as the "SARVIN." It is a 3280 TEU ship that was delivered back in 2000. The vessel was converted to a drone carrier at the ISOICO shipyard near Bandar Abbas and is now controlled by the Islamic Revolutionary Guard Corps. It is being hailed as a "mobile naval city," ensuring the security of Iran's trade lines and the rights of Iranian sailors and fishermen in the seas.

"Mobile naval city," ensuring the security of Iran's trade lines and the rights of

Iranian sailors and fishermen in the seas. Among the modifications is an increased deck with a runway of around



170 meters. The ship can now accommodate the departure and landing of a large fleet of long-range fixed-wing drones. The vessel is expected to cause disruptions to vessels in the Arabian Sea.

Vice Admiral Brad Cooper of the US Navy's 5th Fleet has confirmed that Iran has been

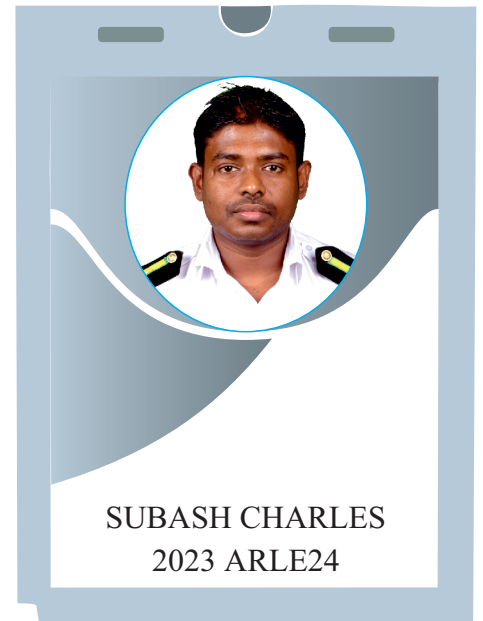
involved in actively supporting the Houthis by providing resources, funding, and training. Iran has been assisting

the Houthi Rebels in Yemen in targeting passing merchant ships for the past three months. Around 35 merchant vessels have been targeted by the Houthi drones and missiles so far. A car carrier named "Galaxy Leader" was hijacked and currently remains in Yemeni waters.

*Courtesy: world maritime news*

# PLACED STUDENTS DETAILS

R L Institute of Nautical Sciences takes concerted efforts to get placement opportunities for the meritorious cadets who have passed successfully in the exit examination. This time MSC CREWING SERVICES PRIVATE LTD. recruited our current batch of ETO students. In the preliminary selection process, initially on line test was held in our campus .The cadets who have successfully passed in the on line test; have been called for the final interview at Chennai. Three cadets from ETO were placed after having successfully cleared the interview process. The cadets who have been placed in MSC Crewing Services Pvt. Ltd, are Sugan Sunder Raj, Mugesh Muthaiyan and Subash Charles.



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