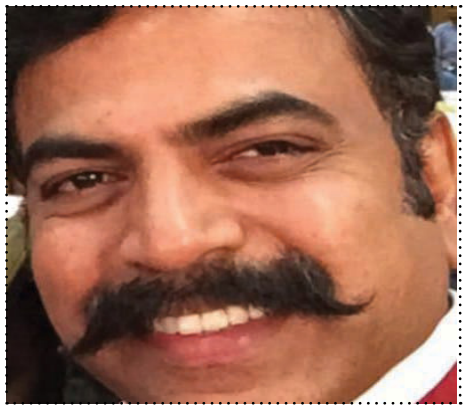
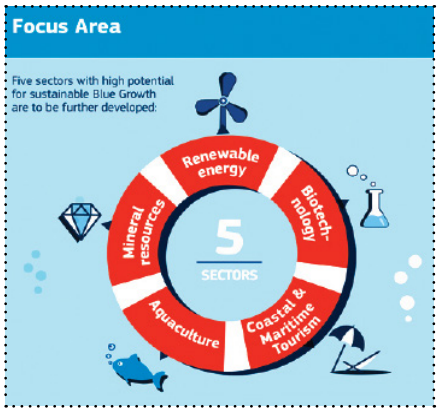
Blue Economy – Wave 73

(Series on ''Blue Economy'' By Capt. Gajanan Karanjikar)





Capt. Gajanan Karanjikar, Blue Economy Social Activist & Multi Modal Logistics Expert

Blue Economy and Ocean Energy .... (cont..)

Summary of Power at Sea

- Located farther from shore, ensuring that cabling and access to terrestrial-based energy is expensive and difficult to deliver. Typically, these locations have limited low-cost power options.
- Many of these activities and associated energy needs could be located in deep water (>100 meter depth).
- Generally, there is a desire to reduce reliance on fuel and batteries, as well as the risks and costs associated with chartering vessels and crews to deploy and retrieve equipment.
- Power is mission critical for many applications and failure to supply could lead to a complete loss of system; redundant power systems are common. To conserve power, instrument sampling rates and duty cycles are commonly set to lower-than-desired levels to extend battery life as long as possible, reducing temporal resolution of data.
- Incumbent power sources or technologies include solar photovoltaics, wind, diesel generators, and single-use or rechargeable batteries.

Economics of Ocean Energy:

The following provides specific information on the economic factors to consider for each type of ocean energy system.

OCEAN THERMAL ENERGY CONVERSION

The economics of energy production have delayed the financing of a permanent, continuously operating ocean thermal energy conversion plant. Scientists are developing new, cost-effective turbines for open-cycle ocean thermal energy conversion systems.

Favored locations for ocean thermal energy conversion plants include those with narrow shelves, steep offshore slopes, and smooth sea floors. These sites minimize the length of the pipes, and create easy access for construction and maintenance, which helps to lower the cost of ocean thermal energy conversion-generated electricity. Ocean thermal energy conversion processing plants that produce methanol, ammonia, hydrogen, and other chemicals do not require a power cable, and station operation and maintenance (O&M) costs are reduced. Ocean thermal energy conversion is technically feasible in geographical areas with warm surface water and cold deep water, providing a temperature difference that can be leveraged to produce power. As a result, this technology has the potential to generate electricity for military shore-side bases and communities.

WAVE ENERGY:

Economically, wave power systems have a hard time competing with traditional power sources. However, the costs to produce wave energy are coming down. Some European experts predict that wave power devices will find lucrative niche markets. Once built, they have low operation and maintenance costs because the fuel they use—seawater—is free.

It has been estimated that improving technology and economies of scale will allow wave generators to produce electricity at a cost comparable to wind-driven turbines, which produce energy at about $0.45 per kilowatt hour. For now, the best wave generator technology in the United Kingdom is currently producing energy at an average projected / assessed cost of $0.75 per kilowatt hour.

Resolving intermittency problems to attain reliable energy output can double and even triple the cost of power. The key to reliability and economy of operation is site selection based on good site research.

TIDAL ENERGY:

There is a high capital cost for a tidal energy project, with possibly a 10–year construction period. The capital required to start construction of a barrage is the main economic barrier, with long payback periods. The optimum design would produce the most power while minimizing the size of the barrage.

Tidal stream technology is still in the development stages, and therefore is not economically feasible. The cost of using these technologies is very site specific and dependent upon the turbine technology used. Maintenance costs are significant throughout the lifetime of tidal stream technology.

Conclusions:

Each system has its own advantages and disadvantages. Several common points to these four main technologies stand out.

The positive aspects of using ocean energy are:

- Reduction in the dependence on fossil fuels.
- Source of energy is free, renewable and clean.
- Clean electricity is produced with no production of greenhouse gas or pollution (liquid or solid).
-Energy produced is free once the initial costs are recovered.

The negative aspects of using ocean energy are:

-At present, electricity produced would cost more than electricity generated from fossil fuels at their current costs.

- Technologies are not fully developed.
- Problems exist with the transport of electricity to onshore loads

BPCL ships first coastal consignment of tank container from Kochi to Hazira Port

NEW DELHI
Sagar Sandesh News Service

The first coastal consignment of two tank containers carrying acrylic acid from BPCL-Kochi Refinery to Hazira port, Gujarat, were loaded on board SSL Visakhapatnam from the International Container Transshipment Terminal (ICTT), Vallarpadam, on Sunday 18 April 2021.

It marked a shift in transportation of tank containers from road to sea mode

The coastal shipping of hazardous cargo like acrylic acid marked a shift in transportation of tank containers from road to sea mode, said a press release here on Monday. It is a major step towards promotion of coastal shipping being encouraged by the Ministry of Ports under the Sagarmala programme. The consignees are Visen Industries, Silvassa and Rossari Biotech. Avana Logistek, a Transworld Group company, was the logistics partner, the press release added.

In another major event, a SpiceJet seaplane berthed at the Cochin Port at 11.30 a.m. on Sunday for refuelling en route to Male, the Maldives. It paves the way for the Cochin Port to position itself as a seaplane bunkering port. The seaplane that arrived from Goa left for the Maldives after bunkering 975 litres of ATF, besides stocking essential items on board. Indian Oil Aviation supplied the ATF for the seaplane, the communication added.

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