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SOLAR IN DEEP SEA

APPLICATION NOTE

OBJECTIVE OF USING SOLAR AT SEA

1. Run your electrical loads like communication devices, lights, fans, emergency lights etc so as to reduce the load on the diesel generator and hence consumption of diesel.
2. For systems where battery power is used, solar panels can be used to charge the batteries as well as run loads directly.
3. For boats with electrical drive, solar power can be used to propel the entire boat provided sufficient space is available for mounting of panels.
4. Solar panels can be used effectively as a branding tool as well as to meet any renewable purchase obligation (RPO) that the company may have.

CASE STUDY

Problem Statement:

Deep sea fishermen normally go out 7 day voyages with charged batteries. These batteries are used to operate navigation equipment, signal lights, fish finding equipment and other lights on board. Due to lack of reliable charging sources on the vessel, fishermen run the engine for long hours to charge the batteries. This results in wastage of diesel, increased likelihood of accidents, reduced catch due to noise of the engine and emission of harmful exhaust.

Solution:

Special solar panels with salinity corrosion protection were installed on the boat. These panels were used to charge the batteries which in turn powered all the electrical loads.

IMPACT

Situation as on date and severity of the problem	
Number of fishing boats in Thoothoor	580
Fuel required to run engine for one hour	10 litres
Extra running of engine per day	3 hours
Number of fishing days in one year	250
Cost of Diesel per litre	Rs 51

Impact after installation of solar system	
Saving of fuel per year	43.50 lakh litres
Saving on cash per year	2.2185 Crores
Emission of CO2 per litre of diesel consumption	2.40 kg
Potential reduction in CO2 emission	10.44 million kgs
Payback (without depreciation benefits)	0.5 years

INSTALLATION IMAGE & PRESS RELEASE

Fishermen to see sun in a new light

Boat fitted with solar panels to save fuel, reduce carbon footprint

The Hindu/05-12-2012

T. Nandakumar

THIRUVANANTHAPURAM: About 580 deep-sea-going fishermen operating from Thoothoor in Tamil Nadu may soon be banking on the sun to save fuel and cut down on carbon dioxide emissions. They are eagerly awaiting the result of a pilot project to equip their vessels with solar panels.

On Friday, the Association of Deep Sea Going Artisanal Fishermen (ADSGAF) and the Bay of Bengal Programme Intergovernmental Organisation (BOBP-IGO) launched the trial run of a fishing boat fitted with solar panels at Chinnamuttom in Kanyakumari district.

Kanyakumari District Collector S. Nagarajan inaugurated a function organised in this connection. Vincent Jain, Chief Executive, ADSGAF; Y.S. Yadava, director, BOBP-IGO, and D. Durairaj, president, Sea Food Exporters Association of India, Tamil Nadu, were present.

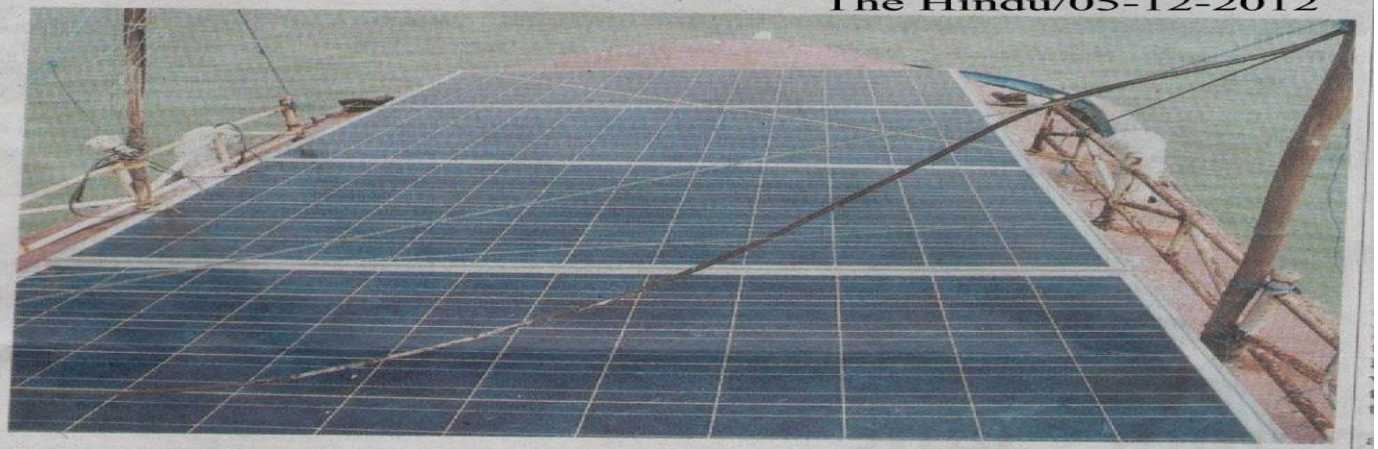
"Out at sea, most fishermen keep the engine running continuously, fearing they would be stranded if it refuses to start after being switched off. Our survey shows that fishermen from Thoothoor spend up to 70 per cent of their total working capital requirement per voyage on fuel. By tapping solar energy, they can save fuel and reduce operational costs while contributing to the environment by cutting down on carbon dioxide emission," Mr. Jain said

The solar panels, he explained, would be used for charging the battery and for the operation of safety and navigation equipment, signal lights, and other lights on board. By switching off the engine for three hours, a fishing boat could save 30 litres of fuel a day, which translated to a saving of more than Rs.3.8 lakh per year.

Equipping a boat to take on a 1 KW solar power plant, including the modification of the wheel house and installation of stainless steel trusses, cost Rs.2.25 lakh. "As a one-time investment with no operational expenses, it makes sound economic sense," Mr. Jain said. "It also signals the fishermen community's contribution to reducing the Carbon footprint".

All the 580 deep-sea-going fishermen based in Thoothoor have expressed their willingness to equip their vessels with solar panels if the trial run proves to be a success. This, Mr. Jain said, would result in a saving of 43.5 lakh litres of fuel a year, working out to a cost saving of Rs.22.18 crore at the current price of Rs.51 per litre of diesel. The potential reduction of carbon dioxide emission per year if the whole fleet switches off the engine for three hours a day is estimated to be 10,440,000 kg.

BOBP- IGO, which provides technical and management advisory services for fisheries development in the Bay of Bengal region, is trying to mobilise funds to equip the other deep-sea-going vessels with solar panels. Mr. Jain said the project could be extended to the1,000 odd trawlers operating from Kanyakumary at a later phase.



TAPPING THE SUN: *The prow of a Thoothoor-based deep-sea fishing vessel fitted with solar panels.*

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