

Harnessing Clean Energy on Water

Floating Solar Case Study: Fourth Partner Energy x Mangalore Chemicals & Fertilizers Limited

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2.325 MWp

Floating Solar Project

First

Floating Solar
Plant in Karnataka

April 2026

Commissioned

3,195 Tonnes

CO₂ Avoided / Year

Transforming cooling-water reservoirs into renewable energy assets — without occupying a single acre of industrial land

Turning Cooling Ponds into a Power Plant

As part of its long-term sustainability roadmap, Mangalore Chemicals & Fertilizers Limited (MCFL) partnered with Fourth Partner Energy (FPEL) to develop a floating solar power plant at its manufacturing facility in Mangaluru. By transforming existing cooling-water reservoirs into renewable energy assets, the project advances MCFL's decarbonisation goals while preserving valuable land for future expansion.

This case study explores how innovative engineering, strategic infrastructure reuse, and a shared commitment to sustainability came together to create a benchmark for renewable energy adoption in the fertiliser manufacturing industry.



Mangalore Chemicals & Fertilizers Limited

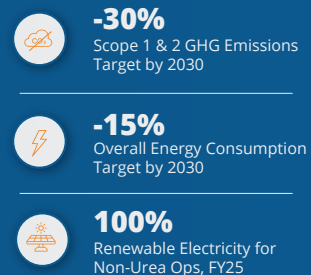
For over five decades, MCFL has played a pivotal role in supporting India's agricultural sector. Established in the early 1970s, it is Karnataka's largest manufacturer of urea and complex fertilisers, and one of Southern India's leading fertiliser companies.



Through its diversified product portfolio and commitment to operational excellence, MCFL continues to strengthen agricultural productivity and food security across Southern India. As one of India's leading fertiliser manufacturers, MCFL recognises that sustainable manufacturing is fundamental to long-term business resilience — improving operational efficiency, reducing its environmental footprint, and integrating cleaner energy into its manufacturing ecosystem.

MCFL's Sustainability Journey

Guided by a comprehensive sustainability roadmap, MCFL is focused on improving energy efficiency, lowering greenhouse gas emissions, and accelerating renewable energy adoption across its operations.



In FY25, MCFL sourced 100% of the electricity required for its non-urea operations from renewable energy, lifting green energy's share of total energy consumption to 24.84% — up from 22.83% the previous year. These initiatives reinforce MCFL's long-term commitment to a cleaner, more energy-efficient manufacturing ecosystem.



The Energy Behind Every Fertiliser Granule

Manufacturing fertilisers — particularly urea — is among the most energy-intensive industrial processes in the world.

Urea accounts for nearly 58% of India's fertiliser production and requires an average of 5.65 GCal of energy per tonne — more than twice that of DAP and complex NPK fertilisers.

Energy contributes nearly 90% of the variable cost of ammonia production, while ammonia synthesis alone accounts for almost 80% of total energy consumed in urea manufacturing.



Strategic Partnership with Fourth Partner Energy

To accelerate its renewable energy transition, MCFL partnered with Fourth Partner Energy to develop an innovative floating solar power plant at its Mangaluru facility.

Following a comprehensive assessment of the site's energy requirements and existing infrastructure, FPEL identified the facility's cooling-water reservoirs as an ideal location for a floating solar installation — enabling MCFL to integrate renewable energy without occupying valuable industrial land, while making productive use of existing infrastructure.

More than a renewable energy project, the partnership represents a shared commitment to sustainable industrial growth — combining MCFL's sustainability ambitions with FPEL's engineering expertise to deliver both operational and environmental value.

Why Floating Solar?

Existing industrial infrastructure can often serve multiple purposes when combined with innovative engineering. At MCFL, the cooling-water reservoirs — originally built to support plant operations — have now been transformed into renewable energy assets through a floating solar installation, generating clean electricity while preserving valuable land for future expansion.

“Since we already had the ponds for our operations, we didn't want to occupy valuable land. The ponds could instead be utilised for floating solar. It also helps reduce water evaporation and mitigates algae growth.”

By transforming operational cooling reservoirs into renewable energy assets, MCFL has demonstrated that industrial infrastructure can do more than serve its original purpose — reimagining existing assets to simultaneously support manufacturing, conserve resources, and generate clean power.



Guru Raj
Mangalore Chemicals & Fertilizers Limited

Project Highlights



2.325 MWp
Project Capacity



Mangaluru
Project Location



Floating Solar
Project Type



April 2026
Date of Commissioning



3.5 Mn Units
Annual Clean Energy Generation



3,195 Tonnes
of Annual Carbon Emissions Avoided



75 Lk Litres
of Water Conserved



1,532 Kg
Reduction in Coal Consumption



Equivalent to Planting
1.5 Lk Trees

The FPEL Solution

To support MCFL's renewable energy transition, Fourth Partner Energy designed, engineered, and commissioned a 2.325 MWp floating solar power plant at the company's Mangaluru facility. The project seamlessly integrates renewable energy generation into MCFL's manufacturing operations while supporting its long-term sustainability objectives.

“Developing Karnataka's first floating solar power plant was a proud milestone for our team. By leveraging MCFL's existing 18 MG and 6 MG cooling water reservoirs, we were able to deliver a solution that combines engineering innovation with efficient infrastructure utilisation, enabling clean energy generation while supporting the customer's sustainability journey.”



Yogesh Kumar
Project Manager, Fourth Partner Energy

Engineering Excellence

Delivering Karnataka's first floating solar power plant required specialised engineering to ensure long-term structural stability and reliable performance under varying operating conditions. Drawing on experience from earlier floating solar installations, FPEL refined its floater technology and engineering approach for the MCFL project, enabling efficient execution and dependable long-term performance.



K. Uma Mahesh
Design Team, Fourth Partner Energy

“Our earlier floating solar projects gave us valuable engineering insights, particularly around floater performance and buoyancy. We incorporated those learnings into the MCFL project by selecting an improved floating system, which helped us deliver a robust and reliable installation.”

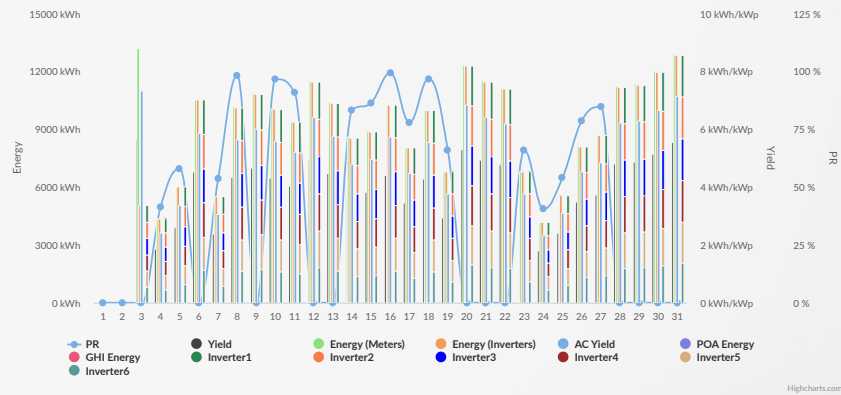
“As part of our sustainability vision, we are actively working towards increasing the share of green energy in our operations and reducing our carbon footprint. Through various renewable energy initiatives, we are working towards meeting around 93% of our non-urea energy requirement through green energy, with the 2.36 MW floating solar project contributing around 3.5 million units of clean energy. Our broader ambition is to move towards 100% renewable energy for our non-urea operations, further strengthening our long-term sustainability journey.”

The project is helping us reduce around 2,528 tonnes of CO₂ emissions annually. For a long-term association, we were looking for a partner with strong technology, reliability and credibility. We found Fourth Partner Energy to be the right partner, particularly for its innovation in engineering. We are proud of this partnership and look forward to working together on our future energy transition.”



Shanmugam P
CMO & Unit Head, Mangalore Chemicals & Fertilizers Limited

Solar Power Generation August 2026



FPEL's On-Site Solar Solutions for Corporates

Fourth Partner Energy's on-site solar solutions are designed to enable corporates to transition to clean energy efficiently and reliably. By combining strong engineering capabilities with a deep understanding of industrial energy requirements, FPEL delivers customised solutions tailored to each facility's operational needs.

These solutions are built to optimise available infrastructure, minimise dependency on conventional power sources, and enhance energy cost efficiency, while ensuring seamless integration with existing operations. With a focus on performance, scalability, and long-term value creation, FPEL supports corporates in advancing their sustainability and decarbonisation goals.

A Benchmark for Sustainable Manufacturing

As Karnataka's first floating solar power plant, this project represents more than a renewable energy installation — it demonstrates how existing industrial infrastructure can be reimagined to accelerate decarbonisation without compromising operational efficiency.

By transforming cooling-water reservoirs into clean energy assets, MCFL and Fourth Partner Energy have established a benchmark for sustainable manufacturing — showcasing how innovation and strategic partnerships can drive the next generation of industrial energy transition.

