

Solar Biodiesel MiniGrid System

February 3, 2021

In News

- CSIR – CMERI dedicates Solar – Biodiesel Mini Grid System to the Nation.

About Solar – Biodiesel Mini Grid System

- CSIR-CMERI-Centre of Excellence for Farm Machinery has developed Off-grid Solar Biodiesel Hybrid Mini Grid of 50kW peak capacity system for providing 24X7 power to CoEFM Residential Colony.
- These high power centralized generation systems also warrant investment on expensive Transmission & Distribution infrastructure leading to higher transmission losses.
- In this scenario, localized region specific distributed generation systems like Minigrids with small scale Renewable Energy Sources can be potential generators of electricity near load centres and can help in addressing energy needs of local communities.

Application of Solar – Biodiesel Mini Grid System

- These types of systems can be a unique solution for uninterrupted power in remote areas, villages, hilly areas etc.
- In addition Solar Biodiesel Hybrid Mini Grid system developed at CSIR-CMERI also has applications in Smart city projects, because of its inherent smart features with respect to integration of different sources.
- Unlike in rural areas, power requirements of domestic loads in cities are higher along with huge fluctuations

due to varied usage patterns making the power balancing a challenging issue.

- Experiments were conducted in the CoEFM residential colony during different times of day, month and different seasons to understand the performance of the developed system under different conditions of loading, solar radiation etc.
- This developed system is not only lighting the residential colony but also being used to run 10hp & 5hp agricultural pumps.
- This type of development empowers many of the local communities in rural and urban areas to become self-reliant in energy and move India one step forward towards "Atma Nirbhar Bharat".

Central Mechanical Engineering Research Institute (CMERI)

- In India, mechanical engineering technology has accounted for nearly half of the total technology imported. In terms of products, nearly one third of the value of total imports is for mechanical engineering equipment.
- In order to develop indigenously mechanical engineering technology for the industries so that R&D can play a key role in self-reliance, the Central Mechanical Engineering Research Institute **(CMERI) at Durgapur, West Bengal was established in February 1958** with the specific task of development of mechanical engineering technology.
- The Central Mechanical Engineering Research Institute (CMERI) is the apex R&D institute for mechanical engineering **under the aegis of the Council of Scientific and Industrial Research (CSIR).**
- Being the only national level research institute in this field, CMERI's mandate is to serve industry and develop mechanical engineering technology so that India's dependence on foreign collaboration is substantially

reduced in strategic and economy sectors.

- Besides, the institute is facilitating innovations and inventions for establishing the claims of Indian talent in international fields where Indian products shall ultimately compete.
- In the new millennium, CMERI is poised to expand its horizon of research activities so as to steer the country forward in cutting-edge and sunrise fields.