

Solarisation of Agriculture Feeder

Background and Context

The Government of India has taken various policy measures to fulfill its commitment in the Paris Climate Agreement in 2015 to have 50 percent of installed power generation from non-fossil fuel sources by 2030.

To provide energy and water security to farmers and enhance their income, de-dieselise the farm sector, and reduce environmental pollution, the Government of India approved PM-KUSUM in February 2019. The approved scheme comprised of three components:

- **Component A:** Addition of 10,000 MW of solar capacity through the installation of small solar power plants of capacity up to 2 MW
- **Component B:** Installation of 20 lakh stand-alone solar power agriculture pumps
- **Component C:** Solarisation of 15 lakh existing grid-connected agriculture pumps

Component C was later on modified with the inclusion of a sub-component on feeder level solarisation. Under this sub-component, distribution companies (DISCOMs) will act as an implementing agency to set up decentralised grid-connected solar power plants near a distribution substation that supplies to one or more agricultural feeders.

The project aims to support state governments effectively and sustainably set up small-scale, decentralised solar power plants for irrigation to achieve capacity targets, balance economic, social, and environmental needs, and consider the water-energy-food (WEF) nexus.

The focus areas for this project are:

- **Component A:** Supporting individual farmers, farmer groups, cooperatives, panchayats, Farmer Producer Organisations (FPOs), and Water User Associations (WUA) to set up decentralized grid-connected solar power plants of up to 2 MW capacity. This can be done on cultivatable lands if the solar panels are mounted on stilts such that crops can still be grown (agrivoltaics). Otherwise, these should be on barren pastureland or marshy land.
- **Component C, sub-component on feeder-level solarisation:** Supporting DISCOMs to set up decentralised grid-connected solar power plants near a distribution substation that supplies to one or more agricultural feeders.

Objective

The project's objective is to develop a guidebook for state-level policymakers and agencies in the sustainable implementation of PM-KUSUM A and C (feeder-level solarisation). Three parameters define sustainability:

- 1) **Economical**– Making sure that states, particularly DISCOMs, can afford the scheme.
- 2) **Social**– Ensuring that small and marginal farmers benefit from the scheme.
- 3) **Environmental**– Ensuring that the scheme does not contribute to the over-extraction of groundwater in water-stressed regions

Methodology and Deliverables

1. Need Assessment

In-depth consultations will be conducted with the Ministry of New and Renewable Energy (MNRE) and other relevant central ministries and their equivalents in Rajasthan and Karnataka. Co-authoring an outline for guidance note to identify key needs for guidance on the state-level implementation of the PM-KUSUM scheme for agricultural feeder solarisation.

2. Case studies

Case studies will be developed based on experiences with the implementation of agricultural feeder solarisation. Case studies will draw key lessons about policy experiences on the project's priority themes where other data sources do not provide adequate information.

3. Background Paper on Agrivoltaics

The objective of the background paper is to strengthen the regulatory framework of Agrivoltaics in India by synthesise learnings from pilot projects across the country. It will identify different business models and assess their impacts on crop productivity and farmer incomes in different geographical contexts.

4. Guidance Note

A guidance note on implementing support schemes for agriculture feeder solarisation will be developed. It will be based on the initial consultations from stakeholders and feedback on the initial draft received from key policy stakeholders, particularly MNRE at the central level and major counterparts at a state level in Rajasthan and Karnataka.

5. Policy Dialogue with Rajasthan Stakeholders

Three policy dialogues with stakeholders in Rajasthan will be organised. The dialogue will have participation from senior officials, decision-makers, and multiple agencies whose inputs and commitment are required for the sustainable implementation of agricultural feeder solarisation

Expected Outcomes

- State-specific models for implementation of agriculture feeder solarisation
- Increased inter-departmental cooperation for the KUSUM scheme
- Increased participation from the farmer side based on inclusivity of the scheme and economic benefits

