

Potential of Grid Connected Solar Irrigation

What is the issue?

Grid-connected solar irrigation offers farmers an additional income source.

What are the existing agrarian concerns?

- Water is growing into an ever bigger human crisis, state power sector has once again managed to bring itself on the edge of the precipice, and the human and fiscal cost of the downward-spiraling nexus between energy, water, and agriculture is staggering.
- More than 80 per cent of freshwater is used by agriculture, and more than 60 per cent of India's irrigated agriculture is via groundwater.
- "Unmetered" and subsidized energy for agriculture has created a recurring fiscal pressure and burdened industry with cross-subsidy.
- Repeated bailouts of the State power sector reflect the way the state power sector has been managed and governed.
- Sixty five per cent of India's rural population depends on 15 per cent of its GDP contributed by agriculture, growing at an annual average of less than 2 per cent.
- Average income of agriculture household in India is less than ₹9,000 per month of which only about half is contributed by farm income (NABARD All India Financial Inclusion Survey 2017).

What are the potentials of grid connected solar irrigation?

- Grid-connected solar irrigation can potentially double the farm income, save groundwater, save subsidy for the State government, and generate jobs.
- Connecting the solar irrigation pumps to the grid to sell surplus electricity provides an additional source of income for the farmer.
- Grid-connected solarisation of pumps allows farmers to get substantial increase in their income that is climate resilient and counter-cyclical to agriculture, and get daytime, reliable, free power supply which reduces their production risk.
- Recurring power subsidy to agriculture would get replaced by one-time capital subsidy.

- Discom would get cheap decentralized distributed generation that would reduce their network losses.
- Farm income of a typical farmer would increase by about 30 per cent during the 7-year period of loan repayment and by more than 100 per cent thereafter.
- During drought and crop failure, farmer can reduce the scale of agriculture and earn more money from sale of power.
- In addition, even excluding upstream manufacturing jobs in solar cells, this could generate about 50 million local job-days over five years.

What are the challenges involved?

- If a significant number of individual farmers are unable or unwilling to solarize, their power and water consumption would go up since power will be now available for almost 10 hours a day every day, and even subsidy burden on the government would increase.
- Illegal use and bypassing of meters could increase.
- Risk of delays and defaults in payment for purchase of power by financially distressed Discom can undermine this huge opportunity.
- Due to pre-existing large stranded capacity, some Discom may not be inclined to encourage additional generation.

What measures are needed?

- Grid connected solar irrigation should be made available only if at least 70 per farmers participate and establish a Farmer Producer Company (FPC) or cooperative.
- The FPC would sign the PPA, aggregate power from participating farmers, maintain the feeder, and carry out energy accounting based on net meters at the farm and at the sub-station.
- Formation of FPC would check theft since stolen power belongs to the neighbor and not the government and Dynamism of private sector should be tapped to create FPCs.
- The government should create a “KUSUM Mission” with adequately funded anchor organization at the Centre and similar organization in each participating State.
- These organizations should draw staff from agriculture, water, energy and financial sectors from the public, private, and civil society entities and should be led by a hand-picked leader with a clear target of achieving 20 per cent solar conversion within five years.

Source: Business Line

