Significance of Solar Feeders - Maharashtra Model

What is the issue?

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Maharashtra has implemented Solar feeders scheme to provide a reliable supply of electricity.

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What is the status of electricity usability for agriculture?

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- Agriculture is a major consumer of electricity, accounting for one-fourth or one-third of consumption in many States.
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- Since the 1970s, agriculture in many States has been receiving electricity at either low tariffs or for free.
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- Access to groundwater depends on reliable and affordable electricity supply.
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- Two-thirds of the total irrigated area in India uses groundwater pumping, powered by more than two crore electric and 75 lakh diesel pumps.
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What are the issues with provision of electricity for agriculture?

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- In India much of the electricity supply for agriculture is un-metered.
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- Due to the lower tariff and poor revenue collection, agricultural sales are often seen as a major reason for the financial losses of distribution companies (discoms).
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- Part of this loss is then recovered through higher tariffs for other

consumers like industry and commercial (called cross-subsidy), and the remaining through direct subsidy from the State governments. Because it is seen as a loss-making sector, agriculture often gets poor quality supply leading to problems such as frequent pump burn-outs and power failures.
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- Restoring supply takes a lot of time and so does getting new connections.
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- Further, the supply is unreliable and often available during late nights.
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- Electricity demand for agriculture is expected to double in the next 10 years and as the average cost of supply keeps increasing, the problem of agriculture subsidies will become worse.
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What is Maharashtra’s solar feeder scheme all about?

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- A solar agriculture feeder is essentially a 1-10 MW community scale solar PV power plant, which is interconnected to the 33/11 kV sub-station.
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- Maharashtra’s solar agriculture feeder program will provide low cost electricity from solar, at Rs. 2.75-3/unit and at a fixed price contract for 25 years.
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- Under the scheme A 1 MW solar plant can support around 350, 5 hp pumps and requires around 5 acres of land to set up.
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- The plant can be set up in few months and there is no change at the farmer’s end.
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- Pumps need not be changed and farmers do not have to take responsibility of installation and operation.
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- All the pumps connected to the separated agriculture feeder will be given reliable day-time electricity for 8-10 hours between 8 am and 6 pm.
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- When solar generation is low, maybe due to cloud cover, balance electricity can be drawn from the discoms.
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- Alternatively, when pumping demand is low, maybe during rains, excess solar electricity will flow back to the discom.

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- Project developers are selected through a competitive-bidding process and the entire electricity would be bought by the discom through a 25-year contract.
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- The discom would continue to distribute the electricity to farmers on concerned feeders.
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- By this the state will exponentially increase its solar procurement to fulfil the national objective of increasing the use of solar power.
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- The Centre has also proposed a similar scheme at the national level, namely, KUSUM, with a 10,000 MW target.
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How the innovative scheme will address existing problems?

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- The scheme will provide reliable, adequate day-time electricity supply to farmers at reasonable tariff, leading to a gradual increase in the mutual trust between the discoms and the farmer.
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- The scheme will ensure day-time reliable power for the farmers and it requires no capital subsidy from the government.
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- Additionally, no new large transmission lines are needed, which has become a bottleneck for various large scale wind and solar power tenders.
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- Deployment is possible under the existing regulatory framework, and the generation also qualifies for Solar RPO of the participating discom.
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- This approach can also provide distributed jobs to local youth in construction, operation and maintenance of the plant.
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- While the cost of supplying power from the State discom is about Rs. 5/unit and rising each year, the price for solar power is about Rs. 3/unit, fixed for 25 years.
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- This saving of about Rs. 2/unit translates to an annual saving of Rs. 10,000/five hp pump. For a typical feeder with 500 pumps, this would save Rs. 4.5 crore (in net present value terms) over 20 years.

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Source: Business Line

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