ISMA
INDIAN SOLAR MANUFACTURERS ASSOCIATION

Powering the Farms, Building the Factory

PM-KUSUM: Solarising Agriculture and Strengthening Domestic Manufacturing

Prepared By

Indian Solar Manufacturers Association (ISMA)





About ISMA

The Indian Solar Manufacturers Association (ISMA) is the apex industry body representing leading backward-integrated solar PV manufacturers in India, with strong representation from solar cell and upstream capacity manufacturing. ISMA engages actively with policymakers, regulators, and industry stakeholders to enable policy frameworks that support domestic value addition, technology advancement, and long-term competitiveness of India's solar manufacturing ecosystem. ISMA's membership reflects significant cumulative capital investments in manufacturing capacity and supply chains, underscoring the industry's commitment to building a resilient and globally competitive solar manufacturing base in India.

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PREFACE
VOICE FROM THE ISMA LEADERSHIP

India's farmers have sustained the nation for generations. Through the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), they are also becoming producers of clean energy. Since its launch in 2019, the scheme has benefited around 30 lakh farmers and has supported an estimated 13-14 GW of solar capacity, bringing dependable daytime electricity to the farm and a new source of income to rural land.

The Indian Solar Manufacturers Association (ISMA) regards PM-KUSUM not only as an agricultural scheme but also as an industrial one. By requiring Indian-made modules and cells under Components B and C, the scheme has turned every installation into an order for an Indian factory. This report, Powering the Farms, Building the Factory, examines that relationship: the progress achieved across States, the scale of the opportunity that remains, and the experience of those who operate these plants on the ground.

"By mandating India made cells, the scheme has catalyzed >50GW of cell production in the country that enables resilience in the solar PV value chain and creates high skill manufacturing jobs."

The findings are encouraging. The scheme is accelerating, with record additions in the financial year 2025-26, and an estimated 116 GW of solar modules can still be absorbed by India's farms. Equally significant are the accounts recorded in the final chapter, in which plant owners and project representatives in Rajasthan and Karnataka describe how daytime power has changed working life in their villages.

A continued commitment to domestic manufacturing, predictable demand and timely access to finance will determine how much of this opportunity is realised. ISMA remains committed to working with the Ministry of New and Renewable Energy, State Governments, distribution companies, financial institutions and manufacturers towards this end. I trust that this report will serve as a useful reference for policymakers, industry and all who share the vision of a self-reliant and energy-secure rural India.

With best wishes,



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Indian Solar Manufacturers Association (ISMA)
October 2026

EXECUTIVE SUMMARY

Solar on the farm, strength in the factory



The Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), launched in 2019, enables farmers to harness solar energy through standalone solar pumps, the solarisation of grid-connected pumps and agricultural feeders, and decentralised solar plants on agricultural land. Its three components were designed to add 34.8 GW of solar capacity on India's farms. This report examines the scheme from two perspectives: the benefit it delivers to farmers and States, and the demand it creates for Indian solar manufacturing.

The case for solar on the farm. Agriculture is India's third-largest consumer of electricity, and the tariff subsidy billed by distribution companies for it has doubled in five years, from ₹1.21 lakh crore in FY20 to ₹2.41 lakh crore in FY25. Daytime solar power gives farmers dependable supply and safer working hours. Solar tariffs of around ₹3 per unit, discovered in recent feeder tenders, are well below the average cost of supplying farm power.

Progress and momentum. FY 2025-26 was a record year, in which the scheme added 7.6 GW of solar, and around 30 lakh irrigation pumps had been solarised by September 2026. Components B and C accounted for 93% of installed capacity at the end of December 2025, while Component A grew more than threefold in under a year, from 721 MW to 2,426 MW. Progress is fastest in States that carry the demanding steps of land, clearances, grid connection and co-financing themselves.

Made in India as an anchor of demand. Because Components B and C require Indian-made modules and cells, farm solarisation has become a steady source of orders for domestic factories. An estimated 13.8 GW had been installed under these components by October 2026, about two-thirds of the 20.8 GW of demand originally projected. ISMA estimates that India's irrigation pumps can absorb a further 116 GW of modules, equal to about three years of current solar cell capacity, of which about 13.8 GW, roughly one-tenth of the total market, has already been built.

Evidence from the ground. Accounts from five plant owners and project representatives at four plants in Rajasthan and Karnataka show the effect on farm life. Farmers who depended on night-time supply at low voltage now receive daytime power at stable voltage: six to eight hours at the Rajasthan plants and from 7:00 AM to 6:00 PM at Sampgaon. The plants report gross revenue of roughly ₹3.7 to 6.6 lakh per MW AC per month. The Karnataka owners financed about 90% of project cost through bank loans, which identifies access to finance as a decisive factor.

Conclusion. The foundations are firmly in place: proven State delivery models, a growing Indian manufacturing base and a Domestic Content Requirement that has held firm. The Way Forward sets out the measures by which PM-KUSUM 2.0 can extend reliable solar power to millions more farmers and a steady stream of orders to Indian factories.

CHAPTER 1:
PM-KUSUM: HOW INDIA IS SOLARISING ITS FARMS



For centuries, the Indian farmer has sustained the nation by putting food on its table. Today, as India advances its clean energy transition, farmers are adding a new role to the one they have always played: generating clean power. At the intersection of agriculture and renewable energy lies the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), launched in March 2019 to enable farmers to harness solar energy through solar pumps, the solarisation of agricultural feeders and decentralised solar power plants on agricultural land. Seven years on, the scheme has benefited more than **around 30 lakh farmers** and supported an estimated **13 - 14 GW** of solar capacity, about 85% of it built with Indian-made solar modules.

MNRE designed PM-KUSUM around three complementary objectives:

- generating additional income for farmers through decentralised solar power plants on agricultural land (Component A);
- reducing dependence on diesel through standalone solar pumps (Component B);
- ensuring reliable daytime electricity for irrigation by solarising existing grid-connected pumps and feeders (Component C).

Together, the three components were designed to add **34.8 GW** of solar capacity on India's farms.

1.1 One scheme, four routes to the farm

PM-KUSUM has three components, but they reach farmers in four ways. Each route suits a different farm and a different buyer of power.

Component A lets farmers earn from their land. Individual farmers, groups of farmers, cooperatives, panchayats, Farmer Producer Organisations and Water User Associations can set up solar plants of 500 kW to 2 MW.

If they cannot raise the money themselves, a developer or the local DISCOM can build the plant for them. Each DISCOM publishes how much spare capacity each substation can take, then invites farmers to apply. The DISCOM buys the power at a tariff set by the state regulator. In return, the Centre pays the DISCOM an incentive of ₹0.40 per unit, or ₹6.6 lakh per MW a year, whichever is less, for five years.

Component B replaces diesel. Farmers in areas without grid supply can install a standalone solar pump of up to 7.5 HP. The Centre pays 30% of the cost, the state at least 30%, and the farmer at most 40%. With a bank loan, the farmer needs to pay only 10% upfront. Where a state cannot pay its share, farmers can still install pumps with central support. Indian farmers are saving more than 821 million litres of diesel annually.

Component C solarises existing grid-connected agricultural pumps through two routes.

One farm at a time. Under individual pump solarisation, a farmer adds solar panels to an existing grid pump, up to twice its capacity. The farmer uses the power for irrigation and sells the surplus to the DISCOM, turning the pump into a source of income. Costs are shared as in Component B, with only 10% paid upfront.

One feeder at a time. Under feeder-level solarisation, a single solar plant near the substation powers a whole agricultural feeder, sized to meet its yearly power needs. The plant is built by the DISCOM or by a developer chosen through competitive bidding. Every farmer on the feeder gets reliable daytime power at no extra cost. The Centre provides ₹1.05 crore for every MW built.

In the North-Eastern states, Sikkim, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Lakshadweep and the Andaman & Nicobar Islands, central support rises to 50%, and the farmer pays at most 20%. For feeders in these areas, support rises to ₹1.75 crore per MW.

What unites the pumps and the feeders is a single rule: they must be made in India.

1.2 Made in India: a rule that has held firm

PM-KUSUM links agricultural solarisation with domestic manufacturing through its Domestic Content Requirement (DCR). MNRE's guidelines make it "mandatory to use indigenously manufactured solar modules with indigenous solar cells" under Components B and C. For standalone solar pumps and individual pump solarisation, the requirement extends beyond modules to the motor, pump, controller and other specified equipment. That one line has turned a farm scheme into one of the largest steady buyers of Indian solar cells and modules.

MNRE has kept this rule strong. In September 2025 it stated plainly: "There shall be no relaxation in Domestic Content Requirement (DCR) provisions" for Components B and C.

Since 1 December 2024, DCR claims have been verified through the DCR verification portal of the National Institute of Solar Energy (NISE). Modules that cannot be verified "shall not be accepted". The portal creates a digital trail for domestic-content claims, helping establish the origin of the modules and cells used in PM-KUSUM projects and strengthening accountability across the supply chain.



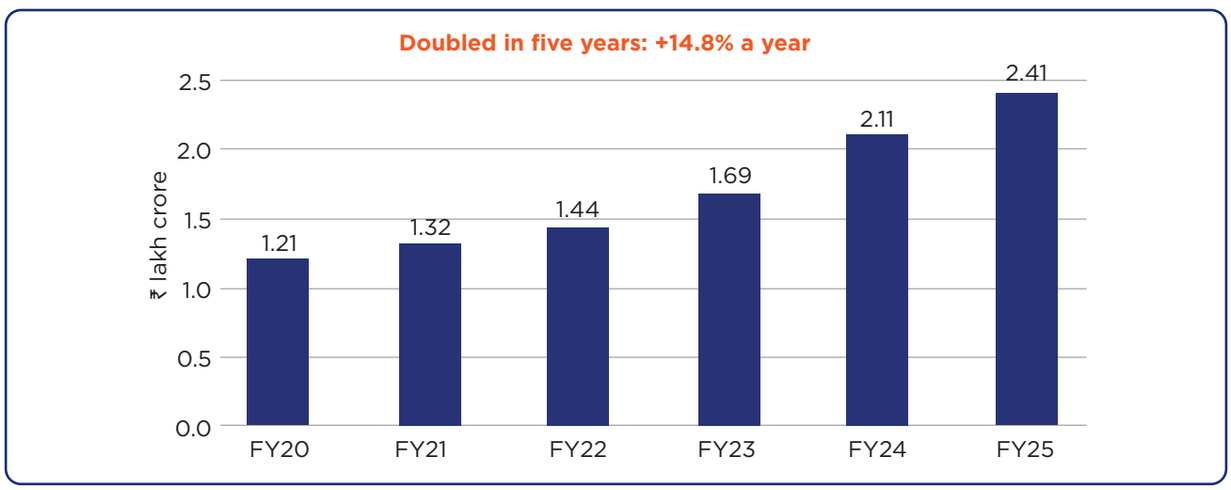
CHAPTER 2: WHY IT MATTERS: DAYTIME POWER FOR FARMERS, RELIEF FOR STATES

Farm power sits at the heart of India's food security, and of state finances. Every unit of solar power produced on or near the farm serves both: it gives farmers reliable daytime supply, and it lowers the cost that states carry every year to keep irrigation affordable.₹

2.1 The growing cost of farm power

Agriculture is India's third-largest power consumer. It drew **2,75,485 GWh** in FY24, or **17.88%** of the country's electricity consumption, and its use has grown at a steady 5.6% a year since FY15. States keep this demand affordable largely through tariff subsidies. The total subsidy billed by DISCOMs across all subsidised consumers, of which farm power is a major share, doubled in five years, from **₹1.21 lakh crore** in FY20 to **₹2.41 lakh crore** in FY25, a rise of about 14.8% a year. With an average cost of supply of ₹7.10 per unit, the power that India's farms use each year is worth roughly **₹1.96 lakh crore**.

Figure 2.1: Tariff subsidy billed by DISCOMs, all consumer categories



Source: *Power Finance Corporation, Report on Performance of Power Utilities, FY20 to FY25 editions*

2.2 Daytime solar: better for farmers and for water

Agriculture employs about 43% of India's workforce, and most of it depends on assured irrigation. India has about 2.19 crore groundwater irrigation schemes, and in many states their grid supply is rationed to between 4 and 18 hours a day, often at night. Solar power changes this because it is generated in the day, feeders and pumps running on solar can give farmers dependable daytime supply, safer working hours and better control over when and how much water they pump.

2.3 A one-time investment against a recurring cost

Set against the scale of farm power subsidies, PM-KUSUM is a modest and well-targeted investment. The Centre's entire seven-year budget for the scheme, **₹34,422 crore**, is about **14%** of the total tariff subsidy billed by DISCOMs in FY25 alone. Solar tariffs discovered in recent feeder tenders, of around ₹3 per unit, are well below the average cost of supplying farm power. Every unit shifted to solar therefore reduces the subsidy that states would otherwise keep paying year after year.

CHAPTER 3:
FROM SANCTION TO DEPLOYMENT ACROSS STATES

PM-KUSUM is one of the few government schemes where progress can be tracked state by state, component by component and pump by pump. The data tells a clear story: the scheme is delivering, it is speeding up, and a large pipeline is ready to follow.

3.1 The national picture

Standalone solar pumps lead the way, with 91% of sanctioned pumps already in the field. Feeder solarisation has covered nearly half of its target, on a far larger base of pumps. In megawatts, the scheme's strength lies in its Made-in-India components: on 31 December 2025, Components B and C made up 10,229 MW of the 10,949 MW installed, or 93%. Figure 3.1 shows how far each state has come on each route.

Every state has a route that works % of sanctioned capacity installed, by state and component (installed figure below).

Figure 3.1: Progress by state and component

Darker = further ahead

	A. Solar plants	B. Standalone pumps	C. Feeder solar	D. Individual pumps
All India	**24%** 2,426 MW	**91%** 11.91 lakh	**49%** 17.18 lakh	**30%** 16,528 MW
Maharashtra	**10%** 25 MW	**98%** 5.63 lakh	**100%** 8.75 lakh	–
Rajasthan	**31%** 1,753 MW	**95%** 1.28 lakh	**61%** 2.43 lakh	**100%** 2,138 MW
Gujarat	**0%** 0 MW	**100%** 22,792	**65%** 3.05 lakh	–
Karnataka	–	**79%** 32,650 lakh	**25%** 1.90 lakh	–
Haryana	**49%** 78 MW	**99%** 1.96 lakh	**0%** 0	–
Madhya Pradesh	**18%** 259 MW	**50%** 29,773	**42%** 74,308	–
Uttar Pradesh	**100%** 1 MW	**67%** 71,538	**1%** 4,588	**74%** 8,895 MW
Jharkhand	–	**96%** 83,599	–	–
Telangana	**9%** 168 MW	**0%** 0	–	**0%** 0
Himanchal Pradesh	**100%** 100 MW	**87%** 1,103	–	–
Odisha	**9%** 8 MW	**92%** 16,956	**0%** 0	–
Punjab	–	**99%** 17,928	–	**13%** 25
Kerala	–	**100%** 8	**53%** 11,809	**43%** 4,063
Tripura	**0%** 0 MW	**94%** 10,466	–	**39%** 1,402
Bihar	–	–	**5%** 7,442	–
Andhra Pradesh	–	–	**2%** 5,897	–

Source: *MNRE, PM-KUSUM portal (accessed 11.10.2026).*

3.2 Momentum is building

PM-KUSUM is not slowing down; it is speeding up. FY 2025-26 was a record year, in which the scheme added 7.6 GW of solar, about one in every six megawatts of solar India added that year. Component A, the slowest route in the early years, has now taken off: it grew from 721 MW in December 2025 to 1,727 MW by June 2026 and 2,426 MW by October 2026, more than three times in under a year. In all, about 30 lakh irrigation pumps had been solarised by October 2026.

3.3 States leading the way

Maharashtra has completed its entire feeder solarisation target of 8.75 lakh pumps and installed 5.6 lakh standalone pumps, and has received the largest share of central assistance of any state. Rajasthan is the only state active on all four routes: it leads Component A with 1,753 MW and has solarised every individual grid pump it sanctioned. Gujarat has solarised over 3 lakh pumps through its feeders, while Haryana, Punjab and Jharkhand have installed almost every standalone pump sanctioned to them.

3.4 What makes the difference

The leading states have each used one of three models. Maharashtra created a dedicated delivery agency that does the heavy lifting: under MSKVY, land, clearances and grid connections were bundled before bidding. Haryana added its own state top-up to the central support, cutting the farmer's share. Rajasthan paired a willing DISCOM with simple land leasing, making it easy for farmers to host or own solar plants. Any state can adopt one of these models. What they have in common is that the state takes on land, clearances and grid connection, so farmers can simply benefit.

Table 3.1: What drives progress

Component	Central support	Made in India	How it is delivered	Progress
B: Standalone pumps	Centre 30% + state share	Required	State-level tender	91.1%
C-FLS: Feeders	₹1.05 crore/MW	Required	DISCOM or state agency	48.6%
C-IPS: Individual pumps	Centre 30%; farmer pays more	Required	Farmer by farmer	29.8%
A: Solar plants	Incentive to DISCOM	Not required	Farmer or developer	24.3%

Source: *ISMA analysis of MNRE, PM-KUSUM portal (accessed 11.10.2026) and MNRE, Comprehensive Guidelines for PM-KUSUM (17.01.2024). Progress is installed as a share of sanctioned quantity.*

The table also carries an important message for Indian manufacturing. Component B has the strictest Made-in-India rule and is the scheme's best performer. Domestic content has not slowed the scheme down; what matters most is how projects are delivered, and states that bundle demand and take on the hard steps move fastest.



CHAPTER 4:
AGRI-DRE AS AN ANCHOR OF DEMAND FOR INDIAN SOLAR MANUFACTURING

PM-KUSUM is widely recognised for giving farmers reliable daytime power, cutting diesel bills and turning land into an extra source of income. It is just as important for India's solar manufacturing industry. By bringing solar pumps, feeder solarisation and small farmland plants together as Agri-DRE (Agricultural Decentralised Renewable Energy), and by requiring locally made solar modules, the scheme turned every installation into an order for Indian factories. With most of India's farm pumps still to switch to solar, the opportunity for Indian manufacturers is large, and the progress so far is only the beginning.

4.1 Nearly 14 GW built with Indian-made modules

Components B and C require the use of Indian-made solar modules. When the scheme was launched, the government estimated that these two components would create **20.8 GW** of demand for domestically made solar cells and modules. By October 2026, an estimated **13.8 GW** had been installed under them, about two-thirds of that promise. Every one of those megawatts was an order placed with an Indian factory.



4.2 The employment multiplier: from farmland to factory floor

As per our estimates solar manufacturing sector will support more than 4 lakh direct & indirect jobs in India and by 2047, Solar Manufacturing sector has the potential to support more than **32 lakh** jobs. Here Agriculture based distributed renewable energy will play a crucial role for that demand.

Agri-DRE adds to this on the farm and in the factory. MNRE estimates that PM-KUSUM can generate about **7.55 lakh job-years** of employment in installing, operating and maintaining pumps and solar plants. Small, distributed solar of this kind is job-rich: the government puts it at about **24.5 job-years for every MW**. And because every pump and feeder plant must use Indian-made modules, the manufacturing work stays in India.

4.3 The Agri-DRE Market Sizing (ISMA Assessment)

To assess the potential of Agri-DRE, we asked a simple question: how much solar capacity would India need if every farm pump that can go solar did so? The answer offers a sense of the scale of the opportunity across India's farms.

India has about 2.3 crore irrigation pumps. Three in four runs on grid electricity and about one in five on diesel. Grid pumps get solar through feeder plants or panels on the pump, while diesel pumps are replaced with standalone solar pumps. The estimate leaves out diesel pumps in areas where groundwater is over-exploited or critical, which make up about 14% of India's groundwater assessment units. In these areas, cheaper pumping could add to the pressure on water, so ISMA focuses on areas where solar irrigation can expand sustainably.

Table 4.1: Solar modules still needed by India's farms (ISMA estimate)

	Grid pumps	Diesel pumps
Irrigation pumps (lakh)	175.9	51.4
Less: already on solar under PM-KUSUM (lakh)	17.4	11.9
Less: pumps in water-stressed areas	-	13.8%
Pumps still to go solar (lakh)	158.5	34.0
Solar Energy required per pump	4.85 kW, plus 30% extra panels	4.8 kWp
Solar modules still needed	100 GW	16 GW
Total	**116 GW (DC)**	

Source: *ISMA analysis based on Ministry of Jal Shakti, 6th Minor Irrigation Census (2017-18); MNRE, PM-KUSUM portal (accessed 11.10.2026); CGWB, Dynamic Ground Water Resources of India 2025; MNRE, reply in the Rajya Sabha, 24.03.2026; MNRE solar pump specifications.*

How we arrived at 116 GW

The estimate uses five steps, each based on published data.

1. Count the pumps. The 6th Minor Irrigation Census counts 231.4 lakh irrigation schemes: 76% (175.9 lakh) run on electricity and 22.2% (51.4 lakh) on diesel.
2. Take out what is already solar. 17.4 lakh grid pumps have been solarised under Component C (17.18 lakh through feeders and 16,528 individually), and 11.9 lakh standalone solar pumps have replaced diesel under Component B.
3. Leave out water-stressed areas. 931 of 6,762 groundwater assessment units (13.8%) are over-exploited or critical. Removing that share of diesel pumps leaves 34.0 lakh.
4. Size the solar for each pump. A solarised grid pump averages 4.85 kW (5,829.98 MW across 12,01,552 Component C pumps), plus 30% more panels than inverter capacity (DC:AC of 1.3). A standalone pump uses 4.8 kWp.
5. Add it up. 158.5 lakh grid pumps × 4.85 kW × 1.3 = 100 GW. 34.0 lakh diesel pumps × 4.8 kWp = 16 GW. Total: 116 GW of solar modules.

4.4 Agri-DRE can absorb another 116 GW of Indian-made modules

At today's pump numbers, India's farms can absorb another **116 GW** of solar modules. That is about three years of India's current solar cell capacity of **37.8 GW**. Even as Indian cell capacity grows to an expected **100 GW by June 2027**, farm pumps alone would absorb more than a full year of it. So far, about one-seventh of the Agri-DRE market has been built.

The foundations to capture this market are firmly in place: proven delivery models in the leading states, a fast-growing Indian manufacturing base, and a Made-in-India rule that has held firm. Building on them, the next phase of farm solarisation can bring reliable solar power to millions more farmers and a steady stream of orders to Indian factories.

4.5 More than modules: building a complete supply chain

Agri-DRE can strengthen India's solar manufacturing ecosystem well beyond modules. By creating demand for a complete range of equipment, giving domestic manufacturers a steady market and supporting investment upstream, it can help build a more integrated and resilient Indian solar supply chain.

It buys the whole system, not just the panel. PM-KUSUM is the only major solar scheme whose Made-in-India rule goes beyond solar cells and modules. For standalone pumps

and solarised grid pumps, the motor, pump, controller and balance of system must also be made in India.

It gives factories steady, year-round demand. Unlike large utility tenders, which arrive in uneven waves, Agri-DRE demand is spread across states and seasons and backed by a long-running national scheme. This helps manufacturers plan production and keep their lines running.

It opens the market to manufacturers of every size. Feeder plants of a few MW and pump orders of a few thousand units create opportunities for mid-sized and regional manufacturers, including MSMEs, alongside larger players.

It can anchor the next stages of the chain. MNRE has linked its approved list for ingots and wafers to India first building 15 GW of wafer capacity. A large and assured market for Made-in-India modules gives investors in wafers and ingots the confidence to build. With PM-KUSUM 2.0, the same farm demand that helped build India's module and cell base can help build its first wafer and ingot industry.



CHAPTER 5:
ON-GROUND TESTIMONIALS:
WHAT FARMERS AND PLANT OWNERS SAY

The earlier chapters show how PM-KUSUM is progressing in numbers. This chapter shows how it looks from the ground. The team spoke to six people connected with grid-connected solar plants in three states: a developer of feeder plants in Latur, Maharashtra; three people at two plants in Rajasthan (Jodhpur and Nagaur); and two plant owners in Karnataka (Belagavi).

Table 5.1: Six voices, three states: reported capacity, output and revenue

Plant (Case Study No.)	District	Capacity, AC / DC	Output (units)	Revenue (₹)
RAJASTHAN				
APS Solar Power (1)	Jodhpur	2.5 / 3.0 MW	16,500 a day	55,000 a day
Anjani Putra Renewable Energy (2, 3)	Nagaur	3.0 / 3.7 MW	16,000-17,000 a day	45,000-50,000 a day
KARNATAKA				
Om Associates (4)	Belagavi	1.49 / 1.56 MW	2.1 lakh a month	5-6 lakh a month
Innovel Energy (5)	Belagavi	Not reported	Not reported	12-13 lakh a month

Source: *Field interviews, 2026. Case studies 2 and 3 are from the same plant. Revenue is before running costs and loan repayments.*

5.1 Five case studies

CASE STUDY 1 | MAHARASHTRA

Vipul Joisher, ***Director, Aditya Green Energy Pvt. Ltd.***
Latur, Maharashtra | Feeder-level solarisation, PM-KUSUM Component C (MSKVY 2.0)

656 MW
agri-feeder demand in Latur

About 80%
of it now solarised

500+ MW
built with Indian-made modules



Before: Farm power came from distant stations. At the tail end of the line, voltage was often too low to start a pump, and most supply came at night.

The change: Maharashtra took up feeder solarisation in mission mode, and in Latur and Dharashiv it allowed bidding one substation at a time. Local entrepreneurs came in, and Aditya Green Energy now runs more than 500 MW of feeder plants, built with Indian-made CdTe thin-film modules from First Solar's factory near Chennai.

In his words: The generation curve of solar perfectly synchronises with the consumption curve of the agri pump. The installers are local, the bankers are local, the maintenance team is local. This can be a very good example for other districts to follow.

CASE STUDY 2 | RAJASTHAN

Shravan Singh, *APS Solar Power*

Village Nathrau, Chamu, Jodhpur | 2.5 MW AC / 3.0 MW DC | Commissioned March 2026

16,500 units generated a day	**₹55,000** revenue a day (approx.)	**6-8 hours** daytime power to farmers



Before: Around Nathrau, farmers did not get proper electricity in the daytime.

The change: Commissioned in March 2026 under PM-KUSUM Component C (DCR), the plant uses First Solar modules (cadmium telluride, or CdTe, thin-film technology), which the owner says give steady output in every season.

The impact: Farmers who once went without proper daytime power now have it. “We are able to provide 6 to 8 hours of electricity daily,” says Shravan Singh.

CASE STUDY 3 | RAJASTHAN

Bhavani Singh, *Anjani Putra Renewable Energy Pvt. Ltd.*

Village Poonas, Nagaur | Commissioned 31 March 2026

16,000-17,000 units generated a day	**₹45,000-50,000** revenue a day	**Up to 8 hours** daytime power to farmers



Before: Farmers around Poonas relied on unpredictable power at night.

The change: Since 31 March 2026, the plant’s flat, frameless CdTe thin-film modules have kept generation strong and are easier to clean.

The impact: Farmers now get up to 8 hours of daytime electricity at stable voltage. “They receive power during the day, which means they do not have to run to the fields at night,” says Bhavani Singh.

CASE STUDY 4 | RAJASTHAN

Bhoma Ram, *Anjani Putra Renewable Energy Pvt. Ltd.*

Village Poonas, Nagaur | 3 MW AC / 3.7 MWp DC

3 MW AC plant capacity	**3.7 MWp** DC capacity	**6-8 hours** daytime power to farmers



Before: Farmers in Poonas and nearby villages got electricity at night, at low voltage and for fewer hours.

The change: The plant now generates power in the village itself, using Indian-made (DCR) CdTe thin-film modules. In his view, their frameless glass-to-glass design performs well through Rajasthan’s harsh seasons.

The impact: Farmers are getting 6 to 8 hours of electricity and the voltage is also stable.

CASE STUDY 5 | KARNATAKA

Rohan Desai, *Om Associates*

Sampgaon, Belagavi | 1.49 MW AC / 1.56 MW DC | PM-KUSUM Component C (DCR)

2,10,000	₹5.5 crore	₹5-6 lakh
monthly units generation	total project cost	revenue every month



Before: Night-time power around Sampgaon was irregular, with frequent cuts and low voltage that damaged irrigation motors.

The change: Om Associates built the plant on about 5 acres it owns, funding about 10% (roughly ₹55 lakh) itself and 90% through a bank loan. DISCOM officials guided each approval step, and payments arrive on time.

The impact: Farmers now get power from 7:00 AM to 6:00 PM. "It has largely resolved their water-related issues," says Rohan Desai.

CASE STUDY 6 | KARNATAKA

Deepak Kulkarni, Innovel Energy

Tigadi, Belagavi | PM-KUSUM Component C

12 acres	₹12 crore	₹12-13 lakh
land used	total project cost	revenue every month

Before: Around Tigadi, irrigation power came mostly at night, with frequent cuts and low voltage that damaged motors, so crops often missed water.

The change: Innovel Energy built the plant on about 12 acres it owns, funding about 10% (roughly ₹1.2 crore) itself and 90% through a bank loan. The DISCOM was supportive, and payments come on time.

NA

The impact: Farmers now get reliable daytime power and no longer have to stay awake at night to irrigate. The plant also created local work during construction and maintenance.

5.2 Key insights and takeaways

All six voices describe the same starting point: farm power came mostly at night, at low voltage and for fewer hours. In Latur, voltage at the tail end of the line was often too low to start a pump; in Belagavi, power cuts damaged motors and crops missed water. After the plants, farmers get power in the day (6-8 hours in Rajasthan; 7:00 AM to 6:00 PM at Sampgaon) at stable voltage. They water their crops on time and no longer go to the fields in the dark.

Daytime supply is the benefit farmers notice first. In all three states, the first change people name is power in the day instead of at night. As the Latur developer puts it, solar peaks in the same hours that pumps run, and dips in the monsoon, when pumps are idle.

Small bids bring in local investors. Maharashtra allowed feeder plants in Latur to be bid one substation at a time. Local businesses invested, and local installers, bankers and maintenance teams built and run the plants. About 80% of the district's agri-feeder demand has been solarised this way.

The plants bring in steady revenue. The three plants that reported capacity and output earn roughly ₹3.0-6.6 lakh per MW AC per month (from the midpoint of reported revenue, using a 30-day month). This is gross revenue, before running costs and loan repayments.

Finance decides whether a plant gets built. Both Karnataka plants ran on about 90% bank loan, and both owners advise arranging the loan early. Access to credit matters as much as land and approvals.

A reliable DISCOM keeps the revenue steady. Both Karnataka owners found the subsidy process smooth and DISCOM officials supportive, and payments for the power supplied come on time. That turns a plant into a dependable source of revenue.

Modules are performing well in the field. The owners were satisfied from the module's performance. Most of the plants use Indian-made thin-film modules and the owners point to steady output through the seasons and easy cleaning.

Advice from the plant owners

Both Karnataka owners would tell other farmers to join PM-KUSUM: "It turns land into a steady source of income while also helping the whole village."

Their best advice is to plan the finances carefully before applying:

- ✓ Understand the full project cost.
- ✓ Arrange the bank loan early.
- ✓ Keep land documents ready.
- ✓ Work with an experienced and trustworthy installer.



WAY FORWARD

Securing the next phase of PM-KUSUM

The evidence in this report points to five priorities for policymakers, State agencies, financial institutions and manufacturers. Together, they can ensure that the next phase of the scheme builds on the progress already made.

1	**Retain the Domestic Content Requirement without relaxation.** The requirement should be carried into PM-KUSUM 2.0 without relaxation, with digital verification through the NISE portal continued. A rule that is stable and verifiable gives manufacturers the confidence to invest ahead of demand.
2	**Provide manufacturers with a clear multi-year pipeline.** State-wise sanction and installation targets should be published, and projects tendered at a steady pace, so that factories can plan production against the estimated 116 GW of farm demand rather than respond to uneven waves of orders.
3	**Replicate the delivery models that have worked.** Other States should adopt the practices of the leading States: a dedicated agency that bundles land, clearances and grid connection before bidding; a state contribution to central support; and simple land leasing through a willing distribution company.
4	**Prepare for Agri-PV and battery storage.** Standards for panel height, crop compatibility and dual land use should be defined ahead of the proposed 10 GW Agri-PV component, and storage planned so that solar power can serve farms beyond daylight hours. Manufacturers should be consulted early on specifications.
5	**Build the complete supply chain.** Agri DRE based demand should be linked to investment in wafers and ingots, consistent with the 15 GW wafer capacity condition set by MNRE, so that the base created for modules and cells extends upstream.

Taken together, these measures can ensure that PM-KUSUM 2.0 delivers reliable daytime power to millions more farmers, relief to State finances and a steady stream of orders to Indian factories. ISMA stands ready to work with the Ministry of New and Renewable Energy, State Governments, distribution companies, financial institutions and manufacturers to realise this vision, and will continue to document outcomes in the field.

GLOSSARY

Term	Meaning
Agri-DRE	Agricultural Decentralised Renewable Energy: small-scale renewable energy for farming, mainly solar pumps, solarised feeders and small solar plants on farmland.
Agri-PV	Solar panels installed above or between crops, so the same land is used for farming and power.
ALMM	Approved List of Models and Manufacturers kept by MNRE. List-I covers solar modules, List-II solar cells and List-III ingots and wafers.
CdTe thin-film module	A solar panel made by coating a thin layer of cadmium telluride on glass instead of using silicon cells. Frameless glass-to-glass versions have no metal frame and are easier to clean.
CFA	Central Financial Assistance: the money the Centre gives towards the cost of a project.
Commissioned	The date a plant was completed, tested and started supplying power.
Components A, B, C	A: small solar plants on farmland. B: standalone solar pumps. C: solar for grid-connected pumps, either for a whole feeder (FLS) or pump by pump (IPS).
DC and AC capacity	DC is the rated output of the solar modules; AC is the output after the inverter. A plant of "3 MW AC / 3.7 MW DC" is described by both numbers.
DCR	Domestic Content Requirement: a rule that the solar cells and modules must be made in India.
DISCOM	State electricity distribution company.
Feeder	The power line from a substation (where high-voltage power is stepped down) that supplies the farm pumps of an area.
GW and GWp	1 GW = 1,000 MW and 1 MW = 1,000 kW. The "p" stands for peak: the most power a panel can give in ideal sunlight.
Gross revenue	Total money earned from selling power, before running costs and loan repayments. It is not profit.
Inverter	A device that converts the direct current (DC) from solar panels into the alternating current (AC) used by pumps and the grid.
Job-year	One person employed full time for one year.
Lakh and crore	Indian number units. 1 lakh = 1,00,000. 1 crore = 100 lakh = 1,00,00,000.
MNRE	Ministry of New and Renewable Energy, the Government of India ministry that runs PM-KUSUM.
NISE	National Institute of Solar Energy, which runs the portal used to verify domestic content claims.
PLI	Production Linked Incentive: a government scheme that pays manufacturers an incentive for producing in India.
Unit (of electricity)	One kilowatt-hour (kWh): the energy used by a 1,000-watt appliance running for one hour.
Voltage	The strength of the electricity supply. Low voltage can damage pump motors; stable voltage keeps them safe.
Wafer, cell, module	A wafer is a thin slice of silicon. It becomes a solar cell. Many cells joined together make a module, which is the solar panel.

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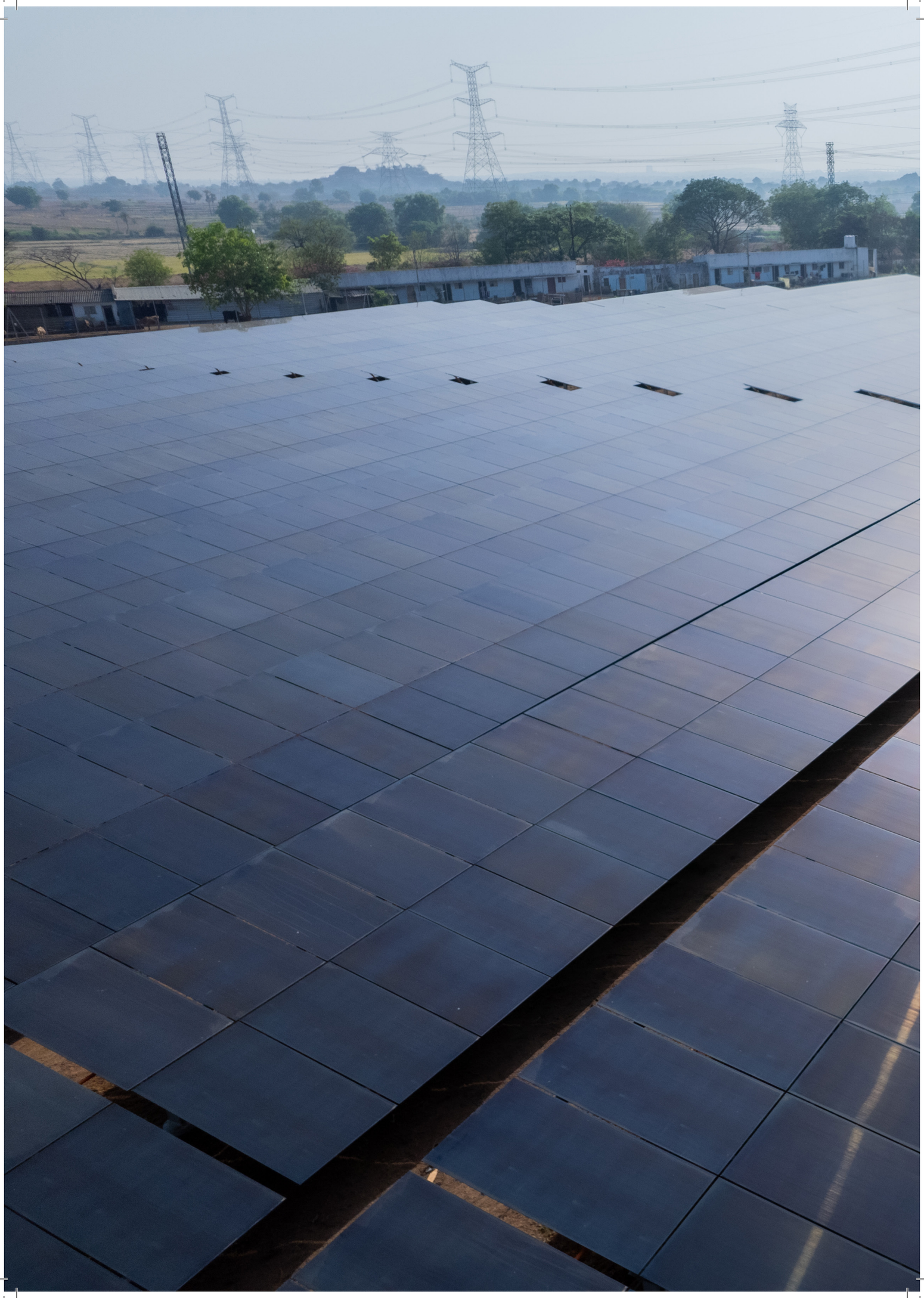
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