

At-scale Agri-Solarisation in Maharashtra



Government of
Maharashtra

PM KUSUM

(Mukhyamantri Saur Krushi Vahini Yojana – 2.0)

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Presented by -

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Addl. Chief Secretary, GoM & CMD, MSEDCL

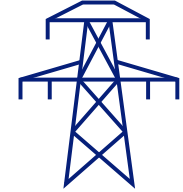
December 10, 2024



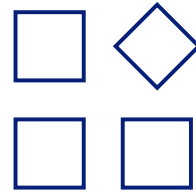
Maharashtra is home to more than **1 Crore farmers**, who contribute to **30%** of the state's electricity consumption



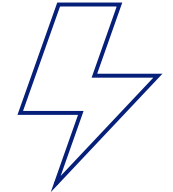
1 Crore
Farmers



45 Lakh
Agri. Electricity Connections



12 %
Contribution GSDP



16,000 MW
Connected load

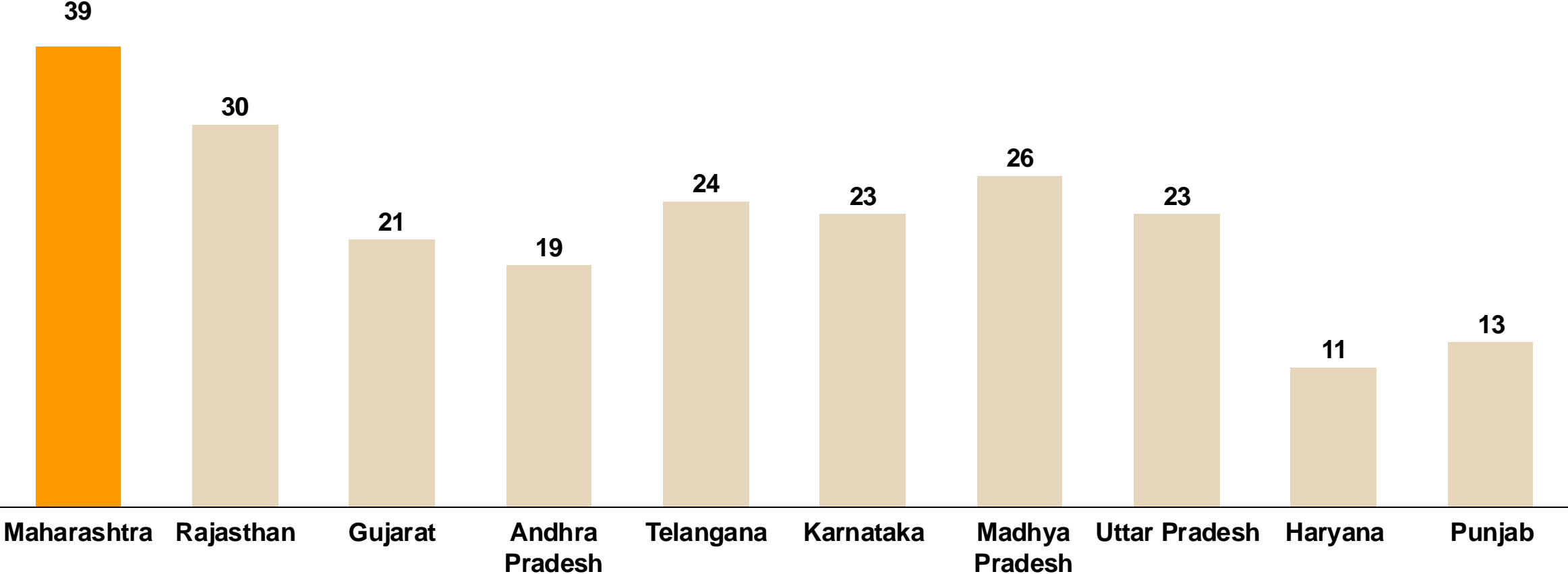
Maharashtra has the **highest Agriculture demand** in India (39,000 Mus)

Agriculture sector **highly subsidized** & the Major cause of **Revenue losses** to Discom

Other states can follow in Maharashtra's footsteps to accelerate distributed solar generation for agricultural demand

Maharashtra has the highest agriculture demand in India

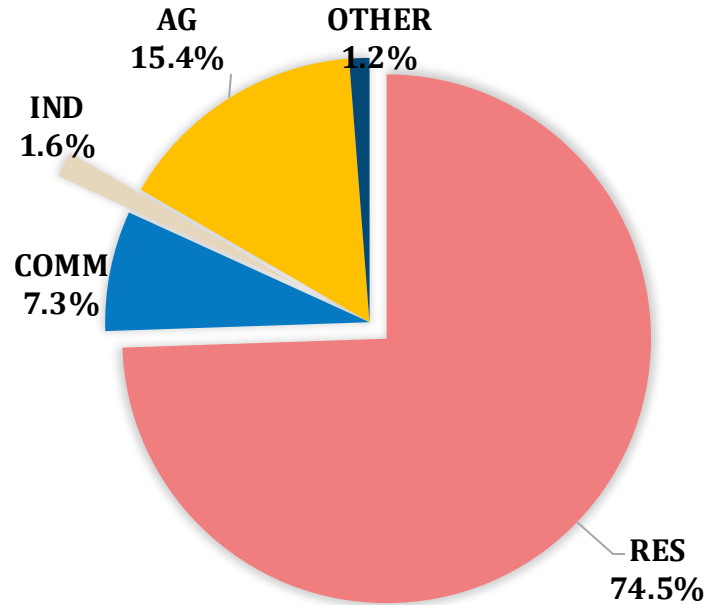
Agriculture electricity demand, ('000 MUs)



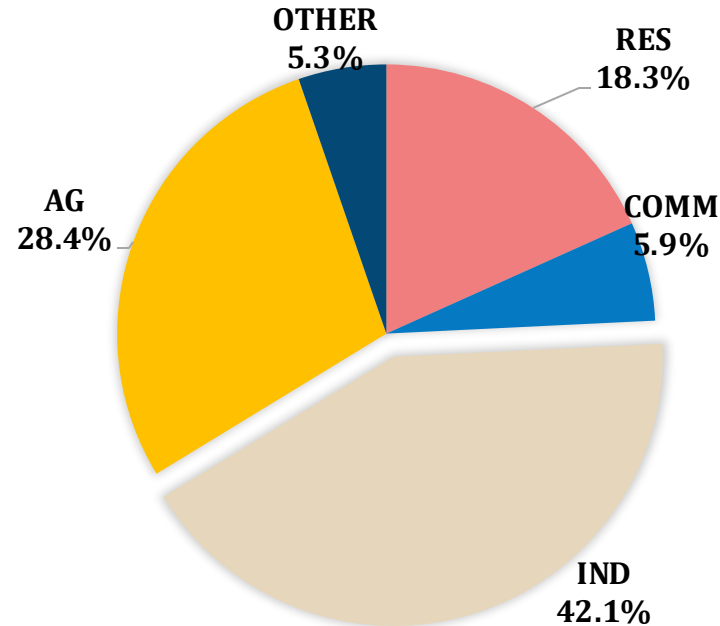
Source – www.iced.niti.gov.in

30% Energy is Consumed by Agriculture and Agriculture recovery is only 2 to 3 %

CONSUMERS - 3.06 Crs.



SALE - 1,31,812 Mus



Agriculture Scenario

Particulars	No's
Total Agri consumers	45 Lakhs
Total Agri load	16,000 MW
Total Ag substations	3,000
Total feeders	27,826
Total Agri feeders	10,811
Segregated Ag feeders	7000

❑ Agriculture Recovery is : 2-3 % - Agriculture Arrears is Rs. 66,840 Crs.

- ❑ GoM launched MSKVY 1.0 in 2017; its main objective being providing reliable **day time supply to Agri.** at reasonable tariff.
- ❑ Scheme to be implemented in PPP wherein Developers are to be selected through **competitive bidding.**
- ❑ Agri feeders can be powered by **2-25 MW** solar projects @ 33/11 KV S/Ss

Agriculture sector **highly subsidized** in Maharashtra & the Major cause of **Revenue losses** of Discom

❑ Components of Avg. Cost of Supply (FY 2023-24)



Others: Interest on Working Capital, Interest on SD, Other expenses, Other Income, Gap, etc.

- ❑ **Avg. Cost of Supply (FY 2023-24) Rs. 8.46 / unit.**
- ❑ **Agriculture tariff decided by MERC : Rs. 4.03 / unit**
- ❑ **Tariffs to be paid by farmers**
 - Below 3 HP Pumps – **Rs. 1.27 per unit**
 - Above 3 HP Pumps – **Rs. 1.57 per unit**

- ❑ **Industrial tariff in Maharashtra is one of the highest in India – **Rs. 9.64/Unit to Rs. 11.77/Unit****

❑ **Direct subsidies**

- Agriculture subsidy – Rs. 7,356 Crs. / year
- Industrial Subsidy – Rs. 3,963 Crs / Year
- **Total GoM Subsidy – Rs. 11,319 Cr./ Year**

❑ **Cross Subsidy**

- **Burden on Industries - Rs.15,336 Cr./ year**

5 Major Challenges addressed through Design Reengineering

Small Project Size

[Cluster based approach](#)

(200-250 MW - 50 MW)

Economics of Scale for Solar Power Developer

Land Availability

Identification of Govt. land within 5-10 km radius from of 33/11 KV Sub-Station.

40,000 Acres Govt. Land identified in 3 months.

Extensive use of [PM GATI SHAKTI & other IT Portals.](#)

Delay in Permissions / NoCs

- Advance Clearance
- Advance Grid Connectivity

More than 6,000 NoCs and Grid Connectivity Permissions issued.

No Data Availability to Developers

[Data Room](#) With GIS Layered details of each land parcel

Geo Tagged Substations & land parcel details

Delay in Payments to SPDs

- Creation of revolving fund mechanism
- Provision for Deemed Generation
- Nodal Agency to extend [payment security](#)

Provision of Rs.100 Cr / 1000MW from Green Cess Fund

Reengineering of Processes in 4 Major Steps

New Transactional Structure

- Formation of Maha Agro Solar Company
- 22 SPVs Created

Ease of Doing Business

- Exclusive single window portal & access to data room to SPDs
- From award of work to real time monitoring of Generation through SCADA will be from single window portal.

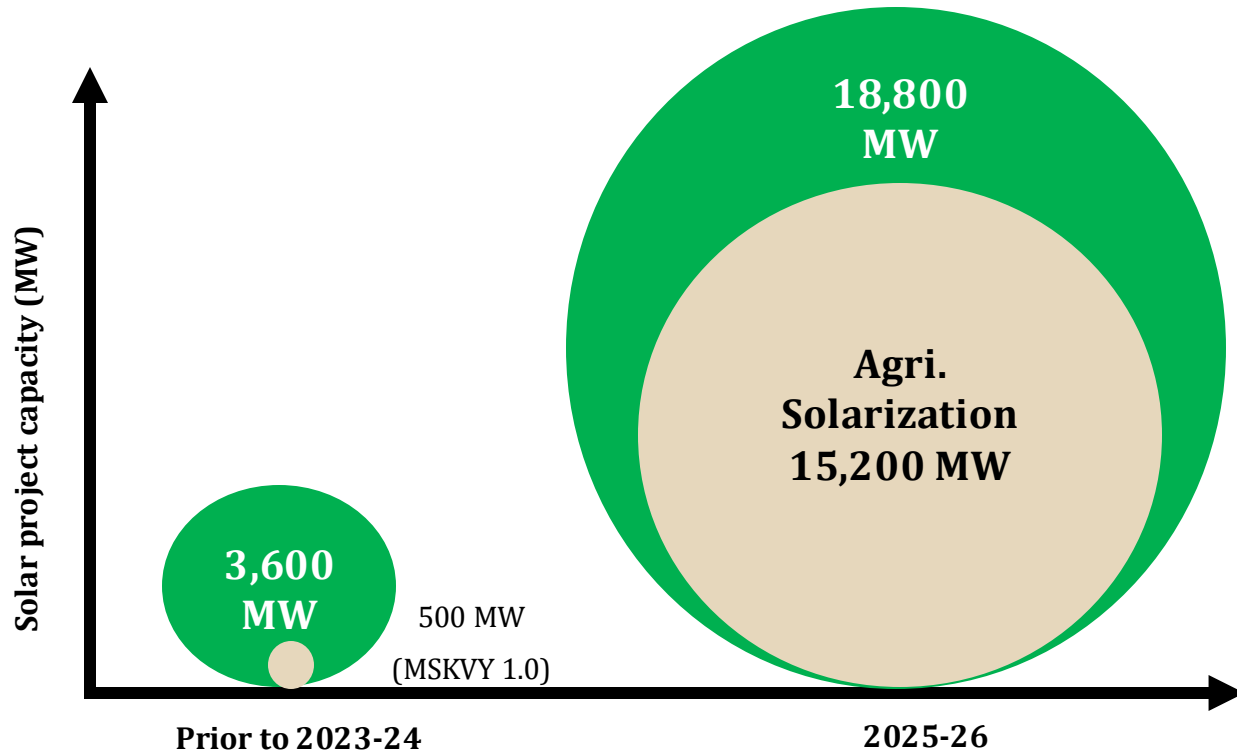
Tagging of Projects with PM – KUSUM C

- In order to avail 30% CFA (Central Finance Assistance)
- Rs. 3500 Cr CFA approved, Rs. 3800 Cr in Process

State Incentives

- Land Lease rent fixed @ Rs. 125000/ Hectare with 3% increase per year (For Private Land)
- Social Development Grant to Gram Panchayat @Rs.5Lakh per year for 3 years
- System Strengthening Grant @ Rs. 25 Lakhs per Substation (One Time)
- Production Incentive for early commissioning @ 25 Paisa/ Unit at 11 KV and @ 15 paisa per unit at 33 KV (for 3 years)

15,200 MW Solar Capacity awarded in 10 months and work started

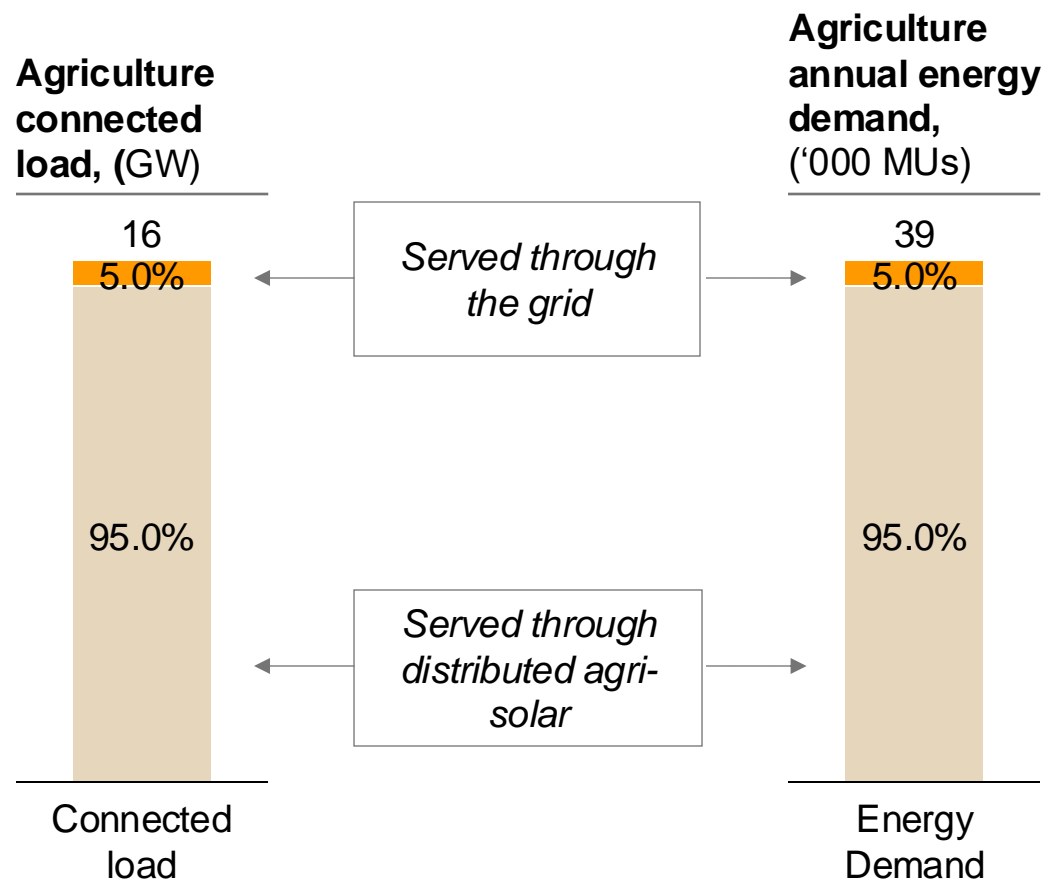


- Transparent **e-bidding** process
- Cater to **88%** of agriculture demand across **27 districts** in the state
- Average tariff discovered **Rs. 3.08/kWh**
- Another **1,166 MW** bidding under process
- All **regulatory approvals** in place alongwith tariff adoption
- First **15 Projects of 63 MW** commissioned in within **6 month** of award of LoA.

Solar energy capacity of Maharashtra will be **~6 times** of the present solar capacity within next 18 Months

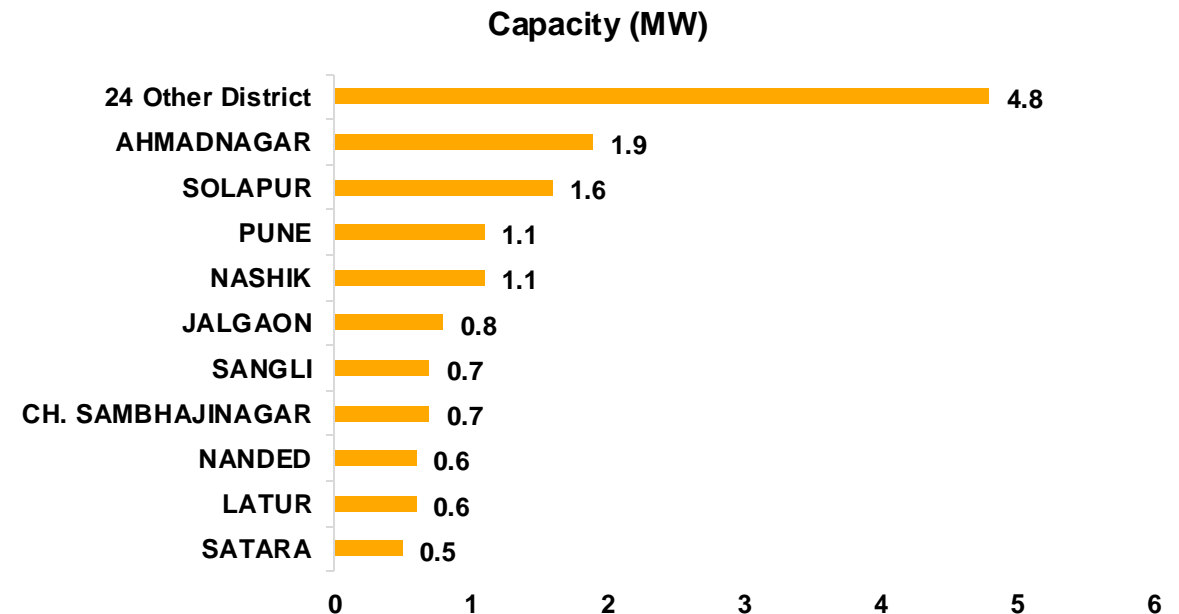
Maharashtra has pioneered the **largest** distributed solar deployment in India, with tenders awarded for **15200 MW**

15,200 MW of agri-solar capacity will cater to **95%** of Maharashtra's agriculture load and **95%** of energy demand



70% of MSKVY 2.0 capacity coming up in **10 districts** with high agriculture density

Distributed agri-solar capacity awarded, (GW)



- Tenders awarded within 10 months and on track to be commissioned by end of 2025
- 500 MW to be commissioned by Dec 2024
- Apart from this Solarization of LIS ~1000MW

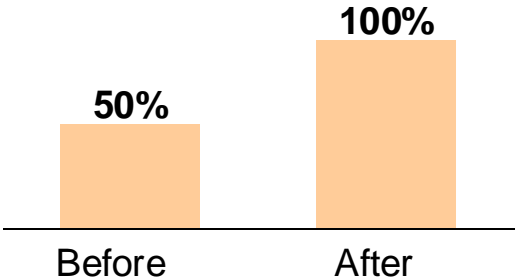
PM-KUSUM C / MSKVY 2.0 : **Game Changer** for all stakeholders



Reliable power supply

at desired voltage level

Day time supply of electricity



Additional income

1.25L per Ha per annum
from leasing of non-fertile land

Lower electricity tariff



Increased Participation of women workforce

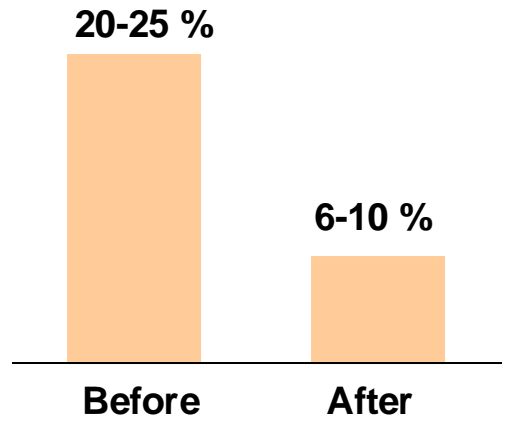
Due to day-time availability of power

30 Lakhs women benefitted

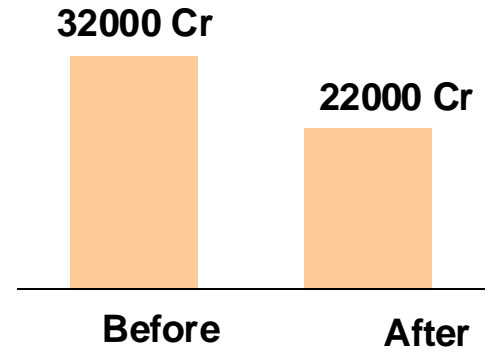
Social Development Grant to Gram Panchayat

PM-KUSUM C / MSKVY 2.0 : **Game Changer** for all stakeholders

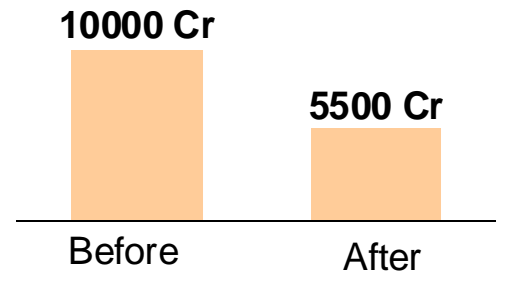
Reduction in **AT&C losses**



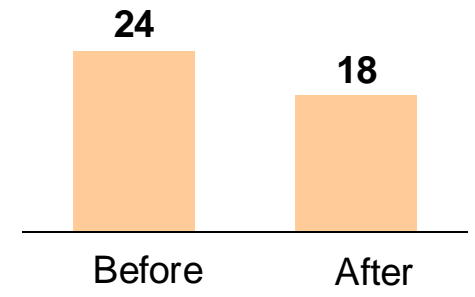
Savings of **Rs.10,000 Cr.** In Power Purchase Cost



Reduction in annual **Govt. subsidy** to the tune of **Rs.4-5k Cr.**



25% reduction in **Green House Gas emissions (MtCO2e)**



Cross-subsidy reduction on account of **Rs. 1-1.5/kWh tariff reduction for commercial and Industrial consumers**



Government of
Maharashtra

Thank You



Projects upto **5 MW at 11 KV SS** and upto **25 MW at 33 KV SS**; SS meeting the technical criteria with required addl. bay space are covered.

Selection of Substations

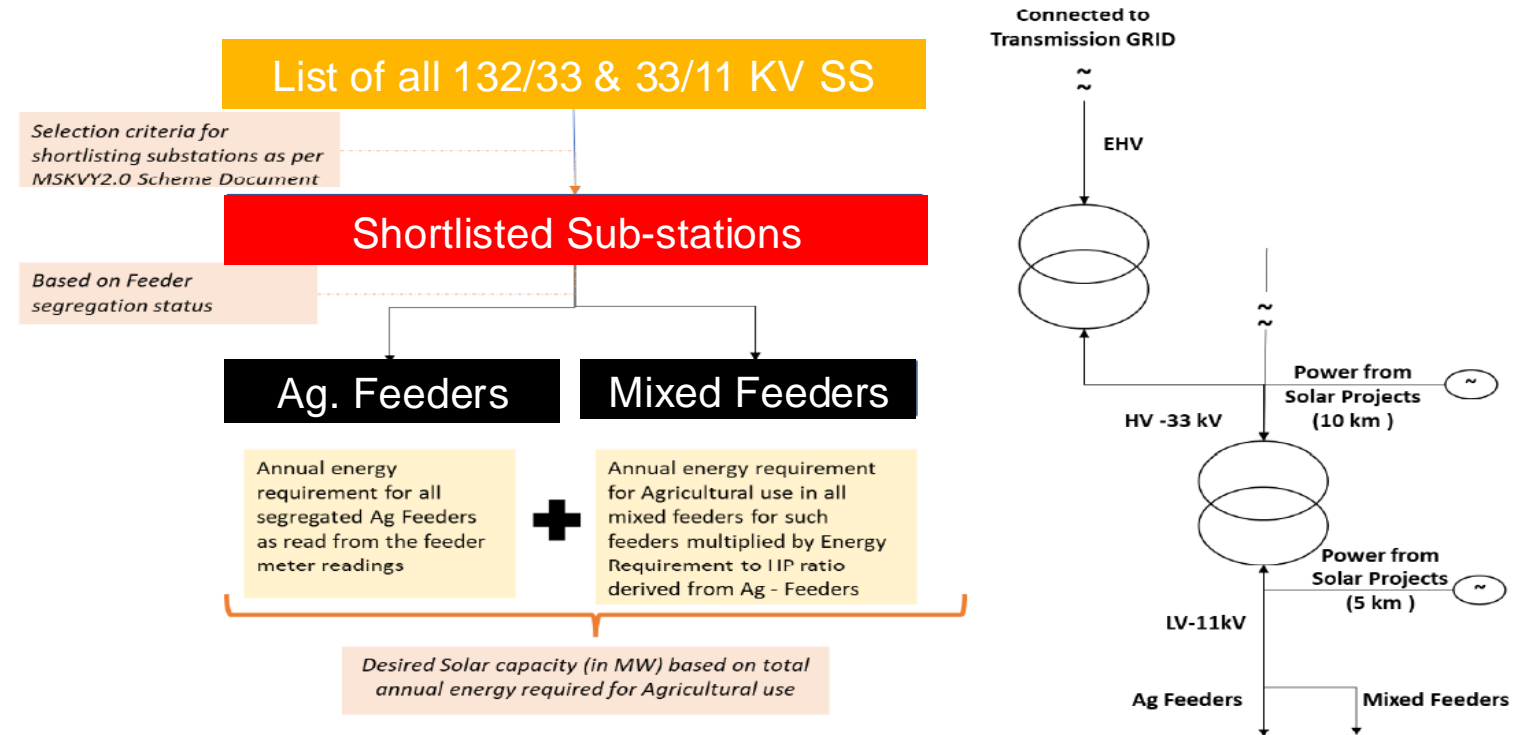
Filtering criteria of S/Ss:

- A. 33/11 kV substations: having Agri consumption load in the range of 0.5 to 5 MW
- B. 132/33 kV substations: having Agri consumption load in the range of 5 to 25 MW either directly or through the downstream substations of 33/11 kV
- C. Substations with no space for bay at LV side can be included only if there's additional land available for such expansion

Preference criteria:

- A. S/Ss with higher availability & better revenue realization

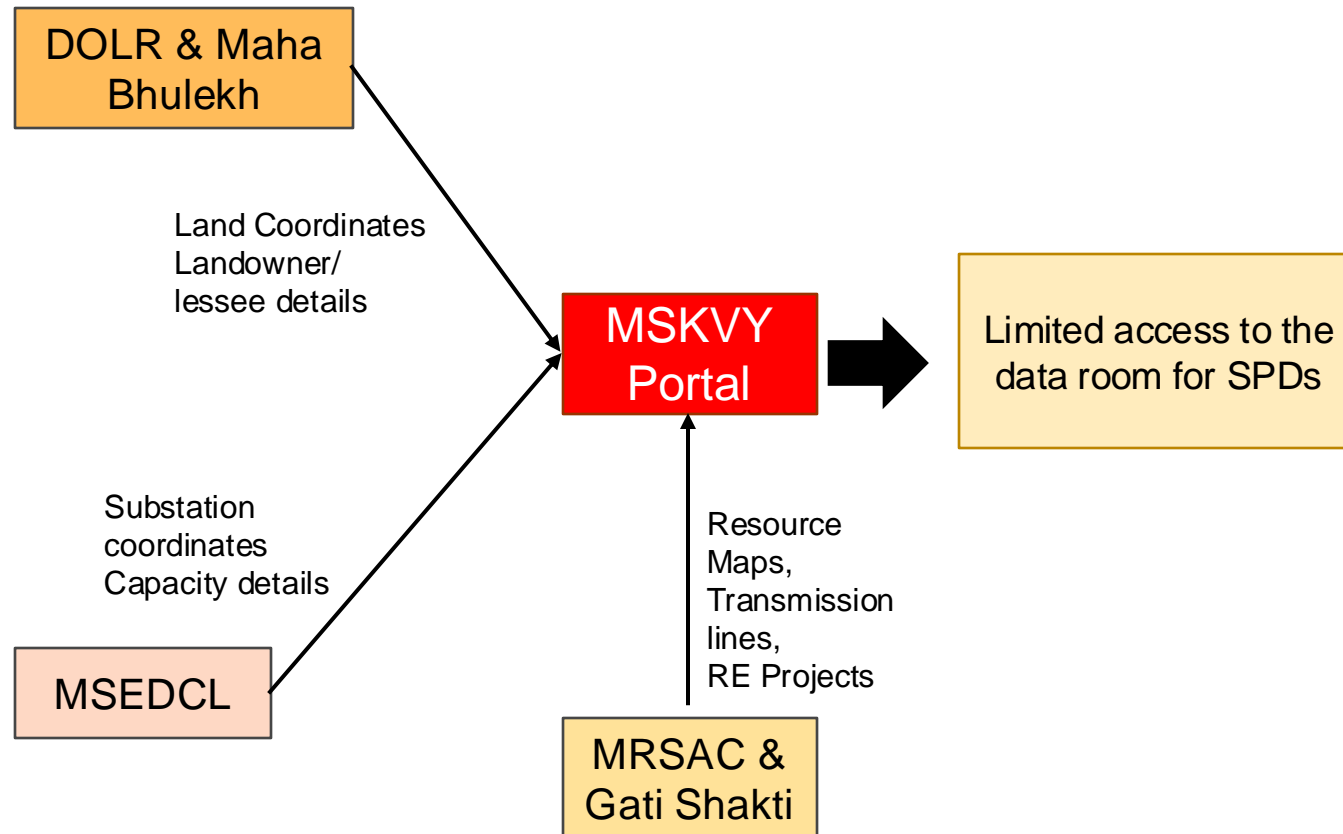
Sizing of solar projects



- Sizing to be done based on actual annual energy required for Agri
- Reduces loading of 132kV line, 33kV line as well as power transformers in 132/33kV and 33/11kV substations

Data room with **Geo tagged** details of SS, Land parcel and all advanced **NoC's** was made available on payment basis to SPDs

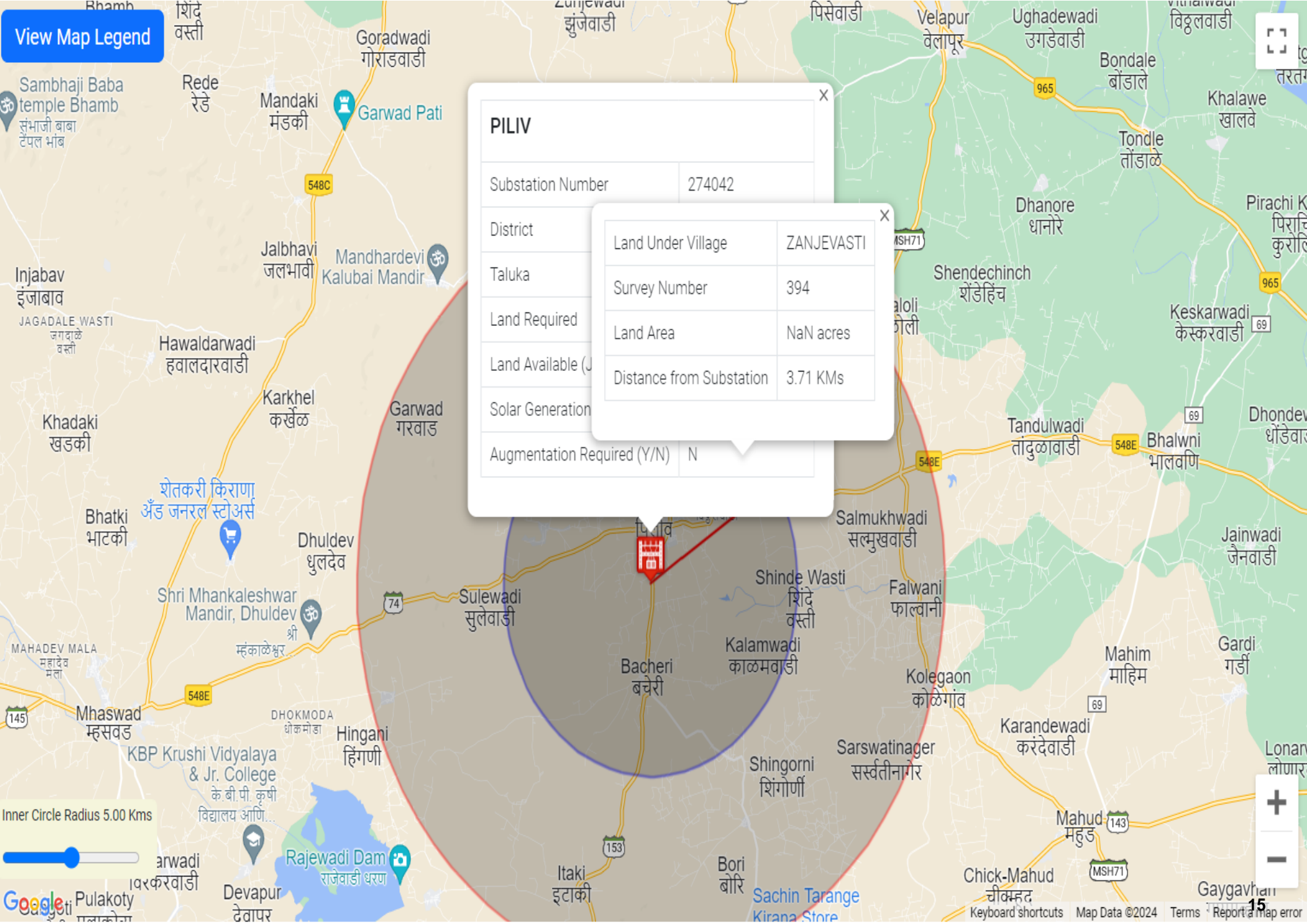
Data room for revenue land



- Data room to be created for both Revenue and private land
- **Private land to also enjoy single window mechanism**
- Following data shall be made available to the prospective bidders through data room:
 - Location of substations with their MW
 - Details of agriculture load served downstream
 - MW capacity already installed downstream under MSKVY
 - Details of spare bay available at LV side of substations
 - Polygon of the land parcel along with latitude and longitude
 - GIS layers of solar irradiation resource maps, transmission lines, railway line or highway crossings, water bodies, rainwater submergence, etc.

Lands Details

Village	ZANJEVASTI
Survey Number	394
Location	17.6830819 , 74.9904633
Area	null ACRES
Distance from substation	3.71 Kms
ALL NOC Received	YES
JM Done	YES
Lease Deed Done	NO

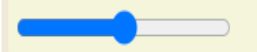


View Map Legend

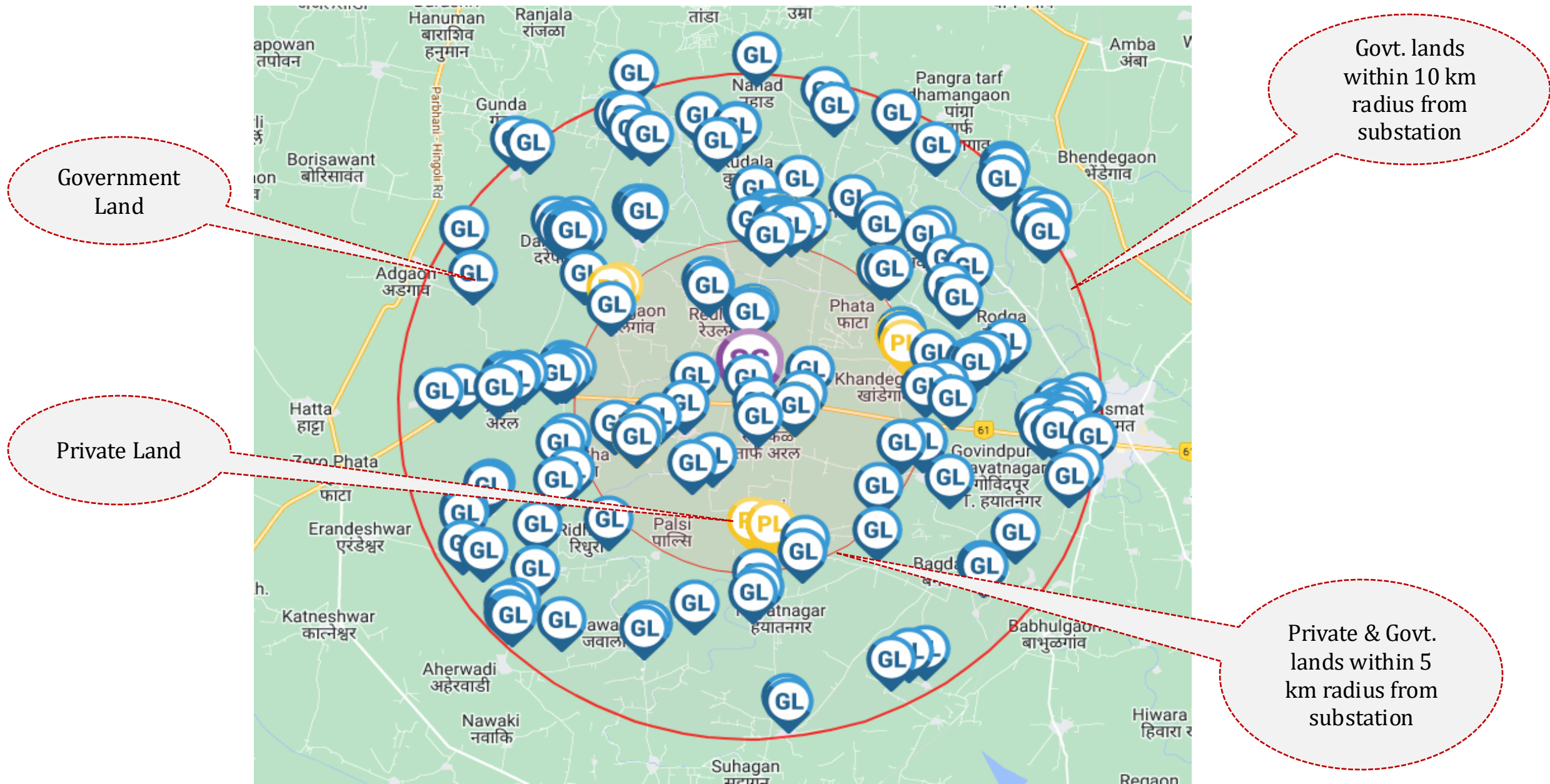
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Substation Number	274042	
District	Land Under Village	ZANJEVASTI
Taluka	Survey Number	394
Land Required	Land Area	NaN acres
Land Available (J)	Distance from Substation	3.71 KMS
Solar Generation		
Augmentation Required (Y/N)	N	

Inner Circle Radius 5.00 Kms



View on Map - Govt & Private Lands



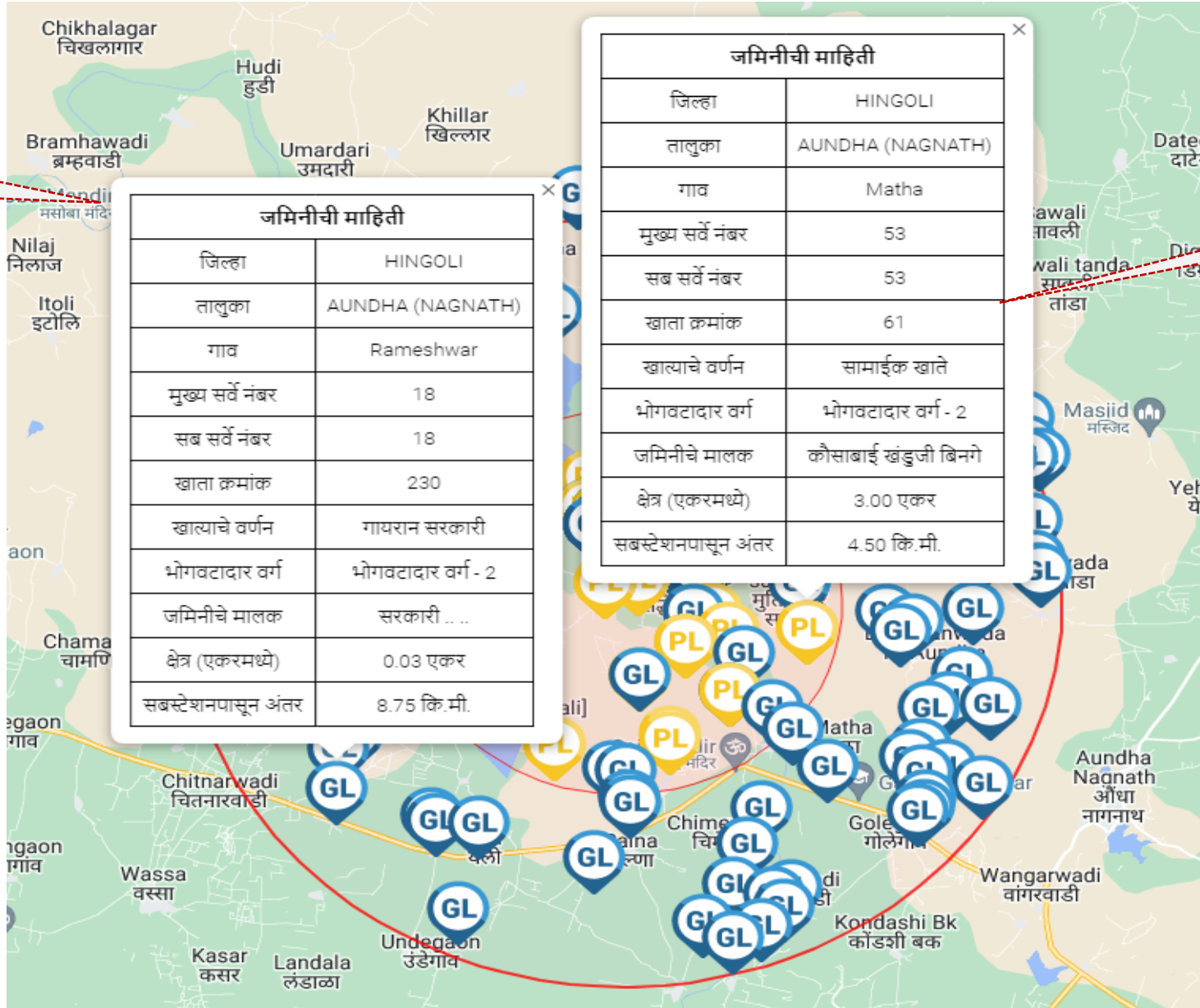
View on Map - Govt & Private Lands

Govt Land details

जमिनीची माहिती	
जिल्हा	HINGOLI
तालुका	AUNDHA (NAGNATH)
गाव	Rameshwar
मुख्य सर्वे नंबर	18
सब सर्वे नंबर	18
खाता क्रमांक	230
खात्याचे वर्णन	गायरान सरकारी
भोगवटादार वर्ग	भोगवटादार वर्ग - 2
जमिनीचे मालक	सरकारी ...
क्षेत्र (एकरमध्ये)	0.03 एकर
सबस्टेशनपासून अंतर	8.75 कि.मी.

Private Land details

जमिनीची माहिती	
जिल्हा	HINGOLI
तालुका	AUNDHA (NAGNATH)
गाव	Matha
मुख्य सर्वे नंबर	53
सब सर्वे नंबर	53
खाता क्रमांक	61
खात्याचे वर्णन	सामाईक खाते
भोगवटादार वर्ग	भोगवटादार वर्ग - 2
जमिनीचे मालक	कौसाबाई खंडुजी बिनगे
क्षेत्र (एकरमध्ये)	3.00 एकर
सबस्टेशनपासून अंतर	4.50 कि.मी.



Maharashtra State Electricity Distribution Co. Ltd.

Land Portal

Applicant / Private Land owner can submit there application from this site for details please refer to Land Porta



Login

Note: Login for District Administration/MSEDCL employee/ Other users

Developer

User Id : solarbidwinner

Password :

Login

Reset



[Land Portal User Manual for Applicant/Private Land Owner](#)



[Land Portal User Manual for District Administration](#)






Note: For District Administration, user Id is in CAPITAL LETTERS e.g. for Dhule District, User Id is DHULE_DC

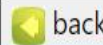
[Link For New Applicant/Private Land Owner Registration](#)

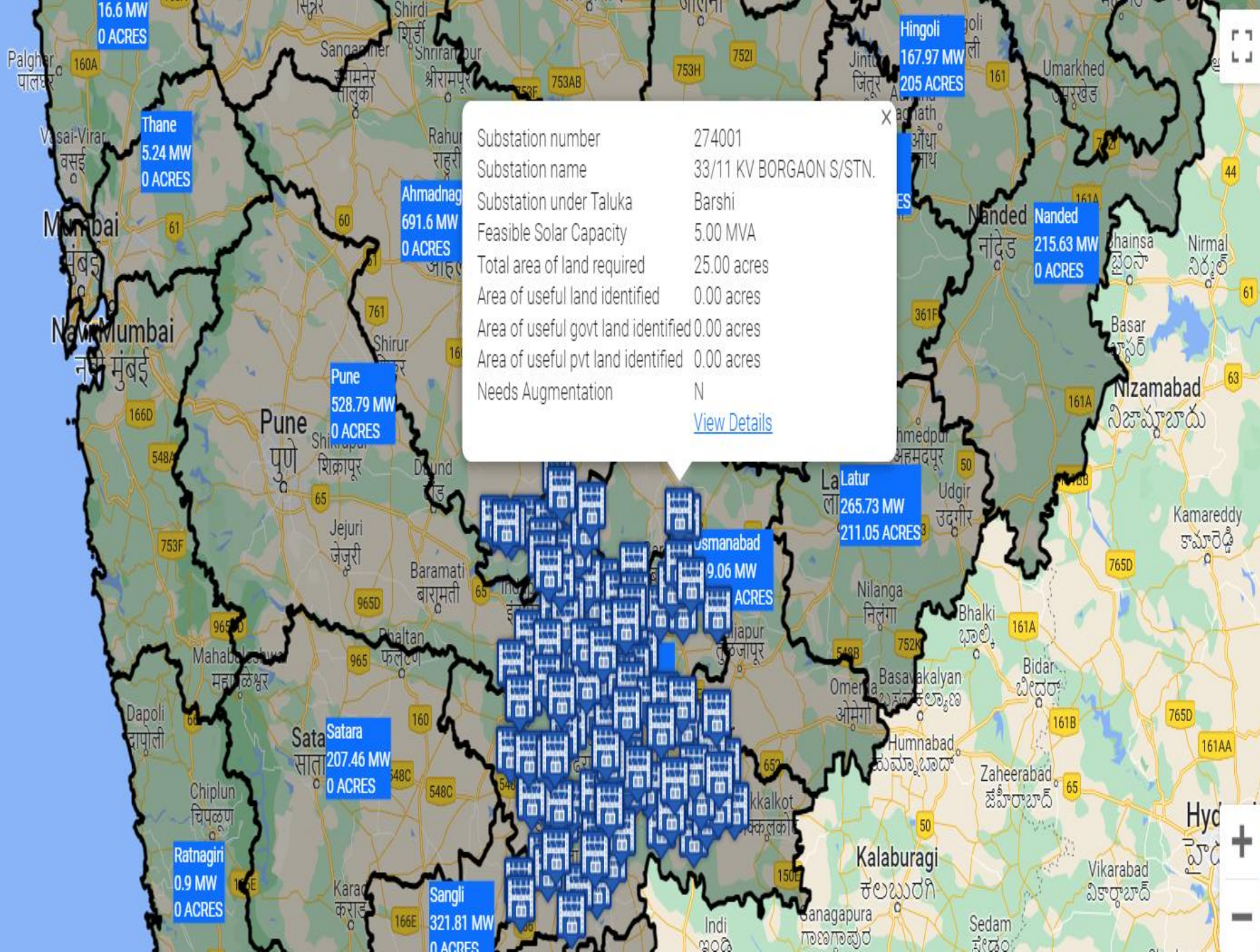
[Forget Password \(Only For Applicant/Private Land Owner.\)](#)

For Any System Related issues, if any please write a mail to landportal_support@mahadiscom.in

Data Room For Project View

 <p>Substation Details</p>	 <p>Government Land Details</p>	 <p>Private Land Details</p>	 <p>Downloads</p>	 <p>View on Google Map</p>
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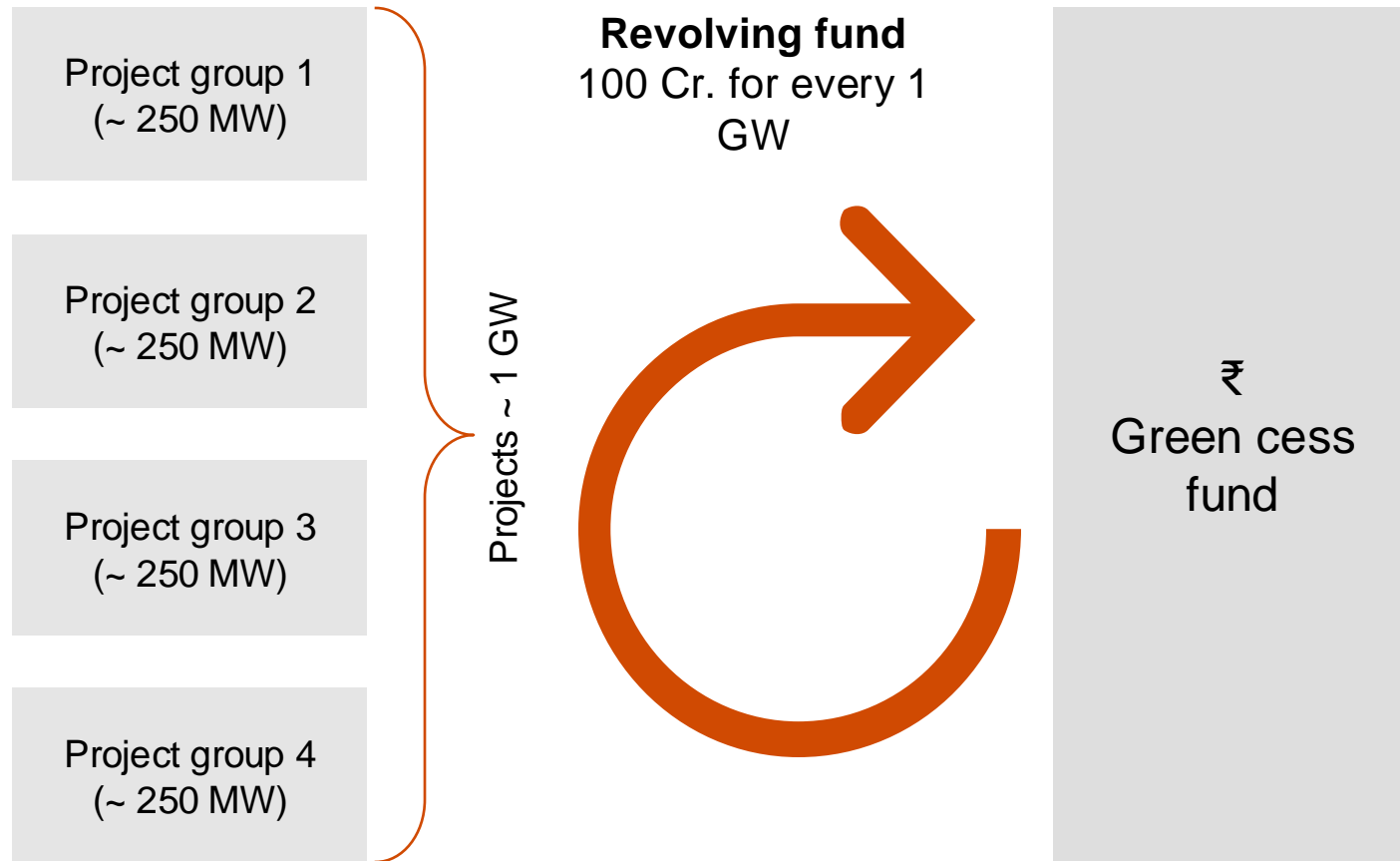


Substation number: 274001
 Substation name: 33/11 KV BORGAON S/STN.
 Substation under Taluka: Barshi
 Feasible Solar Capacity: 5.00 MVA
 Total area of land required: 25.00 acres
 Area of useful land identified: 0.00 acres
 Area of useful govt land identified: 0.00 acres
 Area of useful pvt land identified: 0.00 acres
 Needs Augmentation: N
[View Details](#)

Cumulative

Substations in District	128
Total Feasible Solar Capacity	NaN MVA
Total Land Required	NaN ACRES
Total Area of useful lands identified	318.28 ACRES
Total Area of useful government lands identified	318.28 ACRES
Total Area of useful private lands identified	0.00 ACRES
Land Requirement fulfilment status	0

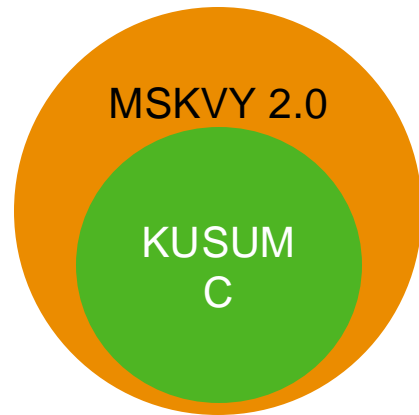
Payment security: Revolving fund of INR 100 Cr per GW to further de-risk the project for developers



- Fund of **Rs. 100 Crore** for **every 1 GW** from Green-cess fund to create revolving credit guarantee
- **Nodal Agency will extend payment security** if MSEDCL delays >3 months
- Amount would be **offset against accrued payout for GoMH's subsidy to MSEDCL** to replenish the guarantee fund immediately
- Nodal agency would get **1% administrative fee**



MSKVY2.0 is tagged with PM-KUSUM-C for **Central Financial Assistance** alongwith Addl. **incentives by State**



- Projects to be tagged with KUSUM-C to avail CFA
- Tagging with KUSUM-C would require sourcing domestic content

Particulars	MSKVY2.0	PM-KUSUM C
1) Project capacity	2-25 MW based on annual energy required for Agriculture	No limit on sizing
2) Land	<ul style="list-style-type: none"> • Revenue land to be housed under SPV for phase 1 • Developer may choose land from MSEDCL's portal 	<ul style="list-style-type: none"> • Developer may choose land from MSEDCL's land portal
3) Bidder definition	All types of bidders*	All types of bidders*
4) Minimum CUF	19%	19%
5) SCoD	12 months from PPA	9 months from PPA
6) Incentives	<ul style="list-style-type: none"> • Rs. 0.25/unit @ 11 kV & Rs. 0.15/unit for @ 33 kV injection • Rs. 25 Lakhs grant for strengthening MEDCL's S/Ss • Rs. 5 Lakhs for 3 years each to gram panchayats 	CFA of Rs.1.05 Cr./MW
7) Metering & RMS of AG consumers	Data from RMU will be pulled by CMS	Metering & RMS of AG consumers connected

*Company/Proprietary Concern/
Individual/Co-Operative Society/
Bidding Consortium/Member of a
Bidding Consortium





Government of
Maharashtra

