GRID CONNECTED SOLAR ROOFTOP SYSTEMS

MNRE

Orientation Programme-cum Interaction Meet with Empanelled Channel Partners, New Entrepreneurs & Government Agencies

Government of India
Ministry of New and Renewable Energy

CONGRATULATIONS

ALL EMPANELLED

CHANNEL PARTNERS, NEW ENTREPRENEURS, GOVERNMENT AGENCIES

Join the movement of Grid Connected Solar Rooftop Installations

Road Map for Solar Power by 2022

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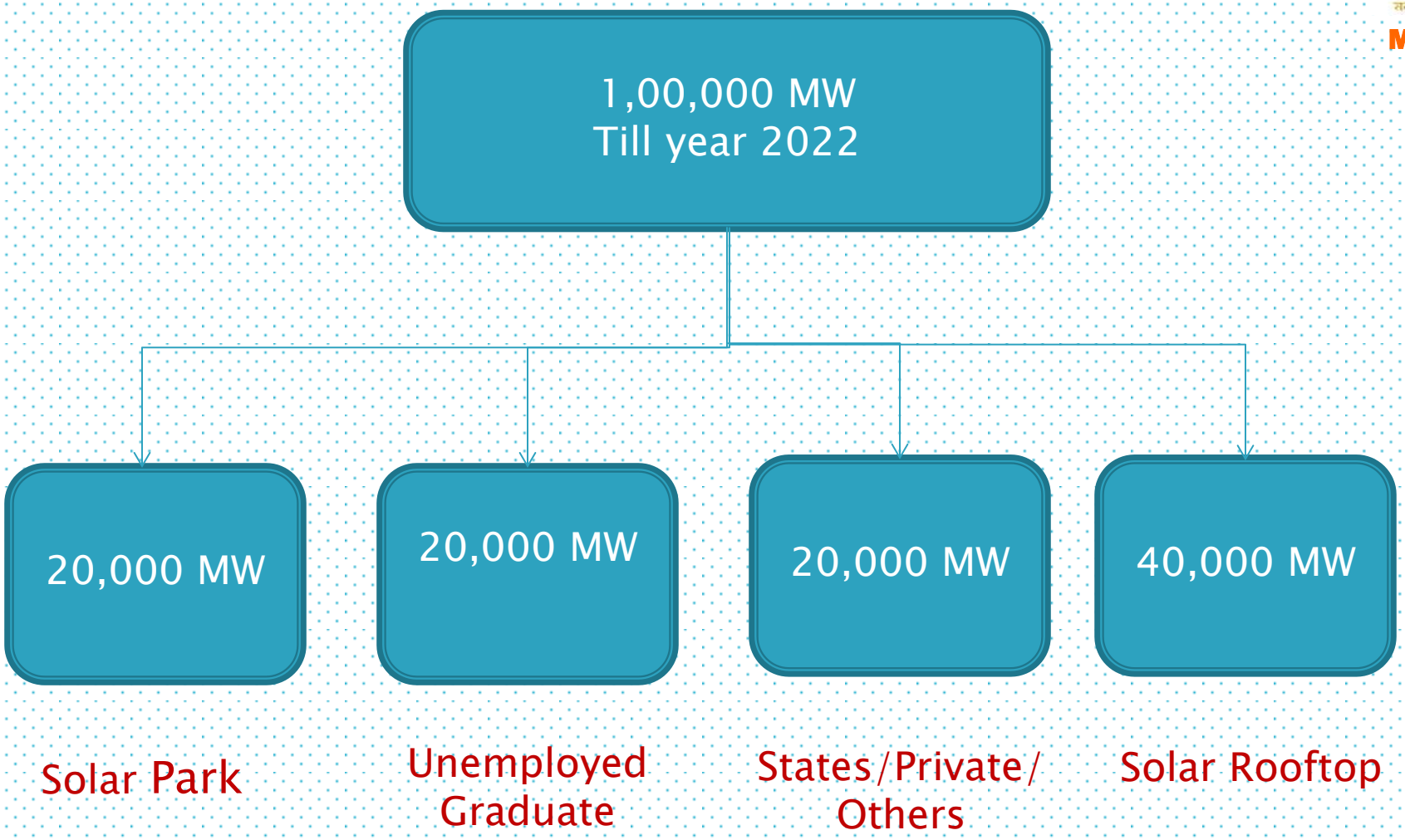

Solar Rooftop PV Systems

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- Solar systems installed on rooftops of residential, commercial, institutional & industrial buildings :



- **Electricity generated could be**
  -fed into the grid at regulated feed-in tariffs or
  -used for self consumption with net-metering approach

Advantages of solar rooftops

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- Savings in transmission and distribution losses
- Low gestation time
- No requirement of additional land
- Improvement of tail-end grid voltages and reduction in system congestion with higher self-consumption of solar electricity
- Local employment generation
- Reduction of power bill by supplying surplus electricity to local electricity supplier
- Battery elimination makes easy installation and reduced cost of system

All-India Rooftop SPV Potential

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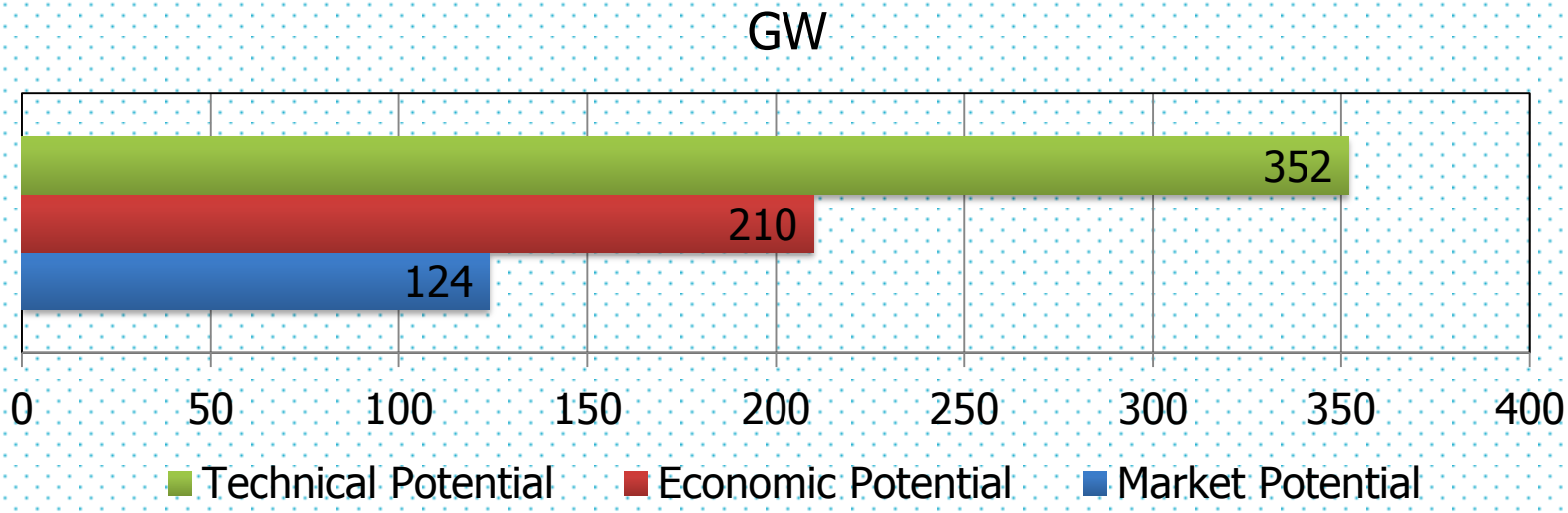
In India market potential for rooftop SPV is 124 GW.



Operational Guidelines/Conditions for Empaneled Channel Partners

- **Tenure** – for two years
- **Service network** – to establish a service center and attend to complaints within 48 hrs.
- **Website** – create own interactive website
- **Toll Free Number** – create and publish
- **Training** – develop service personnel's
- **Manpower** – Team of Technical Manpower
- **Literature User's Manual** – brochure, pamphlets giving company information

Operational Guidelines/Conditions for Empaneled Channel Partners

- **Publicity Plan** – publicity through brochure/pamphlets distribution, local electronic and print media
- **Quality Standards** – strictly adhere to the quality standards and specifications for the equipment's installed as specified by MNRE
- **Data Entry in MNRE Website** – **should** regularly maintain their database and update the entries on every 1st and 15th date of every month on SPIN .
- **Online Generation Data** – 10 kWp and above will be maintained in the website of Channel Partner.

Review and Performance Monitoring by MNRE

- MNRE will regularly review the progress and performance of each Channel Partner periodically and conduct third party inspection/monitoring through designated agencies/consultants.
- Performance based category of the Channel Partner will be announced by MNRE on every year. The performance will be evaluated based on the marks obtained on the following parameters:

Review and Performance Monitoring by MNRE

Sl. No.	Parameter	Marks assigned (nos.)	Marks obtained (nos.)
1.	Capacity installed :-		
	- 1 to 5 MW	5	
	- 5 to 10 MW	10	
	- 10 to 15 MW	15	
	- 15 to 20 MW	20	
	- Above 20 MW	25	
2.	Service Network	10	
3.	Website	10	
4.	Online generation data	10	
5.	Quality standards followed	10	
6.	Data entry and regular updating in MNRE SPIN Software	10	
7.	Manpower :-		
	- On regular payrolls	5	
	- On contract basis	5	
8.	Publicity and capacity building	10	
9.	Toll free number	5	
	Total	**100**	

Subsidy Disbursement

- Subsidy will not be available for industrial and commercial category consumers and Channel Partners should target them.
- Subsidy will not disbursed to Channel Partners directly from MNRE
- Subsidy from MNRE will be routed through SNAs, SECI, Govt. Agencies or IREDA.
- Solar calculator and installation interest form will facilitate the consumers and the Channel Partners.

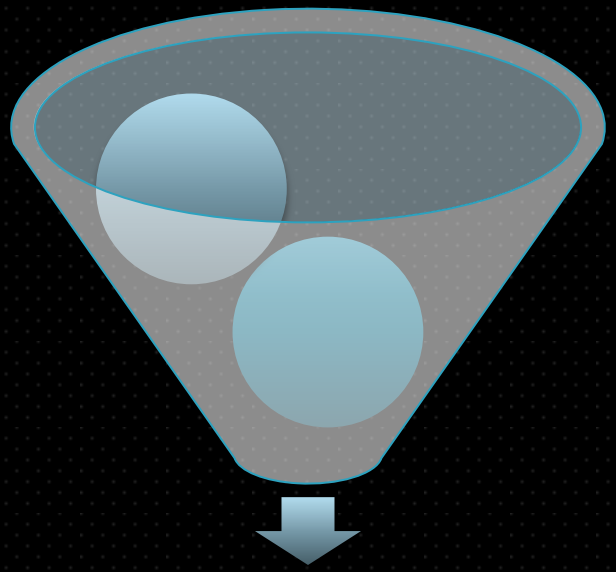
Estimated Rooftop Solar PV Potential

Ministry	MW Potential
Ministry of Agriculture	**12**
Ministry of Chemicals and Fertilizers	**401**
Ministry of Civil Aviation	**620**
Ministry of Coal	**53**
Ministry of Commerce and Industry	**2**
Ministry of Consumer Affairs, Food and Public Distribution	**2314**
Ministry of Culture	**2**
Ministry of Defence	**281**

Ministry	MW Potential
Ministry of Food Processing Industries	**22**
Ministry of Health and Family Welfare	**45**
Ministry of Heavy Industries and Public Enterprises	**271**
Ministry of Housing and Urban Poverty Alleviation	**2**
Ministry of Human Resource Development	**497**
Ministry of Micro, Small and Medium Enterprises	**4**

Estimated Rooftop Solar PV Potential

Ministry	MW Potential
Ministry of Petroleum and Natural Gas	1009
Ministry of Railways	1369
Ministry of Road Transport and Highways	0.4
Ministry of Shipping	51
Ministry of Steel	224
Ministry of Textiles	5
Ministry of Tourism	6
Ministry of Youth Affairs and Sports	6



TOTAL

7196.4 MW

Present Status: Policies and Regulations

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- **13 States have come out with Solar Policy supporting grid connected rooftop systems :**
- **Andhra Pradesh Chhattisgarh, Gujarat, Haryana, Karnataka, Kerala, Manipur, Punjab, Rajasthan, Uttar Pradesh, Tamil Nadu, Uttarakhand and West Bengal.**
- **SERCs of 19 States/UTs have notified regulations for net metering/feed-in-tariff mechanism :-**
- **Andhra Pradesh, Chhattisgarh, Delhi, Haryana, Karnataka, Kerala, Tamil Nadu, Uttarakhand and West Bengal, Andaman & Nicobar, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Lakshadweep, Pondicherry, Goa, UP, Rajasthan and Odisha.**
- **Remaining States are requested being pursued to come out with their policies/regulations.**

Financing by Banks

- **Department of Financial Services has advised all Public Sector Banks to provide loans for grid connected rooftop solar systems as home loan/ home improvement loan.**
- **So far, nine PSBs namely Bank of India, Syndicate Bank, State Bank of India, Dena Bank , Central Bank of India, Punjab National Bank, Allahabad Bank, Indian Bank and Indian Overseas Bank have given instructions to their branches.**
- **However, it is yet to be made effective at field level as no branches of these banks are providing such loans.**
- **Department of Financial Services may issue appropriate instructions to make it more effective.**

Financing by Banks

- **Reserve Bank of India on April 2014 has included renewable energy projects under Priority Sector Lending for which bank loans up to a limit of Rs. 15 crore to borrowers will be available for renewable energy projects including grid connected solar rooftop and ground mounted systems.**
- **For individual households, the loan limit is Rs. 10 lakh per borrower.**
- **This is yet to be mad effective at field level.**

Fiscal and Financial Incentives

The following benefits are available in commercial & industrial categories:-

- Custom Duty Concessions
- Excise Duty Exemptions
- Accelerated Depreciation
- Fiscal and other concessions from State Governments

15% CFA is available for residential, institutional and social sectors

Business Models for installations by Ministries/Departments

- **MNREs incentive – 15%**

- Model 1: Self financing of balance cost
- Model 2: Installation through RESCO Mode
- Model 3: Installation through leasing model
- Model 4: Installation through concessional loans
- Model 5: Self financing of complete cost without MNRE incentive

Process for Empanelment

Who can become Channel Partner?

- Renewable Energy Service Providing Companies (RESPCOs)
- System Integrators
- Manufactures of any component of the Solar Plants
- Project Developers
- VENDORS/Suppliers of solar equipment's
- Reputed and relevant NGOs of national level
- Govt. PSUs, Departments, Agencies, Technical Institutions

Process for Empanelment

Eligibility conditions:

- The Registered company/NGO must have experience to carry out activities which are envisaged under the programme.
- The Channel Partner have certificate from a rating agency in the country for technical and financial strength.
- The Channel Partner must have audited account for last three years.
- The company net worth must be positive. The assests and liabilities of the company must be clearly specified by rating agencies.

Process for Empanelment

- Reputed Govt. PSUs, Departments, Agencies, Technical Institutions could be exempted from the accreditation by rating agency on submission of their application with MNRE based on the criteria defined for this purpose.

Application Process

- Any entity which fulfills the above criteria may approach rating agencies to get the rating. After getting rating the entities may forward the rating report with application in the prescribed format to register them as Channel Partner.

Rating Agencies

- Reputed rating agencies in the country which may be specified by MNRE including those who registered with RBI and SEBI are eligible to rate the agencies. The following is the levels of rating :

1A	**1B**	**1C**	**1D**	**1E**
2A	2B	2C	2D	2E
3A	3B	3C	3D	3E
4A	4B	4C	4D	4E
5A	5B	5C	5D	5E

1 to 5 depicts the technical strength with 1 being the highest. A to E depicts the financial strength with A being the highest.

SOME INSTALLATIONS OF GRID CONNECTED SOLAR ROOFTOP SYSTEMS IN INDIA

Module	India Make
Aggregate Plant Capacity	404 kWp
Rooftop Owner	Manipal University
City	Jaipur
State	Rajasthan
Project Cost	Rs. 2.86 Cr
CFA through SECI	Rs. 86 Lakh

Module	India Make
Plant Capacity	115 kWp/85 kWp
Rooftop Owner	DMRC
Project Site	Anand Vihar/Pragati Maidan
City	Delhi

Module	India Make
Plant Capacity	130 kWp
Rooftop Owner	ISBT Kashmere Gate
City	Delhi
State	Delhi
Project Cost	Rs. 114.3 Lakhs
CFA through SECI	Rs. 30.3 Lakhs

Module	India Make
Plant Capacity	360 kWp
Rooftop Owner	Super Auto Forge Pvt., Ltd.,
City	Chennai
State	Tamilnadu
Project Cost	Rs. 3.06 Cr
CFA through SECI	Rs. 92 lacs

Module	India Make
Plant Capacity	100 kWp
Rooftop Owner	Rockwell Industries
City	Hyderabad
State	Andhra Pradesh
Project Cost	Rs. 0.74 Cr
CFA through SECI	Rs. 22.2 lacs

Module	India Make
Plant Capacity	300 kWp
Rooftop Owner	IIT Madras
City	Chennai
State	Tamilnadu
Project Cost	Rs. 2.49 Cr
CFA through SECI	Rs. 75 lacs

Module	India Make
Plant Capacity	500 kWp
Rooftop Owner	Medanta Hospital
City	Gurgaon
State	Haryana
Project Cost	Rs. 4.15 Cr
CFA through SECI	Rs. 1.24 Cr

Module	India Make
Plant Capacity	100 kWp
Rooftop Owner	NIAS
City	Bengaluru
State	Karnataka
Project Cost	Rs. 83 lacs
CFA through SECI	Rs. 25 lacs

Government House, Sector – 7, Chandigarh

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1.0 MW Rooftop plant at Punjab Engineering College, Chandigarh

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Government Hospital, Sector – 16, Chandigarh

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495 kW Rooftop plant at Govt. College for Girls, Sector – 11, Chandigarh

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Largest rooftop plant in the world on single roof*

- 7.52MW plant installed by Larsen & Toubro construction in Punjab
- L&T installed more than 30,000 PV panels on the rooftop
- Power from the plant being fed to the local grid through a PPA signed with the state distribution company
- * Claims L&T

IGP Office, Sector – 9, Chandigarh

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Thank You