

**CONFERENCE**

**3<sup>RD</sup> GLOBAL SOLAR EPC SUMMIT: 2013**

**3-4 June, 2013**

**Organized by Solar Quarter at New Delhi**

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**How Rajasthan Touched 555 MW  
Grid Connected Solar Plants  
SUCCESS STORY OF RAJASTHAN**

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**3<sup>rd</sup> June , 2013**

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**A presentation by**

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## **In this Success story ...**

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- ❑ Best Solar Power Potential**
  - ❑ Land Availability and allotment**
  - ❑ Active Nodal Agency and Advantage Rajasthan**
  - ❑ Strong Power Evac. System by STU**
  - ❑ State Solar Policy**
  - ❑ National Solar Mission & GoI Policy**
  - ❑ GoI Initiative**
  - ❑ State Govt Initiatives to Boost SP Generation**
  - ❑ Development of Solar Park**
  - ❑ Solar Project Commissioned in Raj**
  - ❑ Harnessing solar potential in Rajasthan**
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## **Solar Power Potential in Rajasthan (cont).**

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- **Largest State of India - 3,42,269 sq. km.**
    - **Rajasthan has around 208,110 Sq.km of desert land (60% of total area)**
  - **Close to National Capital**
  - **Best solar radiation(6.0– 7.0 kWh/ Sqm/ day) in India**
  - **Maximum number of sunny days (>325)**
  - **More than 5 million MW solar energy potential**
  - **Similar to California, Nevada, Colorado and Arizona in terms of Land resources and solar Insolation.**
  - **Best suitable for all type of CSP Technologies viz Parabolic Troughs, Solar Tower & Dish Sterling as well as and S P V Technologies Crystalline ,Thin Films & CPV etc.**
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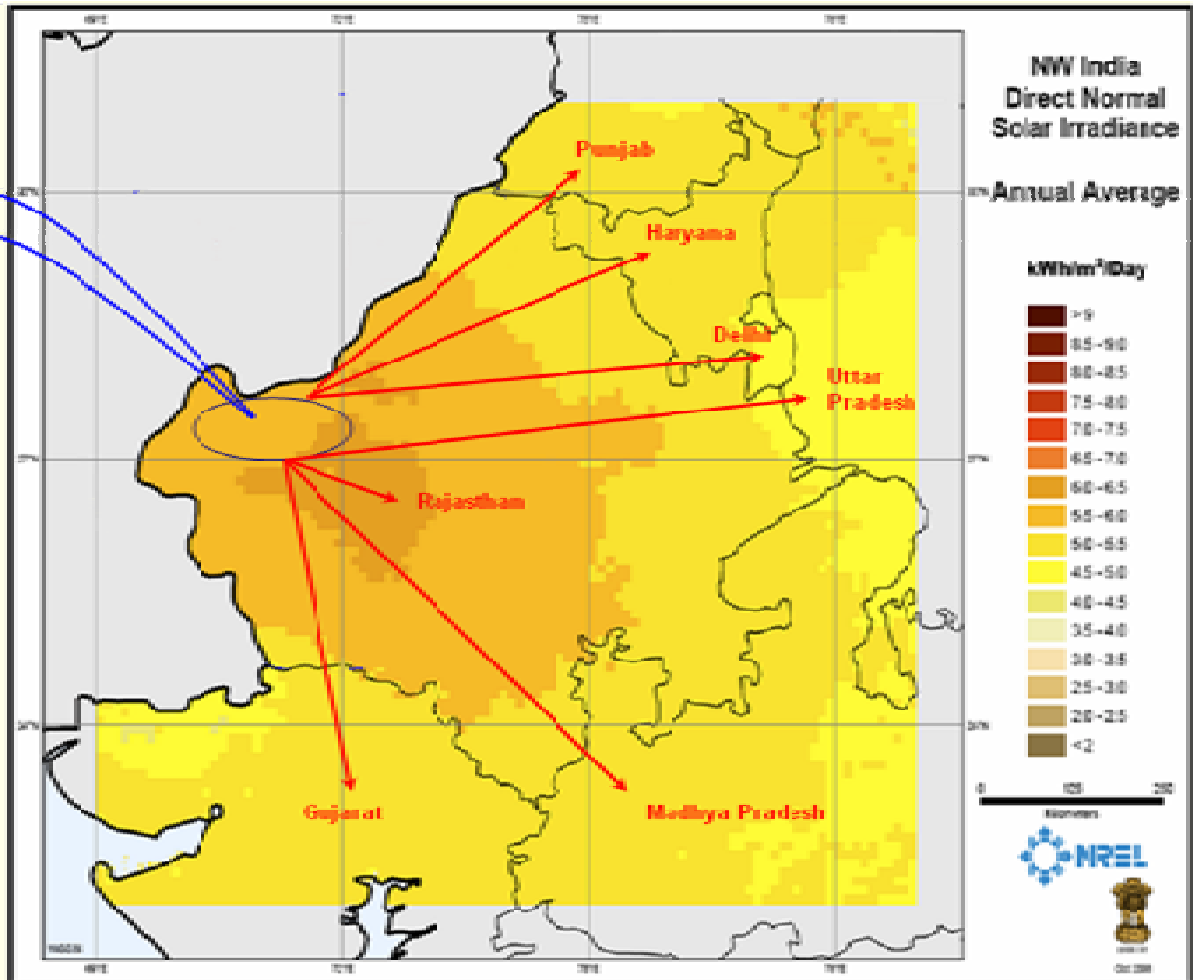
# Solar Power Potential in Rajasthan

**Thar Desert**

**Total desert area –  
208,110 sq.kms**

**15,000 sq. kms can  
produce  
300,000 MW**

**DNI: 2200 kWh/sq.m /yr  
Yearly Average  
DNI: 5.78 kWh/sqm/day**



## **Land Availability And Allotment**

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- ❑ **Abundant & Low cost Raj Govt. land available**
  - ❑ **Land bank in Jaisalmer, Jodhpur, Bikaner, Barmer, Jalore, Nagaur & Churu available with RREC .**
  - ❑ **GoR will reserve the land identified by the project developer for period of three years.**
  - ❑ **On deposit of Rs.1.00 lac per MW as security money by the SPP, GoR will allot land .**
  - ❑ **Allotment of Govt land up to 50 MW Solar Plant at 10% of DLC rate for 2 years.**
  - ❑ **No security deposit for allotment of land for sanctioned projects.**
  - ❑ **Purchase of private land shall be allowed in excess of ceiling limit.**
  - ❑ **Conversion: 10% of charges leviable for industrial purpose.**
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# Active Nodal agency & Advantages - Rajasthan

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## □ **RREC Nodal agency for Single Window Clearance**

**SPP to interact with RREC for land allotment , Power Evacuation ,Water allocation, Allocation of plant capacity, PPA, SLSC& SLEC Approval of project & connectivity etc**

## □ **Climatic Conditions**

■ **Dry and Calm & No Sea Cyclone .**

■ **No Sea Water Corrosion to modules , its frame and outdoor equipments**

■ **Lowest Earthquake Seismic Intensity (Zone 2)**

■ **Long Life of System- Assured 25 years Benefit.**

## □ **Rajasthan Industrial Atmosphere**

■ **Known for peaceful , cordial, cultured behavior**

■ **Good Law and Order situation**

## □ **Availability of labor**

■ **Skilled and un skilled at low cost**

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## **Strong Power Evacuation System by STU**

- ❑ **Clear mandate on providing grid connectivity by STU.**
- ❑ **SPP to pay Rs 2 lacs Grid connectivity charges to RVPN**
- ❑ **Transmission Line from SP Plant to STU GSS under Solar Policy if selected by Tariff based competitive bidding**
- ❑ **Augmentation of Trans & Distribution system by RVPN /DISCOM as per RERC Tariff Regulation 2009.**
- ❑ **Strong 400 kV ,220 & 132kV transmission network in Jaisalmer, Jodhpur, Bikaner area already exist.**
- ❑ **RVPN is implementing 4000 crores evacuation network having 400/220/132kV GSS at Jodhpur, Bhadla and Jaisalmer Solar Parks with Various 220kV& 132 kV GSS associated transmission lines .**
- ❑ **Newly constructed 132 kV GSS at PS-1,PS-2,PS3,PS4, Bap, & 220kV Gajner& exiting 132kV Pokhran, Kolayat 220kV Phalodi GSS are evacuating solar power.132kV GSS at Badisid,220kV GSS at Kanhasar, Bap ,Bhadla, Kolayat, Ramgarh are under construction.**

# **Rajasthan Solar Energy Policy-2011**

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- ❑ **Government of Rajasthan has issued Rajasthan Energy Solar Policy, 2011 in April-2011 with following strategy :-**
    - **Leveraging maximum benefit from policies of National Solar Mission.**
    - **Develop Solar Power Plants for meeting RPO of Rajasthan.**
    - **Develop Solar Power Plants for meeting RPO of other States.**
  - **Direct sale to other States through open access.**
  - **Sale through N S Mission mechanism.**
  - **Sale through REC (Solar) Mechanism.**
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## **SPP for SALE OF POWER TO DISCOMS**

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### **Solar power projects for direct sale of power to Discoms of Raj Under Raj Policy 2011**

- **SPP connected at 33 kV & above**
    - **Phase-1 - 200 MW**
    - **Phase-2 (2014-17) - 400 MW**
    - **50 MW SPV & 50 MW CPV Plants along with equivalent MW capacity of conventional power**
  - **Solar Plants connected at 11 kV**
    - **1 MW SPP 50 Nos. - 50 MW.**
  - ❖ **Selection by Tariff based competitive bidding process**
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## **Allocation of S P P to manufacturers**

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- **For promotion of Manufacturing facility in the state**
  - **Allocation of 200MW capacity of Solar Power plant to establish 500 MW per annum capacity Manufacturing facility of SPV.**
  - **Manufacturing Process should involve:**
    - a) **For Crystalline 1)Wafers to cell & (2) Cell to Modules. Or**
    - b) **Thin film**
  - **More than 25MW to-less than 50 MW per annum Manufacturing capacity of SPV: Allocation of 10MW Solar Power Plant**
  - **More than 50 MW per annum Manufacturing capacity : Allocation of 20MW Solar Power Plant**

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# National Solar Mission & GoI policies

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- **Mission Targets: Grid-connected solar power generation:**
  - ✓ **1000 MW– by 2013 in phase-1.**
  - ✓ **NSM 500MW PV projects Completed. Balance Solar thermal scheduled to be completed by 2014**
  - ✓ **Additional 3000 MW by 2017 in phase -2.**
  - ✓ **Bidding of Batch-1 of 750 MW to be started in June**
  - ✓ **Target for 2022 of 20,000 MW or more..**
  - **Construction of Solar Grid:**
  - ✓ **Solar specific RPO at national level.**
  - ✓ **RPO to increase gradually with decline tariff (from 0.25% in Phase-I to 3% by 2022)**
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## **GoI Initiatives**

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- **The GoI amended **National Tariff Policy****
  - **Making Mandatory** for state regulatory commissions to fix the RPOs for utilities in each state .
  - **Action Needed :Strictly Imposing of penalties for RPO**
  - **National Clean Energy Fund Available with GoI**
  - **Addition of Rs. 5000 crore /year..**
  - **Action needed to support 2000 MW RE projects by VGF.**
  - **Indian Electricity Grid Code 2010 includes the following provisions**
  - **CEA shall take care of the transmission requirement for evacuating power from renewable energy sources,**
  - **Solar power plants shall be treated as 'MUST RUN' power plants and shall not be subjected to merit order dispatch principles**
  - **Action needed to start 10000 crores Transmission Network for RE projects**
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# State Initiatives to Boost Solar Power Generation

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- ❑ **Water Resources Dept. GoR has allocated 58 cusec water from IGNP Canal for allocation to Solar thermal Plants.**
  - ❑ **Consumption of electricity by SP plant for its captive use is exempted from payment of Electricity Duty**
  - ❑ **Grant of incentives available to industries is also available Solar plant.**
  - ❑ **The State shall promote SP Producer to set up unlimited capacity**
    - **For captive use or sale of power to 3<sup>rd</sup> party/ States other.**
    - **For sale of power through RE Solar Certificate mechanism**
    - **One of the best scheme for establishing of solar power plant of unlimited capacity in Rajasthan.**
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# Development of Solar Park

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- **Raj. Govt will Develop Solar Parks of (>1000 MW) capacity in **Jaisalmer, Bikaner, Barmer** and **Jodhpur** districts in various stages**
  - **'Rajasthan Solarpark Development Company Pvt Ltd created for development of Solar Parks.**
  - **Jodhpur Solar Park**
    - **10,000 Hectors Govt land Set-apart at Bhadla , Phalodi**
    - **Survey & Soil Testing Work of phase-1 ( 3000 hecets)& phase-2&3 ( 5000 hecets) completed.**
    - **Master plan for 800 Hectore out of 3000 Hectore under Phase-1 developed.**
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# Development of Solar Parks ...cont.

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## □ Jodhpur Solar Park

- Land allotment rules formulated .
  - 400/220kV GSS at Bhadla already under construction will be ready by December 2013 to receive power .
  - connectivity and infrastructure plans made.
  - sharing of development cost by the developers and management of Solar Parks finalised .
  - Construction of roads has been started
  - Plots marked and demarcation made at site.
  - Plots allotted to 75 MW Solar plants
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## Solar Project Commissioned in Raj cont

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### Year 2010-11

**GBI Scheme 5 MW 5 MW**

### Year 2011-12

**GBI Scheme 3 MW 3 MW**

**Migration 35 PV 35 PV**

**3X10 MW Thermal 2.5 MW**

**RPSSGP 1x12 MW PV 12 MW**

**NSM Phase-1, 5x20MW PV 100MW**

**Open Access 40 MW 40 MW**

**Grant 1MW 1 MW**

**Total 193.5 MW**

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# Solar Project Commissioned

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## Year 2012-13

□ NSM Batch-2	350MW (28projects)	285MW
□ REC		69.5 MW
	<b>Total</b>	<b>354.25 MW</b>

**Year 2013-2014 REC 2.5MW**

**Solar Plant commissioned In Rajasthan 555.25MW**

## Status Of Solar Thermal Project

**Likely to be commissioned in a week**

**Thermal project of M/s Godavari 50MW (Parabolic )**

**Other solar thermal Projects Under construction/Scheduled to be commissioned by March 2014 350 MW**

**Balance 31 MW Thermal a CPV Not expected**

**PPA signed for PV projects under solar policy 75 MW**

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# Harnessing Solar potential in Rajasthan

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- ❑ **Total Installed of capacity of Solar Power plant by 2015 in Rajasthan .** **2300 MW Approx**
  - ❖ **Already commissioned 31st May 2013 : 555 MW**
  - ❖ **Solar thermal in NSM**
    - ✓ **Ready for commissioned : 50 MW**
    - ✓ **Under Implementation : 350 MW**
    - Raj solar policy : Ph-1 : 550MW**
  - ❖ **REC project already Implementation: : 50 MW**
  - ❖ **For meeting of RPO to other states under open access. expected :More than 200MW**
  - ❖ **For sale of power through RE Solar Certificates to meet RPO of other states expected :More than 200MW**
  - ❖ **NSM Phase-2 : 400 MW**
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## Success Story

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- This is success story of
- Vision, Team sprit , Coordination among RREC, MNRE, NVVN
- Leadership of MNRE
- GoI National Solar Mission phase -1
- Faith of investors, support to them by RREC, Raj Govt.
- Guidance, facilitation to their satisfactions by RREC.
- State Govt Solar Policy and leader ship
- Zeal of officers To take lead for development of Desert area and to upkeep the life of villagers in that area
- Inter-department Coordination
  - 1)Between Raj Govt, RREC, Pollution Control Revenue Dept, District Collectors,
  - 2)RREC, Energy Dept, RVPN, Discoms of Ajmer, Jaipur , Jodhpur
- To put Rajasthan as Solar Hub on world map

# Thank You

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For details Pl see website

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