TATA POWER SOLAR

SOLAR PV FARM – A CASE STUDY

S. Datta, Head – Industrial Solutions (S&M)
10 MW Solar Power Project
Brief Understanding of Scope

- Complete EPC of 10 MW(AC) Grid Connected Solar Power Project + 10 Years O&M
- Domestic C-Si (as per NVVN norm)
- DC:AC=1.02 – 1.1
- 33kV Evacuation System
- 2kM Fencing, 4kM Road
- Water Supply System
- 3.5 kM Transmission Line
- Other Scopes as specified in the issued RfP
How we execute?

Safety guided by our HSSE policy is license to work.
Continuous Improvement

Civil foundation

- Conventional: 70/day
- Pile, mechanised: 200/day
- Ramming, mechanised: 400/day

Structure

- IS angles: 10 foundations
- Purlins: 4 foundations
- Purlin with Rammed pole or sheet pile
Continuous Improvement

RCC construction → PEB → Container / Outdoor units

Power evacuation

Outdoor (discrete systems) → Compact sub-station → Block evacuation
Continuous Improvement

Design configuration

- Solar module 180Wp
- 10 input combiner box
- 250 / 500 kW inverter

- Solar module 230 Wp
- 12 input combiner box
- Main junction box
- 500 kW inverter

- Solar module > 235Wp
- TF technology offer
- 16 input combiner box
- MJB eliminated
- 630 kW inverter

Team

Start-up

- O2G S&M
- O2G Engg
- O2G Purchase
- O2G Projects
- O2G O&M

- Skill Build
- Civil expertise
- Contractor & supplier engagement
Professionalism

Site Office  
Storage of Modules  
Roads & Drains

Templates for Foundations
Critical Components - Solar Power Plant

Compact Substation (CSS)

Inverters

String Junction Box
Fencing - TBPS
MODULE INSTALLED BY TBPS –
Grid Connected Solar Power Plant

Critical Success Factors

- Good Design
- Detailed Engineering
- High Quality Products
- EPC Capability
- Conducive Policy & Infrastructure
- Knowledge, Experience & Commitment

1 MW Solar Power Plant; Delhi

5 MW Solar Power Plant; UP

17 MW Solar Power Plant; Mithapur, Gujarat
What We Have Achieved
Large Scale Projects – O2G

Market
National Solar Mission
State Policy
REC / RPO

Products
EPC Solar Grid connect plant

Customer
• Project Developers
• Obligated entities
• Industries
• Corporate

MARKET
PRODUCTS
CUSTOMER
O2G Growth road map

2009-11

- NDPL 1MW
- Tata Power 3MW

2011-12

50 MW projects
In various locations
Across India

2012-13

100 MW projects targeted
Large Scale Projects – O2G

17MWp, Mithapur
Grid Connected Solar Power Plant

1 MWp Solar Power Plant in Tamil Nadu
Commissioned: June, 2011
180 days ahead of Scheduled time
Generating 105% of the guaranteed units
Energy Excellence – O2G Projects

![Bar graph showing expected and actual generation]

- B and G
- DBASSK
- SNM
- RK
- MGM
- Singhal Forestry
- TPERL
- Emami
- Amson
- Vivek Pharma
- Kijlak
- GMDC
- EMC Naine

- Expected Generation
- Actual YTD in KWh
Thank You

dattas@tatapowersolar.com