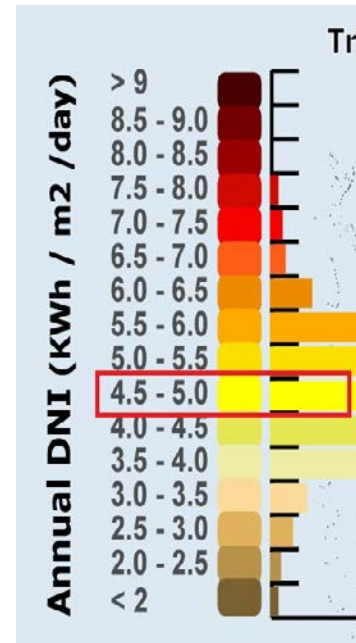


NALCO CORPORATE OFFICE, BHUBANESWAR :
160 KWP GRID CONNECTED ROOFTOP SOLAR PLANT

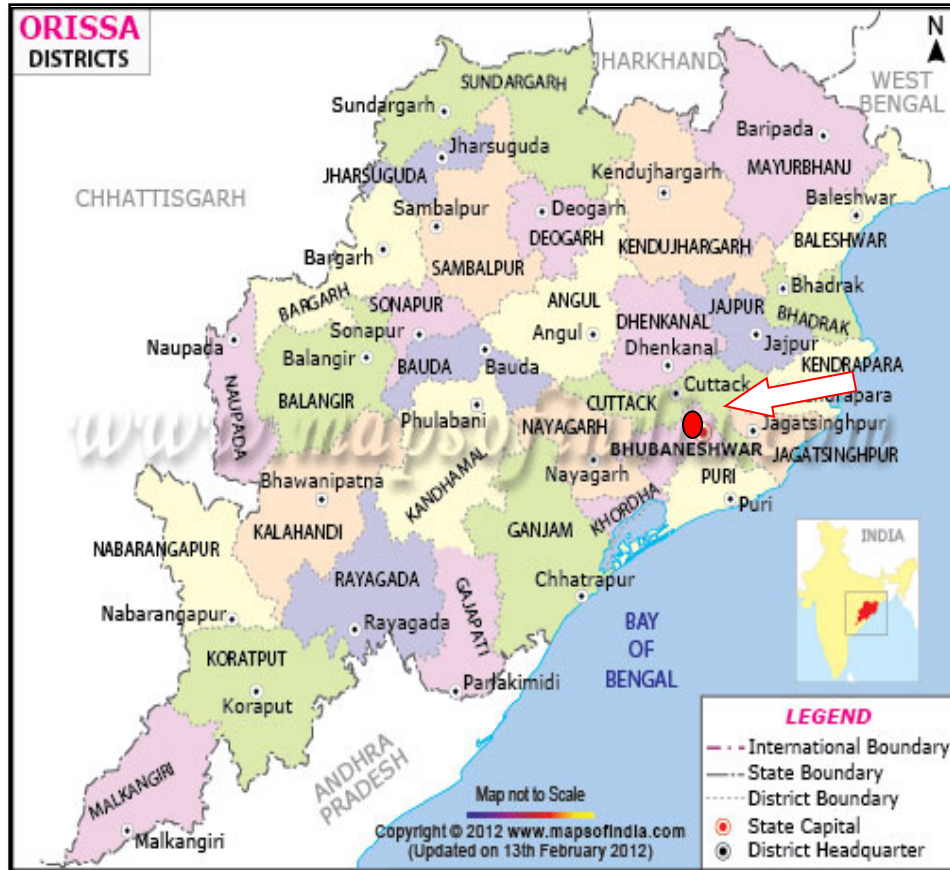


ODISHA : SOLAR POWER SCENARIO



SOLAR IRRADIATION MAP OF ODISHA

BHUBANESWAR CORPORATE OFFICE SITE : SOLAR RESOURCE ASSESSMENT



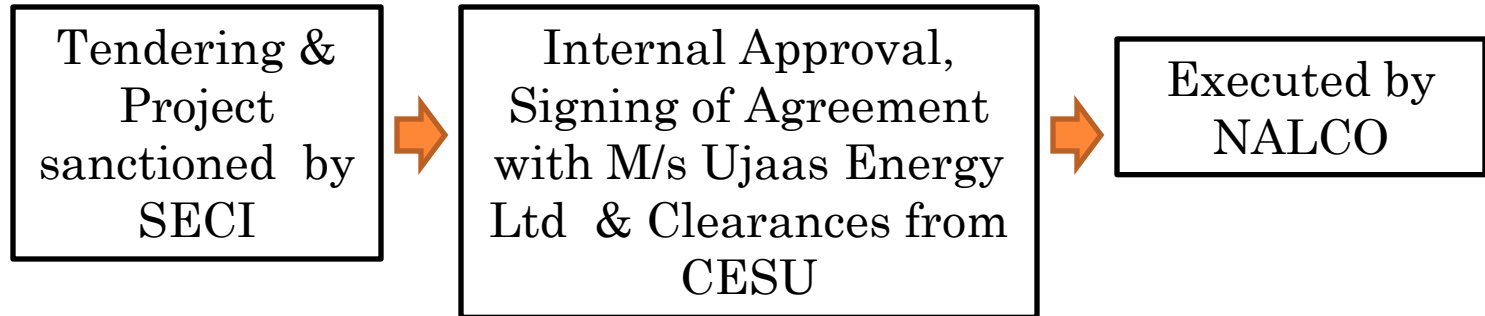
- Altitude – 143 MSL
- Latitude / Longitude – 20.303 N, 85.810 E
- Shadow free rooftop available 1920 sq.mts
- Solar Plant Capacity-160KWp Grid Connected
- Projected Net Energy per Annum- 2.10 Lakh KWHr
- Average annual solar radiation in Bhubaneswar 4..83 KWh/m² /day
- Project Cost- Rs.1.24 Cr
- MNRE Subsidy- Rs.37.44 Lakhs

160 KWP ROOFTOP SOLAR PLANT



- 622 Multi Crystalline Modules (484 Nos of 260 Wp and 138 Nos of 255 Wp) of WEBSOL Energy Systems Ltd.
- Module Efficiency -15.2 %.
- Tilt Angle of Module-20 Deg.
- 5 Nos PCU (MPPT Based) of Delta.
- Grid connected with Bi-Directional Meter – May export to grid during holidays when solar generation is more than internal consumption.
- Two Solar Energy Meters- For solar energy generation and captive consumption.

PROJECT AT A GLANCE



- Letter of Award placed on 4th January,2014 .
- Rooftop solar system synchronized on 17th May,2014.
- Rooftop solar system generated 78,500 kwh solar energy for captive consumption till 30th October,2014.
- This plant will help displacing approx. 200 tonnes of carbon dioxide per annum.
- Highest daily generation achieved 817 kwh & Average daily generation 470 kwh
- Levelized cost of generation Rs.4.00 without subsidy

FUTURE SOLAR PROJECTS

- 100 KWp rooftop solar plant installed in Nalco Township Buildings in Bhubaneswar.
- 2.0 MWp ground mounted and rooftop solar project under study in Nalco Research & Technology Center at Bhubaneswar
- Submitted EOI for 5.0 MWp rooftop solar projects at various units of NALCO under MNRE scheme
- Nalco is in the process of establishing a MW scale ground mounted Solar Power plant as part of its green initiative.

ISSUES TO BE ADDRESSED

- The solar policy should be operationalised soon. The draft Solar policy 2013 is yet to be gazetted.
- DISCOMs purchasing solar power on competitive bidding much less than Feed in Tariff or Preferential Tariff .
- APPC rate need to be declared (for people who wish to avail REC benefits) and on regular basis.
- Declaring an assured rate of PPA for excess power fed to the grid from roof top solar plants. This can also be done for ground mounted solar plants so that people would be tempted to work out the feasibility and utilise their unused land.

CONTD.

- Open access to be allowed inside the state giving priority for Solar Power and without any wheeling charges
- Identifying, acquiring, transferring/leasing solar potential land and facilitating connectivity for Captive/IPP solar plants .
- Creation of Land bank specifically for Solar
- Developing solar parks in fast track
- GEDCOL & OREDA role not clear.

Thank You