

# Large & Sustainable Solar PV Generators by Using The Roof Top of Industry Sheds for Energy Security During the Day Time

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**R**esidential Roof top projects with few private EPC companies is being mooted / realised in Gandhi Nagar, Gujarat, which is a welcome initiative with few PILOT cases and their results.

While supporting MNCs in INDIA before, the roof top of these large manufacturing units can be put to best use for solar PV power generation, with the falling prices of PV component, the surface area of roof top of such useful industrial SHEDs (mostly at 11 deg to 16 deg inclination) can be used (subject to structural design sustainability with design verification and validation for each location).

Few of large factories like Alstom, ABB, L and T, ESSAR, Refineries, Ports, Auto giants, Steel plants etc in Gujarat / India can even house the PV panels equivalent to 4 MW / single location or more due to such large and useful roof top surface / exposed area.

It would be a good idea to collect the data on available surface area i.e roof top area of such large factories, steel plants, port or process industries located in GUJARAT / INDIA where solar irradiation can be best utilized with an effective planning to harness solar PV energy generation.

No policy exists as of now to stop them using their own roof for their internal benefits, considering tariff escalation for commercial purpose in the decade to come... However, Government can provide necessary and modest FISCAL incentives to promote Solar PV power generation while allowing the factory for their captive consumption. Thus, promote the idea of Solar Generators!

**Important :** FIT (Feed In Tariff) or letting out roof surface area to third party (as is the case with residential roof top system) or such initiatives will increase or load common man, which must be avoided at all costs.

With a good technology deployment mind set to use the DC power and then judiciously convert to AC power as per the need of the factory between 7 am to 6pm be planned.

The idea is to replace the consumption of Diesel in DG or Gas or Coal during these hours by switching to Solar PV in a phased way so that Production does not get interrupted during the operation or during the erection of the PV panel above the roof (i.e no production down time or interruption or no damage to the existing structure of the factory sheds).

Indicative figures (only for reference) : The COG of Rs. 4 to 5/kwh (Cost of Generation without ROE) with high equity with sample project cost of Rs. 6 Crore and 7.5 Crore/MW can be realized today. Less land usage (Electrics item location only), not much of additional structures, improved cabling through existing Cable trays route / supports, learned maintenance team available will be able to bring down the costs further.

Joint awareness is necessary to promote solar PV power generation on Factory roof top so that Industry owners can come forward in bringing down the carbon emission (not just by buying the certificates or energy like what torrent is doing, but, need to support them to invest in Solar Generators !), but, with a real participation. This will enable busi-

ness creation and employment generation within the existing units with a good awareness of CLEAN TECH initiatives on Climate change with a business case (no charity please).

Excess power, if generated, with little mark up price on COG can be sold to Utility companies with good FISCAL incentives as «The business is no charity» and «Common man need not support solar PV generation through his nose» always with high tariff being supported by Government as it will not be sustainable due to high budget deficit.

There is always a scope for improvement on business numbers with a good intent and with a positive outlook at the INDIA's foot print on Global climate change in an economical way with long term sustainability for its socio-economic objectives with a clear business plan with increased stake holder participation with a great transparency at all levels with the necessary education.

There is a Large Scope for roof top energy generation by the industries to relieve grid pressure during production hours. Roof top use on RESIDENTIAL ROOF in the other parts of the world are not successful as the rent to be paid and the real energy generation, non feasibility to connect the generated power to GRID due to Grid failures (in INDIA "No Power in Grid" is very frequent, hence, it may lead to manipulation or corrupt practices) and its monitoring / review are expensive and no transparency and may lead to wrong business practices.....

It is better to collect the data of large and usable roof surfaces of Industry

(which will run in to 100s of MW solar PV power generation opportunity through Industry roofs) in each state and publish in the MNRE web site officially to evolve a good business case, where the industry owner may like to hire good EPC company and maintain it as Solar PV may be their non core business area.

Please note that we need to use the Land for accommodating the Solar PV wherever possible, with a distributed Generation concept to reduce the oil import..... we can use the day power of Solar PV to the maximum along with day peak requirement, thus, for night power or peaking requirement (when solar PV power is not available), then, we can use other resources.

This can be a good solution along with hybrid power mix with SMART GRID metering to reduce the power theft and to improve the load side demand management very efficiently.

Many Auto Industries are finding their place in Gujarat at a low cost land, which is a welcome point as the Government

is a good facilitator.

In order to ensure, future energy security, let the roof of these industry shed be designed (before giving them approval for their structures) to be Solar PV panels mounting compliant, so that in future these industries can deploy solar PV Generators to promote renewable energy, reduce coal or oil import due to grid power usage, thus, contribute to Current account deficit too.

This shall apply to steel plants which are investing CAPEX for their capacity expansion etc. MECON / CET / SAIL / Dastur co etc may please be informed accordingly to incorporate in the structural designs in future.

Though it may increase the cost of steel a bit, in principle, but it can be cost effectively designed, however for having secured government land (public property), the industry needs to give back to the society in the form of promotion for clean tech energy generation to reduce oil usage and thereby pollution related issues.

It is also an endeavor to use the land for multi-purpose i.e set up auto / steel industry + Power generation (be it captive or surplus). Let all new Industry sheds (structures) be, as a mandatory, implement structures to house future PV panels, through an ordinance (if need be).

Let the CAPEX for solar pV generator be provided after the internal accruals, but, we will be reserving the space (most precious land) for future PV energy generation as a sustainable energy development plan ■

The author is a Gold Medalist from SLN College of Engineering, Gulbarga University. He has industrial work experience over 23 years with PSU, MNCs. He established KK NESAR PROJECT PRIVATE LIMITED to execute renewable energy projects on EPC basis with a collaborative business approach with Indian specific needs.

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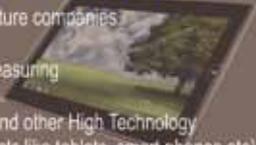
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