

Solar/Wind power with DCDG right solution for Telecom, GSMA Working Group, New Delhi

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Agenda

- Remote sites facts
- Why DCDG instead of ACDG
- How DCDG can work with Wind
- Proposed solution with Solar
- GTLs plan for DCDG & solar hybrid sites



Remote Sites facts

- No Grid power availability
- Unreliable Grid
- DG set not a backup but a main power source
- Renewable power is very much viable
- Scalability is an issue
- Most likely to be an outdoor site without air conditioning

Advantages of DCDG over ACDG for telecom use

- ACDG being a constant speed generator is highly inefficient at low loads
- In DCDG Speed of DG can be controlled to vary the output power in proportion to load
- Telecom being a varying load DCDG is more suitable for Telecom Scalability is also not an issue
- As BTS load requires direct DC power conversion losses can be avoided
- DCDG's available in India can work at 50 % speed at low loads saving substantial amount of energy
- DCDG with SOLAR & Wind hybrid is a better option than with ACDG

How DCDG can work with Wind turbines

- DCDG /Wind can work as a hybrid solution
- Specially designed Charge controllers will be required
- Site selection becomes very critical in India as most sites do not have sufficient wind.
- Telecom specific turbines need to be designed by Turbine Industry
- We need to have system integrators of repute undertaking this job





Proposed solution with Solar

❑ **In house trials for two brands of DCDG sets were done by GTL at Pune**

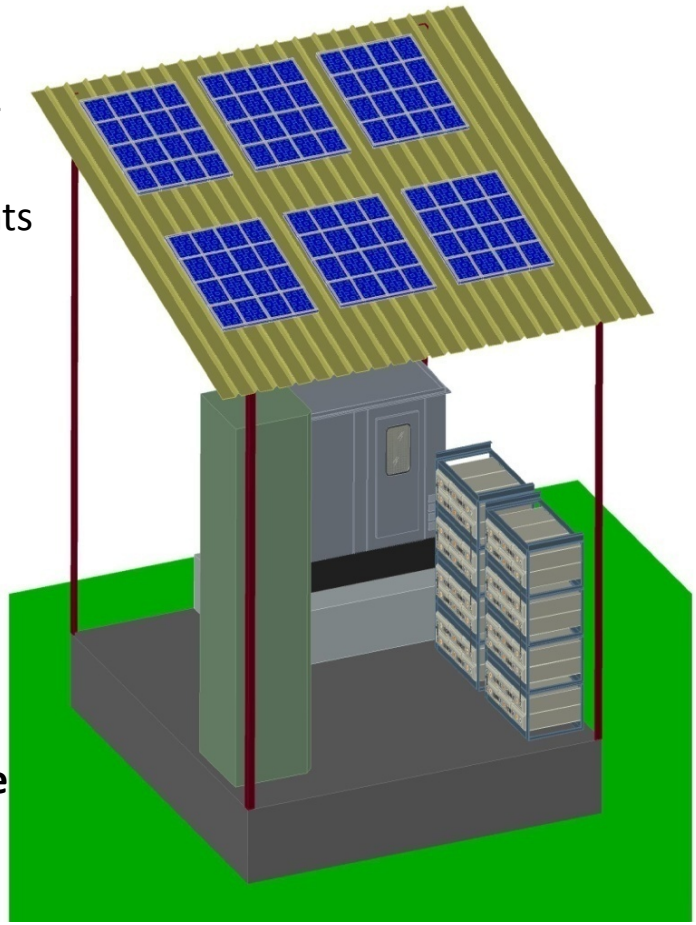
- ✓ Vibration, Noise & Ripple measurement are critical.
- ✓DG controller panel pre designed for integrating Solar power.
- ✓2 different makes tried successfully & field deployments planned in near future

❑ **Solar output can be directly connected to specially designed charge controller**

❑ **Higher size battery Bank can be used**

❑ **3 KW solar with 600 Ah battery bank & 6.5 KW DCDG for 1/2/3 BTS sites.**

❑ **Solar Panels to be mounted on Rooftop of an outdoor site**



GTL's plan for DCDG-Solar Hybrid

- Solution tested in LAB setup
- 1-2 pilots are being planned starting in 2 weeks
- Non EB (off Grid) sites ideally Targeted
- EB sites with slight modification to AMF Panel & logic targeted to be tried
- Proposed solution for all Outdoor sites with/Without EB availability

Thank You



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