

Micro Grid Solutions Case Study & PV-DG Live Demo



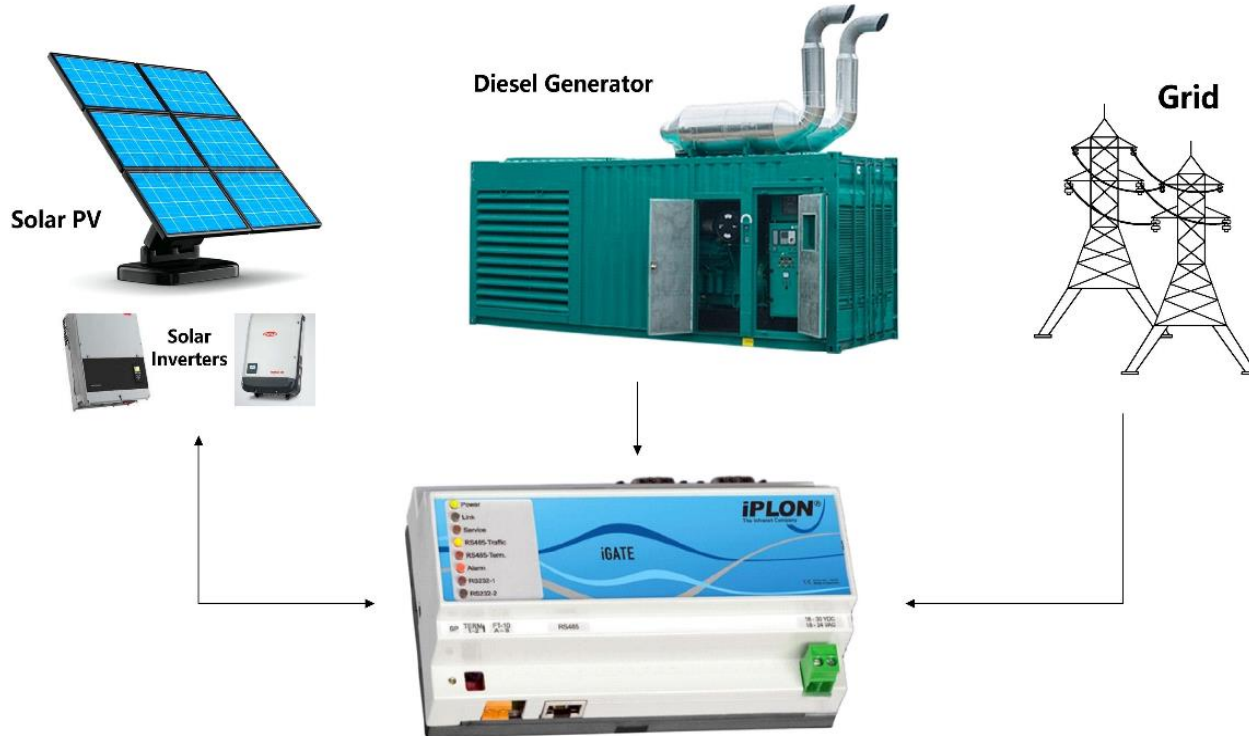
Sreenath & Rahul

iPLON India Pvt Ltd

#26/80, Luz Avenue, 5th Street, Mylapore,
Chennai, Tamil Nadu, India 600 004



PV-DG Fuel Saver Controller



Data Acquisition & Monitoring

Control Logic

If DG OFF: No Inverter Control

If DG ON,

-DG PAC > Set Threshold: No Inverter Control

-DG PAC ≤ Set Threshold: Start Dynamic Inverter Control

PV-DG Controller does

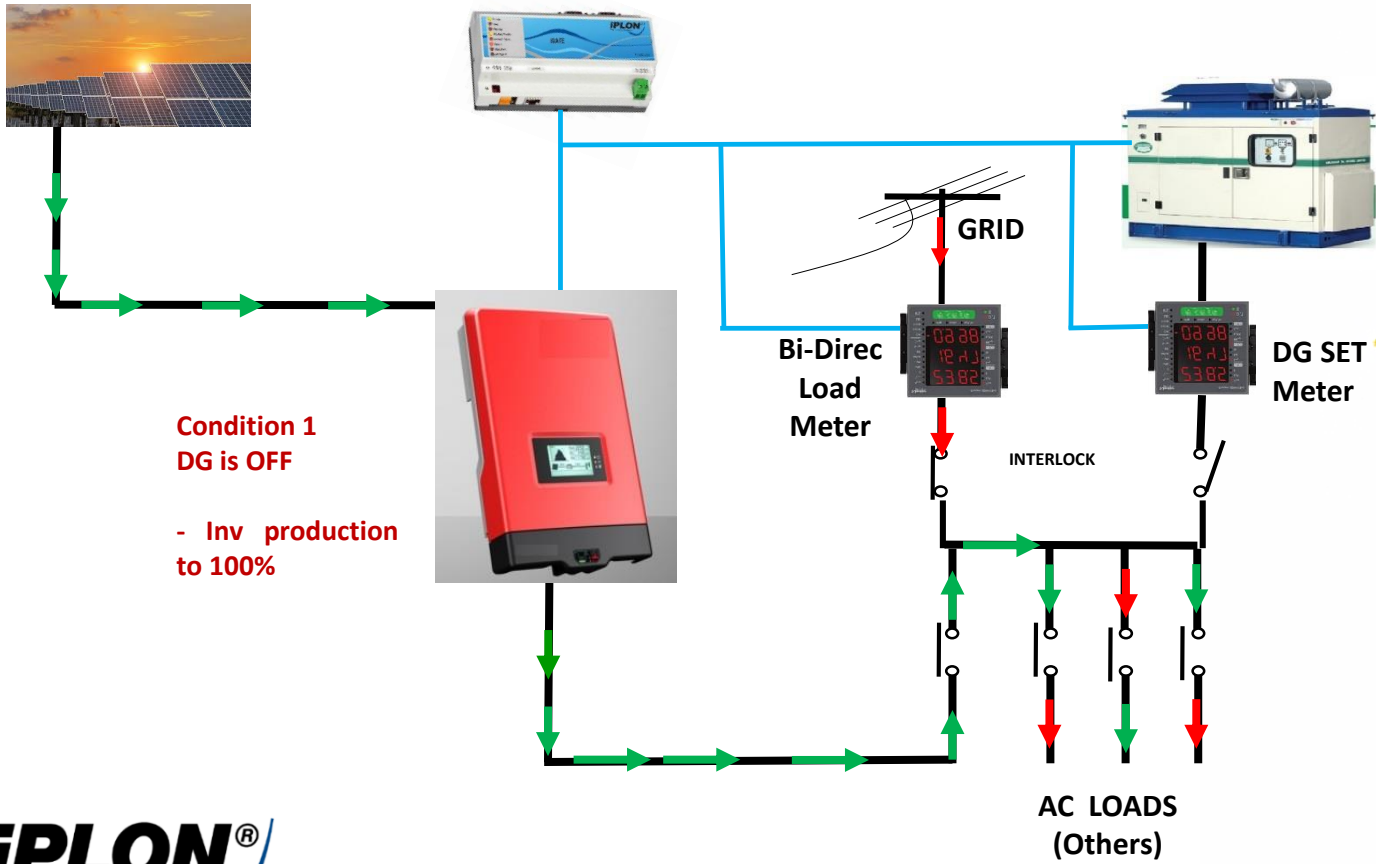
- Inverter output control
- Protection against reverse current
- Maintains the DG in the safe operating efficiency
- Fully automated system operation



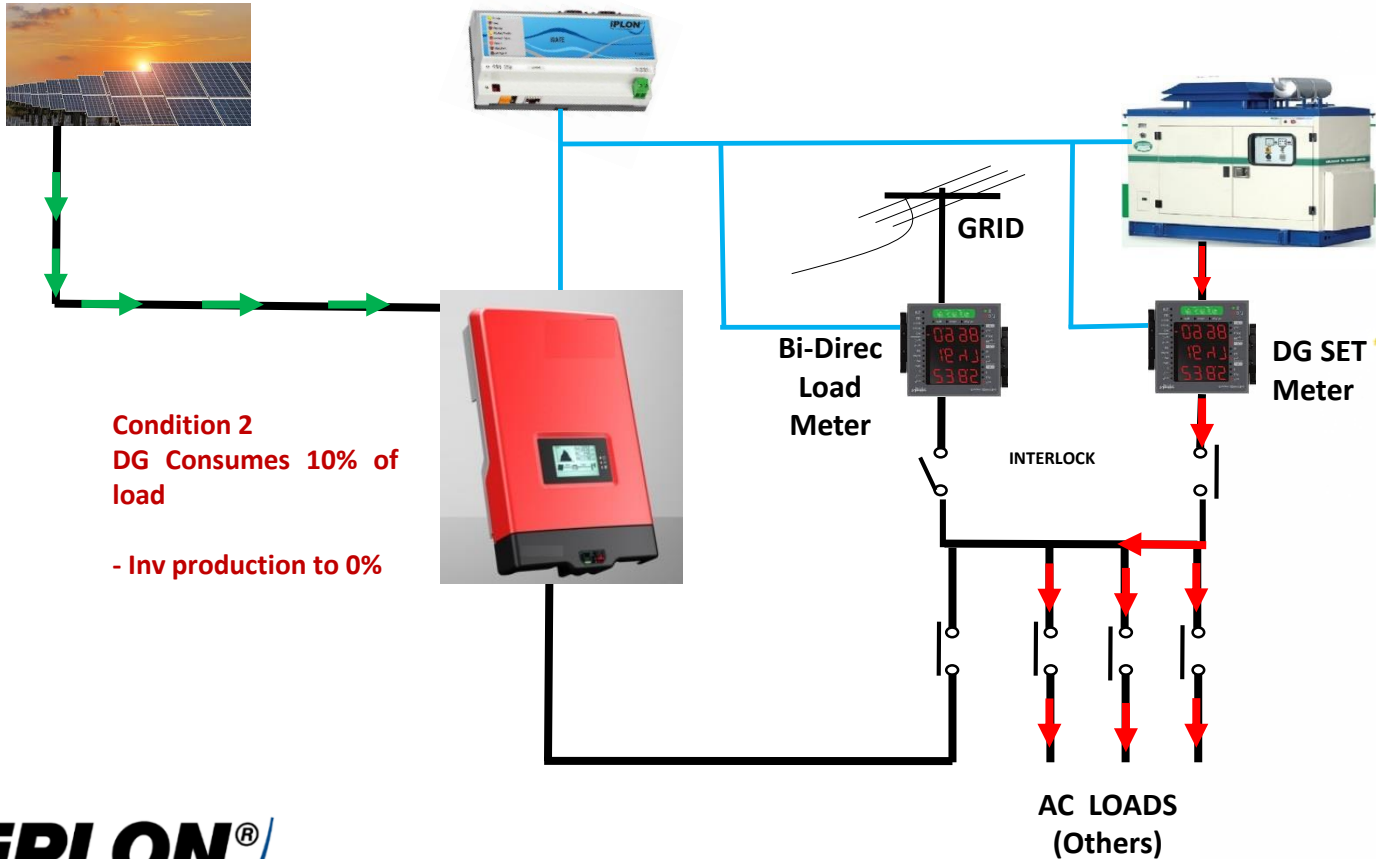
How it Works



PV-DG Hybrid Power System



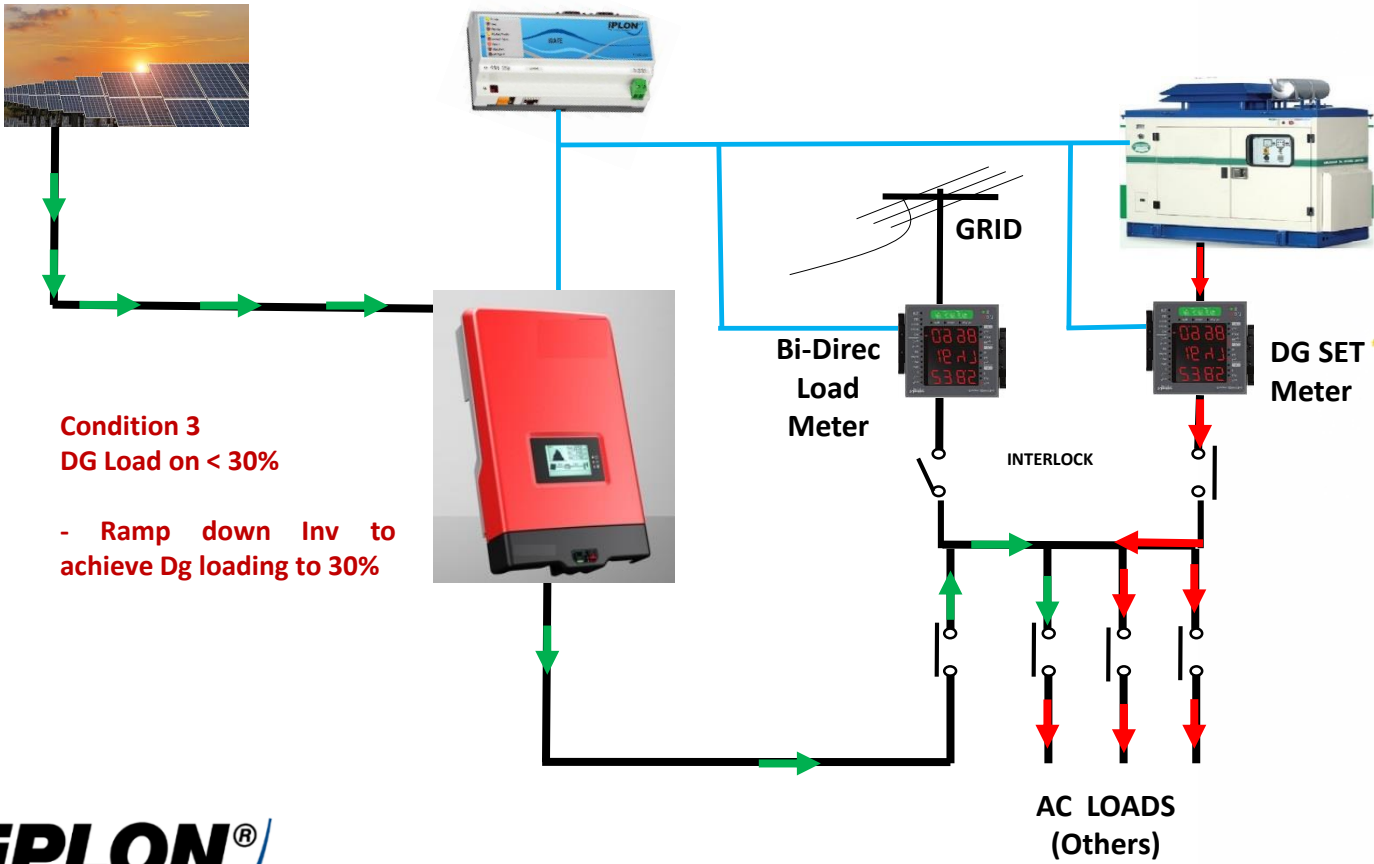
PV-DG Hybrid Power System



Condition 2
DG Consumes 10% of
load

- Inv production to 0%

PV-DG Hybrid Power System



Condition 3
DG Load on < 30%

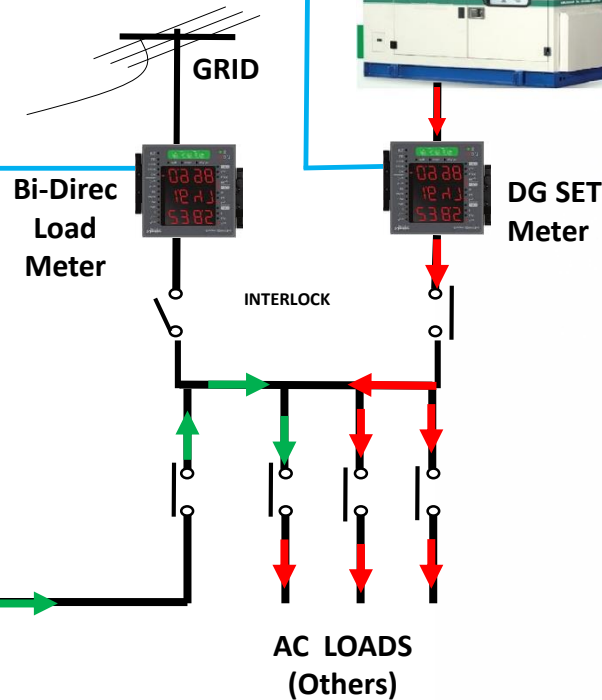
- Ramp down Inv to achieve Dg loading to 30%

PV-DG Solar Power System



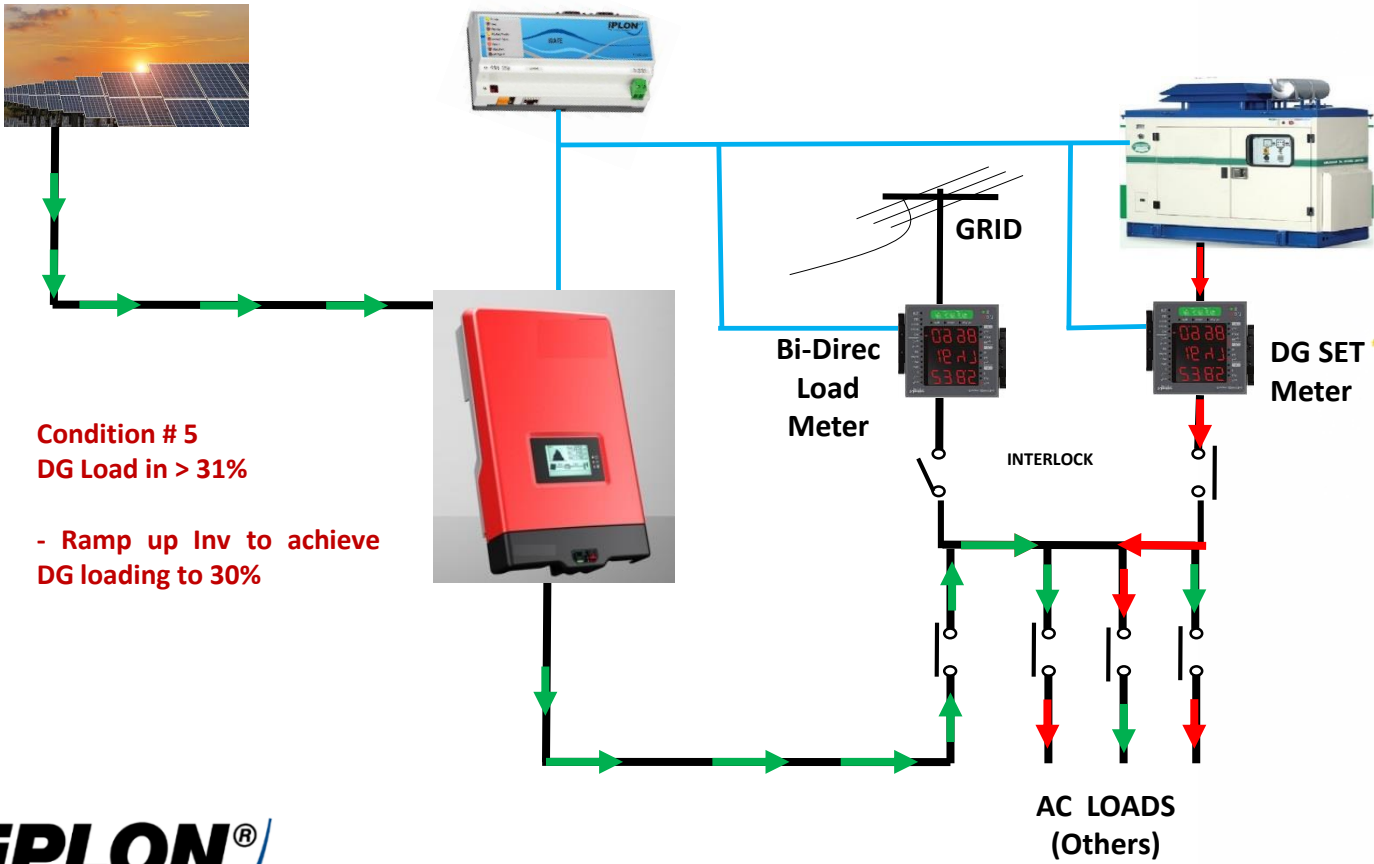
Condition 4
DG Load on 30% - 31%

- No change in Inv Power control command



— Communication Cable

PV-DG Hybrid Power System



Condition # 5
DG Load in > 31%

**- Ramp up Inv to achieve
DG loading to 30%**

PV-DG Hybrid Power System



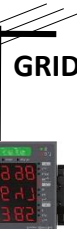
Communication Open

Fail Safe Logic:

If Feedback meters comm.
breaks – Inv to 0%



Bi-Direc
Load
Meter



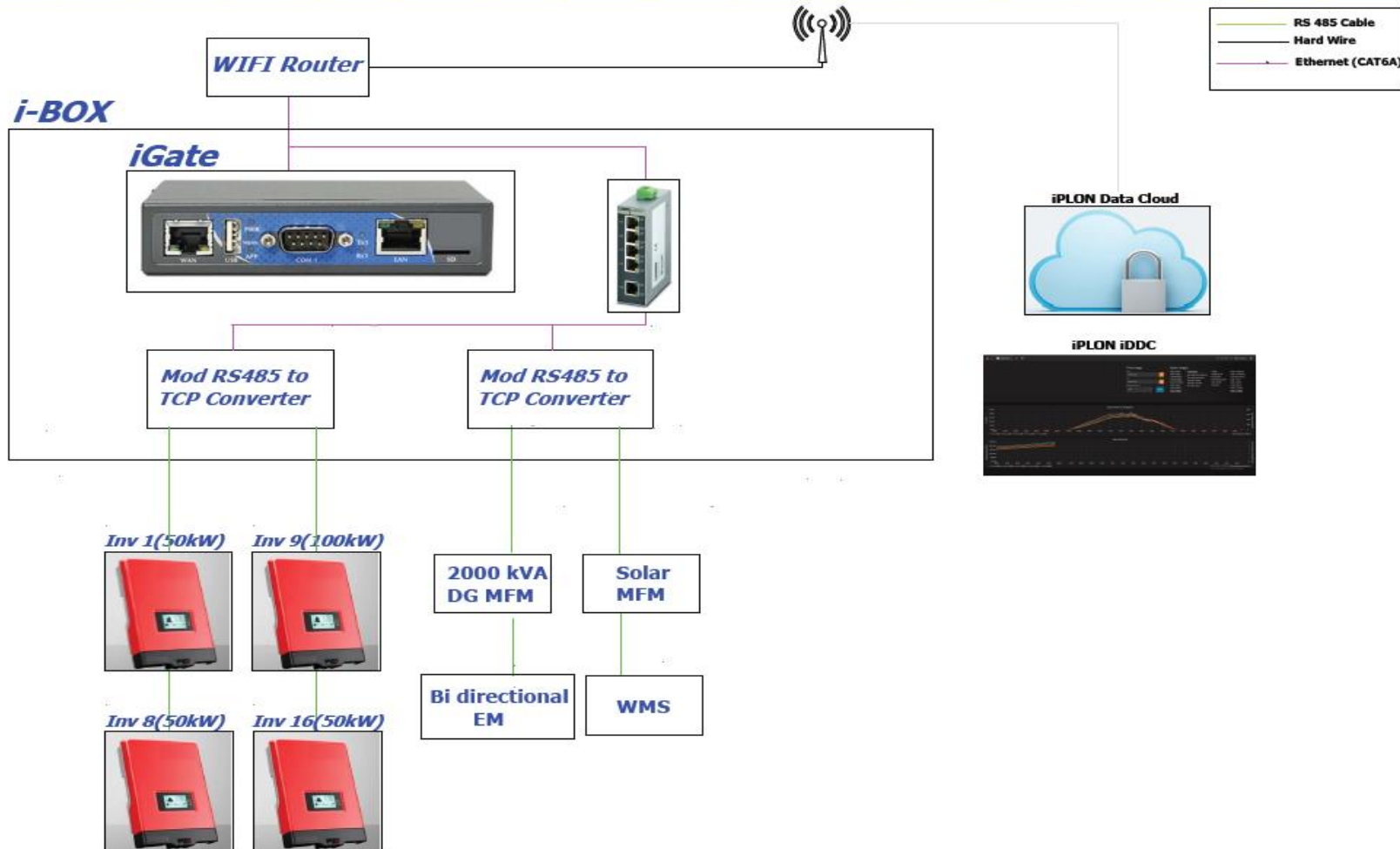
DG SET
Meter

INTERLOCK

AC LOADS
(Others)

— Communication Cable

Plant Communication Architectural Diagram



PLANT Details

PV Capacity - 800 kW (16 INV)

DG Capacity - 2000 kVA

DG_MIN_LOAD – 30% of 2000kVA (600 kW)

DG_CRITI_LOAD – 10% of 2000kVA (200 kW)

PV_POW_LIMIT 0 % - 100%



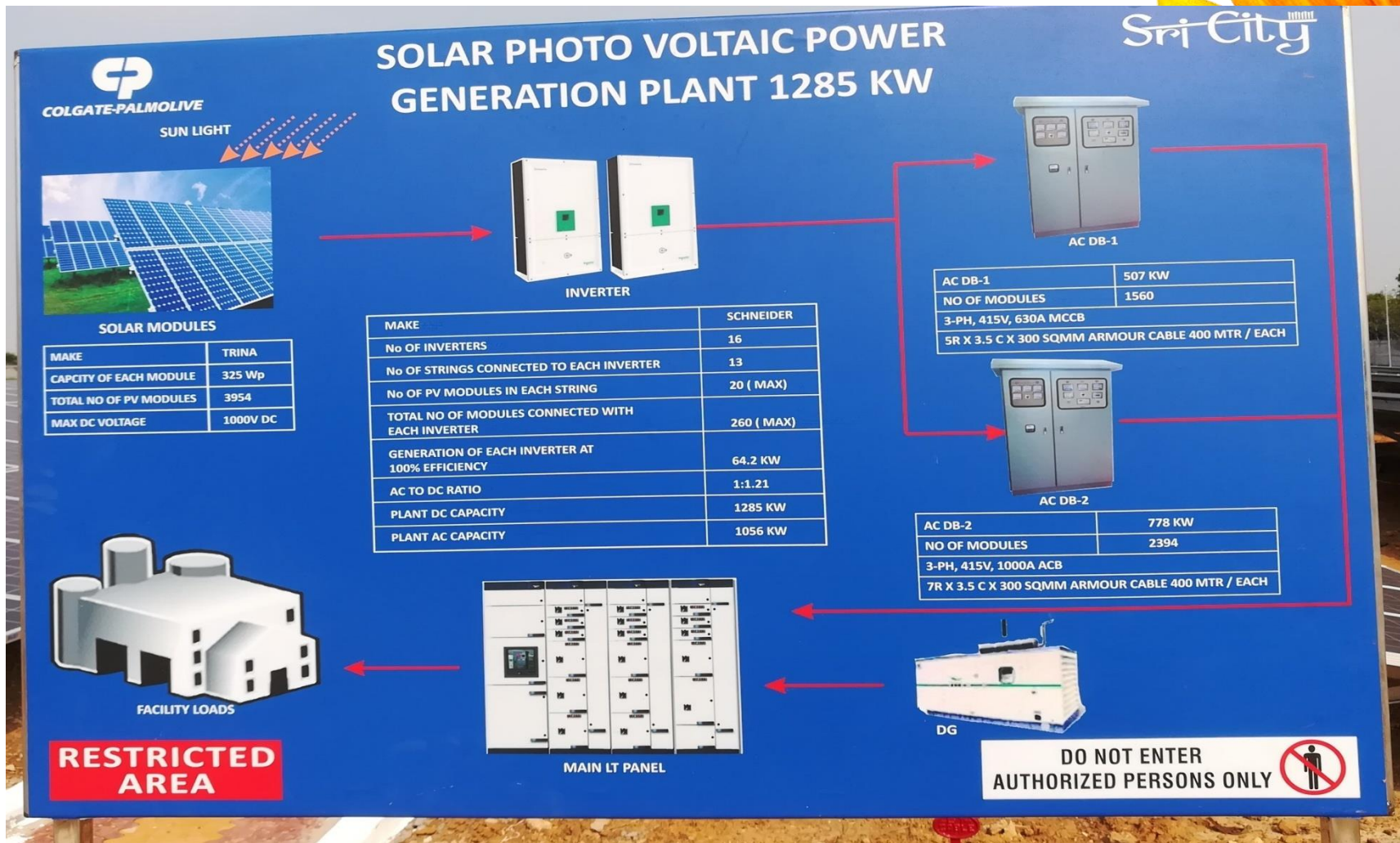
PV-DG Controller Installed Sites



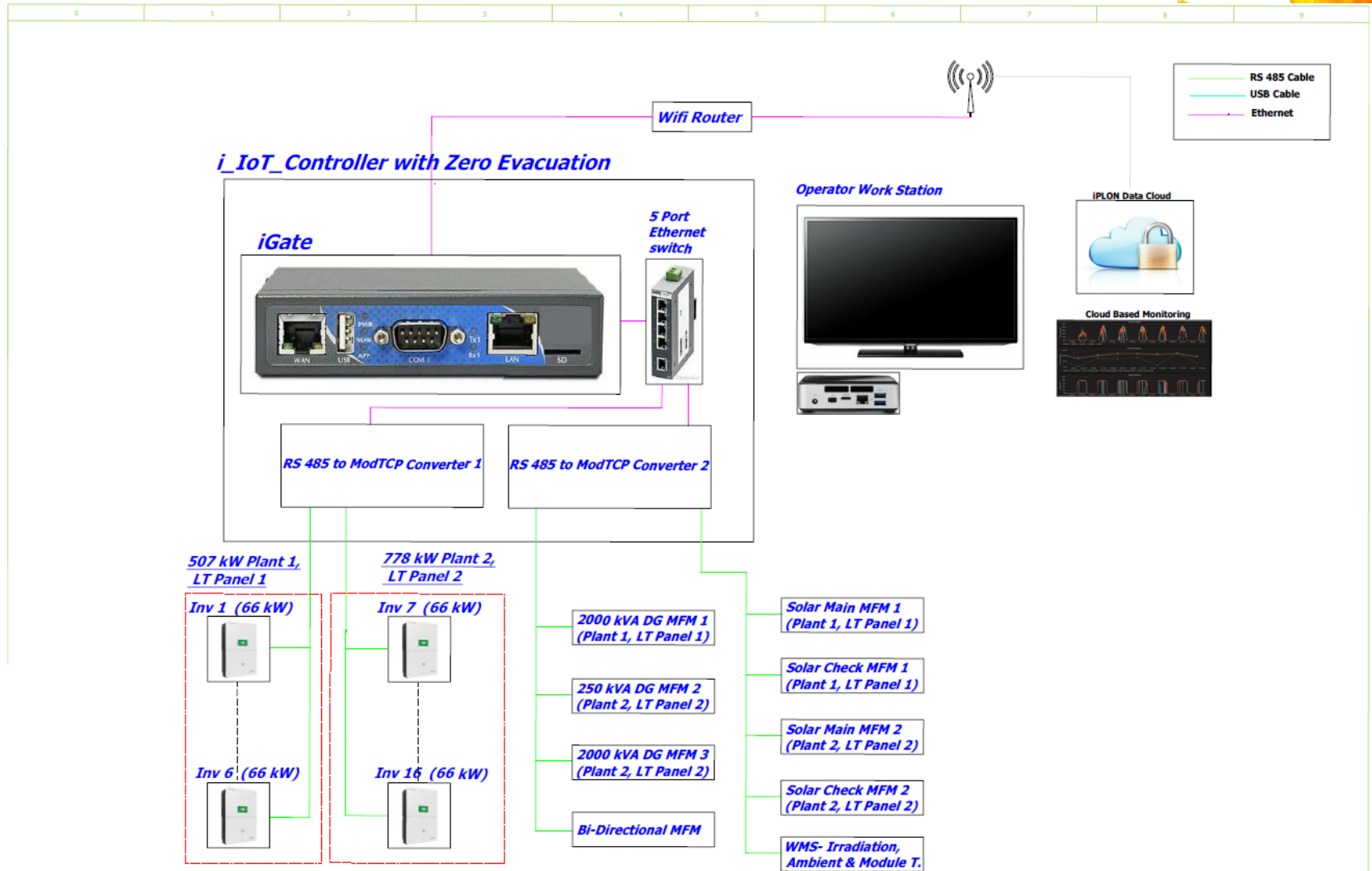
Colgate plant Sricity, Plant Layout.



Colgate Plant Description.



Colgate Plant Communication Architectural Diagram



+INH/1.e

Draft		Datum	29.08.2018	1.2 MW PV-DG+ZE, SriCity	iPLON GmbH	Architecture Single Line Diagram	Please note indicative but not actual	=	1.1
		Bearb.	Sreenath C	Thermax	Karl-Kurz-Strasse 36,			+	
		Gepr.			74523 Schwäbisch Hall				
Änderung	Datum	Name	Urspr	Ersetzt durch	Ersetzt durch		Drawing 1001		Blatt 1
									Blatt 1

Inverter's @ site



2 * 2000 kVA DG



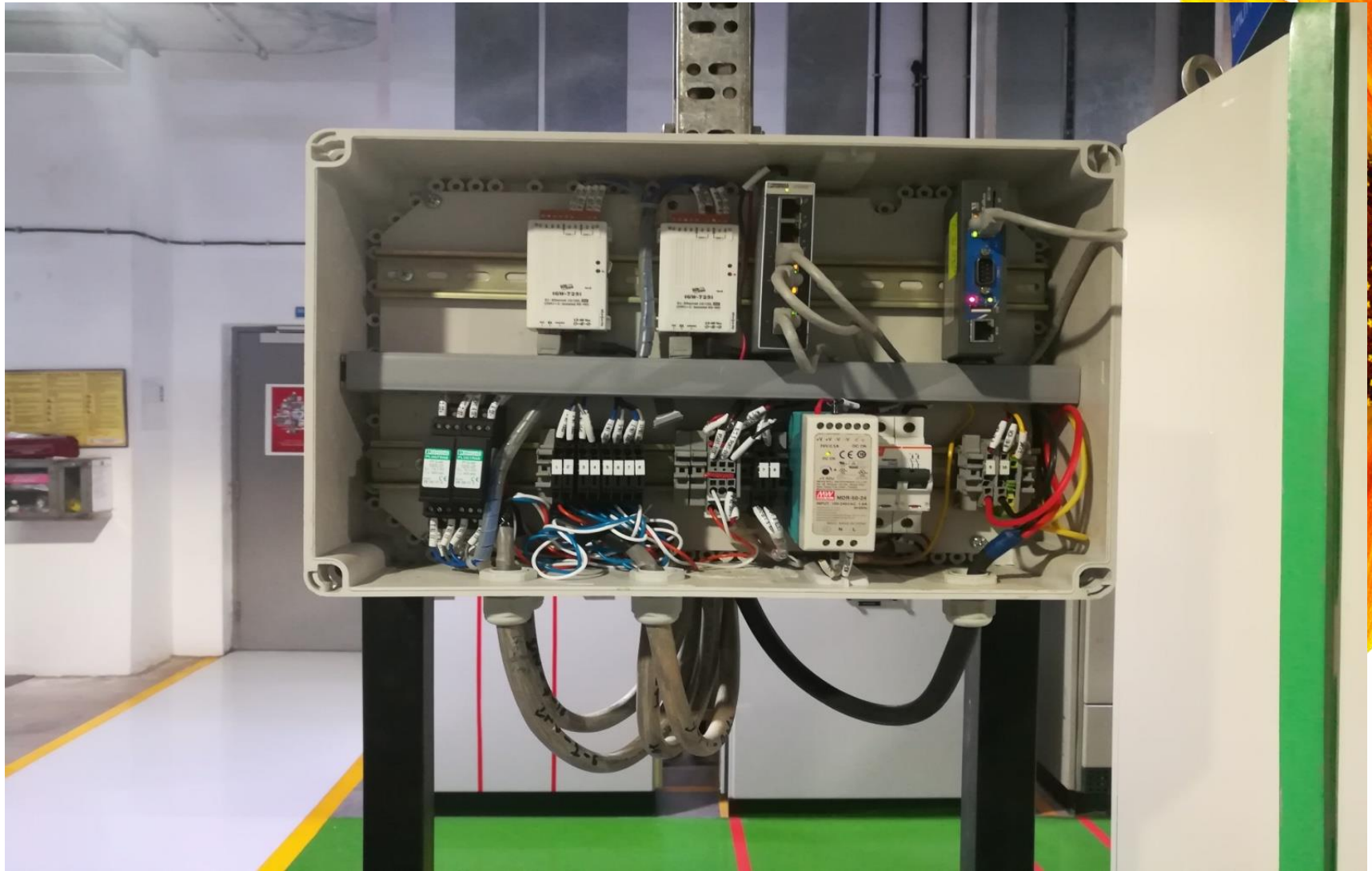
500 kVA DG



DG Multifunction meter



PV-DG controller installing



PV-DG Controller @ site



Monitoring @ Colgate



Colgate PV DG philosophy

Plant Details:

➤ PV Plant Capacity :-

Solar –16 Inverters – 1285kWp

➤ Total DG – :-

DG 1 CAPACITY – 2000kVA

DG 2 CAPACITY – 500kVA

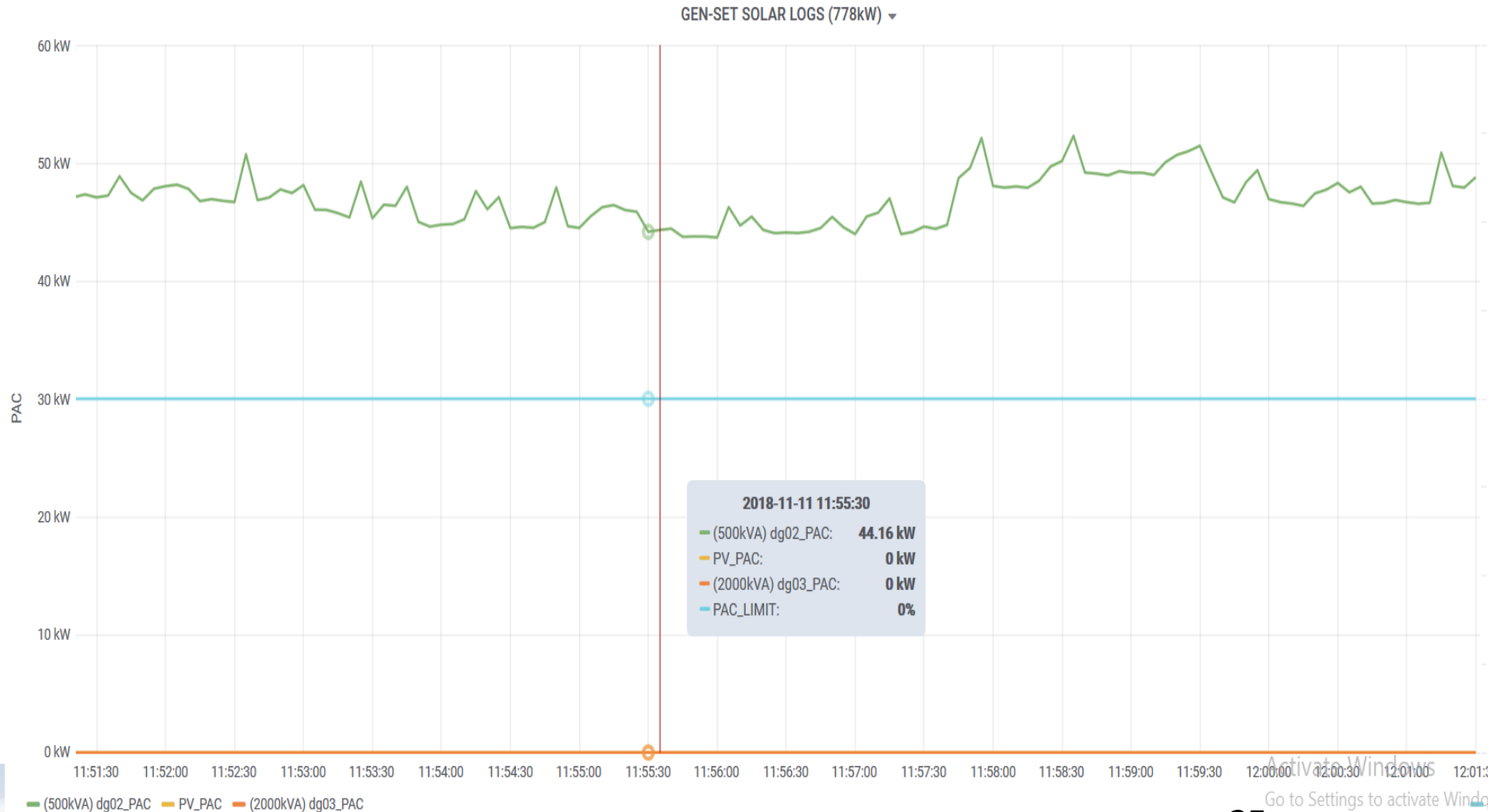
DG 3 CAPACITY – 2000kVA

SI No.	Source – Power Supply	Load Bus Active Max Power (kVA)	Bus Bar Active (BC)	Test Cases	Solar System controlled
1	Grid	-	-	0	Control Plant 1 & 2-16 INV
2	DG 1	< 2000	-	1	Control Plant 1-6 INV
3	DG 2	< 500	-	2	Control Plant 2-16 INV
4	DG 3	< 2000	-	3	Control Plant 2-16 INV
5	DG 2 & 3	< 2500	-	4	Control Plant 2-16 INV



500kVA- DG Active power < DG Critical load (10%), Inverters at 0 kW

Energy Meter Energy Meter Frame Inverter Inverter Frame Plant Overview Trends Weather Station Inverter String Details Plant Performance System view Documentation Plant E



500kVA - Dynamic Inverter control maintaining DG @set point

Plant Energy Flow

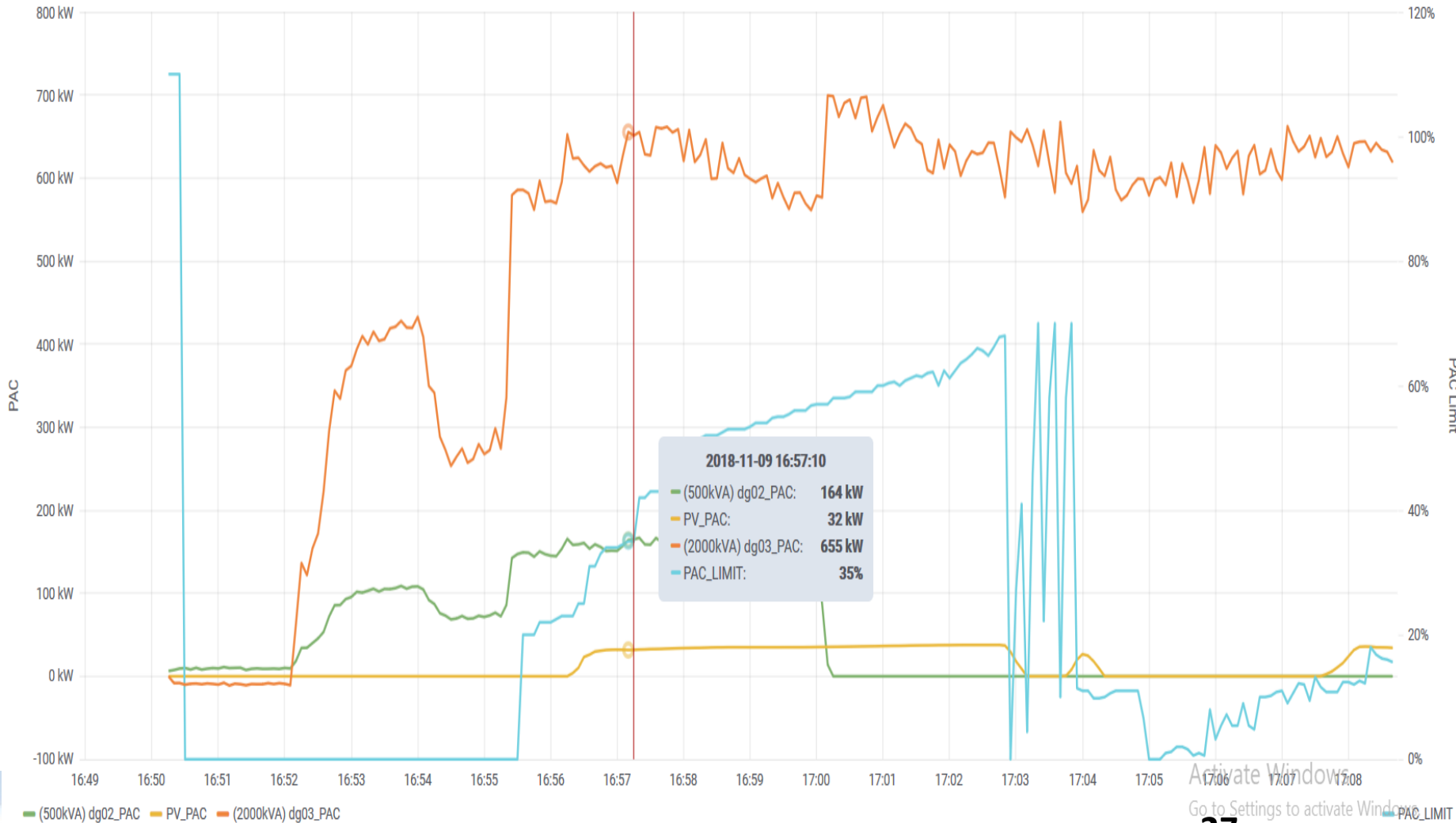
GEN-SET SOLAR LOGS (778kW)



Activate Windows
Go to Settings to activate Windows

500kVA & 2000kVA - Dynamic Inverter control maintaining DG's @set point

GEN-SET SOLAR LOGS (778kW) ▾





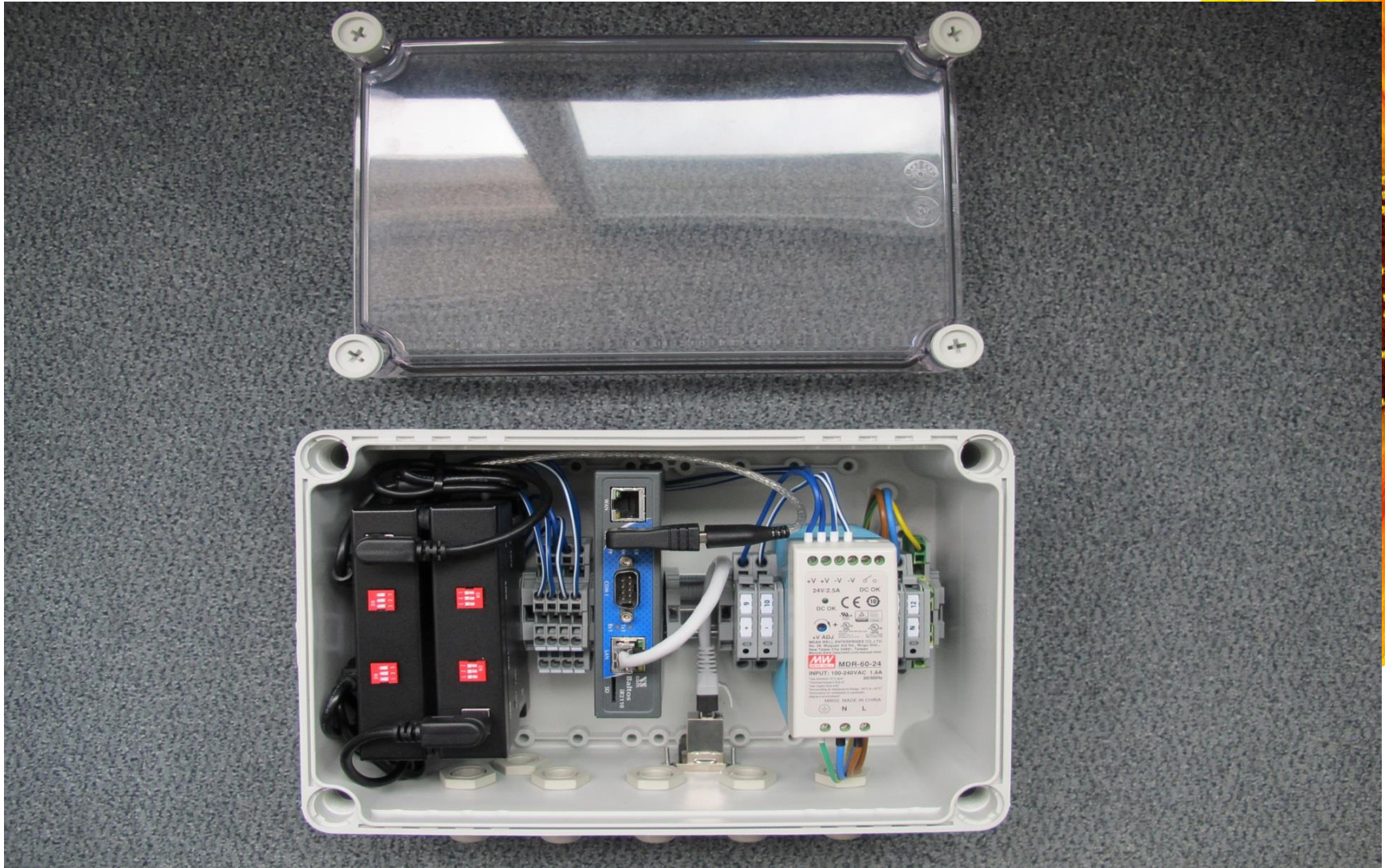
Colgate Live Demo

<http://pv-india.eu:3001>

13 + Walmart India



PV-DG Systems for Walmart



PV-DG Hybrid Projects

(Specified from list above)

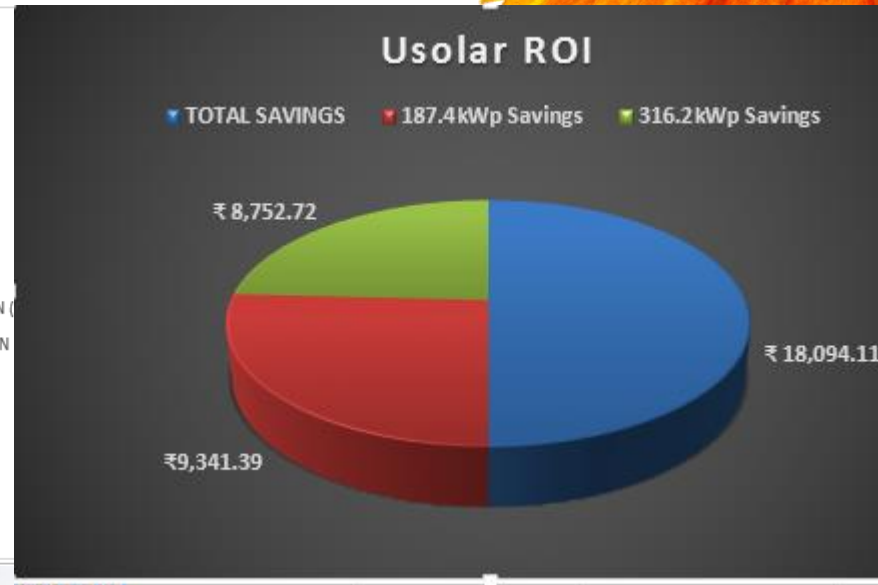
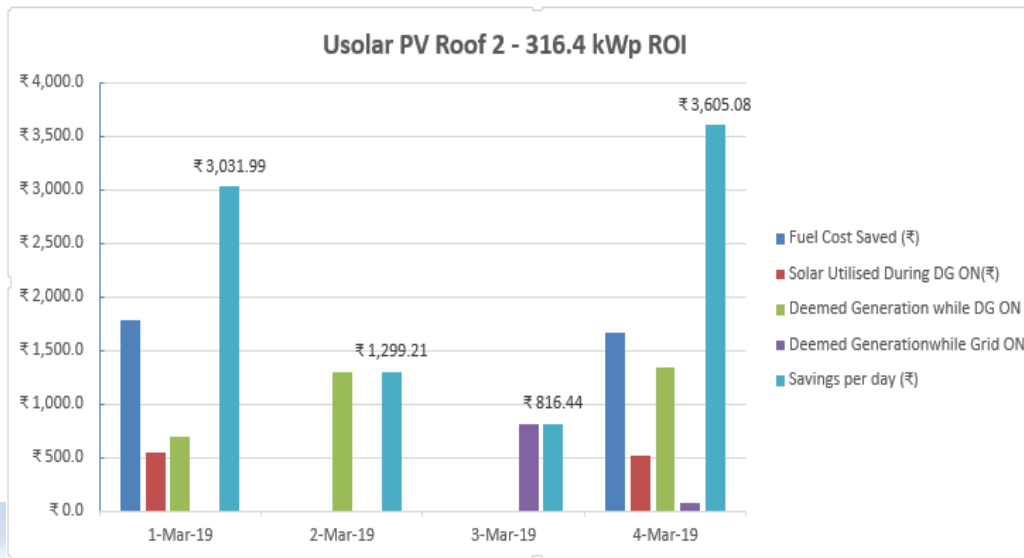
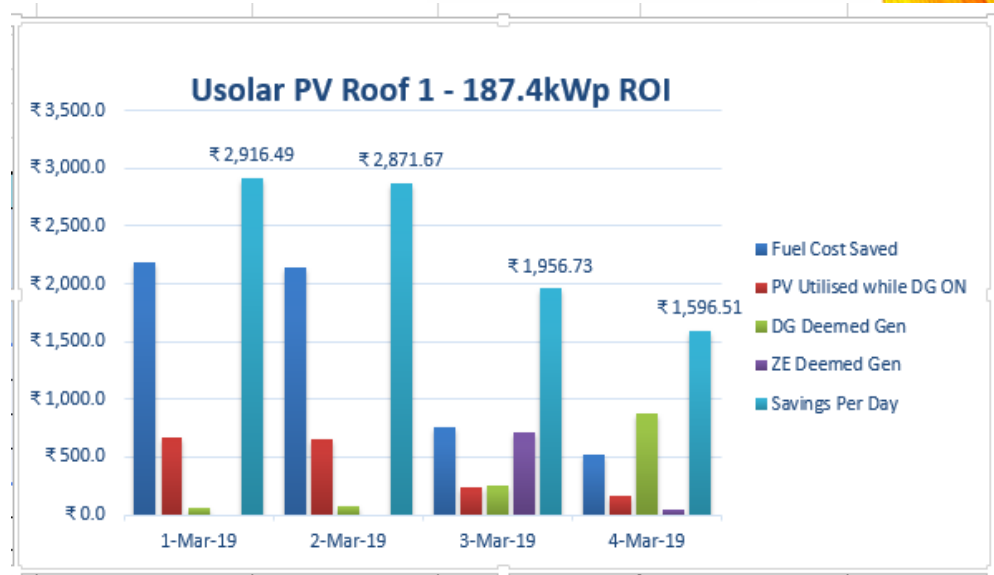
Customer <i>Amplus</i>	Location	Capacity (MW)
	Meerut 1; 2 DG	
	Raipur; 2 DG	
	Agra 1; 2 DG	
	Agra 2; 2 DG	
	Kota; 2 DG	
	Guntur; 2 DG	
	Amristar; 2 DG	
	Bhantinda; 2 DG	
	Bhopal; 2 DG	
	Indore; 2 DG	
	Jalandar; 2 DG	
	Ludhiana; 2 DG	
	Zirakpur; 2 DG	
	Gurgaon; 1 DG	
	Haryana; 1 DG	
	Meerut 2; 1 DG	
	Roorkee; 5 DG	
	Noida; 2 DG + ZE	
	Cumulative	16.2



PV-DG-ZE ROI

Plant Name	Natural Remedies_503.6kWp
PV1 Capacity	187.4 kWp
DG1 Capacity	500 kVA
DG2 Capacity	180 kVA
Total DG Capacity	680kVA

PV2 Capacity	316.2 kWp
DG1 Capacity	750 kVA
DG2 Capacity	250 kVA
Total DG Capacity	1000 kVA



iPLON PV DG Versions

- Single DG & PV
- Two DG (Non synchronized) & PV
- Multiple DG's (synchronization) & PV
- Multiple DG's (Non synchronized) & PV
- Single DG, ZE & PV
- Two DG (Non synchronized), ZE & PV
- Multiple DG's (synchronization), ZE & PV
- Multiple DG's (Non synchronized), ZE & PV



PRODUCT FEATURES- Commercial

- Extended to Multiple DG sets
- Compatible with all leading inverter OEM
- iPLON Cloud services – Remote monitoring of plant
- Scalable system (kW to MW scale installations)
- Fuel savings by maximizing solar output without compromising DG efficiency
- Site specific customization
- Best fit – commercial & future needs

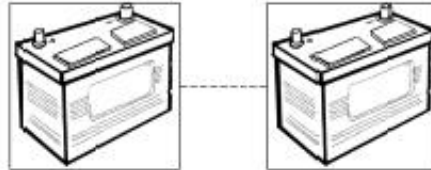


iPLON Micro Grid Solutions_iMGS

Solar PV Inverters



Battery Bank



Power Grid



Diesel Generator



Supply Side Management

i-IoT



Micro Grid Controller

i-IoT



Demand Side Management



EV Charging Station



Cold Storage/Compressor Load



Non Critical Load



Critical Load

Thank You!

www.iplon.in

<http://re2tn.org/>

www.youtube.com/user/iPLONChannel

