

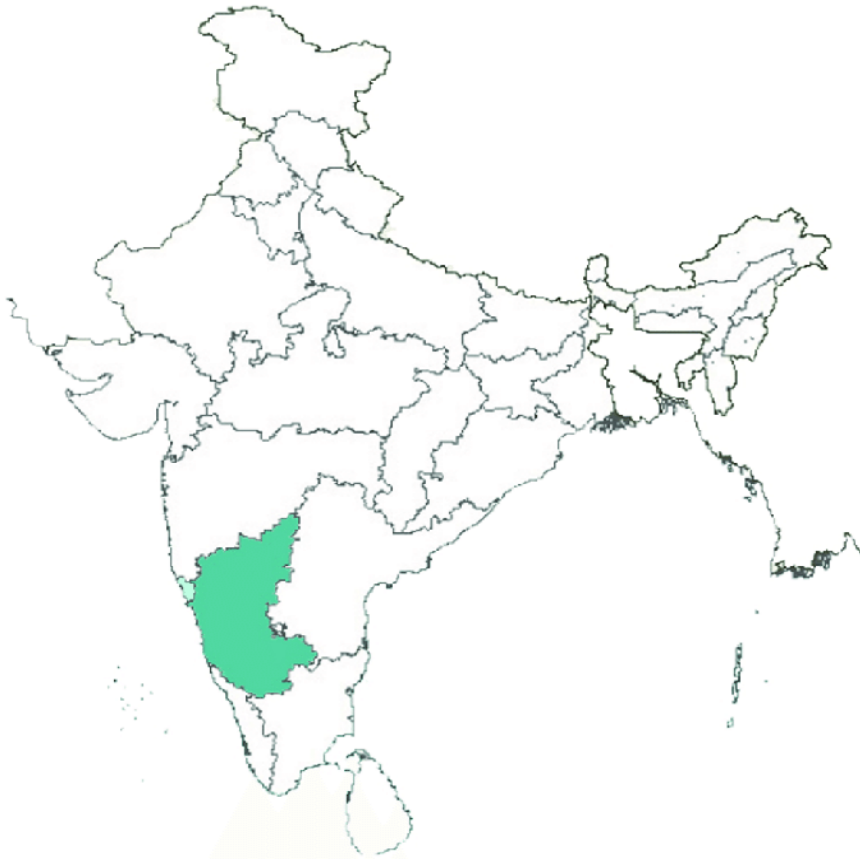
# iPLON's Workshop on “ Grid stability (micro-grid) based solutions for a smart-city environment “

Bharathwaaj Jagannathan  
Technical Sales – Karnataka



# Why are we here??

## iPLON's foothold in Karnataka

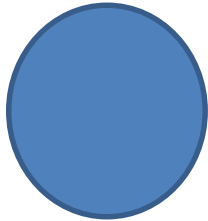


- 150 rooftop plants
- 500mw utility plants
- 1 pv doctor (bellary)
- 1 pv nurse (bangalore)\*

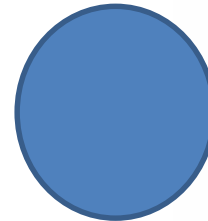


# Stakeholders in this room!

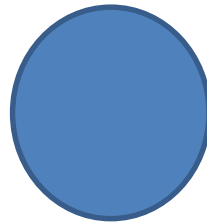
EPC



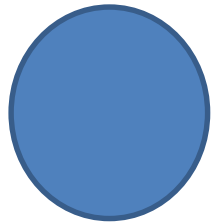
Inverter OEM



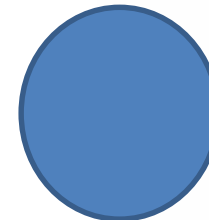
Utility



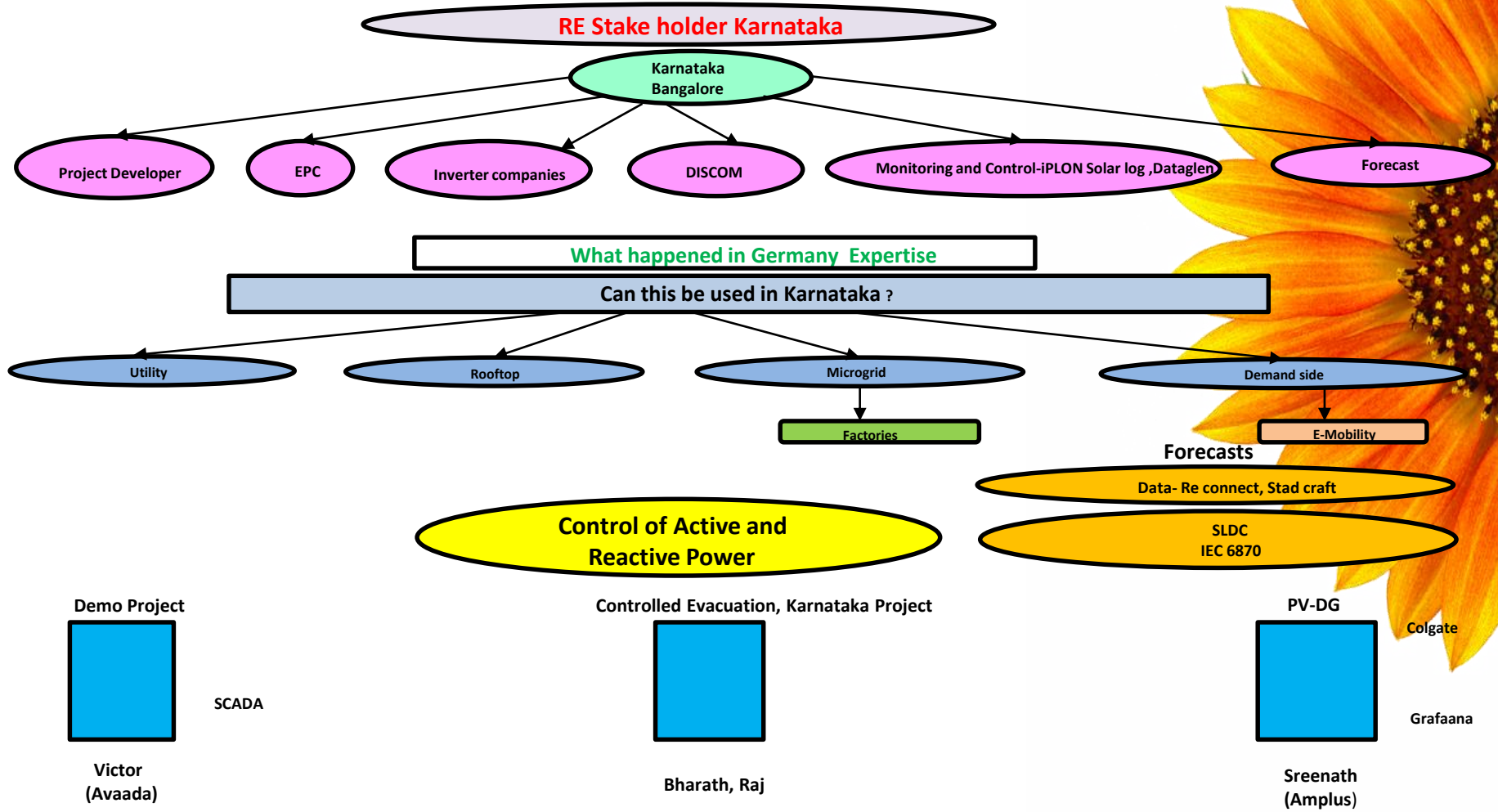
Project developers



Distributors



# Introduction





# Overview of presentation

- 1 day programme
- Here is the agenda!!
- Our friends (avada and amplus) has given ppt and we will do it ) – taken over by victor and Srinath
- Mix of ppts and live demonstrations



# About iPLON!



SchwäbischHall



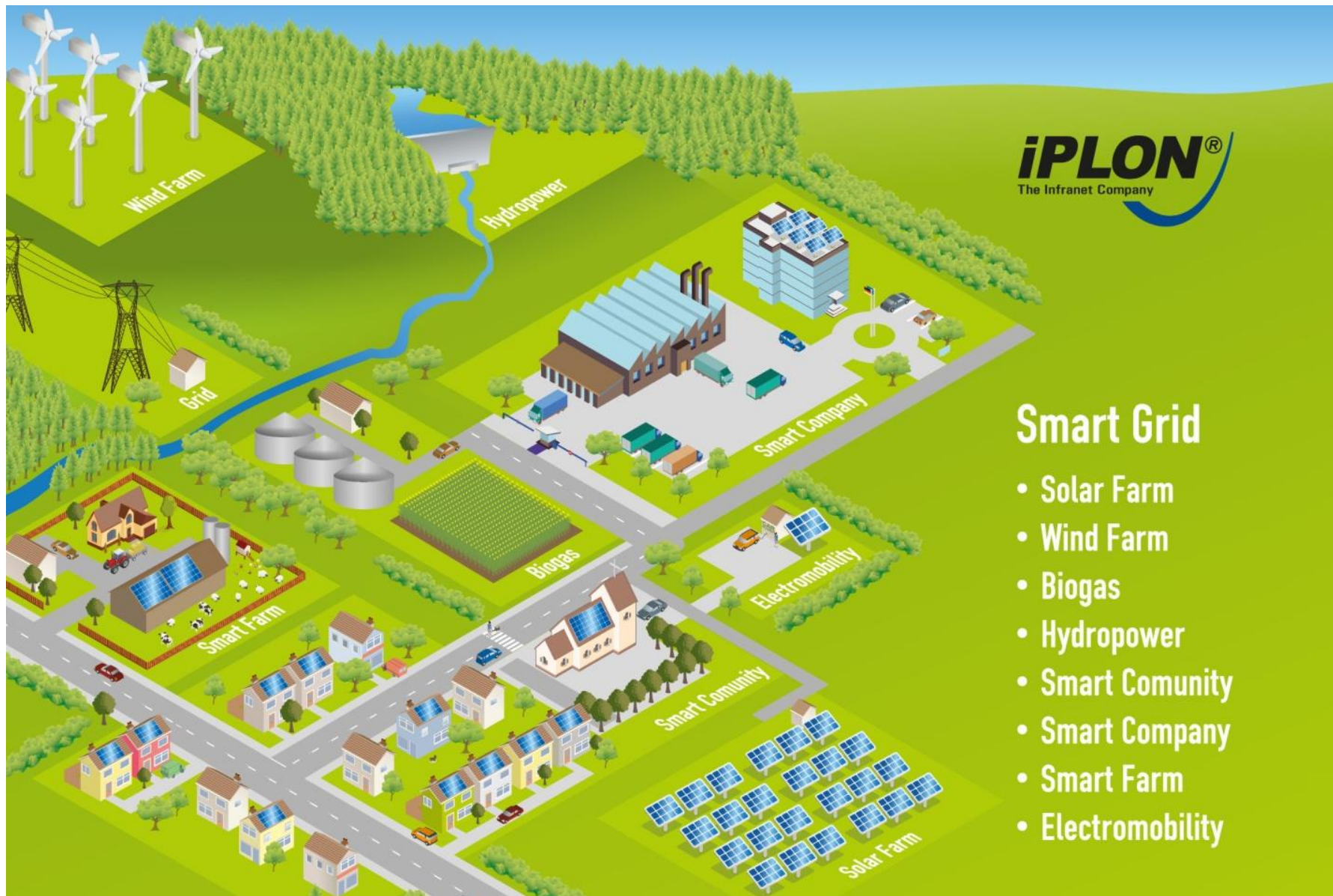
iPLON's inspiration

Small is beautiful !!

- A Book by E.F Schumacher







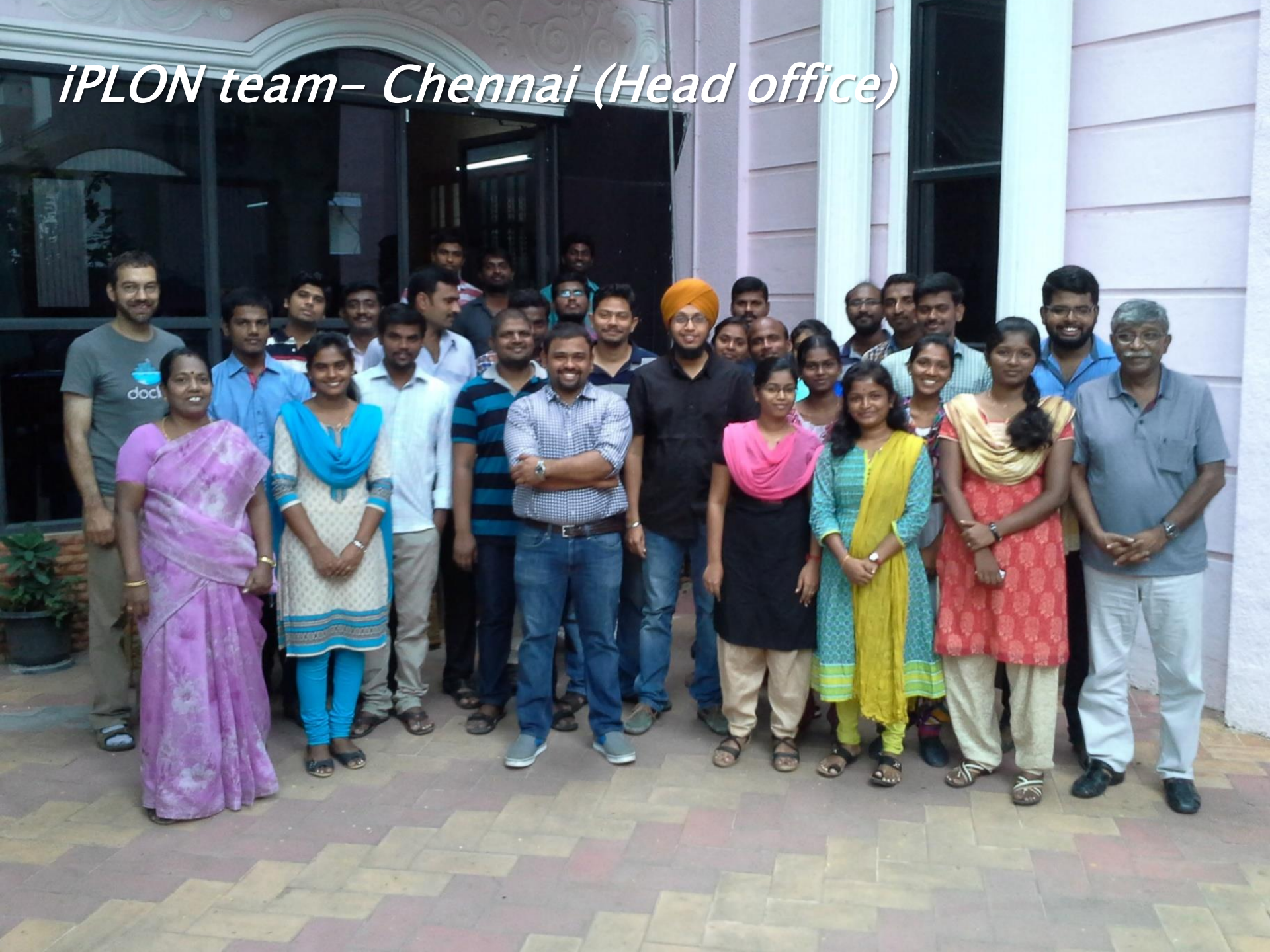
**iPLON®**  
The Infranet Company

## Smart Grid

- Solar Farm
- Wind Farm
- Biogas
- Hydropower
- Smart Community
- Smart Company
- Smart Farm
- Electromobility



# *iPLON team- Chennai (Head office)*



# Products and services - Verticals

kW to GW approach – One stop for all your monitoring and control needs!!

- Rooftops
- Pv dg
- Demos
  - SCADA 150 MW
  - PV DG ( amplus and colgate.... )
  - Rootops / zero evacuations
  - Bangalore projects





# iPLON's structure

***Asset management***

Pv nurse and doctor

***Asset creation***

Utility team




Micro-grid team

Central monitoring systems





## iPLON Offices in INDIA

-  iPLON Head Office, Chennai
-  Customer Support, Gurgaon
-  Smart City Office, Gandhigram

## O&M Offices

-  Musiri, Tamilnadu
-  Tirunelveli, Tamilnadu
-  Anantapur, AP
-  Chitradurga, Karnataka
-  Neemuch, MP
-  Gorakhpur, UP
-  Ajmer, Rajasthan
-  Talwandi Sabo, Punjab





# What is a zero evacuation system?

A systems that prevents the reverse flow of power back into the grid !!





# Zero evacuation – A school in TN!

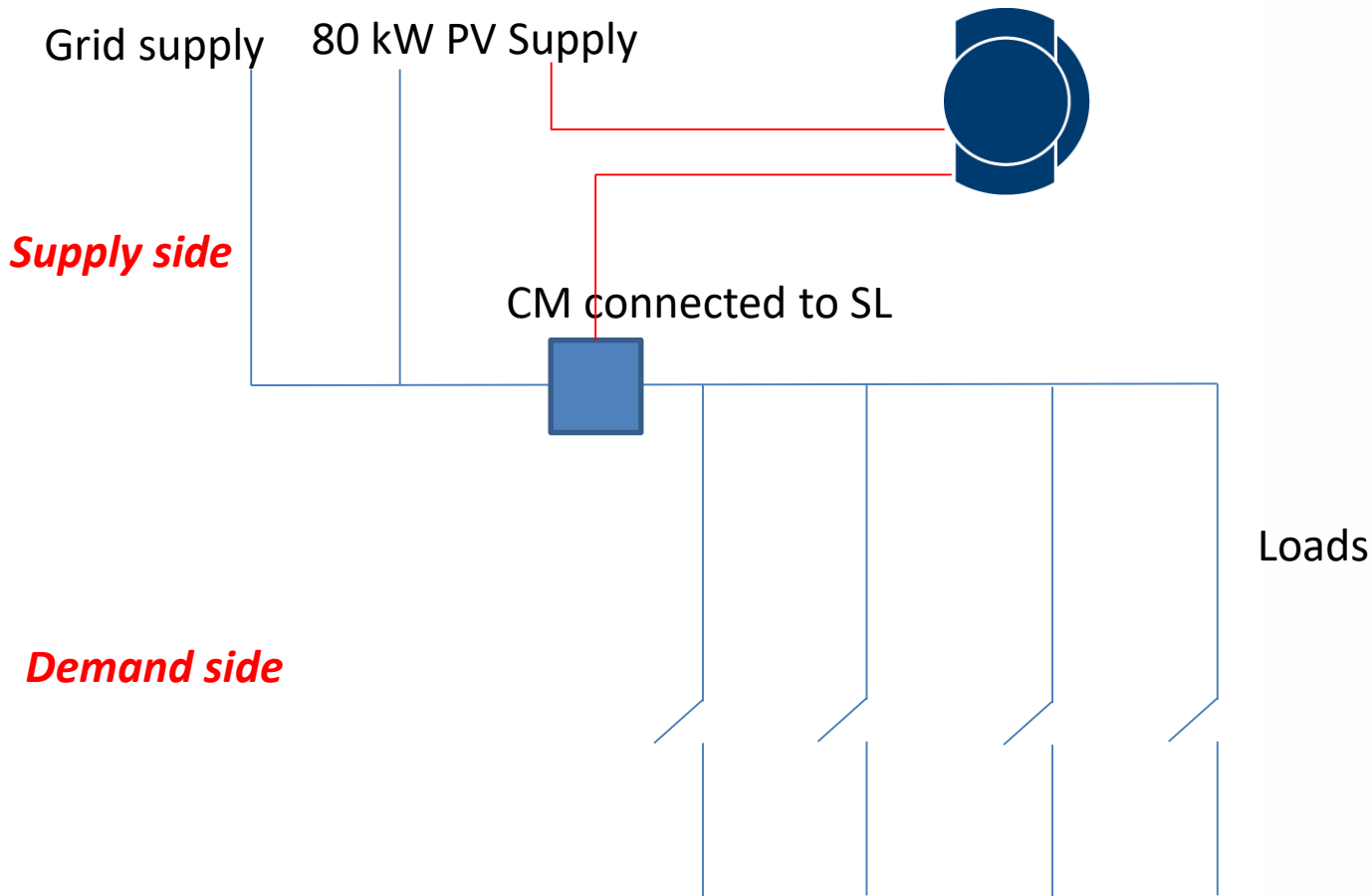


PV : 80 kW

Inverter : refusol

Energy meter : EM 6400S Schneider

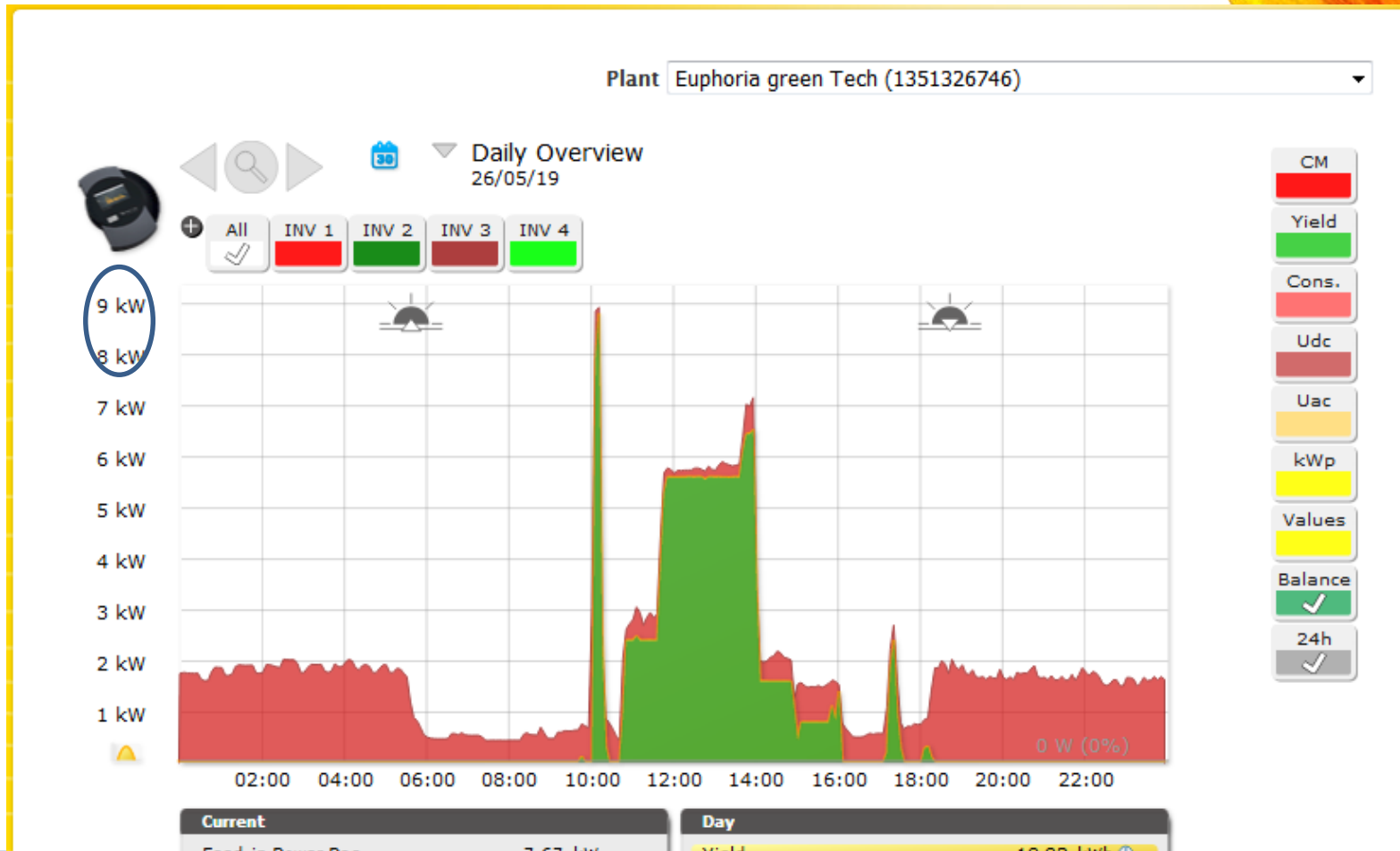
# Physical architecture



— Power lines  
— RS 485 lines

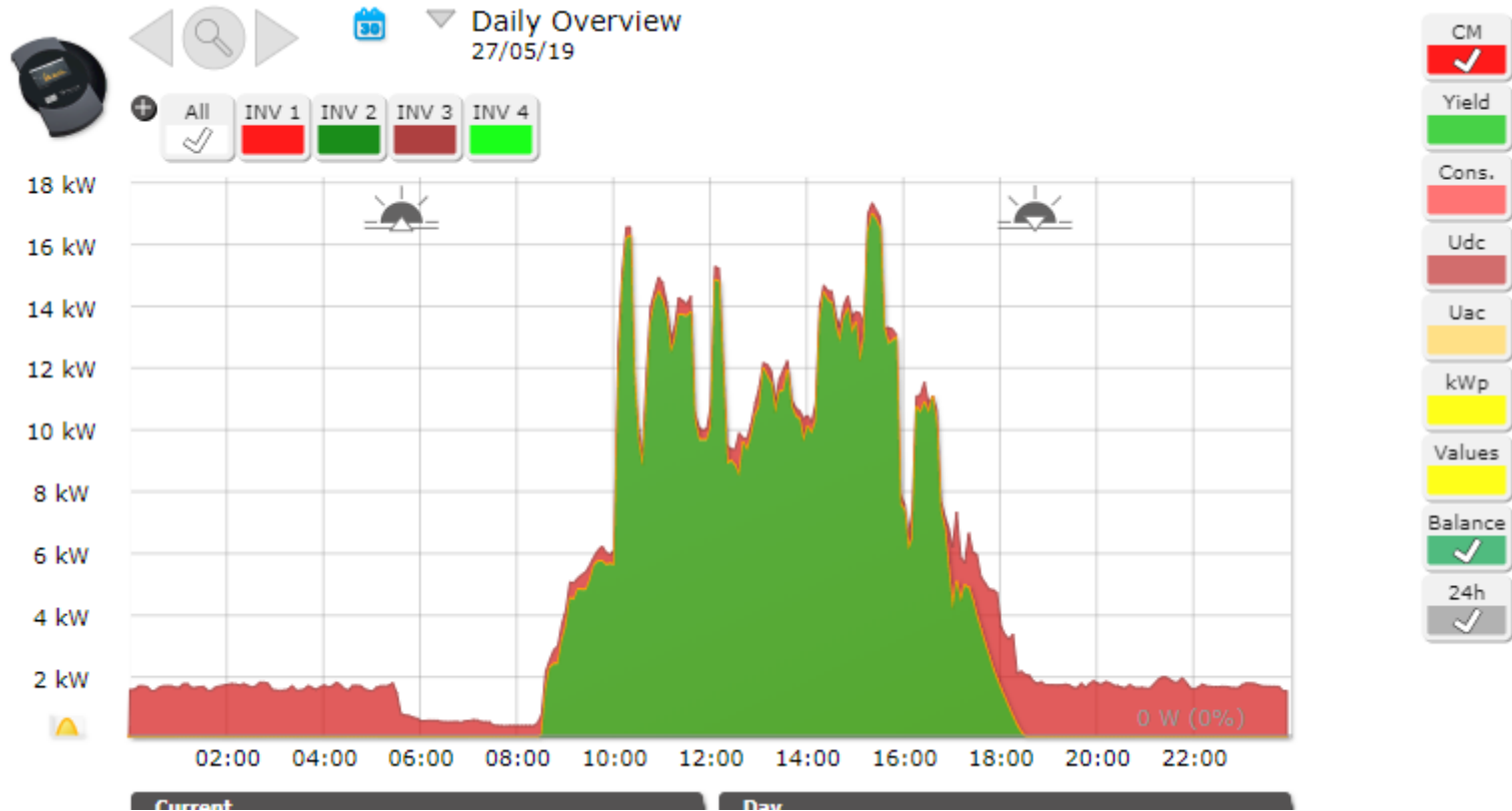
CM – Consumption meter

# 24hr Load curve vs PV during weekend (Sunday)





# 24 hr PV and load curve during weekday (Monday)!



# Electricity charges before iPLON ZE

CONSUMER NAME: M KALAIARASI

CONSUMER NUMBER: 06468004481

REGION	06-Trichy	PHASE	3	SLAB RATE			
CIRCLE	444-Tanjore	LOAD	93.84 KW				
SECTION	468-AE/O&M/Mariamankoil	TARIFF	LM2B2	From Unit	To Unit	Rate (Rs.)	Max. Unit
DISTRIBUTION	004-Bypass	METER NUMBER	06508364				
SERVICE NUMBER	481	ACCD* AS ON Date/ SD Available for Refund or Adj.(Rs.)	165232 / NIL	1 Above		7.5	9999999
ADDRESS	W O K MUGESAN 20 201 7E BEST METRIC SCHOOL	MCD AS ON Date/ MCD Available for Refund or Adj.(Rs.)	2500 / 0	Min.Chrg:	0	Fixd.Cost:	120/KW
SERVICE STATUS	LIVE	SERVICE CATEGORY	OTHERS	BPSC*:	0	Welding.Chrg:	15%
				E.Tax:	5 % (CC + DPF + WD+RDFC)		

DUES TO BE PAID IS "NIL"

[CLICK HERE TO PAY ADVANCE \\*](#)

## Monthly Consumption Charge Collection Details

Assessment Date	Assessment Entry Date	KWH Reading	KVAH reading	Maximum Demand	Power Factor	Consumed Unit	CC Charges* (Rs.)	Other charges						Assessed Amount (Rs.)	Advance Amount (Rs.)	Adjustment Amount (Rs.)	Total Bill Amount (Rs.)	Due Date For payment	Amount Paid	
								ETAX (Rs.)	WD (Rs.)	EDC (Rs.)	DPF (Rs.)	FC (Rs.)	Total (Rs.)							
7/10/2017	27/10/2017	11532.64	12128.41	42.369	.96	5188.8	38916	2074.8	0	0	0	5640	7714.8	46631	0	0	46631	16/11/2017	46631	P
7/09/2017	27/09/2017	11359.68	11947.45	58.563	.96	6409.5	48071.25	2579.24	0	0	0	5630.4	8209.64	56281	0	0	56281	17/10/2017	56281	P
9/08/2017	29/08/2017	11146.03	11725.56	57.471	.95	7107	53302.5	2837.54	0	0	0	5630.4	8467.94	61770	0	0	61770	18/09/2017	61770	P
8/07/2017	28/07/2017	10909.13	11476	28.146	.9	4052.1	30390.75	1603.99	0	0	0	5630.4	7234.39	37625	0	0	37625	17/08/2017	37625	P
8/06/2017	28/06/2017	10774.06	11325.09	31.653	.89	3812.4	28593	1524.6	0	0	0	5630.4	7155	35748	0	0	35748	18/07/2017	35748	P
9/05/2017	29/05/2017	10646.98	11181.75	24.6	.86	2350.8	17631	955.35	0	0	0	5630.4	6585.75	24217	0	0	24217	19/06/2017	24217	T
8/04/2017	28/04/2017	10568.62	11090.22	21.387	.95	5333.4	40000.5	2064.2	0	0	0	5630.4	7694.6	47695	0	0	47695	18/05/2017	47695	P
8/03/2017	28/03/2017	10390.84	10902.63	32.076	.98	8839.8	66298.5	3411.17	0	0	0	5630.4	9041.57	75340	0	0	75340	17/04/2017	75340	T
7/02/2017	27/02/2017	10096.18	10601.02	24.921	.96	6518.1	48885.75	2519.05	0	0	0	5630.4	8149.45	57035	0	0	57035	20/03/2017	57035	T
1/01/2017	31/01/2017	9878.91	10375.46	26.55	.96	6468	48510	2505.15	0	0	0	5630.4	8135.55	56646	0	0	56646	20/02/2017	56646	T
9/12/2016	29/12/2016	9663.31	10151.6	37.698	.98	7657.5	57431.25	2984.66	0	0	0	5630.4	8615.06	66046	0	0	66046	18/01/2017	66046	T
8/11/2016	28/11/2016	9408.06	9890.05	38.973	.98	8988	67410	3487.41	0	0	0	5630.4	9117.81	76528	0	0	76528	19/12/2016	76528	T
8/10/2016	28/10/2016	9108.46	9584.61	39.84	.98	8830.5	66228.75	3430.96	0	0	0	5630.4	9061.36	75290	0	0	75290	24/11/2016	75290	T
8/09/2016	28/09/2016	8814.11	9284.3	31.143	.98	8976.9	67326.75	3459.76	0	0	0	5630.4	9090.16	76417	0	0	76417	18/10/2016	76417	T
0/08/2016	30/08/2016	8514.88	8978.65	31.587	.98	10799.4	80995.5	4144.55	0	0	0	5630.4	9774.95	90770	0	0	90770	19/09/2016	90770	T
9/07/2016	29/07/2016	8154.9	8611.9	31.332	.98	9941.7	74562.75	3822.13	0	0	0	5630.4	9452.53	84015	0	0	84015	18/08/2016	84015	T
9/06/2016	29/06/2016	7823.51	8273.99	30.852	.98	9705.3	72789.75	3732.04	0	0	0	5630.4	9362.44	82152	0	0	82152	19/07/2016	82152	T
7/05/2016	27/05/2016	7500	7943.5	22.143	.96	2450.1	18375.75	985.21	0	0	0	5630.4	6615.61	24991	0	0	24991	16/06/2016	24991	T
7/04/2016	27/04/2016	7418.33	7858.8	22.035	.97	3792.9	28446.75	1488.46	0	0	0	5630.4	7118.86	35566	0	0	35566	17/05/2016	35566	T
9/03/2016	29/03/2016	7291.9	7728.97	37.146	.99	9667.2	72504	3736.65	0	0	0	5630.4	9367.05	81871	0	0	81871	18/04/2016	81871	T
9/02/2016	29/02/2016	6920.68	7402.73	33.95	.99	8241.2	69568	3226.5	0	0	0	5630.4	8985.9	74446	0	0	74446	24/03/2016	74446	T



# Electricity charges after iPLON ZE

CONSUMER NAME: M KALAIARASI

CONSUMER NUMBER: 06468004481

REGION	06-Trichy	PHASE	3	SLAB RATE			
CIRCLE	444-Tanjore	LOAD	93.84 KW				
SECTION	468-AE/O&M/Mariamankoil	TARIFF	LM2B2	From Unit	To Unit	Rate (Rs.)	Max. Unit
DISTRIBUTION	004-Byepass	METER NUMBER	06508364				
SERVICE NUMBER	481	ACCD* AS ON Date/SD Available for Refund or Adj.(Rs.)	182863 / NIL	1	Above	7.5	9999999
ADDRESS	W O K MUGESAN 20 201 7E BEST METRIC SCHOOL	MCD AS ON Date/ MCD Available for Refund or Adj.(Rs.).	2500 / 0	Min.Chrg:	0	Fixd.Cost:	120/KW
				BPSC*:	0	Welding.Chrg:	15%
				E.Tax:	5 % (CC + DPF + WD+RDFC)		
SERVICE STATUS	LIVE	SERVICE CATEGORY	OTHERS				

DUES TO BE PAID IS "NIL"

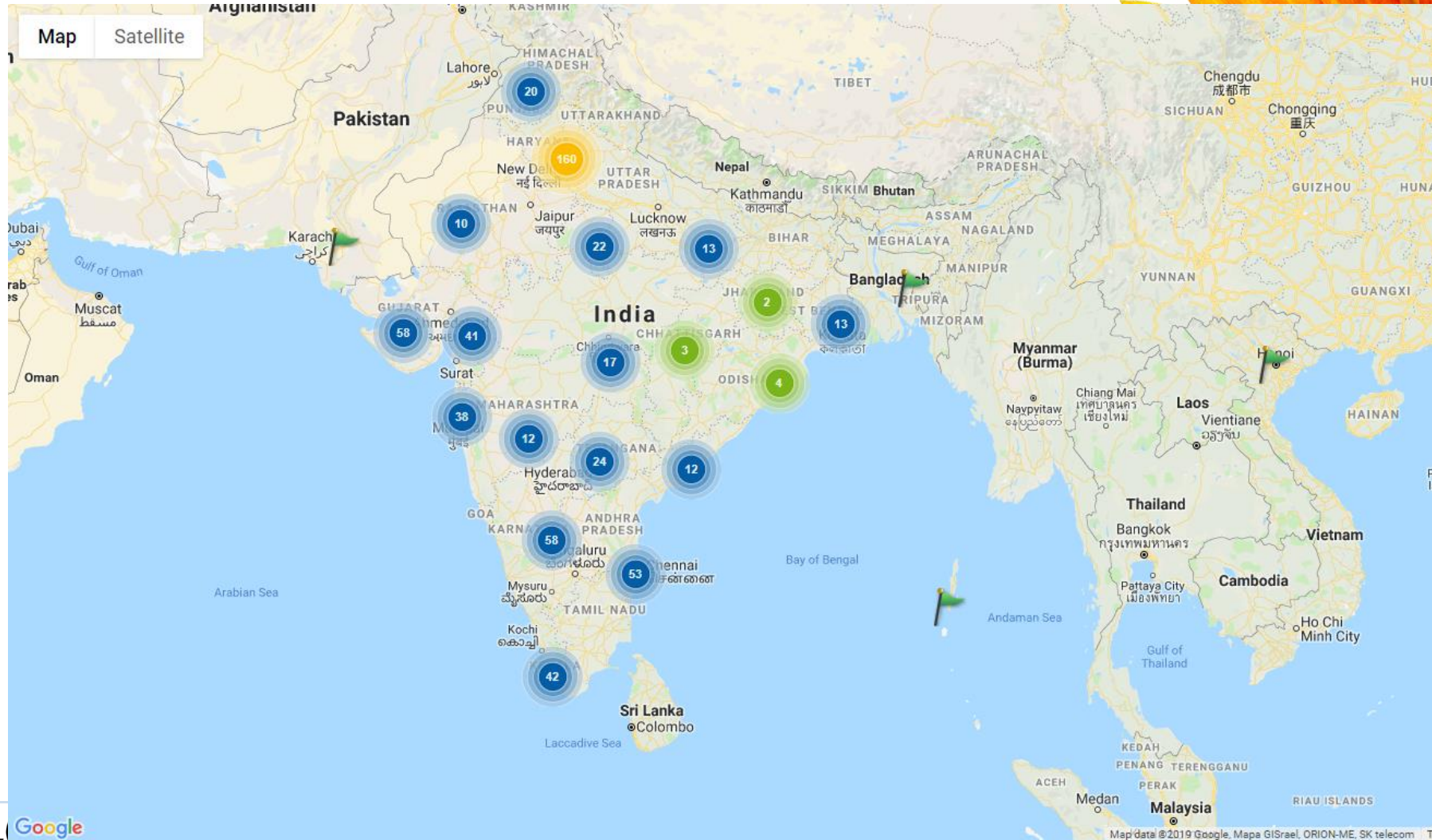
[CLICK HERE TO PAY ADVANCE \\*](#)

## Monthly Consumption Charge Collection Details

nt	Assessment Entry Date	KWH Reading	KVAH reading	Maximum Demand	Power Factor	Consumed Unit	CC Charges* (Rs.)	Other charges						Assessed Amount (Rs.)	Advance Amount (Rs.)	Adjustment amount (Rs.)	Total Bill Amount (Rs.)	Due Date For payment	Amount Paid	
								ETAX (Rs.)	WD (Rs.)	EDC (Rs.)	DPF (Rs.)	FC (Rs.)	Total (Rs.)							
9	29/04/2019	12568.82	13497.71	18.168	.62	1494.8	11211	617.55	0	0	0	5640	6257.55	17469	0	0	17469	20/05/2019	17655	P
9	29/03/2019	12531.45	13437.53	8.744	.54	1188.4	8913	472.65	0	0	0	5640	6112.65	15026	0	0	15026	20/04/2019	15026	P
9	27/02/2019	12501.74	13382.24	14.628	.69	2064.8	15486	819.3	0	0	0	5640	6459.3	21945	0	0	21945	19/03/2019	21945	P
9	28/01/2019	12450.12	13307	21.788	.6	1313.6	9852	558.6	0	0	0	5640	6198.6	16051	0	0	16051	18/02/2019	16051	P
8	28/12/2018	12417.28	13251.97	26.84	.71	2242	16815	921.75	0	0	0	5640	6561.75	23377	0	0	23377	18/01/2019	23377	P
8	27/11/2018	12361.23	13172.71	32.24	.92	2560	19200	1059	0	0	0	5640	6699	25899	0	0	25899	31/12/2018	25899	P
8	29/10/2018	12297.23	13103.01	36.728	.89	3230.4	24228	1322.4	0	0	0	5640	6962.4	31190	0	0	31190	30/11/2018	31190	P
8	28/09/2018	12216.47	13012.13	25.464	.66	1822.8	13671	761.55	0	0	0	5640	6401.55	20073	0	0	20073	20/10/2018	20073	P
8	28/08/2018	12170.9	12943.43	18.472	.69	1793.2	13449	729.45	0	0	0	5640	6369.45	19818	0	0	19818	17/09/2018	20178	P
8	27/07/2018	12126.07	12878.49	25.112	.71	2032	15240	840	0	0	0	5640	6480	21720	0	0	21720	16/08/2018	21720	P
8	27/06/2018	12075.27	12806.72	30.8	.76	2050.4	15378	861.9	0	0	0	5640	6501.9	21880	0	0	21880	17/07/2018	21880	P
8	29/05/2018	12024.01	12739.59	10.712	.56	1048.8	7866	426.3	0	0	0	5640	6066.3	13932	0	0	13932	18/06/2018	13932	P
8	27/04/2018	11997.79	12692.97	13.71	.66	951.9	7139.25	398.96	0	0	0	5640	6038.96	13178	0	0	13178	17/05/2018	13178	P
8	28/03/2018	11966.06	12644.69	12.198	.73	1712.4	12843	681.15	0	0	0	5640	6321.15	19164	0	0	19164	17/04/2018	19164	P
8	27/02/2018	11908.98	12566.75	18.426	.78	2169.9	16274.25	870.71	0	0	0	5640	6510.71	22785	0	0	22785	19/03/2018	22785	P
8	29/01/2018	11836.65	12473.65	14.91	.76	1831.2	13734	731.7	0	0	0	5640	6371.7	20106	0	0	20106	19/02/2018	20106	P
7	27/12/2017	11775.61	12393.84	20.1	.85	2717.1	20378.25	1081.91	0	0	0	5640	6721.91	27100	0	0	27100	17/01/2018	27116	P
7	28/11/2017	11685.04	12287.71	26.226	.96	4572	34290	1795.5	0	0	0	5640	7435.5	41726	0	0	41726	18/12/2017	41726	P



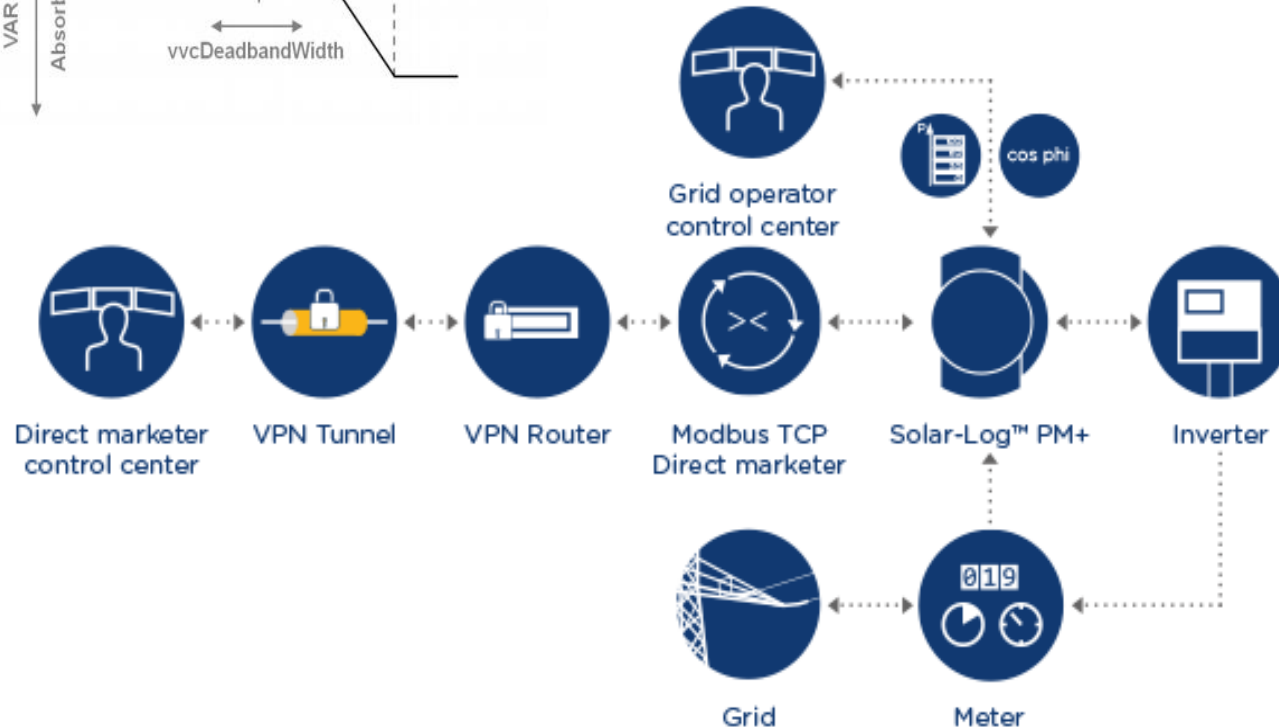
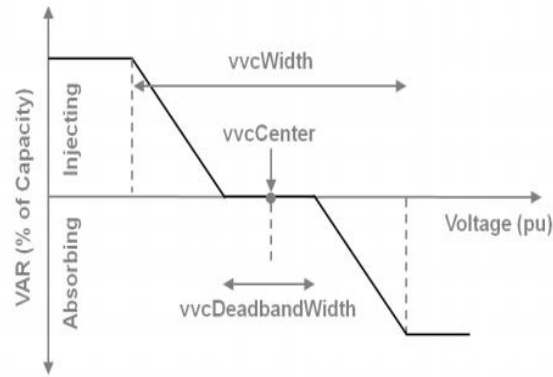
# 100 MW of rooftops with Tata Power Bangalore !



# Live demo of plants in bangalore!!



# Proposed Direct Marketing Methods in Germany (>100kW)





# BIRDS EYE VIEW OF THE PLANT

## ~ All Plants (503)

Plant Info		Actual Energy				Expected Energy	
Plant Name	Plant Size	Today	Last Month	This Month	Lifetime	Last Month	This Month
00P0IG	8.00 kWp	37.47 kWh	1.05 MWh	1.02 MWh	40.48 MWh	1.32 MWh <div><div></div></div> 80%	1.32 MWh <div><div></div></div> 83%
00C9LJ	12.50 kWp	42.66 kWh	1.39 MWh	1.27 MWh	54.80 MWh	2.06 MWh <div><div></div></div> 67%	2.06 MWh <div><div></div></div> 66%
00KI6I	11.00 kWp	52.84 kWh	1.61 MWh	1.46 MWh	58.64 MWh	1.82 MWh <div><div></div></div> 89%	1.82 MWh <div><div></div></div> 86%
00MYTL	9.00 kWp	43.00 kWh	1.23 MWh	1.14 MWh	46.53 MWh	1.49 MWh <div><div></div></div> 83%	1.49 MWh <div><div></div></div> 82%
00KT64	6.00 kWp	0.00 kWh	0.00 kWh	0.00 kWh	28.81 MWh	990 kWh <div><div></div></div> 0%	990 kWh <div><div></div></div> 0%
00P7JO	19.50 kWp	78.40 kWh	2.55 MWh	2.34 MWh	72.26 MWh	3.22 MWh <div><div></div></div> 79%	3.22 MWh <div><div></div></div> 78%
00MYST	10.00 kWp	8.85 kWh	536 kWh	341 kWh	45.82 MWh	1.65 MWh <div><div></div></div> 32%	1.65 MWh <div><div></div></div> 22%
00M5FR	6.75 kWp	32.55 kWh	1.03 MWh	929 kWh	37.11 MWh	1.11 MWh <div><div></div></div> 92%	1.11 MWh <div><div></div></div> 89%