

Freedom of Power Generation

Solar technology for self generation



An introduction - Chemtrols Group

Chemtrols Group: A Snapshot



Founded	1975
The Group	7 Companies with interests in Process Analytics, Instrumentation & Automation , Utility Management Systems, Clean-tech & Solar
Highlights	Strategic Partnerships with companies across the globe 3 manufacturing collaborations 11 Offices in India & 1 in the Middle East Leading Analytical System Integrator in India Diversified Business Lines
Manufacturing Facility	State-of-the-Art manufacturing facilities in Mumbai, Goa and Dubai.
Presence	Pan India & Distributors in the Middle East
Workforce	800+ across locations
Quality Standards	ISO 9001 – 2008; ASME U, PP, R –Stamp, PED, CE, ATEX

Chemtrols Group: Offering



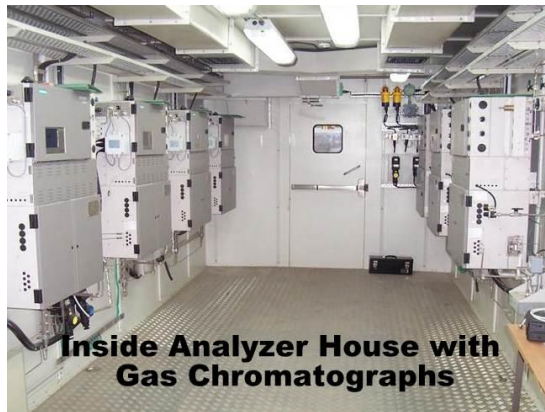
Analyzer Shelter with Dual HVAC



Air Quality & Emission Monitoring



Flow Metering & Automation



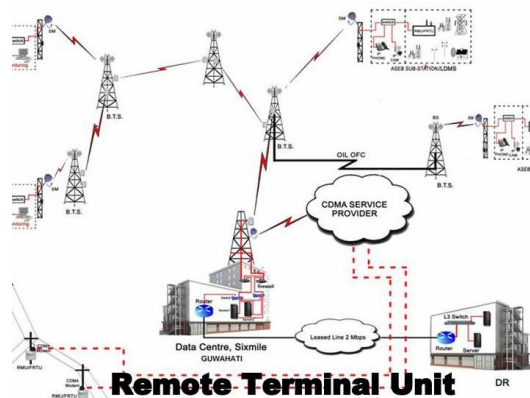
Chemtrols Group: Offering



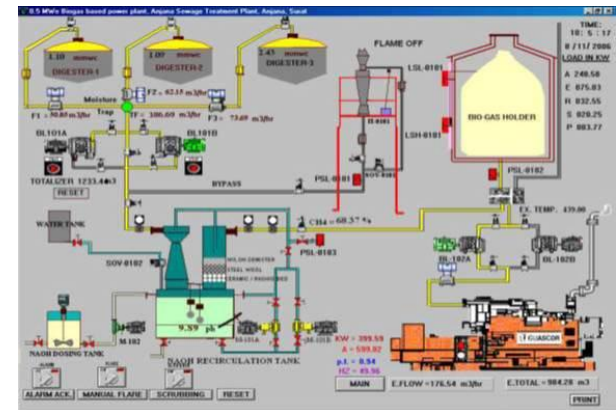
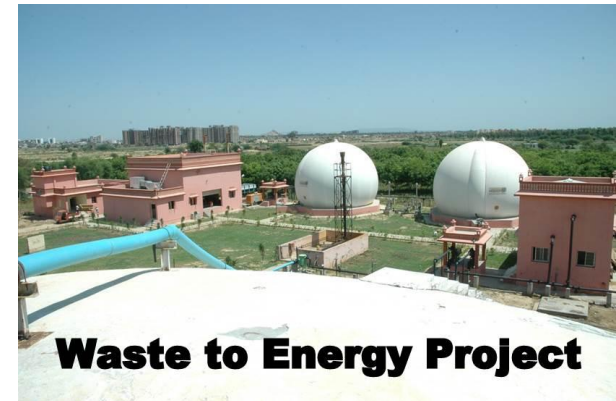
Instrumentation



Utility Management Systems



Waste-to-Energy





Chemtrols Solar

About Chemtrols Solar



- » Incorporated in August 2010. Part of the 45 years old, INR 500Cr, Chemtrols Group of Companies.
- » Provides turnkey EPC & O&M services for Ground Mounted and Rooftop Solar PV Power Plants.
- » Successfully commissioned projects of capacity ranging from 1KWp to 20MWp in 13 states pan India till date.
- » Projects commissioned on Offshore Platforms, GAIL gas pipelines, Telemetry, Educational Institutions, Commercial, Industrial & Residential Rooftops, and Ground mounted locations.
- » Member of the Governing Council of the National Centre of Photovoltaic Research & Education at IIT Mumbai

About Chemtrols Solar



- » Chemtrols Solar has commissioned 58 MWp Ground Mount & 22 MWp rooftop Solar PV Projects in many states across India & catered to more than 500 customers in past 7 years of operations. These projects include:
- » ***India's first MW Scale PV-Diesel Hybrid Plant that won the InterSolar Award 2013***
- » A 20 MW Ground Mounted Solar Plant in Tamilnadu
- » Largest Rooftop Solar PV Plants of 5.85 MW for a single group of Companies
- » First MW Scale Solar Plant in UP with Net metering
- » First Net metering project in Mumbai, MH.
- » Net Metering for VVIP Type of Industrial Customer in Talaja, MH.
- » ***Chemtrols Solar has won the National Excellence Award 2016 from Ministry of New & Renewable Energy, Govt. of India, for Rooftop Solar Power Projects in the Channel Partner / EPC Contractor Category.***
- » Projects executed by Chemtrols Solar focus on timely completion with customer satisfaction with no compromise on quality, health and safety.

Concepts & Options

Why Plan for Solar Rooftops



» Why Should Corporates Plan for a Solar PV Power ?

- Cost of energy generation by PV is lesser than what you pay to discom.
- Energy from a Solar Rooftop can meet a good part of the daytime energy requirement
- Predictable cost of energy for 25 years
- Accelerated Depreciation Benefit @40%
- Almost zero maintenance
- No 'fuel' to be arranged
- Utilise 'non-productive' roof in case of rooftop installations

Government Incentives and Support



» From the Central Government

- Accelerated Depreciation Benefit @40%

» From the State Government

- Most states have a Net metering Policy that allows export to grid, whatever energy is not captively consumed.
- Open Access allowed by most states, although the open access charges differ from state to state.

Financing Options

» CAPEX

- For Corporates who have their own internal resources or can raise debt, to invest in their own Solar Rooftop.

» OPEX

- For Corporates who are unable to raise debt, but are willing to pay for the energy generated by the Solar Rooftop. In this case, they could offer their roof to an investor, who would own the plant and enter into a long term PPA with the roof owner.

» LEASING

- The Leasing company owns the plant on the Corporate's roof and leases it for a mutually agreed terms, with lease rentals equivalent to the energy generated by the plant at an agreed tariff. Depreciation claimed by the Leasing company and part benefit is passed on to the Corporate.

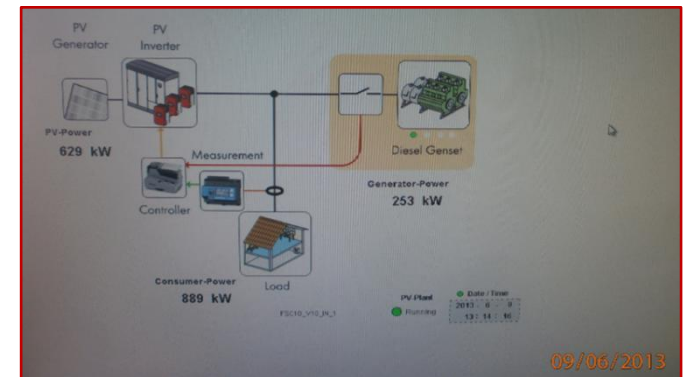
Design Options for Solar - 1

- » Grid – Connected that synchronizes with the Utility Grid for Captive Consumption
 - For end users who have reliable grid power and do not rely on DG sets

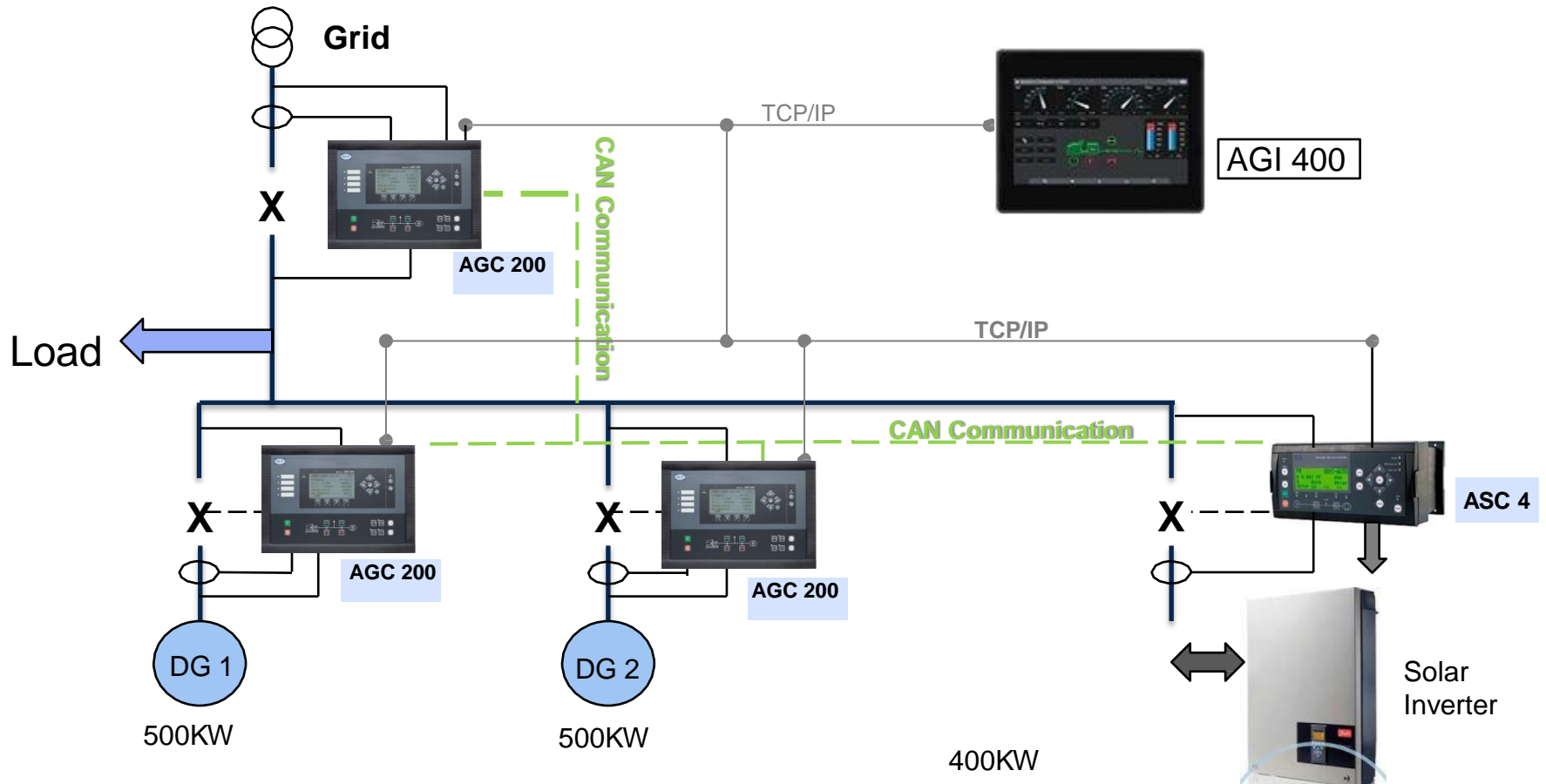


Design Options for Solar - 2

- » PV-Diesel Hybrid that synchronises with the Grid and the DG set when the grid is not available.
 - For end users with day time power outages and who rely on DG Sets.



PV-Diesel Hybrid System – Details



Design Options for Solar - 3

» Grid-Connected with net-metering

- Ideal for end-users who have larger roofs or Land banks within the premises but less consumption or have weekly offs when energy cannot be consumed.



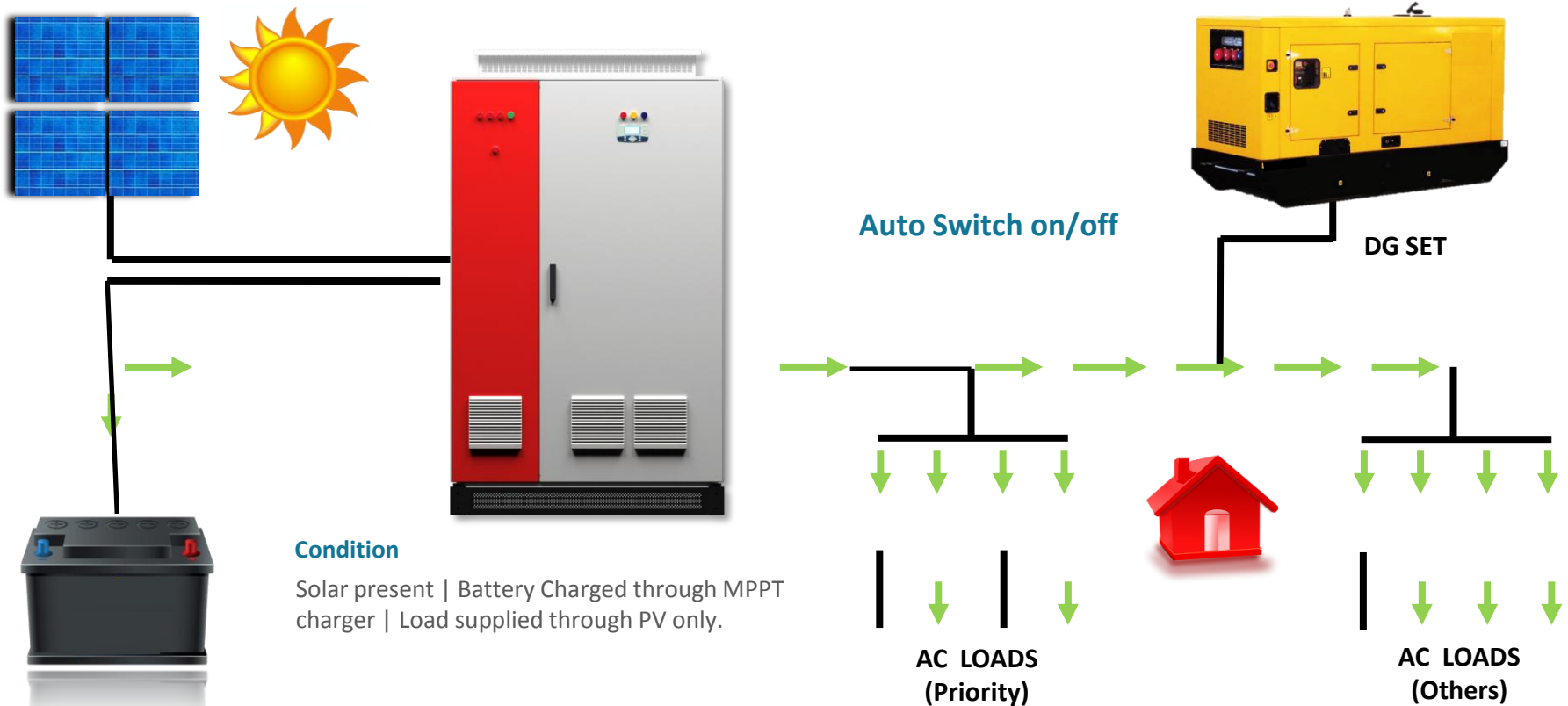
First Net-Metering project in UP over an Industrial roof in Moradabad, commissioned in March 2016



Design Options - 4

» Grid Connected / Off-grid with Storage

- For energising loads after sunset and minimise use of DG sets. Rooftop plant generates more than the consumption in daytime.



Few Reference Projects by Chemtrols Solar Ground Mount



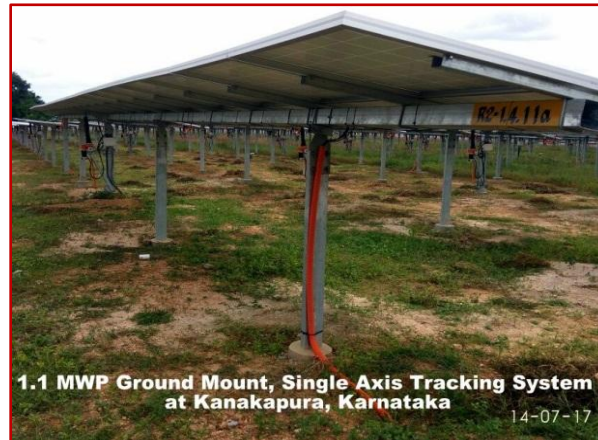
20MW Solar Ground Mount - Tiruchirapalli, Tamil Nadu



5.24MW Solar Ground Mount - Ahmednagar, Maharashtra



1MW Solar Ground Mount - Tirunelveli, Tamil Nadu



1.1 MWP Ground Mount, Single Axis Tracking System at Kanakapura, Karnataka

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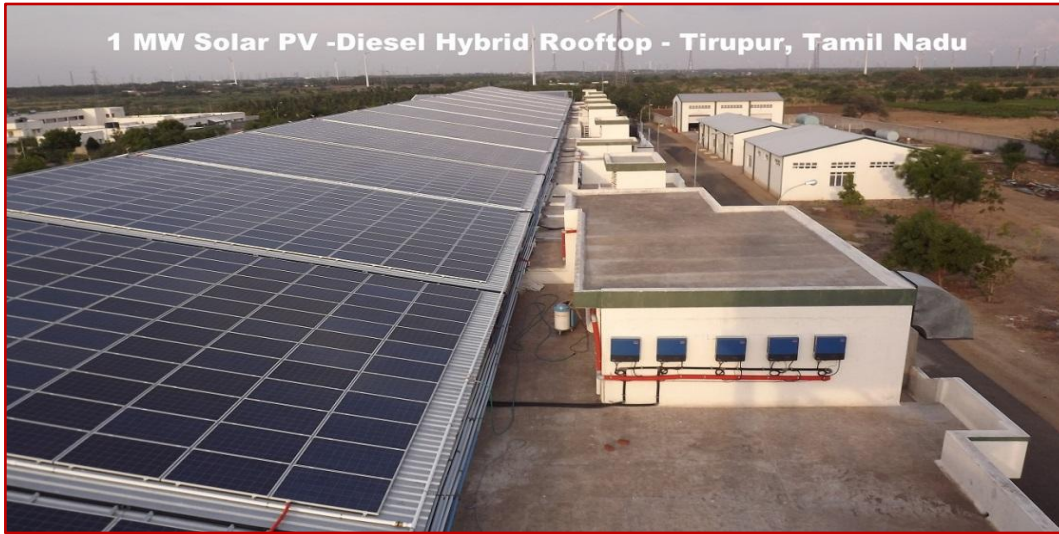


1 MW Solar Ground Mount - Surendernagar, Gujarat

Few Reference Projects by Chemtrols Solar Ground Mount & Rooftop



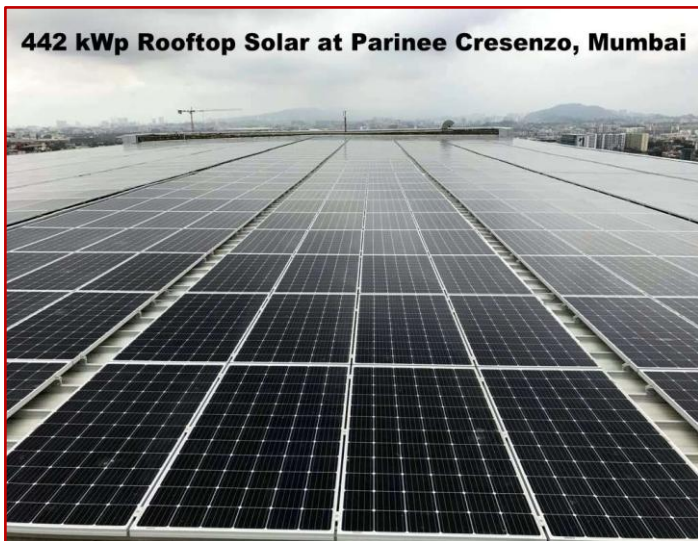
Few Reference Projects by Chemtrols Solar Rooftop



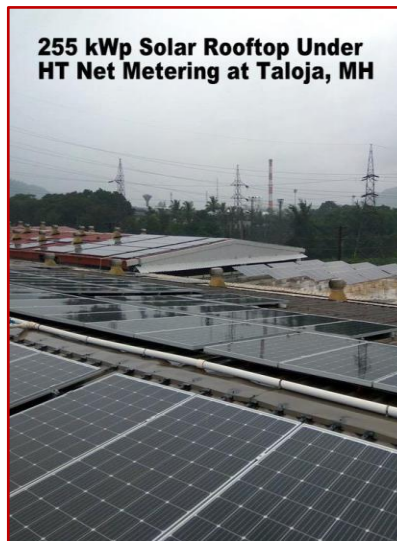
1 MW Solar PV - Diesel Hybrid Rooftop - Tirupur, Tamil Nadu



43 kW Solar Rooftop - NTPC, Kayamkulam, Kerala



442 kWp Rooftop Solar at Parinee Cresenzo, Mumbai



255 kWp Solar Rooftop Under HT Net Metering at Taloja, MH



5.85 MWp installed for Sharadha Terry Group, TN.

Few Reference Projects by Chemtrols Solar Super Structure



Our Preferred Partners (Modules)



Our Preferred Partners (Inverters)



» Central Inverter

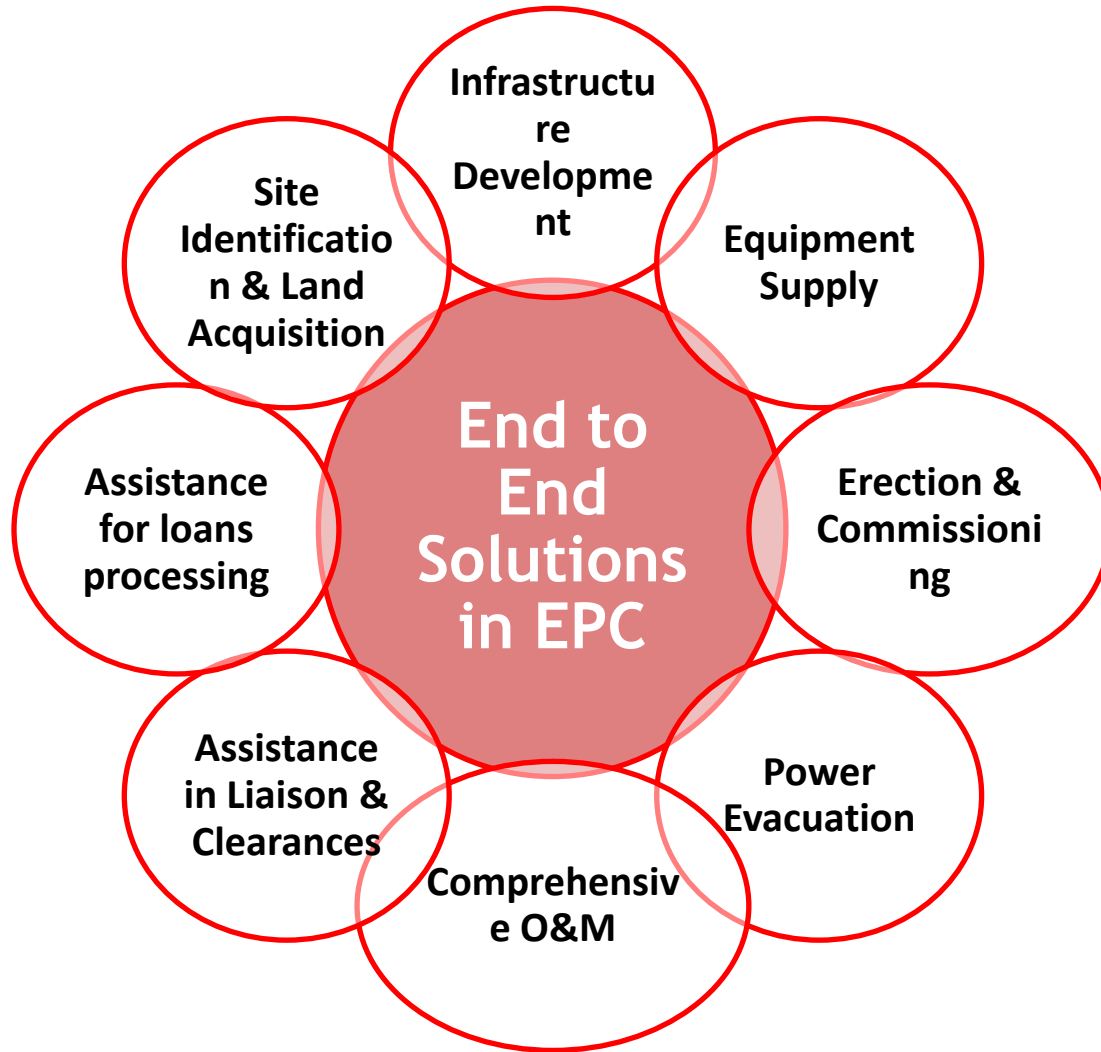


» String Inverter



WHY CHEMTROLS SOLAR?

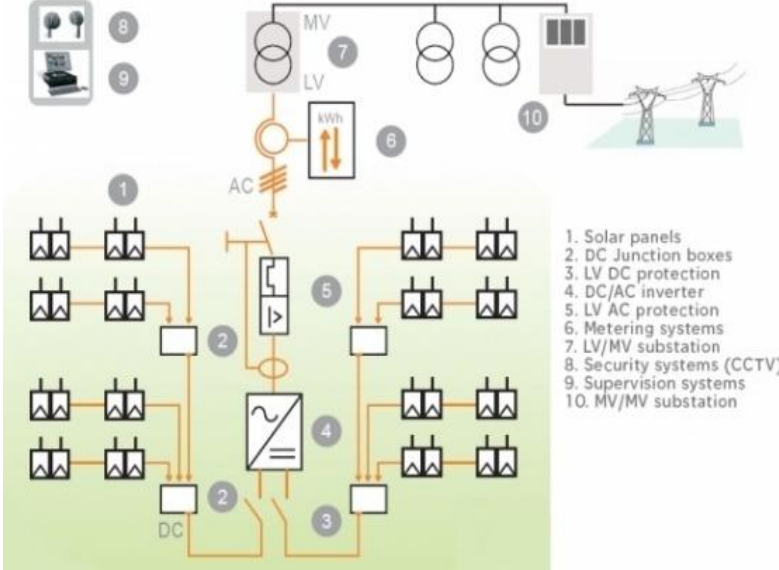
Complete Turnkey Services



Our Scientific approach



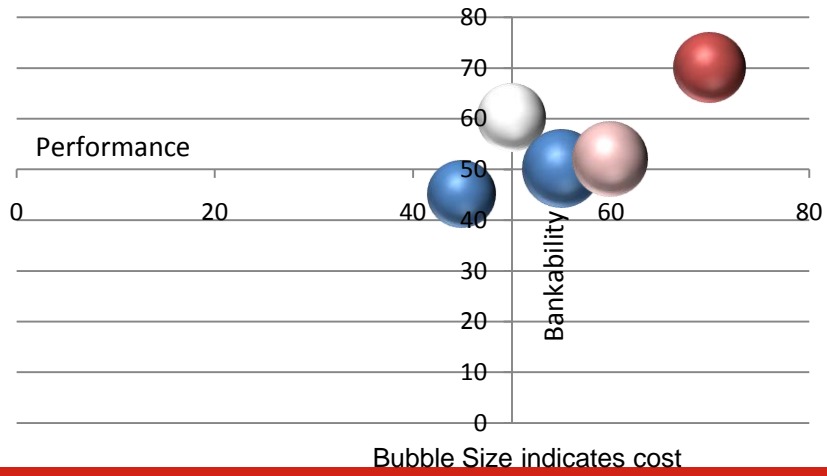
Schematic & SLD



Shadow Analysis using simulations



Systematic Vendor Evaluation



PVSYST v4.21 | 25/1/2016 | Page 2/3

Grid-Connected System: Main results

Project: Grid-Connected Project at London
 Simulation variant: London_Project_PVSYST_Connects 1.23kWp Solys SMA

Main system parameters	System type	Grid-Connected	Area	307
PV Field Orientation	SR		Inclination	31.5 deg
PV modules	Model	MS-215 Nrd5	Power	1.23 kWp
PV Array	No. of modules	6	Power	1.23 kWp
Inverter	Model	Sunny Boy SHV 1100 c1000	Power	1.32 kW AC
User's needs	Commented grid			

Main simulation results	Produced Energy	888 kWh/year	Specific	400 kWh/kWp/year
System Production	Performance Ratio (PR)	74.2 %		

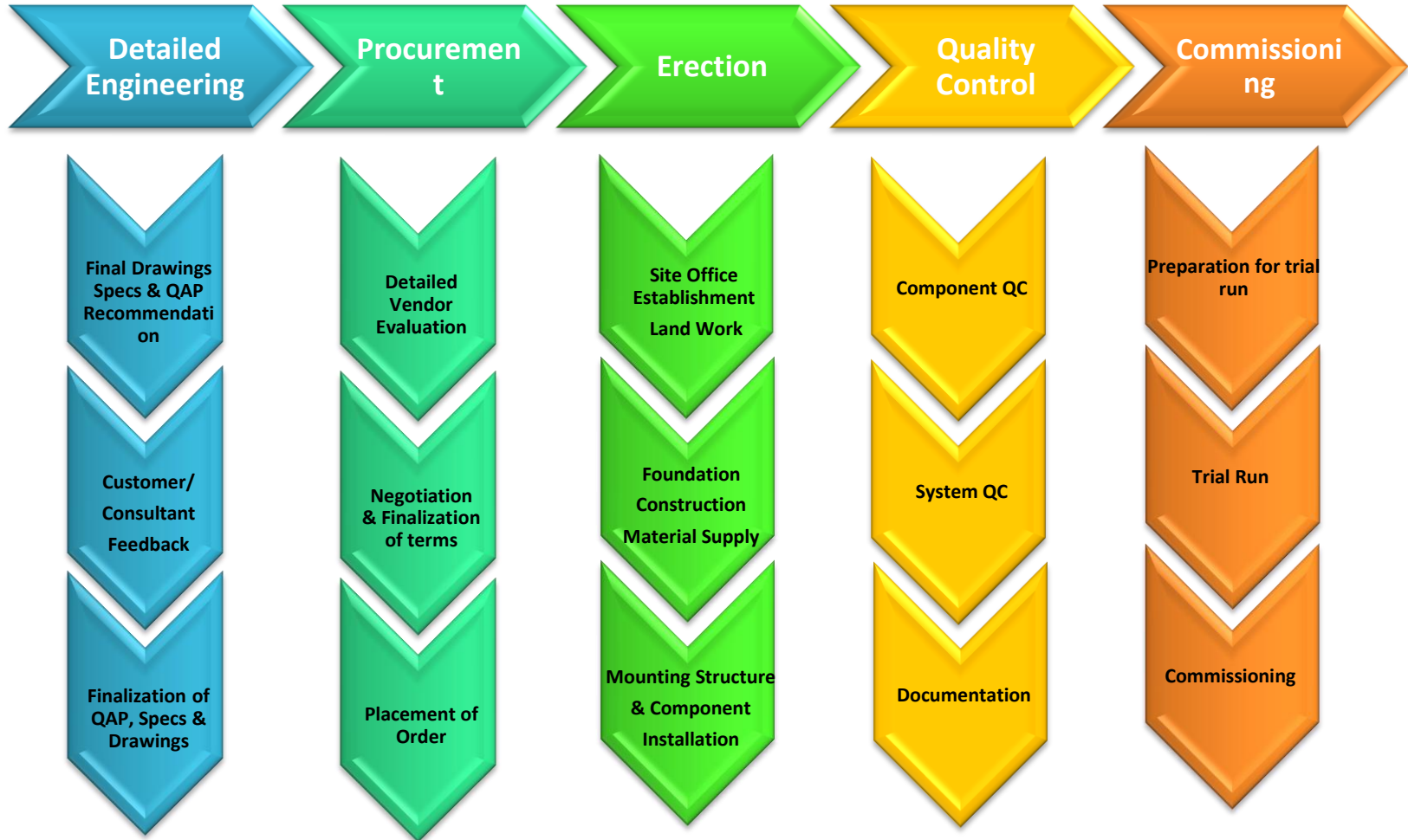
Estimated production (per month) - 2016 (total 1.8 kWh)

Performance Ratio PR

Month	Produced Energy (kWh)	Performance Ratio (PR)
Jan	75	74.2
Feb	85	74.2
Mar	95	74.2
Apr	105	74.2
May	115	74.2
Jun	125	74.2
Jul	135	74.2
Aug	125	74.2
Sep	115	74.2
Oct	105	74.2
Nov	95	74.2
Dec	85	74.2
Total	1230	74.2

Analysis through PV Syst & PV Sol Software

Our Systematic Execution Processes



Our Specialized & Experienced Team



Design & Engineering

Project Management

Commercial & Procurement

Quality Assurance & Safety

Field Engineering

It is therefore the right time now to
make your Solar Power Plant

THANK YOU FOR YOUR ATTENTION

- Contact -