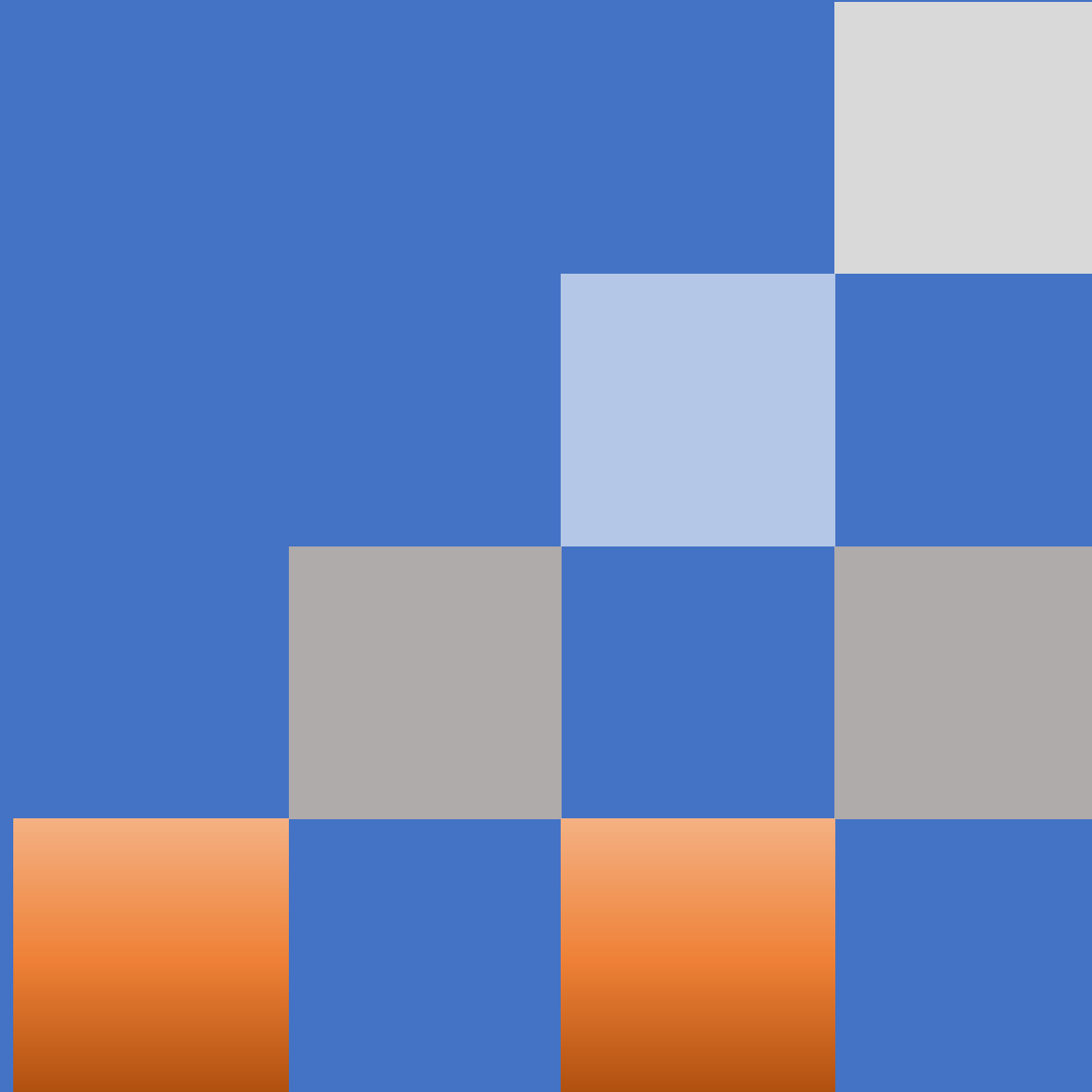


QQ Engineering & Consulting

Master Deck



We are QQ



Engineering &
Consulting
#E&C Simplified



Quick

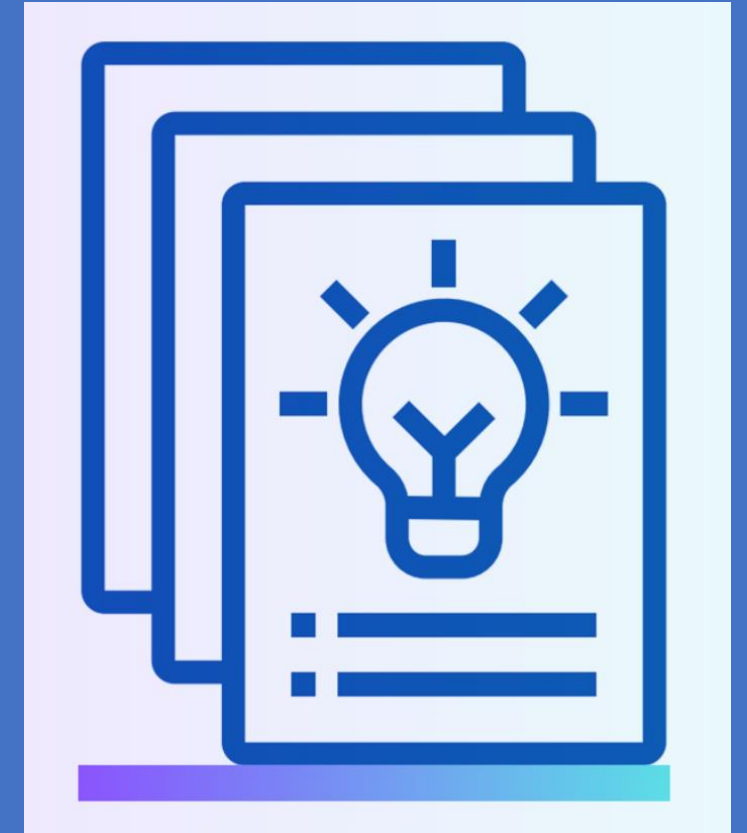


Quality

Our Vision

Simplify Engineering & Consulting.

QQEC operates with vision to deliver best in class Engineering and Consulting solutions to our client that exceeds quality benchmark adhering project schedule.



Our Mission

Create state-in-art Independent Engineering and Consulting facility.

- QQEC aims to become global leader in engineering and consulting business.
- Embrace latest advancements, craft future proof engineering meeting evolving needs.
- Develop robust engineering process and continuous update based on lessons learnt.
- Facilitate engineers with latest tools, great work life balance and ample opportunities of learning, development and growth.
- Deliver unparalleled engineering experience to our clients/partners.



Our Core Values



Quality adhering Project Schedule



Independent Simplified Solutions



Safety and Compliance



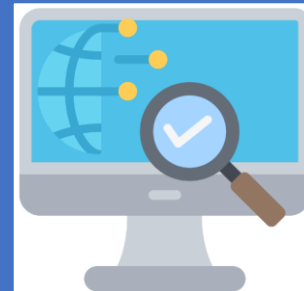
Sharing and Caring



Commitment and Accountability



Team Work and Transparency



Cutting Edge Technology



Continuous Development



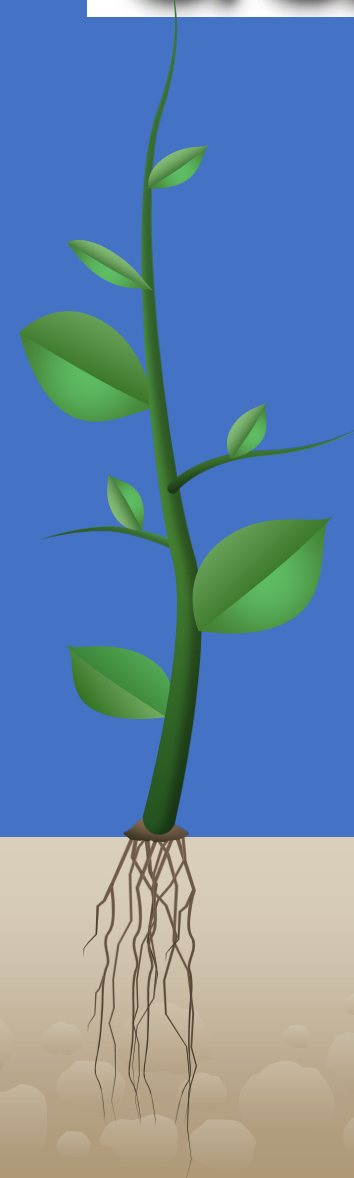
Launched “QQ Engineering & Consulting” in 2024

- Focusing solely on Engineering & Consulting Projects.
- EPS will be separate entity focusing on smart solutions.



Started Operations in 2019

For Consulting Electrical Facilities and Solution Provider for Rooftop Projects.



About QQEC



5+

Years of experience have proved our credibility and quality in front of our customers and clients.

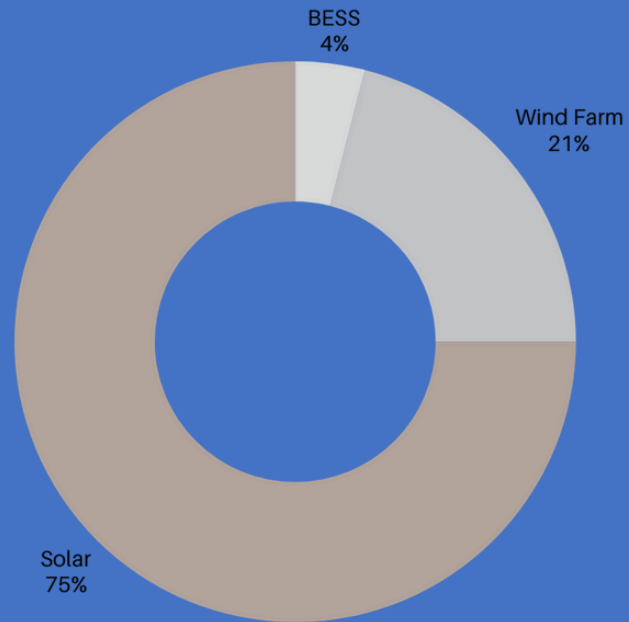
30+

Inhouse Team of Engineers including Electrical, Civil and Energy Analyst.

16 GW

Engineering and Consulting portfolio including 2x2GW Acwa Power Project Pre-Bid Engineering, NEOM Project etc.

About QQEC



- **Solar PV Plant- 11.5 GW.**
- **Wind Farm- 3.5 GW.**
- **BESS- 1 GWh**

Geographies

Delivered projects in India, USA, Saudi Arabia, Oman and Africa.

Major Clients

Worked with Sekura, SAEL, Apraava Energy, Renew Power, Acme, Sprng Energy, Jindal Renewables and Torrent Power.

Overall Experience

Experience of executing Feasibility Study, Bid Management, Owner's Engineering and Detail Engineering.

Global Footprint



Engineering &
Consulting
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Quality Compliance

ISO 9001:2015 Certification

- QQEC holds ISO 9001:2015 certificate.
- Scope: “*Engineering and Consultancy for Power Engineering Facilities*”
- Certificate Number: 24MWQSC50
- Issuance Date: June 10, 2024
- Expiry Date: June 09, 2027



Services



Feasibility Study



Lender's Engineering



Owner's Engineering



Power System Study



Technical Due Diligence



Detail Engineering



Construction
Monitoring



Third Party Inspection

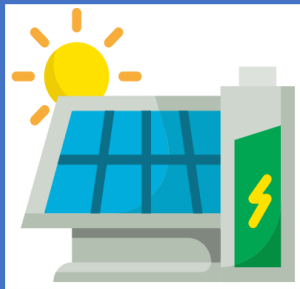


Engineering, Procurement
& Construction Monitoring
(EPCM)

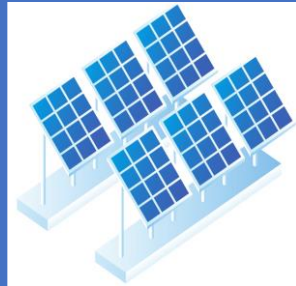
Sector



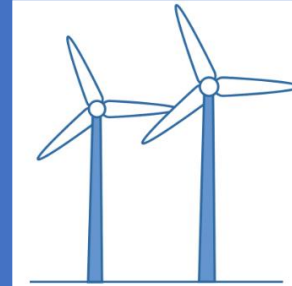
Energy Storage System



Distributed Energy Resource



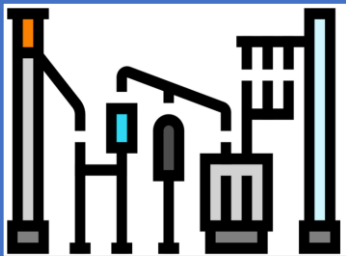
Solar PV Plant



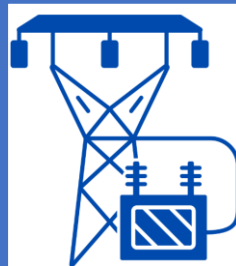
Wind Power Plant



Green Hydrogen and Green Ammonia



Substation



Transmission Line



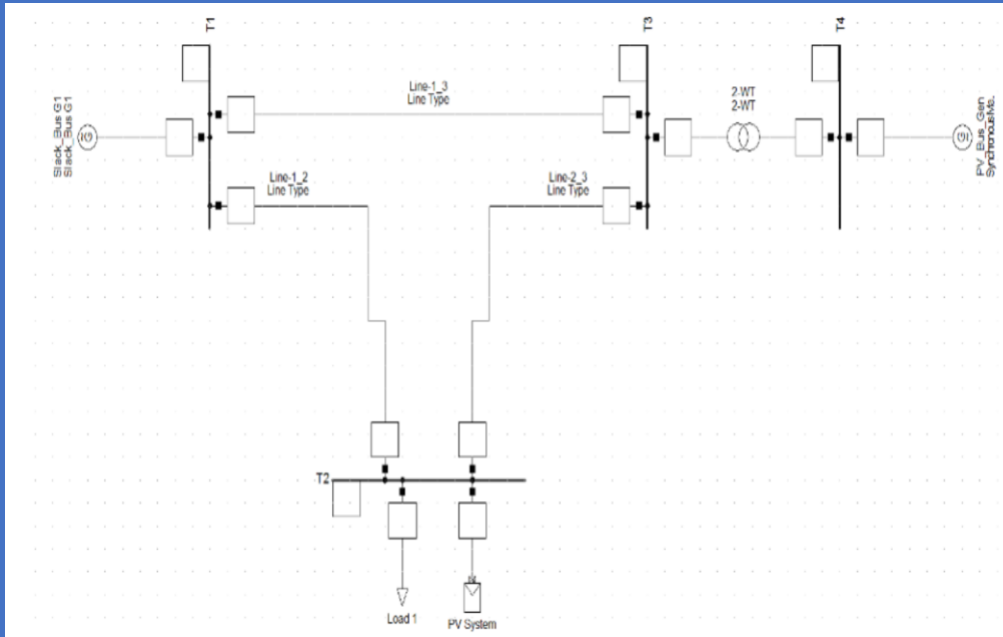
Waste to Energy Plant



Data Centre

Service

Power System Study | Grid Integration Study | Insulation Coordination Study

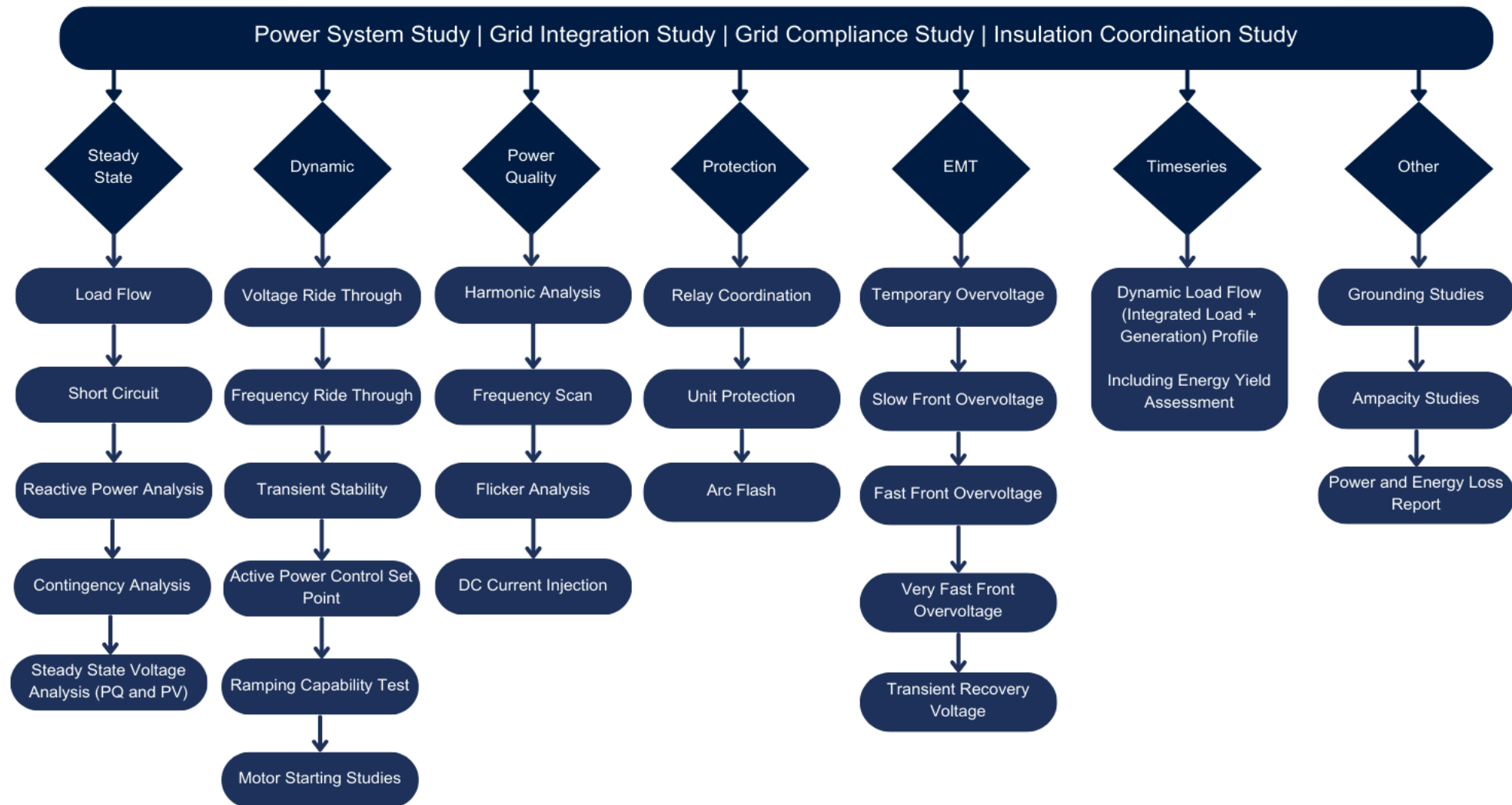


- Expertise for Renewable project system studies.
- Country specific grid code compliance studies.
- Insulation Coordination Studies (EMT-Electromagnetic Transient Studies).
- Feasibility stage grid connection / transmission line interconnection studies.
- Expertise of Oil & Gas, Industrial plant and Data Centre project system studies.
- Effective grounding studies in line with IEEE compliance.

Service



Engineering &
Consulting
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Sector

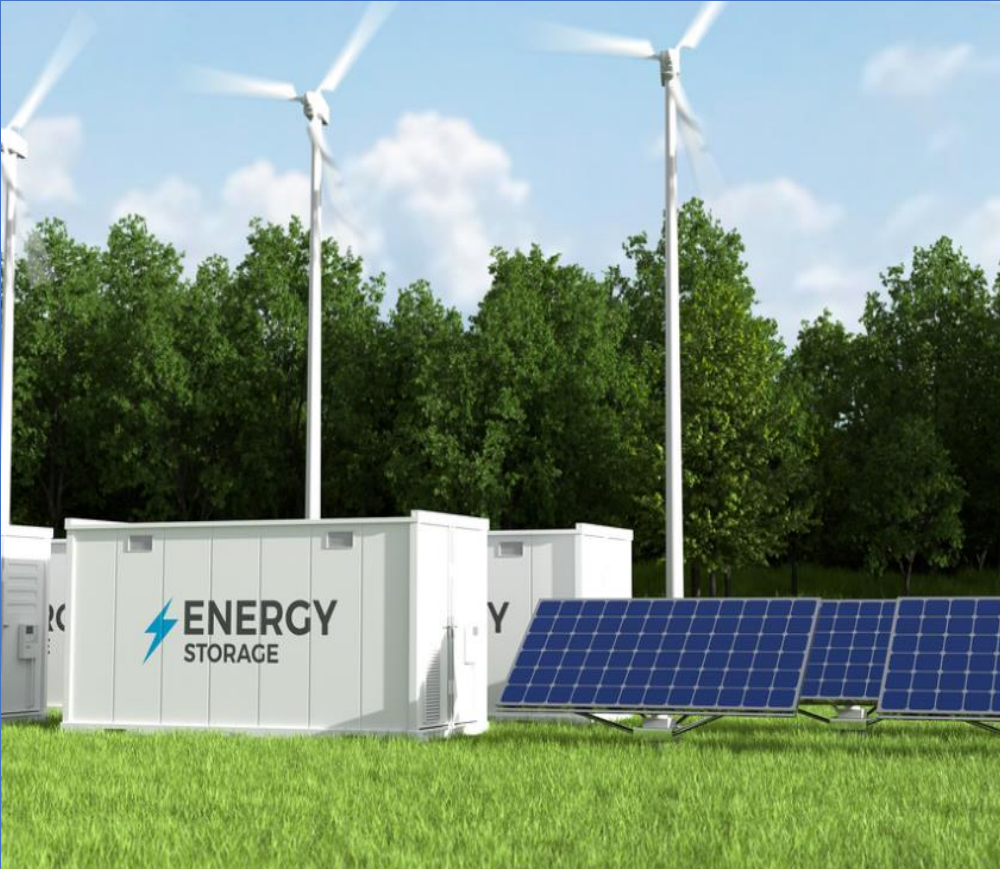
Energy Storage System (ESS)



- Feasibility studies considering technical and commercial aspects based on project CAPEX and Generation.
- Battery technology assessment.
- BESS optimal sizing to meet energy commitment.
- Communication architecture.
- Basic or FEED (Front End Engineering Design) Engineering.
- Owner's Engineering including RFP management, offer evaluation and post order stage Engineering document review.
- Detail Engineering of BESS project including layout preparations, SLD and other Engineering deliverable.

Sector

Distributed Energy Resource



- Sizing of DER (Distributed Energy Resource) for On Grid, Off Grid or Micro Grid Project.
- Study of load pattern of facility for optimal sizing of DER resource.
- Solution for integration of Solar, Wind, BESS (battery energy storage system), Diesel Generator etc. system for meeting load demand.
- Resource assessment of project site.
- Feasibility study, energy generation analysis and Detail Project Report (DPR).
- Grid Integration Studies due to DER sources considering multiple operating scenarios.

Sector

Solar PV Plant



- Concept to Commissioning Engineering Services.
- Feasibility Study.
- Detail Project Report (DPR).
- Energy Yield Analysis.
- Owner's Engineering including RFP preparation, Basic Engineering and EPC Contractor document review.
- Technical Due Diligence of Solar Project.
- Module Mounting Structure Engineering.
- Hydrology Studies.

Sector

Solar PV Plant



Engineering &
Consulting

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- Levelling and Grading Analysis.
- AC and DC System Engineering.
- Plant infrastructure Engineering.
- Inverter Station, MCR (Main Control Room) Building Engineering.
- Ground Mounted Project Engineering.
- Rooftop Project Engineering.
- Floating Project Engineering.
- Canal top Project Engineering.

Sector

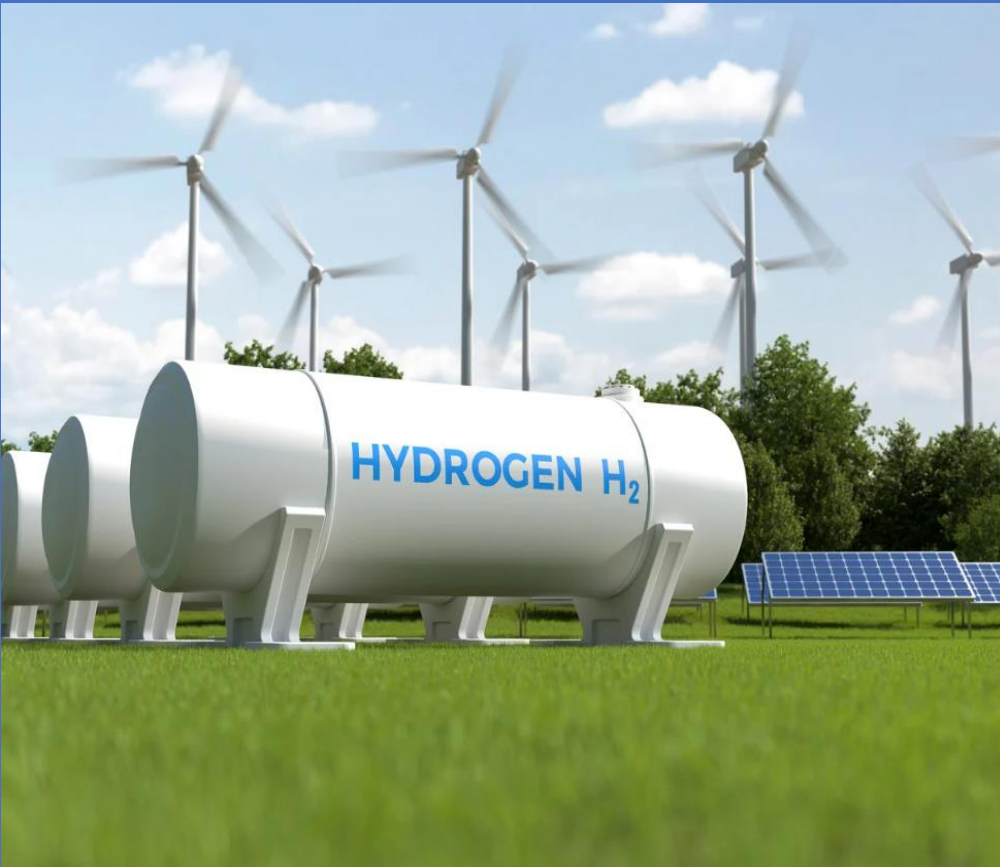
Wind Power Plant



- Wind Balance of Plant Engineering.
- Unit Substation Engineering.
- Plant Internal 33 kV Transmission Line Engineering.
- Plan and Profiling of Line.
- EHV Substation Engineering.
- Owner's Engineering including RFP preparation, basic engineering and review of EPC Contractor Engineering documents.
- Detail Engineering and Procurement support.

Sector

Green Hydrogen and Green Ammonia



- Energy advisory services for renewable facility part.
- Feasibility study considering electricity demand for hydrogen production and sizing of renewable plant.
- Renewable project (Solar, Wind and Energy Storage) Engineering.
- Owner's Engineering for Balance of Plant of Green Hydrogen (for Electrical aspect) and Renewable facility.
- Detail Engineering of Electrical aspect for balance of plant (Hydrogen and Ammonia).
- Power System Studies of green hydrogen and green ammonia plant considering multiple operating scenarios.

Sector

EHV Substation



- EHV Substation Engineering up to 400 kV.
- Air Insulated Substation (AIS) Engineering.
- Gas Insulated Substation (GIS) Engineering.
- 2D and 3D Modelling.
- Electrical and Civil Detail Engineering.
- Owner's (Review) Engineering.
- Proposal (Pre-Bid) Engineering.
- Detail Engineering.
- Feasibility Studies.
- Substation design in compliance with IS, IEC, NEC, NFPA, BS and SEC standard.

Sector

EHV Substation – USA, Canada and Middle East



- Experience of Substation Engineering for USA, Canada and Middle East countries.
- Substation “**Protection & Control Package**” in accordance with USA and Canada practice.
- Substation “**Physical & Structure Package**” in accordance with USA and Canada practice.
- 30%, 60%, 90% and IFC (Issue For Construction) Drawing for Substation package.
- Substation Automation System package Engineering.
- Experience of 345 kV Substation Engineering in USA and Canada region.

Sector

Transmission Line



- Feasibility study of Transmission Line route for budget aspect considering desktop assessment.
- Conductor sizing of Transmission line.
- Desktop based preliminary transmission line route alignment.
- Transmission Line RFP package preparations, EPC Contractor offer evaluation and EPC Contractor Engineering document review.
- Plan and profile of Transmission line.
- Tower structure design calculations and drawing.
- Tower foundation design calculations and drawing.

Sector

Oil & Gas | Industrial Plant | Data Centre



- Basic and FEED (Front End Engineering Design) for Electrical Engineering aspect.
- Owner's (Review) Engineering for Electrical aspect.
- Detail Engineering of Electrical aspect.
- Load Analysis of Project.
- Key SLD and Detail SLD of Substation and Plant.
- Substation area Engineering.
- Power System Studies considering multiple operating scenario of project.
- Operating philosophy of project and SCADA architecture.

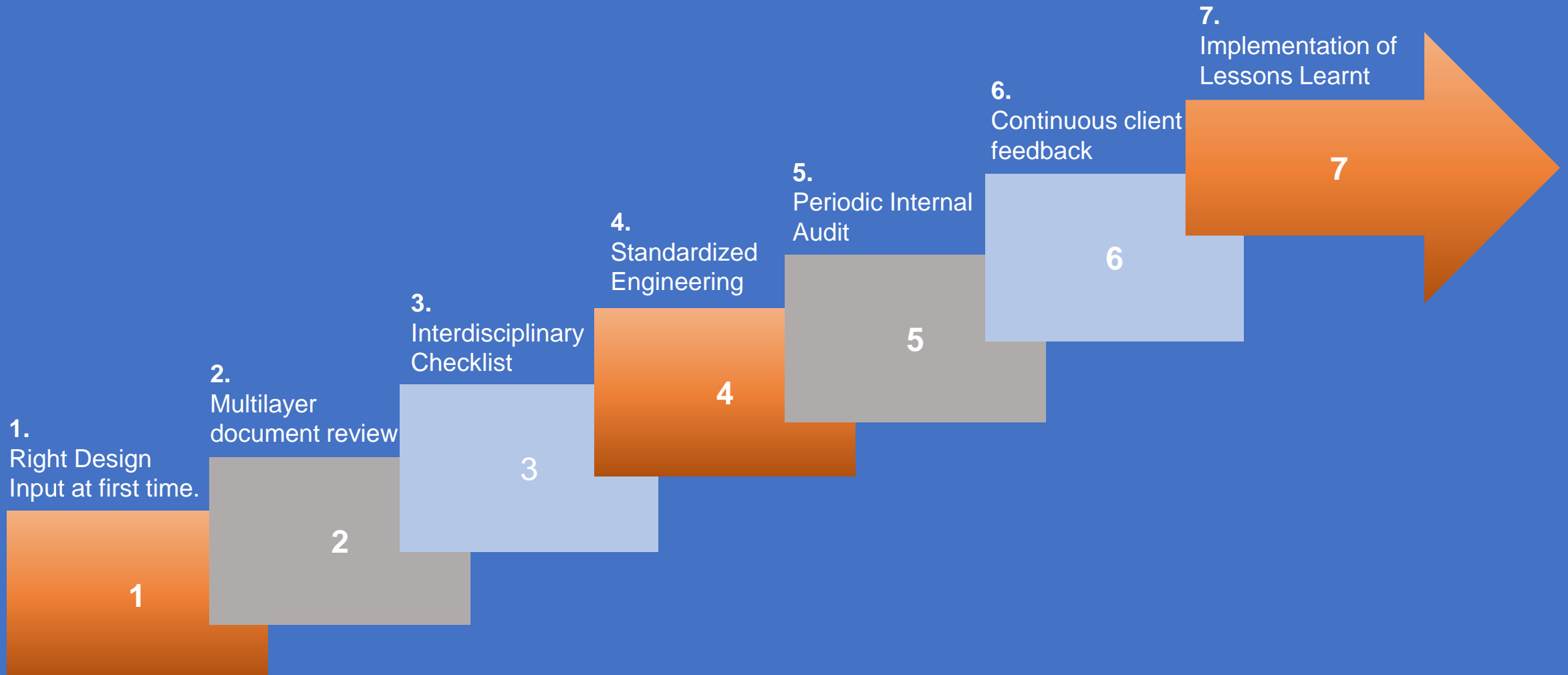
Sector

Oil & Gas | Industrial Plant | Data Centre

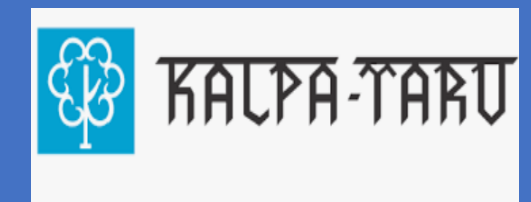


- Transformer sizing, DG Sizing, NGR/NER sizing, Feeder list, DC UPS sizing, AC UPS sizing, Capacitor bank sizing, Earthing and Lightning Protection Design, Illumination system design.
- Procurement support for Electrical equipment like Power Transformer, Distribution Transformer, Cables, Switchboard, NGR, Busduct, Generator, VFD and Motor.
- Mechanical package review engineering support for Oil & Gas projects.
- Layout Engineering support including 2D and 3D modelling.
- Interface management with other discipline.

Our Process



We have worked with...



We have worked with...





Engineering &
Consulting

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Our Projects

Pre-Bid Engineering
(Hybrid Projects)

Solar PV + BESS Plant

Solar PV- 300 MW + 150 MW / 600 MWh BESS Plant

- **Project Location:** Andhra Pradesh
- **Client:** Sukhbir Agro Energy Limited
- **QQEC Scope:**
 1. Tender Study.
 2. Resource Assessment.
 3. Technology Selection and LCOE Analysis.
 4. Solar PV+ Battery Optimization.
 5. Solar PV Capacity Optimization.
 6. Battery Optimization Study.



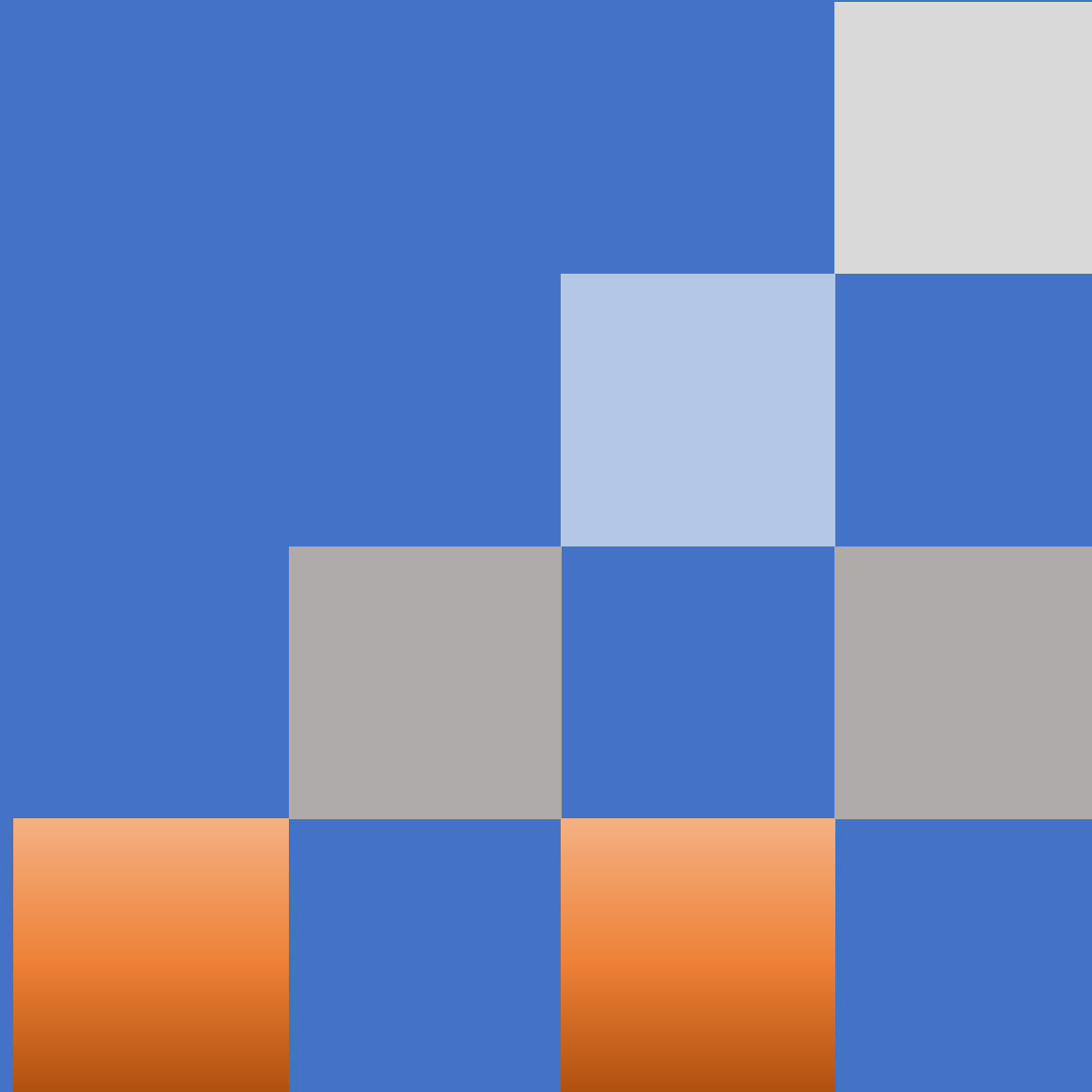


Engineering &
Consulting

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Our Projects

Owner's Engineering



Hybrid Project

Owner's Engineering

- **Project Location:** Maharashtra, Madhya Pradesh & Gujarat
- **Client:** Torrent Power
- **QQEC Key Activities:**
 1. Basic Engineering.
 2. RFP Preparations.
 3. Bid Evaluation.
 4. EPC Contractor Document Review.



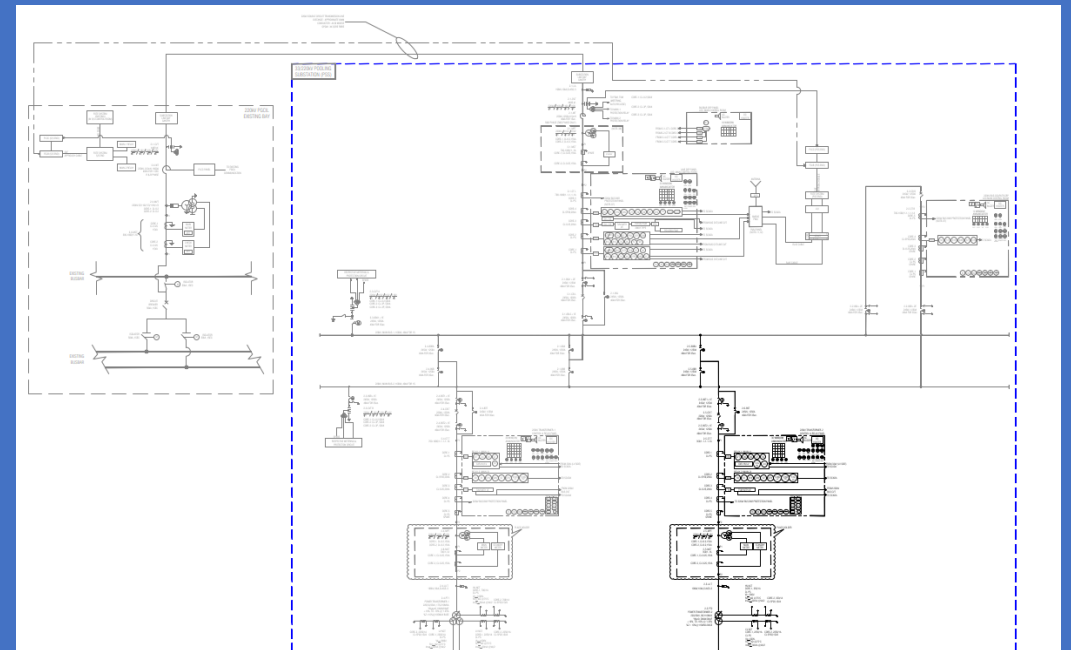
• QQEC Scope:

1. Owner's Engineering for 550 MW Hybrid (Wind-Solar) Plant with 400/ 220 kV Pooling Substation.
2. Owner's Engineering for 246 MW Solar Plant.
3. Owner's Engineering for 175 MW Wind Plant with 220/ 33 kV Pooling Substation.
4. Owner's Engineering for 220/ 33 kV Pooling Substation.
5. Owner's Engineering for 550 MW Hybrid (Wind-Solar) Plant with 400/ 33 kV Pooling Substation.
6. Owner's Engineering for 19MWp Solar Power Plant with 66/33kV Pooling Substation.
7. Owner's Engineering for 315 MW Ground Mounted Solar PV Project.

100 MW Wind Power Plant

Owner's Engineering

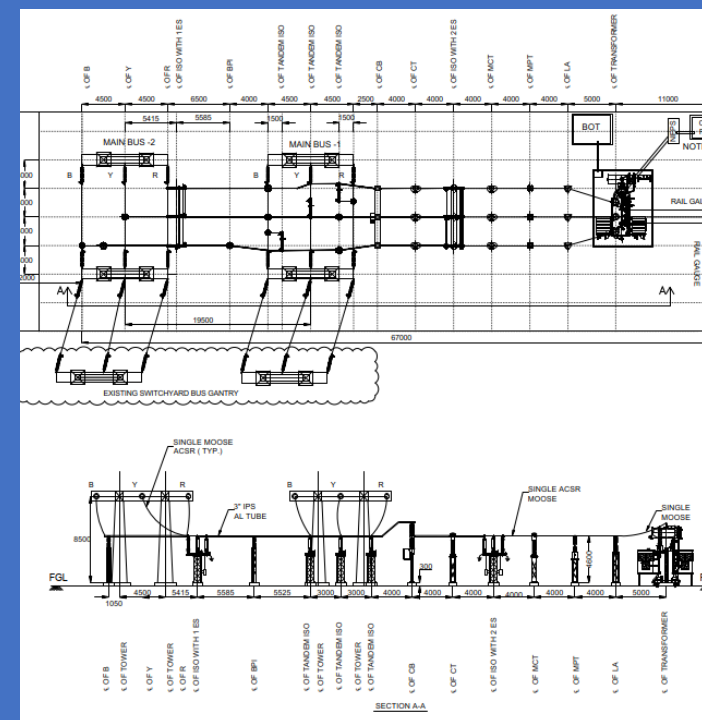
- **Project Location:** Madhya Pradesh, India.
- **Client:** Sprng Energy (Shell Group)
- **QQEC Scope:** Owner's Engineering for 100 MW Wind Power Plant.
- **Power Evacuation:** 220 kV Switchyard.
- **Key Activities:**
 1. Basic Engineering.
 2. RFP Preparations.
 3. Bid Evaluation.
 4. EPC Contractor Document Review.



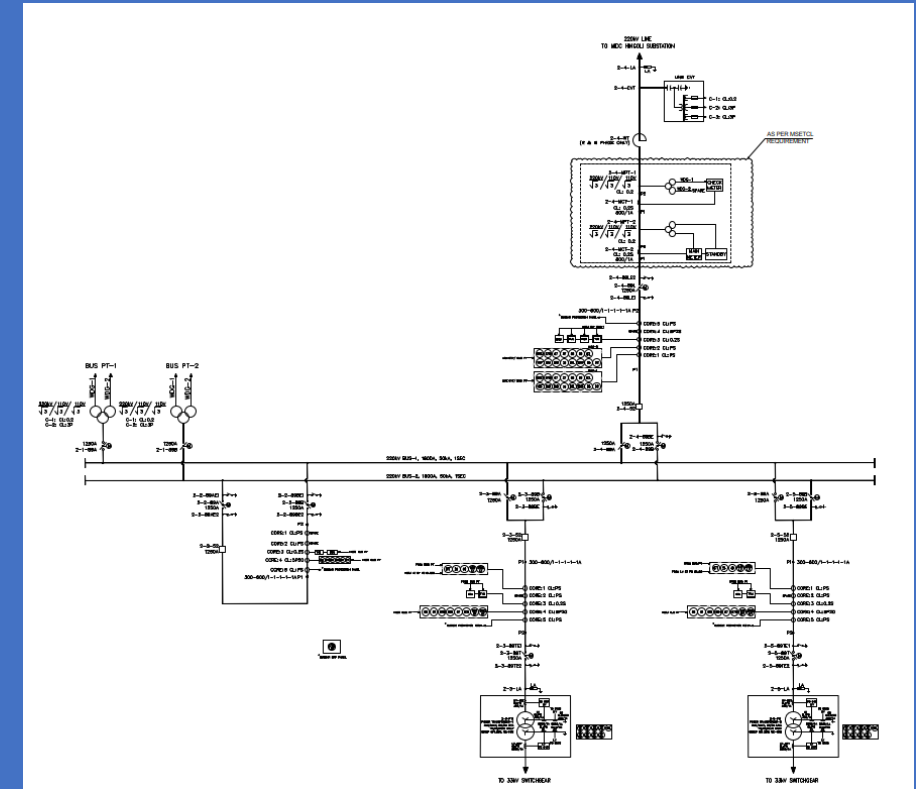
15 MW (AC) Solar PV Plant

Owner's Engineering

- **Project Location:** Chhattisgarh, India
- **QQEC Scope:** Owner's Engineering for 15 MW Solar Power Plant..
- **Key Activities:**
 1. Basic Engineering.
 2. RFP Preparations.
 3. Bid Evaluation.
 4. EPC Contractor Document Review.



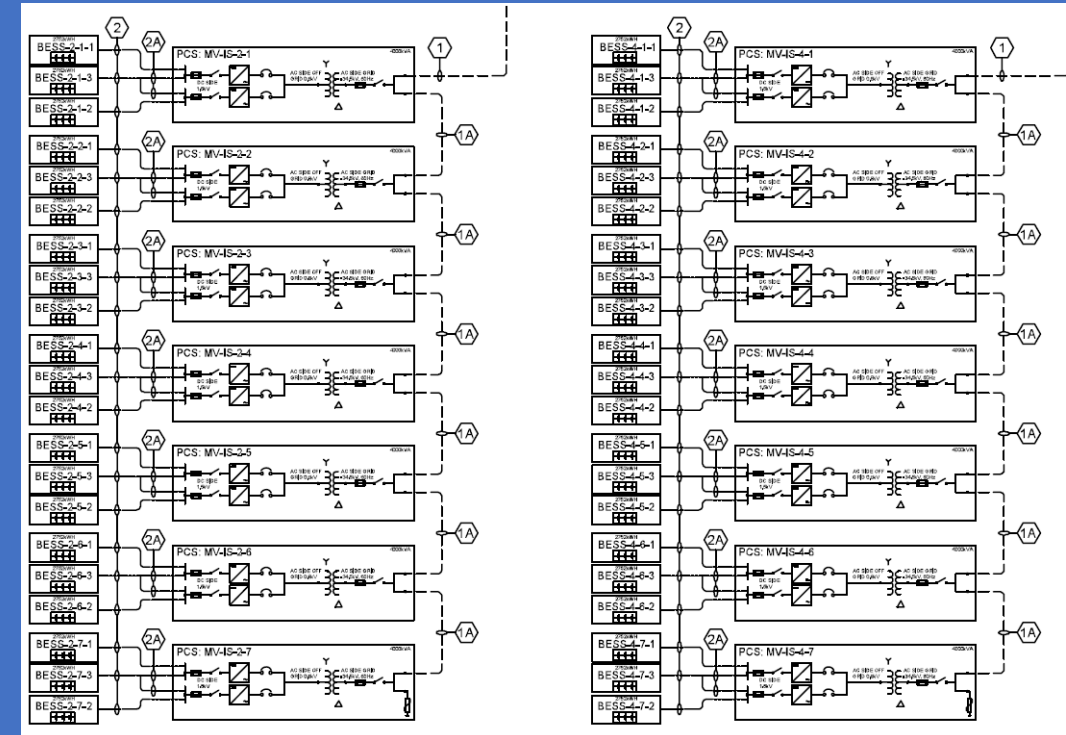
- **Project Location:** Hingoli, Maharashtra.
- **Client:** Solenco
- **QQEC Scope:** Owner's Engineering for 33/220 kV Switchyard.
- **Power Evacuation:** 220 kV Switchyard.
- **Key Activities:**
 1. Basic Engineering.
 2. RFP Preparations.
 3. Bid Evaluation.
 4. EPC Contractor Document Review.



50 MW / 500 MWh Standalone BESS

Owner's Engineering – 30% Engineering

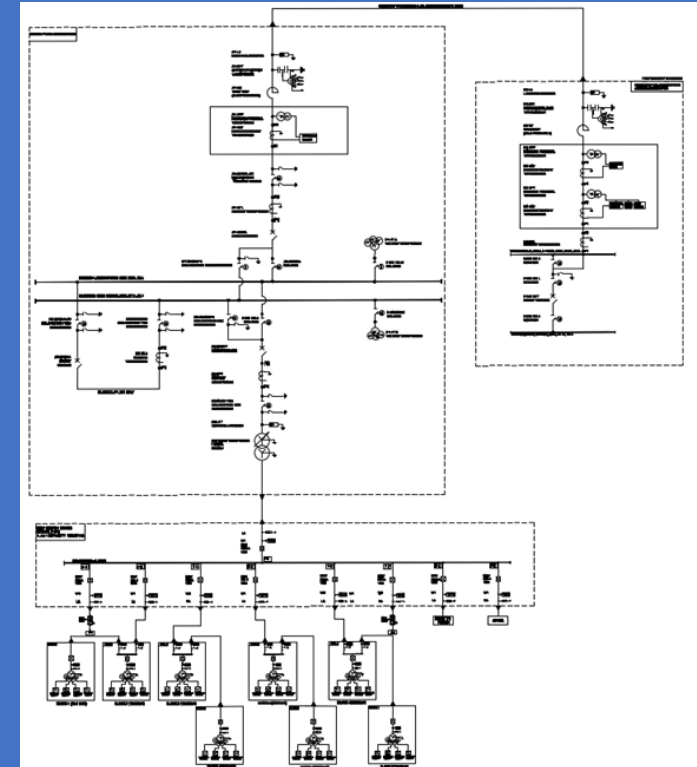
- **Project Location:** New York, USA
- **Client:** Confidential
- **QQEC Scope:** 30% Engineering.
- **Key Activities:**
 1. Feasibility Study.
 2. 30% Basic Engineering including Electrical and Civil.
 3. Power System Study.
 4. Technical Procurement Support.



100 MW Solar PV Plant

Owner's Engineering – Ongoing Project

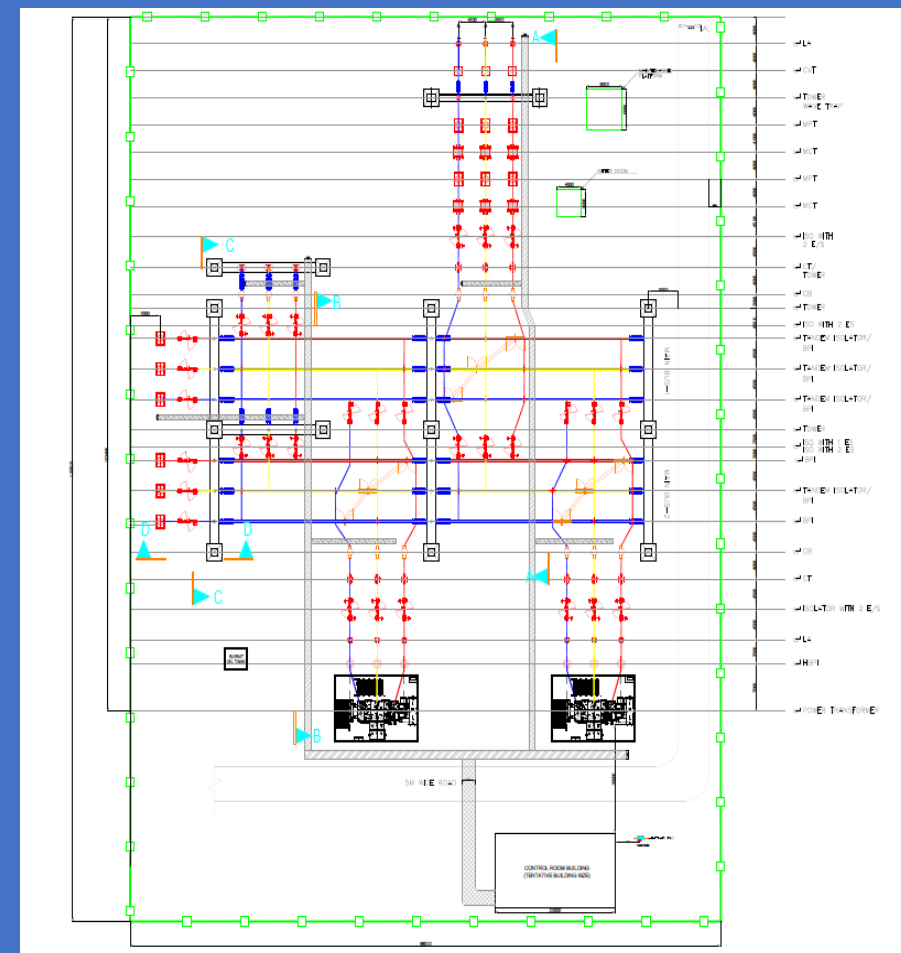
- **Project Location:** Maharashtra, India.
- **Client:** UPC Renewables
- **QQEC Scope:** Owner's Engineering including 220 kV Pooling Substation and Transmission Line.
- **Key Activities:**
 1. Feasibility Study and Technology Assessment.
 2. Basic Engineering.
 3. RFP Preparations.
 4. Bid Evaluation.
 5. EPC Contractor Document Review.



132/33 kV Pooling Substation

Owner's Engineering

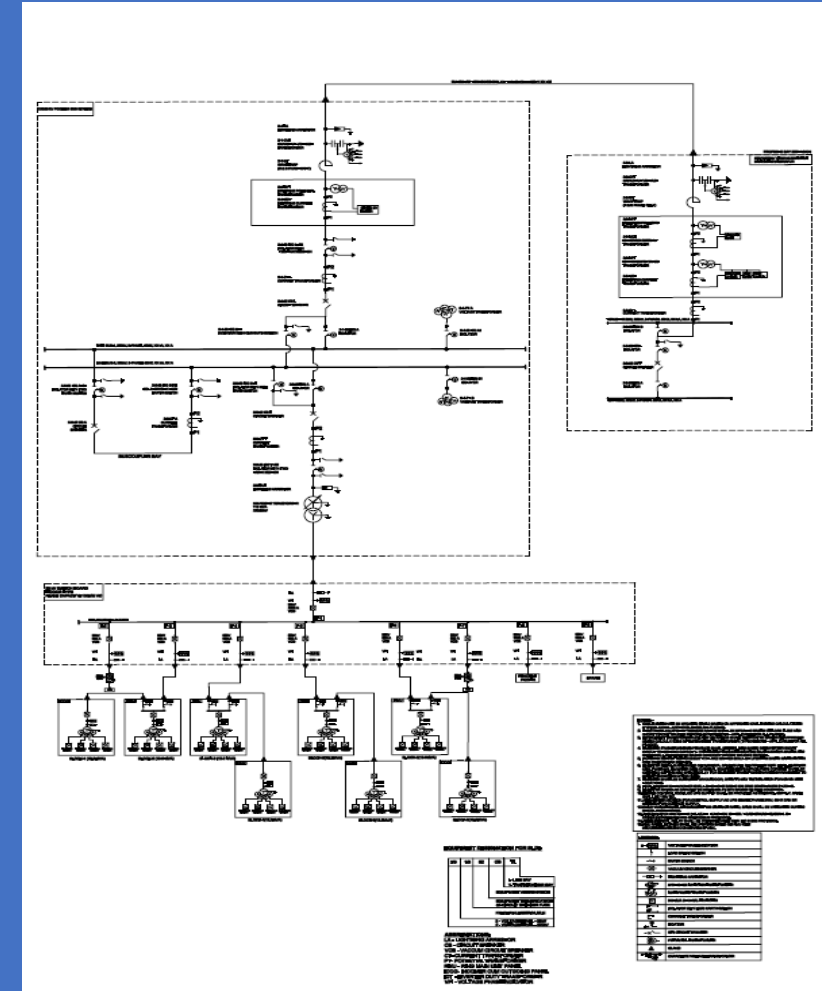
- **Project Location:** Maharashtra, India.
- **Client:** Solenco
- **QQEC Scope:** Owner's Engineering for 132/33 kV Pooling Substation.
- **Key Activities:**
 1. Basic Engineering.
 2. RFP Preparations.
 3. Bid Evaluation.
 4. EPC Contractor Document Review.



132/33 kV Pooling Substation

Owner's Engineering

- **Project Location:** Maharashtra, India.
- **Client:** UPC Renewables
- **QQEC Scope:** Owner's Engineering for 132/33 kV Pooling Substation.
- **Key Activities:**
 1. Basic Engineering.
 2. RFP Preparations.
 3. Bid Evaluation.
 4. EPC Contractor Document Review.





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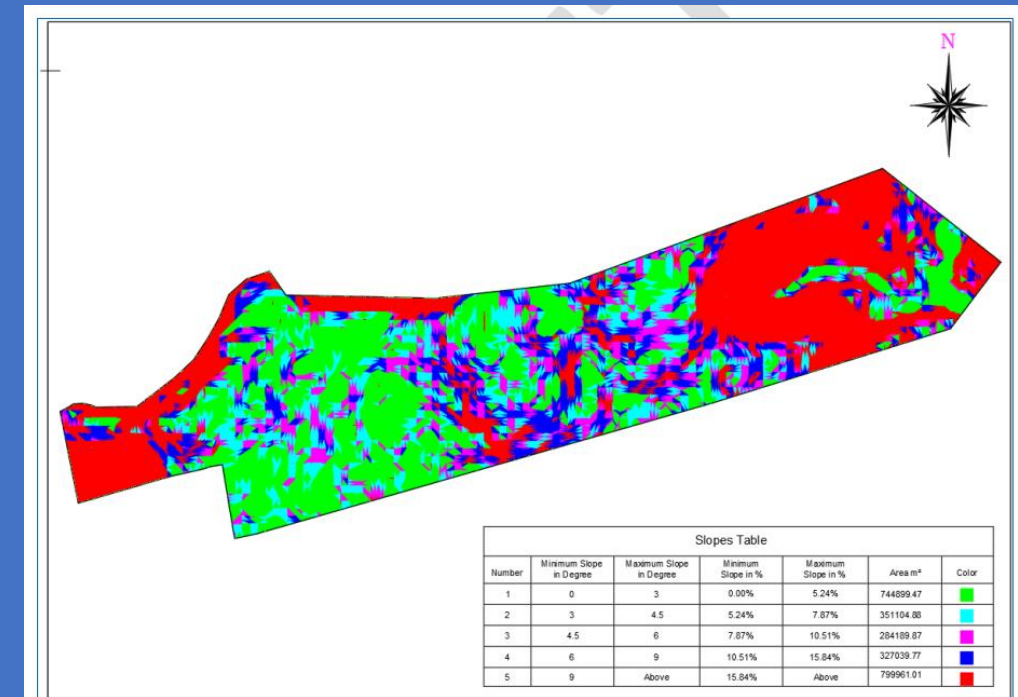
Our Projects

Feasibility Study

200 MW DRC Africa Solar PV + BESS Plant

Owner's Engineering - Ongoing

- **Project Location:** DRC, Africa.
- **Timeline of Work:** November 2024 - Ongoing
- **QQEC :** Owner's Engineering for 200 MW DRC Africa Solar + BESS Plant.
- **Key Activities:**
 1. Site Assessment.
 2. Flood risk assessment.
 3. Grid Substation identification.
 4. Transmission Line route optimization.
 5. Solar PV and Battery optimization.
 6. LCOE Analysis.
 7. Basic Engineering.





Engineering &
Consulting

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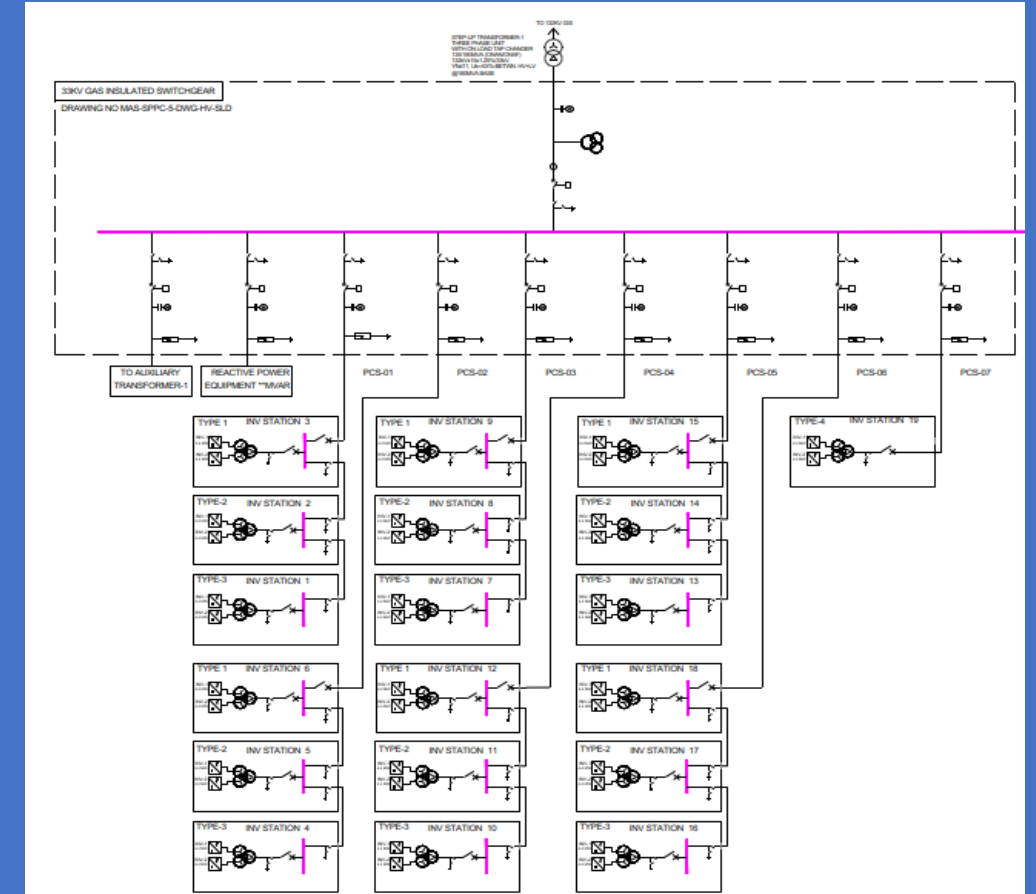
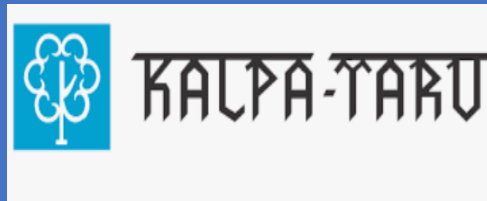
Our Projects

Power System Studies

1.7 GW (AC) Solar PV Plant

Power System Studies

- **Project Phase:** Pre-Bid Engineering.
- **Project Location:** Saudi Arabia.
- **Client:** Kalptaru Projects International Limited.
- **End Client:** Confidential.
- **QQEC Scope:** Load Flow Studies & Reactive Power Analysis.
- **Software:** ETAP.



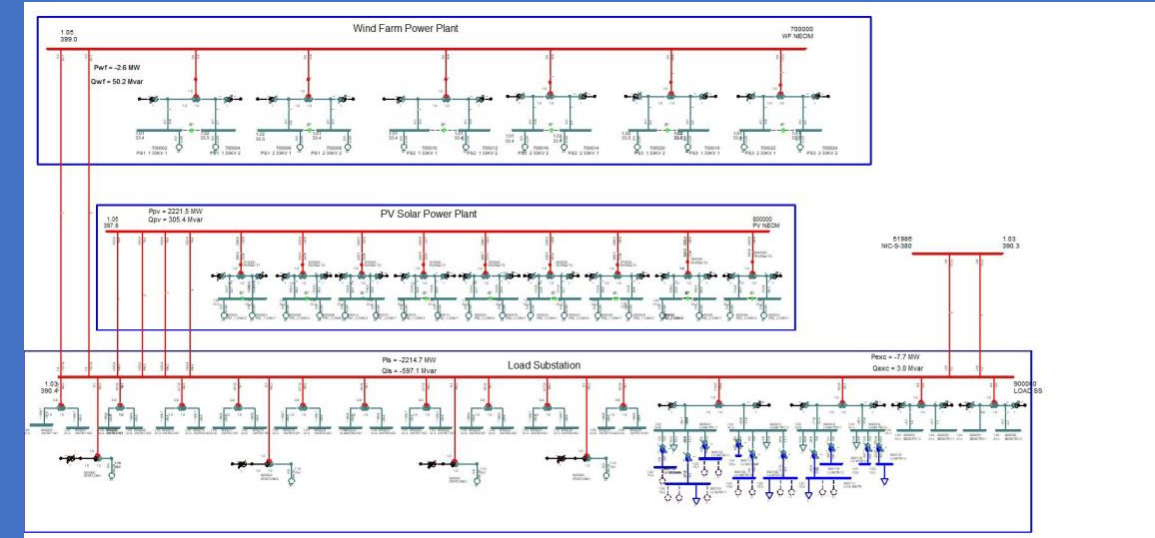
Neom Green Hydrogen Plant

Power System Studies

- **Project Location:** Saudi Arabia.
- 2.2 GW Solar, 1.8 GW Wind Farm and 400 MW BESS

QQEC Scope:

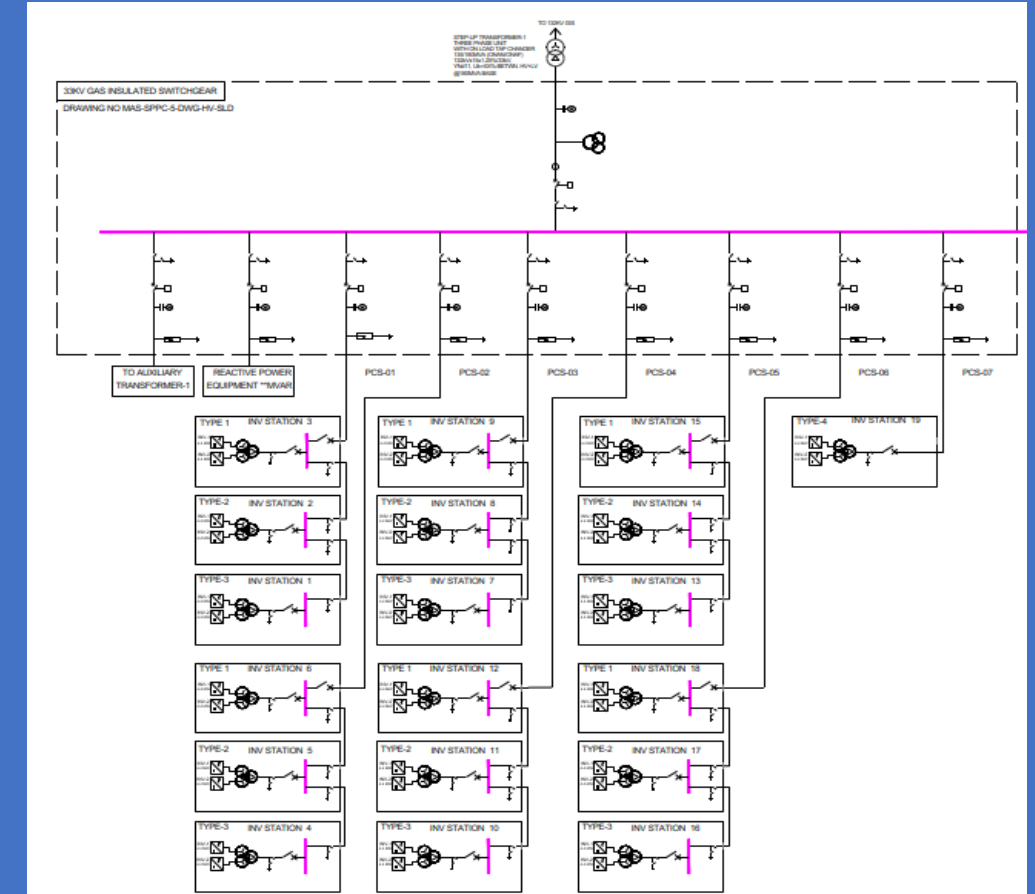
- Load Flow Studies- Network Review.
- Short Circuit Studies- Network Review.
- Relay Coordination Analysis.
- Arc Flash Analysis.



1.7 GW (AC) Solar PV Plant

Power System Studies

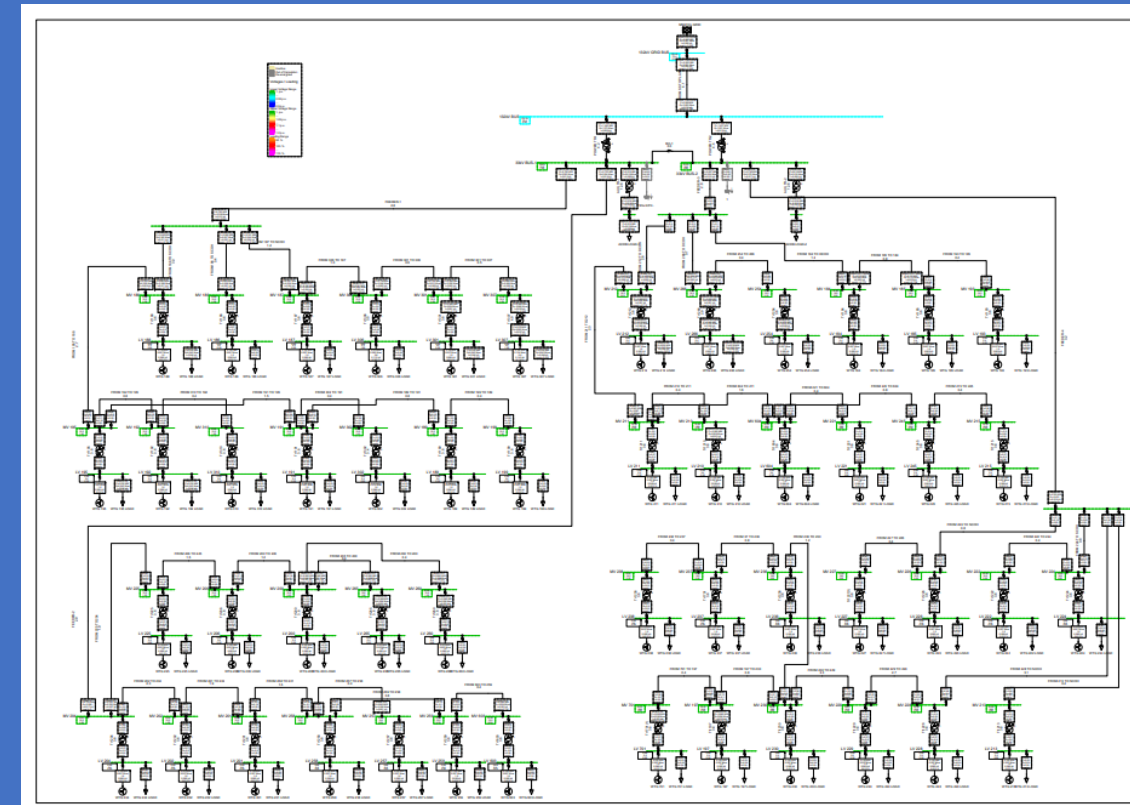
- **QEC Scope:** Load Flow Studies & Reactive Power Analysis.
- **Brief Description:** QEC Team supported client for reactive power analysis for sizing of STATCOM, Power Transformer Sizing and 33 kV feeder selection as part of pre-bid engineering.
- **Project Units:**
 1. Unit-1: 1000 MW Solar PV Plant.
 2. Unit-2: 400 MW (AC) Solar PV Plant.
 3. Unit-3: 300 MW (AC) Solar PV Plant.



126 MW Wind Power Plant

Power System Studies

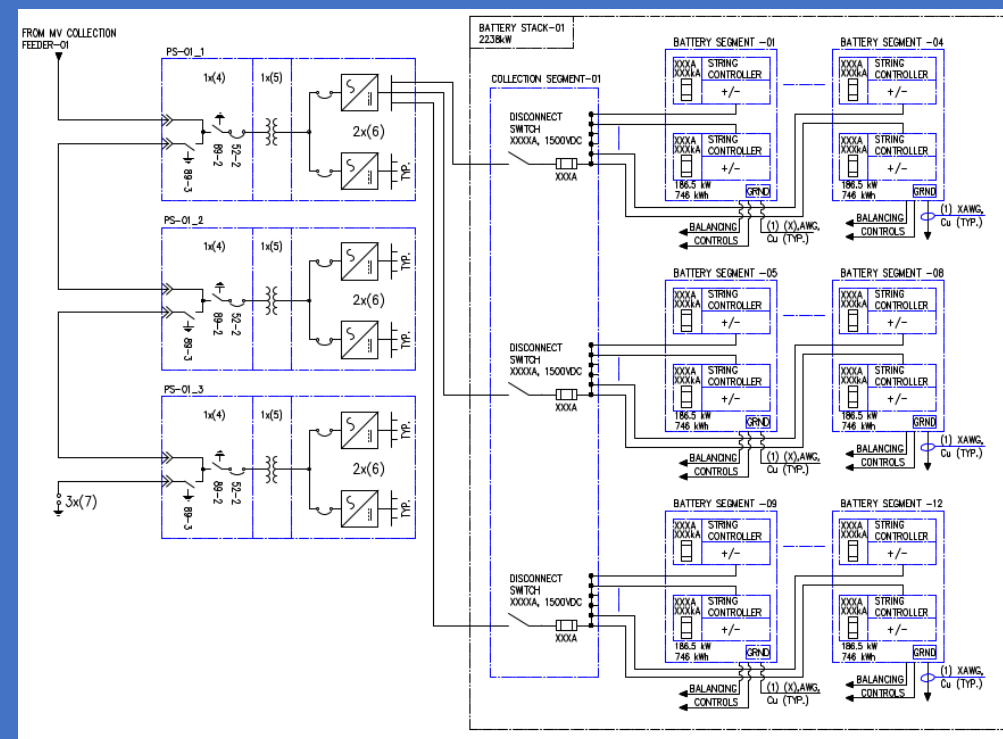
- **Project Location:** Maharashtra, India
- **Client:** Torrent Solargen Limited.
- **QQEC Scope:** Reactive Power Analysis.
- **Software:** DigSilent PowerFactory.
- **Brief Description:** QQEC Team supported client for reactive power assessment and optimization of HT bill due to reactive power consumption for wind farm connected at 132 kV Voltage level.



10 MW (AC) Solar + BESS Plant

Power System Studies

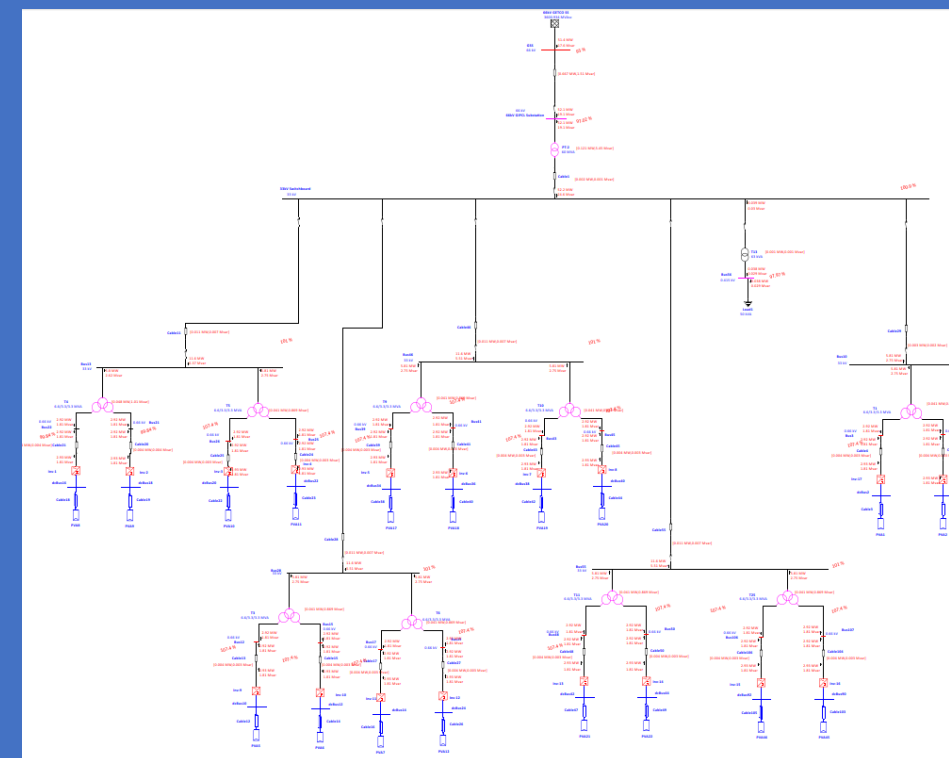
- **Project Location:** California, USA
- **Client:** Confidential.
- **QQEC Scope:** Load Flow Studies.
- **Software:** ETAP.
- **Brief Description:** QQEC Team supported client for load flow assessment as part of pre-bid engineering support. QQEC modelled network of BESS and Solar PV Plant.



75 MW (AC) Solar PV Plant

Power System Studies | Grid Code Compliance Studies

- **Project Location:** Gujarat, India
- **QQEC Scope:** Power System Studies | Grid Code Compliance Studies
- **Software:** ETAP, PSS/E and PSCAD.
- **Power System Studies:**
 1. Load Flow and Short Circuit Studies.
 2. Reactive Power Analysis.
 3. Protection Co-ordination Studies.

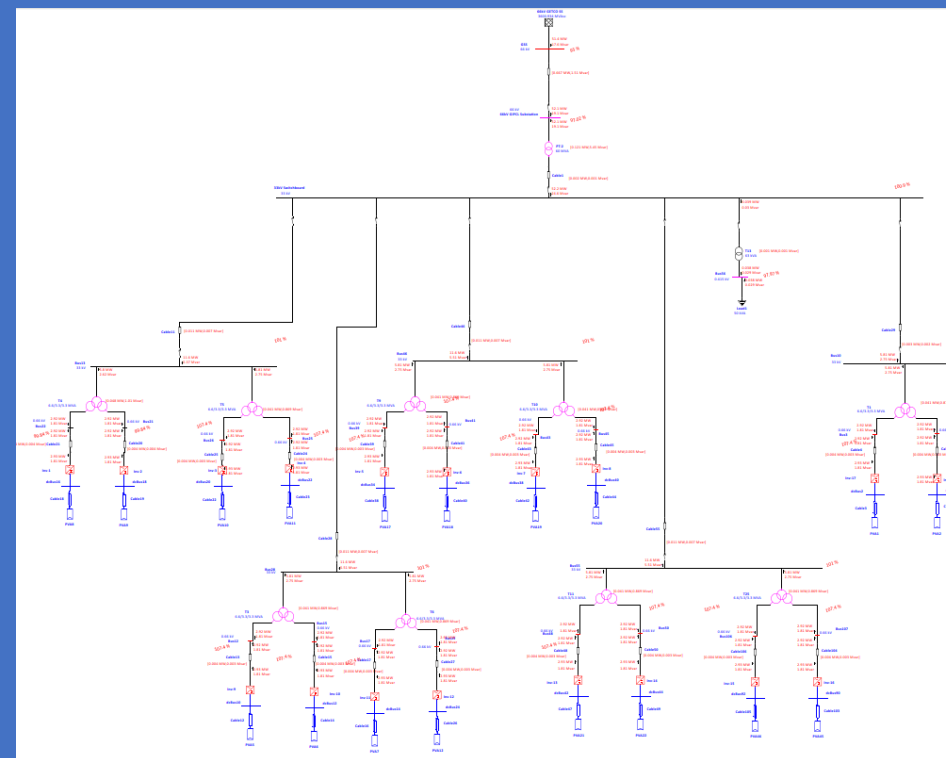


75 MW (AC) Solar PV Plant

Power System Studies | Grid Code Compliance Studies

- **Grid Code Compliance Studies:**

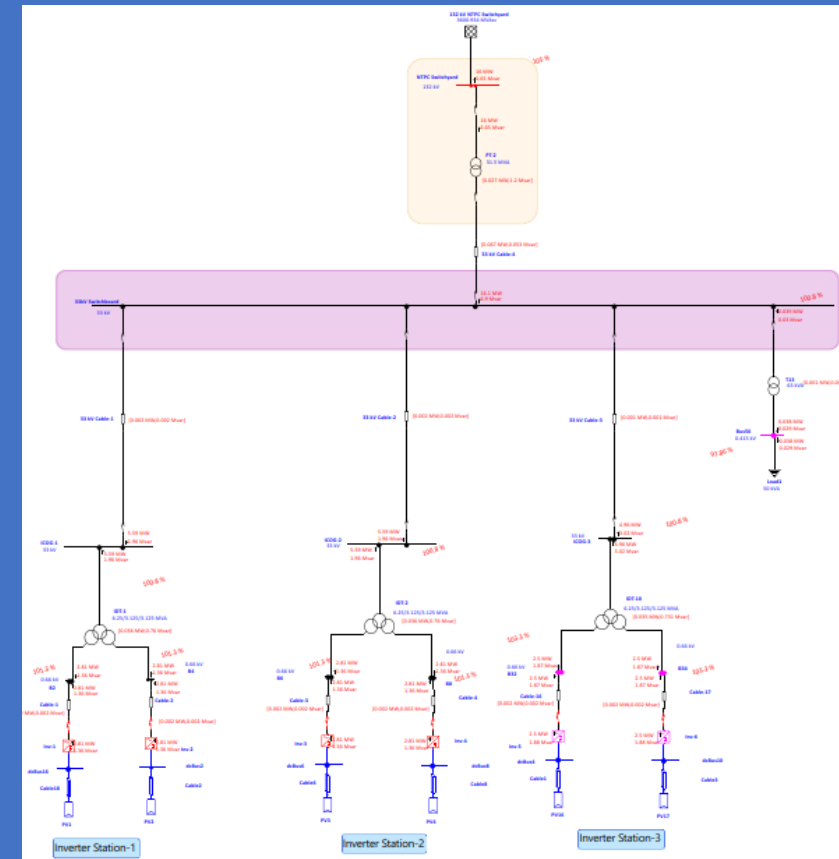
1. Load Flow Studies (Detail and Equivalent Network) – PSS/E.
2. Short Circuit Studies (Detail and Equivalent Network) – PSS/E
3. Reactive Power Analysis (PQ Curve) – PSS/E .
4. Power Quality- Harmonic and DC Current Injection – PSCAD.
5. Voltage Ride Through - LVRT and HVRT (Equivalent Network) – PSS/E and PSCAD.
6. Frequency Ride Through - (Equivalent Network) – PSS/E and PSCAD.
7. Ramping Capability Test- (Equivalent Network) – PSS/E and PSCAD.



15 MW (AC) Solar PV Plant

Power System Studies | Grid Code Compliance Studies

- **Project Location:** Chhattisgarh, India
- **QQEC Scope:** Power System Studies | Grid Code Compliance Studies
- **Software:** ETAP, PSS/E and PSCAD.
- **Power System Studies:**
 1. Load Flow and Short Circuit Studies.
 2. Reactive Power Analysis.
 3. Protection Co-ordination Studies.

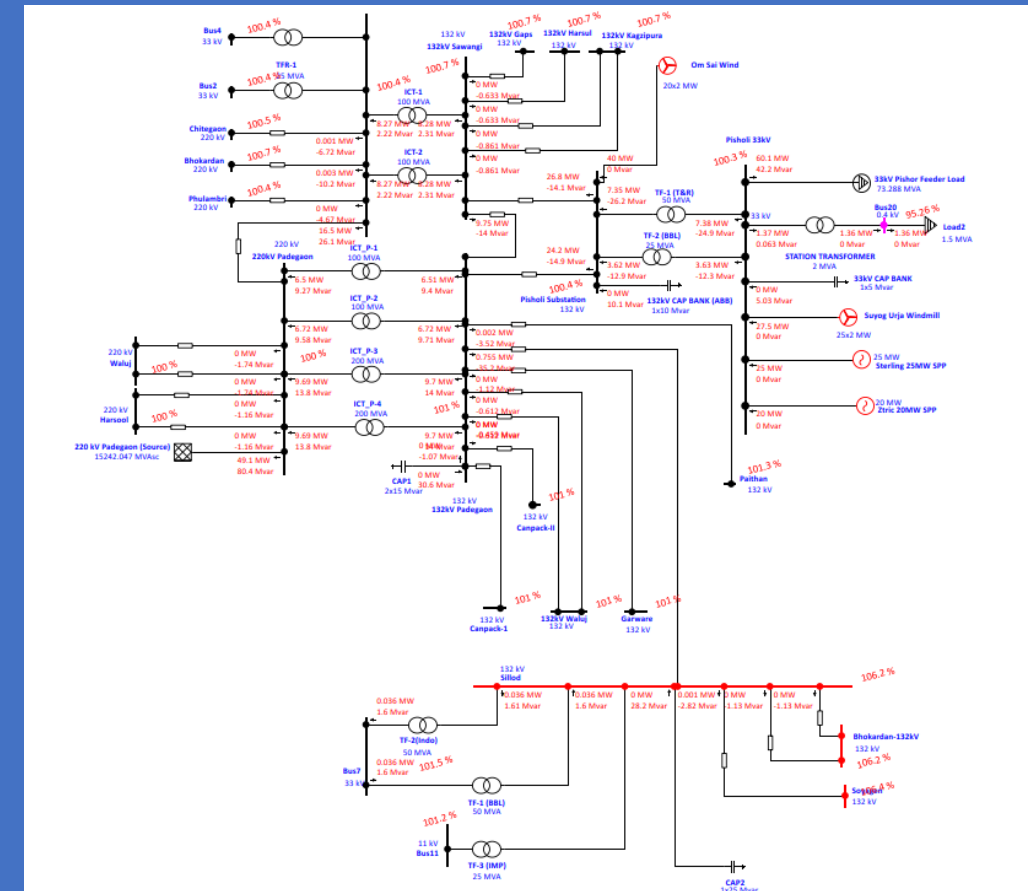


-

25 MW (AC) Solar PV Plant

Grid Impact Studies

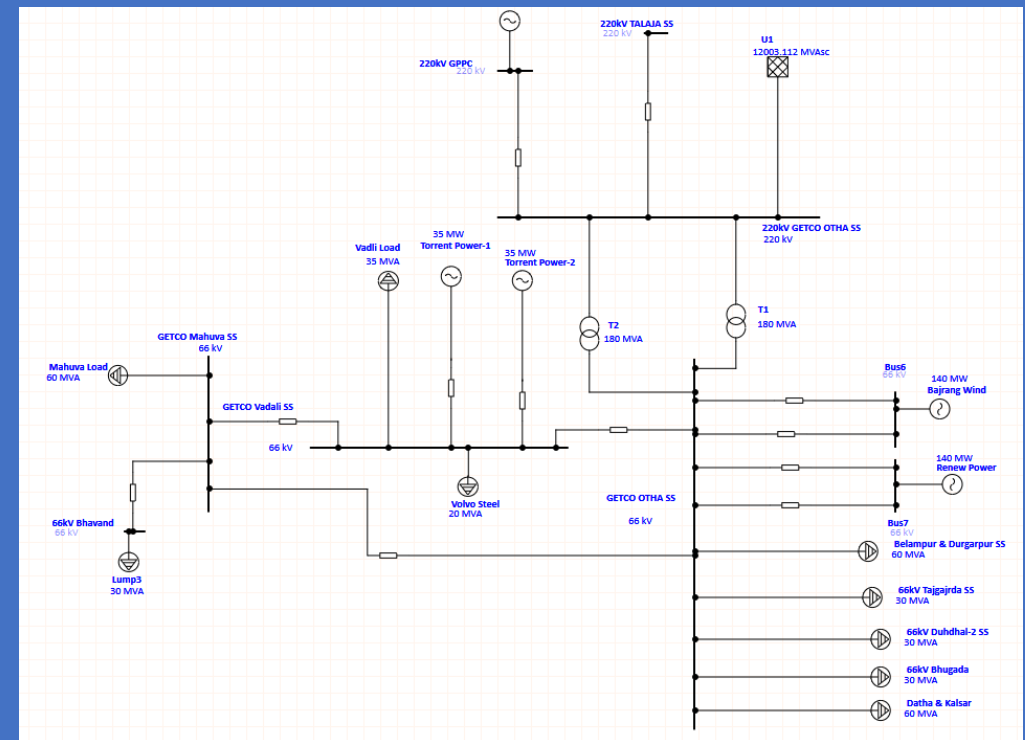
- **Project Location:** Maharashtra, India
- **Client:** Confidential.
- **QQEC Scope:** Grid Impact Studies.
- **Software:** ETAP.
- **Phase:** Feasibility Studies.
- **Grid Impact Studies:**
 1. Modelling of MSETCL (state utility) network .
 2. Load Flow and Short Circuit Studies.
 3. N-1 Contingency Analysis.



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Grid Impact Studies

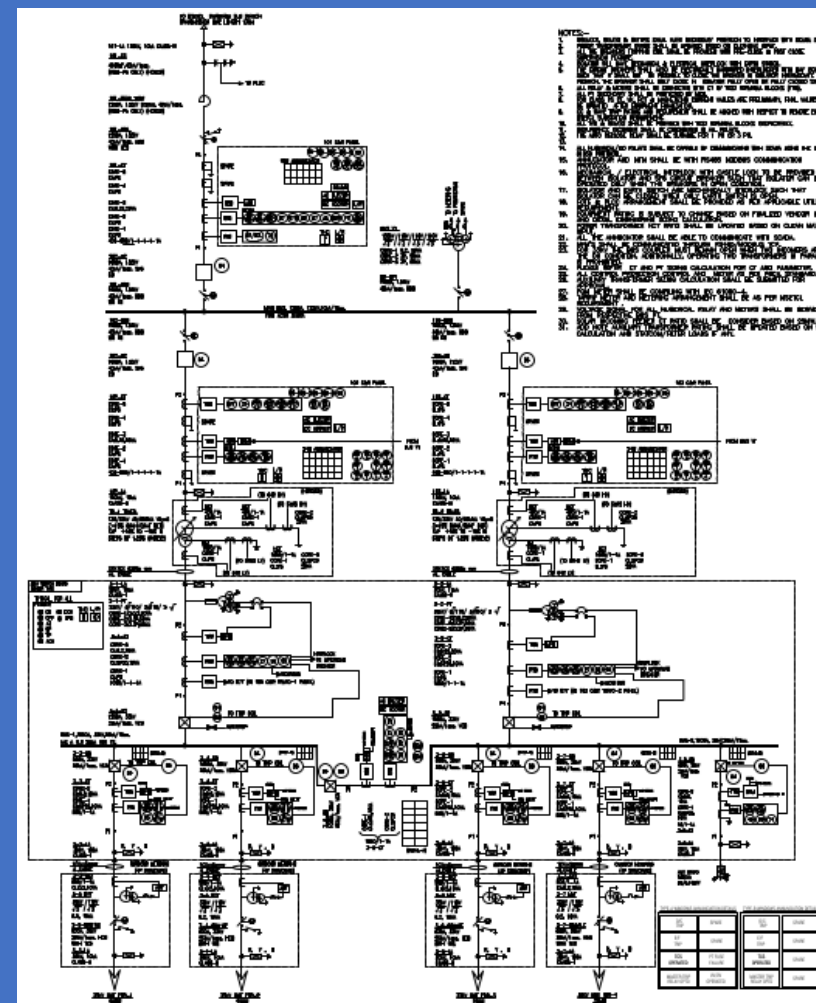
- **Project Location:** Gujarat, India
- **Client:** Torrent Power Limited
- **QREC Scope:** Grid Impact Studies.
- **Software:** ETAP.
- **Grid Impact Studies:**
 1. Modelling of GETCO (state utility) network .
 2. Load Flow and Short Circuit Studies.
 3. N-1 Contingency Analysis and Curtailment Analysis.



100 MW (AC) Solar PV Plant

Power System Studies

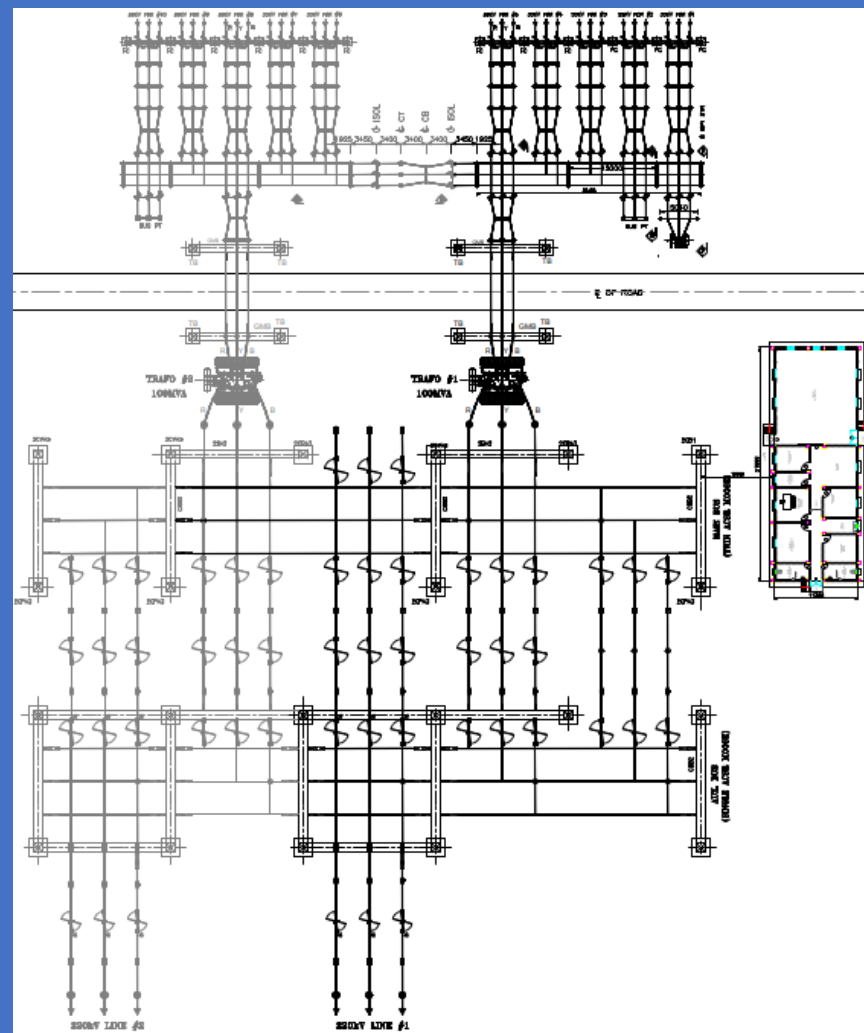
- **Project Location:** Maharashtra, India
- **Client:** CleanMax
- **QEC Scope:** 132 kV Pooling Substation Detail Engineering and Power System Studies.
- **Software:** ETAP.
- **Power System Studies:**
 1. Load Flow and Short Circuit Studies.
 2. Protection Co-ordination and Arc Flash Studies.
 3. Harmonic Studies.
 4. Grounding Studies.



100 MW Wind Power Plant

Power System Studies

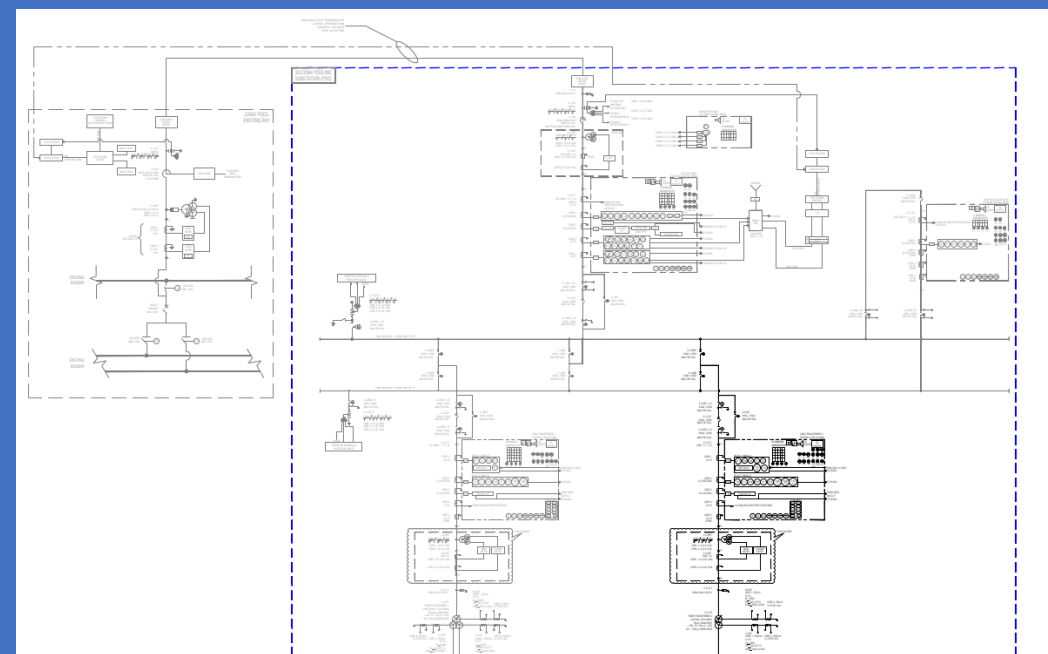
- **Project Location:** Gujarat, India.
- **Client:** CleanMax.
- **QEC Scope:** 220 kV Pooling Substation Detail Engineering.
- **Software:** ETAP.
- **Power System Studies:**
 1. Load Flow and Short Circuit Studies.
 2. Protection Co-ordination and Arc Flash Studies.
 3. Harmonic Studies.
 4. Grounding Studies.



100 MW Wind Power Plant

Power System Studies

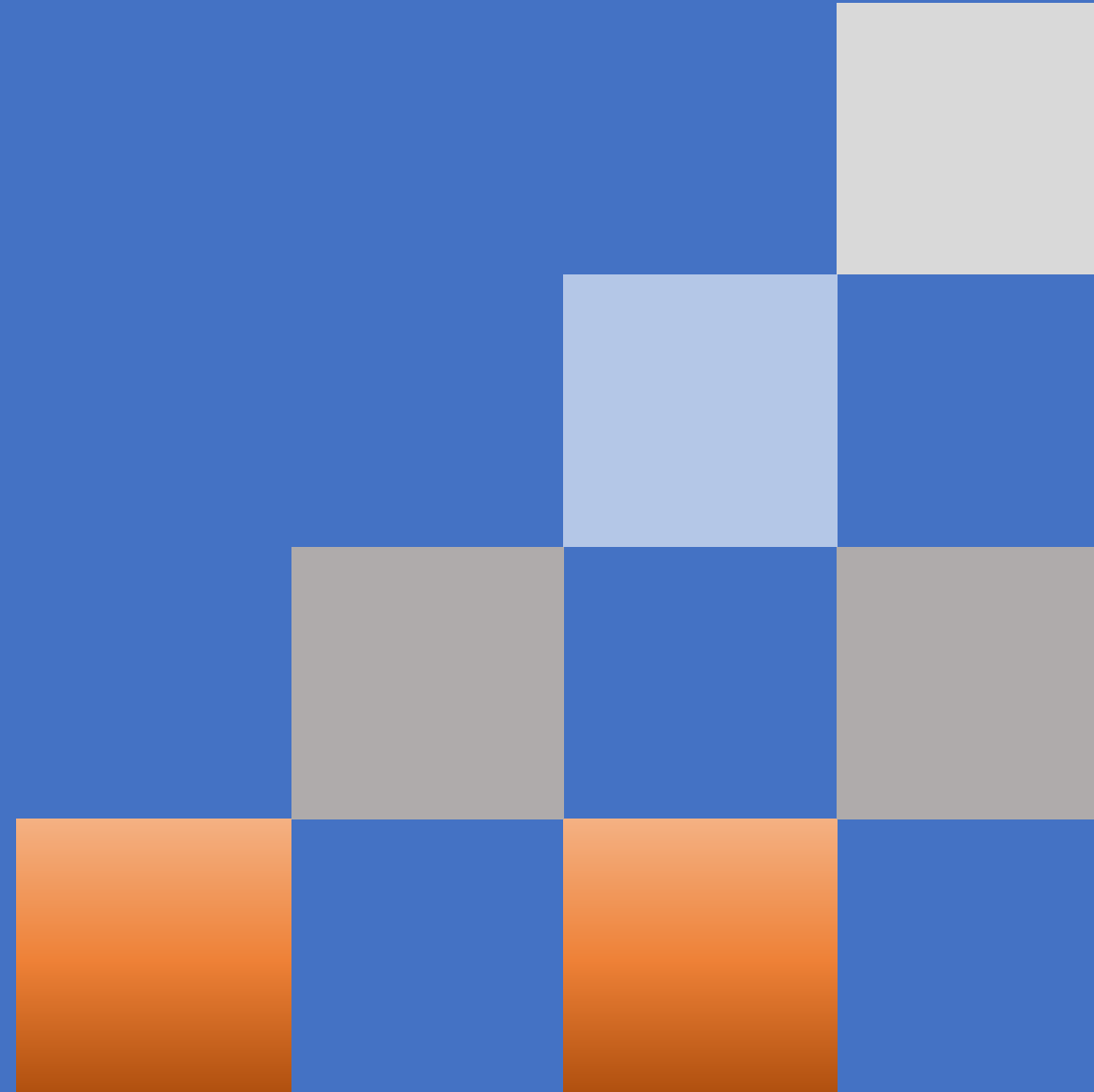
- **Project Location:** Madhya Pradesh, India.
- **Client:** Sprng Energy (Shell Group)
- **QQEC Scope:** 220 kV Pooling Substation Detail Engineering.
- **Software:** ETAP.
- **Power System Studies:**
 1. Load Flow Studies.
 2. Short Circuit Studies.
 3. Protection Co-ordination and Arc Flash Studies.



sprng
ENERGY
A Member of the Shell Group

Our Projects

Pre-Bid Engineering



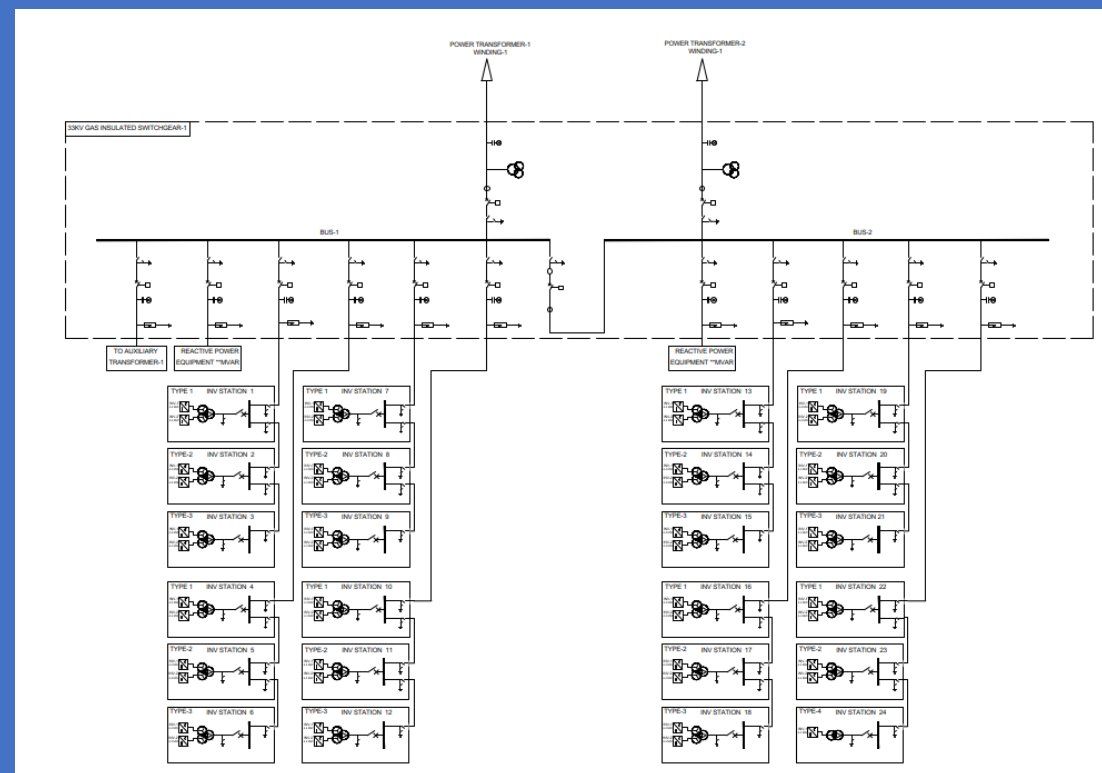
2x2 GW (AC) Solar PV Plant

Pre-Bid Engineering

- **Project Location:** Saudi Arabia

Scope:

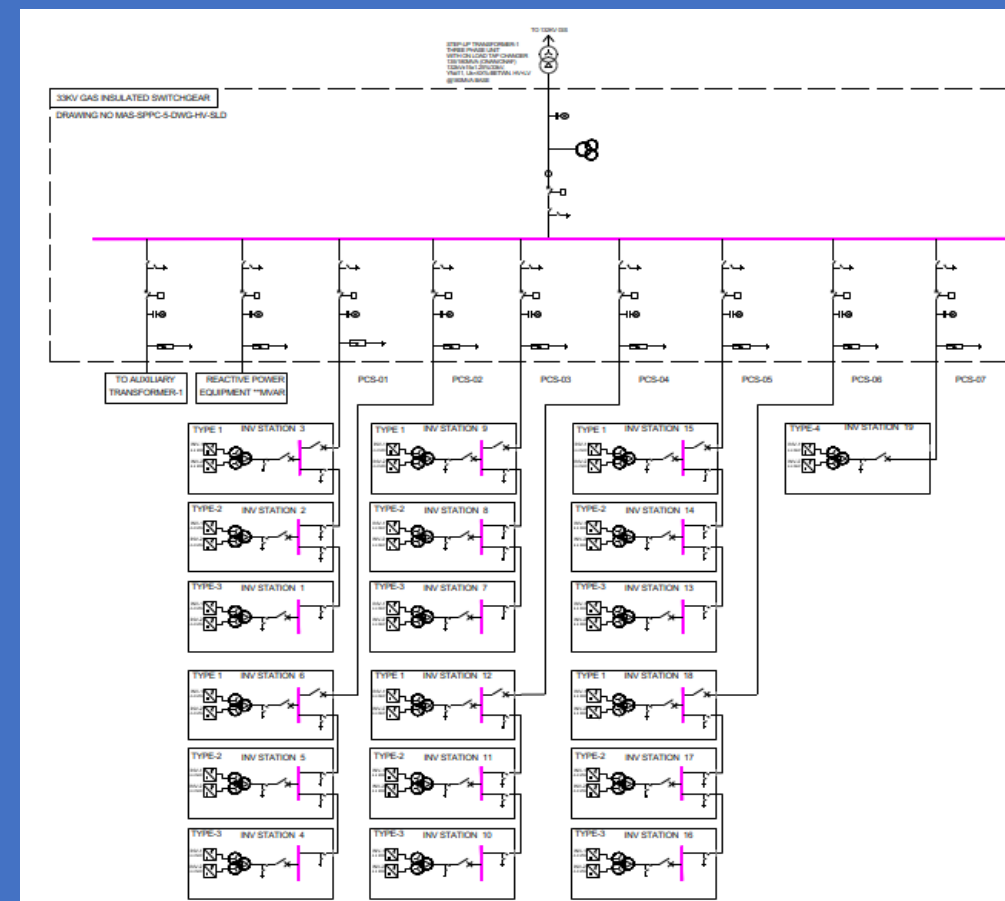
- Solar PV Plant Pre-Bid Engineering.
- MMS Tracker foundation design.
- Levelling and grading analysis.
- PV Plant Electrical Engineering
- 132 kV GIS Pre-Bid Engineering.
- Reactive Power Analysis.



1.7 GW (AC) Solar PV Plant

Pre-Bid Engineering

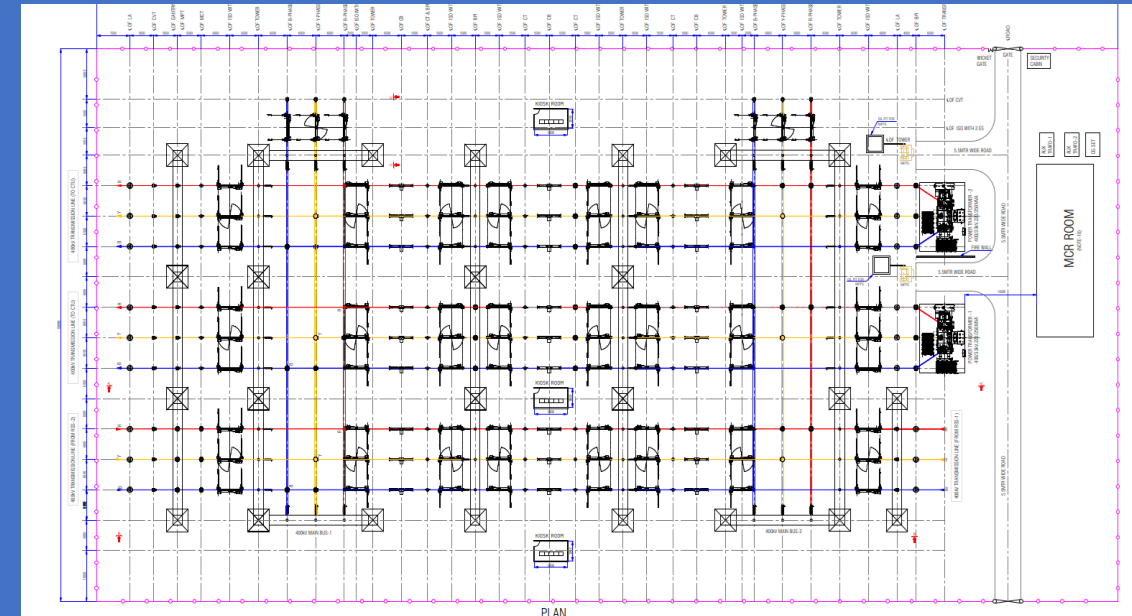
- **Project Phase:** Pre-Bid Engineering.
- **Project Location:** Saudi Arabia.
- **Client:** Kalptaru Projects International Limited.
- **End Client:** Masdar.
- **QQEC Scope:** Pre-Bid Engineering.



1400 MW (AC) Solar PV Plant

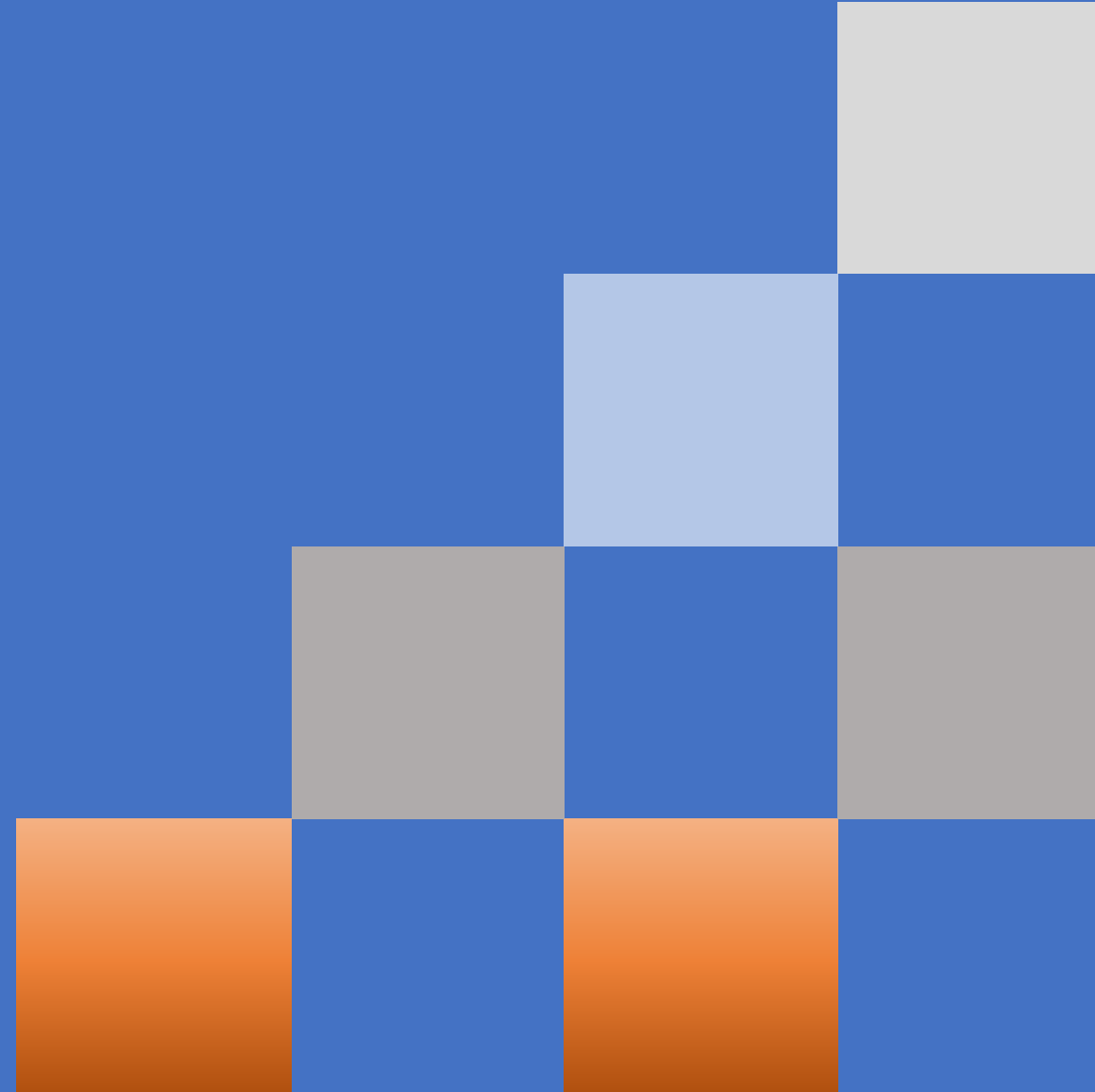
Switchyard Pre-Bid Engineering

- **Project Location:** Bikaner, Rajasthan.
- **Scope:** 33/400 kV Pooling Substation (three numbers).
- Pre-Bid Engineering.
- Basic Engineering.
- EPC Contractor offer Evaluation.
- Technical Bid Analysis.



Our Projects

Detail Engineering



400 MWp NTPC Solar Park

Solar PV Plant - Detail Engineering

- **Project Location:** Barethi, Madhya Pradesh, India

QQEC Scope:

- Solar PV Plant Detail Engineering.
- Technical Procurement Support.
- Power System Studies in ETAP Software.
- Civil Engineering for Solar Park.



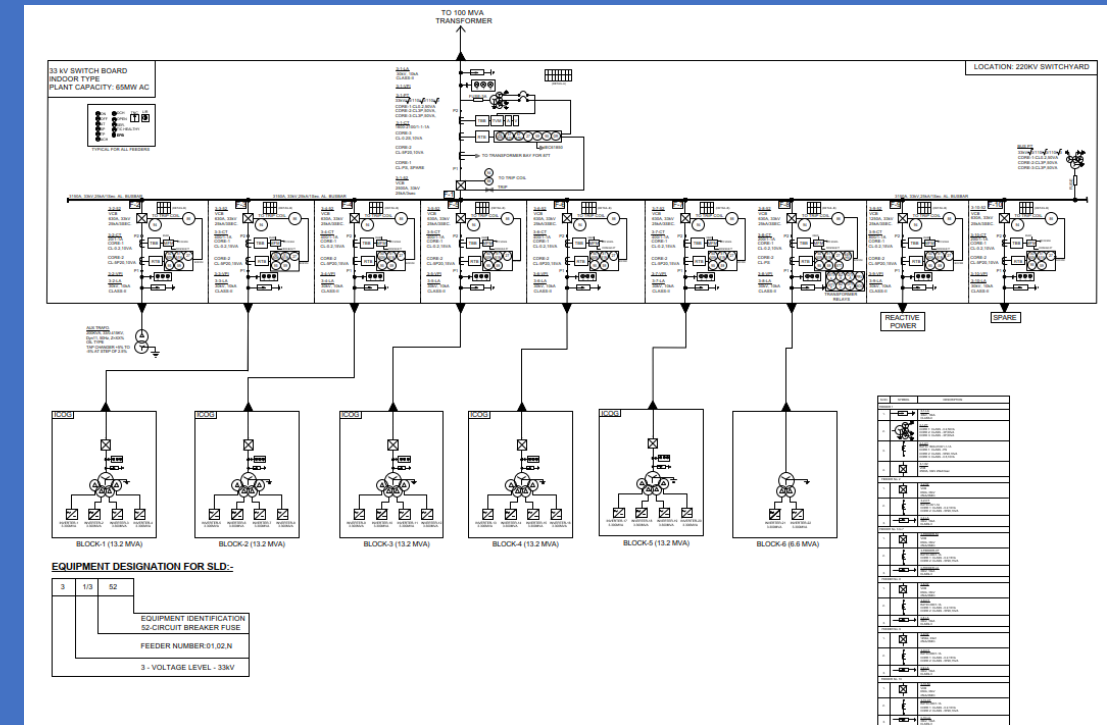
65 MW (AC) Solar PV Plant

Solar PV Plant, 220 kV PSS and GSS- Detail Engineering

- **Project Location:** Maharashtra, India

QQEC Scope:

- Solar PV Plant Detail Engineering.
- 33/220 kV Pooling Substation Detail Engineering.
- 220 kV Transmission Line- Review Engineering.
- 220 kV Bay Extension- Review Engineering.
- Power System Studies.



50 MW (AC) Solar PV Plant

Solar PV Plant - Detail Engineering

- **Project Location:** Gujarat, India

QQEC Scope:

- Solar PV Plant Detail Engineering.
- 33 kV Transmission Line- Detail Engineering.
- Power System Studies

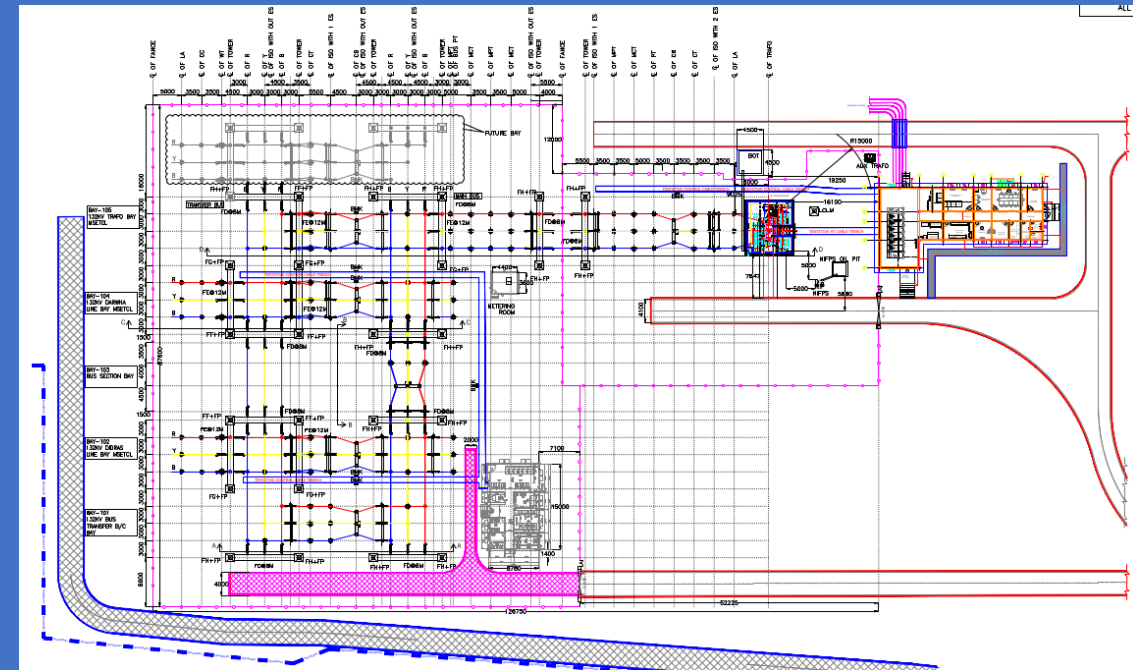
(including Load Flow, Short Circuit, Reactive Power Analysis, Relay Coordination)



72 MW (AC) Solar PV Plant

PSS and MSETCL LILO Switchyard Detail Engineering

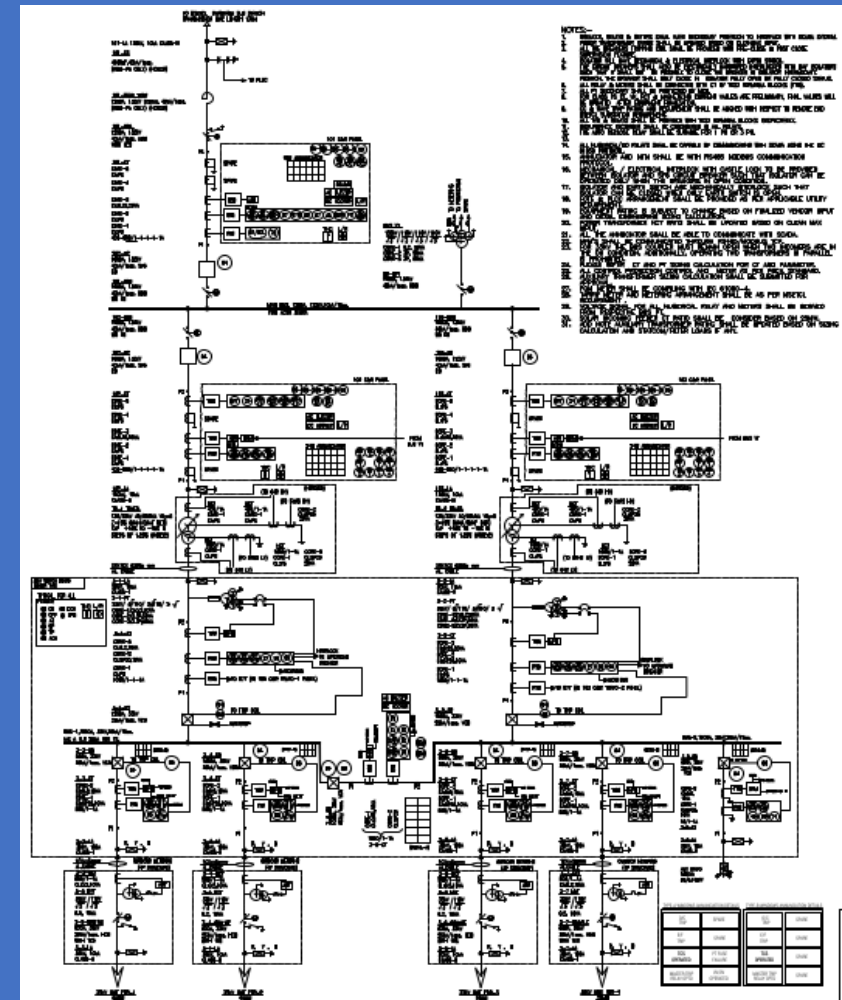
- **Project Location:** Bagapur, Dharwa, Yavatmal, Maharashtra, India
- **QEC Scope:** Switchyard Detail Engineering.
- Engineering Calculations.
- Electrical Engineering Layout.
- Civil Structure Design.
- Civil Foundation Design.
- Issue for Construction Drawing.
- Power System Studies.



100 MW (AC) Solar PV Plant

132 kV PSS- Detail Engineering

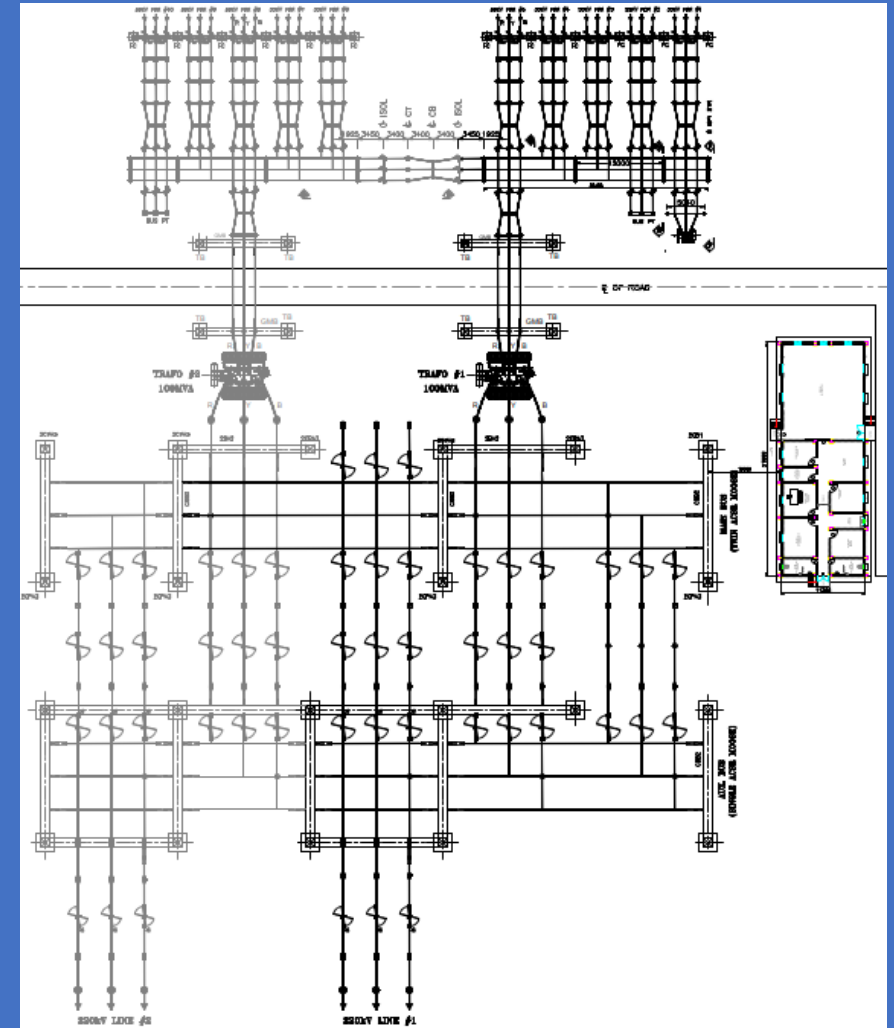
- **Project Location:** Maharashtra, India
- **Client:** CleanMax
- **QEC Scope:** 132 kV Pooling Substation Detail Engineering.
- PSS Single Line Diagram.
- PSS Plan and Elevation.
- Engineering Calculations.
- Engineering Layout.
- Power System Study.



100 MW Wind Power Plant

Pooling Substation Detail Engineering

- **Project Location:** Gujarat, India.
- **Client:** CleanMax.
- **QEC Scope:** 220 kV Pooling Substation Detail Engineering.
- PSS Single Line Diagram.
- PSS Plan and Elevation.
- Engineering Calculations.
- Engineering Layout.
- Power System Study.



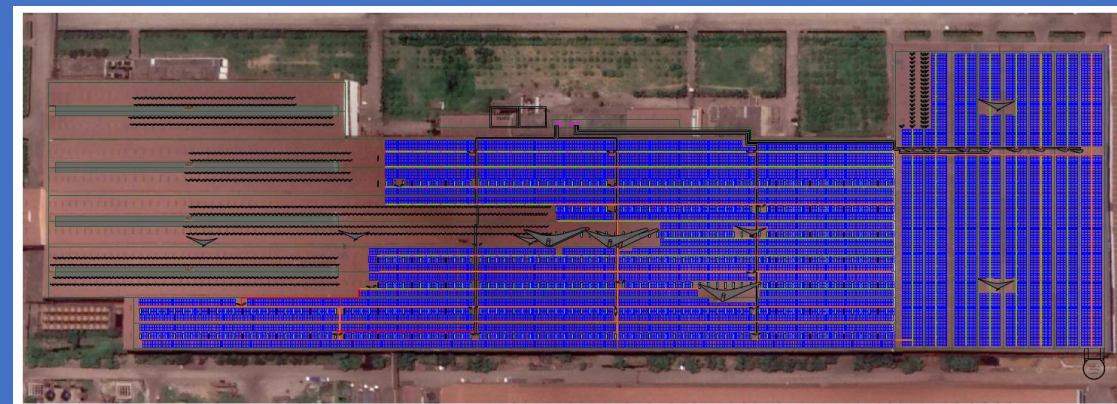
Our Projects

Detail Project Report

15 MWp Rooftop Solar PV Plant

Detail Project Report (DPR)

- **Project Location:** Angul, Odisha
- **Client:** Jindal Power & Steel Limited
- **QQEC Scope:** DPR and Energy Yield Assessment.
- **Unit-1:** 12 MWp Rooftop PV Plant
- **Unit-2:** 3.25 MWp Rooftop PV Plant



Reach Us...



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Anand

Thank You!!!



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