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ABOUT US | SEN EDS

On the outset, we introduce ourselves as a team of Engineers with adequate knowledge and experience. Our concern was established in 2012. We are designing various Electrical Projects such as Distribution system, Transmission system, Oil & Gas, Industrial Projects, Switchyard, Paint Industry etc. and Civil Projects.

We are a pure Engineering Consultancy, exclusively focused on providing services in the best interests of our clients and their projects. We have a proven capability of developing engineering designs as per scope, identifying, mitigating and managing the risks associated with complex process and power generation/distributionprojects. Studies, Analysis, Design, Planning, Simulations, Training and also Specialised in ***ETAP*** *and* ***EMTP*** *software.*

SEN ELECTRICAL DESIGN SYSTEMS *has proven Expertise and have been working with a substantial list of clients in achieving their goals on time and this practice has made as lead Consultants. We have been offering good services and have built up an excellent rapport with all our prestigious Clients.*

We are one of the Approved Consultant of FEWA, Dubai*.*

Our main goal is to offer high quality Services in terms of Consultancy Solutions and Projects by working together with our Clients to assure their total satisfaction.

ABOUT US | SENEDS

Since its inception in 2015, SENEDS has grown steadily to become one of the top class engineering organizations offering quality service in Engineering.

Dedicated professionals, highly motivated engineers and supporting staff, high quality and precision tools, tackles, testing instruments and Equipments, enable SENEDS to adopt latest technologies and guarantee absolute customer satisfaction.

Total customer support from SENEDS starts with an understanding of customer's requirement, offering the right solution followed by complete engineering support till project completion. SENEDS has association with quite a lot of prestigious and noteworthy Electrical projects.

ISO-9001:2015 Certified for providing Consultancy and Design services for Power Plants , Substations and Power Distribution systems
SENEDS have completed more than 200 Project Design assignments.

OUR CAPABILITIES

We are Specialized in the following Areas:

We Consult for Electricals from Conceptual stage , Design , Detailed Engineering, Preparation of Technical Specification for EPC Packages, Tender Evaluation, Support during execution till Commissioning.

- **Large Solar Power Plants up to 1000 MW.**
- Data Centres .
- Thermal Power plants.
- Steel Plants.
- Cements Plants.
- Waste Water Treatment Plants.
- Paint Factories.
- Substation Design.
- Airport Projects.
- Oil and Gas Plants.
- Refineries.

Preparation of Feasibility Reports and detailed Project Reports for Wind and Solar Power Plants.

Detailed Design and complete engineering for **CIVIL AND ELECTRICAL DESIGN**

- EHV substations
- Detailed Design and complete engineering for Large
- Solar Power Plant up to 1000MW
- Industrial electrical system Design for Process Plants
- Switchyard civil works

CODE OF PRACTICES

The Code Of Practices That We Follow In Doing Electrical Design Are :

- Busbar and Conductors Design :
  - IEC - 865 - Part I (1993) - " Short Circuit Current - Calculation of Effects".
  - IEC 909 - Short circuit current calculations in three phase AC systems.
  - IS:802 - Code of practice for Use of structural steel in overhead transmission line towers.
  - Electra-68 -1980.
  - INDAL Aluminium busbars book.
- Short Circuit Force for Towers and Structures:
  - IEC - 865 - Part I (1993) - " Short Circuit Currents - Calculation of Effects".
- Sag tension Calculations:
  - IS:802-Code of practice for Use of structural steel in overhead transmission line towers
- Direct Stroke Lightning Protection Calculations:
  - IS: 2309-1989-Protection of Buildings and Structures against Lightning
  - High Voltage Engineering by " Prof. Razevig
- Current Transformer & Voltage Transformer Sizing Calculations:
  - IS: 2705-Part 1 to Part 4 - For Instrument Transformers.
  - IEC-60044-Part 2 and Part 5 - Voltage Transformer-VT and CVT.
- Earthing/ Grounding system Design:
  - IEEE Std -80 -2013- IEEE guide for Safety in AC Substation Grounding
- Lighting System:
  - Dialux Software
- LT Cable sizing-Voltage Drop Calculation.
- Power System Study:
  - Electrical Transient Analyzer Program (ETAP) .
  - Power System Simulation for Engineering (PSS/E) .

ENGINEERING CAPABILITIES

We Undergo the following process for the below Mentioned Plants :

1. SUBSTATION ELECTRICAL & CIVIL WORKS:

- ELECTRICAL DRAWINGS:
  - Main Single Line Diagram Preparation .
  - Overall switchyard Equipment Layout Preparation .
  - Clearance Layouts .
  - Direct Lightning Protection Layouts .
  - Earthing & Illumination Layouts .

- ELECTRICAL SIZING:
  - Bus bar& String Insulator Sizing .
  - CT, CVT, VT & Earthing Transformer Sizing .
  - Cable Engineering - Cable sizing, HT Power & Control .
  - Cable schedule, LT Power & Control cable schedule .
  - Battery Charger Selection, Battery Sizing .

- AUXILIARY SYSTEM
  - LTAC Switchgear Design .
  - ACDB & DCDB Design .
  - Illumination Design, Layout & Schemes .

- PROTECTION SYSTEM DESIGN:
  - Direct Lightning Protection for both Switchyard & control room .
  - Earthing protection for both Switchyard & control room .
  - Short Circuit Force Calculation for both Tower Structure & Switchyard Equipments .
  - Power System Protection Design &SLD preparation .

- SWITCHYARD CIVIL WORKS
  - Preparation of Foundation layout
  - Preparation of Structural layout
  - Fencing and Gate details
  - Equipment Structural Design calculation
  - Gantry and Tower Structure Design Calculation
  - Dran layout preparation

- Switchyard-Instrumentation works
  - Scada monitoring system
  - CCTV
  - I/O List
  - Fire fighting System.

2. LARGE THERMAL POWER PLANT - ELECTRICS:

- Main Single Line Diagram Preparation .
- Overall Plant Layout .
- Equipment Layout for each Process area .
- Earthing and Lighting Layout for all areas .
- Lighting Layout and Scheme for all areas .
- HT & LT SLD including PCCs & MCCs for all areas in Power Plant .
- Motor control schemes .
- Power & control cable schedule preparation .
- Overall Plant Cable tray routing layout .
- Cable tray routing layout inside Power Block .
- Turbine Hall Electrical Layout .
- Electrical Layout with Bus duct between Alternator & GT / UAT .
- Transformer Yard Layout .

3. SOLAR POWER PLANTS :

- Main Single Line Diagram Preparation .
- Overall Plant Layout .
- Equipment Layout for the Plant .
- Earthing and Lighting Layout for all areas .
- Lighting Layout and Scheme for all areas .
- HT & LT SLD including PCCs & MCCs for all areas in Power Plant .
- Motor control schemes .
- Power & control cable schedule preparation .
- Overall Plant Cable tray routing layout .
- Cable tray routing layout inside Power Block .
- Transformer Yard Layout .
- Lightening arrestor Layout and its calculation
- Preparation of Foundation layout
- Preparation of Structural layout
- Fencing and Gate details
- Equipment Structural Design calculation
- PV Module Structure Design Calculation
- Dran layout preparation Scada monitoring system
- CCTV
- I/O List
- Fire fighting System.

4. INDUSTRIAL ELECTRIFICATION (PROCESS PLANTS):

- Main Single Line Diagram Preparation .
- Overall Plant Layout with Cable routing/ Road Lighting and Communication system .
- Equipment Layout for each Process area .
- Earthing and Lightning Layout for each Process area .
- Lighting Layout and Scheme for each Process area .
- HT & LT SLD PCCs & MCCs for each Process area .
- Power factor correction scheme Design .
- Motor control schemes .
- Power & control cable schedule preparation .
- Cable tray routing layout for each Process area .

5. SCADA :

- Energy Management System (EMS)
- Electrical Distribution System Automation

6. POWER & ENERGY AUDIT :

- To Review Electrical Distribution Like Single Line Diagram for Transformer Loading, Emergency Loading and also Electrical Distribution in Various Areas.
- To Study Power Factor and options for Power Factor Improvement.
- To Study Power Quality issues like Harmonics, Current Imbalance, Voltage Imbalance, etc.,
- Explore Energy Conservation options in Electrical Distribution Systems.
- To Conduct Motor Load for all Drives.

SOFTWARES

The Softwares That We Prefer In Doing Electrical Design Are :

- E-TAP - For Power System Studies Such as
  - Load Flow Analysis
  - Short circuit Analysis
  - Arc – Flash Study
  - Reliability Study
  - In-Rush Study
  - Relay Co-ordination Study
  - Motor Starting Analysis
  - Underground Raceway system.
  - Substation Earthing design
  - Transient stability study
  - power factor compensation study
- EMTP- INSULATION COORDINATION
  - TOV Analysis
  - Switching Overvolatge
  - Transformer Energisation
  - Cable Energisation
  - TRV Analysis
  - Voltage Imbalance study.
  - Flicker Analysis
  - VVVF Study.

- Grid Compliance study in Power System Such as
  - Load Flow Analysis
  - Harmonic Analysis
  - Low Voltage and High Voltage Ride through.
  - Reactive Power
  - Frequency Ride Through
- AutoCAD - For Design and Detailed Engineering
- MICROSTATION – For 2D & 3D Design and Drafting
- SMARTPLANT – Plant Engineering Design & 3D modelling
- AVEVA DIAGRAM – For Engineering and Design
  - All Discipline As-Built/New Drawings (2D Drafting)
  - MEP Design & Drafting
  - Process P&ID, PFD, UFD, HFD, MSD and Block flow Diagrams.

- Dialux - For Lighting Fixtures and lux Level Calculations in :
  - Indoor Lighting
  - Outdoor Lighting
  - Street Lighting

PROJECTS

List of Ongoing Projects

Solar Power Plants:

CLIENT	UK Grid connections
PROJECT	1000MW Solar Plant with 400 KV SUBSTATION – Stay Thorpe
JOB DESCRIPTION	**DESIGN & ENGINEERING FOR CIVIL:** EQUIPMENT FOUNDATION LAYOUT AND STRUCTURAL LAYOUT PREPARATION, DRAIN LAYOUT PREPARATION, EQUIPMENT STRUCTURE SIZING CALCULATION, PV STRUCTURE SIZING CALCULATION, ROAD AND FENCE DESIGN, TOWER STRUCTURE SIZING CALCULATION, SWITCHYARD LEVELLING LAYOUT, CABLE TRAY ROUTING LAYOUT. **DESIGN & ENGINEERING FOR ELECTRICAL:** MAIN SINGLE LINE DIAGRAM PREPARATION, OVER ALL SWITCHYARD EQUIPMENT LAYOUT PREPARATION, CLEARANCE LAYOUT, LIGHTNING PROTECTION LAYOUT, EARTHING AND ILLUMINATION LAYOUT. CT, CVT, VT AND EARTHING TRANSFORMER SIZING, CABLE SIZING, HT POWER AND CONTROL, AC AND DC CABLE SCHEDULE, LT POWER AND CONTROL CABLE SCHEDULE, BATTERY CHARGER SELECTION, BATTERY SIZING, INVERTER SPECIFICATION ETC. GRID STUDY: LOW AND HIGH VOLTAGE RIDE THROUGH STUDY, FREQUENCY RIDE THROUGH ANALYSIS, CRITICAL FAULT ANALYSIS, VOLTAGE CONTROL STUDY, REACTIVE POWER COMPENSTATION STUDY, HARMONIC ANALYSIS, TRANSIENT STABILITY STUDY, LOAD FLOW STUDY, SHORT CIRCUIT ANALYSIS, CHECK ZERO MISS IN THE NETWORK.

CLIENT	Brook Pvt Ltd
PROJECT	450 MW SOLAR POWER PLANT- Rajasthan
JOB DESCRIPTION	CONSTRUCTION OF 230/11 KV SUBSTATION, 450 MW, CONTROL STATION, CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRAY AND TRUNK SIZING, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT, SHORT CIRCUIT CALCULATION, TRANSFORMER DESIGN, SUBSTATION DESIGN ETC, SCADA AND COMMUNICATION SYSTEM. BUSBAR AND STRING INSULATOR SIZING, CT, CVT, VT AND EARTHING TRANSFORMER SIZING, CABLE SIZING, HT POWER AND CONTROL, AC AND DC CABLE SCHEDULE, LT POWER AND CONTROL CABLE SCHEDULE, BATTERY CHARGER SELECTION, BATTERY SIZING. POWER SYSTEM STUDY: ARC FLASH STUDY.

CLIENT	SEMBCORP - SINGAPORE
PROJECT	16 MW SOLAR POWER PLANT
JOB DESCRIPTION	**DESIGN & ENGINEERING FOR ELECTRICAL:** MAIN SINGLE LINE DIAGRAM PREPARATION, OVER ALL SWITCHYARD EQUIPMENT LAYOUT PREPARATION, CLEARANCE LAYOUT, DIRECT LIGHTNING PROTECTION LAYOUT, EARTHING AND ILLUMINATION LAYOUT. BUSBAR AND STRING INSULATOR SIZING, CT, CVT, VT AND EARTHING TRANSFORMER SIZING, CABLE SIZING, HT POWER AND CONTROL, AC AND DC CABLE SCHEDULE, LT POWER AND CONTROL CABLE SCHEDULE, BATTERY CHARGER SELECTION, BATTERY SIZING. GRID STUDY: LOW AND HIGH VOLTAGE RIDE THROUGH STUDY, FREQUENCY RIDE THROUGH ANALYSIS, CRITICAL FAULT ANALYSIS, VOLTAGE CONTROL STUDY, REACTIVE POWER COMPENSTATION STUDY, HARMONIC ANALYSIS, TRANSIENT STABILITY STUDY, LOAD FLOW STUDY, SHORT CIRCUIT ANALYSIS, RELAY COORDINATION.

CLIENT	BHARAT HEAVY ELECTRICALS LTD
PROJECT	100 MW SOLAR POWER PLANT, NEYVELI LIGNITE CORPORATION, TN
JOB DESCRIPTION	CONSTRUCTION OF 33/11 KV SUBSTATION & 33KV, 11KV LINE DESIGNING THE 20 MVA, 100MW, CONTROL STATION, CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRAY AND TRUNK SIZING, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT, SHORT CIRCUIT CALCULATION, TRANSFORMER DESIGN, SUBSTATION DESIGN ETC, SCADA AND COMMUNICATION SYSTEM. **DESIGN & ENGINEERING FOR ELECTRICAL:** BUSBAR AND STRING INSULATOR SIZING, CT, CVT, VT AND EARTHING TRANSFORMER SIZING, CABLE SIZING, HT POWER AND CONTROL, AC AND DC CABLE SCHEDULE, LT POWER AND CONTROL CABLE SCHEDULE, BATTERY CHARGER SELECTION, BATTERY SIZING.

CLIENT	NATIONAL THERMAL POWER COORPORATION
PROJECT	100 MW SOLAR POWER PLANT, DELHI
JOB DESCRIPTION	CONSTRUCTION OF 110/11 KV SUBSTATION & 110KV, 11KV LINE DESIGNING THE 50 MVA, 100MW, CONTROL STATION, CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRAY AND TRUNK SIZING, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT, SHORT CIRCUIT CALCULATION, TRANSFORMER DESIGN, SUBSTATION DESIGN ETC, SCADA AND COMMUNICATION SYSTEM. **DESIGN & ENGINEERING FOR ELECTRICAL:** BUSBAR AND STRING INSULATOR SIZING, CT, CVT, VT AND EARTHING TRANSFORMER SIZING, CABLE SIZING, HT POWER AND CONTROL, AC AND DC CABLE SCHEDULE, LT POWER AND CONTROL CABLE SCHEDULE, BATTERY CHARGER SELECTION, BATTERY SIZING.

Design and Detailed Engineering for Oil and Gas Plant:

CLIENT	IOCL- Chennai
PROJECT	Refinery Plant
JOB DESCRIPTION	LIGHTING LAYOUT, EARTHING LAYOUT, CABLE ROUTING LAYOUT, CABLE SIZING CALCULATION, RELAY CO-ORDINATION. REVIEW THE VENDOR EQUIPMENT'S WITH SPECIFICATION, POWER SYSTEM STUDY.

CLIENT	BPCL-Madhya Pradesh
PROJECT	STG.PACKAGE
JOB DESCRIPTION	HAZARDOUS AREA CLASSIFICATION, HAZOP STUDY, LIGHTING LAYOUT, EARTHING LAYOUT, CALBLE SCHEDULE, LIGHTNING ARRESTOR.

CLIENT	PDO
PROJECT	Interconnection of 132kV AIS PDO SS with 400/132kV OETC Grid Station at Suwaihat
JOB DESCRIPTION	CABLE CALCULATION, CV VT SIZING CALCULATION, EMF CALCULATION, SCADA OF LIST, SPECIFICATION.

CLIENT	KUWAIT OIL COMPANY
PROJECT	LSTP WELL HEAD (SOUTH) POWER NETWORK, KUWAIT.
JOB DESCRIPTION	LIGHTING LAYOUT, EARTHING LAYOUT, CABLE ROUTING LAYOUT, CABLE SIZING CALCULATION, RELAY CO-ORDINATION.

CLIENT	M/S. HINDALCO PLANT
PROJECT	2 X 271 MW POWER PLANT PROJECT – IRAQ
JOB DESCRIPTION	LIGHTING LAYOUT, EARTHING LAYOUT, CABLE ROUTING LAYOUT, CABLE SIZING CALCULATION, RELAY CO-ORDINATION, REVIEW THE VENDOR EQUIPMENT'S WITH SPECIFICATION.

CLIENT	ISGEC
PROJECT	400 KV SUBSTATION – OPGC, ODISSA
JOB DESCRIPTION	DESIGN & ENGINEERING FOR ELECTRICAL– OVERALL PLAN LAYOUT, EARTHING, FOUNDATION, CABLE TRENCH, ERECTION KEY, CLEARANCE LAYOUT, SINGLE LINE DIAGRAM, LIGHTING LAYOUT, CONTROL CABLE SCHEDULE, DSLP CALCULATION, CT CALCULATION, PT CALCULATION, CONDUCTOR SIZING CALCULATION, SAG TENSION CALCULATION, SHORT CIRCUIT FORCE CALCULATION, EARTH MAT DESIGN CALCULATION & AUXILLARY CONTROL CABLE SCHEDULE. CIVIL DESIGN ENGINEERING - FOUNDATION LAYOUT AND STRUCTURAL LAYOUT PREPARATION, DRENCH LAYOUT PREPARATION, SWITCHYARD LEVELING LAYOUT, SWITCHYARD EQUIPMENT STRUCTURE SIZING CALCULATION, GANTRY AND TOWER STRUCTURE SIZING CALCULATION AND FENCING, GATE LAYOUT.

CLIENT	PGCIL
PROJECT	400 KV SUBSTATION - DURGAPUR
JOB DESCRIPTION	DESIGN & ENGINEERING FOR ELECTRICAL – OVERALL PLAN LAYOUT, EARTHING, FOUNDATION, CABLE TRENCH, ERECTION KEY, CLEARANCE LAYOUT, CONTROL CABLE SCHEDULE, DSLP CALCULATION, EARTH MAT DESIGN CALCULATION & AUXILLARY CONTROL CABLE SCHEDULE. CIVIL DESIGN ENGINEERING - FOUNDATION LAYOUT AND STRUCTURAL LAYOUT PREPARATION, DRAIN LAYOUT PREPARATION, SWITCHYARD LEVELLING LAYOUT, EQUIPMENT STRUCTURE SIZING CALCULATION AND TOWER STRUCTURE SIZING CALCULATION.

CLIENT	PGCIL
PROJECT	132 kV SEIJOSA SUBSTATION
JOB DESCRIPTION	**DESIGN & ENGINEERING FOR ELECTRICAL** – LAYOUT PLAN, SECTION, ERECTION KEY, CLEARANCE, OUTDOOR & INDOOR LIGHTING, OVERALL FOUNDATION LAYOUT, CABLE TRENCH, EARTHING, DSLP CALCULATION, SAG TENSION CALCULATION, CONTROL CABLE SCHEDULE FOR 132, 33 kV AUX CABLE SCHEDULE, SWITCHYARD LEVELLING LAYOUT, VOLUME CALCULATIONS, DRAIN LAYOUT. **DESIGN & ENGINEERING FOR CIVIL:** FOUNDATION LAYOUT AND STRUCTURAL LAYOUT PREPARATION, DRAIN LAYOUT PREPARATION, EQUIPMENT STRUCTURE SIZING CALCULATION, GANTRY AND TOWER STRUCTURE SIZING CALCULATION.

CLIENT	PGCIL
PROJECT	132 kV BAMENG SUBSTATION
JOB DESCRIPTION	**DESIGN & ENGINEERING FOR ELECTRICAL** – LAYOUT PLAN, SECTION, ERECTION KEY, CLEARANCE, OUTDOOR & INDOOR LIGHTING, OVERALL FOUNDATION LAYOUT, CABLE TRENCH, EARTHING, DSLP CALCULATION, SAG TENSION CALCULATION, CONTROL CABLE SCHEDULE FOR 132, 33 kV AUX CABLE SCHEDULE, SWITCHYARD LEVELLING LAYOUT, VOLUME CALCULATIONS, DRAIN LAYOUT. **DESIGN & ENGINEERING FOR CIVIL:** FOUNDATION LAYOUT AND STRUCTURAL LAYOUT PREPARATION, DRAIN LAYOUT PREPARATION, EQUIPMENT STRUCTURE SIZING CALCULATION, GANTRY AND TOWER STRUCTURE SIZING CALCULATION.

Power System Stduies:

CLIENT	IOCL- Gujarat
PROJECT	Refinery Plant
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING EMTP & ETAP EMTP: Cable Energization, Transformer Energization, TRV Analysis, TOV Analysis, Switching Overvoltage, Capacitance Switching, ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	IOCL- Baruni
PROJECT	Refinery Plant
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING EMTP & ETAP EMTP: Cable Energization, Transformer Energization, TRV Analysis, TOV Analysis, Switching Overvoltage, Capacitance Switching, ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	IOCL- DHDT - Delhi
PROJECT	Refinery Plant
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING EMTP. EMTP: Cable Energization, Transformer Energization, TRV Analysis, TOV Analysis, Switching Overvoltage, Capacitance Switching,

CLIENT	CPCL- Chennai
PROJECT	CAUVERY BASIN REFINERY
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS, INSULATION CO-ORDINATION.TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	OCEAN
PROJECT	BPCL- CHENNAI
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, MOTOR STARTING STUDY.

CLIENT	BHARAT OMAN REFINERIES LIMITED
PROJECT	TURBO TECH
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION.

CLIENT	LAMCO INDUSTRIES PVT LTD
PROJECT	RAILWAY TRACK
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-INSULATION CO-ORDINATION.

CLIENT	FOX SOLUTION
PROJECT	EXPANSION OF THE OFFSHORE PART OF THE LIQUEFIELD NATURAL GAS REGASIFICATION TERMINAL IN POLSKA / POLAND
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT RELAY CO-ORDINATION, HARMONIC ANALYSIS, MOTOR STARTING STUDY, DYNAMIC ANALYSIS.

CLIENT	L & T
PROJECT	RANCHI SMART CITY
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	L & T
PROJECT	RWTP - RAJASTHAN
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	L & T
PROJECT	RODM - RAJASTHAN
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	SIEMENS
PROJECT	INFINITY HYD – 110 & 120, HYDERABAD
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	CHEYYAR SEZ DEVELOPERS PVT LTD
PROJECT	CHEYYAR
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS, MOTOR ACCELERATION, TRANSIENT ANALYSIS.

CLIENT	RELIANCE INDUSTRIES LIMITED
PROJECT	MULTIPURPOSE CHEMICAL TERMINAL – KANPUR, CHENNAI, BHOPAL, HALDIA & RIWARI
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP- SHORT CIRCUIT, RELAY CO-ORDINATION.

CLIENT	SALCOMP INDIA
PROJECT	SALCOMP UNIT – 2, CHENNAI
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

Matrix

CLIENT	MATRIX SOLUTIONS PVT LTD
PROJECT	SLAG GRINDING UNIT - USA
JOB DESCRIPTION	PREPARATION OF MASTER SLD, WITH BASIC & DETAILED ENGINEERING, PREPARATION OF TECHNICAL TENDERING DOCUMENT, REVIEW THE VENDOR EQUIPMENT'S WITH SPECIFICATION.

List Of Completed Power System Studies Projects:

CLIENT	ELECTRORAK (FEWA – APPROVED CONSULTANT)
PROJECT	JSW - DUBAI
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	TATA STEEL LTD- JAMSHEDPUR
PROJECT	KHONDBOND IRON ORE MINE
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS, MOTOR ACCELERATION, TRANSIENT ANALYSIS.

CLIENT	STERLING & WILSON PVT LTD
PROJECT	COLT DC - MAHARASTRA
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW ANALYSIS, SHORT CIRCUIT ANALYSIS, RELAY CO-ORDINATION, HARMONIC ANALYSIS, MOTOR ACCELERATION ANALYSIS, TRANSIENT STABILITY ANALYSIS ARC FLASH ANALYSIS,RELIABILITY STUDY.

CLIENT	NATIONAL MINERAL DEVELOPMENT CORPORATION LTD-NAGARNAR
PROJECT	NMDC PROJECT
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS, TRANSIENT ANALYSIS.

CLIENT	STERLING & WILSON PVT LTD
PROJECT	CHENNAI DC-2
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	CAIRN INDIA LIMITED
PROJECT	ONSHORE HAZIRA GAS PLANT, SUVALI PROJECTS, GUJARAT
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. TRANSIENT ANALYSIS, MOTOR ACCELERATION AND ARC FLASH ANALYSIS.

CLIENT	BLUE STAR PVT LTD
PROJECT	PROTON THERAPY AND CANCER CARE HOSPITAL, OMR-CHENNAI
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS. MOTOR AND ARC FLASH ANALYSIS

CLIENT	ITC PANCHLA
PROJECT	ICML PANCHLA PROJECT
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW, SHORT CIRCUIT, RELAY CO-ORDINATION, HARMONIC ANALYSIS, TRANSIENT ANALYSIS.

CLIENT	TUV INDIA PRIVATE LIMITED
PROJECT	UNDERGROUND THERMAL ANALYSIS OF HV CABLES- **EGYPT**
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW ANALYSIS, SHORT CIRCUIT ANALYSIS, UNDERGROUND RACEWAY SYSTEM

CLIENT	MATRIX SOLUTIONS PVT LTD
PROJECT	NETWORK DESIGN MANUAL- **South Africa**
JOB DESCRIPTION	ELECTRICAL DESIGN MANUAL FOR POWER SYSTEM ANALYSIS

CLIENT	GLOBEL TECH INTERNATIONAL LLC
PROJECT	MUSCAT INTERNATION AIRPORT CATERING BUILDING-PHASE 1, 2
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW ANALYSIS, SHORT CIRCUIT ANALYSIS, RELAY CO-ORDINATION, HARMONIC ANALYSIS, ELECTRICAL DETAILED ENGINEERING

CLIENT	EAFMS
PROJECT	TIDEL PARK - CHENNAI
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-RELAY CO-ORDINATION AND DISCRIMINATION STUDY

CLIENT	ACE ENABLERS
PROJECT	SEOYON E-HWA PROJECT
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP – RELAY CO-ORDINATION & HARMONIC ANALYSIS.

CLIENT	EAFMS
PROJECT	SOUSSE DESALINATION PLANT
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP-LOAD FLOW ANALYSIS, SHORT CIRCUIT ANALYSIS, RELAY CO-ORDINATION, HARMONIC ANALYSIS

CLIENT	TUV INDIA PRIVATE LIMITED
PROJECT	50MW EDF SOLAR PV PROJECTS IN EGYPT
JOB DESCRIPTION	POWER SYSTEM ANALYSIS USING ETAP AND PSSSOFTWARE- LOAD FLOW ANALYSIS AND GRID STUDY

List Of Design And Detailed Engineering Projects::

CLIENT	MRF CORP LIMITED
PROJECT	MRF CORP LTD, UTHIRAMERUR
JOB DESCRIPTION	CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRAY SIZING CALCULATION, SWITCHGEAR SIZING CALCULATION, PANEL ARRANGEMENT LAYOUT, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT.

CLIENT	AMBUR TANNERY EFFLUENT TREATMENT CO. LTD
PROJECT	UPGRADATION OF THE EXISTING COMMON EFFLUENT TREATMENT PLANT
JOB DESCRIPTION	CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRENCH SIZING CALCULATION, SWITCHGEAR SIZING CALCULATION, PANEL ARRANGEMENT LAYOUT, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT,

CLIENT	M/S. POWER ENGINEERING ASSOCIATES.
PROJECT	AIIMS BHUBANESHWAR
JOB DESCRIPTION	HEAT VENTILLATION AIR CONDITIONING, FIRE PROTECTION SYSTEM, FIRE ALARM SYSTEM, LIGHTING LUV LEVEL CALCULATION, LIGHTING FIXTURES.

CLIENT	M/S. TATA PROJECTS LIMITED
PROJECT	INDIAN INSTITUTE OF TECHNOLOGY (IIT) – JODHPUR, RAJASTHAN
JOB DESCRIPTION	PHASE – 2 MEP AS-BUILT DRAWING

LIST OF INSULATION COORDINATION PROJECTS:

1. IOCL- MS BLOCK- 33 KV CABLE INSULATION COORDINATION.
2. IOCL- DHDT-33 KV CABLE INSULATION COORDINATION.
3. IOCL- BARAUNI-33 KV CABLE INSULATION COORDINATION.
4. IOCL- GUJARAT- TRANSMISSION LINE INSULATION COORDINATION-230KV SUBSTATION.
5. CPCL- TATA CONSULTING SERVICES- INSULATION COORDINATION- 66 KV SUBSTATION.
6. LAMCO-METRORAILWAY-INSULATION COORDINATION.

CLIENT	STERLING & WILSON PVT LTD, MUMBAI
PROJECT	MALPANI SWITCHYARD, HYDERABAD
JOB DESCRIPTION	CONDUCTOR SIZING CALCULATION, SAG TENSION CALCULATION, MASTER SLD, LIGHTENING PROTECTION CALCULATION AND ITS LAYOUT, SHORT CIRCUIT FORCE STRUNG BUS CALCULATION, SHORT CIRCUIT CALCULATION FOR EQUIPMENT, TRANSMISSION DESIGN FOR 132 KV SWITCHYARD, SUBSTATION EARTHING WITH EARTH MAT DESIGN AND ITS LAYOUT,GENERATOR DESIGN WITH CONTROL PANEL, DESIGN OF SWITCHYARD PANEL WITH SF6 BREAKER, CT SIZING, PT SIZING, RELAY, CLEARANCE DRAWING, ERECTION KEY DRAWING, SHIELD WIRE CALCULATION AND ITS LAYOUT, LIGHTING CALCULATION,

CLIENT	M/S. HINDALCO PLANT
PROJECT	2 X 271 MW POWER PLANT PROJECT – IRAQ
JOB DESCRIPTION	PREPARATION OF MASTER SLD, WITH BASIC & DETAILED ENGINEERING, PREPARATION OF TECHNICAL TENDERING DOCUMENT, REVIEW THE VENDOR EQUIPMENT'S WITH SPECIFICATION.

CLIENT	GLOBAL TECH INTERNATIONAL LLC
PROJECT	MUSCAT INTERNATIONAL AIRPORT CATERING BUILDING
JOB DESCRIPTION	CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRAY AND TRENCH SIZING CALCULATION, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT,

CLIENT	M/S. HINDALCO PLANT
PROJECT	2 X 271 MW POWER PLANT PROJECT – IRAQ
JOB DESCRIPTION	PREPARATION OF MASTER SLD, WITH BASIC & DETAILED ENGINEERING, PREPARATION OF TECHNICAL TENDERING DOCUMENT, REVIEW THE VENDOR EQUIPMENT'S WITH SPECIFICATION.

CLIENT	EAFMS
PROJECT	GE RENEWABLE AND HYBRID DIVSION
JOB DESCRIPTION	CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, CABLE TRAY AND TRENCH SIZING CALCULATION, LIGHTING CALCULATION USING DIALUX AND ITS LAYOUT

CLIENT	KUWAIT OIL COMPANY
PROJECT	LSTP WELL HEAD (SOUTH) POWER NETWORK, KUWAIT.
JOB DESCRIPTION	ETAP-POWER SYSTEM ANALYSIS-LOAD FLOW ANALYSIS, SHORT CIRCUIT CALCULATION, MOTOR STARTING ANALYSIS, RELAY CO-ORDINATION, ARC FLASH ANALYSIS, TRANSIENT STABILITY ANALYSIS, HARMONIC ANALYSIS, VOLTAGE DROP CALCULATION.

CLIENT	FEWA, Dubai
PROJECT	JSW Cement Factory- 33kV Substation
JOB DESCRIPTION	CABLE SIZING CALCULATION AND ITS LAYOUT, EARTHING CALCULATION AND ITS LAYOUT, LIGHTENING PROTECTION AND ITS LAYOUT, SWITCHGEAR SIZING CALCULATION, CT & PT SIZING CALCULATION, RELAY PROTECTION CALCULATION.

LIST OF POWER & ENERGY AUDITING PROJECTS:

CLIENT	HEVEA FURNITURES & INTERIORS PVT. LTD.
PROJECT	HEVEA FURNITURES & INTERIORS PVT. LTD.
JOB DESCRIPTION	POWER FACTOR IMPROVEMENT AT LV SIDE, TRANSFORMER LOADING EVALUATION, RECOMMENDATION OF ENERGY CONSUMPTION.

CLIENT	M/S. EA FACILITIES & SERVICES PVT. LTD
PROJECT	VALEO INDIA PVT. LTD.
JOB DESCRIPTION	POWER FACTOR IMPROVEMENT AT LV SIDE, TRANSFORMER LOADING EVALUATION, DG LOADING EVALUATION AND RECOMMENDATION OF ENERGY CONSUMPTION.

CLIENT	M/S. EA FACILITIES & SERVICES PVT. LTD
PROJECT	HEAVY VEHICLES FACTORY (HVF) – AVADI, CHENNAI
JOB DESCRIPTION	POWER FACTOR IMPROVEMENT AT LV SIDE, TRANSFORMER LOADING EVALUATION, DG LOADING EVALUATION AND RECOMMENDATION OF ENERGY CONSUMPTION.

CLIENT	AMBURTEC
PROJECT	COMMON EFFLUENT TREATMENT PLANT, AMBUR
JOB DESCRIPTION	POWER FACTOR IMPROVEMENT AT LV SIDE, TRANSFORMER LOADING EVALUATION, DG LOADING EVALUATION AND RECOMMENDATION OF ENERGY CONSUMPTION.

OUR BLUE CHIP CUSTOMERS

OUR ASSOCIATION WITH LARGE CORPORATES:

- Bharat Heavy Plate and Vessels Ltd., Vizag
- Hindustan coca cola Beverages Ltd.,
- ITC Bhadrachalam Paper Boards and Specialties Ltd,
- Metallurgical & Engg. Consultants (I) Ltd
- Power Grid Corporation of India Ltd

OUR ASSOCIATION WITH PROJECT BUILDERS:

- Siemens Ltd – India, Malaysia and Singapore
- AREVA/Alstom/GE/Schneider Ltd
- Shyama Power India Ltd
- Crompton Greaves Ltd (EPD).
- Easun Reyrolle
- IRCON International Ltd
- UBI Tech Pvt Ltd
- Angelique International Ltd, New Delhi
- Mechtech Projects, Chennai
- Fourth partner Energy Ltd, -Solar Power Plants

OUR ASSOCIATION WITH INDUSTRIAL CLIENTS:

Cement Plants

- Chettinad Cements, TN
- JSW, UAE

Chemical / Process Plants

- Binani Zinc Fibre, Goa
- Chemplast Sanmar Ltd, Mettur Dam
- Hindustan Zinc Ltd, Rajasthan
- ITC, Anaparthi
- MRF Vapocure Paints, Tamilnadu

Paper Plants: (Through SPB PC Ltd, Chennai)

- Hindustan Paper Corporation Ltd, Cachar (2005-06)
- Hindustan Newsprints Ltd, Cochin (2006)
- ITC Bhadrachalam Paperboards and Specialties Ltd, Bhadrachalam
- ITC Kovai Unit(2008-09)
- Servalakshmi Paper and Boards Pvt. Ltd, Dindukkal(2008)
- JKPM, Expansion Project , Rayagada, Orissa-2011 (complete electrical system Consultancy)

Refineries and Petrochemicals

- Cairn Energy (India) Pte Ltd, Suryasanyanam A.P.
- Kaleesuwari refineries limited, (Goldwinner)
- BASF Petronas Chemicals Ltd, Kuantan, Malaysia.

Special Projects: Domestic

- Sri Ramachandra Medical College - Refurbishment of Electrical Distribution system,Chennai (2006-2008)

Special Projects: Overseas

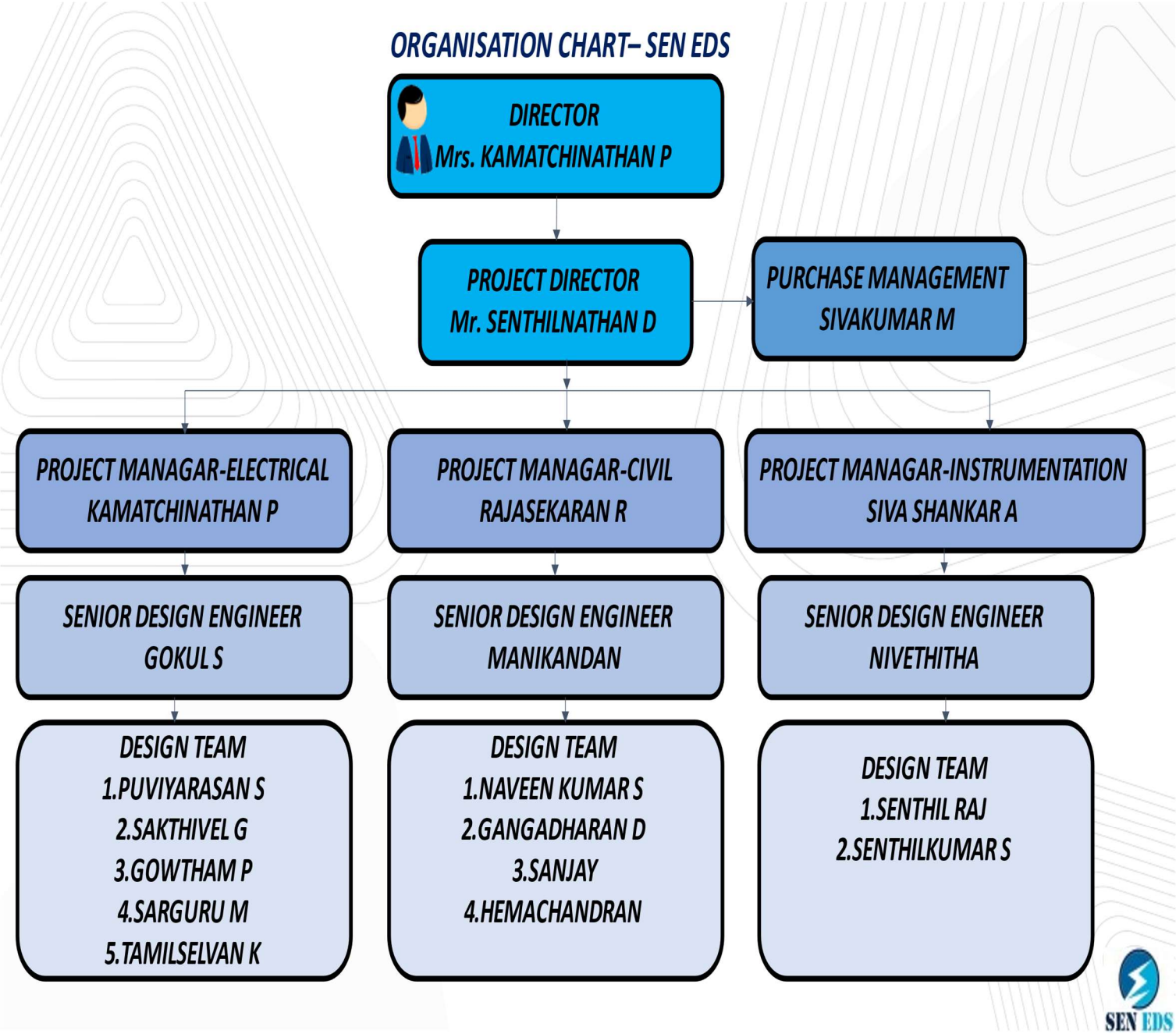
Express Rail Link for Government Of Malaysia-

- *Design of State of Art Rail Stations (2000-2003)*
- *Asia's Largest workshop Complex for EMUs (2000-2003)*
- *Project Design Pharmaceutical Plant Augmentation at Singapore (2000)*

OUR ASSOCIATION WITH OVERSEAS PROJECTS

- *Emirates Trading Agency, Dubai, Link Middle East Ltd, Dubai,*
- *ABB Ltd, Dubai,*
- *GE Power Controls, Chicago*
- *National Contracting Co Ltd, Abu Dhabi*
- *Siemens AE (Pte) Ltd, Singapore Siemens Ltd, Malaysia*
- *CG Power Solutions New York, USA*

ORGANISATION CHART – SEN EDS



KEY PERSONNEL

Mrs P. KAMATCHI NATHAN

MANAGING DIRECTOR

- Having experience in Electrical Consultancy for more than 17 years.
- B.E – Electrical & Electronics Engineering from University of Madras, Chennai.
- Electrical Consultant at Sen Electrical Design and Consulting, Chennai.
- Roles & Responsibilities: Overall Design for Substation, Oil& Gas, Industrial projects, Solar PowerPlant, Switchyard etc. An approved Consultant for FEWA, Dubai.
- Specialized in Power System Studies (ETAP Licensed Version-20.0.1).
- Detailed Design and Engineering for HV / EHV substations and industrial electrification projects.
- Protective Relay Coordination Studies.
- Tendering & Marketing of large Electrical Substations, Process Plants.
- Evaluation of Power System & Energy Audit Specialist.
- Development of Engineering Software for Project Electrical Application.

SITE PHOTOS OF PROJECTS

MRF VAPOCURE PAINTS

AMBUR-TEC

CAIRN

JSW - DUBAI

400 kV Durgapur SS

132/33 kV SEIJOSA SS