



GRIP Consulting Engineers LLP

(Formerly GRIP Consultants)

Professionals with Proven Experiences in the fields of Power Generation, Transmission and Distribution; Material Handling; Steel and Cement Plants; Chemical Plants; Water Treatment Plants and other allied Industries



Vision & Mission

Grip Consulting Engineers LLP (GCE) is a conglomerate of a highly enthusiastic team of professional engineers with proven experience in the fields of Power Generation, Transmission and Distribution; Material Handling; Steel and Cement Plants; Chemical Plants; Water Treatment Plants and other allied Industries. GCE renders industry-based services for planning, project engineering and management services to its clients in the following areas:

- Solutions for Engineering, operational and maintenance problems of running plants.
- Engineering services for Plant augmentation and renovation.
- Complete Engineering from concept till commissioning of Projects including project management & site supervision services during construction and commissioning.
- Assist customer in contract and project management, Factory Inspection and Testing

Grip Consulting Engineers LLP is an upcoming project engineering consultancy firm that collaborates with existing and potential clients regularly to understand their needs and comprehensively gets associated for cost effective holistic support.

Since commencement, GCE has grown up as a trusted project consultancy firm energized by the passion and expertise of our highly experienced personnel. Our key success factors in the various areas of executions are totally leveraged by our people. We have multi- disciplinary in- house experts which enables us to promptly respond to the customer needs and focus on the deliverables timely and cost- effectively while maintaining best industry standards of quality and safety.

Our Vision

Our vision is to attain a level of innovation and technical expertise that is world standard. With meticulous attention to planning and its execution at every step, we aim to reach the pinnacle of excellence in our chosen fields.

Our Mission

- We are committed to being the most trusted and sought-after engineering & project management consultant in India
- We are focused towards our customers' requirements and give topmost priority to their needs for safe, reliable and operationally efficient solutions through continual improvement and customer interactions.
- We continuously strive to improve our efficiency and deliver our services to the utmost satisfaction of our Customers
- We aim to reward our people fairly and adequately, provide ample opportunities for their all-round development and offer them a platform to achieve their career aspirations. We aim to generate sustainable profit by being diligent so as to invest in our people and meet our obligation towards our Society

DOMAIN EXPERTISE AND ENGINEERING SECTORS' SERVICES OFFERING

GRIP Consulting Engineers LLP – Design, Engineering and Consulting Firm formed by highly experienced Engineers and Technocrats having worked with Engineering Consultant companies and Core Process Industries.

I. INDUSTRIAL SECTOR – WE SERVE:

- ☐ Power Plants (Coal / Gas / Distillate fired), Main Plant and Balance of Plant
- ☐ Utilities, CPP and Balance of Plant of Steel Plant / Sponge Iron Plant
- ☐ Utilities and Balance of Plant of Paper Plant
- ☐ Utilities and Balance of Plant of Cement Plant
- ☐ Utilities and Balance of Plant of Fertilizer Plant
- ☐ Utilities and Balance of Plant of Mining and Metal Plant (e.g. Aluminum)

II. NATURE OF SERVICES WE PROVIDE TO OWNERS / DEVELOPER

Project Development / Acquisition Phase

- ☐ Preparation of Pre-Feasibility / Feasibility / Detailed Project Reports
- ☐ Bidding Support (RFQ and RFP)
- ☐ Preparation of Technical and Commercial bid
- ☐ Interfacing with other Advisors

Project Engineering

- ☐ Basic design and engineering of the systems
- ☐ Detailed design and engineering including interface engineering
- ☐ Procurement Engineering and Purchase Specifications
- ☐ RFQ, RFP and Bidding Documents for Contractor Selection
- ☐ Bid Evaluation till selection of the successful Contractor
- ☐ Review and approval of submittals from Contractor / Vendors
- ☐ Engineering Management, Coordination & Review Meetings

Project Implementation

- ☐ Project Management and Contracts Administration
- ☐ Design Audit, Quality Audit & Payment Certification
- ☐ Scheduling, Cost Control and Progress Reporting
- ☐ Vendor Expediting & Workshop Inspections
- ☐ Site Supervision, Commissioning Assistance and Witnessing P. G. Test

Renovation and Modernization

- ☐ Condition Assessment of Plant as a whole or any system or equipment
- ☐ Augmentation of existing system both quantitatively and qualitatively.
- ☐ Energy Efficiency and Energy Audit
- ☐ Engineering for implementation of statutory compliances
- ☐ Trouble shooting of operation and system performances

III. NATURE OF SERVICES WE PROVIDE TO LENDERS AND FINANCIAL INSTITUTIONS:

Risk Assessment and Technical Due Diligence of the project

- ☐ Review and risk assessment of Land acquisition agreement

- ☐ Review and risk assessment of water supply agreement
- ☐ Review and risk assessment of Fuel Supply agreement
- ☐ Review and risk assessment of Power Supply and Evacuation agreement
- ☐ Review and risk assessment of EPC and O&M contract
- ☐ Review of project financial model and risk assessment.

Project Monitoring and reporting to Lender

- ☐ Engineering progress and delays if any
- ☐ Supply progress and delays if any
- ☐ Construction progress and delays if any
- ☐ Resource mobilization and issues, if any
- ☐ Monthly site visit and sending report to Lender

O&M Monitoring and reporting to Lender

- ☐ Monthly availability of the plant
- ☐ Monthly Heat Rate of the plant
- ☐ Inventory status and spare management
- ☐ Commercials for operation

IV. NATURE OF SERVICES WE PROVIDE TO EPC CONTRACTORS:

Basic Engineering

- ☐ Preparation of Design Criteria Document (DCD)
- ☐ Geotechnical study and preparation of Civil Design Criteria
- ☐ Preparation of System Description
- ☐ Preparation of Operation and Control Philosophy
- ☐ Equipment and system sizing calculations
- ☐ Preparation Plot Plan of the Plant
- ☐ Preparation of P&I Diagrams
- ☐ Preparation of Piping Material Specification (PMS) and Class Sheets
- ☐ Preparation of Line List, Valve List, Equipment List, Instrument List etc.
- ☐ Electrical Single Line Diagram with protection and metering concept.
- ☐ Grounding, Lightning and Illumination engineering
- ☐ Preparation of DCS and PLC Architecture and associated Engineering
- ☐ Preparing data sheets and Technical Specifications
- ☐ Technical Bid Evaluation
- ☐ Assistance in preparing purchase order for bought out items

Detail Engineering

- ☐ Civil, Structural and Architecture Engineering
 - Detail structural (RCC and Steel) analysis and IFC Drawings
 - Design and IFC Drawings of static and dynamic Foundation
 - Design and IFC Drawings of Chimneys and Tall structures
 - Design and IFC Drawings of Trench and Duct banks
 - Design and IFC Drawings of Plant and Non-Plant Buildings
 - Design and IFC Drawings of Plant Roads and Drainages

- ❑ Mechanical
 - Design of Plant Water system
 - Design of Service and Instrument Air system
 - Design of Fire detection, alarm and suppression system
 - Design of Material Handling system
 - Design of Heating, Ventilation and Air Conditioning system
 - Design of Cranes and Hoists

- ❑ Control and Instrumentation Engineering
 - Field Instrument Engineering
 - Preparation I&C Data Base
 - Instrument Installation and Hook Up Engineering
 - DCS & PLC System for plant Automation
 - Engineering of Open Loop Control System
 - Engineering of Close Loop Control System
 - Control Narrative
 - Cause & Effect Chart
 - SAFE Chart
 - Logic Diagrams
 - Instrument Loop Diagram
 - Instrument Location Drawing
 - Layout of Control Rooms
 - Instrument and Control cable engineering and BOQ
 - CCTV system
 - Plant Communication System
 - Fire & Gas Detection system
 - Substation Automation and SCADA

- ❑ Electrical Engineering
 - Design of Switchyard and Substation
 - Electrical control and Protection Engineering
 - Battery and Battery Charger
 - UPS system
 - AC and DC distribution system
 - Cable sizing and Layout drawings
 - Transformer and Switchgear Engineering
 - GA drawings Switchgear Building
 - Cable Schedule and Interconnection wiring Engineering
 - Relay coordination and Relay Setting

- ❑ Piping Engineering
 - Calculation of pipe thickness
 - Piping layout engineering
 - Insulation thickness and Insulation schedule.
 - Stress Analysis and Nozzle Load estimation.
 - Pipe support engineering
 - Piping isometric drawing
 - Bill of Quantity and Material take off

V. CONSULTANCY SERVICES FOR UTILITY SEGMENT OF ALL INDUSTRIES:

For the following Utility areas, our expertise includes but not limited to – multi-discipline basic and detail design, QA/QC monitoring, trouble shooting, supervision of erection, commissioning and performance testing etc., for green field as well as brown field projects –

- ☐ Material Handling System – including crushing and conveying system
- ☐ Air Quality Control System – AQCS (e.g. Bag Filter, ESP, Sox, Nox control etc)
- ☐ Solid Waste Handling System
- ☐ Tank Farm Engineering – including Fuel Oil unloading, storage, heating and pumping system
- ☐ Raw Water Intake and Transportation system
- ☐ Water Pretreatment, Filtration, De-mineralisation system
- ☐ Chemical Feed system for boiler and circulating water system
- ☐ Cooling water system including cooling tower and pumping system
- ☐ Service water / Drinking water system
- ☐ Fire Fighting system
- ☐ Service and Instrument Air system
- ☐ Heating, Ventilation and Air Conditioning System (HVAC)
- ☐ Crane and Hoist system
- ☐ Waste water, Sanitation and Effluent Treatment system

VI. CONSULTANCY SERVICES FOR STRESS ANALYSIS AND PIPE SUPPORT ENGINEERING OF ALL INDUSTRIES:

Our expertise includes but not limited to following areas of Piping Engineering for green field as well as brown field projects –

- ☐ Pipe Stress Analysis and preparation of stress reports for critical and non-critical piping
- ☐ Selection of Pipe Hangers and Supports as per the findings of stress analysis
- ☐ Design of auxiliary steel structures to mount the hangers and supports.
- ☐ Design of Pipe Sleepers and its foundations.
- ☐ Trouble shooting of existing piping system and its associated hangers & supports.

VII. IT Services and Supports

- ☐ Hardware Support: Desktop & Laptop Troubleshooting, Assembling Desktops etc
- ☐ Software Support: Installation of various technical and non-technical software, organizing training sessions and online meetings, Developing database applications on PHP, JSP, VB platforms, Remote support etc.
- ☐ Network Support: Configuring LAN and Workgroup Network, Configuring common file repository access rights etc. Educational / Training Support:
- ☐ Basic Training on Computer Operations (like Operating Systems, Web Browsing, Word, Excel, PowerPoint, Access) to retired personnel / senior executives who are not very computer savvy in small groups or in one-to-one interactions.
- ☐ Educational support to Students / Young Professionals on programming languages (like C, C++, Java, Visual Basic, Python, HTML), Data Structures, DBMS, Computer Networking, Logic Circuits and Numbering Systems etc.

About Us

We are a conglomerate of a highly enthusiastic team of professional engineers with proven experience in the fields of Power Generation, Transmission and Distribution; Material Handling, Steel, Cement, Chemical Plants, Water Treatment Plants and other allied Industries. We started our operations in January 2018 with the objective to provide top class and very specialized engineering services tailor made for our esteemed customers. We have a dedicated team of Engineers who all have earned their name in their respective fields of engineering. Brief resumes of our key personnel are given below:

BE (Mechanical), Jadavpur University, 1970. He has over 50 years of experience in Project Engineering and Project Management of large thermal power projects in India and Abroad. He started his career in Development Consultants Pvt Ltd (DCPL) and worked there on engineering of projects in the initial years. Later on, he moved to the management of large thermal power projects and executed several Power projects in India till mid-1995. Thereafter he moved to Kuala Lumpur Malaysia to join a reputed consulting engineering firm there as an expert in Power plant engineering. He completed several OCGT, CCGT, DG and Coal fired Power plants during his tenure there. He returned to India in 2004 and joined Lahmeyer International in Gurgaon as the Head of its Operations- Engineering. In 2006 Lahmeyer opened up a branch office in Kolkata and he moved there as the Head of the division in 2007. Under his leadership Lahmeyer grew up in Kolkata and made a strong presence not only in the eastern India, but also in Bangladesh, China and Middle east. While he was there, Lahmeyer Kolkata not only excelled in execution of Power Projects, but also secured and successfully executed Cement and Coke Oven Plant Projects. **He was the founder member of the organization and till his departure to heavenly abode, he was the leader of the group.**



Amiya Sankar Aditya (Late)



Sampuran Dhar

BE (Civil), BE College, Shibpur, 1969 & M.Tech(Structural Engineering), IIT Kharagpur, 1972 He has over 49 years of experience in Design, Engineering, Site Supervision and Project management of Thermal Power, Steel, Petrochemical and Cement Plants. He worked in various capacities in Development Consultants Private Limited (DCPL) Kolkata from 1973 till 2009. While in DCPL he was involved in Design of Power plants, Material Handling Projects, Petrochemical Plants and Cement Plant construction supervision in Syria and made his mark in all these areas. He thereafter joined Lahmeyer International in 2010 as HOD civil and led a team in design engineering of complete civil and structural works of a 5000 TPD Cement Plant in India and a 10,000 TPD Cement Plant in Indonesia built by a Chinese Contractor. He also guided his team in design engineering of intricate Coke Oven Plant structures including tall chimneys and various thermal power Projects. He is apt in provided engineering solutions to problems being faced in Industry; examples-vibration of coal crusher house in running plant, TG foundation restoration due to damage by fire etc.



Sudin Kumar De

BE (Mechanical) 1969 from BE College Shibpur & ME (Mechanical) 1971 from BE College Sibpur. Authorised to use the style and title of Chartered Engineer (India) by virtue of his qualification and professional experience by The Institute of Engineers (India). Was serving Pory Energy Limited (now known as AFRY) in Bangkok from 2008 to 2019 to support team of Engineers engaged in Project Engineering, Design Engineering and construction / Commissioning work of Coal based Thermal Power and Gas based Combined Cycle Power Plant ranging from 50MW to 600 MW installed in various South East Asia countries. Was working at Mitsubishi Heavy Industries (Nagasaki) Japan in design section of Thermal Power Plant from 2005 to 2008 for design engineering work of 300 to 700 MW of sub critical and supercritical Power Plant namely at Rabigh Saudi Arabia, Pacifica Latin America. Was working at Development Consultants Limited India from 1987 to 2005. During his work tenure at DCL he had been to Libiya, UAE, Saudi Arabia for erection and commissioning of various Desalination plant and Thermal Power Plants, was also assigned for energy audit, trouble shooting and betterment work. Was Project Manager for 2x300 MW Sagardighi Thermal Power Plant as last assignment in DCL. Started as Graduate Engineer trainee in 1971 at Hindusthan Steel Limited at Bokaro Steel Captive Power Plant till 1987. last position held as Manager Turbine Section. He has vast experience of design engineering and construction / Commissioning work of Thermal Power Plant together with off-site facilities of Refinery, Petrochemicals, Paper and Fertilizer Plant.

BE (Mechanical Engineering), Jadavpur University, 1981 & M.Tech (Operation Research in Business Management & Industrial Administration), Burdwan University, 1988. He

has over 38 years of experience in Design, Engineering, Site Supervision, project management and commissioning of Coal, Gas, oil and Biomass fuel based Thermal Power Projects in India and abroad. He has also worked on Desalination plants for supply of Drinking water in coastal areas. He worked for 12 years in Operations & Maintenance of Durgapur Projects Ltd(DPL), 15 years in Design engineering in Development Consultants Private Limited (DCPL) and 9 years in Lahmeyer/Tractebel India. He was involved in Engineering and commissioning of Power plants of various sizes in India, Yanbu (Saudi Arabia), Thailand, Georgia & UAE. He led a team in complete Mechanical Engineering of 2 x 300 MW CESC Haldia Project, Biomass fuel base 125 MW Plant in Thailand, 3 units of CFBC plant (100 MW) in Orissa. He had also executed Residual life assessment study of Power plants with BHEL and CMERI, Durgapur.



Utpal Roy



Chanchal Kumar Nath

BE (Mechanical), ME (Project Engineering) with nearly four decades of Professional experience. Immediately after graduation he joined DCPL and worked there for over 17 years. Thereafter he moved to organisations like Lahmeyer International (1999-2001 & 2005-2017 as Senior VP), Bechtel (2001-2005 as Engineering Group Supervisor), Tractebel India (2017-2018 as Senior VP) and made his mark as a leader in all these organisations. He has successfully executed both in India and Abroad a large number and wide range of Conventional Steam Power Plants in both sub and Super Critical Range; Open and Combined Cycle GT projects; Engineering Audits and Plant Betterment Studies; RLA studies and R&M of projects. He worked with distinction in all aspects of Projects covering Design Review, Troubleshooting of Engineering issues, QA/QC monitoring, regular interaction with owner and contractor; Conceptual design, Basic and Detail engineering of project deliverables; Condition assessment and technical due diligence study; Field Engineering, Construction supervision, start-up service and operation and maintenance.

BE (Chemical), Jadavpur University, 1974. He was in Ion Exchange, a WTP. Company for over 18 years in Sales, Marketing & Project Execution team for Various Projects in water/Wastewater Treatment Plants in India & abroad. Gained all round experience in process calculations, detailed Eng. Execution, ETP, Recycle Plants, ion Exchange Resins as well as in Sales/Execution of WTP projects. He was associated as Chief Executive from 1997 till 2012 in Chemicon Engineering Pvt Ltd, a consulting Engineering Firm and executed a no. of WTP/ Arsenic Removal Plants / Fluoride Removal Plants, Desalination plants in PHEDepartment, Govt. W.B.& exports to Bangladesh. From 2012 till 2018 handled all WTP/ETP/Desalination Plants for all jobs at Lahmeyer /Tractebel Kolkata including their overseas jobs.



Ashim Sen

BE (Electrical), Jadavpur University, 1974. He has over 46 years of experience in Project Engineering and Project Management of Thermal/ Combined Cycle Power and Industrial/Paper Projects in India and Abroad. Immediately after graduation he joined Development Consultants Pvt Ltd. (DCPL). He left DCPL in July, 2004 as Chief Engineer (E) and joined Lahmeyer International (LII), Gurgaon as Head of Electrical Department. He moved to Kolkata when LII opened a Branch Office there in October, 2006 as Branch Head and Head of Electrical Department. He retired from LII in June, 2018 as Vice President. He executed Projects in India as well as abroad viz. USA, Middle East, Bangladesh, Sri Lanka, Philippines, Libya, China, Turkey, South Korea. He worked in GE, Schenectady as OEM for various GT Projects in USA. He has Certification of Professional Engineer (IEI).



Vaskar Basu

B.Tech in 1976 & M.Tech in 1978 in I&C Engineering, Calcutta University. He has over 37 years of experience in Design, Engineering, Site Supervision, Maintenance and Project Management of Thermal Power Projects, Desalination Plants, Refractory Plants, Material Handling Plants and Mineral Beneficiation Plants. He has worked in organizations like Hindustan Fertilizer Corpn, Development Consultants Pvt Ltd, Lahmeyer International (India) Pvt Ltd, Sofcon Consultants, Al Khobar, KSA, Quotient Engineering Inc. USA. He has experience of working in Libya, Bahrain, Egypt, Italy, Bangladesh and USA. He has also executed various renovation and Control System Upgradation Projects overseas. He was HOD C&I in LII from 2008 to May 2017 and led his team to execute projects including a complicated renovation of a CCGT project which got damaged due to Fire.



Rupendra Nath Majumder

BE(Mechanical), Jadavpur University 1978 & M.Tech(Project Engineering), BITS Pilani. He has forty-two (42) years of experience in Design & Project Engineering of Thermal Power Projects. He joined DCPL as a trainee engineer and worked there till 2000 when he was Deputy Chief Engineer. While in DCPL he gathered wide experience in basic, detail & procurement engineering of various systems, equipment & components of large thermal power units up to 500 MW. During this period, he also worked in GT & Co-gen projects with The Kuljian Corporation Philadelphia. Thereafter He worked with Consulting Engineering Services (CES) and Thermax Ltd in proposal engineering of co-gen & thermal plants. Subsequently he joined McNally Bharat Engineering (MBE), a leading EPC organization, and was in charge of engineering for nearly nine (9) years in executing three large BOP projects up to 600 MW size. He retired from MBE in 2018.



Amit Kumar Hazra

BE (Electrical), Jadavpur University 1983. He has 38 year of experience in Basic, Detail Design & Procurement Engineering for various Paper Projects, Automobile Tyres & Tubes Projects, Simple / Combined Cycle / Oil Based Power Projects. He has experience in Site Supervision, Testing & Commissioning of Electrical Equipments in above types of Projects including AIS & GIS Substations up to 400kV in India and Abroad. He joined DCPL as Design Engineer and left DCPL as Assistant Chief Engineer in Electrical Department in 1999. He worked in Balmer Lawrie & Co. Ltd. from 1999 to 2008. He looked after electrical work for engineering, procurement, site co-ordination of POL Depot, Refinery Oil storage & Handling along with Cross Country Pipe Line, Lube Oil Blending Plant, LPG Bottling Plant and Bitumen Emulsion Plant. He joined Lahmeyer International (LII) as General Manager (Electrical) in 2008. He has done Design, Proposal and Lenders' Engineering of various Power Plants. He has experience in Basic/Detail Design Engineering of AIS & GIS Substations up to 400kV, Solar Power Plants, 300MW Thermal Power projects, 450MW Simple & Combined Cycle Gas Turbine Projects in India and abroad.



Subodh Kumar Jana



Asit Sen

B.Tech(Chemical), Calcutta University, 1978 & M.Tech(Project Engineering)from BITS Pilani, 1982. He has 42 years of experience in Design, Engineering, Commissioning & Trouble Shooting of Water Treatment(WTP) and Effluent Treatment Plants (ETP) including working as Engineering Project Manager for 15 years in Gas & Coal based Thermal Power Projects. Started professional career as Operation Engineer in a Paper Plant. Thereafter joined DCPL, Kolkata and worked for 20 years in System Design & Engineering of WTP & ETP for Paper, Power and Process Plants. He then Joined L&T-Sargent & Lundy in 1999 and headed the BOP& utility process group. Afterwards worked as Project Manager for 330MW Delhi Vidyut Board (DVB) Project (2000-03), 445MW Konaseema Project (2004-06), IOCL Panipat Co-Gen Project (2006-08) and 1x660MW GHECO Project (2008-11) at Thailand. Worked as Head of Water Technology Group of L&T ECC making Techno-Commercial Proposal of Water& Effluent/Sewage Treatment Plant in India and abroad.

BE (Civil), Jadavpur University, 1977. He has 43 years of experience in Design, Engineering, Site Supervision & Project management of Power Plants, Pellet Plants, Fibre Plants, Chemical plants, Petrochemical structures. He joined Gannon Dunkerley & Co Ltd. as an Assistant Engineer in 1978 and was involved in bridge and Water treatment plant design. From 1981 to 2007 he worked in various capacities in DCPL where he was involved in Design of Power plants, Boiler Structures, River & Sea water intakes, bridges, review engineering of Desalination Plants and site supervision. From 2007 to 2008 worked with Foster Wheeler Chennai in Design of Ethylene Glycol Plant and Process structures for LNG Plants. From 2008 to 2009 he was with BGR Energy Ltd and from 2009 to 2012 with McNally Bharat in their Thermal Power Plant design wings. From 2012 to 2017 worked with Jacobs Engineering and was involved in design of Pellet Plants, fiber Plants, Health Audit of various TATA steel Plants.



Manabendra Mukherjee



Arun Bandyopadhyay

B.Tech. (Instrumentation & Electronics), Jadavpur University, 1975 He has extensive experience in Basic and Detailed engineering, Supervision of Installation and Commissioning of complete instrumentation system for power, combined cycle, oil and gas projects. After graduation he started his career in Bengal paper mill company Limited. In 1979 he joined West Bengal State Electricity Board where he worked in various capacities till Mid of 1991. Thereafter he joined DCPL (1991-2004). After working in DCPL for thirteen years he moved to Lahmeyer International (India) Pvt. Ltd. Gurgaon in 2004 and worked there till 2008 and thereafter again in 2015-16. He was Head of I&C Department in Foster Wheeler India Pvt. Ltd. Kolkata from 2009 till 2014. He is a member of International Society of Automation.

Credentials

GRIP Consultants commenced its operation from the beginning of year 2018 and so far has received orders and has already executed quite a number of them as listed below

Analyze and Resolve Heater ID Fan Structure Vibration for NCU at HPL Plant, Haldia
<u>Client</u>: Haldia Petrochemicals Ltd (HPL) Order dt: 16.05.2025 Broad scope of work: • Site visit by a team of engineers to make an on-site inspection of the issue. • Collection Design drawings and various data from site. • Desktop study of design drawings and as built drawings for the root cause analysis (RCA) of the issue. • Preparation of Technical Report, elaborating the RCA findings and Recommendations of technical solutions to address the issue. Present Status: Job is in progress.

Civil & Architectural Design/Drawing of an OIL Company Pvt Ltd, Uluberia
<u>Client</u>: ESCO Engineering Pvt Ltd, Kolkata Order dt: 06.11.2024 Broad scope of work: • Civil & Architectural Design/Drawing of Office Building. • Civil & Architectural Design/Drawing of Reservoir. • Civil & Architectural Design/Drawing of Staff Quarters. • Civil & Architectural Design/Drawing of Plant Shed. • Civil & Architectural Design/Drawing of Roads. • Civil & Architectural Design/Drawing of Boundary Walls. • Civil & Architectural Design/Drawing of Tank Foundations. • Civil & Architectural Design/Drawing of Pile etc. Present Status: Job is in progress.

Design & Drawing of Vertical Pump Foundation at ETP Pump House
<u>Client</u>: Haldia Energy Limited, Haldia <u>Order dt</u>: 18.10.2024 <u>Broad scope of work</u>: Design and Drawing of one Vertical Pump Foundation at ETP Pump House and associated work. <u>Present Status</u>: Job is Complete and Closed.

Engineering Consultation support including Review of all the drawings and documents pertaining to De-Nox system and auxiliaries at Budge Budge Generating Station (250MW Unit#3)
<u>Client</u>: CESC Ltd, Chowringhee Square, Kolkata <u>Order dt</u> : 27th June 2024 Broad scope of service: • Review of De-Nox retrofit layout including duct routing and supports, SOFA nozzles installation, modification of existing nozzles, modification of existing gallery/platforms/piping, strengthening of existing structures, basic design and operational control philosophy pertaining to De-Nox retrofit etc.

- Review of design calculations, CFD studies, data sheets, GA drawings, performance curves/data, system drawings, schematics, flow diagrams, P&I diagrams, general arrangement/layouts drawings etc.
- Review of Electrical system interconnection wiring diagram / electrical layout, panel layouts, cable layout / routing including cable schedule etc.
- Review of C&I systems configuration including integration with plant DCS, system details including architecture, layout, control loop configuration, logic and controls for SOFA, interfaces with existing plant, protections & interlock trip particulars etc.
- Review of QAP for manufacturing.
- Attending meetings with Owner and De-Nox System Supplier like Technical Coordination and Review meetings, Project Review meetings etc.
- Finalization of site performance test procedures for all equipment / systems.
- Review & finalization of detailed field quality plan including 'Customer Hold Points' for stage / final inspection.
- Review of manufacture's Test / Inspection Reports and Test Certificates for major equipment.
- Review of Performance Guarantee (PG) parameters, correction curves, baseline and PG test procedures etc.
- Review of all other relevant mechanical, electrical and I&C documents/drawings issued by the Package Vendors, related to De-Nox retrofit.
- Review of the technical documents and drawings shall be completed in consultation with the Owner and the review report with necessary approval categorization shall be provided to the De-Nox System Supplier.
- Deputing personnel at site as and when required for necessary clarifications.

Present status : Job is under Commissioning.

Study of waste water treatment in IVL Dhunseri Petrochem Industries Private Limited, Haldia

Client: Indorama Ventures Petrochemical Industries Private Limited

Order dt: 15.05.2024

Broad scope of work:

- Preparation of the scheme for utilization and recycling of effluent with equipment details and Capacity.
- Preparation of the layout showing the inflow and connection with existing system.
- Study of the treated water output.
- Compatibility with pollution norms.
- Water management audit consisting of study of source and wastewater
- Scheme drawing with water balance of the treated effluent of the Existing & Proposed
- Process flow diagram and Process and Instrumentation Diagram
- Preliminary layout of the equipment

Present Status: Job is completed and Closed.

Proposal Engineering for DVC 2 x 660 MW Raghunathpur TPP

Client: Larsen & Toubro Limited. L&T Energy-Power, Vadodara-390019

Order dt : 30.11.2023

Broad Scope of Work:

- Bill of Quantities of Civil, Structural, Architectural for Turbine building
- Bill of quantities of Steam Turbine Foundation
- Bill of quantities for Service Building G +4
- Bill of Quantities for electrical and civil, structural & architectural of 400kV switchyard extension with existing switchyard
- Bill of quantities for Fire Fighting system for the new plant
- Bill of quantities of HVAC system for Turbine building, Service building, switchyard control room

Present Status: Job is completed and Closed.

Training on Power Plant Water Chemistry

Client: Onyx Trading Innovation FZE, Dubai, UAE for engineers of Calik Project Engineering, Istanbul, Turkiye

Order dt: 30.11.2023

Broad scope of Training:

- Basics of Water Chemistry, Understanding of Water Analysis of various sources, like River Water, Bore Well Water, Sea Water, Water Balance Diagram, Calculation.
- Water Pre-treatment Plant, Water Post Treatment Plant (DM Plant, RO Plant), Design Criteria for Equipment sizing, Capacity/Sizing Calculation of DM Plant and RO Plant, General Information of Desalination Plant
- Cooling Water System including Circulating Water and Auxiliary Cooling System, Cooling Water Chemistry, Corrosion Control, Scale Control, Fouling Control, Microbiological Control by dosing Chlorine and Chlorine Alternatives, Online Tube Cleaning System.
- Condensate & Feed Water Chemistry (Water Treatment Method, Chemical Dosing, Calculations, etc.), Boiler Water Chemistry (Water Treatment Method, Chemical Dosing, Calculations, etc.), Steam Chemistry, Condensate polishing for Co-gen plants, Steam Water Analysis System (regarding sampling point, which analysis, etc.).
- Wastewater Treatment, Sewage Treatment, Neutralization, etc. Discussion of entire Training Topics. Hands on calculation for at least one sample CCPP case.

Present status: Training completed on 11.12.2023.

Engineering Consultation support including Review of all the drawings and documents pertaining to De-Nox system and auxiliaries at 2x300 MW HEL thermal power plant

Client: Haldia Energy Limited 2x300 MW, Lord Sinha Road, Kolkata

Order dt : 03rd June 2023

Broad scope of service:

- Review of Overall De -Nox retrofit layout including duct routing with supports, sofa nozzle installation, basic design, circulation studies, operation and control philosophy in consultation with Owner with necessary approval categorization.
- Review of design calculation, data sheet, system drawings, schematics, P&IDs, General arrangement, and layout drawings.
- Review of Electrical system interconnection wiring diagram, electrical layout, panel layout, cable layout, cable schedule.
- Review of Control & instrumentation of system configuration including integration with plant DCS, system details including architecture, control loop configuration, logic control for SOFA, interfaces with existing plant protection and interlock trip particulars etc.
- QAP for pressure parts, Ducts.
- Performance test of Boiler after installation of De-Nox system and compare with base line test data of existing system.
- Site visit during testing

Present status : Job is completed and Closed

Engineering Consultation support including Review of all the drawings and documents pertaining to De-Nox system and auxiliaries at 2x300 MW DIL thermal power plant

Client: Dhariwal Infrastructure Limited 2x300 MW, CESC House, Kolkata

Order dt : 03rd June 2023

Broad scope of service:

- Review of Overall De -Nox retrofit layout including duct routing with supports, sofa nozzle installation, basic design, circulation studies, operation and control philosophy in consultation with Owner with necessary approval categorization.
- Review of design calculation, data sheet, system drawings, schematics, P&IDs, General arrangement, and layout drawings.
- Review of Electrical system interconnection wiring diagram, electrical layout, panel layout, cable layout, cable schedule.
- Review of Control & instrumentation of system configuration including integration with plant DCS, system details including architecture, control loop configuration, logic control for SOFA, interfaces with existing plant protection and interlock trip particulars etc.
- QAP for pressure parts, Ducts.
- Performance test of Boiler after installation of De-Nox system and compare with base line test data of existing system.
- Site visit during testing

Present status : Job is completed and Closed

Engagement Contract for Technical Advisory Services with Clean Energy Management Co Ltd, Thailand

Client: Clean energy management Co ltd, Thailand

Order dt : 03rd May 2023

Broad scope of service: Engineering advisory services to a power plant in Jakarta, Indonesia on behalf of Clean Energy Management to guide /supervise the Performance testing of Fluidised Boiler in fajar paper like instruct the owner engineers, supervise data collection, DCS sheets and guide plant engineers to conduct the test smoothly

Present status : Job is completed and Closed

Supply of Detailed Engineering Services for Demineralised Water Heating System

Client: Asia Project Engineering PTE Ltd, Dhaka, Bangladesh

Order dt : 03rd April 2023

Broad scope of service: Study of the existing system and operation data and engineering of the heating arrangement of the Anion Bed for enhancement of regeneration effectiveness

Present status : Job is completed and Closed

Supply of Detailed Engineering Services for GT Purge Air System

Client: Asia Project Engineering PTE Ltd, Dhaka, Bangladesh

Order dt : 03rd April 2023

Broad scope of service: Detail engineering and Service Air for GT Purge air system with pre and post filter and Defrigerant dryer

Present status : Job is completed and Closed

Engagement of Engineering Consultant for preparation of Detailed Project Report (DPR) for use of river water in place of ground water at BTPS

Client: Bandel Thermal power Station, The West Bengal Power Development Corporation Ltd.

<u>Order dt</u> : 21st December 2022 Broad scope of service: site visit, selection of site, development of scheme for the system, cost estimation, justification of the project <u>Present status</u> : Job is completed and Closed
Hydraulic/Feasibility Study of Wax Cooling Water circuit and provide Engineering solutions for augmentation of cooling water flow in Solvent Dewaxing Unit (SDU) and CW flow <u>Client</u>: Numaligarh Refinery Ltd, Assam <u>Order dt</u> : 14th December 2022 Broad scope of service: Study of the existing system, operation data, hydraulic analysis of the system, find out the reason behind the problem, finally submission of solution. <u>Present status</u> : Job is completed and Closed.
Review of Cost estimation and excavation protection measure of basement of the Disha Eye Hospital under construction in new Town area, kolkata <u>Client</u>: Disha Eye Hospital <u>Order dt</u> : 03rd November 2022 Broad scope of service: site visit, Engineering review of the construction drawings and suggestion, if any. <u>Present status</u> : Job is completed and Closed.
To carry out the Review of the piling work carried out at Barauni (Indian oil) Site including the soil investigation report, pile design and installation procedure recommendation therein, piling specification etc. for identification of the probable reason/s of adverse load carrying capacity reported. <u>Client</u>: LRQA Inspection Services India LLC (South West Asia & Authorised Inspector (AI) <u>Order date</u>: 16th July, 2022 Broad Scope of Work: IOCL site has drawn the attention of the experts that initial vertical pile load test could not be continued up to 2.5 times the estimated safe load/ design load (as emphasized in IS 2911 part IV of 2013) as the settlement had already exceeded by 10% of the pile diameter except for one pile load test in Substation area of EPCC-4. Moreover, 5 out 8 tests could not be continued even up to 2 times the design load. Piling work has been suffering since Jan'22, GC on behalf of LRQA visited site on 17.05.2022, observed the pile condition and recommended some guide lines to resume the pile work. <u>Present Status</u>: Job is completed and closed
Selection of 1x 700/800DI pipe size in some portion of 2x600 MS piping of Intake water system for route diversion to accommodate new FGD <u>Client</u>: CESC, Budge Budge <u>Order date</u>: 14nd March, 2022 Broad Scope of Services: Study of the existing system and operation data, study of the proposed system with DI pipe and final recommendation for selection of pipe size.

<u>Present Status:</u> Job is completed and Closed
Design Engineering Consultancy for construction of Fire wall in between Reserve and Auto transformers,132 kV switchyard, Kolaghat <u>Client:</u> WBPDC, Kolaghat <u>Order date:</u> 2nd March, 2022 Broad Scope of Services: Study of cable gallery support system, Study the Design of Fire wall in between Reserve and Auto Transformer, Study of the soil Report, design of piles and development of construction drawing. <u>Present Status:</u> Job is under execution <u>Present Status:</u> Job is completed and closed
Detail Feasibility Study and basic design engineering for installation of additional cell in the existing Process Cooling Tower at NRL <u>Client:</u> Numaligarh Refinery Ltd, Assam <u>Order date:</u> 22nd September, 2021 Broad Scope of Services: To carry out detail feasibility study and submission of the report, basic design engg, estimation of Project cost, Technical bid evaluation for supply and execution of tender, Approval of execution drawings and documents required for installation of additional cell and other related facilities in the existing Process Cooling Tower and also supervision of the project. <u>Present Status:</u> Job is under execution
Carrying out Inspection and corrective action for Civil Foundation of ESP pass #D, unit #4 of 4x600MW OPJSTPP <u>Client:</u> Jindal Power Plant, Raigarh <u>Order date:</u> 07th July, 2021 Broad Scope of Services: Site Inspection, submit recommendation, develop specification for NDT testing of the foundations, piles etc. and final recommendation based on the test reports <u>Present Status:</u> Job is completed and closed.
Engg & Consultancy services for Shore Protection (immediate) around Intake pump house jetty at BBGS, CESC <u>Client:</u> CESC, Budge Budge <u>Order date:</u> 07th July, 2021 Broad Scope of Services: Detail Design, drawing and BOQ preparation for Sustainable River Training Schemes including immediate restoration based on available data as available from site on Topographical & bathymetric Survey of the entire riverfront stretch. This detailed scheme is to be submitted to CESC. <u>Present Status:</u> Job is completed and closed.
Design of additional structure to assist removal of Rotor cartridge of Boiler Feed pump <u>Client:</u> Dhariwal Infrastructure Ltd, Nagpur <u>Order date:</u> 02nd July, 2021 <u>Broad Scope of Services:</u> structure modification to assist cartridge removal of Boiler feed pump

Present Status: Job is completed and closed.

Health Assessment of Stacker –Cum –Reclaimer -1, at BBGS,CESC

Client: CESC, Budge Budge

Order date: 15th May, 2021

Broad Scope of Services:

Health assessment of Stacker –Cum-reclaimer, development of Model by STAAD, Insertion of corroded member in the model, Recommendation for strengthening of sub-structure and necessary drawing showing fabrication details.

Present Status: Job is completed and closed.

Independent Contractor Agreement for Engineering and drafting required for Sustech

Client: Sustech Engineering Pty Ltd Trading, Perth, West Australia

Order date: 13th March 2021

Broad Scope of Services:

Trouble shooting and renovation of an existing mercury removal plant. The existing plant was not removing mercury from run-off-mine Natural Gas as per the local environmental norm.

Present Status: Job is completed and closed.

Design and Engineering of a Standby GT Transformer in a new Location inside the power plant proper for Haldia Project

Client: Haldia Energy

Limited, Haldia Order date:

22nd October 2020

Broad Scope of Services:

Site visit for Selection of Location of the new GTG transformer at site; Design of foundation drawings for new GTG Transformer; Foundation Design of Rail line layout for transportation of GT from new location to either of the existing location; Design of Pile foundation for the new Transformer foundation including detailed BOQ; Prepare specification for the vendor to execute the construction.

Present Status: Our Engineering completed and Closed.

Cost estimation for installation of Closed Cooling Water System for Southern Generating Station 2X67.5 MW units using Cooling Towers

Client: CESC Limited

Order date: 28th September 2020

Broad Scope of Services:

The Southern Generating Station (SGS) of CESC Ltd, commissioned in early 80s has been operating on once through cooling water system since inception. To meet the MoEFCC, GOI notification of 2015, a cooling tower based closed CW system is to be installed in SGS to limit the specific water consumption of the plant to 3.5 m³/MW hr.

CESC entrusted us with the following assignment in this regard:

Identification of various systems that would be needed for conversion of once through cooling system to Closed Cycle cooling system using Cooling Towers; Sizing of various components and systems; Estimation of Bill of

Quantities for the modification works; Cost estimate for the new installation based on recent prices and in-house price data.

Present Status: Study completed and report submitted to CESC for their decision making. Our job is Closed.

Rectification of Damaged Leg Section of a 400 kV Transmission Tower in West Bengal caused by Cyclonic Storm Amphan of May 2020

Client: Haldia Energy Limited (HEL)

Order date: 12th August 2020

Broad Scope of Services:

Site Visit by our engineers for assessment and ascertaining the extent of damage; Review of methodology /Scheme along with calculations submitted by the Contractor for the rectification; Study of Tower leg foundation drawing and R C design of combined derrick base on chimney top; Site supervision during actual implementation of replacement of bent leg; A comprehensive report on the works done by the contractor with our recommendation for further rectification / strengthening of the tower to avoid any such future eventuality.

Present Status: Job Completed in August 2020.

Consultancy services for Rectification of chequered plate walkways and bottom chord support of Existing BCN-10 Coal Conveyor structural Gallery

Client: Haldia Energy Limited (HEL)

Order date: 1st August 2020

Broad Scope of Services:

Carrying out Design, Engineering & supervisory services for repairing of chequered plate walkways and bottom chord support of BCN-10 structural Gallery.

Present Status: Job completed in July 2020.

Review Engineering for Design Calculation and GAD of a new Bulk Hypochlorite FRP Storage Tank

Client: Haldia Energy Limited (HEL)

Order date: 30th July 2020

Broad Scope of Services:

Review Engineering and Approval of Detailed Design Calculations, drawings and QAP of New Bulk Sodium Hypochlorite (NaOCl) Storage Tank prepared by the contractor.

Present Status: Job completed in August 2020

Consultancy Services for Shore Protection Works on either side of Tirupati Jetty of Budge Budge Generation Station 2X250 MW units damaged badly by the Severe Cyclonic storm Amphan in May 2020

Client: CESC Limited

Order date: 16th June 2020

Broad Scope of Services:

Preparation of Appropriate Shore Protection Scheme after due consideration of the various local conditions like flood discharge, silt factor, anticipated scour depth etc. for the Damaged Shore Line due to Cyclone amphan; Detailed cost estimate along with preparation of Technical Specification and Bill of Quantities for Tendering and field execution of shore protection work; Periodic site visit to monitor site progress, mitigation of problems faced at site, if any, during the course of execution of the shore protection activity

Present Status: Scheme made, Specifications prepared, Contractor finalised. Job is Completed and Closed.

OE services for damage assessment, Restoration Plan, etc. for HEL intake PH area caused by Cyclonic Storm Amphan in May 2020.

Client: Haldia Energy Limited (HEL)

Order date: 8th June 2020

Broad Scope of GC Services:

Module 1: Visit of Intake Pump House Premises and submission of assessment report of damages occurred during cyclonic AMPHAN; Preparation and submission of an Immediate shore protection scheme to protect the shore line and nearby facilities; Preparation of technical specifications, BoQ with cost estimate, review of tender document and cost evaluation for selection of agencies;

Module 2: In-depth study of settlement issue of the Intake pump discharge pipe support and subsequent deformation of the circular shape of the pipe and propose remedial measures as appropriate; Preparation and submission of scheme for restoration of Intake Pipe line addressing damages to existing thrust blocks and supports; Preparation of technical specifications, BoQ with cost estimate, review of tender document and cost evaluation for selection of agencies. Site visit of consultant's Engineers as and when required prior and during construction of above work **Module 3:** Preparation of an appropriate shore protection scheme for a long lasting solution of the problem; Carrying out necessary engineering for its implementation including preparation of Specification, BOQ and Evaluation of Bids received; post contract engineering including Vendor drawings review and site construction supervision.

Present Status: Module 1 & 2 Engineering completed and implementation of both the modules are also nearing completion. Module 3 under client's decision.

Consultancy services for Evaluation of tender documents and price schedule for River bank protection at intake site 2x300MW Haldia Thermal Power Plant.

Client: Haldia Energy Limited (HEL)

Order date: 2nd January 2020

Broad Scope of Services:

Evaluation of Tender document, Price schedule, commercial terms, and thereafter Evaluation of Bids received and submission of bid evaluation report.

Present Status: Job completed in January 2020

Design Review of Cement Plant for ACC Sindri Expansion-II Project

Client: Sinoma Engineering China / LNV Technology Pvt Ltd

Order date: 16th December 2019

Broad Scope of Services:

Review of drawings and documentation related to civil and structural engineering of the project for compliance with IS Codes/Standards for Authority approval; provide specific requirements of structural design and drawings according to local Code and the construction customs; Provide Technical Assistance to the Chinese Client and the construction contractor during execution of the project; Depute specialists at site to provide the site supervisory services during the construction.

Present Status: Job suspended due to Indo- China Border Conflict of 2019/20 and also COVID 19 Pandemic.

Installation of a New Raw Water Clarifier Plant of 200 Cum/Hour Capacity for Haldia Energy Limited for 2x300 MW Coal Fired Power Plant at Haldia

Client: Haldia Energy Limited (HEL)

Order date: 20th July 2019

Broad Scope of Services:

Preparation of Design Memorandum for selection of the type of clarifier; Study various options for location of clarifier and finalize optimum location; Preparation of Procurement Specification, Project cost Estimation, Issue of final specification.

Present Status: Job Completed

Basic and Detail Engineering of Electrical Works including illumination on Behalf of EPC Contractor for retrofit of FGD Unit for 2x500 MW existing coal fired Plant of DVC in India

Client: Larsen & Toubro Ltd.- Power IC, Vadodora

Order date: 31st July 2019

Broad Scope of Services:

Procurement specification for all equipment including transformers, switchgears, DG sets, cabling, lighting etc.; bid evaluation and post contract review engineering; Cabling layout for all the buildings and outdoor layouts; Bill of material for earthing, lightning, cable tray, Erection hardware, structures etc; Design & Calculation for illumination of different building including Electrical control room, earthing & lightning.

Present Status: Basic and Detail Engineering Completed. Bid Evaluation and review engineering was withdrawn from our scope due to logistic problems arising out of COVID 19. Job short closed..

Consultancy Services for Replacing existing Gear Box with a new heavier one for cooling Tower Drive of 2X300 MW Power Plant

Client: Haldia Energy Limited (HEL).

Order date: 15th July 2019

Broad Scope of Services:

To assess effect of additional weight of the gear box and assess impact on the overall stability of the cooling tower as well as impact on the various framing elements. Carry out design modifications as needed for such replacement

Present Status: Job Completed

Advisory services for repair and Rehabilitation of pile Cap and Piles for Approach Pier to Intake PH of Dhariwal Power Plant at Chandrapur

Client: Dhariwal Infrastructure Limited.

Order date: April 2019

Broad Scope of Services:

Site visit followed by our Recommendations for the rectification job; Study whether reshaping of Pile caps is necessary or rip-rap pads alone are adequate to counter measure scour; Design of Filter layer to protect finer particles against entrainment by Vortices; Design of Rip-rap layer to counter measure scour around Piers & Intake Well thereby maintaining safety against stability of the structure and minimizing erosion of concrete structures.

Present Status: Job Completed

Site Visit and Review Design for installing belt feeder at Transfer House -2 of Dhariwal Power Plant at Chandrapur

Client: Dhariwal Infrastructure Limited.

Order date: 16th April 2019

Broad Scope of Services:

Site visit and site condition assessment: Review Design Requirement for installation of Belt feeder at transfer house -2.

Present Status: Assignment complete

Deputation of Senior Civil Engineer for Erection of a Frame 9 GE Gas Turbine in Aden Yemen

Client: MY Homes Power Consultancy Services Pvt Ltd, Hyderabad (MHPCSPL).

Order date: 25th March 2019

Broad Scope of Services:

Deputation of a senior Civil Engineer for supervision of civil construction work of GE Frame 9E Gas Turbine foundation and its auxiliaries during re erection and commissioning of the same.

Present Status: GTG foundation form work, Reinforcements were completed and was ready for casting when militant activities forced the project company to stop the work and demobilise the team. Project not completed due to political unrest in Yemen.

Consultancy Services To Paharpur Cooling Towers (PCT) in their bid Submission to WBPDC, Bandel TPS for Conversion of 200MW 5th unit from Open to Closed Cooling Water System

Client: Paharpur Cooling Towers Pvt Ltd (PCT) .

Order date: 1st march 2019

Broad Scope of Services:

Study WBPDC proposal for conversion, list out and discuss with WBPDC all clarifications needed on the proposed arrangement; provide full technical support to PCT in Preparing schemes, Layout drawings, specifications for all bought out items, evaluate bids received; Prepare technical proposal on behalf of PCT, work out complete BOQ for Civil, Electrical, Mechanical and C&I items; Assist PCT in Bid submission and in Post bid clarifications etc.

Our scope also includes Post contract detail engineering for the project if PCT is successful.

Additional Order from PCT on the same project: Order date: 9th December 2019

Broad Scope of Services:

Preparation of various civil construction schemes keeping in view existing structures and various site constraints for the closed cooling system proposal for Bandel Thermal power plant.

Both the assignments completed and PCT could submit their proposal on time.

Present Status: WBPDC received single bid only from PCT and further decision is pending from them.

Earthing Calculations for Paradip Port Crude Oil tanks and other civil/ struct. Design & engineering services.

Client: Bridge & Roof.

Order date: 16th January 2019

Broad Scope of Services:

Earthing design calculations and drawings for Paradip Port Project of Indian Oil Corporation; structural design of cross over bridge between clarifiers; design calculation for Temporary Barricade including development of design sketch.

Present Status: Assignment completed.

Condition assessment of Dewatering Bins of Bottom Ash Handling System and suggest remedial measures.

Client: Haldia Energy Limited (HEL).

Order date: 14th November 2018

Broad Scope of Services: Visit site to assess the condition of Dewatering Bin from the impact of corrosion and suggest remedial measures.

Present Status: Assignment completed.

Piping and Instrumentation System for Compressed air Plant of HPCL Gas Pipeline Project in Vadodara

Client: Power Max (I) Pvt Ltd.

Order date: 27th October 2018

Broad Scope of Services:

Preparing piping layout between Compressors, ADP, Air Receivers and getting the layout approved by EIL, the Consultant: Submit relevant design calculations; Finalise Instrumentation scheme; prepare bid documents for procurement of Instrumentation; bid evaluation and getting final approval from EIL.

Present Status: Assignment completed.

Augmentation of Plant Water System for Haldia Plant to mitigate severe corrosion issues

Client: Haldia Energy Limited (HEL).

Order date: 15th October 2018

Broad Scope of Services:

Analyze corrosion problem being faced and recommend solution; Scheme for collection of rain water in Pond, its treatment and transportation to various service water requirements through an intermediate storage tank; Layout drawings and estimated Project Cost.

Present Status: Assignment Completed

Design and Engineering of Civil Works for BDP Bhilai Project

Client: Sterling & Wilson.

Order date: 8th October 2018

Broad Scope of Services:

Preparation of GA & Architectural drawing of pump house, MCC room & fire water reservoir; Preparation of RCC drawings for pump house & MCC room; Preparation of GA & RCC drawings for water storage tanks; RCC details of equipment & cable trench; Bar bending schedule.

Present Status: Assignment Completed

Performance and Reliability Improvement of CHP for 2x300 MW plants at Haldia

Client: Haldia Energy Limited (HEL).

Order date: 5th October 2018

Broad Scope of Services:

Capacity Augmentation of Unloading Chain; Reduction of Bulldozer operation time; Condition assessment of Technological structures of Critical Conveyors.

<u>Present Status:</u> Study Completed and Report Submitted to HEL
Strengthening of CHP structure in specific Locations for Budge Budge Generating Station -3X250 MW TPP <u>Client:</u> CESC Limited. <u>Order date:</u> 29th August 2018, 28th January 2019, 13th July 2019 <u>Broad Scope of Services:</u> Carry out design of rectification works for strengthening of existing CHP structures in three specific locations of Carry out design of rectification works for strengthening of existing CHP structures in three specific locations of (i) Conveyors 4A and 4B (ii) Gravity Take up Trestles of conveyors 3A and 3B and (iii) Crusher House. <u>Present Status:</u> Design and Implementation of Rectification Works Completed.
Consultancy Services for Automatic HV Water Spray FPS for MOT and Turbine Area for 40 MW CPP <u>Client:</u> Crescent Power Limited. <u>Order date:</u> 1st August 2018 <u>Broad Scope of Services:</u> Collection of input data from site; Design calculations as per NFPA guidelines including all hydraulic calculations;Preparation of Technical Specification complete with layout, piping isometric drawings, BOM, C&I drawings for detection and alarm with detail specification. <u>Present Status:</u> Assignment completed.
Review of Foot bridge Structure at Crescent Power Plant in Asansol <u>Client:</u> Crescent Power Limited (CPP). <u>Order date:</u> 25th July 2018 <u>Broad Scope of Services:</u> Review design of Foot Bridge structure done by CPP and submission of reviewed /revised design with our recommendation; Typical joint details for major members comprising of moment and shear connections; Civil Foundations and reinforcement details. <u>Present Status:</u> Assignment completed. Foot Bridge is in operation. Job Completed.
Consultancy Services for Finalization of Scheme and Cost Evaluation of Various Civil Jobs at 2x300 MW Haldia Project site <u>Client:</u> Haldia Energy Limited (HEL). <u>Order date:</u> 11th June 2018 <u>Broad Scope of Services:</u> Evaluation of proposed Schemes and Tender Documents along with Cost Estimates for various types of civil Jobs asprepared by HEL; Submission of Bid Evaluation Reports for various schemes; Revisit the evaluation of cost after tendering process and submission of Report on review of the same. <u>Present Status:</u> Job completed.
Engineering Associate for Bitumen Storage Plant in Haldia <u>Client:</u> Bridge & Roof/MESCIA

Order date: 23rd April 2018

Broad Scope of Services:

Complete planning and design of the project including Basic and Detailed engineering of Mechanical, Electrical, C&I, Structural and Civil disciplines. The Plant comprises of several bitumen storage tanks, fuel oil tank and water tanks. Material will be received from ship and transported to the terminal through underground buried pipeline. Storage of Bitumen will be carried out at the Terminal and will be transported out using tank lorries, Provision will also be therefor loading ships from the terminal with marine pumps.

Present Status: Job Completed and handed over to Hincol (Client) by Bridge & Roof .

Side Stream Filtration Plant for 2x300 MW Coal Fired Thermal Power Plant at Haldia

Client: Haldia Energy Limited (HEL).

Order date: 15th March 2018

Broad Scope of Services:

Feasibility Study for determination of most optimum Side Stream Filtration (SSF) Plant for the project; Prepare Design Basis Report (DBR); Prepare Tender Specification; Complete Civil and Structural Design of the Plant; Interconnection piping and electrical works for connecting the SSF Plant to the existing Power Plant; Bid Evaluation

Present Status: Work up to issuance of final Technical Specification completed. Thereafter the project has been shelved by the Client.

Wind Barrier around Coal Stock pile for 2X300 MW Coal fired Thermal Power Plant at Haldia

Client: Haldia Energy Limited (HEL).

Order date: 26th February 2018

Broad Scope of Services:

Determine Wind Barrier layout; Design steel structures and its foundations and provide design drawings; Prepare fabrication drawings for the steel Structures; Provide Arrangement Drawings for fixing Geo-textile fabrics to the steel structures; Prepare specifications for procurement of geo-textile fabrics; Assist Client in its implementation.

Present Status: Job is Completed.

Note: This is the First Wind Barrier that has been Constructed in Eastern India.

Contacts

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