



PGESCO

SERVICES PORTFOLIO



FUTURE@FINGERTIPS

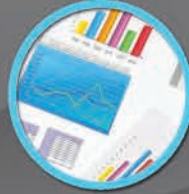
PGESCO SERVICES PORTFOLIO

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PGESCO Records

Since 1993, Power Generation Engineering and Services Company "PGESCO" has manifested proven capabilities by providing Innovative engineering solutions for energy projects and industrial sector in Egypt and MENA region.

With focus on delivering top quality and best services, PGESCO has engineered and managed sophisticated projects in challenging environments. From business planning up to operation and maintenance, PGESCO provides complete integrated services over the project's life.

To ensure seamless digital exchange between organization functions, PGESCO develops and applies world advanced technology that provides the tools and environment needed to achieve its goals delivering quality projects that meet client expectations.

PGESCO provides services and support to the governmental utilities, EPC contractors, independent and private developers using State-of-the-Art design and communication technology platforms.



84 Extra High/High Voltage
Switchyards

54,585 MW
in Egypt & MENA Region

\$21,5B
Projects

3000 KM
OHTL Projects

285,000
M³/Day Sea Water
Desalination



60 Power
Generation
Projects

Completed 50,151MW

Ongoing 4,434MW

Combined Cycle 18

Conversion 7

Simple Cycle 18

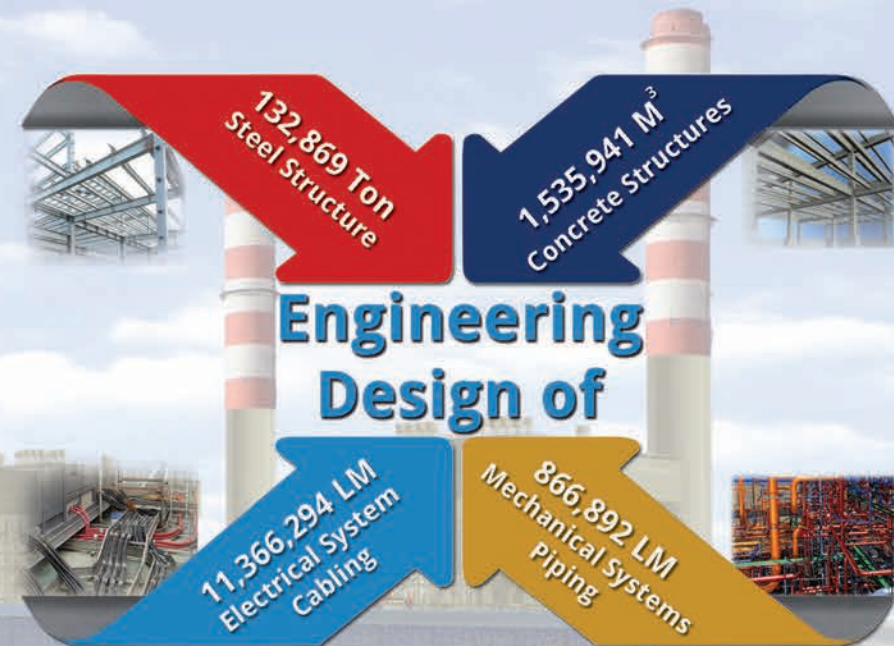
Thermal 14

Managed more
than 437 Million
Construction
Job Site HRs

Managed over
347 contracts,
23 EPC Contracts
and 381
Purchase Orders

Large Scale
Industrial
Project for
ELMACo
Transformers
Factory

Water references:
44 water
treatment and
desalination
facility



This Vast Experience Contributed Significantly to PGESCO's Understanding of Power & Industrial Projects Requirements, Especially in Engineering, Procurement, Construction Management Services (EPC/EPCM) as well as Project Management and Startup Management Services.



Development

Specialty Studies for Project Development

- Site Studies
- Feasibility
- Specific Technical Assessment



Procurement / Contracting

- Tendering Evaluation
- Contracting
- Material
- Expediting



Execution

- Detailed Engineering
- Site & Construction Management
- Project Management



Operation & Turn Over

- Start-Up Commissioning
- Initial Operation



Supporting Functions

- IT Solutions
- Record Management
- Test & Factory Inspection
- Project Commercial



Offered Services

COMPLETE INTEGRATED PROJECT SERVICES



ISO 14001:2015, ISO 45001:2018, ISO 9001:2015 Certification



Current issue date: 21 September 2020
Expiry date: 18 September 2023
Certificate identity number: 0024500

Original approval(s):
ISO 14001 - 6 July 2014
ISO 45001 - 6 July 2014
ISO 9001 - 19 September 2002

Certificate of Approval

This is to certify that the Management System of:

Power Generation Engineering & Services Co.

41 Al Salam Avenue, Central District, New Cairo, Egypt

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015, ISO 45001:2018, ISO 9001:2015

Approval number(s): ISO 14001 - 00026997, ISO 45001 - 00026998, ISO 9001 - 0045537

The scope of this approval is applicable to:

Design, Engineering, Procurement, Project and Construction Management for Power Generation Plants.

Luis Cunha

Area Operations Manager - SAMEA

Issued by: Lloyd's Register Egypt LLC

for and on behalf of: Lloyd's Register Quality Assurance Limited



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ISO/IEC 27001:2013



Current issue date: 17 February 2020
Expiry date: 5 January 2023
Certificate identity number: 00250808

Original approval(s):
ISO/IEC 27001 - 6 January 2017

Certificate of Approval

This is to certify that the Management System of:

Power Generation Engineering & Services Co. (PGESCO)

41 Al Salam Avenue, Central District, New Cairo, Egypt

has been approved by Lloyd's Register to the following standards:

ISO/IEC 27001:2013

Approval number(s): ISO/IEC 27001 - 0045606

The scope of this approval is applicable to:

The Information Security Management System supporting the confidentiality, integrity, and availability of Information for Design, Engineering, Procurement, Project & Construction Management for Power Generation Plants and other related projects, in accordance with SOA Revision 2 dated November 28, 2019.

Luis Cunha

Area Operations Manager - SAMEA

Issued by: Lloyd's Register Egypt LLC

for and on behalf of: Lloyd's Register Quality Assurance Limited



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PGESCO ISO Certificates





Engineering Services

PGESCo Engineering Typically Provides:

- . Architectural
- . Civil / Structural
- . Control Systems
- . Electrical
- . Mechanical & Process
- . Water Treatment Solutions and Desalination
- . Plant Design
- . Engineering Quality Assurance & Quality Control
- . Environmental
- . Engineering Platform
- . Geotechnical and Hydraulics

Engineering Services Overview

PGESCo Engineering Typically Provides:

- . Technical Specification Preparation for each Equipment
- . Basic, FEED & Detailed Engineering Design
- . Pre-tender Clarifications
- . Technical Evaluation of Tenders
- . Pre-award Clarifications
- . Review of Contractors Technical Documents and Technical Coordination
- . Construction Support Services
- . Startup and Acceptance Testing Support
- . Plant Performance Tests
- . Training Services
- . Plant Data Book
- . Engineering Studies





Architectural Engineering Services

Building Code Analysis:

- . IBC International building code
- . NFPA Life safety code
- . Buildings occupancy classifications
- . Means of emergency exits
- . Life safety requirements

Architectural Specifications Including:

- . Project standard specifications
- . Technical specifications for each project requirements
- . Design criteria for architectural works

Architectural Design Including:

- . Power block buildings to accommodate turbine and related electrical & control facilities
- . Auxiliary buildings such as pump house and switchyard buildings
- . Ancillary buildings such as administration and workshop buildings
- . Colony and accommodation buildings.
- . Landscape design "hardscape & softscape"

3D Modeling

- . Using various types of software for high level of coordination and presentation





Civil Engineering Services

Civil/Structural

- . Dynamic Analysis and Design of Machine Foundation and Complex Structures.
- . Analysis and Design of:
 - Steel Structures/Buildings.
 - Reinforced Concrete Structures and Foundation (Shallow and Deep Foundation).
- . Preparation of Technical Specifications, Tender Documents, Evaluation of Bidders, and Recommendation of Civil Related Award Contracts.
- . 3D Modeling of Civil-Commodities; including Steel Structures, Concrete Buildings, Rebar Detailing and Underground Circulating Water Piping.
- . Storm Drainage & Roads Design
- . Design of Chimneys
- . Design of Water Structures
- . BIM Modeling

Geotechnical

- . Onshore/offshore Soil Investigation and Geophysics.
- . Geotechnical Analysis and Design.
- . Seismic Hazard Assessment & Analysis.
- . Topographic Survey and Underground Detection.

Hydraulic Works

- . Hydrographic Survey, Hydraulic Modelling.
- . Design of Circulating Water System (Onshore/Offshore).



Front End Engineering

- . Instrumentation and Control Valves BOQs and Purchase Specifications
- . Automation Platform I/O sizing and Purchase Specifications
- . Automation Platform Architectural Drawing
- . Overall Automation Strategy

Instrumentation and Analysis Design

- . Instrument Selection
- . Instrument Data Sheets
- . Control Valve Data Sheets
- . Control Valve Sizing and Selection
- . Instrument Location Plans
- . Instrument Installation Details (IID)
- . Continuous Emissions Monitoring System (CEMS)
- . Steam & Water Analysis System (SWAS)



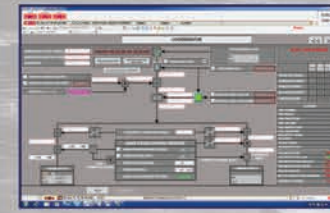
Control Systems Engineering Services

Process Automation

- . Distributed Control System (DCS) Specification
- . Emergency Shutdown Systems (ESD) Specification
- . Safety Instrumented System and Hazard Interoperability Study Participation
- . DCS and ESD Sizing
- . Input/Output Signal Listing and Assignment
- . Process Control Description, Logic Narratives
- . Logic and Functional Control Diagrams
- . Cause and Effect Matrix
- . Overall automation programs (single startup pushbutton programs, function group controls and sequences)
- . Plant Master Control Design
- . Graphic Sketches
- . Performance Monitoring, Asset Management and Optimization packages
- . Automation Platform Hardware and Software Testing
- . Plant Performance Testing Participation.
- . Control Room Design
- . I&C Cable Design and Termination Diagrams

Process Automaiton Calculations

- . Thermowell Stress and Wake Frequency Calculations
- . Flow Elements Preliminary Sizing and Verification Calculations
- . Control Valves Preliminary Sizing and Verification Calculations
- . Instrument Tubing Freezing and Heat Tracing Calculations
- . Steam and Water Sample Tubing Heat Transfer Calculations



Boiler Control



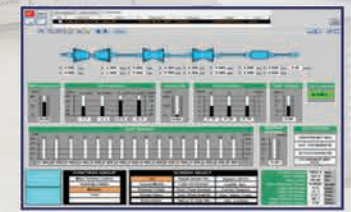
Burner Management System



DCS



Turbine Drives



Turbine Control

Control Systems Engineering Services





Process Simulators

- . Process Model Design and Fidelity Definition
- . High Fidelity Process Simulators
- . First Order Physical Models
- . Functional Input/Output Models
- . Process Model Automation

Operator Training Simulators

- . Control System Simulation
- . Integration of Control System Simulators with Process Model Simulators
- . Training Courses Preparation
- . Operation Procedures Preparation
- . Training Scenarios Implementation
- . Fault Injection and Response Monitoring



Control Systems Engineering Services



Electrical Engineering Services

Single-line and Phasing Diagrams

- Main Plant Electrical Distribution System (Single-Line Diagrams)
- Plant Phasing Diagrams

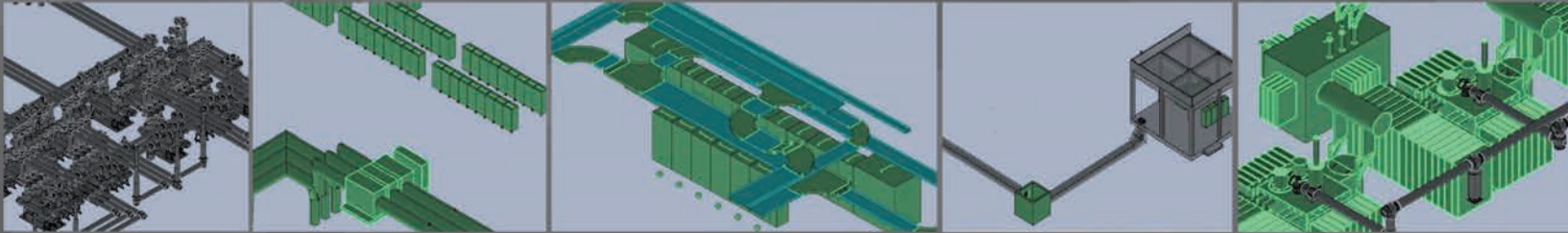
Plant Cabling

- Cable Design that Includes Cable Type and Size Selection Using PGESCO Proprietary Software.
- Cable Routing that Includes Cable Pathway Selection, Cable Filling and Length Calculations, and Cable Pulling Cards Using Both PGESCO Proprietary and International Software.
- Cable Termination that Includes Cable Termination cards.
- Cable MTOs and Material Tracking that Includes:
Cable Quantities Estimation and MTOs, Cable Installation Follow-Up and Material Tracking.

Electrical Engineering Services

Metering and Relaying Single and Three-Line Diagrams

- Plant Metering and Relaying Single-Line Diagrams
- Plant Protection Three-Line Diagrams



Equipment Modeling, Layout Drawings and Raceway System Design

- Equipment Layout Drawings
- Raceway System Design



Electrical Engineering Services

Breaker Logic Diagrams Power System Studies

- Short Circuit Calculations
- Load Flow
- Motor Start Simulations

Electrical Equipment Sizing and Specification

Sizing and Specification for the Following:

MV and LV Switchgear, Plant Power and LV

Transformers, DC and UPS Equipment, Grounding System, Switchyard Equipment and Systems, Generator Circuit Breaker, and Isolated Phase Bus Duct

Protection Setting and Relay Coordination Study

Renewable Energy: PV plants

Preparation of:

- Feasibility Studies
- Technical Specifications
- Conceptual/detailed Design
- Commission and Testing
- Assessment and rehabilitation
for On-Grid, Off-Grid and Hybrid PV Plants

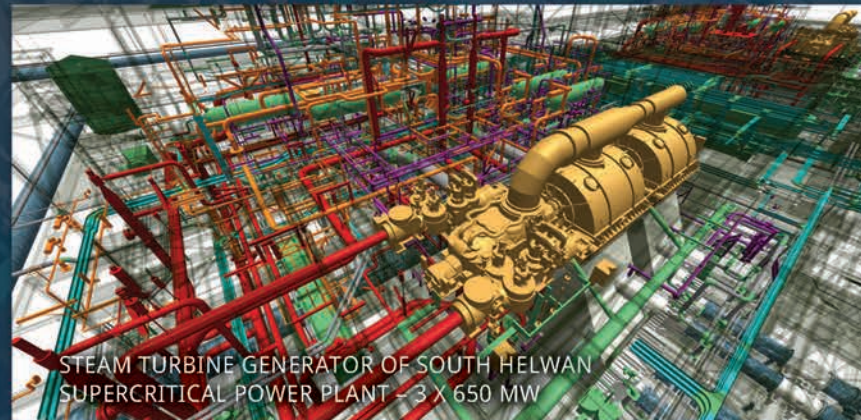




Mechanical Engineering Services

PGESCO has a distinguished experience of designing complex process systems and equipment. From supercritical steam systems to feed water, fuel gas and heavy fuel oil systems, PGESCO has always proved its unique capabilities in providing reliable and cost-effective Engineering solutions.

PGESCO has successfully specified, reviewed and managed all types of mechanical equipment as a part of PGESCO complete solutions that are successfully operating for more than 25 years all over the Middle East.



STEAM TURBINE GENERATOR OF SOUTH HELWAN
SUPERCRITICAL POWER PLANT - 3 X 650 MW



Mechanical Engineering Services

PGESCo Process and Mechanical Department continues to provide long list of engineering services including:

- . Conceptual Design
- . Detail design
- . Heat and Mass Balance for power plants and cogeneration plants
- . Process Simulation and PFD's for process plants
- . Design Reports
- . Piping and Instrumentation Diagrams (P&ID's)
- . Detail systems design calculations
- . Material Requisitions
- . Technical Evaluation
- . ESIA studies implementation and follow-up
- . HVAC
- . Fire Protection Systems

PGESCo has an experience with almost all types of mechanical equipment including:

Static Equipment:

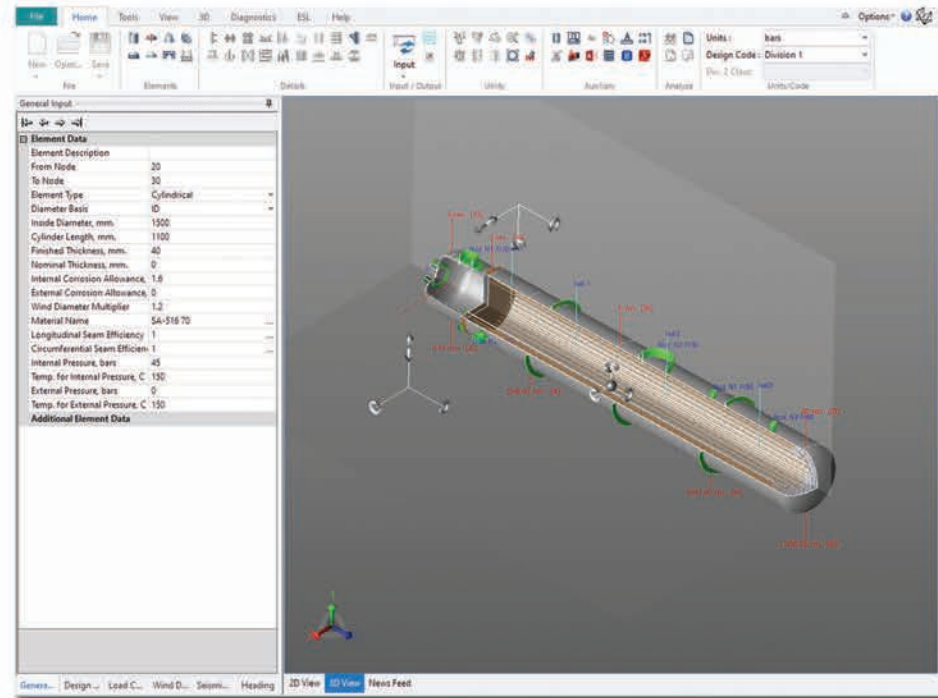
- . Fixed Roof Tanks
- . Floating Roof Tanks
- . Pressure Vessels

Fired Heat Transfer Equipment:

- . Supercritical Boilers
- . Subcritical Boilers
- . Package Boilers
- . Heat Recovery Steam Generators
- . Fired Heaters

Unfired Heat Transfer Equipment:

- . Surface Condensers
- . Air Cooled Condensers
- . Shell and Tube Heat Exchangers
- . Plate Heat Exchangers
- . Air Cooled Heat Exchangers
- . Deaerating open Heaters



Mechanical Engineering Services





Mechanical Engineering Services

Rotating Equipment:

- . Steam Turbines (From small size range of less than 1 MW up to 700 MW)
- . Gas Turbines
- . Supercritical Feed Water Pumps
- . Subcritical Feed water pumps
- . LPG Pumps
- . Chemicals Pumps
- . High Viscosity Fluid Pumps
- . General Purpose Pumps
- . Gas Compressors
- . Air Compressors

Other miscellaneous equipment and packages includes:

- . A particulate Control Electrostatic Precipitators (ESP)
- . HVAC
- . Fire Fighting Equipment

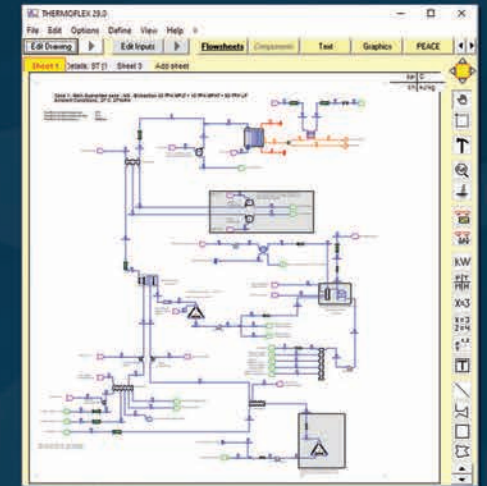
Detail systems design

PGESCo has the right tools and long deliberating and checking process that guarantee accurate results and optimized designs.

Intelligent Piping & Instrument Program

Through its Intelligent Modelling Platform that is Fully Integrated, PGESCo can Guarantee the Accuracy of the design presentation and the associated equipment, valves, pipes and other specialty lists.

Mechanical Engineering Services





Mechanical Engineering Services

Performance Test Group

Whether for performance evaluation for Guarantee check purpose, baseline performance, or comparison to a baseline performance, PGESCo has a crew of experienced equipment and plant performance engineers that can take care of all plant performance testing details using ASME PTC, ISO, or any other international code or standard.

PGESCo has successfully helped many companies in power generation industry and in Oil and Gas production industry to make a full assessment to the performance of their equipment or generation units and provided all the necessary performance data and engineering studies to support their upgrade decisions.



Water Treatment Solutions and Desalination

PGESCo provide a state of arts technologies serving the water sectors including water resources management, water supply, water treatment, wastewater treatment, wastewater reuse and desalination technologies. PGESCo experience covers management and treatment of surface water as well as ground water dealing with various water quality including saline water, brackish water and freshwater.

Our professionals had implemented most of the available modern technologies in our projects to help clients to solve a complicated water resourcing/treatment issues and successfully achieved the highest performance that satisfied our clients.



PGESCo Water Treatment Solutions

PGESCo water technology department provides various engineering services including but not limited to:

- Raw water analysis and characterization
- Water Balance
- Selection of treatment processes
- Process design concept
- Layout and master planning
- Detailed process design
- Detailed mechanical and process calculations
- Process flow diagrams (PFDs)
- Piping and instrumentation diagrams(P&IDs)
- Intake and outfall design
- Piping design
- Material selection
- Technical specifications
- Material requisitions (MRs) and purchase orders (POs)
- Technical Evaluation of bids
- Review of engineering submittals and approval
- Performance testing of water treatment systems
- Construction support and operation support
- Operational data analysis and site surveys
- Technical studies and design reports
- Environmental studies and regulations compliance reports





PGESCo Water Treatment Solutions

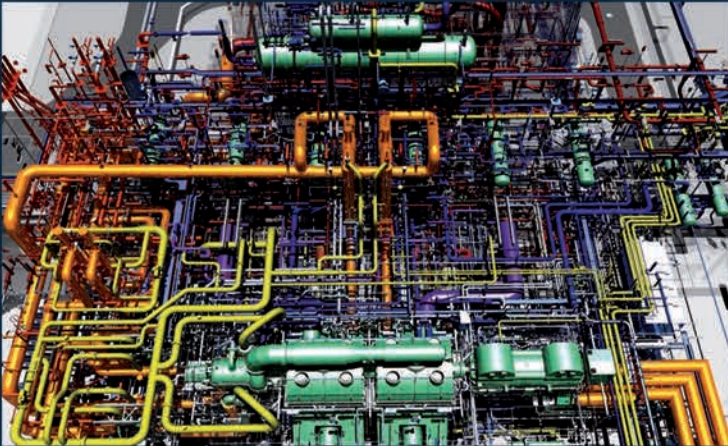
PGESCo serve the water sectors in various applications:

- Drinking water treatment
- Municipal wastewater treatment
- Industrial wastewater treatment
- Desalination
- High purity water production
- Industrial water supply
- Cooling Water treatment
- Power plant cycle chemistry
- Ground water supply and well field design

Plant Design

Piping & Valves Speciality

- . Issue Piping Material Classes
- . Prepare Specifications and Material Requisitions for Piping, Valves, and other in-line Components, e.g., Expansion Joints, Traps, Strainers, etc
- . Prepare Pipe Fabrication and Installation Specifications
- . Prepare Pipe Insulation Specification
- . Material Selection for Piping and Valves



Equipment & Pipe Layout Design

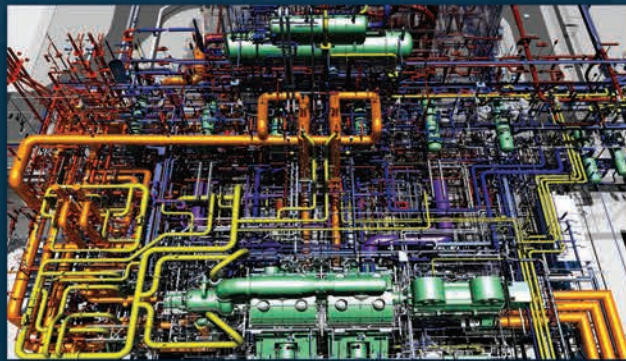
- . Site Layout Development & Optimization
- . 3D Modeling of Mechanical Equipment and Major Plant Commodities
- . Design and Routing of Different Plant Piping Systems
- . 3D Modeling of Piping, Fittings, Valves, Special Devices etc
- . Ownership of Plant 3D Model and Exchange it with Contractors Models
- . Run Model Review and Interference Checking of PGESCO Design and Contractors Commodities



Plant Design

Stress Analysis

- . Perform Computer Stress Analysis of Piping Systems Including:
Weight, Thermal, Wind, Seismic, Time History (Steam Hammer), Dynamic Loadings, and Provide Support Loads and Locations to the Pipe Support Group .
- . Perform Transient Analysis.



Pipe Support Design

- . Prepare Specifications for Fabrication and Installation of Pipe Supports.
- . Prepare Requisitions for Procurement of Pipe Supports.
- . Select Feasible Support Locations for Analyzed Systems.
- . Select Support Locations and Type for Non-analyzed Systems.
- . Pipe Support Design.
- . 3D Modeling of Pipe Supports & Hangers.
- . Analyzing Engineered Pipe Supports.



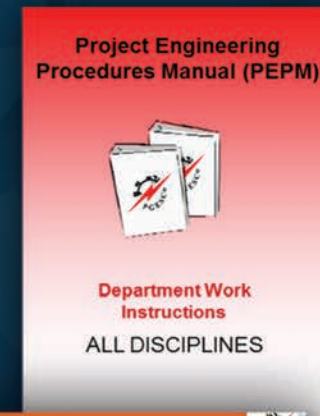
Engineering Quality Assurance & Quality Control

Quality Control

- . Design Checklists
- . Documents & Drawings Register
- . Calculation Register
- . 3D Model Review Meeting
- . Design Checkers
- . Design Review Notice "DRNs"
- . Coordination Forms
- . Standard Drawings
- . Standard Forms
- . Risk Register

Quality Assurance

- Engineering Design Procedures “EDP’s”, Standard Engineering Instructions “SEI’s”, Guide Engineering Instructions “GEI’s”, Work Process Diagrams “WPD’s”
- Codes & Standards
- Standard Technical Specifications
- Continuous Training and Development of Engineers
- Audits Planning “internal & external”
- Risk Analysis & Assessment
- Documents and Records Numbering System
- Lessons Learned



Environmental

- . Technical Specifications.
- . Develop Project Environmental Impact Assessment.
- . Coordinating and Managing Environmental Activities Between Financing Agencies such as the World Bank, African Development Bank and Client.
- . Developing and Maintaining Environmental Monitoring and due Diligence Programs for Air, Surface & Groundwater, Noise, Traffic, Soil and Social Conditions.
- . Writing Environmental Reports.
- . Ensuring Project Compliance with Environmental Regulations.



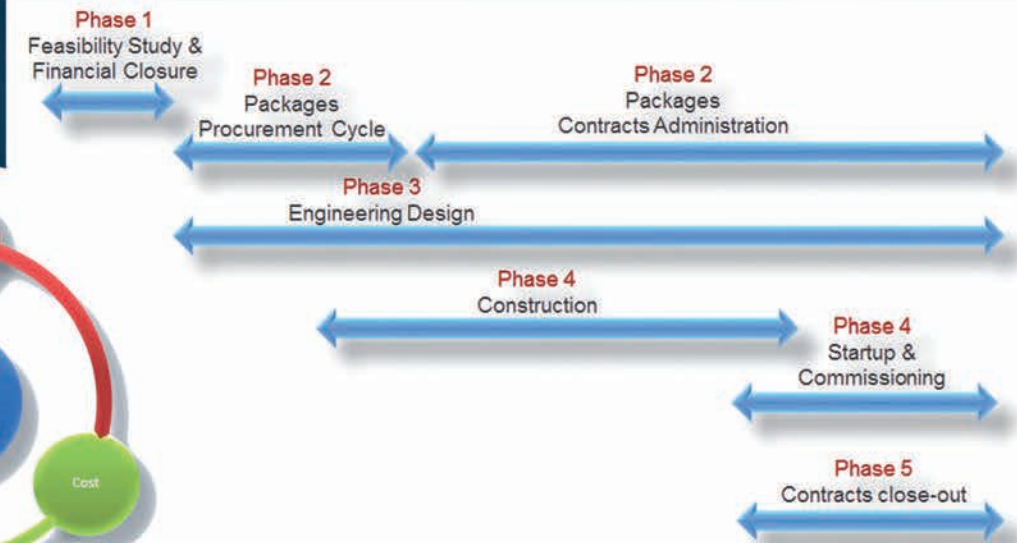
Engineering Software Platform

| Department Name | Programs Name | Department Name | Programs Name |
|--------------------------|--|-------------------------------------|---|
| Architecture | <ul style="list-style-type: none"> ➤ ARCHICAD ➤ MICROSTATION ➤ Artlantis Studio ➤ Sketchup ➤ Photoshop | Mechanical/ Process | <ul style="list-style-type: none"> ➤ PDS2D P&ID ➤ Gate Cycle ➤ PIPNETVISION ➤ PIPNETVISION (Transient Module) ➤ AFT Arrow4 ➤ DFA (PGESCO Developed for Feed Water Heaters Drain Lines Sizing Analysis) |
| Civil/ Structural | <ul style="list-style-type: none"> ➤ Plaxis 2D ➤ Plaxis 3D 2011 ➤ LPILE ➤ AUTOCAD ➤ MICROSTATION ➤ Staad Advanced Foundation | Plant Design | <ul style="list-style-type: none"> ➤ 3E Plus ➤ CAESAR II ➤ PSD Frames (PGESCO Developed for Piping Supports Supplementary Steel Design and Analysis) ➤ PSD Hangers (PGESCO Developed for Piping Hangers and Supports Design & Selection) |
| Electrical | <ul style="list-style-type: none"> ➤ Grounding, CDEGS ETAP ➤ AG Lighting, Pss1E ➤ PED (PGESCO Developed for Cable Design) ➤ PVSOL Exfi1ert PVS:tst | Smart Plant Enterprise Suite | <ul style="list-style-type: none"> ➤ SmartPlant 3D (SP3D) ➤ SmartPlant P&ID (SPPID) ➤ SmartPlant (SPEL) Import Manager ➤ SmartPlant Instrumentation (SPI) ➤ SmartPlant Review (SPR) ➤ SmartPlant Electrical (SPEL) ➤ SmartPlant Reference Data (SPRD) ➤ SmartPlant Foundation (SPF) ➤ SmartPlant Foundation (SPBI) |
| Control Systems | <ul style="list-style-type: none"> ➤ MS Visio ➤ WinSteam ➤ IMT | | |



- Planning and Scheduling
- Project Cost
- Estimating
- Monitoring and Reporting

In addition, the Estimating Function Maintains a Historical Cost Database and Skilled Resources to Support the Business Development and Proposal Process.





Project Controls

PLanning Process





Project Controls

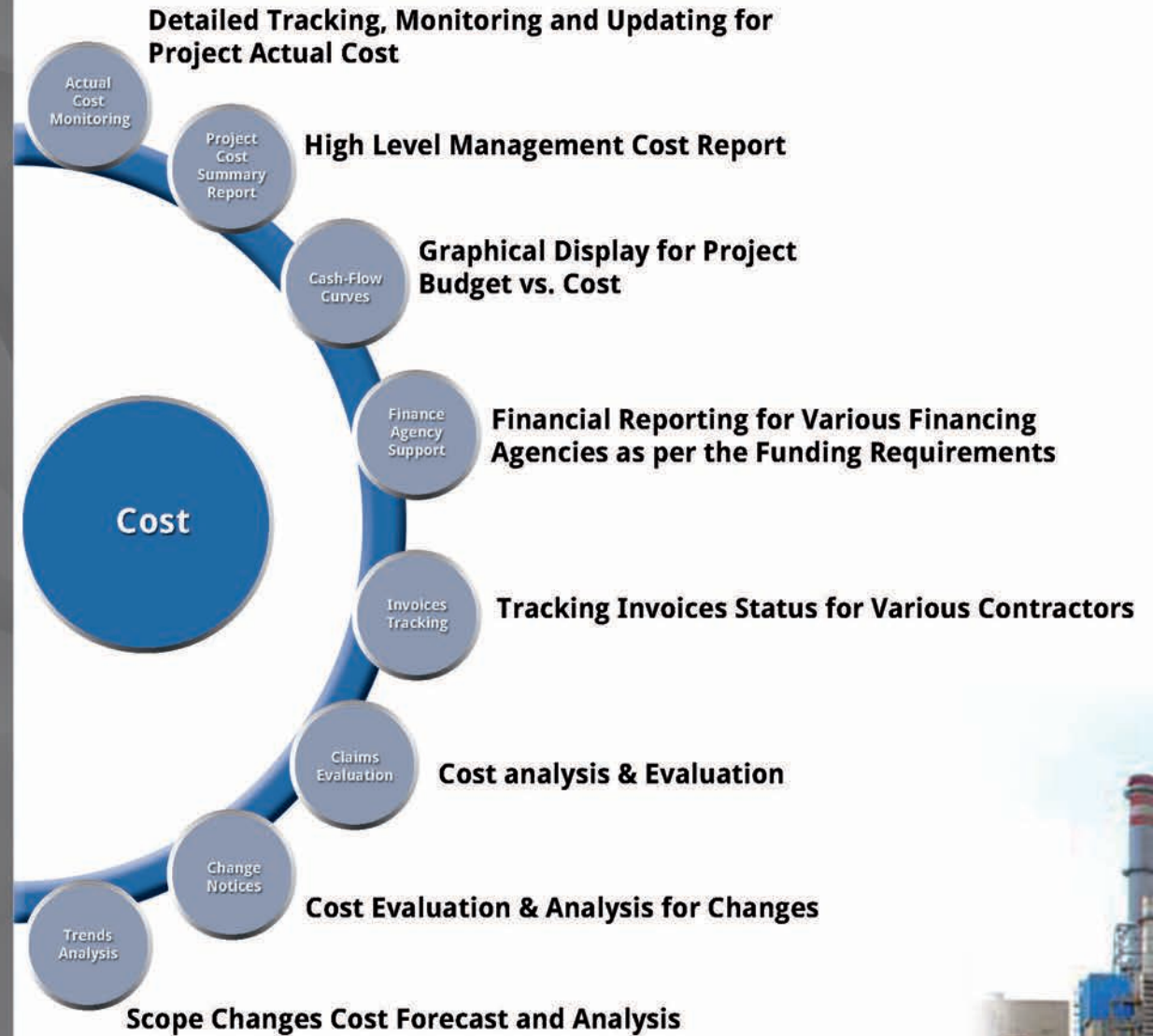
Planning & Scheduling





Project Controls

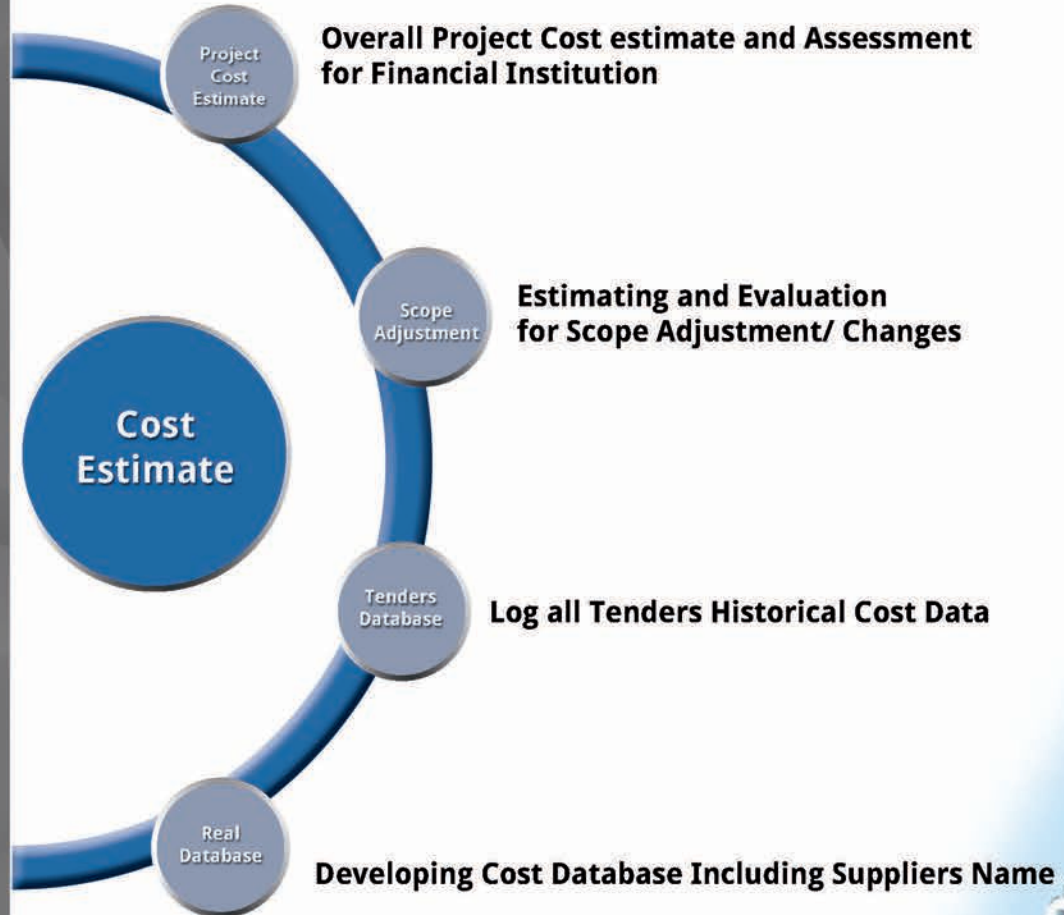
Cost Control





Project Controls

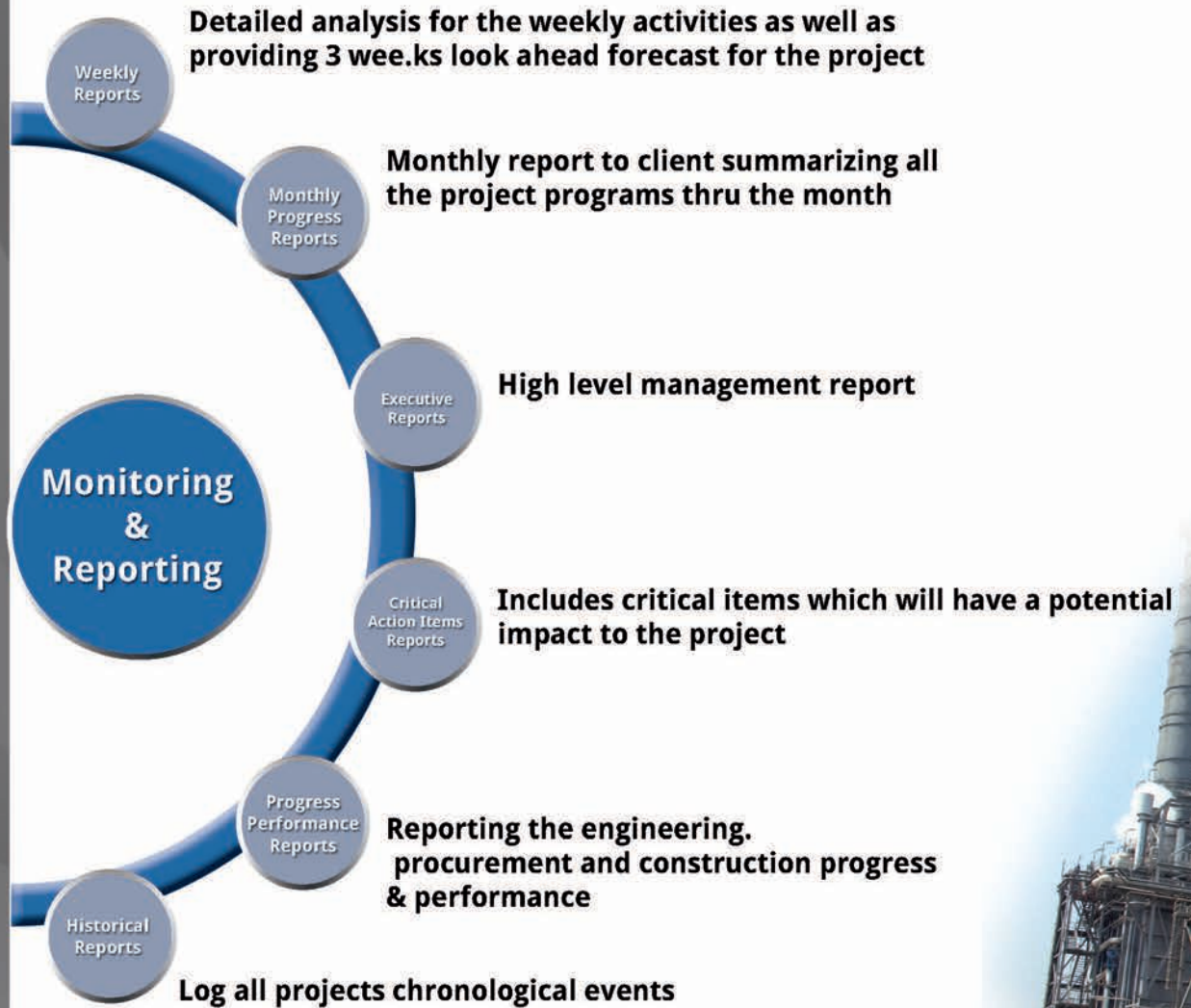
Planning & Scheduling





Project Controls

Cost Control





Project Controls

Planning & Scheduling

Milestones
PROFESSIONAL



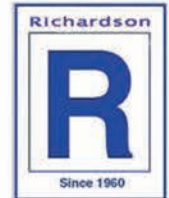
* **Primavera**

* **Microsoft Office**



* **Milestones Professional**

* **Acumen Fuse**



* **Richardson Cost Estimate**

* **ROI (Financial model)**

Job Site Management Services



**PGESCo Believes in Safety First, Then We Race to the end.
From Site Tests to Contractor Interface, Our Team is on Schedule Rising up to your
Highest Expectations Every Step of the Way.**

**The Integrated Project Jobsite Team can Perform the Hereinafter Tasks
During the Job site activities Execution.**





Job Site Management Services

Construction Management

- . Receive Contractor at Site via the kick off Meeting and Supervise Contractor Mobilization.
- . Review Contractor Resources Adequacy with Workload in Accordance with Schedule.
- . Review and Approve all Contractors Key Personnel Qualification.
- . Supervise all Material Delivery, Receiving, Storage and Handling in Accordance with Drawings and Specifications.
- . Review and Interpret Contractors' Drawings and Specifications.
- . Carry Out a Schedule-Monitoring Program.
- . Supervise the Construction Work.
- . Review Heavy Equipment Handling/Lifting Plans and Supervise their Execution.
- . Coordinate the Interfaces Among the Contractors and Resolve any Issues Concerning the use of Space (Coordinate and Sequence the Accessibility by the Various Contractors to the Different Work Area).
- . Conduct Periodic Coordination Meetings with the Contractors.
- . Supervise and Attend all Construction Testing Activities and Approve its Results.
- . Conduct Systems Walk Down.
- . Follow up System Punch List Closure and Turn Over to Startup and Commissioning.
- . Determine Construction Progress and Recommend Progress Payments.
- . Monitor Work Progress & Determine Extra Work and Changes.
- . Review Field Modifications and Provide their Disposition.
- . Review Test Procedures and Coordinate Engineering Comments on Field Construction, Field Surveys, Tests, Laboratory Services and Startup Management Activities.



Startup & Commissioning Management

- . Develop/Review Startup Schedules and Prepare an Integrated Startup Master Schedule.
- . Coordinate Contractors' Startup and Testing Activities.
- . Finalize Startup Scoping Drawings in Details after Design Completion.
- . Develop/Review Startup and Testing Procedures.
- . Manage and Authorize Work Permits.
- . Supervise Suppliers/Contractors' Startup and Testing Activities.
- . Establish and Control Work Permit Processes.
- . Review O&M Instructions Submitted by the Contractors.
- . Initiate O&M Training Program.
- . Coordinate Plant Performance Testing.
- . Verify the Performance and Acceptance Testing of Equipment in Accordance With Previously Established Procedures and in Full Compliance With Design Specifications.
- . Prepare Turnover Schedule and Packages.
- . Assist Owner Operating Staff in Becoming Familiar With Operating the Plant, the Performance and Testing Procedures Relating to Performance Testing of Major Mechanical and Electrical Equipment and Overall Station Performance Tests.

ES&H Management

50

Million

Safe Man Hours
South Helwan 3X650
Power Plant

- . Review Environmental, Safety & Health (ES&H) Plans for all Contractors During the Tender Evaluation.
- . Issue and Update ES&H Specification and Contract ES&H Requirements as a Minimum Requirements for Contractors ES&H Site Implementation.
- . Ensure Contractors Understand their ES&H Obligations by Participation on Pre-tendering, Procurements, Contract Evaluation & Pre-mobilization.
- . Develop the ES&H Requirements on Execution Plan.
- . Review and Approve Contractors ES&H Staff & Qualifications.
- . Review All Work Permits, Risk Assessments, Lifting Plans, Methods Statements, ES&H Training Programs, Medical Surveillance, Waste Management, Hazard Communications, and Others.
- . Coordinate Site ES&H Construction, Startup & Commissioning Activities.
- . Conduct ES&H Site Inspection and Issue of Corrective Actions / Nonconformance Reports.
- . Coordinate Site Emergency and Evacuation Plan & Drills.
- . Investigate Incidents & Near Misses and Issue of Lesson Learned.
- . Review All Environmental Measurements and Ensure Compliance With Laws and Regulations.
- . Review Licenses and Certifications and Conduct Inspection of Equipment's before Allowing Site Operation.
- . Coordinate, Lead Site ES&H Meetings and Site Walkthroughs.
- . Conduct Several ES&H Training for PGESCo/ Client's Employees.
- . PGESCo is Certified for ISO 14001 & 45001.

Construction Software

- **Punch List Program**

Program Controls all Punch List Items (ownership Open & Close) for every Contractor Included with severity Category Leveling.

- **I/O List Program**

Program Controls all Loop and Functional Checks for every Contractor.

- **Daily Report Program**

Program Manages all Daily Reports Issued by the Construction Engineers that Shows Daily Activities Attached with Site Photos.

- **BIM Program**

BIM (Building Information Management) Program Manages the Steel Structure Work Process Starting from Engineering, Purchasing, Fabrication, Delivery, Handling and Erection.

- **Lessons Learned Program**

Program Captures Lessons Learned for Running Jobs to be Utilized in Future Jobs Enhancement and Improvements.

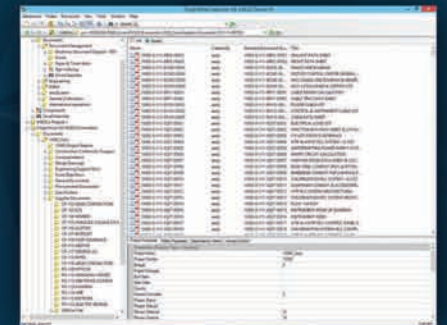




Document Control

Record Management

- . Receipt of All Project Documentation.
- . Control and Classify According To Assigned Document Numbering System as Per Pgesco Standard Numbering System or Client Specific System.
- . Logging and Add All Project Documentation to the Project Data Base (Projectwise).
- . Log Out For The Project Documents & Issue Transmittals.
- . Distribute All Project Document Types Distributed As the Project Distribution Matrix.
- . Maintain Project Retention Plan.



Prime Contracts & Procurement

PGESCo Uses Multi-Package and Turnkey Contracting Systems Depending on The Client Requirements and Costs Optimization opportunities.

Also Uses Competitive Tenders, Setting All Technical Terms and Commercial Conditions to Evaluate Bids.

Scope

Prime Contracts (Formation and administration of contracts between PGESCo and Clients).
Project Procurement.
Contract/Purchase Order Administration.

Prime Contracts Main Tasks

Contractual Risk Identification & Assessment
Preparation of Different Types of Agreements such as:

- Non-Disclosure Agreements.
- Memoranda of Understanding.
- Joint Venture Agreements.

Review Terms and Conditions Provided by Clients and Identification of Required Changes.

Contract Negotiations and Conforming Contract Documents to Incorporate Agreement Between Parties.

Prime Contract Administration (Invoices/Changes/Amendments, etc.)



Project Procurement PRE- Award

Development of Contracting Plan Depending on Client needs.
Pre-qualification of Tenderers and Evaluation of their Capabilities Based on Previous Experience, Financial Standing, Technical Capabilities and Safety Records etc.

Development, Review and Issuance of Tender Documents in Accordance with Owner and Financing Requirements and Procedures.

Coordinate Tendering Period Activities such as Conducting Pre-tender Meetings, Issuance of Addenda, etc.

Evaluation of Tenders Received and Issuance of Recommendations of Award to Owner.

Conducting Pre-award Negotiations with Successful Tenderer/Conforming Contracts.





PGESCO EPCM of Multi-Package Contracting Plan For Plants

Typical Range: 17-22 Contrat and Purchase Order Packages
(Client is Electricity Utility)

Contract Packages - Supply & Installation Scope

- Combustion Turbine Generator.
- Civil Works.
- Environmental Monitoring.
- Switchyard.
- Heat Recovery Steam Generator/ Boiler.
- Steam Turbine Generator.
- Yard Tanks.
- Wrap-Up Insurance.
- Water And Waste Water Treatment.
- Elec. Equip./Instrument. Install.
- Mech. Equip./Pipe Install.
- Intake And Discharge Off-Shore.
- Site Services.

Purchase Orders - Supply only

- Pumps And Drives.
- Feed Water Heater.
- Critical Piping And Valve.
- Power Transformers.
- Distributed Control System.



Project Procurement Post - Award

- . Issuance of Contractual Correspondence.
- . Change Management: Issuance/Tracking of Change Notices and Preparation of Contract Amendments.
- . Claims Management and Settlement.
- . Review/Processing of Invoices.
- . Follow-up and Monitoring of Submittals, Documentation, Guarantees, Insurance Coverage, Back Charges.
- . Administration of Supplier Quality Program/Plan and Manufacturing Inspection.
- . Support of Owner During Arbitration Procedures.
- . Processing and Negotiation of Insurance Claims.
- . Assessment of Contractual Liquidated Damages for Performance and/or Delays.
- . Issuance of Completion Certificates.
- . Contract Closeout Activities.
- . Local and international Expediting.

EPCM of Multi-Package Contracting Plan For Power Plants

Typical Range: 50 Material Requisitions
(Client is EPC Contractor)

List of Material Requisitions

List of Material Requisitions

- | | | |
|---|--|--|
| <ul style="list-style-type: none">* Overhead Bridge Cranes and Gantry Crane CTG.* Overhead Bridge Cranes and Gantry Crane STG.* Water and Wastewater Treatment Package.* Hoists, lifting Devices and Monorails.* HVAC For GIS (Switch GEAR and Control Room).* HVAC For CTG.* HVAC For STG Buildings and Control Building.* HVAC for Balance of Plant.* All field Erected Tanks.* Non Metallic Tank.* Fire Water Pumps, Drives and Controllers.* Sump and Vertical Pumps.* Fire Protection Systems and Equipment (GIS , GIS Control , Central Control Building and Gas Station).* Fire Protection Systems and Equipment (BOP).* Compressed Air Plant Package.* Service Water Pumps | <ul style="list-style-type: none">* Water pumps.* Emergency Shower and Eye/ Face Wash Stations.* Conical and Wye Strainers.* Valves.* Nitrogen Bottle Gas Distribution System.* Hydrogen Bottle Gas Distribution System.* Carbon Dioxide or Argon Bottle Gas Distribution System.* Hydro-Pneumatic Tank* Sanitary Sewage Lift Station Equipment/Pumps.* Elevators.* A/G Supports / Pipe Rack .* GIS and GIS Control. Buildings: Telecommunication system.* CTG and Central Control Buildings: Telecommunication system.* Others Buildings: Telecommunication System.* GIS, GIS Control, CTG and Central Control Buildings: Lighting Panels.* Others Buildings :Lighting Panels. | <ul style="list-style-type: none">* UPS & DC System.* Distribution Transformers and LV Switchgear (Load Center).* Cathodic Protection System (Tanks).* Cathodic Protection System (U/G Piping).* Flow Elements.* Temperature Elements.* Pressure Gauges.* Level and P/DP Transmitters.* General Service Control Valves.* Tubing & Racks.* Tanks Accessories. |
|---|--|--|





Expediting Services

Expediting Services

- **Material Tracking Systems**
- **Integration with other Project schedules and Deliverable**

| Item Description | Vendor/Country | Procurement | | | | | | | | | |
|---|----------------|---------------|----------|-------------------|----------|-----------------|-----------------------|----------|-------------------|---------|-----------------|
| | | Placing Order | | | | | Receiving at Workshop | | | | |
| | | Planned | Forecast | Variance Forecast | Actual | Variance Actual | Planned | Forecast | Variance Forecast | Actual | Variance Actual |
| Equipment/Material Furnished by Supplier | | | | | | | | | | | |
| Vertical can-type condensate pumps complete with electric motor drives and accessories | | | | | | | | | | | |
| Unit 1 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/2/29 | 16/2/29 | 0 | 16/2/29 | 0 |
| Unit 2 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/2/29 | 16/2/29 | 0 | 16/2/29 | 0 |
| Motor driven HP/LP feedwater pumps complete with electric motor drives, accessories and individual automatic recirculation system | | | | | | | | | | | |
| Unit 1 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/5/9 | 16/5/9 | 0 | 16/5/9 | 0 |
| Unit 2 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/6/6 | 16/6/6 | 0 | | |
| Anchor Bolts and Embedded Items(LP/HP FP) | | | | | | | | | | | |
| Unit 1 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/2/4 | 16/2/4 | 0 | 16/2/4 | 0 |
| Unit 2 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/2/4 | 16/2/4 | 0 | 16/2/4 | 0 |
| Startup & Commissioning Spare Parts and Special Tools(LP/HP FP) | | | | | | | | | | | |
| Unit 1 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/6/23 | 16/6/23 | 0 | | |
| Unit 2 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/6/23 | 16/6/23 | 0 | | |
| Anchor Bolts and Embedded Items(CEP) | | | | | | | | | | | |
| Unit 1 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/2/4 | 16/2/4 | 0 | 16/2/4 | 0 |
| Unit 2 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/2/4 | 16/2/4 | 0 | 16/2/4 | 0 |
| Startup & Commissioning Spare Parts and Special Tools(CEP) | | | | | | | | | | | |
| Unit 1 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/6/3 | 16/6/3 | 0 | | |
| Unit 2 | South Korea | 15/12/31 | 15/12/31 | 0 | 15/12/31 | 0 | 16/6/3 | 16/6/3 | 0 | | |



Interface With Financing Agencies

Extensive Experience in Interface with Multiple Financing Agencies in:

- Preparation of Bid Documents in Accordance with Guidelines
- Coordination of Bidding Process
- Coordination of Reviews and Approvals of Tender Documents, Contract Documents, Amendments, etc.



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Integrated Management Systems (IMS)





Integrated Management System

● **Support partner organizations to establish, develop and maintain an effective IMS**

● **Sustained development and improvement (continual improvement)**

● **Assure, enforce and check the implementation of the IMS in accordance with ISO 19011 (auditing)**

● **Acquire and maintain certification from the most renown organization (LRQA)**

● **Develop, implement and maintain an effective IMS in accordance with ISO standards (system & procedures)**





Integrated Management System(IMS)

IMS Vision & Values

Make it personal; deliver requirements first time

Understand customer expectations; communicate to project team

Move talent pool members with main-stream EPCM skills into quality


Continuous training to Embed as value & Instigate personal ownership

Leverage technology to allow early, effective response

Promote and early warnings/alarms without shooting messenger



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