



FAST TRACK PROJECT DUE DILIGENCE AND EPC SUPPORT

Solar PV, GAS and Diesel Power Plants
Power Transmission & Distribution

Water Treatment Solutions

Efficiency for Energy Intensive Industries

We are specialized providers of sustainable energy solutions to the industry,

- Develop Energy Efficiency Program Focus / Reduce Costs
- Guide Facility Modernization/Optimization
- Facilitate Green House Gases Profiling & Monetization
- Improve Business Transparency, Cost Tracking & Accountability

Power Distribution & Smart Grid

We liaise with leading technology developers to delivery customized solutions to our customers.

- Optimum integration of alternative energy sources
- Parallel Distribution Solutions: With the broader utility or small, independent power systems
- Smart Grid. Smart Substations and Smart Meters
- “ Plug and Play ” portable solutions for high and medium voltage

EPC for Power Plants



- Engineering
- Procurement
- Construction
- Supply
- Operation & Maintenance
- Training

Engineering Procurement & Construction

We deliver Power Generator solutions.

- Equipment Procurement
- Conceptual, Basic and Detailed Engineering
- Erection/Installation
- Commissioning
- Site acceptance testing
- System start up support

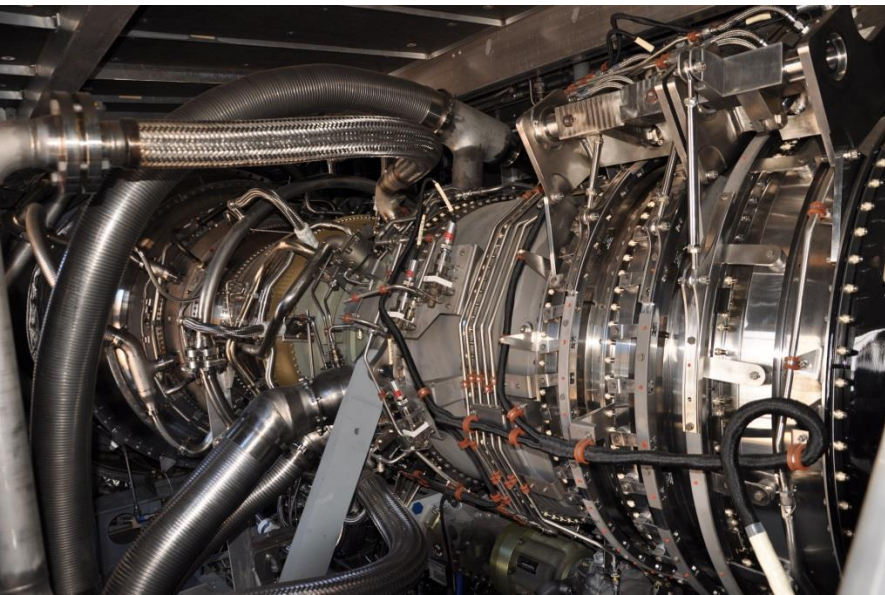


EPC Fast Track / Advantages

Our EPC strategies focus on speed, quality and efficiency, employing a full inventory of equipment including turbine and generator packages, auxiliary skids, transformers, compressors and centrifuges. Our scope includes commissioning and start-up to operations and maintenance.

- Extensive power plant equipment inventory
- Expertise in all aspects of power plant management
- Flexibility in equipment technologies
- Specialize in aggressive project schedules

Operation and Maintenance, Gas and Steam Turbines



- Operation & Maintenance
- Major Maintenance, Combustion, Hot Gas Path, and Overhaul
- Preventive & Predictive Maintenance
- Gas Turbine Main Components / Repair and Services

Power Transmission & Distribution



- Engineering
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Power Transmission & Distribution

Transmission and Substation EPC projects. PWA provides engineering, procurement and construction (EPC) services for a range of High Voltage Substations and transmission lines, Medium Voltage Substation and Distribution Systems, including preparation, analysis, design, construction management and inspection of energy structures.



- Substation and power transformer design
- Gas Insulated Substation (GIS), indoor and outdoor substation
- Protection systems design
- Security systems design
- Design of MV and LV distribution networks
- Energy Management solutions

Power Transmission & Distribution

Power Systems Engineering. P&WA provides the technical expertise necessary for designing and building efficient and cost-effective power systems, including transmission lines and power substations.



- Customized electrical design
- Civil & structural design
- Environmental impact assessment
- EPC project management
- Commissioning and testing
- Maintenance support for T&D power systems
- Life extension of circuit breakers, switchgears and power transformers

Power Transmission & Distribution

P&WA and Takaoka Toko LTD, formed a strategic alliance covering all aspects of power Transmission and distribution systems



- Power Transformer
- Instrument Transformer (VCT, VT, CT)
- HV/MV Circuit Breakers
- Power System Supervision and Control System
- Power Quality, control and energy saving
- Automated meter-reading System
- 168 or 72/84 kV Gas Insulated Switchgear (GIS)
- Solid-Insulated Compact Switchgear (SIS)
- Compact Distributing Super-Clad (SPC)
- 275kV 150MVA Ultrahigh-Pressure Transformer

Water Treatment Solutions

P&WA provides advanced SWRO (Salt water reverse Osmosis) and thermal desalination solutions, suited for Municipal, Industrial and/or facilities needs.

P&WA is able to provide end-to-end solutions that meet the high availability requirements for mission critical systems. They deliver high quality water at reduced operational cost, while adhering to the stringent environmental regulations, including waste discharge, CO2 and clean air.

Water Treatment Solutions

For example:

- GREENBOX is a modular, reverse osmosis desalination plant that delivers affordable clean water without the use of chemicals, and with reduced energy consumption. It provides a complete solution in a wide range of capacities from 500m³/day to 20,000m³/day.

Oil and gas industry challenges:

- The oil & gas industry has an ever-increasing demands for high quality water. Desalination and water reuse technologies are changing the market.

Supply Equipment

We offer products of high quality with preferential prices.

- Turbines
- Generators
- Transformers
- Circuit Breakers
- Pumps
- Valves
- Cleaning Fuel System
- Water Plants,
Desalination,
Demineralization
- Water Treatment Solutions
- Commissioning Tools
- Special Tools

Training & Development



- Basic Operation training
- Basic Maintenance training
- Safety procedures training
- Condition surveys
- Definition & implementation of KPIs
- Inventory management of spare parts

Safety & Enviroment

- Emission Reduction
- Efficiency in Generation
- Handling of hazardous and non-hazardous materials
- Water treatment and equipment maintenance services
- Project and research development according to the client needs



Experiences. West Tripoli Power Plant



- Year 2017. Gas Turbines FT8 Pratt & Whitney, 2 X 30 MW.
- GECOL Electricity Company of Libya.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.

Experiences. Andres Power Plant



- Year 2006. Gas Turbine 501F Mitsubishi 1 X 192 MW.
- AES Andres, Dominican Republic.
- Overhaul, Start Up, Performance & Reliable Test.

Experiences. Add Tacoa Power Plant



- Year 2005. Steam Turbines Toshiba
3 X 400 MW.
- Electricity Company of Caracas,
Venezuela.
- Upgrade, Refurbishment, Engineer,
Procurement & Construction.
Included Start Up, Performance
and Reliable Test, Operation
training.


Experiences. GENEVAPCA Power Plant



- Year 1996. Gas Turbines W501D5 SIEMENS 3 X 100 MW.
- AES GENEVAPCA – PDVSA, Cardon Refinery Venezuela.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.
- Major Maintenances, Combustion, Hot Gas Path, and Overhaul


Experiences. **GANA ELECTRIC** Power Plant



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- Year 2016. Gas Turbines 2x GE Frame 6B 80 MW.
 - GANA
 - Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.
 - Major Maintenances, Combustion, Hot Gas Path, and Overhaul
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Experiences. LAFANGE Power Plant



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- Year 2015. Gas Turbines 1x GE Frame 25 MW.
 - XXXX
 - Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.
 - Major Maintenances, Combustion, Hot Gas Path, and Overhaul
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Experiences. GOSTMANN Power Plant



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- Year 2013. Gas Turbines 1x GE TM2500 30 MW.
 - Canada
 - Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.
 - Major Maintenances, Combustion, Hot Gas Path, and Overhaul

Experiences. Antonio Jose de Sucre Power Plant



- Year 2014. Gas Turbines GE 7FA 2 X 170 MW.
- CORPOELEC, Cumana Sucre Venezuela.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.

Experiences. Sidor Power Plant



- Year 2013. Gas Turbines GE 1x7FA, 2x7EA, 2xLM6000 420 MW.
- CORPOELEC, Ciudad Guayana Venezuela.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.

Experiences. Juan Bautista Arismendi Power Plant



- Year 2013. Gas Turbines GE 2x7EA, 3xSolar Titan 130 215 MW.
- CORPOELEC, Margarita, Nueva Esparta Venezuela.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.

Experiences. Cayaurima Power Plant



- Year 2013. Turbines 2xSolar Titan 130 30 MW.
- CORPOELEC, Ciudad Bolivar Venezuela.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.

Experiences. West Tripoli Power Plant



- Year 2017. Overhaul of 220 kV power substation and control room.
- GECOL Electricity Company of Libya.
- Engineer, Procurement & Construction. Included commissioning, testing and training.

Experiences. Overhaul of GIS 230kV



- Year 2008. Overhaul of GIS 230kV.
- Electricity Company of Caracas, Venezuela.
- Maintenance, Overhaul, SF6 testing, Procurement & Installation of PTs, CTs and Circuit Breakers. Included Start Up, Performance and Reliable Test, Operation training.

Experiences. Retrofit and life extension



- Year 2008. Life extension of six (6) metal clad switchgear GE FK1 (4.8 kV), protection relays, control system and vacuum retrofit for 48 oil circuit breakers.
- AES EDC, Caracas S/E Rosal/Guarataro 30/4.8 kV, Venezuela.
- Engineer, Procurement & Construction. Included Erection, Start Up, Performance and Reliable Test, Operation & Maintenance training.

Experiences. Water Desalination Plant

Large scale desalination: Tacoa plant, Venezuela

- In conjunction with IDE technologies (<https://www.ide-tech.com/en/>) P&WA did, in the year 2013, for Tacoa power plant. Engineering, Procurement, and Construction of the desalination unit with a capacity of 3,600 cubic meters per day; using a Steam Driven Large Multi-Effect Distillation Process.

Summary

- Compliance with Safety Rules
- Compliance with National and International Environmental Regulations
- Legal Compliance
- Efficiency Energy
- Power Distribution & Smart Grid
- Power Transmission
- Water Treatment Solutions
- Extensive Engineering Experience
- Competetives Pricing with the Best Quality on the Market
- Equipment and Tools
- Rapid Response
- Fast Track EPC Power Plant Project
- Operation and Maintenance
- Equipment Supply
- Training Expertise

