

# PROCON



*....engineering your dreams.*

## **PROCON ENGINEERS**

**(Division of NIMOTO Consulting Engineers Pvt. Ltd.)**

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## Welcome to PROCON

**RICH & DIVERSE EXPERIENCE** → Established in 1995, Procon is today one of the leading organizations providing consultancy services for various types and sizes of Power Plants. Our association with one of World's Top 10 Engineering organization for Power Plant Projects provides us the edge in providing engineering solutions for power plants of various fuels (thermal, hydro, biomass, renewable), sizes (right from 5MW to 2250MW), technologies and geographies (India, Europe, Middle East and South East Asia)..

**Our Strength.....OUR PEOPLE** → the organization is led by professional consulting engineers having rich experience in the fields of engineering, procurement and implementation of various projects in India and abroad. Experience of senior engineers is augmented by young leaders well-versed with the latest technologies and trends.

**Addressing all Power requirements...UNDER ONE ROOF** → With a well qualified team in the basic disciplines of Process, Civil, Mechanical, Electrical, Controls/Instrumentation we provide services in Basic and Detailed Engineering, Procurement Assistance, Third Party Inspection, Construction and Commissioning Supervision, Hazard and Operatability (HAZOP) Studies, Energy Conservation Studies, Energy Audit and Benchmarking , Operation and Maintenance and Plant Betterment consultancy services.

**Quality and Efficiency... Our DNA** → One of the cornerstones of our success has been the strict adherence to various process and design standards. This has helped us provide efficient and quality service to our esteemed clients.

**We are Engineering...YOUR DREAMS** → We believe every successful project starts with a dream ....a dream which is pursued not only with dexterity but with a passion to achieve the stretched goals. And over the years it has been this perfect combination of capability and passion which has enabled us to help our clients realize their dreams.

## **Basic Engineering Services**

### **Power Projects**

- Selection of Fuel
- Selection of power plant cycle and basic type of equipment
- Heat and Mass Balance
- Selection of type and size of power plant equipment i.e. Steam Generators, Steam Turbine Generators, Gas turbine generators, Gas Engines, Diesel engines etc.
- Selection of size and type of Material Handling systems (Fuel, Ash, Water) as applicable based on type of power plant cycle / equipment
- Selection of size and type of various auxiliary systems / equipment e.g. compressed air system, Fire protection system.
- Conceptualization of power evacuation system and power distribution system depending upon type and operating philosophy of Power Plant.
- Conceptualization of Instrumentation and Controls requirements
- Conceptualization of Civil and Structural works requirement
- Estimation of project cost and unit generation cost
- Feasibility report for Power plant
- Detailed Project Report

## **Detailed Engineering Services**

### **Power Projects**

#### **Mechanical**

- Plot Plan and Equipment Layouts for various buildings and areas
- Selection and specifications of Power Plant Equipment like Steam generator and auxiliaries, Steam turbine Generator and auxiliaries, Gas turbine generator and auxiliaries, Gas engine generator and auxiliaries, Diesel Engine generators and auxiliaries.
- Design and specification of fuel storage and handling system.
- Design and specification of Ash handling system.
- Design and specifications of Water systems, Compressed air system, HVAC system, Misc. material handling system.
- Design of P &I Diagrams for Feed water, Steam and Condensate system; Raw water and water treatment systems; Cooling water system; Fuel handling system; Compressed air system.
- Piping Design and Drawings including piping material specifications, layout drawings, isometrics, stress analysis, bill of materials, pipe supports etc.
- Design specifications for Fire Protection Equipments /Systems.

#### **Electrical**

- Design of power evacuation system.
- Estimation of auxiliary power (Normal and Emergency).
- Design of High Tension and Low Tension power distribution system.

- Design / Sizing and specification of Electrical equipments like Transformers, Switchgear (H. T. & L. T.), Cables, Lighting fittings etc.
- Electrical system study including Relay Co-ordination.
- Design and specification of Variable Speed Drives for special applications.
- Design and specifications of various service systems like Plant Communication, Fire Alarm and Detection.

### **Instrumentation**

- Design and specifications of Instrumentation and Control Systems including PLC, SCADA, DCS.

### **Architectural, Civil & Structural**

- Architectural, Civil and Structural design including estimation of quantities for tender document, tender document for civil and structural works, plot development, drawings for statutory approvals and construction drawings for all buildings / areas,

### **Procurement**

- Procurement assistance to client i.e. Floating the enquiries to selected Bidders, Receiving Bids, Bid analysis (Technical and Commercial), Purchase recommendation, Preparation of Contract documents, Review of Vendors' Drawings etc.

### **General**

- Project schedules and Cost estimates.
- Hazard and Operatability (HAZOP) Study.
- Technical assistance to meet statutory requirements including drawings and documents.

## **Inspection and Expediting Services**

- Review of Quality Assurance Plans (QAPs).
- Visiting Vendors' works for inspection and expediting.
- Inspection and expediting reports.

## **Construction and Commissioning Supervision Services**

- Complete site supervision and management by deputing competent Project Manger / Construction Manager and supporting staff at site. The responsibilities shall include:
  - Quality of construction / erection work.
  - Planning and controlling the Construction / Erection work to meet the project schedule.
  - Reporting to design office the site progress with short falls, if any, and corrective measures.

## **Operation and Maintenance**

- Operation and Maintenance of the complete power plant with the agreed PLF
- The scope of work can include spares contract also.
- Complete plant operation and maintenance is managed by a dedicated team right from general manager to assistants.
- We have experience of operation and maintenance of plants of various sizes.

## **Energy Audits and Benchmarking Services**

- In today's continuously changing industry it is imminent to benchmark oneself with the best.
- Procon helps organizations benchmark their Power Plants against the best in the industry around the globe.
- With knowledge across industries and sizes of power plant, Procon is the best equipped consultant for comparing the key performance indicators (KPIs) of your Power Plant against the best.
- Our scope of work includes, collecting the operational data based on the inputs from client and visits to plants and submitting a detailed comparison report on various KPIs broadly divided among technical, financial, process orientation and safety.
- Based on this study and report, Procon can work with clients for Plant Betterment Projects.

## Rich experience in diverse areas

Some of our clients...

### POWER

- Baroda Rayon Corporation Ltd., Udhna.
- The National Newsprint and Paper Mills Ltd., Nepanagar
- Hindustan Petroleum Corporation Ltd., Bombay
- Bias Ltd. Brora
- Shri Ram Kota
- Haryana State Electricity Board, Panipat.
- Bongaigaon Refinery and Petrochemicals Ltd., Bongaigaon.
- Steel Authority of India Ltd., Rourkela.
- Maharashtra State Electricity Board.
- Ahmedabad Electricity Co.
- Punjab State Electricity Board
- Associated Cement Companies
- Rashtriya Chemicals & Fertilizers Ltd., Thal.
- Century Spinning (Nigeria) Ltd., Lagos.
- Dhar Cement Ltd., Indore
- ABG Cement Ltd., Gujarat
- Batliboi Ltd.
- EMPPEE Group, Madras
- Caldyn Thermowir Pvt. Ltd.
- Bombay Dyeing & Mfg. Co., Patalganga
- Baliraja Sugar Factory Ltd.,
- Thermax Ltd., Pune
- Infrastructure Leasing & Financial Services Ltd., Mumbai
- Surat Super Yarn Park Ltd., Surat
- Balkrishna Paper Mill, Ambivali
- Vraj Integrated Textile park Ltd., Ahmedabad

*Come...*

*...engineer your dreams with us.*

**PROCON'S EXPERIENCE ASSETS :POWER PROJECTS.**

*Names of clients withheld for strategic reasons. Can be shared on request.*

Project Description
<p>2 x 110 MW Panipat Thermal Power Station - I Fuel : Coal</p> <p>3 x 16 MW Co-Generation Plant. Fuel : F.O.</p> <p>1 x 110 MW Unit No. D Fuel : Coal</p> <p>5 x 200 MW Fuel : Coal</p> <p>2 x 110 MW Bhatinda Thermal Power Station Fuel : Coal</p> <p>2 x 60 MW Captive Power Plant for Rourkela Steel Plant. Fuel : Coal</p> <p>3 x 30 MW Co-Generation Plant. Fuel : Coal</p> <p>12.7 MW Co-Generation Plant. Fuel : Coal</p> <p>10 MW Co-Generation Plant Fuel : Gas</p> <p>Operation and Maintenance of :</p> <ul style="list-style-type: none"> <li>- 2 x 140 MW units at Nashik Thermal Power Station</li> <li>- 1 x 60 MW Bhusaval Thermal Power Station.</li> </ul>

## Project Description

- 2 x 30 MW Parali Thermal Power Station.
- 1 x 30 MW Paras Thermal Power Station.

2.6 MW Heat Recovery Based Power Plant  
at Shree Cement Ltd., Beawar

Heat Recovery based Power Plant

Brief specifications and cost estimate for 3  
MW Heat Recovery based Captive Power  
Plant Specifications.

2.6 MW Heat Recovery Based Captive  
Power Plant.

30 MW Captive Power Plant (6 x 6 MW  
DG Sets, 30 MW Naphtha / Gas based  
combined cycle and 2 x 15 MW TG sets).  
- Feasibility Report.

10 MW TG Set - Pre-tendering services.

28 MW TG Set - Pre-tendering services.

110 MW (5 x 20 MW) DG Sets Power  
Plant - Pre-Tendering Services.

Feasibility Study for Co-generation  
plant for DMT Plant at Patalganga.

Fuel : Coal / F.O.

3 x 1000 KVA Diesel Engine Generator Sets.

3 x 1000 KVA DG Sets.

3 x 1000 KVA DG Sets.

## Project Description

2 x 1.6 MW DG Sets.

2 x 3.75 MW DG Sets.

2 x 6 MW DG Sets.

Trouble shooting report for captive power Plant for cement plant at Kymore.

Checking Turbine Generator protection And suggest modifications / remedial measures to avoid frequent trippings 15 MW TG sets.

1 x 6 MW DG Set.

2 x 2250 kVA DG Sets.

1 x 6 MW DG Set.

Techno - Commercial report on study of existing Boilers, 2 X 5 MW Turbine Generators & auxiliary systems, Selection of Capacity & Type of New Boiler and augmentation of auxiliary systems for Power Plant.

Feasibility Report and Brief Specifications for 10 MW Captive Power Plant.

Fuel : Coal

Basic and Detailed Engineering of 50 Te/Hr Fluideized Bed Boiler and Auxiliary Systems including expansion of Auxiliary Systems for existing 2x5 MW Steam Turbine Generators.

## Project Description

Fuel : Coal

1 X 7.5 MW Extension of Captive Power Plant.

Fuel : Coal

1 X 10 MW Co-Generation Plant

Fuel : Biomass

2 X 18 MW Captive Power Plant

Fuel : Coal

12 MW Captive Power Plant

Detailed Project Report (DPR) and Detailed Engineering.

Fuel : Gas. Steam generation by Heat Recovery

20 MW Captive Power Plant

Fuel : Coal

4.5 MW Co-Generation Power Plant

Fuel : Coal

5 MW Co-Generation Power Plant

Fuel : Coal

10 MW Captive Power Plant

Fuel : Coal + Biomass

20 MW Captive Power Plant

Fuel : Gas

10 MW Captive Power Plant

Fuel : Biomass

Experience Assets of Associated World's Top 10 Power Plant Engineering firm:

**PROJECT DESCRIPTION**

Engineer, Procure, Construct, Startup  
Repowering to 240 MW Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
145 MW Repowering Project Thermal Power Generating  
Plant

Engineer, Procure, Construct, Startup  
75 MW Combined Cycle Power Plant

Engineering Services  
240 MW Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
825 Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
386 MW Combined Cycle Peaking Power Plant

Engineering Services, Construction Review  
254 MW Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
240 MW Simple Cycle Peaking Power Plant

Engineer, Procure, Construct  
172 MW Cogeneration Plant

Engineer, Procure, Construct, Startup  
170 MW Simple Cycle Power Plant

Engineer, Procure, Construct, Startup  
600 MW Simple Cycle Peaking Power Plant

Engineer, Procure, Construct, Startup  
500 MW Simple Cycle Peaking Power Plant

Engineer, Procure, Construct, Startup  
455 MW Simple Cycle Peaking Power Plant

**PROJECT DESCRIPTION**

Engineer, Procure, Construct, Startup  
325 MW Simple Cycle Peaking Power Plant

Engineer, Procure, Construct, Startup  
124 MW Simple Cycle to Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
85 MW Simple Cycle Dual-Fuel Power Plant

Engineer, Procure, Construct  
80 MW Cogeneration Power Plant

Engineer, Procure, Construct, Startup  
40 MW Cogeneration Power Plant

Engineering Services, Construction Supervision  
20 MW Gas Turbine Simple Cycle Cogeneration Plant

Construct, Startup  
507 MW Combined Cycle Power & Desalination Power Plant

Engineer, Construct, Startup  
460 MW Simple Cycle Peaking Power Plant

Engineer, Construct, Startup  
450 MW Simple Cycle Peaking Power Plant

Engineer, Construct, Startup  
360 MW Simple Cycle Peaking Power Plant

Construct  
245 MW 501 G Simple Cycle Power Plant

Engineer, Procure, Construct, Startup  
225 MW Cogeneration Plant

Engineer, Procure, Construct, Startup  
169 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct, Startup  
122 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct, Startup  
122 MW Combined Cycle Cogeneration Plant

**PROJECT DESCRIPTION**

Owner's Engineer, Construction and Startup Management  
2 x 530 MW Combined Cycle Oil & Gas Fired Plant

Engineering Services  
340 MW Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
335 MW Cogeneration Plant

Engineer, Construct  
15,000 HP Gas Compression Station

Engineer, Procure, Construct (Joint Venture)  
180 MW Combined Cycle Cogeneration Plant

Owner's Engineer, Project Management  
50 MW Cogeneration Power Plant

Engineer, Procure, Construct, Startup  
103 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
240 MW Combined Cycle Cogeneration Plant

Engineer, Construction and Startup Management  
144 MW Combined Cycle Station

Engineer, Procure, Construct  
63 MW Simple Cycle Peaking Power Plant

Engineer, Procure, Construct, Operate  
48.5 Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
28 MW Combined Cycle Repowering Project

Engineering Services  
4.2 MW Cogeneration Plant

**PROJECT DESCRIPTION**

Engineer, Procure, Construct  
80 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
106 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
106 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
56 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
79 MW Combined Cycle Cogeneration Plant

Engineer, Procure, and Construction Management, Startup  
3,700 kW Cogeneration Plant

Engineer, Procure, Construction Management, Startup  
4.6 MW Simple Cycle Cogeneration Power Plant

Engineering Services  
2 x 165 MW Gas Fired Steam Power Plant Upgrades

Engineer, Procure, Construct, Startup  
36 MW Combined Cycle Power Plant

Engineer, Project Management, Construct, Startup  
4 x 80 MW Simple Cycle Power Plant

Engineer, Procure, Construct  
56 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
80 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
120 MW Combined Cycle Cogeneration Plant

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**PROJECT DESCRIPTION**

Engineer, Procure, Construct  
58 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
55 MW Combined Cycle Cogeneration Plant

Engineer, Construct, Startup  
50 MW Simple Cycle Cogeneration Plant

Engineer, Construct, Startup  
7.2 MW Combined Cycle Cogeneration Power Plant

Engineer, Procure, Construct  
31 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
52 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
55 MW Combined Cycle Cogeneration Plant

Engineer, Procure, Construct  
28 MW Combined Cycle Cogeneration Plant

Engineering Services  
600 MW Gas Turbine Generating Station

Engineering Services  
210 MW Combined Cycle Power Plant

Engineering Services  
2 x 32 MW Gas Turbine Plant

Engineer, Construct, Startup  
600 MW Combined cycle Power Plant

Engineer, Procure, Construct, Startup  
580 MW Combined Cycle Power Plant

Engineer, Procure, Construct, Startup  
580 MW Combined Cycle Power Plant

**PROJECT DESCRIPTION**

Engineer, Procure, Construct, Startup  
460 MW Lignite-Fired Supercritical Thermal Power Plant

Quantity and quality review of the stored equipment and then equipment inspection services on restart of construction.

1,320 MW Coal-Fired Steam Power Plant

Structural design for the Boiler Steel and miscellaneous buildings, and review of T/G foundation design.  
500 MW supercritical coal-fired power plant

Engineering Services  
330 MW Thermal Power Plant

Engineering Services  
33 MW Steam Turbines

Engineering Services, Construction Management  
1,320 MW Coal-Fired Steam Power Plant

Engineering Services  
Upgrading an existing hog fuel-fired boiler to 370,000 pph and 800 psig/855 F, with bubbling fluidized bed furnace and adding a 27 MW extraction/condensing turbo generator.

Engineering Services, Construction Supervision, Project Management  
800 MW Thermal Generating Station

Engineering Services and Construction Supervision  
105 MW Coal-Fired Steam Power Plant Life Extension

Engineering Services and Construction Supervision  
130 MW Coal-Fired Steam Power Plant Life Extension

Engineer, Procure, Construction Management, Startup  
13.5 MW Heating Plant Expansion

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**PROJECT DESCRIPTION**

Engineer, Procure and Construction Management  
800 MW Thermal Generating Station

Engineering Services  
4 x 165 MW Oil-Fired Steam Plant Rehab  
and Gas Conversion

Engineer, Procure, and Construction Management  
4 x 300 MW Coal-Fired Steam Power Plant Rehab

Engineer, Procure, Construct  
120 tonne/hour Boiler Balance of Plant

Engineering Services  
300 MW Oil-Fired Steam Generator Boiler Island

Engineering Services  
25 MW Power Plant

Engineering Services  
37 MW Power Plant

Engineer, Procure, Construct, Startup, Training  
2 x 28 MW Oil-Fired Steam Power Plant

Foundation Design Review  
2 x 375 MW Coal-Fired Power Plant

Engineer, Project and Construction Management  
800 MW Boiler Island

Construct  
150,000 pph Coal-Fired Stoker Boiler

Engineer, Construct and Startup Management  
200 MW Lignite-Fired Steam Power Plant

**PROJECT DESCRIPTION**

Modernization, Refurbishment, Expansion  
280,000 pph Coal-Fired Steam Plant

Engineer, Construct and Proj. Management, Startup  
330 MW Thermal Generating Station

Engineer, Procure and Construction Management  
675 Thermal Generating Station

Engineer, Procure and Construction Mgm't., Startup  
212 MW Thermal Generating Station

Engineer, Procure and Construction Management  
3 x 150 MW Oil-Fired Boiler Steam Power Plant  
Extension

Engineering Services  
2 x 30 MW Coal-Fired Power Plant Restoration

Engineering Services  
105 MW Coal-Fired Steam Power Plant

**PROJECT DESCRIPTION**

Engineer, Procure, Construct, Startup  
55 MW Biomass Plant

Engineer, Procure, Construct  
32 MW Cogeneration Power Plant

Retrofit APC Equipment  
1,000 TPD MSW Resource Recovery Facility

Engineer, Procure, Construct  
10.5 MW Landfill Gas Power Plant

Engineer, Construct, Startup  
70.5 MW Barge Mounted Floating Power Plant

Engineer, Procure, Construct, Operate & Maintain  
200 TPD Biomass Gasification Facility

Engineer, Procure, Project Manage, Construction  
28.75 MW Cogeneration Plant

Feasibilities Study, Engineer, Procure, Construct  
200,000 pph Cooling/Heating Facility

Engineer, Procure, & Construct  
38.5 MW Wood Waste-to-Energy Power Plant

Engineer, Procure Boiler & Grate  
400 TPD MSW Incineration Plant

Engineer, Procure, Construct, Operate & Maintain  
20 MW Tire-Fueled Power Plant

Engineer, Procure, & Construct  
40 MW Wood Waste-& Tire-Fueled Power Plant

Engineer, Procure, & Construct  
34.5 MW Wood-Fired Power Plant

Engineer, Procure, & Construct  
34.5 MW Wood-Fired Power Plant

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**PROJECT DESCRIPTION**

Engineer, Procure, & Construct  
34.5 MW Wood-Fired Power Plant

Engineering Services  
10 MW Steam Turbine Cogeneration Power Plant

Engineer, Procure, & Construct  
28 MW Tire-Fueled Power Plant

Engineer, Procure, Construct  
23 MW Landfill-GasFired Steam Power Plant

Engineer, Procure, & Construct  
50 MW Wood-Fired Power Plant

Engineer, Procure, & Construct  
15 MW/530 TPD MSW Power Plant

Engineer, Procure, & Construct  
18 MW Agricultural/Urban Wood Waste-Fired Plant

Engineer, Construction Management  
5 MW Wood-Fired Generating Station

Engineer, Procure, Construct, Operate & Maintain  
30 MW Wood-Fired & Geothermal Power Plant

Engineer, Procure, Construct, Operate & Maintain  
26.5 MW Rice Hull Waste-to-Energy Power Plant

Engineer, Procure, & Construct  
49 MW Wood-Fired Power Plant

Engineer, Procure, & Construct  
15 MW Wood-Fired Power Plant

Engineer, Procure, & Construct  
21 MW Wood-Fired Cogeneration Plant

Engineer, Procure, Construct, Operate & Maintain  
20 MW Wood-Fired Cogeneration Plant

Engineer, Procure, Construct, Operate & Maintain  
18 MW Wood-Fired Power Plant

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**PROJECT DESCRIPTION**

Engineer, Procure, & Construct  
15 MW Wood-Fired Cogeneration Plant

Engineer, Procure, & Construct  
9 MW Wood-Fired Cogeneration Plant

Engineer, Procure, & Construct  
7 MW Wood-Fired Cogeneration Plant

**PROJECT DESCRIPTION**

Engineering Services  
5 x 4.4 MW Diesel Power Plant

Engineering Services  
25/50 MW Diesel Power Plant

Technical Assessment 60 MW Diesel Plant

Conceptual Engineering  
25 MW Diesel Power Plant

Conceptual Engineering  
120 MW Diesel Power Plant

Engineering Services, Project and Construction  
Management  
3 MW Diesel Power Plant

Engineering Services  
2 x 760 kW Diesel Power Plant

Engineering Services  
69 MW diesel Power Plant

Engineering Services  
40 MW Diesel Power Plant

Engineering Services  
9 x 1500 kW Diesel Generators, Distillate Oil Fuel

Engineering Services  
44 MW Combined Cycle Diesel Power Plant

Engineer, Project Management, Construct, Startup  
7 x 2 MW Diesel Generators

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**PROJECT DESCRIPTION**

Engineer, Project Management, Construct, Startup  
10 x 2 MW Diesel Generators