



46 Years  
of  
proven track record

## POWER PLANT DESIGN & ENGINEERING CONSULTANCY HOUSE



POWER PLANT  
DESIGN



OPERATION & MAINTENANCE  
SERVICES



ENVIRONMENTAL IMPACT  
ASSESSMENT



3D MODELLING OF  
POWER PLANTS

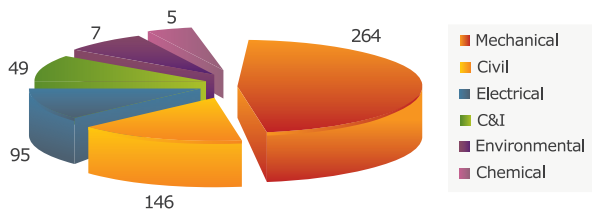


Certificate No: P-BCI/Q/J//1615

# DESEIN - EXPERIENCE Complete Engineering (Concept to Commissioning): >30,000 MW

Services Rendered	No. of Projects	Cumulative MW	Gas based Simple/ Combined Cycle Plants	No. of Plants	Cumulative MW	Coal/Lignite Fired Plants	No. of Units	Cumulative MW
Feasibility Studies/DPR	201	1,11,280	301-400 MW	2	704	800 MW (Super Critical)	2	1,600
Complete Engineering	130	30,646	201-300 MW	2	461	660 MW (Super Critical)	4	2,640
Environmental Impact Assessment	77	53,880	101-200 MW	5	607	600 MW	7	4,200
Operation & Maintenance	8	2,776	< 100 MW	13	831	500 MW	4	2,000
						300 MW	3	900
						250/210/195 MW	43	9,480
						165/135/125/110 MW	39	4,835
						<100 MW	75	2,388
			Total		2,603	Total		28,043

AN ENGINEERING TEAM WITH OVER 20 MILLION MAN-HOURS OF EXPERIENCE IN ENGINEERING, CONSTRUCTION AND OPERATION & MAINTENANCE OF POWER PLANTS IN INDIA AND ABROAD.



Over 560 power engineers in a multi disciplinary team.

Over 40% of the engineers have over 15 years of experience in the power sector.

## WHAT WE DO

### DEVELOPMENT STUDIES

- Site Selection
- Techno-Commercial feasibility Studies
- Environmental Impact Assessment Studies
- Detailed Project Report
- Geo-Technical Investigation
- Review of PPA/FSA

### DETAILED ENGINEERING

- P & IDs
- Layouts & GA Drawings
- Bill of Quantities
- Vendor Print Review
- Construction Drawings
- 3D Modelling
- As built drawings

### BASIC ENGINEERING

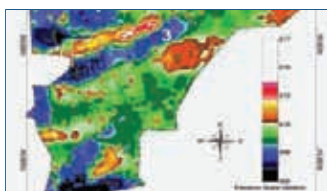
- Plot Plan
- Design Basis Report
- Specification of Main Plant
- Specification of BOP
- Techno-Commercial Evaluation of Bids

### PROJECT MANAGEMENT

- Planning and Scheduling
- Inspection
- Construction Supervision
- Erection Supervision
- Commissioning Supervision

### OPERATION & MAINTENANCE

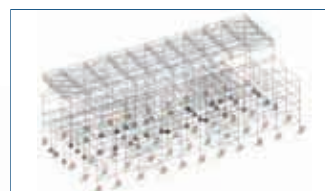
## DESEIN - METHODOLOGY



Geographical Info System (GIS) Mapping is done to optimize land requirement, land use pattern, site selection and understand Environment Sensitivity.



DESEIN uses state-of-the-art software to optimise the Thermal Cycle.



Main Plant Building is analyzed and designed using latest softwares.



3D Models of the Plant are developed to check interference and to work out the schedule of quantities.

### MECHANICAL SOFTWARE

- CAESAR II
- Steam Pro/Steam Master
- GT Pro/GT Master
- Solid Works
- AVIVA
- Plant Design System (Integrapp, USA)
- Bentley's AutoPLANT Design Software

### CIVIL SOFTWARE

- ANSYS
- NISA
- STAAD PRO
- MATH CAD
- CIVIL 3D
- REVIT STRUCTURE

### ELECTRICAL SOFTWARE

- ETAP
- AutoPLANT

### PROJECT

- PRIMAVERA
- MS Project

### DRAUGHTING & VECTORIZATION

- AUTOCAD Rel. 2011
- MICROSTATION-J
- I-VECTOR

# ▶ DESEIN - A LEADER

- ▶ **DESEIN is India's leading Engineering Power Plant Designer with a track record of 46 years.**
- ▶ **Power Plant Design is driven by its expertise & experience of the Thermal Cycle. DESEIN Conceptualizes the complete life cycle of the project- Project feasibility, Detailed Engineering, Operation & Maintenance and Renovation & Maintenance.**
- ▶ **DESEIN has worked on different fuels such as Gas, Coal, Lignite, Washery Rejects, Renewables and Waste heat recovery.**
- ▶ **DESEIN works with CFBC, AFBC and Pulverised fuel boilers and Non-reheat and Reheat turbines.**
- ▶ **DESEIN works with International Vendors located in USA, Europe, Japan, China etc.**

## ▶ MAJOR ONGOING PROJECTS

### ▶ UTILITY PROJECTS

- ▶ 2 x 800 MW (Supercritical) Krishnapatnam Thermal Power Project, APPDCL.
- ▶ 2 x 660 MW (Supercritical) Raghunathpur Thermal Power Station, DVC.
- ▶ 2 x 660 MW (Supercritical) Thermal Power Station, Chattisgarh, DB Power.
- ▶ 1X600 MW Ennore Thermal Power Station Annexe, TNEB.
- ▶ 330 MW Dholpur Combined Cycle Power Project, RRVUNL
- ▶ 100 MW Tripura Combined Cycle Power Project, NEEPCO

### ▶ DEVELOPMENTAL & ENVIRONMENTAL IMPACT ASSESSMENT PROJECTS

- ▶ 4000 MW Orissa Ultra Mega Power Project Sundergarh
- ▶ 4000 MW Chhattisgarh Ultra Mega Power Project Surguja
- ▶ 4000 MW Andhra (2nd) Ultra Mega Power Project Prakasam
- ▶ 3300 MW Dondaicha Thermal Power Project Dhule, Maharashtra (EIA ONLY)

### ▶ DPR PROJECTS

- ▶ Madhya Pradesh Power Generating Co. Ltd.- Bansagar TPP-2x800 MW(Supercritical)
- ▶ Madhya Pradesh Power Generating Co. Ltd.- Satpura Ext Unit-1x660 MW(Supercritical)
- ▶ Monnet Power Co. Ltd.-Mahalibrahmini Ext at Orissa, 1x660 MW(Supercritical)
- ▶ Indian Railways- Adra TPP- 2X660 MW (Supercritical))

### ▶ OPERATION & MAINTENANCE PROJECTS

- ▶ 2 X 20 MW Power Plant in UAE
- ▶ 1 x 27 MW & 1 x 21.5 MW Captive Power Plant for Dalmia Cement
- ▶ 1 X 24 MW & 1X 18 MW Bagasse-based Co-gen Power Plant for Godavari Sugar.
- ▶ 2 x 15 MW Captive Power Plant for Indorama Synthetics (India) Ltd.

### OTHER MAJOR POWER PROJECTS UNDER EXECUTION

OWNER'S ENGINEER	DEVELOPMENTAL & EIA
RAYALASEEMA IV (1x600 MW)	GIDDERBAHA, PUNJAB (2640 MW)
KVK NILACHAL (1x300 MW)	
SATPURA (2x250 MW)	<b>EIA</b>
PARLI (1x250 MW)	KORADI, MAHARASHTRA (1980 MW)
LIGNITE BASED POWER PLANT OF JSW AT BARMER (8 x 135 MW)	<b>DPR</b>
BARAUNI (2x250 MW)	SATTUPALLY (1x600 MW)
ACTION ISPAT CPP (2 x 43 MW)	BANJI-BUNDALI (2x250 MW)
BIRLA CORPORATION LTD. CHANDERIA & SATNA CPP (1x35 & 1x35 MW)	DHOLPUR CAPP STAGE-II (330 MW)

### SOME COMPLETED POWER PROJECTS

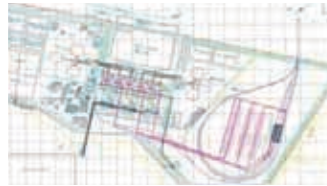
OWNER'S ENGINEER	RAYALASEEMA-I, II & III (2x210 MW + 2x210 MW + 1x500 MW)
HISSAR (2x600 MW)	RAICHUR III (2x210 MW)
CHANDRAPUR (1x500 MW)	ROPAR-II & III (2x210 MW + 2x210 MW)
KAKATIYA-I (1x500 MW)	PARLI& PARAS (1x250 MW + 1x250 MW)
YAMUNA NAGAR (2x300 MW)	PARICHHA-I & II (2x110 MW + 2x210 MW)
KOTHAGUDEM-V & VI (2x250 MW + 1x500 MW)	PANIPAT-II & III (2x110 MW + 1x210 MW)
VIJAYAWADA-II, III & IV (2x210 MW + 2x210 MW + 1x500 MW)	AKRIMOTA (LIGNITE BASED) (2x125 MW)
	GIRAL (LIGNITE BASED) (1x125 MW + 1x125 MW)

## ▶ DESEIN - A PIONEER



**2X800MW** Supercritical, Sri Damodaram Sanjeevaiah Thermal Power station of APPDCL.

DESEIN - Owner's Engineer



**4000 MW** Sasan UMPP- Sasan is the first UMPP project of the Govt. of India, which envisaged tariff based bidding.

DESEIN undertook the study on behalf of PFC for all pre-bid issues, environment, project location, water, land, fuel etc.



Rayalaseema Thermal Power Project comprises of Stage-I (**2X210MW**) Stage-II (**2X210MW**) Stage-III (**1X210MW**) Stage-IV (**1X600MW**)

DESEIN - Owner's Engineer for all stages including detailed engineering for stages I,II & III and review engineering for Stage IV



One of the earliest Combined Cycle Power Plant - Vijjeshwaram Gas Thermal Power Station Stage-I (100 MW)

DESEIN - Owner's Engineer

### SOME COMPLETED SIMPLE/COMBINED CYCLE POWER PLANTS

#### OWNER'S ENGINEER

UTRAN (374 MW)  
JEGURUPADU (231 MW)  
SAMALKOT (230 MW)  
HAZIRA (156 MW)  
UTRAN (135 MW)  
RITHALA (108 MW)  
DHUVARAN (107 MW)  
KUTTALAM (101 MW)  
VIJESHWARAM (100 MW)

#### REVIEW ENGINEERING

JAZAN, SAUDI ARABIA (325 MW)  
TIHAMA, SAUDI ARABIA (130 MW)  
SHAROURAH, SAUDI ARABIA (51 MW)

### SOME COMPLETED CAPTIVE POWER PLANTS

#### COAL BASED

JINDAL STEEL & POWER (2x20+4x15+1x70 MW)  
GRASIM CEMENT (1x25 MW)  
HINDUSTHAN NEWSPRINT (1x25 MW)  
KANORIA CHEMICALS (1x25 MW)  
SHRIRAM FERTILIZERS (1x30 MW)  
NATIONAL FERTILIZERS (2x15 MW)  
NAVA BHARAT FERRO ALLOYS (1x50 MW)

MONNET (2x37.5 MW)

JAYPEE (1x27 MW)

PT INDO BHARAT RAYON, INDONESIA (2x10 MW)

#### BAGASSE FIRED

GODAVARISUGAR MILLS (1x24 + 1x20 MW)

#### BIOMASS BASED

UNIVERSAL ENERGY (1x25 MW)  
BIOMASS UNIVERSAL (1x15 MW)

#### LIGNITE BASED

BIRLA COPPER (1x24.5+1x10.5 MW)

#### DIESEL BASED -

INOX POWER (42 MW)

#### GAS BASED

HINDUSTHAN ZINC (80 MW)

## ▶ THE DESEIN ADVANTAGE

- ▶ An Engineering Team with 20 million man-hours of experience in engineering, construction and operation & maintenance of power plants in India & abroad.
- ▶ Developed Ultra Mega Projects at Sasan, Akaltara, Kothapeta, Tilaya, Sundergarh (All 4000 MW each) and at Talwandi Sabo (4x500 MW), Rajpura (2x660 MW): All Pre-bid issues- EIA, DPR, Site Survey etc.
- ▶ Major Public Sector Clients- APGENCO, BSEB, BHEL, CSPGCL, DVC, GSECL, GMDC, HPGCL, KPCL, MAHAGENCO, MPPGCL, NLC, OPGC, OSEB, RRVUNL, TNEB, UPRVUNL, WBPDC...
- ▶ Major Private Sector Clients- Birlas, Bhushan Steel, Dalmia Cement, Godavari Sugar Mills, GVK, Indorama, Jindals, Lanco, Monnet, Nav Bharat, Reliance, SV Power, Tatas, Vandana Vidyut, Visa Steel....
- ▶ Engineered a large number of Captive Power Plants based on coal, lignite, bio-mass, bagasse etc.



- ▶ Operation & Maintenance Services for 4X120 MW Homs Power Plant & associated Desalination Plants in Libya for 3 years- Currently providing similar services for 4 power plants.
- ▶ Worked with world's leading manufacturers of Main Plant & Equipment - Ansaldo, Alstom, Dongfang, Siemens, Shanghai, BHEL...
- ▶ Worked with Global Players- Black & Veatch, CH2M Hill, J-Power, SNC Lavalin.

## CUSTOMER CONFIDENCE

FIRST ORDER	REPEAT ORDER	FIRST ORDER	REPEAT ORDER
ROPAR STAGE-II	STAGE-III	PANIPAT STAGE-II	STAGE-III
VIJAYAWADA STAGE-II	STAGE-III&IV	KUTCH LIGNITE STAGE-I	STAGE-II,III&IV
RAYALASEEMA STAGE-I	STAGE-II,III&IV	GIRAL STAGE-I	STAGE-II
KOTA STAGE-I	STAGE-II,III&IV	UTRAN STAGE-I	STAGE-II
PARLI & PARAS STAGE-I	STAGE-II	PARICHHA STAGE-I	STAGE-II

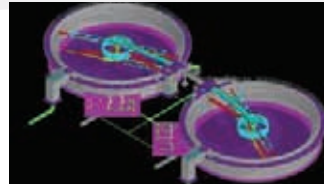
## ▶ DESEIN - HANDS ACROSS THE GLOBE



2x20 MW Power Plant,UAE  
First Coal based thermal plant in the middle-east.  
Complete engineering & O&M by DESEIN



DESEIN was responsible for the Owner's Engineering of Yamunanagar Unit I&II of HPGCL (2X300MW) which included Chinese equipment.  
BTG by Shanghai Electric Corporation.  
DESEIN was responsible for carrying out the PG test on behalf of HPGCL and successfully carried out the test with Indian Coal



CH2M HILL-The world's largest water company and DESEIN set up a Dedicated Resource Centre and provided 250,000 man-hours of engineering for water and waste water projects in Australia, Canada, Singapore, Thailand, UAE, US etc.



4X120 MW HOMS Power Station, Libya.  
DESEIN executed the complete O&M of the HOMS power station in Libya for 3 years.

## OTHER INTERNATIONAL ASSIGNMENTS

### Bangladesh

- Site Supervision for Installing a 120 tph boiler for Zia Fertiliser Corporation

### Bhutan

- Sub-transmission & Distribution system study of Phuntsholing town

### Indonesia

- Owner's Engineer for 2x10 MW CPP of P.T. Indo Bharat Rayon

### Nigeria

- Feasibility report for 105 MW CCPP at Ago-Oja,Illowrin Kwara State

### Pakistan

- Feasibility Study for 1x60 MW Cogeneration Power Plant for Al-Abbas Sugar Mills

### UAE

- O & M of 2x20 MW Coal Fired Power Plant
- Feasibility Study of 2x300 MW Coal Fired Power Plant

### Saudi Arabia

- Review Engineering & Project Management Services for Simple Cycle Power Plants at Jazan (325 MW), at Tihama (130 MW) and Sharourah (51 MW)
- Generation Optimization Studies
- Distribution system study for Jubail area
- Preparation of unified O&M manuals for SCE Co.
- Review of Basic Design for Saudi Consolidated Electric Co.

### Thailand

- Pre-bid Engineering Services for SNC Lavalin for a 150 MW Combined Cycle Power Plant



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