



MONNET THERMAL POWER PLANT



Concept & Location

India is a land teeming with endless opportunity. With one of the world's largest GDPs and the second highest population, there is constant demand for resources, especially in the Water and Power sector.

Odisha is the traditional hub of coal and other non renewable sources of energy in India and the state is among the most industrialised as well. To serve the energy needs of this populous state, the Monnet Power Company Limited, a subsidiary of Monnet Ispat & Energy Limited, an independent power producer, envisioned the creation of a 1050 MW coal fired power plant in Orissa, backed by pit head captive coal mines.

The power project was to be located at Angul, and since it would be based on 100% captive coal, the cost of electricity produced from the plant would be much lower when compared to traditional power plants.

The Monnet Power plant was to be initiated in phases, with future expansions raising the total capacity to more than 5000 Mw of electricity by 2015. Backed by private equity firm Blackstone Group, the Monnet Power plant was intended to lay the template for a series of similar thermal and solar power projects in Gujarat, Rajasthan and Kerala.

Drake & Scull Water and Energy India, Drake & Scull Engineering subsidiary in India, were chosen to execute the complete EPC works for 2x525 Mw power plant project. DSWEI were selected for their strong technical capabilities and skills, as well as lengthy experience with power projects across the MENA and South Asian region.

The primary goal was to ensure the pumping of raw river water from the upstream of Samal barrage to the delivery point (raw water reservoir in power station) situated 22.6 kilometres away.

DSWEI were able to employ their modern technology and engineering prowess to fast track mobilization activities on site and used their innovative techniques and solutions to accelerate the pace of progress. Constant feedback and interaction between the clients and head offices in UAE, facilitated by ultra modern communications tools and technology made it possible for real time construction intelligence to make a significant improvement for project progress.

Strong planning and logistics competency ensured that DSWEI were able to complete all construction activities as well as carried out health and safety and equipment efficiency tests well ahead of schedule and were able to deliver the complex structure well within a year.

The Monnet Power plant project has made a significant impact on Odisha's power generation, and is one of the major components of the regional electricity distribution grid. As an example of DSE's rapid project execution capabilities, the Monnet Power plant project is a showcase of the company's strong knowledge foundation and project planning.



Scope of Work & Innovation

Drake & Scull Water and Energy India were contracted to undertake the following Design, Engineering, supply, installation, testing & commissioning on turnkey basis of the complete intake water system involving civil, mechanical, electrical, communication & instrumentation engineering.

The project called for a high degree of cross functional knowledge and vertical integration of DSWEI's end to end construction solutions.

From a civil construction point of view, DSWEI built the following elements on site:

- Intake well (sump) & pump house
- Central control room, substation, office & staff quarters

DSWEI achieved several milestones while undertaking the mechanical requirements of the site. Chief among them being:

- The company laid 22.5 kilometres of pipeline system
- DSWEI installed a complex air conditioning and ventilation system
- A modern fire protection system was installed and tested for critical emergency response
- The company also undertook the installation, erection and commissioning of heavy duty vertical wet pit type pumps along with the required attachment and accessories.
- To facilitate progress, the company also initiated the erection and commissioning of double girder EOT cranes and hoists.

From an electrical perspective, the major challenge for the company was to ensure efficient and constant tapping of power from the 33 Kv line. To facilitate this, DSWEI assumed complete responsibility for the installation and commissioning of all required switch gears, LT power and motor control centres (PMCC/MCC/DBs) , control panels , oil filled transformers as well as the illumination and earthing system.

Besides these aspects, DSWEI was also responsible for setting up the communication and instrumentation equipment for smooth functioning of the power plant. Some of the major milestones reached for these include:

- The power plant is able to achieve complete operation through the usage of Programmable Logic Controllers (PLC).
- The power plant operations are facilitated by direct digital control from the central control room.
- A modern tele-monitoring system to monitor all mechanical and electrical parameters for trouble free operation.
- Complete interlocking of major systems for safe operation.
- DSWEI also used modern sophisticated software to create a comprehensive graphic information system, capable of computerized fluid dynamics as well as surge analysis and intake models during construction.