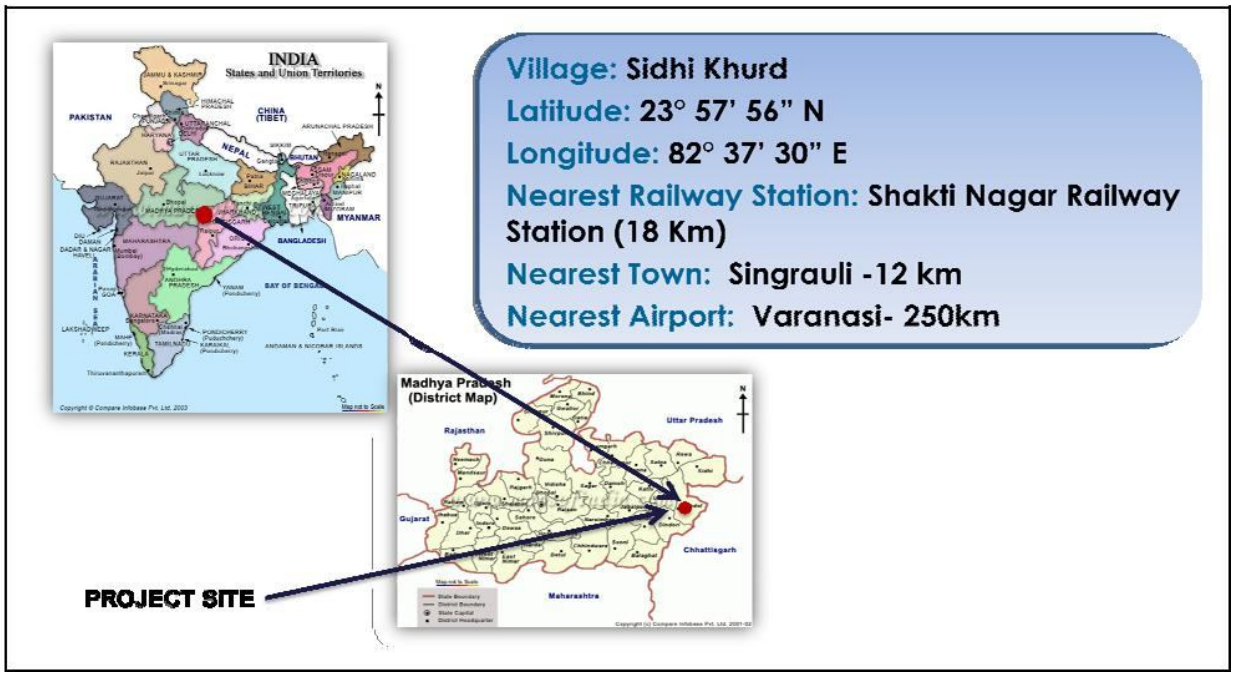
Sasan – 3960 MW Coal Based Ultra Mega Power Project (UMPP) at Sasan, Madhya Pradesh, India

A. Sasan Location Details:



B. About 4000MW Sasan Ultra Mega Power Project:

- Sasan Power Ltd is executing 3960 MW Sasan Ultra Mega Power Project (UMPP) through at Sasan village, District Singrauli, Madhya Pradesh.
- Sasan UMPP has been allotted 3 captive coal mines which makes it biggest integrated coal mine cum power project in India.
- Sasan UMPP is a project of national importance and would benefit 35 crore people in 7 states of India. State of Madhya Pradesh is the largest beneficiary with 1,485 MW (37.5% of total capacity) allocated to the state.
- The EPC Contract for the Project is in place between Sasan Power Limited (Subsidiary of
- Reliance Power Limited) and Reliance Infrastructure Limited.
- Reliance Infrastructure Limited has appointed internationally reputed consultants such as Black & Veatch, Toshiba Power Systems (TPSC), Development Consultants private Limited (DCPL), STUP and HOK etc. for design and development of the project.

C. Project details:

Project Classification	:	Ultra Mega Power Project
Capacity	:	Total 3960 MW i.e. 6 x 660 MW
Annual Generation	:	33BU (Projected FY 15-16)
Type of Plant	:	Coal Fired
Water Source	:	Govind Vallabh Pant Sagar Lake Reservoir
Coal Transportation	:	Over Land Conveyor
Power Evacuation	:	765/400 kV Level to PGCIL Pooling Station
Beneficiary State	:	All India Including 1500 MW to Madhya Pradesh
Major Equipment Suppliers		

- M/s Shanghai Electric Corporation, China for Boiler, Turbine & Generator
- M/s Caterpillar, USA for Dragliners, Dumpers in Coal Mines
- M/s Sinofinn, China for Ash Handling System
- M/s Northern Heavy Industries, China for Coal Handling System
- M/s Hyundai Heavy Industries - Generator Transformers.

BTG Erection Agency	:	M/s Powermech Projects Ltd, M/s IOTEP
Civil Construction Agency	:	M/s JMC, M/s Gammon and M/s ITDC
Cooling Tower	:	M/s Hamon

D. Project Highlights:

- **Super critical technology**
  - Lower emissions
  - Reduced coal consumption
  - Reduced power generation cost
  - Entitled for carbon credits
- **Largest integrated coal based power plant in the country**
- **Among top 3 large coal mining operations in India**
  - Largest in private sector
- **Among 10 largest coal based plants in the world**
- **Financial Closure as per PPA**

E. Project Technological Advancements:

- **Use of Overland Conveyor for Coal Transportation :**
  - Sasan UMPP has implemented longest single flight conveyor system in India which is highly economical over MGR. It has higher reliability, longer service life, compatible for rough terrain and requires lower human interface.
- **Multi Terracing Area Grading:**
  - Different grade levels has been selected for optimization of area grading
  - Natural Gradient has been used for effective drainage
  - Critical foundation has been rested on hard soil
  - All this ensured minimum cutting and filling of soil leading to faster execution
- **Use of Fiber Reinforced Plastic (FRP) material for Cooling Towers:**
  - The FRP type Cooling Tower at Sasan is one of the very few Cooling Towers employing “FRP material” & having such a huge capacity in Indian Power Sector.
  - Reduction in Critical Path of voluminous Civil works normally in the Conventional Cooling Towers.

- **Pre Engineered Building**

  - Pre-Engineered building has been utilized for facilities like central bar bending yard as these structures are easy to handle and erect
  - It ensures lesser construction time compared to conventional buildings

- **Centralized control room**

  - Remote Centralized control room for operation and control of power plant has ensured
  - optimal requirement of operation personnel
  - Centralized CCTV monitoring of unmanned areas and equipments
  - Centralized control room has ensured no magnetic/ electric noise and vibration interface
  - Use of Simulator for training of O&M personnel

F. Construction Highlights:

- Achieved fastest box up of Turbine in the country in just 92 days
- Achieved fastest Hydro Test (identify leakages if any) of the Boiler in the country with 53,500 high pressure joints, highest ever done in the country
- 1st time in the country, boiler light up for steam blowing is done with coal firing resulting in savings of precious oil.
- Achieved fastest commissioning of 5 units in succession in the country, may be also in the world.
- Four Units Synchronized with Grid in record 8 Months time
- All Six Units have been commissioned and power station (6x660MW) Commercial operation has been declared in April 2015.

G. Sasan Views