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RELIANCE

Infrastructure

THE VISION  
TO IMAGINE.  
THE KNOW-HOW  
TO CREATE.

epc





Can a solar power project be up and running in just **129 days?**

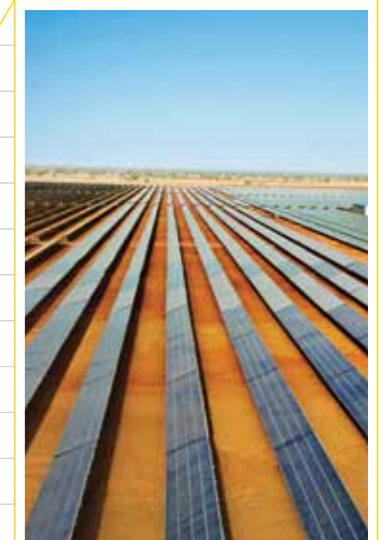
Can a **world-class** metro be built in a high-density area of one of the world's largest cities?

Can a rail over-bridge for the metro on a busy suburban line be built without a single day's interruption?

Can one of the world's largest integrated thermal power stations and five units be commissioned in just **one year?**

**Raising the bar.** Going the distance. **Pushing the envelope.**

That's what we do at Reliance EPC as we make the journey from blueprints to enduring landmarks.



“ Our dreams have to be bigger. Our ambitions higher. Our commitment deeper. And our efforts greater. This is my dream for Reliance and for India.

PADMA VIBHUSHAN  
SHRI DHIRUBHAI AMBANI

”







TELECOMMUNICATIONS



FINANCIAL SERVICES



POWER



MEDIA & ENTERTAINMENT



INFRASTRUCTURE



TRANSPORTATION



The Reliance Group is one of India's leading private sector business houses, with a wide range of interests spanning telecommunications, power, financial services, infrastructure, media and entertainment.

The Group's customers number some 25 crores and it touches the life of 1 in 5 Indians. It reaches out to 25,000 cities and towns and 63% of India's villages. In a country driven by the hopes and aspirations of the young, the Group plays a key role in shaping their tomorrows.

And the Group's focus on building infrastructure and harnessing high technology is aimed at improving the lives of its fellow citizens.

Driven by the entrepreneurial vision of our late founder Shri Dhirubhai Ambani, the Group is one of the largest employers in India, with a workforce that has an average age of just 35 years.



Reliance EPC, a part Reliance Infrastructure (RInfra), has a turnover of Rs 19,002 crores and business interests across the entire value chain of infrastructure: roads, solar, metro and cement.

It's is one of the leading names in the field with a portfolio that includes 1,000km of roads, 140MW of solar power, 4,000km of transmission and 9,000MW of thermal power.


Reliance EPC offers a single point "Concept to Commissioning" implementation of infrastructure projects, including project development, project engineering, procurement, construction and commissioning .

On-time project execution and cost efficiency underscored by an strong commitment to safety and quality form the cornerstone of our approach.

- + ISO 9001:2000 by BVQI
- + Integrated Management System (IMS) covering Environmental Management System (ISO 14001)
- + Occupational Health & Safety Management (OHSAS 18001)





 14.2km single flight overland conveyor for transporting coal from mine to plant

1/6


INNOVATION

Terracing layout for cost optimisation, quicker execution and lower costs



4/6

INNOVATION

 Pre-stressed concrete spun piling system (a first in India) resulting in cost savings

2/6

INNOVATION

Reliance EPC's focus on delivering cutting edge technology at the right price has resulted in a series of achievements in many of the projects we have undertaken.

For instance, we achieved a first by installing fibre-reinforced plastic (FRP) type cooling towers which reduced the critical path of voluminous civil works that conventional cooling towers involve.

Meanwhile, our engineers put on their thinking hats to come up with another innovative solution: pre-engineered, pre-fabricated power house building structures that eliminated conventional site fabrication work. The outcome: an "align and bolt approach" with time and resource savings of up to 30%.

That said, the centralised control room we designed for power stations is along unique lines: remote operation and control with centralised CCTV monitoring of unmanned areas and equipment.


Across our projects in India and abroad, where steel and concrete meet human ingenuity and innovation, the upshot is innovative solutions that save time and money for our clients.

Ground improvement technology as a substitute for piled foundations



5/6

INNOVATION

 Use of pre-engineered, pre-fabricated structures

3/6

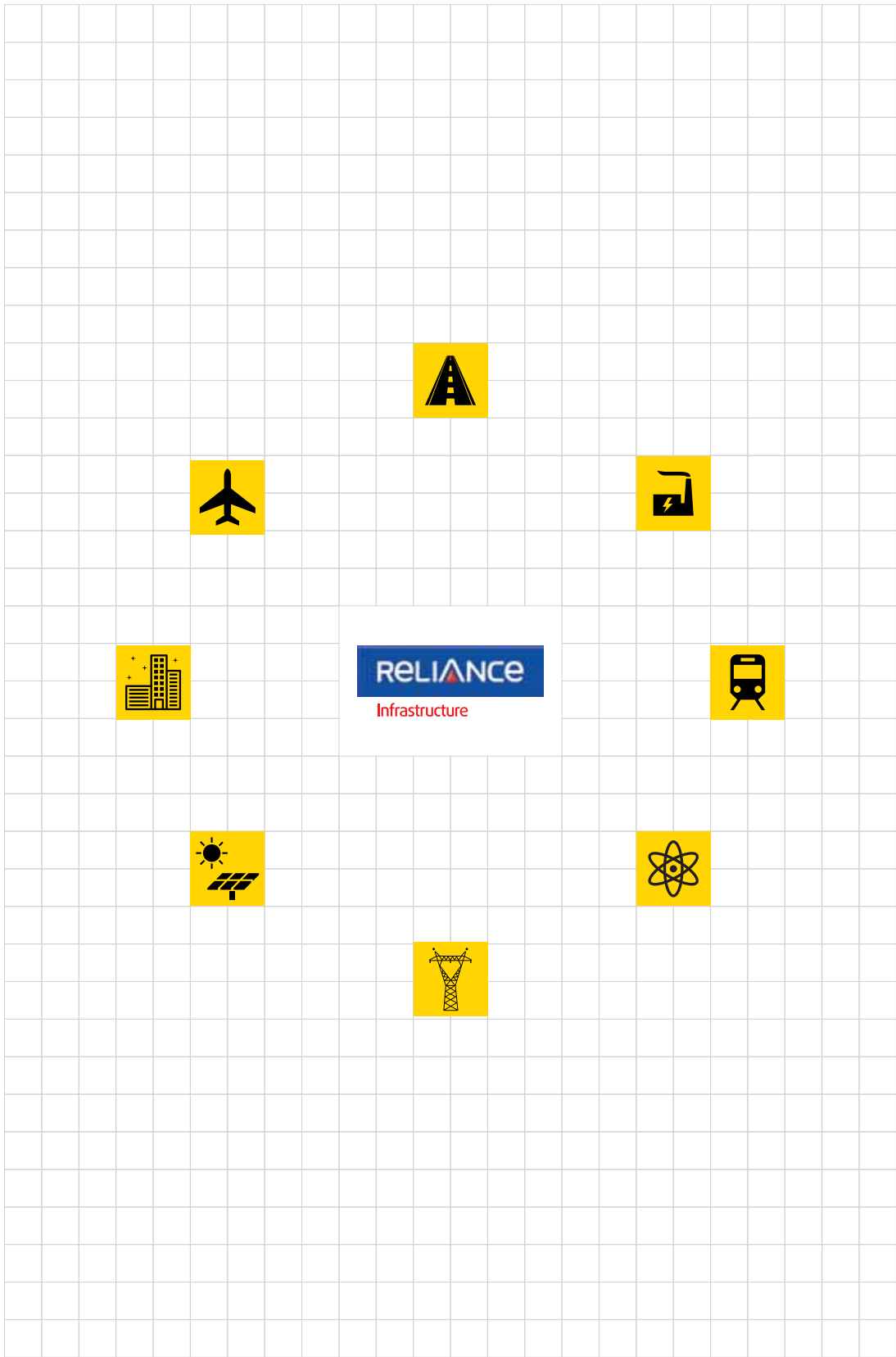
INNOVATION

Centralised CCTV monitoring of projects

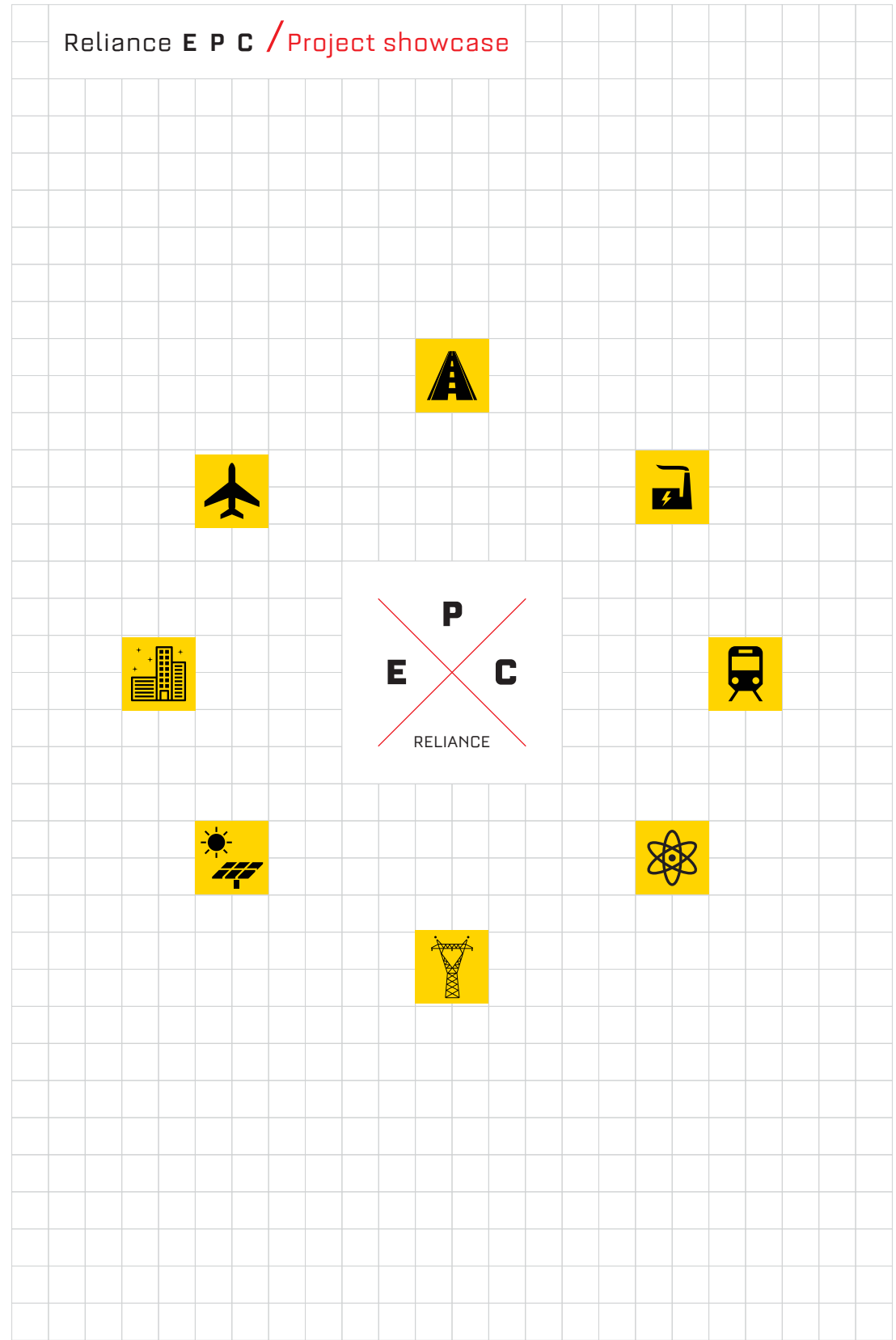


6/6

INNOVATION



Reliance E P C / Project showcase





ROADS



**JAIPUR-REENGUS TOLL ROAD**

- » 52km, 4/6-lane National Highway (NH11) connecting Reengus in the northern part of Rajasthan to the state capital, Jaipur
- » Tolling for the road project commenced in July 2013

**DELHI-AGRA TOLL ROAD**

- » 180km, 6-lane road between Delhi and Agra on the National Highway
- » Scope of work included eight minor bridges and 16 flyovers

**GURGAON-FARIDABAD TOLL ROAD**

- » Construction and tolling of 33.10km, 4-lane corridor between Gurgaon and Faridabad and improvement and reconstruction of 33.98km Ballabgarh-Sohna road
- » 66km, 4-lane road commercially operational since June 2012

**KANDLA-MUNDRA TOLL ROAD**

- » 71km, 4/6-lane road between Kandla and Mundra ports in Gujarat on the National Highway (NH8A)
- » The scope of work included six major bridges and 18 minor bridges

**PUNE-SATARA TOLL ROAD**

- » 140km, 6-lane road between Pune and Satara on the National Highway (NH4)
- » The scope of work included five major bridges, 53 minor bridges and 12 flyovers.
- » This project is part of the Golden Quadrilateral which connects Mumbai and Bengaluru

**HOSUR- KRISHNAGIRI TOLL ROAD**

- » 60km, 6-lane road between Hosur and Krishnagiri in Tamil Nadu on the National Highway (NH7)
- » Work included one major bridge, ten minor bridges and three flyovers

**PROJECT HIGHLIGHTS**

- » First metro project awarded on public-private-partnership (PPP)
- » RInfra partnered MMRDA in Mumbai to successfully implement a world-class mass rapid transport system for the city of Mumbai
- » Versova-Andheri-Ghatkopar corridor mass rapid transit system (MRTS) project was awarded by Mumbai Metropolitan Region Development Authority (MMRDA) through a global competitive bidding process to RInfra
- » The project involved design, financing, construction, operation and maintenance of 12km elevated metro with 12 stations enroute
- » 10 crore commuters in the first year of operation
- » Connects western residential suburbs to the central industrial suburban areas
- » A commuter saves 21,900 minute of travel time annually



METRO



## Reliance E P C / Project showcase



SOLAR



**Dhursar I** Rajasthan  
100 MW  
Solar thermal CSP

### Project Details

- » Capacity: 100MW solar thermal Concentrated Solar Power (CSP)
- » Technology: Compact Linear Fresnel Reflector (CLFR)
- » Solar fields: 35 Solar Steam Generator (SSG)
- » Plant area: 340 hectares
- » Power off-take: 220kV, 2 lines (connected to Dechu sub-station)

**Dhursar I** Rajasthan  
40 MW  
Solar PV



SOLAR

### Project Details

- » Capacity: 40MW solar PV
- » Technology: Thin film
- » Solar modules: 5,00,000
- » Plant area: 140 hectares
- » Power off-take: 220 kV, 2 lines (connected to Dechu sub-station)



TRANSMISSION



### HIMACHAL PRADESH

#### Project Details

- » The transmission line project comprises 400kV lines of around 480 circuit kilometers: Parbati-Koldam and Koldam-Ludhiana
- » The Parbati-Koldam lines have already been commissioned. The Parbati end will be connected to Sainj for evacuation of the hydro plant that is soon to be commissioned

### MUMBAI

#### Project Details

- » Mumbai transmission is operating with 8x220kV extra high voltage (EHV) substations having a total of 3,000MVA transformation capacity with around 540 circuit km of overhead and underground transmission feeders
- » Transformation capacity has been augmented at three old AIS substations, while five new GIS stations have come in place during the year 2011 and 2012

### MAHARASHTRA

#### Project Details

- » The transmission line projects comprise of six 400kV lines of 2100 circuit km: Solapur-Karad, Pune-Aurangabad, Parli-Solapur, Solapur-Kolhapur, Lonikhand-Kalwa in Maharashtra bordering Karnataka
- » All six lines have been commissioned

### GUJARAT

#### Project Details

- » The transmission line projects comprise of three 400kV lines of 1,000 circuit km which connect Limdi, Vadavi, Kansari and Karamsad in Gujarat and border Madhya Pradesh at Rajgarh
- » Two of these lines have been commissioned and the third line is to be commissioned

### UTTAR PRADESH

#### Rural Electrification Project

#### Project Highlights

- » The project involved establishing a power distribution network in the rural areas of Uttar Pradesh where an network did not exist earlier
- » The project involved construction of 33/11kV substations, laying of 33kV transmission lines, 33/11kV augmentation substations, 11kV sub-transmission lines, distribution substations (10/16KVA), and power connections to below-the-poverty line (BPL) and rural consumers
- » The project was simultaneously executed under the three discomms of UPPCL



## Reliance E P C / Project showcase



DISTRIBUTION



### MUMBAI

- » 29 lakh customers
- » <10% loss levels versus India average of ~25%
- » Reliability of 99.98%. Average interruption of <20 secs/day
- » IT consulting and implementation to six State electricity boards
- » Amongst the most efficient power distribution utilities in the country

### DELHI

- » 38 lakh customers, 24/7 reliability
- » Loss levels reduced from 55% to ~15%
- » Rs 5,000 crores spent on network upgradation
- » Outage reduced: 5 hrs/day to <3 min
- » Network reliability improved by ~30%
- » Consultancy to Haryana Bijli Vitran Nigam and electricity boards of Nigeria and Ethiopia



AIRPORTS



### Connectivity

- » State-of-the-art infrastructure and facilities to business jets and for flight training academies
- » The airports act as feeders of non-scheduled aircraft to the metro airports

### RADPL

#### Project Details

- » Rlnfra with its subsidiary company, Reliance Airport Developers Private Ltd (RADPL), operates five brownfield airports in Maharashtra:

at Nanded, Latur, Baramati, Yavatmal and Osmanabad

- » The Maharashtra Industrial Development Corporation (MIDC) in 2009 awarded RADPL lease rights for 95 years to develop and operate them



SMART CITY



### Project Details

- » Rlnfra has executed 2 IT implementation projects in the power distribution utilities of Chhattisgarh and Bihar
- » The IT work includes establishment of Data Centre, Disaster Recovery Centre and Customer Care
- » The governing and supervision bodies are MoP and PFC

### Project Highlights

- » The IT implementation work for the Chhattisgarh State Power Distribution Company Ltd (20 towns) has been successfully completed
- » The IT implementation work for the South Bihar State Power Distribution Company Ltd and North Bihar State Power Distribution Company Ltd (71 towns) is nearing completion



TOWNSHIP PROJECT



- » Club (with auditorium), rain water-harvesting
- » School (up to primary)
- » Fitness centre (full-fledged gym with swimming pool)
- » Health centre, VIP guest house (15 rooms)
- » Field hostel (42 rooms), shopping centre, etc
- » Water and sewage treatment plants

Spread over 55 hectares, Rosa Power township is a lush, green, 100% environmentally-compliant township having 370 dwelling units for

accommodating the O&M staff. It is well-connected with National Highway 24 and State Highway 25 and comes complete with all amenities.



THERMAL



**Sasan I** Madhya Pradesh  
3960MW  
Ultra mega power project

**Project Details**

- » Capacity: 3960MW (6 x 660MW super critical units)
- » Annual generation: ~ 33BU per year
- » Overland conveyor coal transportation
- » Power evacuation: 765/400kV level to PGCIL pooling station

**Project Highlights**

- » Largest integrated coal-based power plant in the country
- » Amongst the ten largest coal-based plants in the world
- » Single flight overland conveyor of 14km from the captive mine
- » Triple flue chimney with largest base diameter (37m) for 3x660MW unit
- » FRP cooling tower
- » Water obtained through 22km of

- pipeline connecting Govind Vallabh Pant Sagar lake reservoir
- » Electrical switchyard: 765kV/400kV
- » Remote centralised control room for operation and control of power plant
- » Deployment of the biggest mining equipment in an integrated coal-based power plant
- » For the first time in the India, boiler light-up for steam blowing done with coal firing resulting in fuel savings
- » Three units achieved full load from first synchronisation: <7 days
- » Five units commissioned and synchronised with the grid consecutively within 14 months
- » All six units have been commissioned and the power station (6x660MW) is in operation since April 2015

**Reliance EPC has also executed the following thermal power projects ▼**

**BUTIBORI I** Maharashtra | March 2016

- » 2x300MW coal-based thermal power

**PARICHHA** Uttar Pradesh | April 2013

- » 500MW coal-based thermal power
- » 2x250MW (Balance of plant)

**RAGHUNATHPUR I** West Bengal | March 2016

- » 2x600MW coal-based thermal power

**YAMUNANAGAR** Haryana | June 2008

- » 2x300MW coal-based thermal power

**HISSAR** Haryana | March 2011

- » 2x600MW coal-based thermal power



THERMAL



**Samalkot I** Andhra Pradesh  
2400MW  
Gas-based combined cycle power project

**Project Details**

- » Capacity: 2400MW (3x800MW nominal capacity)
- » Power evacuation: At 400kV level through 2x400 kV DC Quad lines to PGCIL Vemagiri pooling station
- » Water supply from Godavari river
- » Fuel supply: Gas pipeline of 50km from Gadimoga landfall

**Project Highlights**

- » Advanced class 9FA gas turbines
- » Largest gas-based capacity by a private sector power producer
- » Four gas turbines (9FA, 240 MW) erected at "Full speed-no load" in 18 months: a new global standard
- » Lowest acre per megawatt compared with similar plants in India



**ROSA**

- » Rosa power plant is a 1,200 MW, coal-based generation capacity at Rosa village in Shahjahanpur, Uttar Pradesh. The construction for Phase I of the project began in June 2007 and by December 2009 the first unit of the project had started generating power
- » The project uses coal as the primary fuel. The coal is transported by rail over a distance of 870km
- » The power generated from the plant is evacuated using Uttar Pradesh's transmission network.
- » The water required for the power plant is sourced from Garrah river, located a kilometer from the project





THERMAL



**Project Details**

- » Flue Gas Desulphurization (FGD) System for 2X250 MW Dahanu TPS
- » Technology: Sea Water based
- » Flue Gas Flow: > 11,00,000 NM<sup>3</sup>/hr
- » Inlet SO<sub>2</sub> concentration: 1000-1100 mg/NM<sup>3</sup>
- » SO<sub>2</sub> removal efficiency: > 95%
- » Auxiliary Power Consumption: < 1%

**Project Highlights**

- » First FGD system commissioned in India
- » Fastest execution time which was less than one year
- » In successful operation since year 2007.



NUCLEAR



- » Reliance Infrastructure has executed two projects for Nuclear Power Corporation.
- » The projects executed were EPC of the main electrical system package for
- 2x220 MW at Kaiga, Karnataka and 2x220MW at RAPP, Kota, Rajasthan.
- » Total project cost: Rs 200 crores
- » The projects were completed in 2009

05 Reliance EPC / Our unique approach

+ Multi-disciplinary technical staff with project engineering and quality control teams



+ System-driven organisation with emphasis on project schedules, quality and safety

+ Advanced software technologies such as Autodesk land development, StaadPro, SmartPlant, ETAP, PDS, PDMS, PVsyst

Strong processes, systems and focus on international standards

Dedicated teams for project engineering, core engineering and quality control

PARTNERS IN OUR JOURNEY



Centralised procurement with vast international vendor database

Focus on innovative solutions and on simplifying the complex



TRANSPORT INFRASTRUCTURE | GOING THE DISTANCE



METRO



RAILWAYS



AIRPORTS



ROADS



TRANSMISSION

POWER INFRASTRUCTURE | LIGHTING UP LIVES



SOLAR



THERMAL



DEFENCE | IN THE NATION'S INTEREST



MARINE | CHARTING A NEW COURSE



NUCLEAR | POWERING THE FUTURE



WATER & ENVIRONMENT | FOR GREENER TOMORROWS



We have proven track record of delivering **complex projects** ahead of **schedule**, built at the **right cost** and redefining **quality** through **innovation**.

Choose a partner you can trust!

Let's **raise the bar** together.

