

# WARTSILA IN INDIA

## EVOLUTION IN BUSINESS ACTIVITIES

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- Wartsila entered Indian market through the agent : Banaras House Ltd in 1980
- Wärtsilä has contributed immensely to the Power segment of the country.
- Wärtsilä has over 26 years of experience in providing complete lifecycle power solutions for the Indian energy market.
  - As a leading solutions provider of rapid and flexible power plants for Utilities, Industry and IPPs, the Wärtsilä name is now synonymous with decentralized energy market.
- In the marine market, Wärtsilä has delivered engines to vessels belonging to the Navy, Coast Guard, Port Trusts, Merchant Shipping, floating cranes and offshore rigs.
- Wärtsilä's factory at Khopoli manufactures auxiliaries/pipe modules and reconditions and upgrades engines, ship propellers and components. Also it integrates High speed DG (Diesel Generator) sets for the marine requirements.
- In India the brand Wärtsilä is a very powerful one and is perhaps most well recognized, outside Finland.
- It is a name that means trust, reliability and excellence to the customer.

- 1983 - First engine supplied by Wärtsilä Diesel in India**
- 1986 - Incorporation of the company**
- 1989 - Assembly factory set up at Khopoli**
- 1989 - Issue of shares to public**
- 1999 - 500 MW from Khopoli**
- 1999 - First IPP signed**
- 2003 - 100 engines under O&M agreement in India**
- 2005 - EOU Unit at Khopoli for manufacturing gear boxes**
- 2005 - Largest gas power plant 100 MW set up in Tamil Nadu**
- 2005 - O&M of STG plant**
- 2006 - 3000 MW delivered to India**
- 2008 - O&M of WTG plant**
- 2008 - Dry Docking Facility at Paradip Port, Orissa**
- 2012- Remote Monitoring Station in Chennai**

## Our Capabilities

TOTAL TURNKEY PROJECTS  
(INCLUDING CIVIL )

ENGINEERING AND PROJECT  
MANAGEMENT

INSTALLATION OF COMPLETE  
PLANT

TESTING OF EQUIPMENTS AND  
SYSTEMS

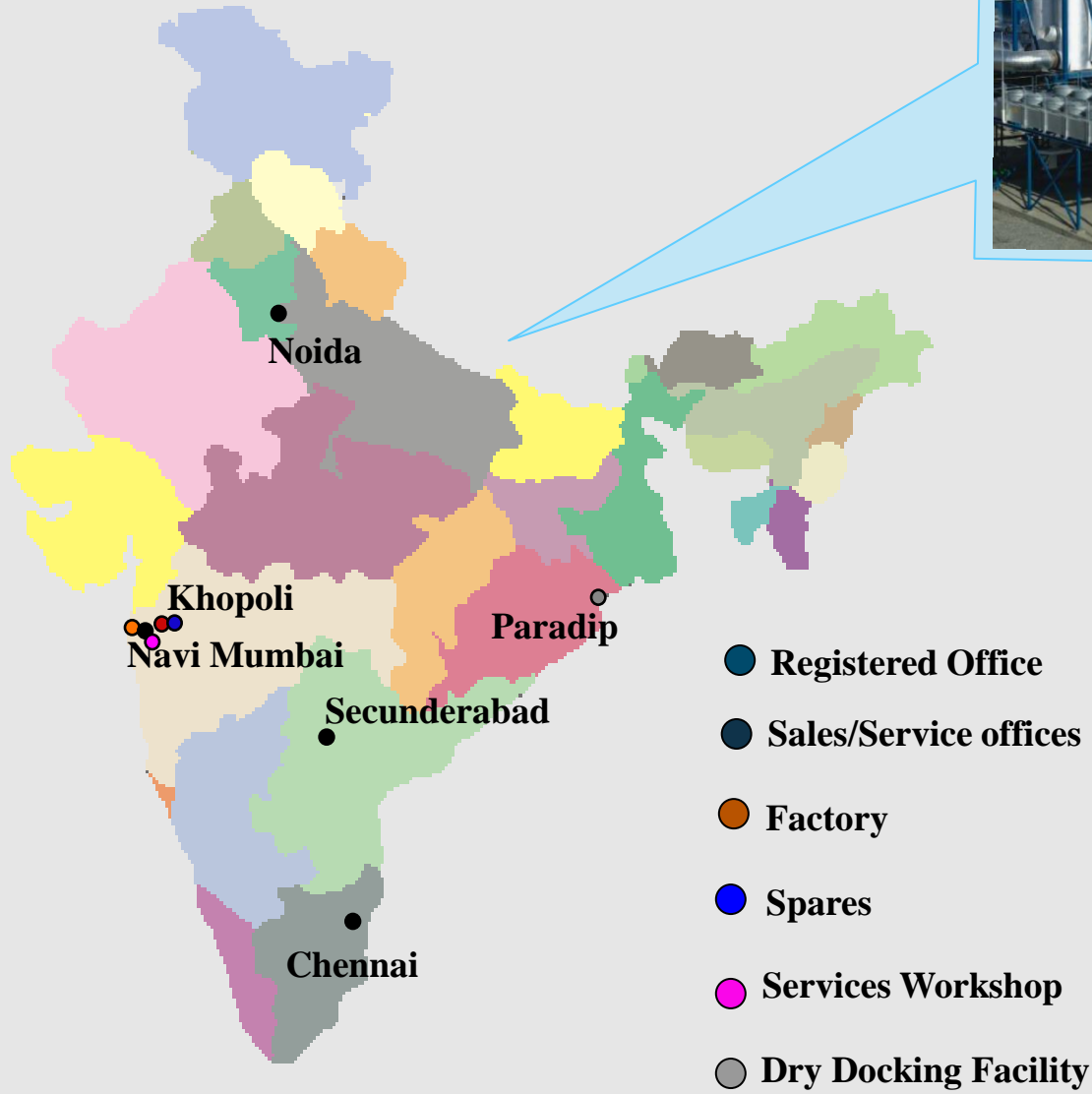
COMMISSIONING AND HANDING  
OVER



The Indian Project Management teams are equipped with the following competencies.

- Project Management Division with **6** project teams in place.
- We have close to **90** persons under Project execution group which includes Project Management, Construction, Commissioning and Purchase teams.
- Most of the Project personnel are certified by **Project Management Institute -PMI (USA)** as Project Management Professionals
- World Class expertise - an enabler to handling Project Management, Construction and Commissioning activities even for Global projects
- 600 MW of projects are under execution by the Project execution teams in India.



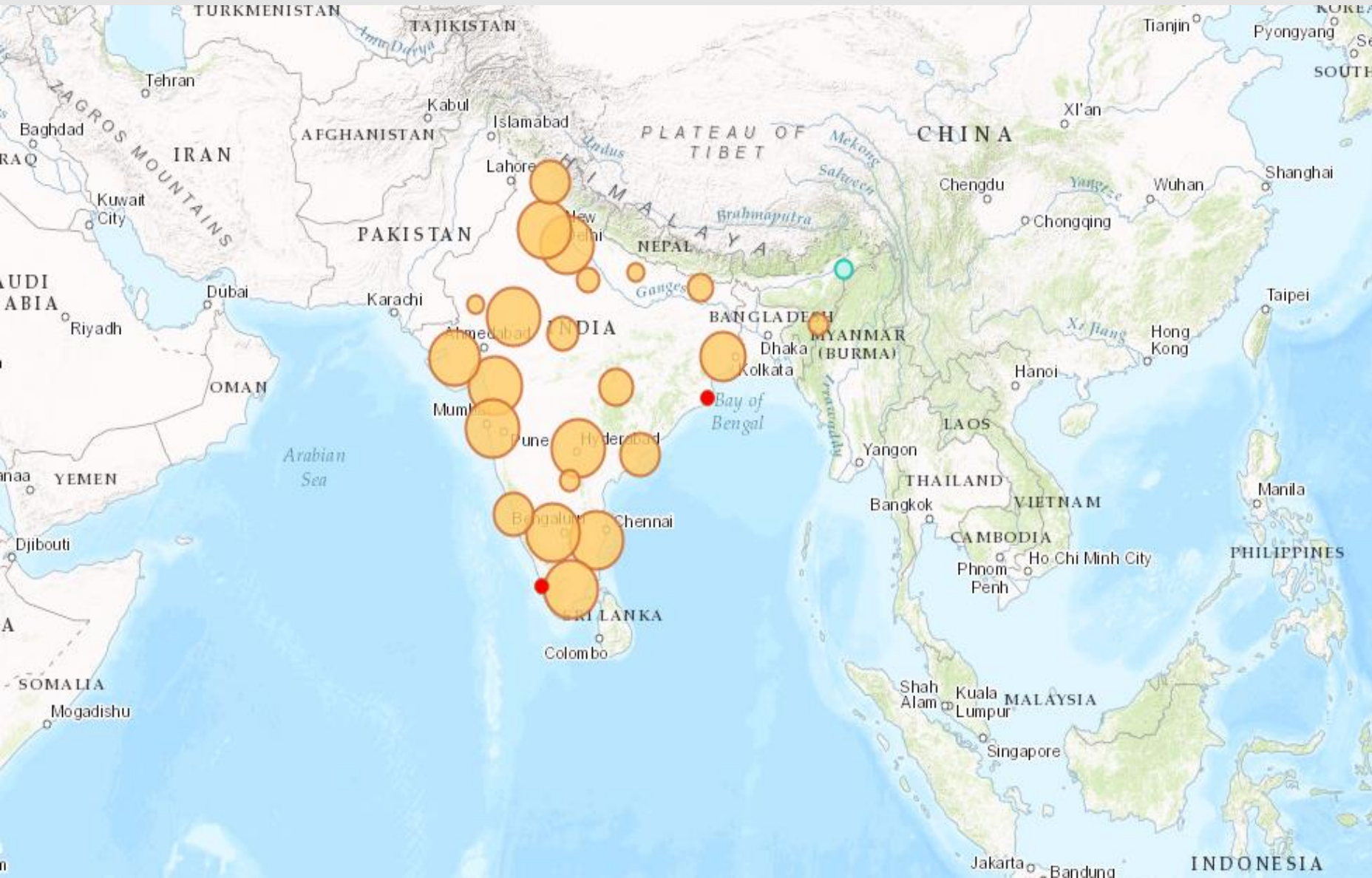




- **No of Employees:** 900 persons on rolls
- **Installed MW :** 4043+ MW
- **No. of Power Plants:** 434
- **No of Engines:** 738+
- **No of O&M Plants:** 35 Power Plants  
1389 MW (incl. BTG projects)

**WÄRTSILÄ IS MOST WELL RECOGNISED BRAND IN INDIA  
AFTER FINLAND**





## Largest Plants

### Kseb, Kozhikode

Kerala, India  
130.3 MW - 8x18V46

### Samalpatti Power Project

Dharmapuri, India  
114.0 MW - 7x18V46

### Power Plant Belgaum: Karnataka

Belgaum, India  
81.5 MW - 5x18V46

### RVK Energy (Rajahmundry) Pvt. Ltd.

RVK, India  
77.6 MW - 8xW20V34SG

### 70 MW Lakwa Replacement Power

Lakwa, Sibsagar, Assam, India  
70.0 MW - 7xW20V34SG

### Arkay Energy (Rameswaram) Ltd

Ramamathapuram, India  
69.8 MW - 8xW20V34SG

### Greenko Godavari Power

Kakinada, Andhra Pradesh, India  
58.4 MW - 6xW20V34SG

### MCF Genset Replacement

Mangalore, India  
57.0 MW - 3xW20V34DF, 3xW20V34SG

### Kamineni Steel & Power Ltd.

Hyderabad, Andhra Pradesh State, India  
54.0 MW - 6xW20V34DF

### Kamineni Steel & Power Ltd.



### Malanpur Group Captive Power Plant (24 MW). MP



### Coromandel Electric Power- 24 MW, TN



### Arkay Energy, Ramanathapuram (T.N.) – 150 .... 180 MW



<b>Fuel:</b>	<b>Natural Gas</b>
<b>Prime movers:</b>	<b>16+3 x 20V34SG + STG (CC)</b>
<b>Base load:</b>	<b>150 ... 180 MW</b>
<b>Year of completion:</b>	<b>Phase 1: 2005, Phase 2: 2010, Phase 3: 2012 &amp; Phase 4: 2013 Phase 5: 2015</b>

- India has surplus power ( Inst capacity > 310 GW\*)
  - Cost of generation
    - NG = €0.07 / kWh (5 USD/MMBTu)
    - Coal = €0.02 / kWh
    - Solar = €0.02 / kWh
  - Coal plants running with 60% PLF.
- Energy demand is less.
- Gas, expensive and uncertainty over gas availability.
- No clear incentives for the Combined Heat and Power projects (gas based)
- HFO operations not allowed (due to environmental issues).
- Opportunities in
  - Possibility in renewals ( Solar, Battery storage)
  - LNG terminals

	GW
Thermal	215
Nuclear	5,7
Hydro	43
R.E.S	46

\*Source :cea.nic

## Navy Business Projects in India

### Negatives:

- Very complex environment – Shipyard, Navy (various departments within Navy), QA agencies etc.
- Closed two-bid system – Technical bid (which is opened first, discussed and negotiated) & Commercial bid (opened later, but submitted along with Tech Bid)
- Too long “sales cycles” – upto 3 years – from initial enquiry to Order
- Too long “Project Execution Cycle” – upto 10 years (multiple vessels, long time to build ship, too long process for Sea trials)
- Delays in getting approvals – drawings approvals, FAT procedures, Final trials approvals, QAP approvals, inspection at various stages by Navy personnel.
- Conflict between owners (Navy) & Shipyards – Navy wants good, reliable equipment but Shipyard wants to use cheapest equipment, fast to install
- Wartsila engines are too heavy, too big and too expensive – so most of the times not fit Navy constraints of size, weight.

### Positives:

- Assured business (although slow) – independent of economy, fuel costs
- Assured payments as it is coming from Govt agencies, although there can be long delays
- No cancellation of projects once ordered.
- Propulsion equipments – Wartsila has very large share, also for Indian Coastguard Patrol Vessels.
- Wartsila plays “Integrator” taking engines from Cummins, Alternator from Kirloskar and make “integrated DG set” that meet critical requirements of very low vibrations, very low noise and withstand very high shocks





**WÄRTSILÄ**