



Global partnerships in Nuclear Power

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Power Sector Scenario

Power Sector has been liberalized

100% Private Sector participation in

- Generation
- Transmission
- Distribution
- Foreign Direct Investment is permitted

Nuclear power sector

- Ownership of NPP-remains with Government
- Partnership-Supply of reactor ,equipments and fuel



Present power scenario

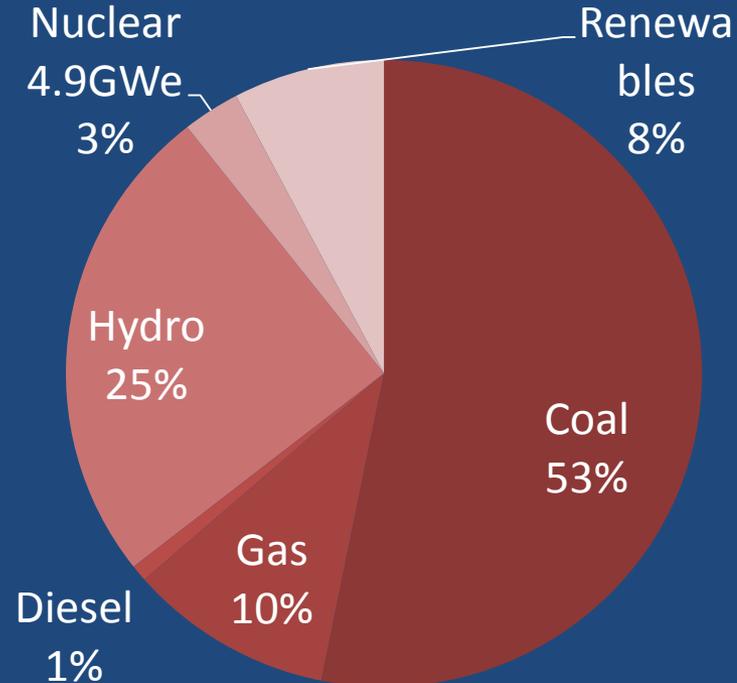
Total installed capacity- 145 GWe

Captive generation- 15 GWe

Per capita consumption 700 KWh

Sector-wise Generation

Central (34%) 48,470 MWe
State (52%) 75,837 MWe
Private (13%) 21,246 MWe



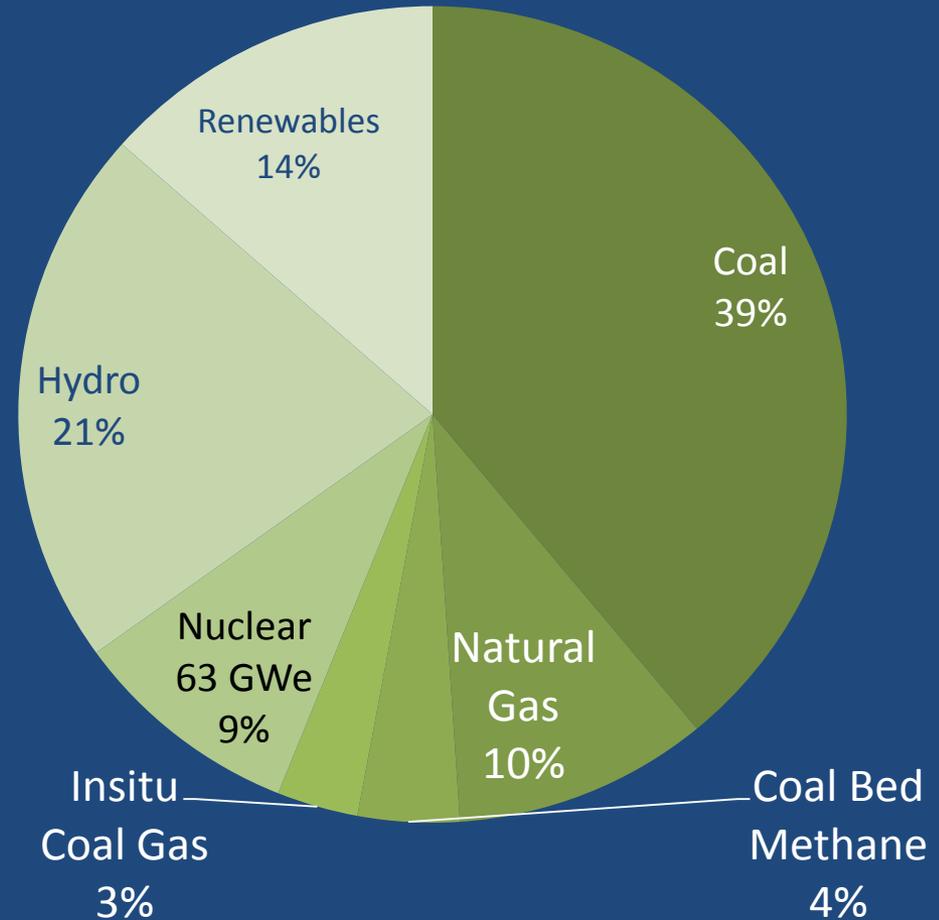
Present resource utilisation



Future Forecast

Integrated Energy Policy
projections for next 25 years.

To meet 7-9 % GDP growth



Total installed capacity of 700 GWe by 2032



India's Nuclear Power Programme

Executed by fully government owned PSUs

- **NPCIL** - First Stage Uranium (Natural , Imported Enriched) (**PHWRs & LWRs**)
- **BHAVINI** - Second Stage Plutonium (Reprocessed Spent Fuel) (**FBRs**)
- **R&D Domain** - Third Stage Uranium 233 (Converted from Th-232) (**AHWR & future**)



Present Status

- **Seventeen Reactors** 2 BWRs & 18 PHWRs with total Capacity of 4780 MW in operation
- **Four Reactors** 4 PHWRs, 2 PWRs & One FBR with Capacity of 5300 MW under construction

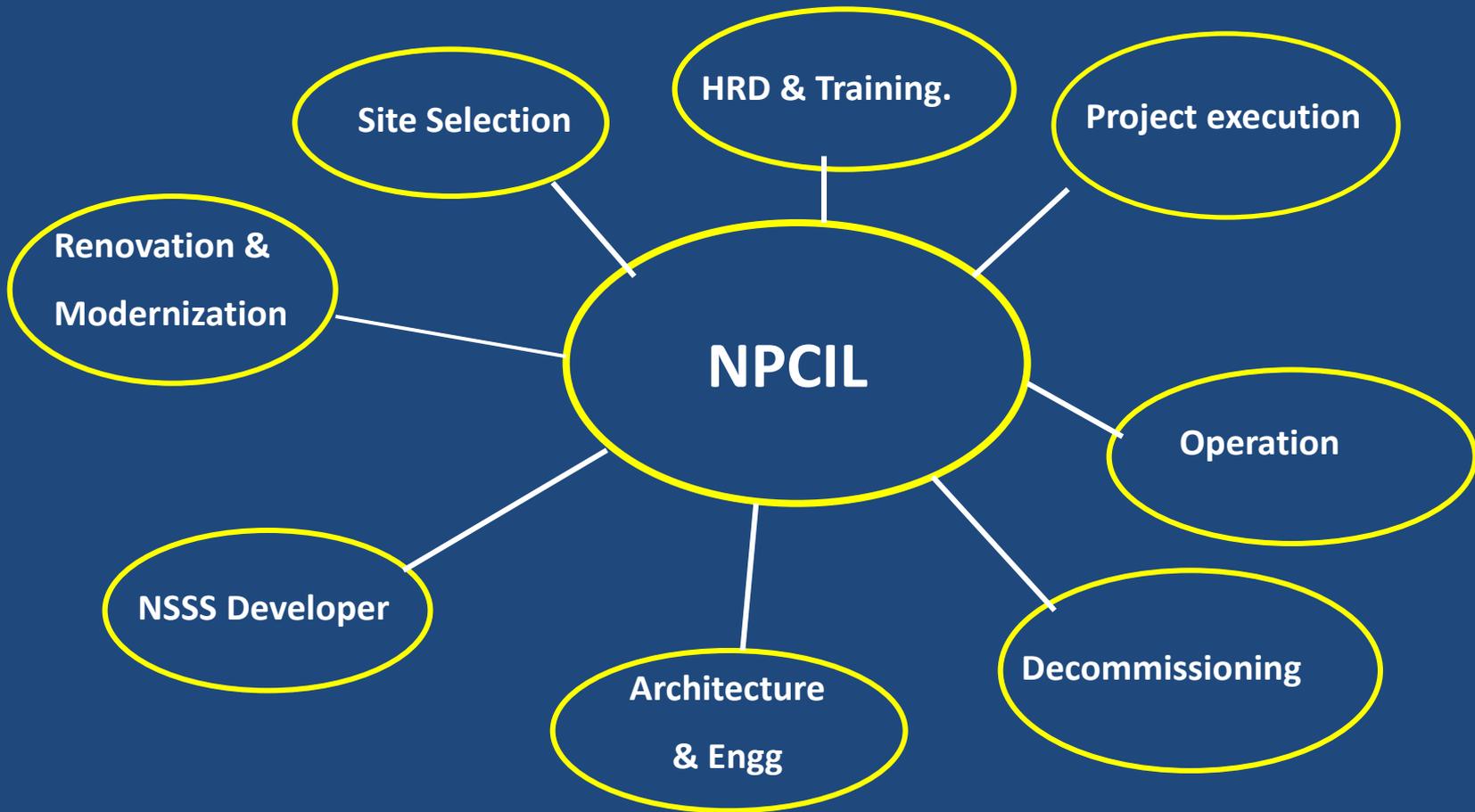
Future plans

- 11th Five Year Plan 2007-12
 - 4x700 MWe **PHWRs**
 - 3x500 MWe **FBRs**
 - 1x300 MWe **AHWR**
 - 10x1000 Mwe **LWRs**

Augmentation plans by 2030 25-30x1000 MWe & Higher **LWRs**



In house expertise in NPCIL



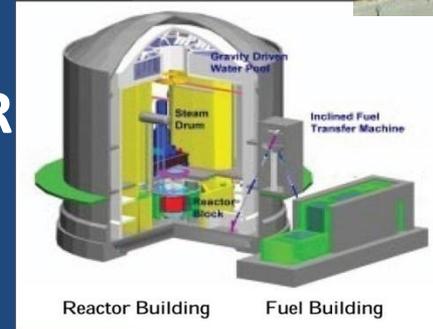
Future Program



1000 MWe LWRs or
larger



300 MWe AHWR



500 MWe FBRs



700 Mwe
PHWRs





Financial Strengths

- 100 % owned by Government
- Assets \$ 8.25 billion
- Net worth \$ 5.25 billion
- Cash Reserves \$ 2.75 billion
- Rated AAA by two domestic credit rating agencies

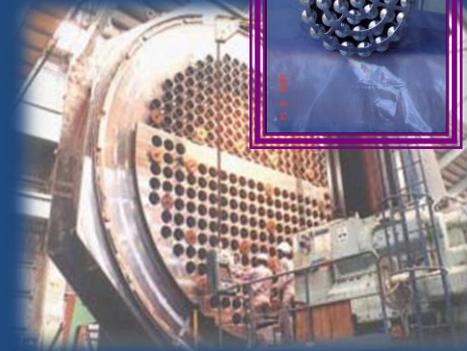




Sustained
economic growth.

Vibrant Industry

Abundant
Technical and
skilled manpower





Opportunities for Nuclear Industry

- Uranium requirement -1600 Te/yr
- Supply chain for major equipments
- Special forgings and form of steel
- Regular Spare parts sourcing
- Specialized Post installation Services
 - 4 to 5 Nuclear parks to have 6 to 8 units each,
 - Simultaneous construction at 4-5 sites





Challenges for Nuclear Power

- Sourcing of major equipments and forgings
- Maintaining high standards of human resource
- Need to maintain a strong safety culture.
- Countermeasures for perceived security concerns
- Optimizing the cost of new builds
- Strategy to absorb technology
- Unit Energy Cost to be competitive



Business Models

- NPCIL to construct, integrate and operate
- Unit Energy cost the basis of negotiations with foreign vendors for supply of plant
- Technical Cooperation on supply of equipments for Nuclear supply System
- Localization from Indian market for sourcing of components / equipments
- Design and supply of balance of plant equipments by NPCIL

Business Opportunities for Equipment suppliers



- Participate in the global bids called by NPCIL for manufacturing of items/equipments in Indian scope of responsibility
- Participate in localization plan by making joint venture with Indian partners for the items in the scope of plant supplier
- Supply the equipments directly to power plant supplier as per DOR



Thanks for your
attention