

**GOVERNMENT OF INDIA
POWER
LOK SABHA**

UNSTARRED QUESTION NO:3523
ANSWERED ON:15.12.2006
RESEARCH FOR LOW COST POWER GENERATION
Saroj Shri Daroga Prasad

Will the Minister of POWER be pleased to state:

- (a) whether any research and development is being done for reducing the cost of power generation in the country; and
(b) if so, the details thereof?

Answer

MINISTER OF THE STATE IN THE MINISTRY OF POWER (SHRI SUSHILKUMAR SHINDE)

(a) & (b) : Yes, Sir. The organizations in the Power Sector viz. Central Power Research Institute (CPRI), NTPC Ltd., Bharat Heavy Electricals Ltd. (BHEL), National Hydro-electric Power Corporation (NHPC) and some of the laboratories of Council for Scientific and Industrial Research (CSIR) are carrying out Research & Development Projects to reduce the cost of power generation at their own research laboratories and facilities available with other organizations. Some of the specific areas where Research & Development is currently being carried out are at Annexure.

ANNEXURE

ANNEXURE REFERRED TO IN REPLY TO PARTS (a) & (b) OF UNSTARRED QUESTION NO. 3523 TO BE ANSWERED IN THE LOK SABHA ON 15.12.2006.

Research & Development (R&D) for low cost power generation is currently being carried out in the following areas:-

Sedimentation management in basins, rivers and reservoirs, Management of Trash, Floating Debris & Logs in reservoirs/intakes, application of Global Positioning System (GPS) in basin sediment management, reservoir sediment measurement, river inflow/discharge measurement, flood forecasting etc.

Research project titled `Development of silt erosion resistant material for turbines of hydro generators`, as an improved alternative to Chromium Nickel (13Cr 4 Ni) Stainless Steel.

Provision of scientific services to various power stations in lowering the power generation cost through

(i) increasing the reliability and availability;

(ii) improving efficiency; and

(iii) Fuel optimization.

Health assessment studies to help the stations in taking decision on Run/Repair/Replace of specific components thus helping in lowering the maintenance cost as well as improving the life/availability of the plant.

Corrosion control measures to help the stations in improving the availability and efficiency of the plant components.

Real time operator advisory/supervisory module based on artificial intelligence & mathematical modeling, to improve the efficiency of boilers and turbines.

Improvement in water chemistry of condensers for minimizing the deposits to improve the vacuum.

Modeling and simulation studies for improving the efficiency of cooling towers.

Development of Flue Gas heat recovery and waste heat recovery from other systems.

Improvement of the combustion efficiency by maintaining the fuel particle size distribution in close proximity.

Reduction in Auxiliary Power Consumption through improved performance of Auxiliary Fans and Ducts.

Development of automated inspection machines such as Robotics is being taken up as an R&D initiative.

Development of Computerized Flow Design (CFD) modeling for coal-fired Boilers to increase the reliability.

Development of more efficient technologies like Integrated Gasification Combined Cycle (IGCC).

Energy audit and mapping.

Materials development and simulation techniques.

Coal research (blending and beneficiation).

Turbine Blade and underwater parts coating.