

## Debate over N plant in Jaitapur Turns Political - A Non Political View

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“TIMES NOW” TV channel has been carrying a story on Jaitapur Nuclear Power Plant. This article puts some misinformation in a non-political perspective.

### *Jaitapur plant is ten times Chernobyl - a safety concern*

The unit size of power plants have, like elsewhere in world, shown increasing trend. This is simple economics on account of economy of scale. The most important resource, land square km per MW, falls with increasing size. The land requirement for 4000 MW Ultra Mega Power Project is about 3000 acres giving 0.75 acre/ MW. Nuclear plant parks 0.18 acre/ MW.

Coal based plants of 20-40 MW built some 40 years ago are being shut down because the current tariff at about Rs. 4/ kWh is no longer viable. Tarapur Nuclear Plant units 1&2, also in service since 1969, current tariff is less than one Rs. / kWh.

The unit size of coal thermal plants has increased from some tens of MW to 660 MW and 800 MW; discussions are on for setting up 1000 MW thermal plants. Same has been the case for nuclear plants which have seen a global progression from 220/500/1000/1300/1650 MW. The effort to built and operate a power plant does not increase linearly with unit size giving economy of scale for large plants for base load generation.

The Chernobyl accident happened more than two decades ago. The accident resulted in graphite burning and the reactor had no containment to prevent release of radioactivity in the event of an accident. Since then, considerable efforts have resulted in significant improvement in the nuclear safety world over. The safety record of life cycle electricity generation in 30 years (1969-2000 Source OECD) is by an order of magnitude better than of thermal. 0.597 fatalities per GWh of electricity generation for coal technology vs

0.048 for nuclear. The contemporary designs of nuclear power reactors have highest in-built standard of safety. There are many sites world over having multiple reactors and the total nuclear power capacity at a park has no relation with safety which has to be ensured for each of the reactors separately.

#### *EIA report does not address design/ safety concerns*

While the Environment Impact Assessment (EIA) Study focused on the environmental aspects of the proposed nuclear power plant, the design and safety evaluation is the responsibility of the Atomic Energy Regulatory Board (AERB). Clearances of the Ministry of Environment & Forest from environmental angle and AERB from safety angle are two statutory clearances which a nuclear power project has to obtain. The design/ features of the project in the EIA report, like environmental aspects in AERB safety evaluation, are thus to be considered as for- the- sake- of –completeness only.

#### *Temperature rise is as high as 5 deg*

Energy consumption in the form of electricity is an inherently inefficient process but needs to be tolerated in view of ease of transmission and cleanliness at the end use. Much to our disliking, the energy to be put in the atmosphere, be it sea or air route is about twice the energy converted to electricity. This is true for all power plants not only nuclear. Coastal locations are preferred in view of availability of abundant cooling water. This considerably saves the consumptive use of water at in-land locations. Though direct cooling water requirement is about ten times the water requirement in a closed loop, direct cooling is preferred because of low consumptive use of water another valuable resource.

MoE&F own stipulation in the Guidance Manual for nuclear plants is 7 degrees rise in temperature of cooling water. MoE&F have in their clearance for the project further restricted the temperature rise to 5 degrees. Detailed scientific

studies have been conducted on thermo ecological aspects of discharge dispersion with a view to restrict the temperature rise within 5 deg.

#### Expert Panel views not considered

As regards the timings of clearance of the project, it could have been only be before, during or after the visit of President of France. The timing has no sensitivity. Significant in this regard is the fact that all activities prior to the clearance have been completed according to the timelines. The application to MoE&F after EIA Report for which TORs were approved in May 2009, public hearing and inputs from expert organization was made much earlier and reports on bypassing the Expert Panel on Western Ghats constituted by MoE&F in March 2010 in a section of press are incorrect. The conditions on the clearance include activities to be completed in next 12 months, bio diversity conservation plan around the site, a robust monitoring mechanism and a comprehensive environmental management plan assessment on putting first two units on line with a view to feed into additional safeguards for remaining four units.

#### Strategic Considerations

The spent fuel after reprocessing in a central reprocessing facility will be used only in the civilian nuclear power programme. India has abundant resources of thorium and the route for thorium utilization is through three stage programme conceived decades ago. There are possibilities of using spent fuel after reprocessing in fast reactors in the civilian programme at a future date; however the suggestion to use in the strategic programme is misleading.

While we appreciate the Times Now slogan, *let the countrymen & women of India decide*, the facts need to be made known first.

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