

**Third Party Evaluator's Opinion on  
Anpara Power Transmission System Project (1)(2)**

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**Efficiency**

With doubling of the design voltage of a planned transmission system, the power carrying capacity increases approximately four-fold but the cost (per circuit kilometer of the line) rises only by a factor of less than three. Hence the rationale for adopting the 800 kV design for the project – a transmission voltage level that would permit smooth transfer of over 2250 MW of electricity, about the combined output of the now functional Anpara B power station and the planned Anpara C unit – was quite sound.

But the adoption of the super high voltage design has led to two problems. On the one hand, the need to absorb the new design (being the first 800 kV transmission project to be executed in the country) and solve the technical and implementation issues contributed to part of the delay in project completion. Secondly and more seriously, there is underutilization of design capacity because of failure of the borrowing agency to implement the Anpara C unit as scheduled or even today.

Complete synchronization in project implementation between the generating and transmission sides is desirable but problematic, more so given the ambitious scale of both components as in the present case. But the project implementation has been inherently sound; technical issues have been solved and design parameters have been met. It is the financial weakness of the U.P state power sector that is part reason for delayed implementation and the main cause for continued underutilization. In the context of the delay, the very cost-efficient implementation is especially noteworthy and creditable. Overall, therefore, it is a correct assessment that the efficiency parameter of this project is satisfactory.

**Impact**

From this perspective, there are several positive outcomes to note. In the short term, by achieving high operational levels, providing needed redundancy and meeting, even exceeding, the target utilization at 400 kV operating level, the project has contributed to reduction in transmission loss and to more reliable power supply. The reliability of power supply (by reducing breakdowns and blackouts) is a factor of growing importance when the independent regulatory regime is seeking to enforce tariffs reflecting costs; it helps to make cost-based tariff adjustments more acceptable and thus contributes to financial viability of the sector. It is pertinent that in states ahead of U.P on the sector reform front, industrial consumers who put up costly captive units are reverting to the grid supply when the tariff distortions are removed and reliability is improved.

In the medium term, Anpara C unit is now being taken up and is tentatively projected for completion in 2011 (in the National Electricity Plan that is under finalization). So there is good prospect that capacity utilization to the planned 800 kV level will be attained and supply to the fast-growth regions at the tail end (western part of U.P state and the areas around the national capital) will be facilitated.

Environmentally, the project has been conceived well and adverse social impact has also been avoided. A very positive contribution is that of capacity building by acquainting the technical personnel of borrowing agency with practical design and operating issues of this advanced technology which can be replicated in future projects.