

World Bank Response to Witoon Permpongsacharoen on Economic Analysis of the Nam Theun 2 Hydroelectric Project in Lao PDR

World Bank staff have reviewed the various claims made by Khun Witoon Permpongsacharoen regarding the economic analysis for the proposed Nam Theun 2 Hydroelectric Project (NT2) in Lao PDR. Khun Witoon argues that (1) the Thai demand forecast for electricity from NT2 is outdated and excessive; and (2) the Bank has failed to consider cleaner and cheaper supply options, such as demand-side management measures, energy efficiency, renewable energy and co-generation, for Thailand.

The issues raised by Khun Witoon are addressed in considerably greater depth in a package of economic studies commissioned by the World Bank as part of its due diligence on the economic aspects of NT2, which are available at www.worldbank.org/laont2 ('NT2 economic reports'). This note provides a summary response to the arguments Khun Witoon has raised.

1. Electricity demand forecast. Khun Witoon claims that the Power Development Plan (PDP) prepared by the Electricity Generating Authority of Thailand (EGAT) relies upon overly optimistic predictions about economic growth. He claims that 'if Thai economic growth maintains its 15-year historic average of 5.2% rather than 6.5%, and if other flaws in the demand forecast are corrected, then ... actually electricity demand will be at least 4,100 megawatts below that predicted by Thai government load forecasts by the year 2010' and that 'Nam Theun 2 is not needed'. He also claims that EGAT has revised its Power Development Plan and that this should have been considered by the Bank.

The World Bank has carefully reviewed the Thai Load Forecast Working Group (LFWG) August 2002 demand forecast and the corresponding EGAT 2003 PDP, and determined that both are suitable bases upon which to develop an economic evaluation of the NT2 project. Both the LFWG and EGAT are highly respected institutions; their work includes broad consultations with many groups as well as independent advisers and is subject to government oversight.

While the critique of the load forecast focuses on GDP performance, in fact the growth of electricity demand is also determined by a number of other factors that the LFWG methodology takes into account. Because of the inherent uncertainty about the future performance of the factors determining growth of demand for electricity, the World Bank's project economic appraisal process has tested the economic viability of the NT2 project for a wide range of potential demand growth outcomes. In so doing, the Bank adopted a relatively conservative base case. As such, the Base Case in the Bank's work uses the August 2002 demand forecast showing load growth about 6.5% per year between 2002 and 2014, whereas in January 2004 the LFWG raised the demand forecast to over 7% per year in light of recent experience of demand forecast over achievement and higher projections for national economic growth. ***Assuming the lower economic growth and electricity demand growth rates in the 2002 plan, NT2 would still only provide slightly more than half-a-year of energy demand growth and a mere six percent of the incremental energy requirement between 2009 and 2016.*** The World Bank's sensitivity analysis suggests that only under low probability scenarios of high cost overruns, very low power demand growth and low fuel prices, with an aggregate probability of about 11%, would NT2 prove to be uneconomic.

2. Demand-side management and renewable energy sources. Khun Witoon also argues that the Bank has failed to consider cleaner and cheaper supply options, such as demand-side management (DSM), energy efficiency (EE), and renewable energy. In fact, the Bank commissioned a study on DSM/EE, and renewable energy options as part of its due diligence on

the economic aspects of NT2. The final report (by Danish Energy Management, Bangkok) is also available at www.worldbank.org/laont2 ('NT2 economic reports').

Based on the assumptions of the August 2002 demand forecast and the 2003 PDP, the analysis in the Bank's documentation includes the 982 MW of DSM contained in those documents. On a yearly basis, this is equivalent to the annual uptake that has actually occurred over the previous seven-year DSM plan. The Danish Energy Management report suggests that even greater uptake is possible and identifies an additional 1,225 MW of possible savings. The study also estimates that programs to achieve these energy savings would be less expensive than additional electricity supply from any source.

There is no disagreement from any quarter that economic DSM/EE savings are desirable. However, there is a real question about whether the additional 1225 MW identified potential can be counted on with reasonable assurance, given the institutional and funding uncertainties, and the fact that DSM/EE uptake depends on the decisions of millions of Thai consumers, not within the normal power of the electrical utilities to control. Still, in the event that all of the prospective DSM/EE savings were to be realized in the planning period, the Bank's consultant concludes that it would delay the optimal NT2 commissioning date by about a year. The Bank-commissioned economic analysis confirms that NT2 would still be economically viable in this scenario, albeit with a reduced economic rate of return (ERR) estimated at 14.6 percent instead of the Base Case ERR of 16.3 percent.

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Competing assessments of the demand for NT2 power should be considered in light of the risk-sharing arrangements for the proposed project. The costs to Thai consumers and producers of under-estimating electricity demand (in the form of increased power shortages), are very high, as are the costs of over-estimating demand (in terms of resulting excess capacity). Therefore power demand projections and supply planning are debated with considerable thoroughness. All project participants (buyers, sellers, financiers) assess their exposure to market risk based on best-practice due diligence regarding the economic aspects of the project. To date, none of these risk-bearing parties has suggested that the demand for NT2 power may be seriously over-estimated. In fact, the Power Purchase Agreement, which allocates risk across these parties, was only signed by all parties in November 2003, at a time when the issues surrounding the supply and demand for power in Thailand had already been aired and considered in great detail.