
[Laos: Did The World Bank Fudge Figures to Justify Nam Theun 2?](#)

When the World Bank approved US\$270 million in grants and guarantees for the controversial one thousand megawatt Nam Theun 2 (NT2) hydroelectric dam in Laos on 31 March of this year, most of its Directors were convinced that the project's economic benefits outweighed its environmental and social downsides.

The reservoir behind the Nam Theun 2 dam would flood an area of 450 square kilometres, home to 5,700 Indigenous People and habitat to endangered species such as the Asian elephant and white-winged duck. Water would be transferred from the Theun River to the Xe Bang Fai, severely changing water flow regimes in the Xe Bang Fai upon which over 120,000 depend for their livelihoods.

But there is evidence that Bank staff fudged its economic appraisal of the dam, and that erroneous assumptions account for more than the alleged net economic benefit of the project. A team comprising Thai university economists and a public interest energy analyst became aware of the Bank's erroneous assumptions and their impact in the course of a lengthy correspondence with the Bank.

The World Bank appraisal concludes that "the decision to purchase NT2 power offers significant savings to the regional power system", and that building NT2 will produce net savings of \$188 million over the lifetime of NT2 compared with using natural gas-fired generation to produce the same amount of electricity. About 95% of NT2's electricity will be sold to Thailand.

The public interest researchers investigated the assumptions upon which the Bank's \$188 million savings claim was calculated, and how these assumptions changed between a widely circulated draft version of the appraisal and a final version released just a week before the Board met. One striking finding was that in the final version of the appraisal, Bank staff had jacked up the "variable operations and maintenance (VOM)" cost estimates for the gas-fired alternative by 1240 per cent compared to draft version assumptions. The change (from \$0.564/MWh to \$7.000/MWh) is only discernable by comparing draft and final versions of two tables, one printed in 6-point font and another in 5.5-point font, in the middle of the study.

The doctored figure is 1310 per cent higher than the Thai electricity authority's estimate of \$0.5358/MWh. It pushes the estimate for operations and maintenance cost of the gas-fired alternative to the dam to more than triple Thai benchmarks, and more than double the highest international benchmarks that the public interest researchers could find.

By making electricity from natural gas appear more expensive, alterations to the natural gas VOM assumptions account for US\$156 million of NT2's claimed \$188 million savings. Revealingly, this amount is more or less what was needed to offset rising costs and declining benefits that the final draft had to accommodate, including a US\$101 million increase in NT2 project development costs and removal of an unwarranted \$20 million NT2 greenhouse gas credit.

The researchers found that the Bank's economic analysis of NT2 was also riddled with many other incorrect assumptions that helped make the dam look good.

First, the analysis covered up the extent to which NT2 would actually reduce the economic benefits from electricity production of another dam, Theun Hinboun, from which it will divert water. The Bank inexplicably valued each unit of electricity produced by Theun Hinboun at only 1/3 that of each unit produced by NT2. That makes NT2 look \$51 to \$63 million more attractive than it would have otherwise.

Second, the Bank's analysis neglected to take into account four power plants totaling 2800 megawatts to be built by Thailand's electricity authority. In the event that future demand for electricity in Thailand is low, constructing NT2 would mean that these power plants lie idle, accruing costs but not providing benefits. The Bank's economic appraisal of NT2 considers a scenario in which electricity demand is low, but it fails to include these power plants. Including just one of these "omitted but committed" power plants would reduce overall NT2 savings by another US\$20 million.

Third, the Bank failed to incorporate the results of a study it itself had commissioned that found that it would be cheaper to invest in 1225 megawatts of energy conservation and 216 megawatts of renewable energy than to build NT2. It is hard to know exactly how much this inflates the "savings" attached to NT2, since the calculation would require re-running the entire economic model, and the Bank has not made the spreadsheets and relevant economic data publicly available.

Adding the impact of the errors discussed above, the total is at least US\$227 million, far exceeding the project's US\$188 million alleged savings.

In addition, the Bank makes repeated false claims that its economic modeling considered "only downside risks" that "could be expected to pose the greatest test to project viability, i.e., conditions of lower than expected demand, lower than expected fuel prices, and higher than anticipated NT2 capital costs." In fact, the Bank based its risk assessment on the assumption that construction costs could be "low", yielding an economic windfall for the with-NT2 scenario. If the Bank's analysis actually employed its purported scenario selection then NT2 would look an additional \$51 million more costly.

An independent investigation must be conducted into the irregularities in the NT2 economic appraisal and the World Bank must reconsider its role in the NT2 project. It is not too late to correct the errors and evaluate the project on its true merits. Canceling the project is still likely to be better than committing Thai ratepayers to an economically inferior choice. Investors are affected as well, as many of the World Bank's bogus figures strongly inflate the commercial appraisal of the project.

The economic appraisal discussed above is Robert Vernstrom, Nam Theun 2 Hydro Power Project Regional Economic Least-Cost Analysis: Final Report March, 2005 at <http://siteresources.worldbank.org/INTLAOPRD/Resources/RELC-2005-final.pdf>.

The draft version of the economic appraisal report is available at:
<http://siteresources.worldbank.org/INTLAOPRD/491761-1094074854903/20251513/Economic.pdf>.
A fully referenced version of this article is available at
www.palangthai.org/docs/NT2EconMalfeasRefs.pdf .

The researcher's calculations of the impact of the Bank's erroneous assumptions are available at
www.palangthai.org/docs/NT2EconMalfeas.xls

An archive of correspondence with the World Bank Country Director for Lao PDR and Thailand (cc'd to Bank Board) concerning these issues is available at www.palangthai.org/docs/RemarkableAssumptions.pdf.

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