

Nam Theun 2, Laos

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The 1,070MW Nam Theun 2 hydro project in the Lao People's Democratic Republic stands out as one of the most innovative pieces of project financing for a number of reasons, not least because it is one of the most complex examples of PPP in Asia

International support for this hydro power plant – the largest private sector hydropower financing, the largest cross-border power project in Asia, and largest internationally financed IPP in Asia since 1997 – marks a major step forward for Laos in attracting foreign direct investment, in spite of troublesome human rights issues and a poor corporate governance history.

However, thanks to efforts by the Asian Development Bank (ADB) and World Bank, it is moving on from its pariah status to investment zone – though it would not do so without a hefty degree of risk guarantee.

For all its lowly position in international markets, its international standing has risen considerably over the past few years. In fact, over the last five years not one project in the country has been classified as 'unsuccessful' – though it pays to bear in mind that there have not been the busiest sector in that time.

The ADB made a US\$20m public sector loan to enable the Lao government to purchase a 25 per cent equity holding in the special purpose vehicle Nam Theun 2 Power Company (NTPC) that was set up to spearhead the project.

This, combined with World Bank's US\$50m partial risk guarantee, bolstered international confidence and helped bring to table companies that would otherwise have given it a wide berth.

Having said that, over the course of the past 10 years, there have been two other major hydro projects in Laos – Theun Himboun which is owned by Nordic Power Company; and Huay Ho, now run by Tractebel.

A source close to the deal, tells Infrastructure Journal: 'Nam Theun 2 is the biggest hydro project that is expected will ever be done or financed in Laos. The project, which is supported by the World Bank and the Asian Development Bank, will be a major boost to the Lao economy with significant poverty alleviation aspects in what is one of the poorest nations.

'Many of the major project banks were also involved in its financing as well as many of the major export credit agencies and other political and commercial risk insurers.

'It has required the negotiation over a period of more than four years of detailed concession and power purchase arrangements to address the complex risk issues inherent in a cross border project where the generation will occur in the Lao PDR for the sale of substantially all of the power produced across the Mekong to Thailand and where the commercial start up of the project will require not only the completion of the hydro and dedicated transmission facilities in a remote part of the Lao PDR but also a significant extension by EGAT of dedicated transmission facilities in Thailand.'

The Project

The hydropower plant is being procured on a BOOT basis with a concession period of 31 years, of which six is for construction. At the end of the concession, the facility will be transferred to the Lao government.

Over the course of the contract the government is expected to earn US\$2 billion in revenue from sales of power to Thailand over the course of the 25-year BOOT project.

The Nam Theun 2 Project is located in Central Laos, Khamouane Province. It is a trans-basin scheme making use of its topography and benefiting from both a large reservoir and a 350m head.

The Nakai dam closes the Nam Theun River and creates a reservoir of 3,500 million cubic metres of live storage capacity. The water is diverted to the power station through an underground waterway of 3.5km.

The water is then discharged in a regulating pond which, in combination with the regulating dam gates, further smoothes the power station flow variations and releases the water into a 27km downstream channel. The downstream channel then releases the water in the Xe Bang Fai River, a tributary of the Mekong River.

The energy generated by the power station is delivered to both the Electricité du Laos (EdL) system at 115kV level, and the EGAT System at 500kV level by means of overhead transmission lines.

Power purchase

The project is capable of producing almost 6,000GW hours per year on average, 95 per cent of which is going to the Electricity Generating Authority of Thailand (EGAT) and 5 per cent to the EdL.

The power supply will also help Laos to develop as currently it supplies power to less than 10 per cent of its population.

Nam Theun Power Company (NTPC) entered into the two separate PPAs with EdL and EGAT, both of which were signed on 8 November 2003.

Financing

NTPC signed the financing documentation for senior term loans of US\$1 billion equivalent – denominated in equal proportions between Thai Baht and US dollars – in addition to US\$130 million of bonding facilities and US\$450 million of equity commitments. These loans were raised on a limited recourse basis.

The US\$ senior debt facilities includes political risk guarantees from the Asian Development Bank (ADB), the World Bank and the Multilateral Investment Guarantee Agency (MIGA); and export credit agency support from COFACE of France, EKN of Sweden and GIEK of Norway.

Direct loans came from a number of multilateral and bilateral development agencies including the ADB, Nordic Investment Bank, Agence Française de Développement (AFD), PROPARCO and Export-Import Bank of Thailand.

Nine international commercial banks – ANZ, BNP Paribas, BOTM, Calyon, Fortis Bank, ING, KBC, SG and Standard Chartered – along with seven Thai commercial banks – Bangkok Bank, Bank of Ayudhya, KASIKORNBANK, Krung Thai Bank, Siam City Bank, Siam Commercial Bank and Thai Military Bank – are providing long term loans to NTPC.

NTPC was established on 28 August 2002 as a limited company incorporated under the laws of the Lao PDR to develop, finance, own and operate the project. Its shareholders are:

35 per cent - EdF International (EdFI), a subsidiary of Electricité de France 25 per cent - Lao Holding State Enterprise (LHSE), a company fully owned by the Government of the Lao PDR 25 per cent - Electricity Generating Public Company (EGCO) of Thailand 15 per cent - Italian-Thai Development Public Company (ITD) of Thailand

In addition to senior loans facilities, shareholders complete the Project financing by contributing equity pro-rata their respective participation in NTPC.

The equity contribution of LHSE is financed by means of loans, grants and other financing from institutions including the AFD, ADB, European Investment Bank and the World Bank.

A total of US\$1,580 million in capital commitments for NTPC has been completed to finance the total base Project cost of US\$1,250 million, plus additional amounts for contingency and ancillary bonding facilities.

From these financing sources, substantial amounts are allocated to fund a robust programme of environmental and social safeguards that NTPC has put in place and budgeted thanks to the support and guidance of the World Bank and the Asian Development Bank.

Conclusion

The financing of this major hydropower plant, completed within just 14 months, is a milestone in the economic history of the Lao PDR. As the project is expected to produce revenues of almost US\$2 billion for Laos over the first 25 years of its commercial operations it also comes as a fillip to the economy.

On a cross-border level, Nam Theun 2 represents a significant move towards improved cooperation between Laos and Thailand; however its greatest impact is going to be felt by Laos on an international level.

While the country is not rated for its developments in the human rights sector and it is known for a lax approach to corporate governance, improvements are being made and this latest power project will help Laos on the way to becoming an accepted international player.

In the meantime, any other similar projects will have to rely on a strong degree of support from the likes of World Bank and the Asian Development Bank. And on a social level, the power plant will transform lives for the population – when it comes on line in late 2009 – for a country where less than 10 per cent of the population has access to a power supply.

The project at a glance

Project name	Nam Theun 2 hydroelectric power plant
Location	Lao People’s Democratic Republic, Khamouane Province
Description	BOOT hydropower project that will supply power to Lao and sell-on to Thailand
Sponsors	35 per cent – EdF International 25 per cent – Lao Holding State Enterprise, owned by the government of Laos25 per cent – Electricity Generating Public Company (EGCO) of Thailand15 per cent – Italian/Thai Development Public Company (ITD) of Thailand
Operator	Nam Theun 2 Power Company (NTPC)
EPC Contractor	EdF International as head contractor
EPC Sub Contract 1	Italian/Thai Development Public Company: Civil Works 1 – design and construction of the dam, head race channel, roads and infrastructure
EPC Sub Contract 2	Nishimatsu Construction Corporation: Civil Works 2 – design and construction of the power tunnels and power stations
EPC Sub Contract 3	Italian/Thai Development Public Company: Civil Works 3 – design and construction of the regulating dam and downstream channel
EPC Sub Contract 4	GE: Electro Mechanical 1 – design, procurement and installation of the generating plant and substations
EPC Sub Contract 5	Mitsubishi: Electro Mechanical 2 – transmission lines
Project duration (including construction)	31 years
Construction stage	54 months
PPA	995MW – Electricity Generating Authority of Thailand (EGAT)75MW – Electricité du Laos (EdL)Both contracts were signed on 8 November 2003
Total project value	US\$1.58 billion
Total equity	US\$450 million
Equity breakdown	US\$350 million Base EquityUS\$100 million Contingent Equity
Total senior debt	US\$1.132 billion
Senior debt breakdown	Asian Development BankWorld BankMultilateral Investment Guarantee Agency
Political risk guarantees	Asian Development BankWorld BankMultilateral Investment Guarantee Agency

Export credit agency support	COFACE of FranceEKN of SwedenGIEK of Norway
Agency loans	ADBNordic Investment BankAgence Française de DéveloppementPROPARCOExport-Import Bank of Thailand
Mandated lead arrangers	US\$ lead arranger ANZ, BNP Paribas, BOTM, Calyon, Fortis Bank, ING, KBC, SG, Standard CharteredTHB lead arrangersBangkok Bank, Bank of Ayudhya, KASIKORNBANK, Krung Thai Bank, Siam City Bank, Siam Commercial Bank, Thai Military Bank
Participant banks	Same as MLAs
Legal advisor to sponsor	Clifford Chance
Financial advisor to sponsor	ANZ (international)KASIKORNBANK (Thai)
Legal advisor to banks	Allen & Overy (international)Chandler & Thong-ek (Thai)Mekong Law Group (Laos)
Legal advisor to government	Malleson Stephen Jacques
Financial advisor to government	Ridgeway Infrastructure Analytics
Technical and commercial adviser to government	Scott Wilson
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