

## POWER TECHNOLOGY

PROJECT > 25 March 2021

# Xe Pian Xe Namnoy Hydroelectric Power Project

The Xe-Pian Xe-Namnoy Power Company’s (PNPC) 410MW Xe Pian Xe Namnoy hydroelectric power project is located in the southern region of Lao People’s Democratic Republic (Lao PDR).

### Project Type

Hydroelectric power project

### Location

Laos

### Installed Capacity

410MW

### Start of Construction

February 2013

### Developer

Xe-Pian Xe-Namnoy Power Company (PNPC)

Collapse ^



The Xe-Pian Xe-Namnoy hydroelectric power project is located in the southern region of Lao People’s Democratic Republic. Credit: wwwohmdotcom / Shutterstock. The project includes the construction of the Xe-Namnoy Dam along the Mekong River.



The Xe-Pian Xe-Namnoy Power Company's (PNPC) 410MW Xe Pian Xe Namnoy hydroelectric power project is located in the southern region of Lao People's Democratic Republic (Lao PDR). On completion, it was estimated that it would have an annual energy generation of approximately 1,860GWh.

However, workers discovered late on 22 July 2018 that one of the three auxiliary dams within the colossal project was damaged and began evacuating people living in the nearby villages. The dam collapsed the following day, sending a wall of water into six surrounding villages.

By 25 July, [20 people had been killed by the water](#), with a further 100 or more missing and nearly 7,000 having lost their homes. An estimated 175 billion cubic feet (BCF) of water was released from a tributary of the Mekong River.

The hydroelectric project, which was estimated to cost \$1.02bn, was the first build-operate-transfer (BOT) ever undertaken by the Korean companies in Laos.

The feasibility study for the hydroelectric project was completed in November 2008. The construction of the project began in February 2013 and the dam was 90% complete at the time of the collapse.

### **Disaster compensation**

In April 2020, authorities of the southern province signed a deal with the project developers for the compensation and rehabilitation of the flood victims. The total costs were estimated to be \$91.7m.

A compensation amount of up to \$52.6m would be paid for the deceased and impacted assets of the affected villagers and businesses while up to \$39.1m would be spent on rehabilitation work, including the restoration of public infrastructure.

The construction of 700 houses for the flood victims also began in July 2020 with compensation money from Xe-Pian Xe-Namnoy Power Company Limited and SK Engineering and Construction. As of January 2021, 496 houses had been completed with another 56 homes expected to be finished within the year.

### **Xe Pian Xe Namnoy hydroelectric power plant details**

The Xe Pian Xe Namnoy [hydroelectric power project](#) is located on the Bolaven plateau, approximately 550km southeast of the capital Vientiane city of Laos. The project was being developed on a 238ha land leased for a period of 32 years.

The project includes the construction of three dams, namely Houay Makchan Dam, Xe Pian Dam and Xe-Namnoy Dam along the Mekong River. In addition, the project entails three auxiliary or saddle dams such as the failed Saddle Dam D. It includes a large storage reservoir on the Xe Namnoy River, underground tunnels, shaft waterways and an open-air powerhouse featuring four generator units (three Francis turbines and one Pelton turbine).

The Xe Namnoy reservoir was designed to be 73m-high and 1,600m-long, with the capacity to store approximately 1,043 million cubic metres (Mm<sup>3</sup>) of water. Approximately 1,000Mm<sup>3</sup> of water will be collected from Houay Makchan and Xe Pian catchments and stored at the Xe Namnoy reservoir.

The powerhouse, which was located at the base of the valley, would generate power using gravitational force of fall and flowing water from a height of 630m. The water would then flow through the tailrace channel to be discharged into the Xe Kong River.

### **Power purchase agreements**

PNPC intended to transit the power generated at the Xe Namnoy powerhouse to the Electricity Generating Authority of Thailand (EGAT) through a 230/500kV transmission line and to Electricité du Laos (EdL) through a 115kV transmission line.

Out of the 410MW produced, 370MW was destined for EGAT under a 27-year power purchase agreement signed in November 2012 and the remaining 40MW for EdL.

### **Xe Pian Xe Namnoy hydroelectric power project financing**

The Xe Pian Xe Namnoy project is the first major power investment in Laos by South Korean sponsors SKE&C and KOWEPO.

The project achieved financial closure in February 2014 and is financed through 70% debt and 30% equity. Debt financing of approximately \$737.5m is provided by a syndicate of Thai financial institutions, including the Bank of Ayudhya (BAY), the Export-Import Bank of Thailand (EXIMBANK), the Krung Thai Bank (KTB) and the Thanachart Bank (TBank).

### **Contractors involved**

The project developer PNPC is a joint venture formed in March 2012 by SK Engineering and Construction (SK E&C), Korea Western Power (KOWEPO), [Ratchaburi Electricity Generating Holding](#) (RATCH) and Lao Holding State Enterprise (LHSE). SK E&C holds a 24% stake in PNPC, LHSE a 26%, and RATCH and KOWEPO equally own the remaining share in the [power plant](#).

PNPC will transfer the operations and management of the project to the Government of Laos upon the completion of the 27-year concession period.

SK E&C was awarded the engineering, procurement and construction contract for the project construction while KOWEPCO was awarded the operations and maintenance contract for 27 years. Ratch is responsible for the supervision of the project construction.

Tractebel Engineering (TE) was engaged in the construction of the hydropower plant. The financial advisors for the project are the KTB Advisory, Australia and New Zealand Banking Group (ANZ) and EXIMBANK.

SK E&C awarded a civil works sub-contract to Right Tunnelling for the construction of high and low-pressure tunnels.

TEAM GROUP prepared the basic design and tender documents, along with the environmental impact assessment for the project. ATT Consultants were engaged in designing the transmission system model, which will enable the transfer of power to Thailand.

AF Consult was contracted to conduct pre-feasibility and feasibility studies, engineering for basic design and tender documents, environmental and social management aspects, and provide support services for finalising the concession and power purchase agreements.

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