



Nam Kong 3, Attapeu Province, 54 MW

Though Laos' economy is mainly based on agriculture and farming its economic growth has been amongst the fastest in Asia recently, averaging more than 7% per year. This growth emerged largely from natural resource exports, tourism and hydropower.



Nam Theun1, Nam Kading River, 670 MW

In particular, electricity exports have benefited from high-profile foreign direct investment in the development of hydropower projects.

Laos has an enormous hydropower potential of more than 18,000 MW, excluding the main stream of the Mekong River and up to 27,000 MW with it. Total installed hydro capacity is about 7,213 MW, which produces some 24,204 GWh per year. The government has ambitions to become the "Battery of Southeast Asia" by exploiting its impressive hydropower potential. By 2020-2021, an extra 50 hydropower plants with a total capacity of 5,606 MW will be

in service. A total output of 27,024 GWh is anticipated and by 2025, Laos expects to export 14,600 MW to neighboring countries.

ANDRITZ HYDRO IN LAOS

In 2016, ANDRITZ emphasized its long-term presence in the country by establishing a representative office in the capital, Vientiane. ANDRITZ achieved a milestone in 2019 by completing the biggest hydropower station in Laos on schedule. Xayaburi features the world's largest and most powerful oil-free Kaplan runners built to date.

ANDRITZ's expertise and experience reaches from research and development to complete engineering, procurement, and construction for electro-mechanical equipment and projects. ANDRITZ is ready to contribute with state-of-the-art equipment to the development of safe and sustainable hydropower in Laos.

Xekaman 1 (290 MW): In 2013, based on the Lao-Vietnam Bilateral Agreement, ANDRITZ won a contract for the delivery of the complete electro-mechanical equipment for this plant. This came right after the successful completion of

Xekaman 3 (250 MW). It was successfully commissioned by end of 2016 with the majority of its output exported to Vietnam.

Xekaman Sanxay (32 MW): Again based on the Lao-Vietnam Bilateral Agreement, in 2015 ANDRITZ secured a contract for electro-mechanical equipment. The main objective was electrical generation and downstream regulation for Xekaman 1. Both units were commissioned in 2018.

Nam Lik 1 (64.5 MW): POSCO Engineering and Construction Company Ltd. awarded ANDRITZ a contract for the supply, installation, and commissioning of electro-mechanical equipment in 2013. The scope comprised two 32.25 MW Bulb turbines, horizontal generators, mechanical auxiliaries, electric power systems, and gates. Operation began in March 2019.

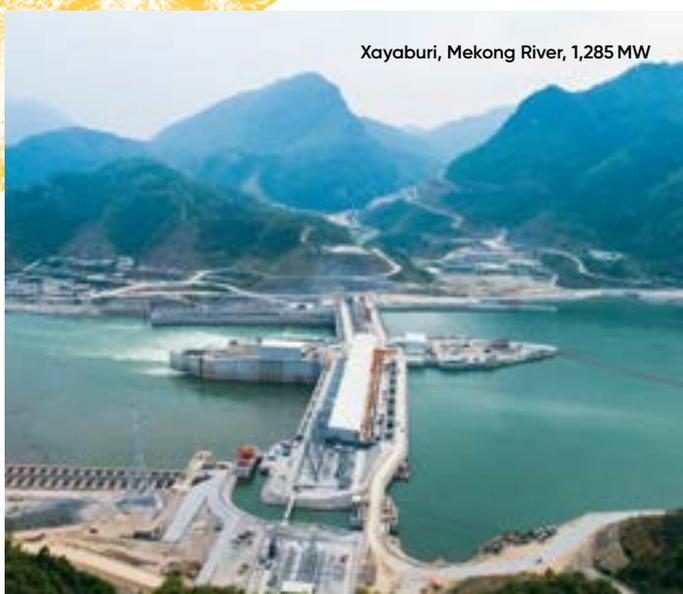
THE BATTERY OF SOUTHEAST ASIA

Xayaburi (1,285 MW): Ch. Karnchang (Laos) Company Ltd. awarded ANDRITZ the 2012 contract to supply the entire electro-mechanical equipment for this giant project. This included delivery of seven 175 MW Kaplan units for export of electricity to EGAT/Thailand and one 60 MW Kaplan unit to EDL for domestic consumption, as well as two 4 MW CAT turbine units to facilitate upstream fish migration. By October 2019, commercial operations had started and about 7,300 GWh is being produced annually.

With 1,285 MW, Xayaburi is the largest hydropower plant in the country and one of the largest on the Mekong River.



Xayaburi, Mekong River, 1,285 MW;
The world's largest and most powerful oil-free Kaplan runners built to date.



Xayaburi, Mekong River, 1,285 MW

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Nam Theun 1 (670 MW): Nam Theun 1 and 2 Power Co., Ltd. (NT1 PC) awarded ANDRITZ the 2016 contract to design, manufacture, supply, and commission the complete electro-mechanical equipment, including turbines, generators, governors, automation system, as well the electrical power systems, 500 kV GIS, and main inlet valves. Commercial operation is scheduled to start at the end of 2021.

Houay Kapheu (5 MW): Vientiane Automation and Solution Engineering (VASE) contracted ANDRITZ for supply, installation and commissioning of electro-mechanical equipment including two Pelton units in 2017. Operation is scheduled to start in 2020.

Nam Kong 3 (54 MW): Chaleun Sekong Energy Co., Ltd. (CSE) rewarded ANDRITZ with the 2018 contract for the supply, installation and commissioning of the electro-mechanical equipment including 3 × 18 MW vertical Francis turbines. Project completion is expected by 2020.

AUTHORS

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GENERAL FACTS

Population: **7.061 million**
 Access to electricity: **93.6%**
 Installed hydro capacity: **7,213 MW**
 Hydropower under construction: **7,598 MW**
 Share of generation from hydropower: **85%**
 Hydro generation per year: **24.204 GWh**
 Technically feasible hydro generation potential per year: **18,000 MW**

ANDRITZ Hydro:

Total installed / rehabilitated units: **50**
 Total installed / rehabilitated capacity: **4,238 MW**
 Location: **Vientiane**
 E-Mail: **contact-hydro.la@andritz.com**