

Country Profile

LAO PDR

GENERAL OVERVIEW

Lao People's Democratic Republic is a land-locked country with population of 6.75 million¹ in 2017 and the GDP value of USD 17.09 billion. Lao PDR is one of the fastest growing economies in the region and globally as the GDP growth averaged at 7.8% over the last decade. Previously, agriculture constituted the main economic sector, accounted for over 50% of Lao PDR GDP. However recent expansion on manufacturing has been shifting GDP share in Lao PDR. Currently, agriculture sector contributes to 23% of Lao PDR GDP while the industry and services sectors contribute to 33% and 37% respectively. The country aims to accelerate its development and to end its status of a least-developed country by 2020. Vientiane (or Viangchan) is the capital city of the country and the official language is Lao.

ENERGY SECTOR

ENERGY POLICIES

The first priority of Lao PDR's energy policy is to provide reliable, affordable, and sustainable electricity to ensure economic growth and to reduce poverty. The main focus areas are to increase the electricity access and hydropower development.

The Renewable Energy Development Strategy in Lao PDR (2011) sets the target for renewable energy share in national energy mix in 2025. The plan consists of three strategies: short-term strategy (2010-2015) aiming at provision of necessary studies and capacity building, mid-term strategy (2016-2020) to establish clear renewable energy framework, and long-term strategy (2021-2025) to develop a fully competitive renewable energy market.

In 2015, the Government has approved the Policy on Sustainable Hydropower Development in Lao PDR. The purpose of the policy is providing guidance and

¹ ASEAN Secretariat. ASEAN Statistical Leaflet 2018

The best efforts have been undertaken to minimize inconsistencies in data presentation or reference to outdated/invalid information in the ASEAN RE and EE Country Profiles. Due to the rapid development in the region and the high number of sources, it cannot be excluded that reference is made to outdated sources or that new developments have occurred in the respective ASEAN Member States. Therefore, the ASEAN Centre for Energy (ACE) cannot be held responsible for any consequences related to the use of information provided in the Country Profiles.

Comments, suggestions, and updates are welcome and will contribute to the quality of the ASEAN RE and EE Country Profiles in the future: agep@giz.de

reference on hydropower sector investment as well as to inform and encourage project developers/investors to be aware of the Government policy on sustainable development in Lao PDR.

Household electrification is also an important aspect of Lao energy policy. The Power Sector Policy and Targets for 2020 outlined the target of 90% electrification rate by 2020. With abundant hydropower resources, the development of hydropower constitutes another key area. The Law on Water and Water Resources (1996) sets the regulation for utilization of hydropower to ensure sustainability of hydropower projects and to prevent any adverse effect on the environment.

ENERGY MIX

The latest available official data for describing the energy situation in Lao PDR comes from 2015. **Figure 1** presents the share of each energy source in the national primary energy supply. The share of RE is relatively high. Biomass and small hydropower are the main renewable resources of Lao PDR. The biomass is generally used for thermal energy generation, whereas hydropower is almost the exclusive source for electricity generation. The first lignite thermal power plant was put into operation in 2015 and in 2017 it has contributed to generate 12,597 GWh of electricity as presented in **Figure 2** below.

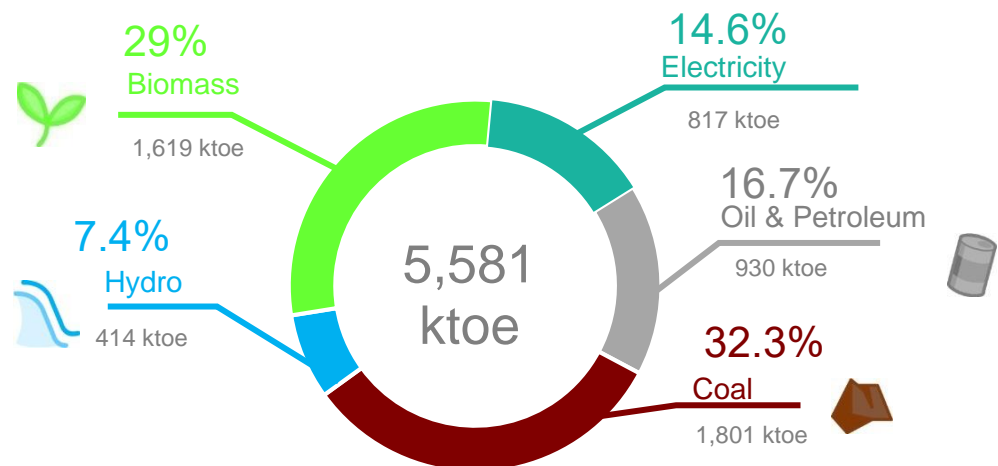


Figure 1: Primary Energy Supply (2015)

Source: Lao PDR Energy Statistics 2018 by Ministry of Energy and Mines, Lao PDR

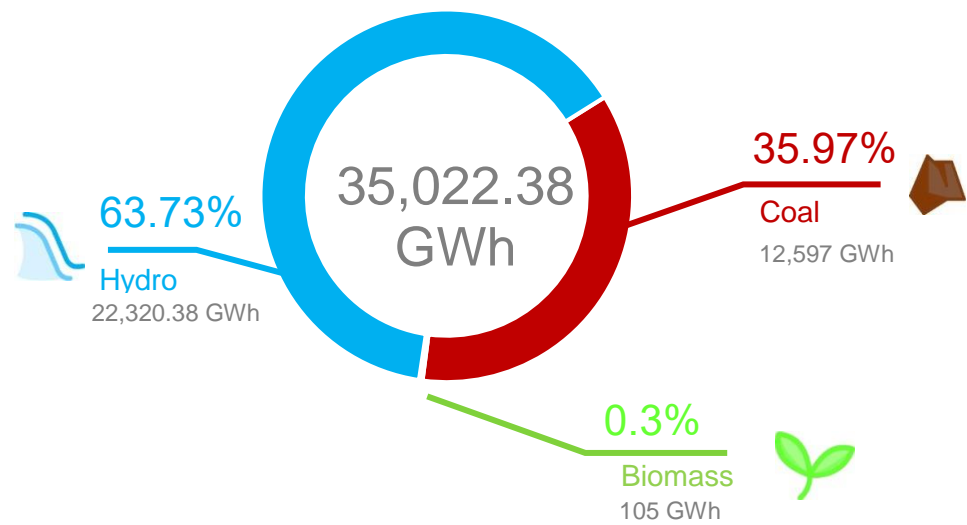


Figure 2: Electricity Generation by Source (2017)

Source: *Electricite du Laos. Lao PDR Energy Statistics 2018*

In 2017, Lao PDR generated around 35,022 GWh of electricity, 5.34% of which (equivalent to 1,873 GWh) was exported to Thailand, Myanmar and Cambodia. Power exports are projected to increase sharply, because the government has reached agreements with its neighbouring countries to export 7,000 MW to Thailand and 5,000 MW to Viet Nam by 2020. However Lao PDR has also imported electricity from Thailand, Vietnam, and China that amounted to 430 GWh in 2017.

ELECTRICITY TARIFF & ELECTRIFICATION RATE

The electricity tariffs in Lao PDR are divided into several sub-groups. The electricity tariffs in three main sectors have not changed since 2017, that are shown in **Figure 3**.

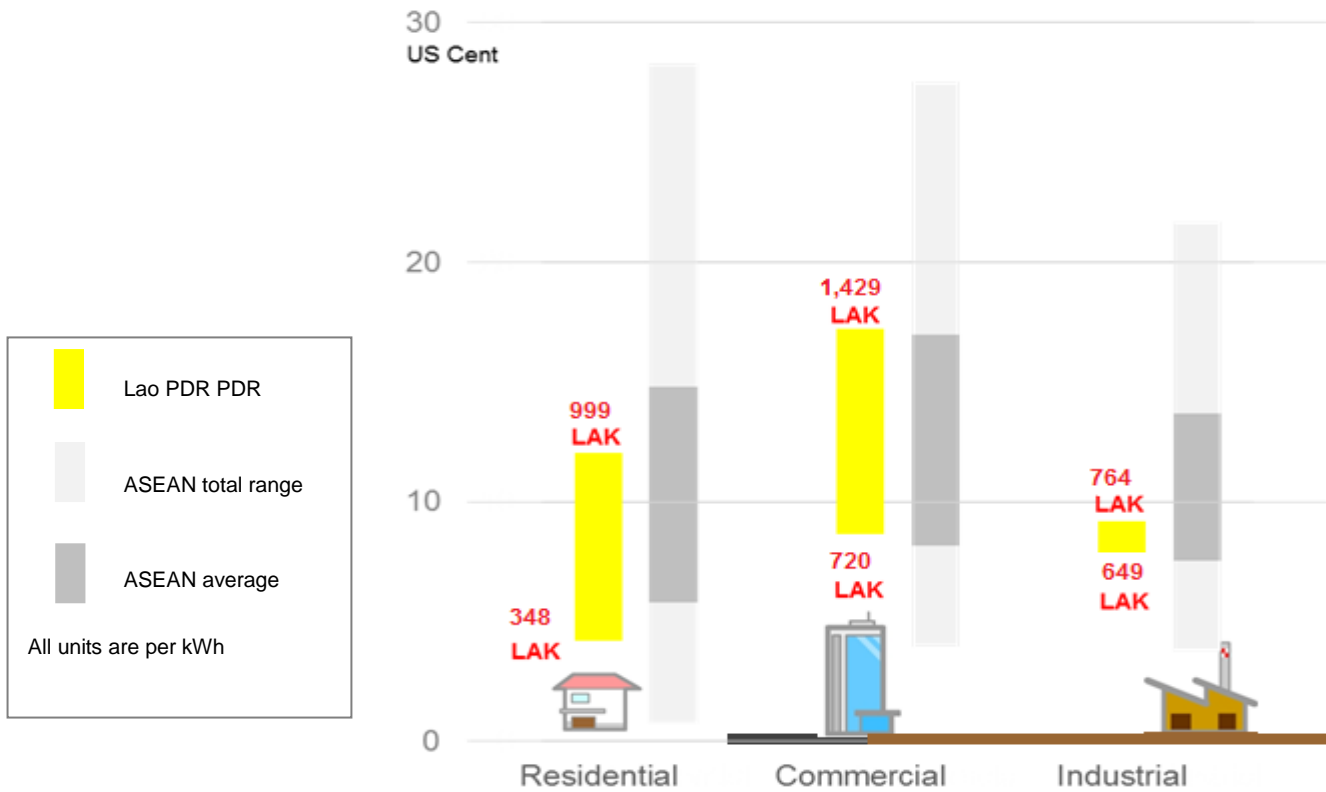


Figure 3: Electricity tariffs in Lao PDR for 2017

Source: Electricite du Lao PDR (2016)

Note: Conversion rate for LAK to USD 0.00012 (as of December 2018)

In the residential sector, the tariffs are classified into three main types based on the consumption level [kWh], while the commercial and industrial tariffs take the voltage level into consideration. The tariffs are set for the period of 2012 – 2017 that are revised for each year. In 2017, the residential and commercial tariffs is 8.2% higher than in 2012, while the industrial tariffs are raised by 24%.

The maximum tariff applies when the customer consumption level is higher than 150 kWh. For the commercial sector, the type of business is decisive in determining the tariff i.e. education and sport businesses connected to medium voltage pay the lowest tariff, while the entertainment businesses connected to the low voltage – the highest. For industrial sector, the lowest tariff is paid if connected to the high voltage, while the highest tariff applies to industries above 5 MW connected to medium voltage.

According to the data obtained from Lao PDR delegation presentation in the annual Renewable Energy Sub-Sector Network (RE-SSN) Meeting of the ASEAN Energy Cooperation in Singapore (2017), Lao PDR’s electricity has reached around 92.05% of total households in 2016. In Vientiane, full electricity access (100%) has been achieved, while Phongsali has the lowest electrification rate of 21.86%. The government plans to increase the overall electrification rate to 98% by 2020.

RENEWABLE ENERGY SECTOR

RENEWABLE ENERGY TARGETS

The Renewable Energy Development Strategy in Lao PDR has defined the required capacity to achieve the 30% of renewable energy share in 2025. This is the most ambitious target in the Mekong region. In addition to that, the large hydro power plants are not included as a part of this target, as only electricity generated from small plants (up to 15 MW) is considered “renewable”. The transportation sector is also in the focus of this plan, with the aim to reach 10% of biofuels from the total consumption in this sector. The Lao PDR renewable energy targets are illustrated in **Figure 4**.

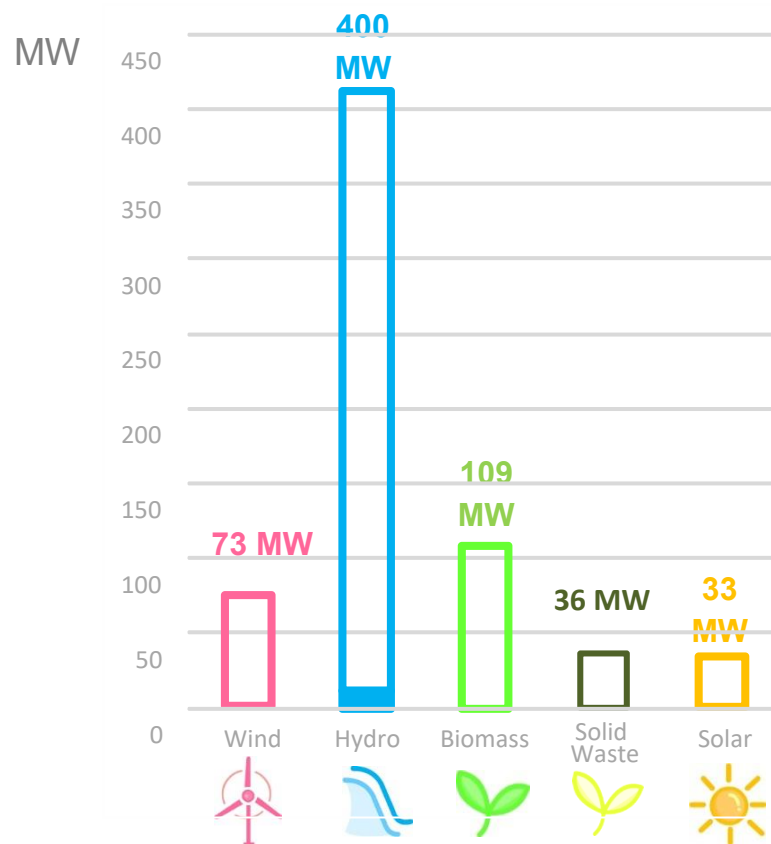


Figure 4: The target for installed capacity from renewable energy source in 2025

Source: *Renewable Energy Development Strategy in Lao PDR (2011)*

Several support mechanisms have been provided by the government in order to achieve the national renewable energy targets as follow:

- Establishing state’s fund for renewable energy development
- Import duty waives for purchasing production machinery, equipment and raw materials
- Divide the profit tax into three different categories: 20%, 10% and 5%. Profit tax exemption is possible for a certain period depending on activities and type of investment.
- Subsidise on unit product price depending on energy type and times period

INSTALLED CAPACITY OF RENEWABLE ENERGY

Due to its geographic position, Lao PDR is richly endowed with hydropower resources, as it is flowed by plenty of rivers. According to the Mekong River Commission Study in 1995, Lao PDR has 26,000 MW of potential hydropower reserve. However, until 2017 only 4,706 MW of installed capacity or 18.1% of total potential has been realised. The other renewable energy share comes from solar (0.48 MW), biogas (0.29 MW) and biomass (39.7 MW). Approximately 64% of power in Lao PDR are generated by Renewable Energy.

RENEWABLE ENERGY GENERATION

Figure 5 shows the latest data on electricity generation from renewable energy sources in 2017. The information is obtained from the Annual Report Statistic 2017 Yearbook by Electrecite Du Lao PDR. Most of electricity generation in Lao PDR comes from hydro power plants.

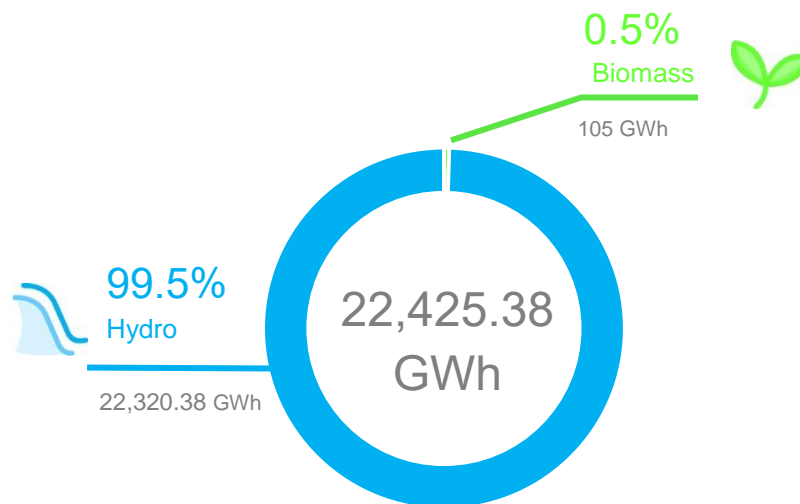


Figure 5: Share of energy generation from renewable energy sources (2017)

Source: *Electricite Du Lao, Electricity Statistics (2017)*

RENEWABLE ENERGY MARKET

Under the Electricity Laws (1997), the investment via public-private partnership model is encouraged. The Investment Laws (last update: 2009) provide several financial incentives to attract investment. These include but are not limited to: import duty free, profit tax exemption, and subsidies. Under the country law on Investment Promotion, domestic and foreign renewable energy project investors can obtain loans from commercial banks and other financial institutions in accordance with relevant laws and regulations.

Lao PDR is a member of Greater Mekong Sub-region (GMS) Economic Cooperation. This led to the cooperation with its neighbour countries in the energy sector development, especially in power trading. The Monsoon Wind Lao Project was established, as Thailand-Lao PDR cross-border cooperation. The instruments for monitoring wind resources have been implemented. Moreover, the solar home

systems are also widely used and encouraged in Lao PDR, especially in remote areas, without access to the national grid.

Until now there is still no feed in tariff for the grid-connected renewable energy system to sell the electricity to the grid. The selling tariff is currently based on negotiations between producers and power utility on the case by case basis. The Department of Energy Policy and Planning (DEPP) is in a process of preparing the policy on electricity selling tariffs for different renewable energy resources.

ENERGY EFFICIENCY AND CONSERVATION (EE&C) SECTOR

EE&C TARGET

The economy of the Lao PDR is growing at more than 7% yearly and is expected to grow more rapidly over the next decade. The final energy consumption is increasing even faster, driven by the pace of industrialization, and urbanization. The country has extensive amount of hydropower and coal resources, however it highly depends on diesel and gasoline imports for the transportations. Therefore, the energy efficiency and conservation in this sector is a significant importance. The National Energy Efficiency Policy 2016 has defined a target to reduce TFEC by 10% in 2030 and the energy consumption level by 1% for each year on average Business as Usual (BAU) scenario. The Ministry of Energy and Mines targets to raise the electrification rate to 95% until 2020 through the strengthening of grid and hydropower.

EE&C POLICY

Lao PDR is at an early stage of development and implementation of an EE&C strategy. So far, the country has managed to issue EE guidelines for the residential, building, and industry sectors. The National Socio-Economic Development Plan (2006-2010) published in October 2006 stated the policy to promote clean and highly energy efficient technologies and industrial development in industry and construction sectors among others. The Demand-Side Management and Energy Efficiency Program (DSM/EE) in Lao PDR was first implemented in 2007. The program focuses on public sector consumption to develop an energy use database, conduct energy audits in selected public buildings, implement energy efficiency measures in pilot sites (but eventually was not continued anymore since there was a reorganization and EE&C review was removed to other department), facilitate appliances energy standards and labelling program, and launch public awareness campaign on energy efficiency by Institute of Renewable Energy Promotion (IREP), (formerly Department of Energy Management. The second phase of the program, conducted in 2015, included the residential and commercial sectors within the activities, in addition to the public sector.

EE&C INVESTMENT AND IMPLEMENTATION

There are no dedicated EE&C financing schemes in Lao PDR as of now. However, the Investment Law (2004) includes some incentives that are applicable for EE&C investments including corporate tax holidays of up to 7 years, exemption from import duties and taxes on raw materials and capital equipment, exemption from export duty, 10% personal income tax for expatriate employees and additional tax holidays and

reduced tax rates for large projects, with special concessions to be negotiated. According to data obtained from Lao PDR delegation presentation in the annual meeting of Renewable Energy Sub-Sector Network (RE-SSN) Meeting of the ASEAN Energy Cooperation (2017), official actions plan for EE&C is as following:

1. Energy Management System which is planned to be implemented from Q3-2017 to Q3-2018
2. Actions plan on Building Code which is planned to be implemented from Q1-2018 to Q2-2019
3. Actions plan on S&L System which is planned to be implemented from Q3-2017 to Q3-2018
4. Actions plan on Energy Efficiency in Industry which is planned to be implemented from Q1-2019 to Q4-2019

REFERENCE SOURCES

- 1 Phongsavath, A. 2012. *Policies and Incentive Mechanisms for Renewable Energy Development in Lao PDR*. In: Institute of Renewable Energy Promotion, Ministry of Energy and Mines.
- 2 Statistics-Planning Office, Electricite Du Lao PDR. 2011. *Electricity Statistics 2011*. Vientiane, Lao PDR.
- 3 Statistics-Planning Office. Electricite Du Lao PDR. 2017. *Electricity Statistics 2017*. Vientiane, Lao PDR.
- 4 Reegle, n.d. *Energy Profile Lao PDR*. [online] Reegle. Available at <<http://www.reegle.info/countries/Lao PDR-energy-profile/LA>> [Accessed September 2016]
- 5 Lao PDR PDR, 2011. *Renewable Energy Development Strategy in Lao PDR*.
- 6 CIA. 2017. *World Fact Book: Lao PDR*. Available at: <<https://www.cia.gov/library/publications/the-world-factbook/geos/la.html>> [Accessed November 2017]
- 7 Lao PDR Delegation. 2016. *Country Report*. In: Institute of Renewable Energy Promotion (IREP), Ministry of Energy and Mines (MEM) Lao PDR, *23rd Annual Meeting of Renewable Energy Sub-Sector Network (RE-SSN) of the ASEAN Energy Cooperation*. Iloilo City, Philippines. 7 April 2016.
- 8 Kouphokham, K. (2016). *Lao PDR Country Report* in Kimura, S. and P. Han (eds.) in *Energy Outlook and Energy Saving Potential in East Asia 2016*. ERIA Research Project Report 2015-5, Jakarta: ERIA, pp. 193-213
- 9 Lao PDR Delegation. 2017. *Country Report*. Ministry of Energy and Mines (MEM) Lao PDR, *21st Annual Meeting of The Energy Efficiency and Conservation Sub-Sector Network (EE-SSN) of the ASEAN Energy Cooperation*. Manila, Philippines. 4-5 May 2017.
- 10 Lao PDR Delegation. 2017. *Country Report*. Ministry of Energy and Mines (MEM) Lao PDR, *24th Annual Meeting of Renewable Energy Sub-Sector Network (RE-SSN) of the ASEAN Energy Cooperation*. Manila, Philippines. 4-5 May 2017
- 11 Lao PDR Delegation, presented by Dr. Seumkham Thoummavongsa 2017. *Renewable Energy Market Development In Lao PDR-Opportunities For Investment*. Deputy Director General Institute of Renewable Energy Promotion (IREP) MEM, *ASEAN Sustainable Energy Week*. Bangkok, Thailand. 09 June 2017.
- 12 Institute of Renewable Energy Promotion. 2016. *Renewable Energy Data in Lao PDR*. Bangkok, Thailand. 12 December 2016
- 13 ERIA. 2018. *Lao PDR Energy Statistics 2018*.
- 14 ASEAN Centre for Energy. 2016. *ASEAN Renewable Energy Policies*. Jakarta
- 15 ASEAN Centre for Energy. 2018. *Financing Energy Efficiency in the ASEAN Region*. Jakarta

- 16 ASEAN Centre for Energy. 2018. *Green Building and Energy Efficiency & Conservation Codes in ASEAN*. Jakarta