



Ministry of Environment



Japan-ASEAN Cooperation



CARBON FOOTPRINT OF RENEWABLE ENERGY FOR ASEAN COUNTRIES

Country Report

Renewable Energy Situation in Cambodia

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1. Overview of Cambodia

- ▶ The Kingdom of Cambodia, as a country vulnerable to the impact of Climate Change, understands the urgency of ambitious climate action. Although Cambodia bears very little responsibility for the historical and current climate crisis, we have consistently responded to international calls for Action on Climate Change and contributed to the efforts, in line with our capacities and responsibilities under the United Nations Framework Convention on Climate Change (UNFCCC).
- ▶ As announced by **Samdech Akka Moha Sena Padei Techo Hun Sen**, Prime Minister of the Kingdom of Cambodia, during 2020 United Nations Climate Ambition Summit, “Long-Term Strategy for Carbon Neutrality (LTS4CN)” is yet another testament to our consistent, strong commitment and political will to address climate change.
- ▶ LTS4CN will help Cambodia to achieve carbon neutrality by 2050 through continued efforts to address the forest sustainability and land use; decarbonize our power sector and pursue higher energy efficiency; as well as promote low-carbon agriculture, industrial processes, and waste management, which will be our major contribution to the sustainable development in Cambodia and the World.



KINGDOM OF CAMBODIA
NATION-RELIGION-KING

Long-Term Strategy for Carbon Neutrality

December
2021



Agriculture

- Less methane-intensive rice cultivars
- Direct seeding practices
- Alternate wetting and drying practices
- Promotion of organic fertilizer and deep fertilizer technology
- Feed additives for cattle
- Improved fodder management
- Introduction of composting technology



Forestry and other land uses

- Reducing the deforestation rate by 50 percent in 2030
- Stopping deforestation by 2045
- Afforestation, improved forest management and forest restoration
- Agroforestry and commercial tree plantation
- Full implementation of the REDD+ Investment Plan by 2050



Energy

- No new coal generation capacity beyond already committed projects
- Use of natural gas as a dispatchable transition fuel
- Investments in liquefied natural gas (LNG) import, storage and infrastructure
- Increase in solar, hydro, biomass and other renewables to 35 percent of the generation mix by 2050, of which 12 percent is from solar
- Investments in grid modernization, flexibility and storage Energy efficiency measures in buildings and industry
- Fuel switching to electricity for cooking
- Substitution of coal in the industrial and power sector



Transportation

- More use of public transportation - 30 percent modal share in urban areas by 2050
- Moderate penetration of electric vehicles - 70 percent for motorcycles and 40 percent for cars and urban buses by 2050
- Increased fuel efficiency for internal combustion engine vehicles
- Rail for freight and passengers
- CNG penetration of 80 percent for interregional buses and 80 percent for trucks until 2050



Industrial processes and product use

- Clinker substitution in cement production
- Carbon capture and storage for cement kilns
- Use of recycled aggregate concrete
- Increasing use of refrigerants with low global warming potential
- Regular inspection of refrigeration and air-conditioning equipment and recovery of spent refrigerants



Waste

- Reducing open burning by expanding waste collection coverage to 85 percent in 2050
- Implementing a reduce, reuse, and recycle strategy
- Landfill gas management
- Organic composting
- Anaerobic digestion and wastewater treatment

Figure 3: Summary of key mitigation actions by sector

- ▶ The government has planned to increase renewable energy to reduce greenhouse gas emissions.
- ▶ Renewable energy in Cambodia is set to be at 25% by 2030 to ensure sufficiency, stability, quality, safety, and reliability in the power supply system. (*Ministry of Mines and Energy*)
- ▶ Cambodia's Power Development Master Plan 2020-2030 predicts that the country will have installed electricity generation capacity of 3,888 MW in 2020 and up to 15,984 MW by 2030.
- ▶ Using more renewable energy can lower the prices and demand for natural gas and coal by increasing competition and diversifying our energy supplies.
- ▶ Cambodia is focusing mainly on reducing greenhouse gas emissions to meet the country's goal of reducing its emissions by 21 million tones per year in order to combat climate change, according to the *Ministry of Environment*.

2. Renewable Energy in Cambodia

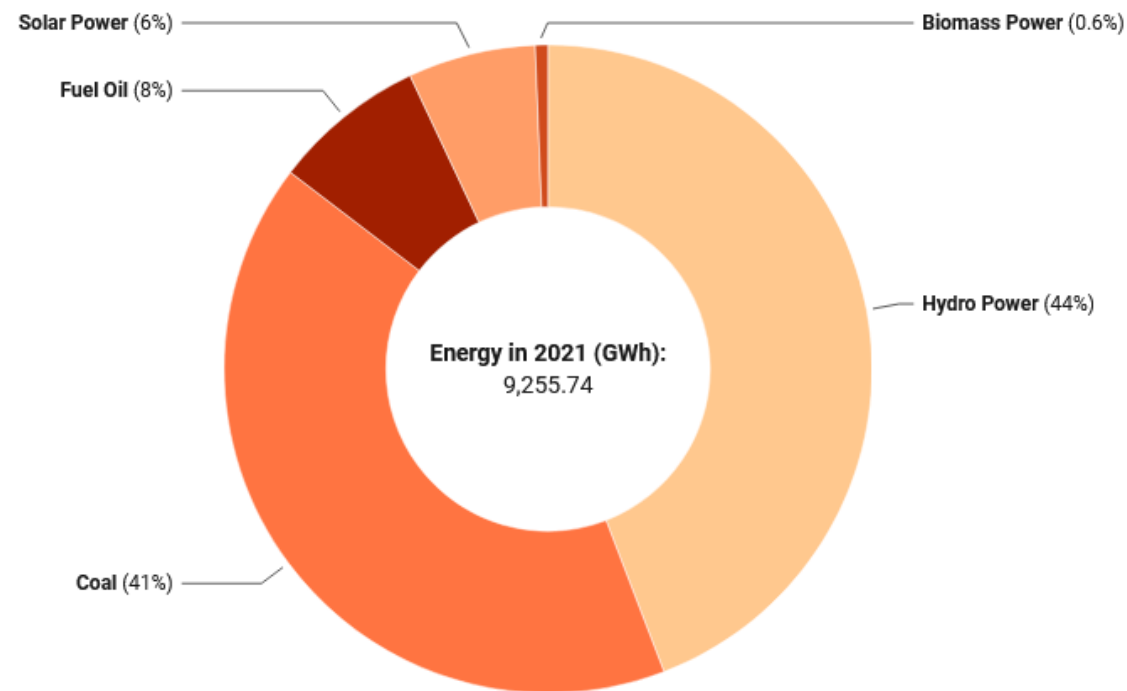
- ❖ **Solar Power**
- ❖ **Hydropower**
- ❖ **Other renewable sources**
 - ▶ **Wind Power**
 - ▶ **Biogas (clean biomass cooking stove)**



- ▶ Solar power boom, Cambodia has set solid fundamentals to meet growing energy demand using clean energy systems. Cambodia will create substantial opportunities for green energy financiers and the clean energy market if it follows through.
- ▶ Solar Farm is located in Bavet, a special economic zone on the border between Cambodia and Vietnam, about 150 kilometers from the capital, Phnom Penh. *(Antaisolar provides racking for 26MW solar plant in Cambodia)*
- ▶ Royal Government of Cambodia is now prioritizing renewable energies, particularly solar energy because it has great potential and could help end the country's energy woes.
- ▶ According to a recent study by the Asian Development Bank, Cambodia has about 10,000 mW of hydropower potential, 8,100 mW for solar and about 6,500 mW for wind.

Current Status of Renewable Energy in Cambodia – Biomass Energy and Solar Power

- ▶ As of 2021, Cambodia saw over 51% of the country's domestic energy production come from renewable sources. The majority was sourced from hydropower (44.17%), while solar and biomass accounted for around 7%.

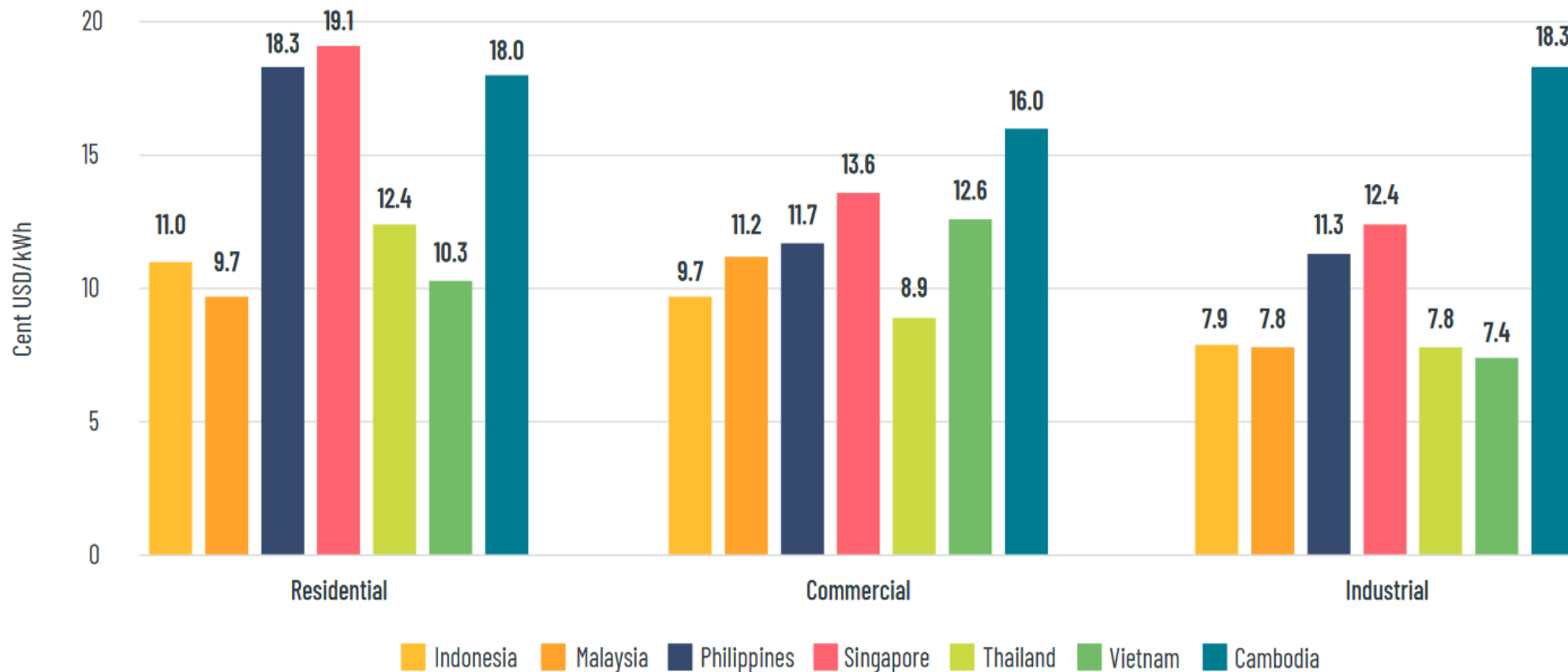


Cambodia's Domestic Energy Supply. Source: [Electricity Authority of Cambodia](#)

3. Challenges

- ▶ Rapid population and economic growth have led to tenfold increase in electricity demand.
- ▶ Electricity Supply and Power System.
- ▶ Electricity network lacks stability and often suffers from power cuts.
- ▶ Hydropower is renewable, it does remain slightly controversial due to its environmental impact, with issues such as the flooding of large areas and the blocking of fish migration, as well as forced evictions.
- ▶ Hydropower is lack of water during the dry season.
- ▶ On a global level, Cambodia's climate pledges remain insufficient and entirely rely on international financial support. In other words, the country cannot accelerate renewable energy adoption on its own. Building on this, clean energy awareness across Cambodia is low, along with a high-risk perception amongst financiers and project developers.

- **Energy Prices:** Cambodia also suffers from high and often very volatile power costs. Electricity prices, in 2020, reached both their lowest and the highest levels in the last 15 years. Meanwhile, gas prices in 2021 were tenfold higher than their 2020 levels making life for everyday Cambodians even harder. Overall, compared to its Southeast Asian neighbors, the county's electricity tariffs are significantly higher.



4. Opportunities

- ▶ **Clean Energy**
- ▶ Regardless of the challenges, Cambodia's opportunities are boundless. Opening new doors for clean energy, in October 2021, (*Suy Sem, Minister of the Mines and Energy*). This is a part of the government's intention to increase the utilization of clean energy to “the maximum extent possible”.
- ▶ **Energy Supply and Energy Storage Systems** are focusing on energy efficiency, authorities aim to target the energy supplies' security, accessibility, affordability, and reliability across Cambodia.
- ▶ **Solar Power in Cambodia** has a vast untapped technical potential at 65 gigawatt-hours (GWh) per year. In other words, with up to eight hours of sunlight per day, Cambodia has some of the richest solar resources in Southeast Asia.
- ▶ Investing in a solar power plant in Cambodia.
- ▶ Create more jobs in Cambodia and Transfer Technology of Renewable Energy.

- ▶ Growing awareness about solar energy in Cambodia, providing an excellent investment opportunity—while also the cheapest way for Cambodia’s EDC to buy electricity.
- ▶ Finally, solar can also change the lives of rural communities by providing a reliable and sorely needed energy solution.



5. Conclusion

- ▶ Due to its abundant hydropower resources, Cambodia champions the clean energy capacity charts across ASEAN. However, going forward, the country would need to substantially diversify its renewable energy mix by capitalizing on its untapped solar power potential. (*Source: Energy Tracker Asia 21 February 2022*)
- ▶ The increased adoption of **renewable energy in Cambodia** is one of Southeast Asia's success stories. And in particular, amongst the countries in the Association of Southeast Asian Nations (ASEAN), the region's collective political and economic group. Thanks to hydropower, Cambodia is in an exclusive club of countries with more renewable energy sources that make up significant shares of their energy mix.
- ▶ We are prioritizing solar power because it is good for the environment. We want to integrate green energies into the country's economic development strategy.

Forward

- ▶ Going forward, Cambodia has potential. However, to capitalize on it, the country needs to diversify its clean energy mix and crucially win support from international financiers. Cambodia is bound to open up abundant opportunities for the investors already on board.
- ▶ Royal Government of Cambodia aim to open up more opportunities for collaboration with private sector to mobilize greater investment and financing.
- ▶ Promoting Renewable Energy to develop the country towards a green technology, low-carbon, climate resilient, sustainable, and knowledge-based society.
- ▶ Renewable Energy to Reduce Greenhouse Gas Emissions.



Thanks For Your Pay Attention