

Energy storage cambodia

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The project is aligned with the following impact: adequate and reliable power supply from environmentally sustainable energy sources ensured. The project will have the following outcome: transmission network capacity and stability improved.

Output 1: 115-kilovolt and 230-kilovolt grid infrastructure expanded and reinforced. The project will support the construction of four 115 kV-230 kV overhead and underground transmission lines and 10 substations in Phnom Penh, Kampong Chhnang, Kampong Cham, and Takeo provinces. It will add 13 circuit-kilometers of 230 kV transmission lines; 36.7 circuit-kilometers of 115 kV transmission lines; 1,475 megavolt-amperes of 230 kV-115 kV-22 kV substation transformer capacity; and 350 megavolt-amperes of 115 kV-22 kV substation transformer capacity.

Energy / Electricity transmission and distribution - Energy efficiency and conservation

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Output 2: First utility-scale energy storage system provided. The project will support EDC in designing, procuring, and operating the first utility-scale BESS in Cambodia, capable of storing 16 megawatt-hours, and in analyzing its performance. This is a desirable size to support multiple applications - a standard feature of BESS installations - such as (i) smoothing output at 80% from the phase 1, 60-megawatt (MW) ADB solar park in Kampong Chhnang Province; (ii) providing 0.5 hours of curtailment reserve to address daily power outages; (iii) providing primary frequency control; and (iv) providing congestion relief, which allows to defer upgrades in transformer capacity at Grid Substation 6 (a substation near the ADB solar park site).

Project implementation consultants will complement EDC staff to ensure a high degree of project management efficiency and provide on-the-job training to strengthen transparency and accountability. In addition, EDC will undertake activities that (i) promote inclusion and gender equality in the workplace, (ii) dismantle gender-based stereotypes related to women's participation in energy sector activities and employment, and (iii) inform communities about the safe use of electricity.

Cambodia has achieved sustained economic progress. Cambodia's per capita gross national income grew on average by 7.1% per annum from \$950 in 2013 to \$1,390 in 2018. Strong economic growth was driven mainly by urban-based industries such as garment exports and tourism, and, more recently, construction and real estate.

However, COVID-19 pandemic threatens to undermine progress. Whereas Cambodia's economy was projected to grow by 6.8% before the coronavirus disease (COVID-19) pandemic, it is now expected to contract by 5.5% in 2020. It risks pushing an additional 1.3 million people into poverty. The government is implementing an assistance program to mitigate the adverse social and economic impacts. Moreover, financing and constructing needed infrastructure, including those that enables the provision of reliable and sustainable electricity supply, is important to create employment and support the country's post COVID-19 economic recovery. Cambodia aspires to attain middle-income status by 2030.

Government prioritizes energy sector development. In its Socio-Economic Policy Agenda, 2018-2023, the government recognizes the importance of developing the energy sector to increase competitiveness, ensure sustained economic growth, and thereby continue to reduce poverty. Its key policy objectives call for (i) extending the coverage of power supply, (ii) stepping up power reliability by expanding and upgrading the transmission network infrastructure, (iii) further lowering systemwide costs to enable a tariff reduction, and (iv) providing access to electricity from 74.8% in 2019 to 95% of all households by 2030.

More robust electricity supply will enhance economic productivity. Electricity supply increased on average 19.1% annually from 2,515 gigawatt-hours (GWh) in 2010 to 12,015 GWh in 2019. Large investments in power generation help address rapidly growing demand for electricity that propels economic growth. Most (86.5%) of electricity is generated domestically from hydro (50.2%), coal (32.3%), renewable energy (0.7%), and diesel fuel (3.3%). In 2019, 98.5% of power generated domestically was provided by independent power producers. Power imports from neighboring countries contributed 13.5% to electricity supply.

Improvements in sector planning and efficiency. Substantial increases in transmission investment can cause small tariff increases, unless they are wholly offset by savings from low-cost generation, fewer transmission and distribution losses, and congestion cost control. EDC and the Ministry of Mines and Energy (MME) are making progress in strengthening sector development planning with direct support from ADB. This includes technical assistance (TA) for project readiness, procurement, and financial management to improve probity, efficiency, and adequate service delivery, and avoid excessive costs. Concessional financing from development partners will also help minimize the impact of the substantial transmission investments on end-user tariffs.

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