

New renewable energy sectors in ASEAN

In ASEAN, the future of renewable energy looks promising as governments seek to implement ambitious targets to increase the contribution of clean energy to the energy mix. By 2060 the contribution of renewables is set to increase to 56% of the energy supply which means that the region's renewables capacity needs to increase more than triple by 2035 to meet demand.

Clear planning and risk management are key for renewables

As investment in clean energy production has soared, the cost of wind and solar production has been falling and is now cheaper than fossil fuels. In ASEAN's warm climate, solar has been the main focus of the region's push towards renewables – with investment in new production facilities increasing more than 10-times between 2015 and 2022. Vietnam has been the major beneficiary of this investment, accounting for 69% of the region's solar and wind generation in 2022. However, this rapid investment in Vietnam's industry has experienced some problems due to a mismatch between supply and demand. Most wind and solar power projects were built in the central and southern regions where electricity demand is low while supply was insufficient in the north where demand is high. New investment in solar power production has been temporarily put on hold as a result.

Although hydro is an important source of renewable energy, contributing 18% to the region's renewable energy, it is susceptible to climate change. In 2023 when a heatwave struck Southeast Asia, reservoirs dried up limiting hydropower production. Windpower too has limitations due to its relatively new technology status, lack of scale and underdeveloped supply chains making battery storage and grid modernization essential to balance the intermittency of both wind and solar supply.

Geothermal energy – a promising future

Geothermal energy is an exciting growth area as it is not weather-dependent, has a long lifespan, low maintenance requirements, and can provide low-carbon energy around the clock. Currently much of its potential remains untapped, particularly in Indonesia and the Philippines, which sit on the "Ring of Fire". In the Philippines geothermal contributes 15% to its energy mix while in Indonesia it is still only 6%. Since Indonesia is estimated to have 40% of the world's geothermal reserves but less than 5% is utilized, this demonstrates the significant opportunity it provides for clean energy development.

Rooftops, cables and nuclear energy

Rooftop solar panels are emerging as a key new energy source across ASEAN as governments in Vietnam, the Philippines and Thailand have initiated policies and regulations to increase the technology's deployment. Vietnam in particular has developed an ambitious plan to put solar panels on 50% of home and office buildings by 2030.

Another emerging opportunity is the export from one part of the region to another. In June Singapore and Indonesia signed an MOU for the export of renewable energy from Indonesia to Singapore combining solar, geothermal, and other renewable options. Australian companies are also supporting the transmission of solar energy to Singapore. SunCable, a subsea power cable

from the Northern Territory of Australia will export solar energy to Singapore via Indonesia and is expected to start operating in the early 2030s.

Nuclear power is also being explored as a potential part of the ASEAN clean energy mix. Vietnam plans to build two nuclear power plants in its southeast province of Ninh Thuan province to meet its net zero goals, and two small modular reactors are included in Thailand's new Power Development Plan, scheduled for implementation from 2024 to 2037.

Given ASEAN's rise as a global economic powerhouse, the future looks bright for the role of new renewable sectors. However, to truly seize this opportunity, more work needs to be done on developing the national and regional grids, establishing resilient supply chains for renewables and strengthening regional cooperation on policy and interoperability.