



INDONESIA



COUNTRY OVERVIEW

The Republic of Indonesia is the largest and most populous among the ASEAN countries, with over 270 million people spread out over more than 17,000 islands. In the last decade, Indonesia has had formidable economic growth, though like most nations, was shaken badly by the COVID-19 pandemic. Economic success, however, has come at a high environmental cost, with rapid changes in land-use, urbanisation and continued dependence on fossil energy contributing to Indonesia being one of the world's largest greenhouse gas emitters. Further issues such as deforestation and pollution have long term effects on the country's biodiversity and ecosystems. Cleantech is therefore a vital investment area if Indonesia is to advance to a more green and sustainable economy.



SECTOR OVERVIEW

Indonesia has the ambition to present itself as a nation ready for growth in cleantech innovation and embracing green ideas as Asia's next technology hub. Beyond doubt, Indonesia has the potential to harness renewable energy and environmental technologies into a vehicle for prosperity. The Indonesian government is just beginning to make changes to focus on resource efficiency and management, with both established companies and startups working together with Indonesia's utilities to provide innovative solutions to this problem (source: <https://hackernoon.com/the-potential-of-cleantech-in-indonesia-609435e3fd07>).

Renewable energy

Indonesia is among the world's fastest growing countries in terms of energy consumption, fuelled by a combination of economic development, increasing urbanisation and continued population growth. According to figures from the International Renewable Energy Agency, Indonesia is the largest energy user in ASEAN, using nearly 40% of total energy use among member states. Indonesia has abundant and diverse natural resources and has attracted record amounts of renewable energy investments over the decade. Energy consumption is estimated to grow 80% by 2030 and investing and developing renewable energy is therefore a priority.

The Indonesian government strategy is clear and deregulation schemes and incentives should help encourage foreign direct investment (FDI) into the country, accompanied by technology imports from other ASEAN member states and other countries in the world. Government and IRENA figures confirm that in 2020, renewables in Indonesia contributed 11.2% to the national energy mix, with hydro and geothermal power plants making up the largest share. The government has plans through a national energy policy to increase this to 23% by 2025, and 31% by 2050. IRENA has been critical of the 2050 target and its ambition levels, pointing out that it should be achievable by 2030.

Geothermal

Indonesia suffers the most frequent volcanic eruptions in the world – in 2020 for example, four of the world's ten largest eruptions were in Indonesia. On the positive side this means that the country has enormous potential for sustainable energy, and the country is widely considered to have the world's largest potential geothermal resources. The industry needs infrastructure development and technical assistance. The biggest milestone for Indonesian geothermal energy was the financial closing for a large geothermal plant by Engie, one of the world's largest energy utility companies, in the Solok Selatan region in West Sumatra. Geothermal energy, while providing cheap energy supplies, is extremely expensive to locate and to set up, making it relevant mostly for larger businesses.

Solar

Solar photovoltaic energy production could be the backbone of the Indonesian energy sector, with large amounts of solar radiation over most of the country. Not only that, but solar energy is ideal for the dispersed nature of the country, where a single power backbone is not an option. IRENA has estimated that 47 GW capacity could be installed by 2030, though only around 9 GW is expected by this date. While the solar industry faces certain framework and developmental challenges, the government is involved in promoting FDI in the sector, which is well on its way to industrial maturity. Nearly 500 large and small projects have been financed by the government and private investors so far and there are concrete plans to expand solar electric coverage to nearly 1.1 million households, in remote areas that currently lack adequate access to electricity. With its flexible usage, solar energy could take the leading role in rural development, providing for example, not only power itself, but also cooling appliances to enhance the capacity of the health-care system, and container-based water-treatment solutions for clean drinking water.

There are several local companies dealing with solar panels and its installation, but the broader industry still needs technology providers, experts in project management and solar solutions consultants, mainly from China and other ASEAN countries.

Hydropower

Indonesia is among the top ten countries with the biggest hydropower potential in the world. As Indonesia's dependency on fossil fuels rises, clean technology is becoming increasingly focused on by consumers, the government, and private sector alike. Micro-hydro power, producing about 5KW to 100KW of electricity, has seen a growth rate of over 700% since 2000 according to IRENA. At present over 450 MW comes from micro-hydro plants and the government has the intention of increasing this by a factor of five by 2025. This requires foreign investors and the activity of the domestic private sector as well, feed-in tariff system might be the catch for new players. Hydro sites under 10 MW will likely receive significant private interest following the change in the law prioritising the purchase of power from plants up to 10 MW.

Wind

Wind power in Indonesia is another form of renewable energy that Indonesians must capitalise on. The largest wind farm currently operating produces 70 MW in South Sulawesi and was installed by the Indonesian UPC Sidrap Bayu Energi in cooperation with US-based Overseas Private Investment Corporation. This joint venture is targeting over 1,000 MW of wind energy in Indonesia in the next 5 years. As an island nation with a lot of coastal wind and marine areas, wind energy should be a major priority area if the country is to achieve its renewable energy production targets, not least as a means to provide power to smaller islands.

Biomass

Indonesia has abundant resources of biomass which can be used to generate bioenergy, such as food crops, forest residues, urban waste or even algae that are present in the country in considerable quantities. As a result of this, Indonesia is currently the world's third-biggest biofuel producer, creating 77 Terawatt-hours (2019) per year, behind the US and Brazil. However, it is still very reliant on first-generation feedstocks – including a large proportion from palm oil, and needs to expand utilisation of second-generation feedstocks such as urban or food waste etc. Only about 5% of the total biomass capacity is utilised, leaving many opportunities for SMEs.

The government launched the Biodiesel 30 (B30) programme in January 2020, to reduce greenhouse gas emissions and cut fuel imports, and technologies related to the collection, treatment and downstream distribution of alternative fuels may be of interest in the market. At present, there is a relatively effective system in place for collection of used cooking oil and in 2019 nearly a third of total consumption was converted to biodiesel.

Waste Management

This segment consists of all municipal solid waste, including non-hazardous waste generated by households, commercial establishments and institutions, and non-hazardous industrial process waste, agricultural waste and sewage sludge. The country has low regulation in the area, and few modern landfill facilities, which are needed to cope with urban populations, and the government is committed to investing in this area in the coming years.

Recycling and Circular Economy

Indonesia is currently dealing with a waste crisis both on land and in the oceans surrounding the country's islands. Indonesia is the second-largest contributor to the abundance of plastic waste in the ocean, which has harmful economic consequences for the country and its people. By now, only 10% of Indonesia's yearly 6.8 million tons of plastic waste is recycled and nearly half is simply dumped or burned, according to figures from the National Plastic Action Partnership. Indonesia committed to reducing marine plastic debris up to 70% by 2025 in a national action plan. The government issued new legislation on waste management in 2018 and two years later, banned single-use plastic in mini-markets.

Business opportunities for ASEAN companies include a range of technologies to reduce, recycle and reuse waste. This can include combined heat and power (CHP) systems, recycling systems and remediation and reprocessing technologies and services

Water treatment and supply

Water supply and sanitation in Indonesia is characterised by poor levels of access and service quality. According to an Asian Development Bank assessment, almost 30 million people lack access to an improved water source and more than 70 million people have no access to improved sanitation. The sector needs fresh investment, as well as new technologies within distribution of drinking water, water distribution or remedy, on-site water monitoring, reverse osmosis, cooling solutions, recycling of microbial water treatment, rainwater harvesting, stormwater, and flood control.



REGULATION

Since 2016, Indonesia has made progress towards a well-regulated cleantech sector, and each segment is well defined by law, while law-enforcement is also improving.

Renewable energy

There are many policy tools governments can use to encourage the adoption of renewable energies, including taxation, emissions caps, green bonds, and other financial instruments. In Indonesia, where regulatory oversight is relatively weak, private companies may be reluctant to invest in renewable projects, as their investment might not be considered safe.

Indonesia's slow roll out of feed-in-tariffs attracted much criticism, but the drop in price in solar production costs means that this might be a blessing in disguise. Reform in the sector, as well as consistent policy is needed, especially as the country emerges from the pandemic. In the case of geothermal energy, the government has already announced new feed-in-tariffs.

Indonesia requires an electricity supply business license - Usaha Pembangkitan Tenaga Listrik (IUPTL), which covers the generation, transmission, distribution, sales and integrated activities from electricity generation. Other licences may also be required depending on the project. An application for an IUPTL is processed through Electronic Integrated Business Licensing or the Online Single Submission (OSS) System, which is essentially an online platform which integrates all business-licensing activities and allows the simultaneous issuance of permits from both central and regional government levels. It is regulated in Government Regulation No. 24 of 2018 on Online Single Submission Services. In addition, a concession or Wilayah Usaha (WU) is also required to carry out distribution business activities. This is because the state power company PLN is effectively in a monopoly in the country and permission must be sought for a concession.

Waste management

Both local and national government organisations have taken steps to end the crisis of plastic waste in Indonesia. Bali, with its dependence on tourism acted first, banning all single-use plastics from the island in 2018. The capital, Jakarta also imposed a ban on plastic bags in 2020. The national government rolled out a very ambitious plan to solve the problem, aiming to minimise marine plastic by 70% by 2025 and to entirely get rid of plastic pollution by 2040. The plan contains five action points:

- Reduce or replace plastic use by avoiding single-use plastic packaging.
- Rethink the designs of plastic products and packaging to allow for multiple-use and recycling
- Double the current plastic waste collection of 39% to 80% by 2025.
- Double current recycling capacity by investing in infrastructure capable of processing an additional 975,000 tons of plastic annually.
- Develop or expand on proper waste disposal infrastructure that can process an additional 3.3 million tons of plastic waste annually.



MARKET ENTRY

Setting up a legal entity in Indonesia to start doing business is not necessary, but certain type of cleantech-related activities such as public procurement may require registering a company.

Under the terms of Indonesia's Law No. 25/2007 on investment, a foreign investment in the country is defined as an activity conducted by a foreign investor for the purpose of running a business within the territory of Indonesia. The legal entity through which a foreign person, foreign company, or foreign government body can conduct a business and generate revenue is called PT PMA. The establishment of a PT PMA is regulated by Law No. 40/2007 on Limited Liability Companies (Company Law). Such a company can either be partially or 100% foreign owned.

In terms of investing in renewable energy, a foreign legal entity seeking to invest in the power market in Indonesia must establish a limited liability company/Perseroan Terbatas (PT). If comprised of capital from foreign investors, it will be considered a foreign investment company (PMA company), which is has to comply with the so-called "negative list" - businesses closed to investment from foreigners or with limited conditions.

Public procurement

Procurement takes up more than 45% of the national budget, primarily in the sectors of infrastructure, health and education. Indonesia has the largest national budget in Southeast Asia, spanning over 632 procurement units and 700,000 registered suppliers. The pandemic has contributed to a significant projected increase in the Indonesian state budget, as well as to a rise in procurement expenditure over the same period. Simultaneously, the government is reforming public procurement including digitalising the process, which will simplify the application process, particularly for foreign companies.

Business networking

Indonesia is huge, very diverse and foreign companies entering the market without previous experience in doing business in the country, may find it difficult. To avoid wasting time and money, it is often advisable to enter the market with a local partner. The general rules of establishing a business network are the same as in elsewhere in South-East Asia, focusing on personal contacts and taking turns and time to get to know each other.

Business networking institutions

The Indonesian Chamber of Commerce and Industry - Kamar Dagang dan Industri Indonesia (KADIN is an association of business organisations in Indonesia, headquartered in Jakarta, which functions in coordinating, consulting and cooperating with other of chambers of commerce throughout Indonesia.

Many business networking clubs and associations are available online and useful contacts can be found on Jakarta Business Opportunity Network or the Wanita Melek Teknologi for women entrepreneurs

Trade fairs and business events

Before the pandemic, Jakarta hosted many cleantech related trade fairs and tech-shows many of which are now held online as well.



RECOMMENDATIONS AND TRENDS

Indonesia is likely to be the 4th largest economy in the world by 2050, if recent trends will continue. Challenges to be faced are directly proportional with the size of the population. The most important trends that create constant challenges for the Indonesian government and players of the economy:

- Growing population, especially in previously remote areas, like Irian Jaya. Infrastructural development cannot always keep pace with rapid urbanisation, and the growing middle-class demands better housing, transportation, and environmental conditions. Therefore, water supply, waste and wastewater management are crucial political and economic topics now and will be in the next decade.
- As Indonesia is an archipelago with over 17,000 islands, water and waste treatment, as well as electricity provision are more expensive due to the relatively limited scalability. Conversely, this provides opportunities for SMEs with smaller, more appropriate technologies and min-grid solutions.
- Climate change will have an effect on Indonesia. Rising sea level is threatening smaller islands and coastal areas, and even lowland Jakarta is expected to suffer from intense flooding, while other areas like Sumba or Komodo are expected to experience more drought. Heavy and unexpected rainfall may cause problems for larger cities.
- As industry and agriculture develops, energy needs will rise, and only renewable sources will be able to fulfil this demand, if Indonesia is to reduce its dependence on fossil fuels.

Altogether, while Indonesia has a number of major challenges, it is clear that the cleantech sector has a vital role to play in the national economy, and the country is actively seeking technologies and investment from ASEAN-based companies.



CLEANTECH SECTOR BRIEF