

ISEP COUNTRY BRIEF



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The geographic and strategic position of Myanmar increases its need for rapid renewable infrastructure development. The country urgently needs a holistic renewable energy policy and support institutions for implementation. They should also tap into the available international renewable finance.



Global Giving supported solar system in Kaylin State (Myanmar)

RENEWABLE ENERGY IN MYANMAR

BACKGROUND

Myanmar (formerly Burma) is a fast-growing emerging economy with a nominal GDP of \$66.324 billion dollars in 2016 and an estimated purchasing power adjusted GDP of \$334.85 billion dollars in 2016. During the past ten years as its **GDP per capita in USD increased more than 300%** but more than **50% of its population still does not having access to electricity (nationwide rural electrification is at a dismal 33.4%)**. Since the political transformation in 2010, the Myanmar government has been striving for inclusive economic growth and prioritizing access to sustainable and reliable energy supply in its development agenda, supported substantially by the Asian Development Bank.

ENERGY MIX AND RENEWABLE POTENTIAL

Myanmar has significant oil, gas and some coal reserves, however currently it heavily relies on traditional forms of energy resources primarily in the form of biofuels and waste that account for as much as 71% of its primary energy resources. The country's current energy mix is composed of biomass (55% of total primary energy supply), oil (22%), gas (16%), hydro (5%), and coal (2%). There is almost no utility scale renewable energy other than hydroelectricity and the government is still in the process of finalizing the national renewable energy policy. However, Myanmar enjoys abundant solar and wind resources due to its geographical conditions and a number of grant driven projects (primarily from the Asian Development Bank) are now promoting decentralized solar home systems and water pumps.

Myanmar has the privilege of entering the renewable sector at a time when the technologies are mature, demand less investment and are proven to operate reliably (late mover advantage).

According to the Myanmar Energy Master Plan by 2020, **the government plans to achieve 15% - 20% share of renewable energy in the total installed capacity**. Most of renewable energy sources, other than large hydro, will be used for rural electrification purposes. The overall responsibility to promote the rural electrification has been recently transferred from the Ministry of Industry (MOI) to the Ministry of Livestock, Fisheries and Rural Development (MOLFRD).

The Ministry of Science and Technology (MOST) is currently pursuing implementation of various rural electrification schemes focusing on the complete range of renewable energy option, including solar energy, wind

farms biomass bio energy, biomass thermo-chemical energy, and mini-hydro. MOST, in coordination with the Mandalay Technological University, has successfully tested 3 kW solar PV installations at six sites (i.e., 18 kW) but there has been no large-scale deployment of solar PV in the country. Similarly, MOST has installed wind turbines over 2008 - 2010 of 1.2-3.0 kW totalling 37.2 kW. MOEP's long term electricity plan included 50 MW of solar to be developed by FY 2015 and 1,209 MW of wind by FY 2020.

ASIAN DEVELOPMENT BANK AND MYANMAR

Asian Development Bank (ADB) serves as an important stakeholder in Myanmar's renewable energy sector. The Energy Master Plan 2015 and Renewable Energy Policy draft received financial and technical support from ADB. In 2016, with ADB's support and assistance, Myanmar launched an off-grid renewable energy system and several demonstration projects within the framework. A [data visualization tool](http://adb-myanmar.integration.org) (<http://adb-myanmar.integration.org>) describing the electrification status and renewable energy potential in selected Myanmar states and regions is available online.

BARRIERS AND POLICY RECOMMENDATION

Myanmar's renewable energy policy has not been turned into concrete actions because Myanmar still needs a mature technology (and grid) ecosystem, competitive investment, and project developers. Additionally, to achieve its ambitious goals, certain policy barriers should be removed. Presently, Myanmar has a complex energy policy environment. The Ministry of Industries, Science and Technology, and Agriculture are jointly entrusted with promoting renewable energy, and the Ministry of Environment Conservation and Forestry, and the Ministry of Agriculture and Irrigation deals with all biomass-related energy needs. This complicated structure of responsibilities causes slow decision-making and approval processes, and it creates challenges for the coordination of joint efforts by these authorities. **Myanmar also lacks a specific renewable energy policy (a draft prepared by the Asian Development Bank is under review)**, and the corresponding responsible institutions to support it (the National Renewable Energy Institution was established in 2014, but still lacks substantial authority and its working and processes are not clearly defined). The current legal and regulatory framework of energy sector also does not address renewable energy services, energy efficiency, climate change or any subsector issue at all and it is not clear how the country plans to move ahead except from the Myanmar Energy Master Plan (2015). Also, there is no body that supports the research, planning, operation, and monitoring of the energy sources or for training of human resource required for this domain.

One clear opportunity (in the short term) for energy access would be to focus strongly on the development of off-grid decentralized systems. As Myanmar's national grid system is not very strong and accessible to most villages, renewable mini-grid can serve as an ideal alternative and affordable option to rural people. **A more favorable market environment needs to be created to attract foreign and private investors**, and local banks and financial institutions also need to be sensitized **and government policy drafted to support this industry**.

KEY SOLUTIONS

1. *Improve energy sector policy, regulatory, and planning environment by empowering the national nodal agency for renewable energy and building technical and financial expertise in-house.*



Initiative for Sustainable Energy Policy

Energy, Resources and Environment
Rome Building, 4th Floor

1619 Massachusetts Ave, NW

sais-isep@jhu.edu

[@sais_isep](https://twitter.com/sais_isep)

www.sais-isep.org

2. *Confirm and publish the reviewed Renewable Energy Policy, allowing international and subject matter experts to comment and recommend additions/modifications.*

3. *Create banking products and processes (as well as investment funds if required) for allowing more funding into the renewable energy sector.*

4. *Strengthen grid infrastructure and analyze the cost of grid expansion versus decentralized generation of energy.*

5. *Provide competitive financing, tariff, subsidy and taxation policies to attract investors and consumers.*

6. *Create stronger government to government linkages with China and India for deeper financial and technical support in the renewable sector. If required, allow companies from these countries to invest and build plants and manufacturing capabilities directly in Myanmar.*

7. *Allow investors and project developers to build and operate decentralized renewable energy generation plants in rural areas (in a Build-Operate-Own-Transfer Model).*

8. *Formulate grid connected regulations, tariffs and standards and invite developers to share business plans and roadmap for growth.*

ABOUT ISEP

Hosted at the Johns Hopkins School of Advanced International Studies (SAIS), the Initiative for Sustainable Energy Policy (ISEP) uses social and behavioral science to design, test, and implement sustainable energy policies in emerging economies. ISEP identifies opportunities for policy reforms that allow emerging economies to achieve human development at minimal economic and environmental costs. The initiative pursues such opportunities both pro-actively, with continuous policy innovation and bold ideas, and by responding to policymakers' demands and needs in sustained engagement and dialogue.