

ISEP COUNTRY BRIEF



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Guyana's 700M barrel oil discovery is equivalent to seven times their annual GDP. Given the magnitude of this potential reversal, Guyana's path ahead may be an ascent to prosperity and greater clout in the South America, Or, Guyana could go down the well-trodden path to developmental lethargy known as the resource curse. Effective energy policy is crucial for navigating the pitfalls and opportunities.



Kaitour Falls is the largest single drop waterfall by volume in the world.

RENEWABLE ENERGY IN GUYANA

BACKGROUND

Guyana is located on South America's Caribbean coast, between Amazon rainforest and the Atlantic Ocean, with an 80% rural population of 775,000 mostly ranged along its coastal plain and an annual GDP of USD 3.44 Billion. Human capital in Guyana is dire, with the lowest life-expectancy on the continent, the highest net emigration rate in the hemisphere, and the highest suicide rate in the world.

As of May 2017 - when ExxonMobil announced that it had found sandstone reservoirs off the Guyanese coast containing an estimated 700 million barrels of sweet oil, Guyana stands on the precipice of becoming a major player in the global energy system.

ENERGY MIX AND RENEWABLE POTENTIAL

Guyana's enormous potential for clean and renewable energy generation is absent from its energy matrix. Despite being home to vast Amazon tributaries (including the world's largest single-drop waterfall by volume), Guyana's current installed capacity (c. 200 MW) is generated from only oil (85%) and one biomass cogeneration plant (15%) fuelled by Guyana Sugar Corporation's bagasse. Furthermore, Guyana has high coastal irradiation and wind potential which have gradually been taken advantage of to supply distributive grid connections to over 40,000 rural households.

The Guyana Power and Light Corporation (GPL) is Guyana's state-owned, vertically-integrated electrical utility, which suffers from high theft rates, high prices, an 82% national electrification rate and non-

diversification. Energy generation in Guyana is a monopsony, whereby GPL is the sole purchaser of power from both state-owned and independent power producers. Energy distribution is a monopoly, with GPL the only supplier of electricity to households.

GUYANA'S LOW CARBON DEVELOPMENT STRATEGY (LCDS) AND AMALIA FALLS

In 2009, the then-incumbent People's Progressive Party launched the Low Carbon Development Strategy, setting Guyana on a decarbonized and sustainable path. This initiative included a proposal to develop a 165 MW hydropower plant along Amalia Falls, an ambitious first step towards harnessing Guyana's 7000 MWs of hydropower potential. Encouragingly, in 2016, the new alliance government, A Partnership for National Unity, ratified its commitment to the Paris Agreement and a carbon-free energy matrix by [2025](#). However, because

Guyana's foremost hydropower project was also the opposition government's flagship initiative, in Guyana's tense and ethnically-divisive political climate, the Amalia Falls Hydropower Plant fell victim to apparent political obstructionism.

Despite an [encouraging technical analysis](#) of the Amalia Falls Project in June 2016 by Norconsult, and an \$80 million loan from the Norwegian government for the plant through the Inter-American Development Bank, the APNU government has suspended the project, citing the high costs of extending the electric grid and the environmental impacts of large hydro. Instead, the government will pursue small and medium scale wind and solar projects, taking advantage of its sunny Caribbean coast.

FOREST PRESERVATION AND HINTERLAND ELECTRIFICATION

Guyana boasts the second highest forest coverage in the world (85%), which it has maintained through a strong commitment to conservation and through its partnership with the Norwegian government and the UN-backed Guyana REDD+ Investment Fund. These forests serve as a net global carbon sink and their maintenance is crucial to combating climate change. A significant trade-off to maintaining pristine forests, however, is an absence of grid infrastructure connecting to the country's hinterlands, where an estimated [100,000 Guyanese](#) have limited access to reliable energy.

Since its creation in 1994, the Guyana Energy Agency (GEA) has been pursuing various initiatives to increase rates of rural electrification. From 2004 to 2010, the Unserved Areas Electrification Program provided 40,000 new grid connections and distributed 1750 solar PV system through a \$34 million IDB. Between 2011 and 2014, the agency installed 11,000 65-Watt home solar systems under its Hinterland Electrification Program. In 2016, the Ministry of Public Infrastructure's Hinterland Electrification Unit announced the installation of an additional 6,000 such systems.

BARRIERS AND POLICY RECOMMENDATION

Without major hydroelectric projects, it is unlikely that Guyana will achieve its target of 100% carbon-free emissions by 2025. Government-promoted intermittent sources such as solar and wind projects along the coast are important for diversifying Guyana's energy matrix, but lack clear procedures for public tender, and have failed to be developed at utility-scale.

Guyana's monopolized electricity distribution market translates into some of the highest electricity rates on the continent. Moreover, as a state-held electrical utility, GPL is beholden to political motives, adding dysfunction to the market, e.g. permissiveness to theft and industrial patronage. By privatizing distribution, new market players would emerge and energy access would increase as prices decline.

Guyana's sparsely populated inland communities are particularly conducive to decentralized energy solutions, creating a clear opportunity for the development off-grid systems. Decentralized renewable electrification would elicit productivity gains through lower dependence on diesel fuel and through nighttime illumination. The government has lead a dedicated effort to bring electrification to its hinterlands. However, it lacks a free market environment that would attract foreign investment and requires a more harmonized PPA structure between governmental, private and financial stakeholders.

KEY SOLUTIONS



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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.

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

3. Plowback oil royalties, through a sovereign wealth fund, into the development, retention and return of human capital resources.

4. Strengthen grid infrastructure. Analyze the costs of major hydropower projects and 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 the United States and Canada, 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 Guyana.

7. Incentivize 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.

