

Update on Nationally Determined
Contributions
(Paris Agreement on Climate Change)
Energy Sector
7-26-2018

Conditional Contributions

- Completed
 - ✓ Independent review of the Amaila Falls Project with the assistance of the Kingdom of Norway
- Ongoing
 - ✓ Assessment of the potential of the renewable power sources (solar, wind and hydropower) to determine the most cost effective and efficient means of developing this potential
 - ✓ Eliminating dependence on fossil fuels
 - RE Target: Develop a 100% renewable power supply by 2025
 - Target needs to be reviewed to take into account recently discovered domestic natural gas resources

Informative Studies for Diversification of the Energy Sector

- Guyana Power Generation Expansion Study (June 2016)
- Introduction of Renewable Energy and Distributed Generation in Guyana (December 2016)
- Update of the Study on System Expansion of the Generation System (May 2018)
- Feasibility Study for Guyana's Offshore Natural Gas Pipeline, LPG Separation Plant, and Related Electricity Infrastructure (currently being conducted, 2018)

Recent Policies and Strategies for Diversification of the Energy Sector

- Draft National Energy Policy (December 2016)
- Energy Transition Roadmap (March 2017)
- Framework of the Guyana Green State Development Strategy and Financing Mechanisms (March 2017)
- Green State Development Strategy and Financing Mechanisms (currently being developed, 2018)

Greening the Public Sector

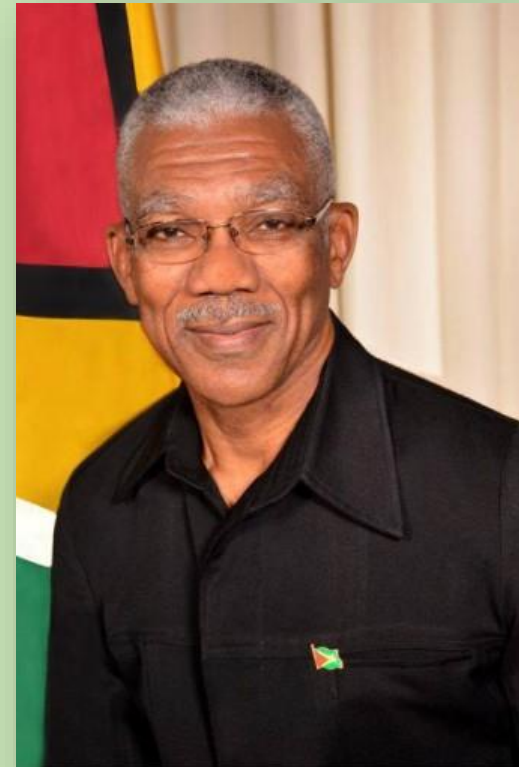
“The Government of Guyana must lead the way in transitioning towards greater **renewable energy** use.

Every **government building**, every **exhibition centre**, every **hospital**, every **school** must over the **next five years**, convert to utilising alternative sources of energy.”

Consequently, Government has instituted a Renewable Energy Programme to install roof mounted solar PV systems in public buildings (both on and off grid applications).

In 2017, rooftop solar PV systems were installed at 70 buildings totalling 0.96 MW

An additional 1.94 MW rooftop Solar PV panels will be installed at 90 government buildings by the end of 2018.



**Brigadier David Arthur Granger, MSM, MSS
President of the Cooperative Republic of
Guyana**

Unconditional Contributions

- Construct and/or promote the construction of small hydro systems at suitable locations
 - ✓ Rehabilitation of the 0.7 MW Moco-Moco Hydropower Station
 - Project is at financing stage and was selected for funding from United Arab Emirates-Caribbean Renewable Energy Fund (UAE-CREF).
 - Geo-technical study is being funded by IDB under Sustainable Energy Programme
 - Next Step - Site visit from MASDAR/UAE-CREF set for August 2018
 - ✓ Construction of 0.15 MW Kato Hydropower Station
 - Feasibility study completed and project is being funded by IDB
 - Commenced process for environmental authorization (EMP required)
 - Invitation for Bids advertised as at July 25, 2018

Unconditional Contributions

- Construct and/or promote the construction of small hydro systems at suitable locations
 - ✓ Construction of 2.2 MW Tumatumari Hydropower Station
 - Private developer (Tumatumari Hydropower Inc. - THI) pursuing an Independent Power Producer arrangement.
 - THI recently signalled they have reached agreement with a Chinese group for debt financing of the Project. GoG is awaiting an update on THI's progress with Equity financing.
 - ✓ Construction of 20 kW Hosororo Hydropower Station
 - Turbine and generator acquired
 - Financing from GIZ received
 - Construction will commence in September 2018.

Unconditional Contributions

- Construct and/or promote the construction of small hydro systems at suitable locations
 - ✓ Planned Projects (Financing to be determined)
 - 1 MW Ikuribisi Hydropower Station, Region 7 (Load centre: Bartica)
 - 1.5 MW Kumu Hydropower Station, Region 9 (Load centre: Lethem and environs)
 - ✓ Planned Feasibility Studies
 - Eclipse Falls, Region 1 (Load centres: Mabaruma, Port Kaituma and Matthew's Ridge)
 - Paruima, Region 7 (Load centre: Paruima)
 - Chenapau, Region 8 (Load centre: Chenapau)

Unconditional Contributions

- Legislative changes to promote renewable energy
 - Legislation was amended to remove import duty and value-added tax (VAT) on compact fluorescent lamps and LED lamps
 - In 2017, Government amended legislation to allow for:
 - ✓ Exemptions on the importation of items for wind and solar energy investment
 - ✓ One-off tax holiday of 2 years for companies involved exclusively in such importation;
 - ✓ Exemptions of customs duties and taxes on machinery and equipment to setup charging stations for electric vehicles; lower excise tax on hybrid and electric vehicles

Unconditional Contributions

- Encourage the use of bio-digesters
 - ✓ 4 bio-digesters in operation in 2017
 - ✓ Sustainability challenges due to labour intensive nature of operation
 - ✓ 1 bio-digester planned in 2018 for President's College
- Energy efficient wood stoves are also being installed in Hinterland communities
 - ✓ About 130 institutional and residential wood stoves installed as at 2017
 - ✓ 40 residential wood stoves planned for 2018

Unconditional Contributions

- **Energy audits**

- ✓ Energy audits/assessments continues to be an annual activity for GEA
- ✓ 101 energy assessments completed from 2012 to 2017
- ✓ 20 energy assessments planned for 2018

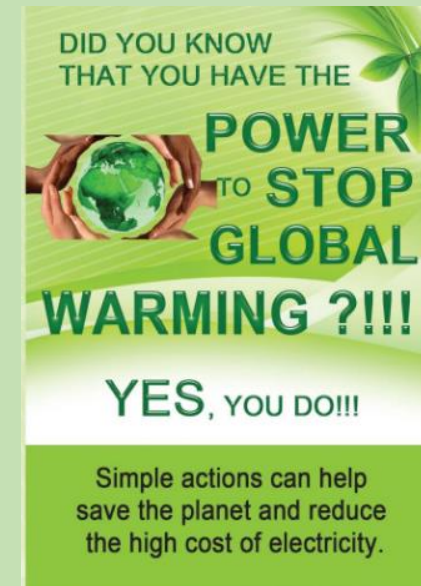
- **Replace inefficient lighting**

- ✓ Under the Energy Efficiency Component of the Green Public Sector initiative, 10,427 LED lights and 3,766 occupancy sensors were installed in 2017.
- ✓ Under the same initiative, 11,273 LED lights and 1,027 occupancy sensors will be installed in 2018
- ✓ 10,930 Energy Efficient Street Lights to be installed in 2018/2019 (based on Grant support from Japan: JICA, JCCCP)
- ✓ 65 Solar Powered LED Street Lights installed with support from GEA (Agatash, Bartica and National Park)
- ✓ GEA is preparing a proposal for a Residential and Commercial Light Replacement Programme

Unconditional Contributions

- **Public Awareness and Education: Booklets and Brochures Distributed**

- ✓ Guidelines for an Energy Efficient Home
- ✓ “What is Energy?” Children Activity Booklet



- ✓ Planned Renewable Energy Booklet in 2019
- ✓ Renewable Energy Technologies Public Awareness Campaign Strategy (2018-2019)

Unconditional Contributions

- **Public Awareness and Education**

- ✓ Energy Month

- An annual feature in fulfilling part of the mandate of the GEA by disseminating information essential to improving public awareness on sustainable energy, conservation and overall efficiency.
 - Activities conducted during the month included school competitions, school presentations, media placements with energy saving tips, “Express Your Energy” activity, seminars, etc.

Unconditional Contributions

- **Public Awareness and Education: The following are conducted annually:**
 - 45 Sustainable Energy presentations to schools reaching about 3,800 students.
 - 10 Presentations to Ministries, Agencies, Private Sector and NGOs on Sustainable Energy
 - 4 Seminars and 2 Workshops on Sustainable Energy
 - Broadcast of 700 Radio Advertisements
 - Broadcast of 100 Television adverts, 300 infomercials and 100 documentaries
 - Publication of 100 Energy Awareness Tips in the Local Newspapers
 - Distribution of 6,000 brochures, 1,200 booklets, and 250 posters.

Standards

There has been the adoption of energy efficiency standards relating to compact florescent lamps (CFLs), Light Emitting Diode lamps (LEDs) and household refrigerating appliances:

IEC 60969: 2016	Self-ballasted compact florescent lamps for general lighting services – Performance performances
IEC 62552-1: 2015	Household refrigerating appliances – Characteristics and test methods – Part 1: General requirements.
IEC 62552-2: 2015	Household refrigerating appliances – Characteristics and test methods – Part 2: Performance requirements.
IEC62552-3: 2015	Household refrigerating appliances – Characteristics and test methods – Part 3: Energy consumption and volume.
IEC62612: 2013	Self-ballasted LED lamps for general lighting services with supply voltages > 50 V - Performance requirements.

- ✓ Regional Energy Efficiency Building Code is currently being reviewed and will soon commence the process of adoption as a National Standard

Unconditional Contributions

- Develop a mix of wind, solar, biomass and hydropower to supply the demand of:
 - ✓ the national grid (DBIS and Island Systems)
 - ✓ the energy requirements for towns and villages in Guyana's hinterland

Renewable Energy Plans for the National Grid

- To facilitate grid interconnection and the uptake of renewable energy for electricity generation, the main utility, Guyana Power and Light Inc. has drafted a National Grid Code for the Integration of Distributed Generation.
- Government of Guyana is expected to receive grant support from Government of China for the installation of a 4MW Solar PV Farm at Onverwagt
- JICA funded Grid connected PV and Smart Control system at the CARICOM Secretariat (500kWp PV system with a 500kWh storage system) presents a learning opportunity for Guyana
- GPL Is preparing plans for utility scale solar PV Farms
- Global Green Growth Institute (GGGI) to advance solar PV initiatives for private sector
- Hope Beach Wind Farm is being pursued
- Wind Measurement Programme will commence in 2019.

Renewable Energy for the National Grid

- A diversified energy supply matrix for the local power sector to ensure a low carbon power sector is being reviewed
- Development of a modern Smart Local Grid inclusive of automatic generation control, network automation, protection coordination, redundant feeders and circuits is also being pursued.

Renewable Energy Development and Plans for Hinterland Towns and Villages

- Guyana will commission its first Solar PV Farm in Mabaruma, Region 1 with an installed capacity of 400kW by the end of 2018
- OLADE/CIDA Rural Energy Project - solar powered freezers, solar PV Panels, solar fruit dryers and energy efficient cook stoves were installed in the villages of Powaikoru (Region 1), Moraikobai (Region 5) and Shulinab (Region 9).
- Japan Caribbean Climate Change Partnership (JCCCP) Project in Bartica – 20 kWp grid connected solar PV system at 3-Miles Secondary School Dormitory
- Guyana submitted a proposal under the IRENA/ADFD Project Facility for the development of Solar PV Farms at the following 6 locations above, totalling 5.2 MW. Guyana has also identified co-financing for this Project Facility through a soon-to-be-finalized loan with the Inter-American Development Bank
 - **Bartica, Lethem, Mahdia, Port Kaituma, Kwakwani and Matthew's Ridge.**

Renewable Energy Development for Hinterland Towns and Villages

- Guyana, now a member of the International Solar Alliance, is preparing a submission for support under India's Line of Credit, for the implementation of a solar PV programme targeting off-grid Solar PV with storage for hinterland communities and rural electrification.

Transport Sector

- Tax exemption and tax reductions of newer vehicles with smaller engines have been established
- Proposals are being reviewed for the development of Sustainable Transport Policy that is aligned with a broader land use policy
- Initiatives such as the procurement of vehicles using alternative transport fuels such as compressed natural gas and electric vehicles with solar-powered charging stations for Ministries and Government Agencies are being reviewed.

Needs

- Quantitative Analysis for Grid Integration of Distributed Renewable Energy Resources
- Update of Electricity Sector Reform Act (ESRA) and Public Utilities Commission Act (PUCA)
- Establish regulatory framework for feed-in mechanism
- Capacity building of PUC
- Update, re-inventorising and prioritization of Guyana's hydropower potential
- Support for the preparation and review of EOIs and RFPs in 2020 for Wind Farms.
- Feasibility Studies for generation of power from Rice Husk and Wood waste
- Support to improve operations at Skeldon Cogeneration Plant
- Development of cogeneration facilities at other sugar estates (Albion and Uitvlugt)

Needs

- Harmonisation and revision of the incentive framework for renewable energy technology and energy efficiency technology
- Grid Modernisation (replacement of inefficient generation stations, grid reconfiguration, upgrade of transmission and distribution networks)
- New Maintenance Plan and monitoring for aging energy infrastructure (transmission lines and generation stations)
- ICT infrastructure to accommodate a modern Smart Local Grid
- Capacity building of MPI, GPL, GEA, HECI (hybrid energy systems, distributed generation, energy planning and scenario building, grid reconfiguration, renewable energy assessments, incentives, etc.)
- Assessment of the broader power system needs in terms of grid development, flexibility mechanisms and storage needs for different renewable energy technologies

Needs

- Build local expertise in wind, hydropower, project development, preparation of feasibility studies, Project Management, M&E, contract negotiation, and review of contracts, proposal and studies
- Support to develop and implement an improved funding mechanism to ensure sustainability of off-grid projects for hinterland communities
- Capacity building for EE initiatives at Government institutions and Technical/vocational education institutes (EE Building Code, MEPs, EE labelling, ISO 50001)
- Study on storage and disposal of inefficient lighting and appliances, old batteries and panels
- Revised agro-energy policy in support of the production of bio-fuels
- Transportation policy that prioritises the use of cleaner and efficient fuels
- Assessment on areas of support for development of local ESCOs
- Mechanism to access climate finance/carbon credits

Thank you for listening



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