**Climate change and human rights**

**Qu 1.**

Mauritius receives an annual rainfall of about 3,700 million metre cube (Mm3), out of which 2200 Mm3 flows as surface run-off into rivers, about 1110 Mm3 is lost through evapotranspiration and 370 Mm3 for groundwater recharge. Despite the fact that Mauritius is blessed with plentiful water resources, seasonal water scarcity and shortage of water do occur due to the effects of climate change which has led to longer spell of dry periods and higher intensity of rainfall over short duration of time.

**Qu 2.**

Mauritius is very committed to taking necessary actions to reduce its greenhouse gas (GHG) emissions and mobilise substantial funds for implementing the necessary mitigation measures.

In its Nationally Determined Contributions (NDCs) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in the context of the 2015 Paris Agreement on Climate Change, Mauritius has pledged to reduce its GHG emissions by 30% by 2030.

The key mitigation actions in the energy sector of Mauritius NDCs are:

* expansion in solar, wind and biomass energy production and other renewable energy sources;
* gradual shift towards the use of cleaner energy technologies, such as Liquefied Natural Gas (LNG), amongst others;
* modernisation of the national electricity grid through the use of smart technologies, which is a prerequisite to accelerate the uptake of renewable energy; and
* efficient use of energy through the deployment of appropriate technologies in all sectors of the economy and awareness raising on energy conservation.

**Qu 3.**

Currently, Mauritius generates about 20.7 % of its electricity requirements from renewable sources, comprising mainly of bagasse, hydro, wind, solar and landfill gas. It has a well-established renewable energy development programme to reach the target of 35% by 2025 and in the long term, it intends to gradually shift to LNG, which is a cleaner fuel.

**I. Solar PV**

8 solar PV projects have been commissioned from 2015 to date and these are:

* Mont Choisy PV Farm – 2 MW (Dec 2016)
* L’Esperance PV Farm – 2 MW (Jan 2017)
* Petite Retraite PV Farm – 2 MW (Jan 2017)
* Queen Victoria PV Farm – 16.3 MW (Dec 2018)
* Solitude PV Farm – 15.1 MW (Dec 2018)
* Anahita PV Farm – 10.3 MWac (Dec 2018)
* Akuo Henrietta PV Farm – 15 MWac (April 2019)
* CEB Green Henrietta PV Farm – 12 MW (May 2019)

2 more solar projects will be commissioned as follows:

* Petite Riviere PV Farm – 4.88 MWac (Nov 2019)
* Petite Retraite Expansion PV Farm – 11.5 MW (2020)

 **II. Wind farm**

One wind farm of a total capacity of 9.35 MW is operational since March 2016.

Another wind farm of capacity 29.4 MW will be implemented at Plaine Sophie.

**III. Solar PV schemes**

Several PV schemes at a lower scale targeting household, commercial customers, SMEs, Cooperatives and Government buildings.

From 2015 to April 2019, about 7 MWac have already been installed under the different schemes.

|  |  |  |  |
| --- | --- | --- | --- |
| S/N | List of Solar PV Schemes | No. of systems commissioned | Equivalent capacity commissioned (kW) |
| 1. | Total SSDG (FIT, NM, PECR) | 1,269 | 4,816 |
| 2. | Cooperative scheme | 6 | 23 |
| 3. | Home Solar Project – Phase 1 | 752 | 752 |
| 4. | SME Phase 1 | 150 | 300 |
| 5. | MSDG Net-Metering 1 | 14 | 1,667 |
| 6. | MSDG (MCB + Super U) | 1 | 1,140 |

**IV. Landfill gas and Waste-to-Energy Project**

The wastes are disposed in the sole landfill of the island at Mare Chicose. As from 2011, landfill gas is used to generate electricity. The effective capacity is 3 MW and in 2018, an amount of 22.6 GWh of electricity was generated.

Mauritius produces about 500,000 tons of solid waste per year and its only landfill site is close to saturation. A new project of waste-to-energy will be operational in 2022. This project will not only produce electricity, but will at the same time alleviate the problem associated with the disposal of waste in the country.

**Qu 5.**

In 2016, the Mauritius Renewable Energy Agency (MARENA) was created to oversee the development of renewable energy in Mauritius.

With a view to implementing the energy strategy, a Renewable Energy Roadmap 2030 for the electricity sector is being developed, whereby projects are planned to allow the achievement of 35% renewable sources in the electricity mix by 2025, and maintained at this level by 2030.

**Exemption from undertaker licence**

The Finance (Miscellaneous Provisions) Act 2016 brought amendments to the CEB Act to simplify licensing processes for installations of less than 2 MW.

**Reinforcement of CEB’s infrastructure**

A high penetration of intermittent renewable such as solar or wind power, make the power system more exposed to frequency instability due to the intermittency of the power output. CEB appointed Consultants Mercados of Spain to examine technical solutions for minimizing the impact of highly intermittent RE on the stability of the grid frequency. On the basis of the recommendations of the Consultant, CEB has started the implementation of a number of technology-oriented grid absorption capacity solutions to maintain grid stability, which allow for more injection of renewable electricity into the grid.

These solutions include the Battery Energy Storage System (BESS), Automatic Generation Control (AGC), the Advanced Distribution Management System (ADMS) and Advanced Metering Infrastructure (AMI), for operating medium speed engines in droop mode rather than in load control. In addition, a new CCGT plant, planned for 2023-2024, will allow fast response to stabilise frequency created by highly intermittent RE.

**Investments**

With a view to achieving the target of 35% of RE in the energy mix of Mauritius by 2030, it is estimated that an additional investment of US$ 290 million in renewable technologies would be required. It may be noted that a further amount of about US$ 900 million would be required for the shift to cleaner technologies such as LNG, away from oil and coal, for further decarbonisation of the energy sector in Mauritius, as per our NDC pledges.

Since 2015, we have made significant efforts to mobilize both public and private investment to be able to progressively work towards achieving our pledges and meeting our RE targets in our energy mix.

With the support of the IRENA and Abu Dhabi Fund for an amount of USD 10 Million, Mauritius is currently implementing an innovative solar PV programme for the poor and vulnerable families of our society through the CEB Green Co Ltd. Over the next 4-5 years some 10,000 poor households will be provided each with a free 1 kW PV kit. 50 kWh of electricity is provided free to the household, and the excess injected into the grid for sale to consumers, with the revenue therefrom used to amortize the investment of the kit. This project does not only empower the poor to become energy producers, but also allows to foster greater social inclusion with attendant benefits to society at large.

**Qu. 6**

It is important to emphasize that the implementation of NDC measures to accelerate the decarbonisation of our energy sector would pose significant challenges in terms of both the need for technology transfer and financial support from richer nations. In our case, by 2030, we would require a total investment of US$ 1.5 billion for mitigation to allow us to reduce our CO2 emissions.

With respect to mitigation measures, we have already benefitted from some financial assistance to the tune of US$ 28 million from the Green Climate Fund. However, we would need more assistance to achieve the required level of funding of US$ 1.5 billion by 2030.

In that regard for the period 2016-2020, an amount about US$ 288 million is expected to be mobilized for investment in solar, wind and biomass, particularly bagasse, to increase the share of renewables from about 20% in 2015 to 27% in 2020. It may be noted that solar energy is the main contributor in this improvement in the share of RE in our energy mix.

It has been estimated that the 10% Energy Efficiency and 35% RE targets will allow for a total reduction of 1.44 million tonnes of CO2 emissions by the year 2030.