Transition to Clean Energy in Bangladesh

SIDDIQUE ZOBAIR
Expert on Energy, Environment and Climate Change
And
Ex- Additional Secretary and Member
Sustainable and Renewable Energy Development Authority (SREDA)
Ministry of Power, Energy and Mineral Resources
Government of the People’s Republic of Bangladesh
Clean Energy transition
Government’s Vision

- Make Electricity available for all by 2021
- Transform Bangladesh into a ‘Middle Income Country’ by 2021
- Emergence of Bangladesh as ‘Developed Country’ by 2041
Bangladesh’s NDC – a summary

Key points

• Bangladesh is a highly climate vulnerable country with less than 0.35% of global GHG emissions.

• The main focus of Bangladesh’s activities is on adaptation – increasing resilience to the impacts of climate change.

• Bangladesh committed to reduce GHG emissions in the power, industry and transport sectors by 5% (12 MtCO₂e) ‘unconditionally’ below “business-as-usual” GHG emissions by 2030, or by a “conditional” 15% (36 MtCO₂e) below “business-as-usual” GHG emissions within 2030 if sufficient and appropriate support is received from developed countries.

• Bangladesh therefore wants to play its part in global collective action to reduce GHG emissions.

• Set out proposals for governance and coordination of NDC implementation and key next steps.

• Described Bangladesh’s support needs, with some examples of indicative costs of taking action on mitigation and adaptation.
Clean Energy transition

Targets

RE Policy 2008: Generate 10% electricity from RE by 2020
And 15% by 2030

EE&C Master Plan 2015: Reduce 15% energy intensity/GDP by 2021 and 20% by 2030

Country Action Plan for Clean Cookstoves: Replace 100% (30 million) traditional cookstoves by Improved Clean Cookstoves by 2030
Concessional Financing for Industrial EE Equipment
- Concessional Financing for Labeled Appliances
- Green financing for EE

Financing

Concessional Financing for Industrial EE Equipment

Regulation and Standards
- Standardization of Equipment
- EE&C Rules
- Energy Audit Regulations
- Net metering Guideline
- Energy Labeling Regulation for Electric Appliances
- Building Energy Efficiency & Environmental Ratting

Capacity Development
- Training on Energy Audit
- Certify Energy Auditors and Managers
- Training on Net Metering
- Training for solar EPC
- Skill development program on EE equipment & appliances

Approach

Incentives
- Duty free import facility
- Best consumer Award
- Tax waver/ Reduced rate of tax
- Allow additional floor space for BEEER rated buildings

Awareness
- Seminar and Workshops
- Schooling Programme
- Advertisement on print, electronic & Social media
- Exhibitions of RE and EE products
### Present Renewable Energy Generation (upto Dec 2019)

<table>
<thead>
<tr>
<th>Technology</th>
<th>On-grid (MW)</th>
<th>Off-grid (MW)</th>
<th>Total (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar</td>
<td>80.92</td>
<td>312.97</td>
<td>393.89</td>
</tr>
<tr>
<td>Wind</td>
<td>0.9</td>
<td>2.00</td>
<td>2.9</td>
</tr>
<tr>
<td>Hydro</td>
<td>230</td>
<td>00</td>
<td>230</td>
</tr>
<tr>
<td>Biogas to Electricity</td>
<td>00</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>Biomass to Electricity</td>
<td>00</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>311.82</strong></td>
<td><strong>316</strong></td>
<td><strong>627.82</strong></td>
</tr>
</tbody>
</table>

**RE Mix**

- **Solar**: 0%
- **Wind**: 63%
- **Hydro**: 37%
- **Biogas to Electricity**: 0%
- **Biomass to Electricity**: 0%

**2020-2030**

- **RE Goal**: 15 % RE
- **Target**: 4000 MW
<table>
<thead>
<tr>
<th>Sl.</th>
<th>Technology</th>
<th>Projects under construction</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Solar</td>
<td>Utility scale grid tie solar project at Manikgonj</td>
<td>35</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Utility scale grid tie solar project at Mymansing, Khulna</td>
<td>50</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>2000 solar irrigation system</td>
<td>30</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>Grid tie rooftop solar under net-metering policy</td>
<td>54</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>Off grid solar projects</td>
<td>25</td>
</tr>
<tr>
<td>6.</td>
<td>Wind</td>
<td>Utility scale grid tie wind project at Muhuri, Feni</td>
<td>30</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td>Utility scale grid tie wind project at Dakop, Khulna</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>274</strong></td>
</tr>
</tbody>
</table>
## Upcoming RE projects

<table>
<thead>
<tr>
<th>Sl.</th>
<th>Technology</th>
<th>Project in pipeline</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Solar</td>
<td>Utility Scale grid tie project</td>
<td>700</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Grid tie rooftop solar project</td>
<td>75</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Off grid solar project</td>
<td>25</td>
</tr>
<tr>
<td>4.</td>
<td>Wind</td>
<td>Utility scale grid tie project</td>
<td>120</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>Off grid wind project</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>905</strong></td>
</tr>
</tbody>
</table>
EE Activities
Efficient Use of Energy

**Behavioural Changes**
- Use programmable thermostats to automatically adjust temperatures
- Turn off appliances when not in use
- Take other modes of transportation; drive more efficiently

**Using New & Existing Technologies**
- Building design & materials
- High-efficiency lights & appliances
- Hybrid, electric & efficient vehicles
2030: 20% Improvement of Primary Energy Consumption per GDP
2021: 15% of the same above (Baseline as of FY2013/14)

Energy Management Program
- Designation of Large Energy Consumers
- Certification System of Energy Managers/Auditors
- Energy Consumption & EEC Action Report with Benchmarking

EE Building Program
- Green Building Rating Promotion

EE Labeling Program
- Participation in EE Rating for Home Appliances
- EE Products Manufacturing | EE Products Purchase

EE Finance Program
Low interest loans | Subsidies | Preferential Taxation

Awareness Raising Program throughout Stakeholders
Industrial Association | Academics | NPOs/NGOs | Schools | Financial Institutions | Development Partners

Energy Data Collection
- Energy Consumption Detail
- Progress of EEC Activities
- Benchmarking

EEC Market Research
- Penetration Ratio of EE Appliances
- Price Elasticity for Customers

Review of EEC MP
- Achievement of EEC Target
- Impacts of EEC Program
- Periodical Revise of EEC MP

Capacity Development
- Achievement of EEC Target
- Impacts of EEC Program
- Periodical Revise of EEC MP
EE&C Financing Project

- Total loan amount: about USD 300 million
- Number of NOC issued: 13
- Amount committed: about USD 103 million
- Expected annual energy saving: 12,373 toe
- CO2 reduction: 25,983 t-CO2
- Power generation capacity relief: - 18.6 MW
EE & C Financing to Industries

- 6 Garments Factory
- 1 Electronic Company
- 2 Cement Factory
- 5 Spinning & Textile Factory

7 million achieved by Dec 2019
Labeling Program

Set Minimum Standard by BSTI
Design Labeling Protocol by SREDA
Ensure compliance by SREDA
Bangladesh Energy Efficiency and Environmental Rating (BEEER)

- Solar Rooftop under Net Metering
- Improved Insulation
- Daylighting
- Efficient Chillers

Advanced Window Film

Low UV glass

Efficient Appliance and Office Equipment

Energy Efficient Lighting and Motion Sensors

Efficient HVAC
Energy Data Requirements

• Sub-project owners are requested to provide energy related data through cloud-environment Project management information system (MIS) which is accessible from your PC.
Business Coalition

• More than 25 companies have signed up to become a member of the newly established “EE&C Business Coalition”.

• The Coalition is an autonomous association of industries who will join their forces and share good practices for promoting EE&C.

• The Coalition will also become a major interface between industries and the Government.
National Energy Intensity (TPES/GDP) Trend

Note: National Energy Intensity = TPES / GDP
Note: Non-tradable biomass (domestic firewood, etc) is excluded while tradable renewable energy (solar, bioethanol, etc. are included)
Source: (1) TPES: SREDA compilation from Hydrocarbon Unit (natural gas, coal), BPC (oil & petroleum), LPG association (LPG) data
(2) GDP (constant 2010): Bangladesh Bureau of Statistics

Target by 2020/21 is 15% improvement. Further effort is required.
Thank You