RENEWABLE ENERGY MASTER PLAN FOR GHANA

RE Experience Learning Workshop
Ghana-China RE Project
29 March, 2016
Alisa Hotel, Accra

OUTLINE

- NRES
- CURRENT STATUS
- FORMATION OF TASKFORCE FOR REMP
- SCOPE OF THE REMP
- STAKEHOLDERS
- TIMELINE

NATIONAL RE STRATEGY DOCUMENT CON'D

- In 2001, the Government of Denmark agreed with the Government of Ghana to provide technical and funding support to the energy sector under an Energy Sector Programme Support (ESPS). The support to the Ministry of Energy and the Energy Commission covered three areas:
  - 1. Strategic National Energy Plan (SNEP);
  - 2. Renewable Energy Development and Management Programme (REDP)
  - 3. Traditional Energy Development and Management Programme (TEU)
- A key output from the REDP was the preparation of a National Renewable Energy Strategy (NRES).

NATIONAL RE STRATEGY DOCUMENT

- The purpose of the NRES was as follows:
  - providing a framework for informed debate and decision making;
  - establishing clear goals for the future development of RE in the country and also a means of measuring the way forward;
  - providing a mechanism whereby policy making can be integrated with agency planning; and
  - providing a coherent and supportive rationale for advancing legislative and regulatory basis for supporting renewable energy development in the country.

PROGRESS SINCE PUBLICATION OF NRES

A. Barriers to RET development

Barriers identified	Efforts made towards removing barrier
1. Absence of comprehensive RET Policies	A number of policy documents and regulations prepared
2. Absence of regulatory framework	RE Act passed
3. High initial cost of RETs	A number of government off-grid solar projects. Now EC 20,000 rooftop solar programme. A lot remains to be done.
4. Inadequate financing schemes for RETs	Barrier still exist. Difficulty in assessing finance, interest rate high
5. Lack of favourable pricing policies	
6. Inadequate public awareness to the benefits of RETs	Solar has enjoyed awareness creation. Other technologies, not so much.
7. Uncoordinated R&D	Still a barrier

DEVELOPMENT OF RE MASTER PLAN (REMP)

- The RETT Project is supporting the development of a Renewable Energy Master Plan
- A taskforce composed of representatives from the Ministry of Energy, Energy Commission and the National Development Planning Commission was constituted in February, 2016
- Ad-hoc members will be invited to share ideas and provide input during the work of the committee

THE REMP - SCOPE

- Introduction
  - Background
  - Overview of energy demand and supply
  - Overview of RE related policies
  - Highlights of the RE Act
  - Vision and Objectives of RE Master Plan
  - Institutional Framework
- RE Resource Potential
  - Solar
  - Wind
  - Hydro
  - Biomass
  - Tidal/Wave
  - Waste-to-energy
- RE Developments in Ghana
  - Progress since the development of the National RE strategy
    - Grid-integrated RE
    - Decentralized RE systems
    - Non-electricity RE (RE Thermal, RE Irrigation)
  - Challenges
    - RE Gap
    - Barrier analysis
- Renewable Energy Targets
  - Key Assumptions
  - Targets

THE REMP – SCOPE CONT'D

- Renewable Energy Action Plan and Implementation Strategy
  - Solar (technologies/applications)
  - Wind
  - Hydro
  - Biomass
  - Tidal
  - Waste-to-energy
  - Implementation strategy
- Risk analysis and mitigation measures
  - Impact on Environment
  - Impact on Food Security
- Enabling Environment/Actions
  - Financing
  - Incentives
  - Socio-cultural issues
  - Technical capacity requirements
  - Gender
  - Link to the INDCs
  - Emission reduction potentials and benefits
- Institutional Arrangement
- Monitoring Evaluation and Reporting

SOLAR TECHNOLOGIES

INTERVENTION	UNITS	BASELINE	2020	2025	2030
1. Utility scale	MW	23	150	225	300
2. Rooftop/net metering Solar PV	MW	1.7	40	120	200
3. Standalone Solar PV Systems	MW	2.5	7	9	10
4. Street/Community lighting	MW	1.5	4	6	8
5. Traffic Lights	Units				
5. Lanterns	Units	70,000	500,000	1,300,000	2,000,000
6. Solar Irrigation/water supply	Units	<30	400	700	1,000
7. Solar Water Heaters	Units				
8. Solar Crop Dryers	Units	<20	250	400	600
9. Solar Cookers	Units	<10	50	150	200

WIND ENERGY – MINIGRID - HYDRO

INTERVENTION	UNITS	BASELINE	2020	2025	2030
1. Utility scale	MW	0	225	375	500
2. Standalone systems (including net-metered)	MW	<0.1	1	1.5	2
3. Wind Irrigation	Units	<10	100	200	250
MINI-GRID	Units	<20	100	200	500
1. **Small /Medium Hydro**	MW	0	60	140	300

WASTE TO ENERGY

INTERVENTION	UNITS	BASELINE	2020	2025	2030
1. Landfill	No. of installations	0	2	5	10
2. Municipal Waste	No. of installations	0	3	10	20
3. Agricultural/Industrial organic waste (Biogas)	No. of installations	< 20	30	100	200
4. Institutional (Biogas)	No. of installations	< 100	200	400	500
5. Domestic (Biogas)	No. of installations	< 50	100	150	200
BIOFUELS					
1. Bio-fuel blend of 3% of diesel and gasoline increasing @ 5% pa	tonnes (*000)	0	90	100	150

BIOMASS ENERGY

INTERVENTION	UNITS	BASELINE	2020	2025	2030
1. Utility-scale/co-genertion	MWe	4	70	100	150
3. Woodlot Cultivation	1000 ha	9	12	15	20
4. Charcoal Production	1000 t	7.43	10	13	16
Charcoal (local demand)	Million toe	3.1	3.36	3.54	3.66
5. Briquetting /Pelleting	1000 t	19.7	158	280	400
6. Cookstove (Institutional /commercial)	Thousand Units	1.8	2.5	3.0	3.5
7. Cookstove (Domestic)	Million Units	0.80	2	2	4

STAKEHOLDERS

- **Policy and Regulatory Bodies**
- **Academia and Research Organization**
- **Private Sector**
- **Development Partners**
- **CSO & Think Tanks**
- **Representatives from Active Political Party**

TIMELINE

February 2016	Constitute Task Force
March 2016	Inception Meeting
March 2016	Engagement with Chinese Experts
March – June 2016	Monthly meetings of Task Force
May 2016	Stakeholder Consultations
April 2016 – June 2016	Complete Draft
June 2016	Stakeholder Engagement
September 2016	Finalize Document

THANK YOU