Potential of Renewable Energy Technology
Bringing Green Energy, Improved Health, Income and Green Jobs to Rural Bangladesh

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First Zayed Future Energy Prize Winner (2009)
Presented at the “Power Kick for Africa 2011”
Abuja, Nigeria.
Creating A Solar World
For 1.6 Billion energy starved people around the world

Renewable Energy Technologies can give us unlimited energy without damaging the environment
Let us talk about its Potential
My Vision: Bangladesh - One of the First Solar Nations in the world

“I dream of Empowering 75 million people-half the population of my country with renewable energy technologies”
A Green Future For Our People

I have set ambitious targets for myself for 2015:

• 7.5 Million Solar Home Systems in Rural Areas;
• Expanding into Urban Areas transforming every building into a power house;
• Replacing 500,000 irrigation pumps with Solar Pumps
• Powering Education, Health, and Telecommunications
• Implementing Low Cost Solar Solutions such as:
  • Street Lighting, Billboards, Solar Lanterns, etc.
A Green Future For Our People

(Continued:)

• Running Small Machines such as Power Looms, Rice Haulers, etc.

• Coping with Natural Disasters through Solar Water Desalination, Emergency Lighting & Early Warning Systems

• 20 million Improved Cooking Stoves

• 100,000 Green Jobs especially for young women
Creating EcoVillages as a Response for Climate Mitigation and Adaptation

• Sustainable Eco Villages
  – Carbon Neutral
  – Water Conservation, Rain Water Harvesting and Purification
  – Production of Organic Agriculture and Fertilizer
  – Planting Sustainable:
    Fruit Trees
    Medicinal Plants
    Timber Wood
  – Local and High Efficiency Building Materials
  – Biogas and Improved Cooking Stoves
Creating EcoVillages as a Response for Climate Mitigation and Adaptation

- Sustainable Eco Villages (Cont.)
  - Powered by Renewables
  - Natural and Low Power Lighting
  - Renewable Energy
    Entrepreneurial Neighborhood
  - Eco Lifestyle Education
  - Low Power Ubiquitous Wireless Connectivity
  - Intelligent Power Management
    • Maximizing Battery Life
    • Micro Utility
  - Climate Monitoring Systems
  - Advanced Warning System for Bad Weather
    • Miking for Evacuation
    • Improved Communitywide Safety
Solar Power in Bangladesh

Around 400,000 Solar Home Systems installed benefiting 4 million people

- Our model is internationally recognized for taking solar to the masses
- More cost effective than grid infrastructure, is low maintenance and flexible – Solar is very suitable for a developing country like Bangladesh
A Growing Market of over 75 million people

Our Achievements:

• An innovative financial mechanism replacing monthly kerosene costs
• Rural level assembly, repair & maintenance of solar accessories
• All components produced locally except the solar panel
• VAT/ Tax removed from solar panel import
• Prices of solar panels going down internationally

School children can study better by Solar Light
A rural family can enjoy bright lighting, television and mobile phones at the same cost as kerosene.
Our Programs  Change Lives

- **Environment**: Replacing kerosene: 500 kg/year CO2 replaced per 50W system, reducing fire hazards, in-door air pollution and improving health

- **Women**: Reduced household burden for women

- **Communication**: Access to TV, mobile phones and internet

- **Education**: Many rural schools installing solar power, Solar powered computers

- **Healthcare Facilities**: Solar lights, Solar powered refrigerators in Clinics,

- **Disaster management**: During cyclone Sidr in 2007, PV was a lifeline. The only homes with light were those with PV.
We serve the most disadvantaged, isolated people in coastal belts and islands.
We Create and Facilitate Rural Businesses

- Facilitating home based business ventures
- **Increasing income** through extended business hours, reduced energy cost
- **Micro-utility Model**- Sharing a Energy to reduce cost and increase income

**Mobile Phones**: Solar powered mobile phones, TVs and internet increase business

**Small Solar Home Systems**: Popular among low income household helping to replace kerosene and generate income

**Solar run computers in off-grid areas**
Renting lights and running televisions attracts customers while charging mobile phones – this has become a good business.
Solar Power facilitates business in rural markets
We have successfully Created Green Jobs for Women

**Women as Solar Ambassadors to their Communities**

- Pioneered & established rural based GTCs across Bangladesh
- Trained 5000 rural women as Solar technicians and entrepreneurs
- Created decent jobs for women in their home villages
- 80% of the assembly of solar accessories takes place at GTCs

Mrs. Ambia – Zayed Future Energy Scholarship Winner
Zayed Future Energy Scholarships for Rural Women Green Entrepreneurs
Dr. Sultan Al Jaber, CEO, Masdar with our rural women technicians in Bangladesh
Mobilizing Social Forces

School children from rural areas learn about Renewable Energy Technologies

Rural women have learned to take care of the systems installed in their homes
Venturing into New Frontiers – Ushering in the Solar Century

• Each Urban Building becomes a Power House

• **Solar Panels for Irrigation:** Reallocating Grid electricity through converting irrigation pumps to Solar Energy

• **Powering Mobile Telecommunications Base stations:** 22,000 base stations can be powered by Solar (No Diesel)

• **Small Solar Solutions in urban areas:** Solar power street lights and bill boards. Small solar lanterns for Rickshaws, small shops, and slum areas
Venturing into Urban Areas

Solar Energy System installed at Nando’s restaurant in Gulshan Avenue, Dhaka, 2009
Venturing into New Frontiers - Ushering in the Solar Century (Cont.)

- **Greening our Vehicles**: Solar and battery powered hybrids
- **Expanding Education**: Solar powered computers, audio-visual tools in rural schools, adding internet
- **Health Care**: Solar powered refrigerators and other equipment in rural clinics, telemedicine, low power health monitoring devices
Venturing into New Frontiers - Ushering in the Solar Century (Cont.)

- **Mini-grid**: For rural areas with the potential to connect to the main grid

- **Solar Thermal**: cities, hospitals, hotels, hostels etc

- **Solar –Wind Hybrid Systems**

- **Powering small manufacturing units** i.e. power looms

Bringing development in the rural areas
Goal: Creating 100,000 Green Jobs by 2015

Young Women Technicians Installing Solar Home Systems
We can Create a Solar Nation

- We are blessed with plenty of sunshine.
- We have developed a sustainable market based mechanism to take solar to the masses.
- We have developed the grassroots capacity to assemble, repair & maintain solar accessories.
- Goal: If we can produce solar panels in Bangladesh, then we can reduce costs to reach more people at an accelerated pace.

Our Government can help us by:

1. creating a more competitive environment to establish more solar accessories businesses (increase efficiency and reduce prices);
2. facilitate a market based sustainable business culture over the present culture of high overhead costs & no business ownership;
3. develop human resources through its country wide vocational training centers ;
4. passing feed-in tariff and other laws to promote solar in urban areas;
5. facilitate R & D

**In order to achieve the above we need to implement and further develop our Renewable Energy Policy, by especially setting up a Separate Ministry for RET.**
First-Ever Zayed Future Energy Prize

HH Sheikh Mohammed bin Zayed, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, presents the first Zayed Future Energy Prize to Dipal Chandra Barua, in honour of innovation and commitment in alternative energy, at the Abu Dhabi National Exhibition Centre, January 19, 2009.
Renewable Energy Technologies Can Bring a True
Green Economy in Developing Countries
Ending Energy Poverty
& Environmental Degradation
Thank you for your Kind Attention