Talking Points as Prepared for Delivery by
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- Thank you for the opportunity to address this important conference. My remarks here in this session are about the role of renewables in rural and economic development in the context of the developing countries.

- ***The first point I would like to make is that renewable energy has a crucial role in tackling the electrification problem in developing countries.***
- The rate of electrification in the poorer countries of South and East Asia is often less than 50%. In some sub-Saharan Africa countries it is less that 20%. In rural areas of these countries it can be less than 5%.
- What this actually means is that very often there is no grid supply of electricity and the 5% of households that are reported as "electrified" obtain some electricity service by means of car batteries and diesel gensets.
- Only well off households have an electricity connection as the cost of service obtained by these means is prohibitively high. Increasingly however cost effective i.e. affordable renewable energy solutions, are reaching rural communities in the developing world and I'm proud to say the World Bank Group is playing its part in making this happen.
- For example, we are working on the commercialization of fuel cells in remote areas of Africa. In Morocco, Mozambique, Ethiopia, Bangladesh and Sri Lanka, to mention a few examples, we are promoting the use of solar panel for electricity. In Guineas-Bissau, we have a project that uses discarded cashew shells to generate electricity. We are supporting the development of hydropower projects in Africa (Uganda) and Asia (India, Laos).

Let us ask ourselves why is Electricity Important for Households in Developing Countries – i.e. whether it is provided by renewable or other supply sources?

- Energy provides households many types of benefits through appliances that use either electricity or other modern fuels. A wide array of benefits—from security, comfort, and convenience to education, health, and home productivity—are made possible by such appliances as electric lamps, radios, televisions, computers, refrigerators, fans, stoves, and electric pumps.

- In 2007, the Independent Evaluation Group of the World Bank confirmed the findings of earlier World Bank work that valued the benefits of household lighting at US$ 5–16 per month and the added benefits of entertainment, time savings, education, and home productivity at US$20–30 per month. These amounts are much higher than the US$ 2–5 per month that a household typically pays for electricity service.

- Electricity is an intermediate good and as such is an essential input to provision of a number of essential and productivity enhancing services. There is clear evidence that electricity is essential for delivering health services, not only for vaccine refrigeration, lighting and other medical needs but also for retention of qualified staff in remote areas. Communications is a major means of improving productivity by replacing transport, increasing education services and the like.
- Lighting services through electricity are infinitely more efficient than fuel-based lighting and contribute to improved productivity through better working conditions and improved education.

I would like to make a few points comparing grid and off-grid electricity supply using renewables.

- Firstly**,** I must emphasize that grid electrification and off-grid electrification are complements and not competitors – or what I call a multi-track approach. World Bank supports off-grid electricity using renewables where it is economically least cost and offers greater economic benefits than its competition – fuel-based lighting and batteries.
- While everyone may seek a grid connection with access to unlimited electricity at very low cost, decision makers are realizing that waiting for the grid to reach the more distant communities may take decades and will be costly, and they are unwilling to forego providing their citizens with the benefits of electricity for so long. Similar to the mobile phone industry that is changing the face of communication in Asia and Africa, off-grid renewables technology and business models are emerging that will permit leapfrogging over traditional grid-based electricity delivery models.
- Today, the World Bank Group projects are supporting provision of off-grid electricity to over 7 million people or businesses primarily using solar photovoltaics and other renewables. These are now mainly through a private sector business model sometimes with NGO involvement, with access to micro-financing and some grant support to buy-down the first cost.
- Clearly such business models do not have the advantage of subsidies that grid services get that may include not only capital but also operating cost subsidies. In a number of developing countries like Sri Lanka, Bangladesh, India, China, Tanzania, Bolivia, Nicaragua, these projects yield very high economic rate of return as the off-grid options usually substitutes for batteries and kerosene in lighting.
- The Lighting Africa program of the World Bank Group is based on the proposition that recent cost reduction and performance improvement of lighting technology such as white light emitting diodes will make modern off-grid lighting products affordable for those at “the bottom of the pyramid”. This program has the ambitious goal of catalyzing access to modern electric lighting to 250 million people in Africa by 2030.

Let me talk about some of the challenges and opportunities in scaling up renewables

- Biofuels for example help lower emissions and improve energy security in rural areas where grid electricity and fuel supply is often uncertain and subject to price volatility. However, However, The benefits and costs of biofuel production is largely site specific and need to be carefully evaluated.

- Another opportunity and challenge in diffusion of small scale renewable energy solutions from pilots that receive a lot of handholding from donors is in figuring out the nexus of energy Small and Medium Enterprises (SME) development, regulation and microfinance. These three have to come together in an optimal fashion of we are to see diffusion of renewables.

Let us look at them in turn.

- **1st.** SME's that wish to get into the business of energy service provision using renewables will require the full array of competencies across the technical, financial and commercial disciplines.
- **Next** regulation will have to be light but even handed to facilitate their diffusion. For example if grid-based electricity is heavily subsidized – not only for its capital costs but its operating costs – it can make it difficult for renewables to compete. Policy makers will need to carefully consider how subsidies should be applied between alternative solutions to achieve objectives of equity and efficiency in their use.
- **Third,** even if subsidies that are properly applied foster a market for renewables while making them in principle affordable, microfinance will also need to be available to enable households make the initial purchase.

Let me mention of the special challenge of Africa and the role renewables can play

- Africa has the world's lowest rural electrification rate. Indeed, nearly 92% of rural residents and 75% of all people living on the subcontinent lack electricity. The enormity of the access challenge calls for implementing a multi-track approach to electrification.
- The effectiveness of grid-extension schemes, which rely on strong national utilities or distribution companies, is greatly enhanced by local community involvement.
- Offgrid electrification often relying on renewables sources of energy is also needed in areas remote from main grid systems (areas that were traditionally served with diesels that is now an enormously expensive energy source).
- For example, in Senegal using geographic information system analysis it is estimated that off-grid electricity is least cost for close to 20% of the population. That is to say for almost 2.4 million people off-grid means of electricity including renewables is less cost than extension of the grid due to their remote location and pattern of settlement. The Philippines, Mexico, Argentina, China are other examples of countries that are rethinking the rural electrification paradigm and including off-grid electrification option as a "mainstream" options for the "last mile" or for the more distant and sparsely populated communities.

Finally let me conclude by detailing the financial support of the World Bank for renewable energy.

- **The World Bank Group committed $1.43 billion in fiscal year 2007 (FY07) to renewable energy, including hydropower, and energy efficiency projects.** This represents a 67 percent scale up in financing for renewable energy and energy efficiency from $860 million in FY06. The World Bank Group has far outperformed its 2004 Bonn Commitment to increase its commitments for new renewable energy and energy efficiency by 20 percent per year.

Thank you