



## **PANEL DISCUSSION**

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**Climate-Energy Nexus Lecture Series: “The Urgent Imperative of a Coherent Renewable Energy Policy”**

Department of Physics, University of the West Indies, Mona Campus

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## **Greening the Energy Sector: Benefits for the Job Market**

- Thank you! The timing is perfect. The 2012 UN Climate Change Conference started in Doha, Qatar yesterday and will continue until 7 December. The Conference includes the 18th session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP 18) and the 8th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP 8).
- Key issues include the adoption of amendments to the Kyoto Protocol for the second commitment period. The COP will also discuss the progress to develop “a protocol, another legal instrument or an agreed outcome with legal force



under the Convention applicable to all Parties” by 2015 to enter into force no later than 2020.

- It was at the UN Climate Change Conference in Cancun, Mexico (December 2010) when the decision (1/CP.16) was taken recognizing the need for deep cuts in global emissions in order to limit global average temperature rise to 2°C. Parties agreed to keep the global long-term goal under regular review and consider strengthening it during a review by 2015, including in relation to a proposed 1.5°C target while taking note of emission reduction targets and nationally appropriate mitigation actions (NAMAs) communicated by developed and developing countries, respectively. Even though as an island country, Jamaica contributes miniscule amount of carbon to the global emissions, it is amongst the most vulnerable countries to the adverse impacts of climate change. It is therefore important that in Jamaica even the mitigation activities have to be carried out in an adaptation framework, viz., that they sustain livelihoods and provide decent jobs.



- One of the earliest reports of the Intergovernmental Panel on Climate Change (Mitigation 2001) had highlighted end-use energy efficiency as a “no regrets option”, one that reduces emissions while saving money - that could account for half of the potential emissions reductions from 2010-2020.
- A recent study 2012 by the International Energy Agency marks the first time the IEA has devoted a medium-term report to renewable power sources; it is recognition of the dynamic and increasing role of renewable energy in the global power mix.
- Renewable power generation is expected to continue its rapid growth over the next five years - acknowledging the coming-of-age of the renewable energy sector. (It examines in detail 15 key markets for renewable energy that currently represent about 80% of renewable generation, while identifying and characterizing developments that may emerge in other important markets.)
- The report says that despite economic uncertainties in many countries, global power generation from hydropower, solar, wind and other renewable sources



is projected to increase by more than 40% to almost 6400 TWh – or roughly one-and-a-half times current electricity production in the United States.

- It goes on to say that renewable electricity generation should expand by 1840 TWh between 2011 and 2017, almost 60% above the 1160 TWh growth registered between 2005 and 2011.
- Renewable generation will increasingly shift from the OECD to new markets, with non-OECD countries accounting for two-thirds of this growth. Of the 710 GW of new global renewable electricity capacity expected, China accounts for almost 40%. Significant deployment is also expected *inter alia* in the United States, India, Germany and Brazil.
- The growth is led by the maturing of a portfolio of renewable energy technologies, in large part due to supportive policy and market frameworks initiated in OECD countries.



- And rapidly increasing electricity demand and energy security needs in recent years are spurring deployment in many emerging markets – both large and small. These new opportunities are creating a virtuous cycle of improved global competition and cost reductions.
- Significant and profound changes are taking place amidst the uncertainties associated with a cautious macroeconomic outlook. (I) Governments in several key markets are deliberating significant changes to renewable policies and deeper electricity market reforms as renewable deployment scales up. (II) The cost and availability of financing is a key variable, with a need for more investment sources and structures. (III) Some parts of the renewable industry are going through a period of dramatic upheaval, with supply chains restructuring and shifting geographically while delivering cost reductions. It is expected that such a consolidation should lead to a more mature and robust renewable sector.



- Not surprisingly, Hydropower continues to account for the majority of renewable generation – registering the largest absolute growth (+730 TWh) of any single renewable technology over 2011-17 (largely driven by non-OECD countries).
- Between 2011 and 2017, generation from non-hydropower renewable technologies increases by over 1 100 TWh, with growth equally split between OECD and non-OECD countries. Onshore wind, bioenergy and solar PV see the largest increases, respectively, in generation after hydropower. Offshore wind and Concentrated Solar Power grow quickly from low bases. Geothermal continues to develop in areas with good resources. Ocean technologies take important steps towards commercialization.
- As per a World Watch Institute’s report, currently about 2.3 m people worldwide work either directly in renewables or indirectly in supplier industries. Given inadequate data this is a conservative estimate. The wind power industry employs nearly 300K people; the solar PV sector accounts for



170K jobs, and the solar thermal industry, at least 624K. Over a million jobs are found in the biomass and biofuels sector. Small-scale hydropower and geothermal energy are far smaller employers.

- Renewables are a more labor-intensive energy sources than the still dominant fossil fuels; and the transition towards the latter would lead to job gains. It is not surprising that many hundreds of thousands of coal mining jobs have been shed in China, the US, Germany, the UK, South Africa, etc. In the US, coal output rose by almost 33% during the past two decades, yet employment has been cut by 50%.
- A recent report from the US Department of Energy's National Renewable Energy Laboratory reveals the impact the Treasury's 1603 grant program (Congress failed to renew the program that expired at the end of 2011) had in supporting growth and development of the US renewable energy industry – wind and solar in particular – following the near collapse of the US financial system and recession of 2008-2009 (it provided nearly \$9b in funds spanning



over 23K solar PV and large wind (>1MW) projects with a total generating capacity of 13.5 GW.

- It cites independent studies confirming that renewable energy investments and projects can create as many as 3x the number of jobs as equivalent investments in fossil fuels. More Americans are now employed in “green jobs” (some 2.7 million) than in the US fossil fuel industry, and that’s occurred in an extraordinarily short order. (Refer document – Treasury Section 1603 Grant program: 75K jobs, \$44b in economic output.)
- Studies from UK have also indicated that by lowering the cost of access to energy services, investments in sustainable energy would galvanize the private sector and create jobs. For instance, of the £850b provided by the British Government to support its banks and the financial sector, say £10 billion were (“as green quantitative easing”) invested in the renewable energy sector. Experts predict that it would have resulted in creating 60,000 jobs, saved the public £4.5 b over 5 years, and reduced carbon emissions by 3.96Mt. And a





similar amount in onshore wind would have increased wind contribution to the UK's total electricity supply from current 1.9% to 10% and created 36000 jobs in installation and direct and indirect manufacturing.

- A recent report on the Indian Energy Revolution jointly drafted by Greenpeace, the Global Wind Energy Council and European Renewable Energy Council argues that the job generation potential of renewable energy and energy efficiency domains can be 2-3 times that of conventional energy, for e.g. coal, oil. Currently India's renewable energy industry employs 200K people. This can jump to 14 times by 2030 if Energy revolution pathway is taken (securing India's growing energy needs without having to depend on the depleting and polluting fossil fuels). In the next 8 years itself, 2.4 million jobs will be created in the renewable energy sector alone, if proper investments are made.
- Another example from National Geographic News in Growing Green jobs asserts that the two biggest expenses for most businesses are labor and utilities. A company can use clean energy technology to save on its second



biggest cost. A medium - to large size company spends hundreds of thousands of dollars annually keeping the businesses lit and running. Any saving on electricity would provide more money for labor or R&D.

- For instance Walmart has spent millions to save on electricity; Google spends millions on renewable energy as a long term strategy to offset their huge energy costs. These capital investments have led to leaner balance sheets and greater profits for these companies.
- Companies like GreenLancer Energy are taking advantage of cloud computing and other web tools to lower the expense of designing large solar projects and lowering upfront investments. By their own estimation, for a 1MW solar project about 15 people will be used in the design phase. The installation phase could result in hiring of hundreds of people.
- Currently, Jamaica faces a high debt to GDP ratio. At nearly 140%, it limits the fiscal space for social development, adversely influences employment, trade deficit and capital flows, and increases citizen insecurity. As Jamaica continues



to negotiate with the IMF, it is evident that energy has been a vital issue that has afflicted the Jamaican economy for close to 40 years.

- It is apparent that Jamaica would be unable to surmount the spiral of persistent indebtedness in the absence of significant energy reforms.

Jamaican private sector cannot be competitive if it has to pay ≈\$0.42/KwH for utility services. As public policy economists remind us that “the key input for producing aluminum, for example, is cheap energy, not local bauxite deposits; South Africa could therefore develop aluminum exports without having bauxite, while Jamaica produces bauxite but not process it”. High cost of electricity escalates the operational cost of the public sector and the Government, and contributes to making the civil service overly expensive.

- Also, accomplishment of the government’s commitment to equitable growth and improving the quality of life of all Jamaicans, especially the most vulnerable, cannot be achieved without the private sector. The role of small and medium enterprises is vital in generating decent employment, promoting



public private partnerships for services delivery, and attracting latest technology and investments while strengthening entrepreneurship.

- From the available evidence it can be extrapolated that investments in sustainable energy would lower the cost, stimulate private sector investments and create jobs. The distributive nature of renewable energy technology presents creative possibilities to mix and match renewable energy sources and end user equipment thereby enabling renewable energy companies to (i) create jobs locally and (ii) stimulate local economies (enhanced access to affordable energy services by businesses and entrepreneurs). Local governments in several developed economies are providing a range of incentives including tax breaks to attract renewable energy companies and maximize growth and job creation opportunities.
- Global evidence also demonstrates the potential of forward thinking policies to catalyze sustainable energy services through the provision of a diversity of incentives to catalyze market innovation, product acceptance, lowering of installation costs and enhancing access to financing. The growing demand



would, in turn, motivate renewable energy and energy efficiency companies to vertically integrate and provide cheaper access to the systems by reducing the upfront and operational costs to the consumer.

- It is encouraging to see that the Government of Jamaica has established a roadmap for the Energy Policy 2009-2030. As an evidence of its commitment, the Government of Jamaica has pledged itself to a target of 30 percent use of renewable energy in its portfolio by 2030. The Government with support from the IDB is implementing an Energy Efficiency & Conservation Programme in the Public Sector targeting inefficient lighting and air conditioning while providing a preferential treatment to the local suppliers. As you are aware the Government has also issued the first batch of net billing licenses and allowed sale of excess electricity generated by consumers to the national grid.
- Countries, like China believe that renewable energy sources such as solar are the future of energy production. In its efforts to capture the solar market, the China Development Bank has offered \$34 billion in government-backed financing to solar manufacturing companies, in comparison to the U.S. Loan



Program, which has extended \$1.3 billion in financing for solar manufacturing projects since its inception.

- I believe the private sector in Jamaica couldn't expect a better signal that indicates the Government of Jamaica's promise to catalyze the renewable energy and energy efficiency market in Jamaica. The ball is now in the Jamaican private sector's court to make sure that the entrepreneurs have an adequate skills and capabilities-base to evaluate the emerging demand, an estimate of projected demand in the near future, and are well-prepared to meet the targeted needs of diverse consumers for the products and the services at cost effective prices.
- It is time to be ready with new business models to alleviate the barrier of steep upfront costs of renewable energy/ energy efficiency products through introduction of long-term fixed price contracts for electricity, creation of Energy Service Companies (ESCOs), initiating lease arrangements based on monthly fees, etc., etc. This would allow the private sector to generate local value added in the services provided and when supplemented by creative



financial mechanisms this could form the basis for transformative change in for the Jamaican companies engaged in RE/EE.

- Early this year, the UN Secretary General launched an initiative designating 2012 as the International “Year of Sustainable Energy for All” with the aim of reaching its set goals by 2030; coincidentally, the timing coincides with that of Vision 2030 Jamaica. Those goals include providing access to modern services for all; doubling the rate of improvement in energy efficiency; doubling the share of renewable energy in the national energy mix. Recognizing the critical role of the private sector in meeting the unmet needs of access to sustainable energy (through innovative technologies, products and business models along with financing solutions), the United Nations is working globally on setting up a high level group from business, finance, government and civil society to spearhead this action.
- At the same time, we recognize and support the indispensable active participation of beneficiaries – central and local governments, financial institutions, business and industry associations, chambers of commerce,



universities, international agencies and donor organizations in both the creation of an enabling environment and the provision of direct support to small enterprises. As announced by the Secretary General at the UN Conference on Sustainable Development, more than 100 commitments and actions have been mobilized in support of the UN's Initiative, and businesses and investors have committed over \$50 billion to achieve its three objectives.

- Hon. Julian Robinson, Minister of State, MSTEM launched the Sustainable Energy for All initiative in Jamaica - in partnership with UNDP. It has kicked off a public-private dialogue to guide the strategy to achieve those objectives in Jamaica including through collaborative PPPs based on specific renewable energy targets with coordinated efforts to achieve them. Also UNDP in cooperation with IDB has completed a Rapid Assessment and Gap Analysis of Jamaica's Energy Sector. More later – to be continued in the discussion.

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