Letter to the Editor

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Our Energy Policy is Adrift

Our energy policy is becoming more and more perplexing. So much so that any reasonable person analyzing the decisions and statements of those whose stewardship we depend on for efficient, reliable, sustainable energy practices would conclude that presently we as a nation could not be any further adrift. Commenting on the same issue, and on the need for a coherent energy blueprint, a well-known businessman recently opined that "there does not seem to be a well –defined and quantified, coordinated and integrated energy policy being articulated by government." While there may be some merit in this statement, many would argue that any incoherence in our energy policy resides mainly in two locations: Spring Garden and Green Hill.

A clear example of incoherent messaging is the Barbados Light and Power (BL&P) advertisement of Friday May 9th in Weekend Nation. In this ad, the company is inviting "expressions of interest" in the building of an 8MW solar plant on 40 acres of land at Trents, St Lucy with a projected completion date of March 2016. BL&P recently completed an Integrated Resource Plan (IRP), a 25 year blueprint which they purport maps "Barbados future power needs and identifies a future portfolio of power generating technologies." The remarkable thing about this document, which is currently awaiting FTC's approval, is how rapidly it changes emphasis and direction. It has now had three major revisions in as many months. In the original plan which was valid up to November 2013, utility-scale solar and waste- to- energy (WTE) were not seen as economically viable technologies in the least cost expansion plan. Apparently, they are now, displacing much of the wind generation and some of the low speed diesel capacity, technologies that were previously considered the lynchpin in driving energy costs down.

The IRP is a very comprehensive, well crafted and impressive document. It evaluates three generation worlds based on electricity demand, against which five generation scenarios or alternatives are analyzed. Among the criteria used for evaluation are net present value of capital, fuel diversity, environmental impact and foreign exchange impact. Against these well defined criteria, BL&P determined in their original IRP submission that a 60MW dual fuel plant and a 10 MW wind farm (if land constraints are removed) should be installed in 2016 as least cost options.

The issue of the planned investment in the 60 MW dual fuel plant was even brought to the public's attention in October 2013 when Sarah McDonald, Emera Caribbean President, called a news conference and argued for a rate increase and a forty year extension of the license in what appeared as preconditions for the $200 million investment. No mention was made then of any approved plans for a solar PV plant. And since it wasn't in the plan it never entered public discussion until now, even though it is customary for power plants to be planned well in advance. The same could be said of the $1.3 billion estimated investment in a WTE plant, a project that both FTC and the government have found favour with and is now scheduled for completion in 2018.

With a planned output of 14 GWH or 1.5% of total electricity production, the 40 acre solar plant is of minor significance to our overall energy needs. What is not clear is the reason for giving this plant such priority when our real need at this time is the replacement of significant, but ageing steam capacity, with equally significant but modern plant. This raises the question whether, as some believe, BL&P is using this plant as a clever public relations device to show its commitment to renewable energy. Or whether it could be a strategic move to deny competitors the opportunity in advocating for the use of 9MW of peak production that is likely to be available now that meaningful wind generation seems unlikely.

What is clear is that with a power density of 48 watts peak per square meter, this plant in the context of Barbados is not scalable and the country could have been better served had this 8 MW of peak capacity been allocated to the local distributed energy sector for roof-top development. This confusing turn of event begs some pertinent questions: (1) why is there such a rush to install a solar PV plant given its minor importance to our energy needs? (2) Has the FTC given its blessing of approval for this ad hoc planning approach, and if so, should their decision be communicated to affected stakeholders? (3) What new assumptions are being used to make WTE now viable? (4) Why is it necessary for there to be a rate hearing/increase as a precondition for one plant (dual-fuel) and not for the other?

It is very difficult to comprehend BL&P's rationale that a rate hearing is necessary prior to making an investment in any plant. Given its current capital structure, the investment in the dual fuel plant could have been financed primarily through debt. In 2005, the company installed a $140 million, 60 MW LSD plant without any request for a rate review or rate increase. Moreover, the company made countless other investments during a 26 year period without a rate review. Rate reviews are very costly exercises. They are held at the request of the utility when its return on invested capital has fallen below a prudent level, not for financing any particular project. If BL&P's real reason for a rate review is that currently its achieved rate of return is insufficient, this should be made known to all and sundry.

In the rate review of 2009, BL&P presented a capital structure of 80% equity and 20% debt. BL&P agreed at the time that this was not an ideal capital structure since it tended to push the required rate of return even higher than the 10.8 % the company was then asking. The 10.8% rate of return the company requested then was reported to have been calculated on a capital structure of 35% debt and 65% equity, which did not exist at the time. In the hearing, the company agreed to take on more debt over time to bring its capital structure in line with other regional utilities. Unfortunately, this has not happened and since the last hearing, the company has become less not more leveraged. This is likely to have some implications for the next rate hearing since based on its latest capital structure the company may be forced to request a rate of return in excess of what is currently allowed.

So what are the implications for the other stakeholders who may be affected by this recent development? First, householders are unlikely to see any changes in their monthly bills. The level of utility PV production will be too small to make a difference. However, members of the renewable energy community will have every reason for concern. They will be unhappy that grid-tied generators are going to be limited to a maximum capacity of 7MW for the foreseeable future which will stymie the growth and development of the local industry. During their Grid Code Public Consultation held with

stakeholders on August 13, 2013, BL&P indicated that it was unlikely to get to acquire the land for the wind farm and that 9 MW capacity was available for commercial developers (those with installations greater than 150 kw) who did not fall under the Renewable Energy Rider (RER) facility. BL& P has apparently had a change of heart. Based on this new development, that offer is no longer available. One has to now await the results of the promised renewable penetration study that was first scheduled to be completed in 2013 (now 2014) to determine what further renewable penetration is possible before grid storage becomes necessary.

Another potential source of concern for the renewable energy community is the RER itself. In its Decision of August 2013, the Commission ruled, among other things, that it was satisfied that a rider of 1.6 times the FCA is representative of the avoided cost of fuel after giving consideration to a number of relevant inputs. The FCA is not a very good method for determining a RER that is based on avoided cost of fuel for many reasons and this fact has been brought to the regulator's attention in the past. It is not possible to discuss at this time all the reasons why this is the case. However, an argument can be made that the equal treatment of wind and solar in relation to the RER is highly flawed. The reason for this is that based on BL&P's hourly dispatching profile, solar output tends to be more correlated with peak loads than wind. Hence, the avoided cost of fuel for wind power cannot be the same as that of solar. The RER as it is administered currently favours wind and because of this fails on the basis of equity and efficiency.

Notwithstanding these shortcomings, grid-connected renewable energy customers will have to brace themselves for a further reduction in the RER in about two years time when the new PV plant comes into production. This is because solar prices have so plummeted worldwide, that electricity from this source is now competitive with traditional fossil fuel sources such as gas turbines. For example, at a mega-scale, it is now realistic to build a 8 MW utility-scale plant, like the one contemplated, at an estimated all-in capital cost of $4.50 per watt or for about $36 million. With a planning discount rate of 7% and a lifespan of 20 years, BL&P will deliver electricity from such a plant at a levelized cost of 25 cents per kilowatt hour over the life of the project. Since solar is highly correlated with peak electricity production and with merit order dispatching, one can be certain electricity from this source will displace some of the production from the gas peakers. This will have an effect on avoided fuel cost and the RER.

One final twist to this saga concerns the question of energy storage. Within recent times there have been calls from stakeholders for BL&P to provide various kinds of energy storage; some of them feasible, others not so feasible. There have also been extreme suggestions that storage should be legislated. This topic of storage will not go away any time soon. On the contrary, it most likely will be rekindled in the commissioning of this new solar plant, since BL&P will almost certainly have to include some form of storage. It will not be for the applications others have posited, but for smoothing and ancillary services that are critical to the reliable and efficient operating of the grid. Also, since all large-scale generators, BL&P included, must adhere to the Grid Code, it will difficult to justify putting 8MW of unregulated power on the grid. The problem that this poses for BL&P is that their argument that storage is too costly to be considered will be finally laid to rest.

Renewable energy is now affordable but who pays to make it dispatchable? This is the question the Czars of Spring Garden and Green Hill must answer because it requires a new way of thinking. Utilities are being threatened worldwide by plummeting solar costs. The challenge for us will become greater as battery storage becomes more affordable. Ultimately, those whose stewardship we depend on will have to respond by either employing a new business model or by erecting barriers in the form of regulation of capacity to protect the outdated model that currently exists.

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