



Wistaria Trading Ltd.

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BY EMAIL

Regulatory Authority
1st Floor, Craig Appin House
8 Wesley Street
Hamilton HM 11

Attention: Nigel Burgess

Hindsight is typically 20/20, it is prescient with regards to “*Large Scale Self-Supply License Consultation*” document”, matter number 20210222 dated March 1, 2021; the sole response by “BELCO”; and, “*Preliminary Report*” dated November 5, 2021. A look back over a decade to Bermuda’s *2011 Energy White Paper*:

Bermuda’s past use of energy is interesting and unique. Prior to the introduction of electricity and the internal combustion engine to Bermuda, inhabitants relied upon natural elements to work and survive. Wood was used for heating and lighting, and was later supplemented with whale oil. Water was hand- pumped or bucketed from rain-water tanks, and imported products were transported via wind on sail. The sun fed crops and evaporated water, providing sea-salt for food preservation. Out of simple necessity, early settlers used scarce natural resources in a much more responsible and sustainable manner than we do today. - 2011 Bermuda Energy White Paper: A National Energy Transition, Department of Energy

Our comments originate in “*Preliminary Report*” page 8: “For the avoidance of doubt, the definition of Self-Supply in the EA is that “*Self- Supply*” means generation using a system that is not interconnected to any part of the transmission and distribution network.’ This draft Licence therefore does not at present consider a scenario where the Licensee’s premises are connected to the grid in any way. This is an important point that is relevant for multiple points raised by BELCO in the consultation.”

First, as explained in the Bermuda *2011 Energy White Paper* and elsewhere, the notion of off-grid power generation is neither novel nor unique. It has followed that many governments, national and local, have wrangled with the inherent competing interests of consumers vis-à-vis monopoly utility providers, yet this time it is different. As with the provisioning of water in Bermuda (eg, “rainfall 50-70%, wells, reverse osmosis” – *How Bermuda Gets its Water*, Felicity Glennie-Holmes August 17, 2017 <https://www.enterbermuda.com/blog/how-bermuda-gets-its-water/>), consumers invest in energy independence when they chose to pay and finance solar installations. That those

same consumers may continue to connect via existing or amended interconnection agreement with the grid operator, BELCO, is outside the scope of the original “Consultation document”, as supplemented by “BELCO” and answers in the “*Preliminary Report*”, specifically, “4B Summary of General Responses 34” (page 8).

That said, we believe a decentralized model encouraging 1) off grid, 2) cooperative type structures, and 3) hybrid models emphasizing secure smart inverter technology, such as that developed by my Company, guarantees better alignment of energy independence interests as well as smoother conversion of the existing grid to renewables. There are certainly plenty of standards addressing grid improvements from grid intelligence to bidirectional connectivity to the microgrids that are formed when Bermudians invest in Bermuda energy independence. By their choice to invest in their own equipment and systems Bermudians should be afforded options. We believe that our unique inverter technology is one of many appropriate solutions.

Second, traditional inverters, such as those owned and operated by BELCO, *require an outside signal from the utility grid to determine when switching will occur to produce a sine wave that can be injected into the power grid. Advanced inverters, such as those proposed by the Company, can match or even generate the signal to restart the microgrid—a form of black start. What is inevitable is market decentralization. “Renewables’ intermittency, coupled with increasing demand for electrification, has forced the market to respond. Operating in real-time is necessary, yet difficult for many utilities. With a decentralized model, there’s an opportunity for investors of all sizes to enter the energy market and for utilities to improve their profits. If done correctly, everyone sees benefit,”* Uday Baral, head of Global Energy Portfolio Management at Hitachi ABB Power Grids, October 3, 2021, (italics added) <https://www.powermag.com/the-new-wave-of-the-decentralized-energy-market/>

Next, incumbent energy companies face challenges as well. Technologies exist to assist with the current transition period toward mitigating the effects of climate change and adjusting energy use patterns in ways not previously thought possible. Distributed energy resource (“DER”) technologies assist with demand side and use issues that are triggered by peak use and unanticipated events. Examples include solar power systems, wind, geothermal, and electric vehicles (“EV”). The inevitability of secure smart inverter demand is a result of structural and operational problems associated with the integration of renewable resources and corresponding systems (italics added):

The ‘macro’ grid connecting large- and small-scale fossil fuel generation to users obstructs the transition from high emission energy produced in a few locations to clean energy produced everywhere. *Our current grid was not designed to handle intermittence, inherent in solar and wind energy. To grow beyond a 25% share of generation from renewable sources will require increasingly more flexible grids. Whilst large solar farms and towering wind turbines take headlines, it is technologies like the ‘smart’ inverter which will enable their rollout. ... The ceiling for ‘smart’ energy technologies appears limitless, and it seems certain that they will play an increasingly large and public role in the coming years of the transition. (“Smart Inverters, the Humble Key to a Secure and Profitable Distributed Energy Future?”* Herculano & Searle, iCLIMAearth, March 31, 2021 <https://www.iclima.earth/article/smart-inverters>)

Last, creating Bermuda-based digital assets out of underlying electricity generation, especially in view of the significantly high Bermuda energy rates, enhances the movement to digital asset securitization. Bermuda energy tokens, smart contracts, and trade to increase transparency and pricing of electricity is sorely needed. Better data, better analysis, better energy freedom for all Bermudians.

Sincerely,
/Scott Moskowitz/
Scott Moskowitz
scott@wistariatrading.com
Director
Wistaria Trading Ltd