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PLEASE QUOTE OUR REF.

September 16, 2016

Mr. E. Michael Leverock
Chairman, Energy Commission
c/o Ministry of Economic Development
Comer House 4th Floor
20 Parliament Street
Hamilton HM12

Dear Chairman Leverock:

On August 15, 2016, Bermuda Electric Light Company limited ("BELCO" or "the Company") submitted to the Energy Commission ("Commission") a filing that, among other things, notified the Commission that the Company was freezing its existing net metering programme for residential customers and proposed a new feed-in-tariff for new residential and commercial customers installing solar photovoltaic arrays ("PV").

On August 26, 2016, pursuant to Section 5(1) of the Energy Act 2009, the Minister of Economic Development requested the Commission to conduct an inquiry regarding the freeze to the existing program and BELCO's proposed rate treatment for new residential and commercial solar PV customers as outlined in its August 15 filing. The Minister's request indicated that the inquiry should be carried out in consultation with relevant stakeholders, such as BELCO, and should include:

- An analysis and assessment of the current Residential Net Metering and Commercial Renewable System Excess Energy Rate (CRSEER) programmes;
- A review of cost-based ratemaking principles and feed-in-tariffs for PV customers that are used in similar sized jurisdictions;
- Recommendations for development of transitional feed-in-tariffs rates for independent power producers (residential and commercial) who wish to use the electric grid to distribute the power they generate; and
- Recommendations for development of rate structures for independent power producers (residential and commercial), which accurately reflect costs incurred by BELCO.

The purpose of this submission is to provide input from BELCO to aid the Commission in its inquiry.

This submission is arranged in three parts:

- I. A summary of BELCO's existing net metering programme, the curtailment of that programme for new entrants, and its proposed new tariff;
- II. An overview of the basis for BELCO's decision to freeze the existing program and its tariff proposal; and
- III. Responses to the Minister's specific four points of inquiry.

In brief, BELCO's position is that solar generated power, both utility scale and on a distributed generation level, should form a substantial part of a diversified generation portfolio for Bermuda. While not all of Bermuda's generation needs can be met through solar generation, given its interruptible nature, the use of this renewable resource should be maximized to the extent it is cost effective and fair to BELCO's ratepayers.

For the reasons stated in its August 15 filing and expanded upon herein, the Company believes that its approach – a freeze of the current subsidized programme and adoption of a tariff based on avoided costs – makes the most sense for a transitional period, during which an in-depth public dialogue can take place in the broader context of reviewing BELCO's Integrated Resource Plan consistent with the Electricity Act 2016 and new regulations to be promulgated thereunder. The proposed tariff is anticipated to be temporary until a full conversation led by the Regulator can take place, with input from all stakeholders, regarding the cost shifting from net metering customers to non-metering customers that persists under the proposed tariff.

As always, BELCO would be happy to meet, provide further materials, or otherwise do whatever requested to assist the Commission in its task.

I. SUMMARY OF BELCO'S ACTION AND PROPOSED NEW TARIFF

As described below, BELCO (1) has closed its existing residential solar programme to new entrants; (2) will grandfather customers who have made concrete financial investments relying on the existing programme; and (3) proposes a feed-in-tariff to cover all new entrants below grid-scale level based on avoided costs.

I.A. Closure of the existing residential programme to new entrants.

In 2010, BELCO recognised the emerging value of generation of power from solar resources for the community, and introduced a net metering programme to incent residential customers to install solar PV and encourage early adoption. Under this program, participants are allowed to net offset their energy generation from their electricity consumption on a monthly basis. To the extent that their monthly energy generation exceeds their monthly consumption, participants are compensated for their excess monthly generation at the sum of the highest tier retail rate plus the Fuel Adjustment Rate. This price includes fixed transmission, distribution, generation and retail costs, not just variable generation costs, such as fuel, and thus, as described in more detail below, results in a subsidy above the economic benefit of the power generated.

As a programme and not a Commission-approved tariff, BELCO has paid this subsidy and did not seek recovery from its customer base. The initial programme was envisioned to undergo review after entry of 200 participants. Six years later, there are now 325 participants. On August 15, 2015, BELCO informed the Commission that it was closing the programme to new entrants as of that date.

BELCO will continue to pay the existing members of the programme the subsidized price for their power until instructed otherwise by the regulator.

I.B. Inclusion of pipeline projects into the existing programme.

While BELCO's subsidized programme is closed to new entrants as of August 15, the Company considers customers on that date who had already taken concrete steps, including financial investment, to be grandfathered into the programme. Hence, verified systems permitted as of August 15, 2016 will be included. BELCO will need to have evidence of physical construction of a residential solar PV installation and/or cancelled checks, or equivalent showing investments underway prior to August 15, 2016 to be considered for inclusion.

Given the average recent past pace of 7-8 new entrants per month, BELCO expects this additional number not to exceed a total of 10-15 participants.

I.C. The proposed new tariff.

Under the new tariff, all non-utility scale solar PV installations, residential or commercial, will be compensated for their excess generation based on an avoided cost methodology. There will be no limit in the size of the installation for inclusion in the rate for residential customers; any installation above a capacity of 0.5 MW by a commercial customer will be deemed an independent power producer outside this rate and subject to individual negotiation.

Residential customers will be paid avoided costs for their power after netting the power used and sold by those customers each month. So, for example, if they use 600 kWh and self-generate 500 kWh in a month, they will pay for 100 kWh at retail price. Conversely, if they use 500 kWh and self-generate 600 kWh, they will be paid an avoided cost price for the excess power.

As for commercial customers, the price for excess power will also be based on avoided costs, but not on a net basis. Hence, if a commercial net metering customer uses 600 kWh and produces 500 kWh, that customer will be billed for 600 kWh at the retail rate and will be paid for 500 kWh at avoided costs. If the customer uses 500 kWh and sells 600 kWh, the customer will pay retail rates for the 500 kWh and will be paid at avoided costs for 600 kWh. The calculation methodology is unchanged from the current arrangements but for the use of an avoided cost tariff which incorporates benefits in addition to fuel cost savings. This results in an improved tariff for the commercial customers.

Specifically, the inputs for the avoided cost calculation are avoided fuel, avoided lubricating oil, avoided capital construction, and avoided transmission losses. Items not included in the calculation are capacity payments, spinning reserves and other ancillary services (such as kVar/voltage support, waveform profile, outage management and response), as well as distribution, metering and billing charges.

Currently, BELCO's projected weighted average marginal cost of fuel for 2016 is 15.74 cents/kWh (FAR+ \$30/Bbl included in tariff):

BELCO Full Marginal Fuel Cost July 25, 2016

Conversion factors		Energy per HFO Barrel		August 2016 cost of fuel
1 kWh = 3412.14 BTU	3412.14	HFO	5,632,925,278.22 J	\$ 71.23
1 kWh = 3,600,000 J	3600000	LFO	6,254,054,054.05 J	\$ 94.76
1 BTU = 1055.06 J	1055.06			
1 m3 = 6.29 US Bbls	6.29			
Energy Density of BELCO Specification Fuels				
Nominal HFO	42.1 MJ/kg	@	991 kg/m3	
Nominal LFO	44.2 MJ/kg	@	890 kg/m3	
Heat rates				
HFO Recip	8,612.02 BTU/kWh			
LFO Recip	9261.994066 BTU/kWh			
LFO GT	13172.61378 BTU/kWh			
Marginal Fuel production by Unit Fuel type				
January	HFO Recip	\$	0.0976	
February	HFO Recip	\$	0.0976	
March	HFO Recip	\$	0.0976	
April	LFO Recip	\$	0.1481	
May	LFO Recip	\$	0.1481	
June	LFO GT	\$	0.2106	
July	LFO GT	\$	0.2106	
August	LFO GT	\$	0.2106	
September	LFO GT	\$	0.2106	
October	LFO GT	\$	0.2106	
November	LFO Recip	\$	0.1481	
December	HFO Recip	\$	0.0976	
Weighted Average Marginal Cost of Fuel			<u>\$ 0.1573</u>	

Based on BELCO generation rates, BELCO fuel specifications and current market pricing. The Weighted Average Marginal Cost of Fuel shows the incremental fuel cost of electricity. This is calculated as a weighted average based on the units required to meet the marginal electricity demand.

Adding the other avoided costs, the total avoided cost and tariff is 17.36 cents/kWh:

Component	Cost
Avoided Fuel Cost	15.73¢/kWh
Avoided Lubricants	0.59¢/kWh
Avoided Transmission Losses	+1.6%/kWh
Total	17.36¢/kWh

The tariff will be recalculated monthly based on projected kilowatt hour sales, fuel and lubricants costs and grid losses, and will be subject to monthly review by the regulator as is the Fuel Adjustment Rate ("FAR"). To the extent that avoided capital costs can be identified, these will be factored into the calculation based on the cost of the asset(s) avoided and the expected recovery period.

For commercial customers, this tariff model replaces the CRSEER and will improve the compensation rate for the owners of these systems because more items are included as avoided costs than the measure by which they are currently paid.

BELCO proposes that this feed-in-tariff be available first come, first serve, for a two-year period, capped at 350 new solar PV customers, at which time, the results and the impact on the grid can be assessed.

At the end of this two-year period, or before if the regulator chooses, BELCO believes that this tariff should be re-assessed based on a variety of factors.

First, BELCO and the regulator will be able to review the results of the two-year period to evaluate the interest in PV installations and the benefits flowing from the same to all ratepayers.

Second, while the Company believes that avoided costs will remain the proper touchstone, at that time, new technology, not only in solar PV development and storage, but installation of new metering could affect appropriate rate treatment. For example, instead of a feed-in-tariff reflecting an offset, each home could be dual metered, for real time pricing for both power sold and purchased.

Finally, during this time period, after implementation of the Electricity Act 2016, transition of regulation to the Regulatory Authority, and promulgation of relevant regulations thereunder, a comprehensive public dialogue regarding the optimal generation portfolio for the near and mid-term can take place in the context of review of BELCO's IRP.

As discussed below, for residential customers, the proposed tariff still results in cost-shifting to non-net metering customers. During the period in which the transitional tariff is in place, the regulator can determine, after a transparent discussion among all stakeholders and in the context of contemporaneous technology, how, in light of Bermuda's policy goals, to refine the tariff to best design rates so that each ratepayer pays its fair share.

II. THE BASIS FOR BELCO'S ACTION AND PROPOSAL

As discussed below, BELCO has curtailed new entrants to the subsidized programme and proposed a new tariff for reasons that can be divided into four categories:

- The goals of the programme begun in 2010 have been accomplished;
- BELCO's subsidy is ending;
- An avoided cost methodology is required under fundamental ratemaking principles and under Bermuda law; and
- The proposed tariff will help ensure sustainable growth in solar PV.

II.A. The goals of the 2010 subsidized programme have been met.

As noted above, BELCO has continued its subsidized program far longer than originally anticipated before review, with over 300 participants instead of the contemplated 200. The

goal of attracting early adopters was accomplished, and solar PV is now a broadly contemplated option by BELCO customers.

That the goal of incenting adoption has been achieved was confirmed by the Government's elimination of solar rebates in 2014. As Minister Gibbons stated at that time, technical advances lowering PV prices and a thriving marketplace have made subsidies unnecessary.

With a broader number of participants, the time has come not for a targeted subsidized programme, but rather establishment of a fair and sustainable tariff for large-scale deployment, applying fundamental, cost-based ratemaking principles and taking the interests of all ratepayer interests into account.

II.B. BELCO's subsidy is ending.

The total subsidy paid by BELCO to date amounts to \$594,395. As the number of participants increases, so does the cost of the subsidy. These numbers will become unsustainable, and BELCO can no longer pay the subsidy beyond current participants. This conclusion is confirmed by the Commission's March 31, 2016 directive, providing for an account recovering the costs of net metering and the Commercial Renewable System Excess Energy Rate ("CRSEER"). BELCO will have this account in place by the end of the year.

Hence, other ratepayers would be called upon to pay any further subsidies.¹ Not only would that result be contrary to fundamental ratemaking principles, Bermuda law, and sound economics, but, notably, studies have shown that such subsidies can end up benefiting higher income ratepayers, paid by ratepayers with lower incomes. See <http://www.ourenergypolicy.org/wp-content/uploads/2014/04/cali-net-metering.pdf>;² <http://www.ourenergypolicy.org/wp-content/uploads/2014/04/cali-net-metering.pdf>; <http://pscstar.louisiana.gov/star/ViewFile.aspx?Id=f2b9ba59-eaca-4d6f-ac0b-a22b4b0600d5>;³ see also Ashley Brown and Louisa Lund. "Distributed Generation: How Green? How Efficient? How Well-Priced?" *Electricity Journal*, April 2013, p. 32. ("any additional cost or delta revenue loss attributable to DG that is passed on to the balance of customers has a high probability of being a wealth transfer from the less affluent to the more affluent.")

There is no rationale for lower income customers to subsidize higher income customers.

II.C. Pricing must be cost-based.

¹ While BELCO will have the new account in place by the end of 2016, given that the Commission called for this recovery account in the directive it issued on March 31, 2016, BELCO seeks confirmation from the Commission that it is appropriate to recover the subsidies as accrued from July 2016.

² Within the residential sector, the customers installing solar PV had an average median household income of \$91,210, compared to the median income in California of \$54,283.

³ Louisiana Public Service jurisdictional solar PV installations were estimated to have median household incomes of \$60,460 relative to the statewide median household income levels of only \$44,673.

II.C.1. Subsidized rates are contrary to fundamental ratemaking principles.

It is a fundamental tenet of ratemaking that tariffs should be cost-based, with no cross-subsidization among classes. Ideally, customers should pay no more than the cost of serving them each, as a class.

The relevant costs to measure what BELCO should pay for the excess solar power transmitted by its customers are avoided costs – the costs that BELCO can otherwise avoid when it receives excess power from its customers. If a higher price is paid than avoided costs, and ratepayers must pay that price, then ratepayers are paying more than they should.

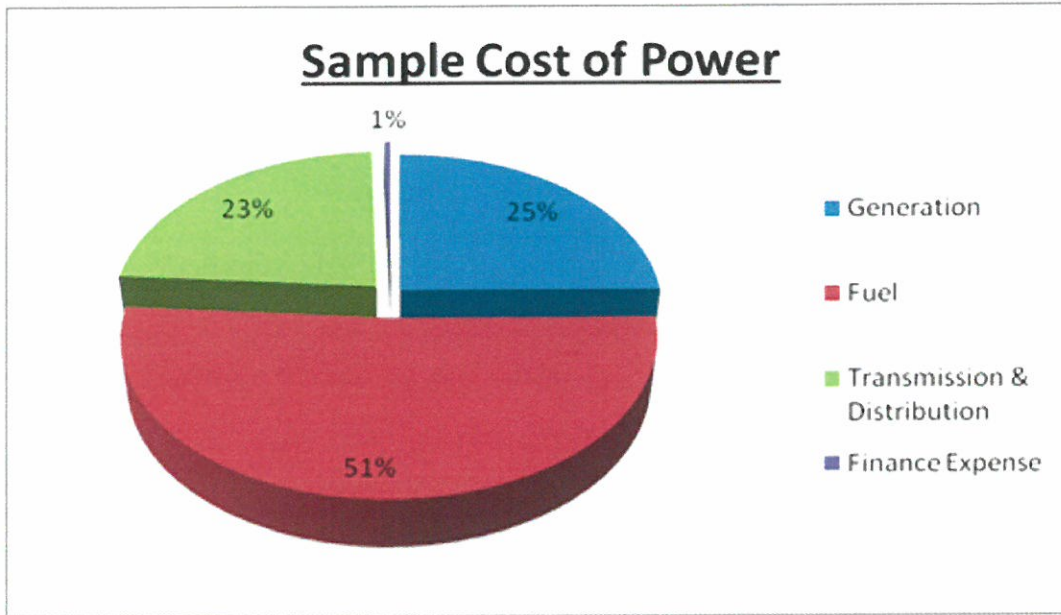
An electric company's costs consist primarily of the large fixed costs associated with generating, transmitting and distributing electricity. These costs are for the most part unavoidable. There must be generating units (owned either by the utility or independent power producers). In order to deliver that power to customers, there must be a network of wires that keep customers connected to the electric grid, as well as substations and other equipment, with fixed operations and maintenance costs to keep the grid in good, safe operating order in order to serve customers reliably.

The second set of costs associated with providing service is customer costs, that is, the costs of metering and billing the customer.

Finally, there are variable operating costs, consisting primarily of fuel costs to generate the electricity that customers use in their homes and business. Whenever a customer conserves a kilowatt hour of electricity, the primary operating costs that are avoided are the variable energy costs (plus in the long-term, potentially, avoided capital costs).

Thus, it makes sense to pay only the avoided costs - the cost of running generators. All the fixed costs and all the customer costs must be covered; they do not go away just because the electric utility buys power from a household, unless the customer disconnects entirely from the grid. The utility must continue to transmit the energy to all customers and stand ready to generate electricity when no other cheaper sources are available.

The proportional total cost of power for supplying power to BELCO's customers is as follows:



As this pie chart reflects, only 51% of costs fuel can be avoided from purchasing power from BELCO customers. Hence, BELCO is proposing a tariff paying its solar customers measured by those avoided costs. If BELCO paid solar customers more, e.g., an amount equal to BELCO's retail tariff, then that payment is approximately 96% higher than it should be, the differential a subsidy for which there is no cost-based rationale for BELCO's ratepayers to pay to the solar customers for their excess power.

II.C.2. The Electricity Act 2016 requires a cost-based rate.

Avoided costs is also the measure that that BELCO believes is mandated by the Electricity Act 2016.

Section 36 of the Electricity Act 2016 provides that the cap for feed-in-tariffs shall be "(i) the actual cost of generation that the TD&R Licensee [BELCO] avoids by purchasing power from distributed generation; and (ii) an estimate of any economic benefits from distributed generation." From a ratemaking perspective, the economic benefits from distributed generation not reflected in the avoided costs of BELCO generation would be any capital costs BELCO avoids in not having to upgrade the grid due to distributed generation deployed in areas that would otherwise require such upgrades.

BELCO does not read the Act as permitting any higher rate based on a perceived *environmental* benefit, giving the term "*economic*" used in the Act. Hence, BELCO believes that the rate adjustment it proposes in this submission is not only economically rational, but legally required: the price paid for the excess power delivered to the grid by solar PV customers cannot, as a matter of law, exceed the price that BELCO proposes to include in the tariff.

It may be that for policy reasons, the Government will want to continue to provide an additional incentive to property owners to install solar PV arrays. From an economic perspective, such incentives are best established through the tax system, because, among

other things, the policies supporting such a subsidy benefit all Bermudians, not just ratepayers. BELCO takes no position as to whether such tax incentives should be provided. BELCO does not believe, however, that such a subsidy can, or should, be effected through a rate higher than the rate proposed by BELCO in this submission under the new statute or sound ratemaking principles.

II.D. The proposed tariff will right-size new solar installations.

Payment for excess power generated by small-scale customers at avoided costs will not discourage installation of solar PV by such customers for their own use. The solar power these installations will produce will still offset the kilowatt hours they would otherwise have bought from BELCO at retail prices. Eliminating the subsidy simply extends the payback period for the price of the equipment for a short period – increasingly shorter as technology continues to lower the cost of the investment.

Rather, the impact of eliminating the subsidy will be to discourage those installing new PV from oversizing their installations, beyond the capacity needed for their own use, to obtain a high price for the extra power they generate beyond their own use.

Instead, customers will focus on the savings generated in producing their own power, for their own use. And again, those who have the financial resources to buy more expensive oversized arrays should not be subsidized by other ratepayers without that financial wherewithal.

As BE Solar, a participant in the solar PV installation stated, a solar system “is still just as great an investment as it has always been The updated version of the current net metering programme simply encourages clients to invest in a suitably sized solar system, which can still result in a reduced, zero or negative Belco bill.”
<http://www.royalgazette.com/local-business/article/20160908/belco-solar-rate-change-fairer-to-customers>

II.E. The tariff should be deemed transitional toward a tariff that eliminates cost-shifting to other ratepayers.

The proposed tariff is not perfect. Net metering residential customers are still not paying their fair share of grid costs and back up generation because their use is netted against the power they produce. So, for example, if a customer produces 500 kWh and uses 500 kWh, that customer pays nothing other than the facilities charge, which covers some of the home connection to the grid, metering and retail costs. But the customer has still imposed costs onto the system, including the costs of the network transferring the power back and forth, and the backup generation to supply the customer had it needed the power. With month to month netting, the system essentially acts as free battery storage for such net metering residential customers. Without a BELCO subsidy, these costs not paid by the net metering customers must be borne by the remaining ratepayers.

The commercial tariff for solar PV customers captures some of these grid and back up generation costs because their use and sales are not netted. BELCO has proposed this more accurate (yet still not perfect) approach for commercial customers, and not yet for

residential customers, for multiple reasons including that commercial systems are likely larger (with corresponding economies of scale) and logically will have long periods in which they may *only* be selling to the grid (*e.g.*, on weekends when these establishments may be closed).

Further, in the absence of time of use rates (which must wait for the full deployment of the appropriate metering), the value of the power bought and sold cannot be set with precision. Ultimately, to avoid cost-shifting within rate classes, the regulator may want a two-meter system with time-of-use differentials and/or fixed charges that accurately reflect non-variable costs.

III. RESPONSE TO FOUR POINTS OF INQUIRY

III.A. Analysis and assessment of current solar PV treatment.

The first point of inquiry identified by the Minister is as follows:

An analysis and assessment of the current Residential Net Metering and Commercial Renewable System Excess Energy Rate (CRSEER) programmes.

As noted above, the existing residential programme has met its goal and will no longer be subsidized by BELCO. The programme is frozen, with no new entrants not now in the pipeline. Hence, while BELCO can agree to the connection of new PV arrays to the grid, payment after installation for generation from such arrays in operation will require a Commission-approved rate. Otherwise, that power will simply flow onto the system free, with no credit offset. Because, as noted above, BELCO believes that a solar tariff subsidized by other ratepayers is neither fair nor legally permitted under the new Electricity Act 2016, it has proposed a cost-based rate based on BELCO's avoided costs. The Company urges the Commission to approve such a rate promptly, so that new entrants can be paid a fair price for the power they are adding to the grid.

The CRSEER was approved by the Commission on August 7, 2014. Customers with renewable generating systems from 15kW to 100kW in size are given a credit for power sold consistent with BELCO's Renewable Energy Tariff at avoided costs, included as a cost in the FAR shared by all ratepayers. As noted, CRSEER participants will benefit from the proposed tariff given the new calculation of items to include in the category of avoided costs.

III.B. Review of rate treatment elsewhere.

The second point of inquiry identified by the Minister is as follows:

A review of cost-based ratemaking principles and feed in tariffs for PV customers that are used in similar sized jurisdictions

As a threshold matter, "net metering" typically refers to offset credits and requires one meter, while the term "feed in tariff" ("FIT") means a separate payment tariff irrespective of customer use, requiring two meters. The latter is used more often in Europe and Asia,

the former in North America. In whichever context, the general trend is away from subsidized pricing/cost-shifting.

Briefly:

- In Australia and New Zealand:
 - The New Zealand government has declined to offer a FIT, and most utilities choose to pay a wholesale price. See <http://www.seanz.org.nz/Resources/Government-Incentives> (“Implementing incentives like feed in tariff’s means consumers buying power off the grid, would pay a higher price for their power, to pay for the incentive, which is an unfair position for other consumers in the view of successive governments and policy makers”)
 - In Australia, generally speaking, legacy programs are ending and FITs are lowering. For example, the FIT in South Australia is 16 cents/kWh dropping to as low as 6.8 cents; in Victoria, from 25 cents to 5 cents; and in New South Wales from as high as 60 cents to as low as 4.7 cents. <http://www.energymatters.com.au/renewable-news/solar-tariff-closure-em5651/>
- In Canada, payments remain generally high, with exceptions, such as Alberta, paying a wholesale, not retail, rate. <http://www.energy.alberta.ca/Electricity/microgen.asp>
- In Europe, generally speaking, the price paid in FITs is lowering as penetration increases. Representative actions include:
 - Germany – Germany provided a high FIT, resulting in deep penetration and, because the cost was paid by all ratepayers, the second highest tariffs in Europe. Through a series of amendments to its Renewable Energy Solutions Act starting in 2010, the FIT has now undergone a series of “degressions” reducing the price paid. http://www.germanenergyblog.de/?page_id=16379
 - Spain – Spain’s experience with FITs has been turbulent. It established a high FIT in 2007. Because the utilities could pass on some, but not all, the high costs of the FIT, the FIT was ended in light of a mounting multi-billion euro tariff deficit and rising rates for general ratepayers. Payments to existing solar providers were altered to a fixed rate of return reduced over time, which change was recently upheld in Spanish courts. <http://www.pv-tech.org/news/spain-supreme-court-rules-2013-14-solar-fit-cuts-were-not-retroactive>
 - United Kingdom – The UK announced a 67% reduction in its FIT in April 2016. <http://www.fitariffs.co.uk/eligible/levels/degression/>
- In the United States,
 - On the federal level, simplifying somewhat, under the Public Utilities Regulatory Policy Act (“PURPA”), payment cannot exceed avoided costs, with “externality

adders” such as general environmental benefits not deemed to fall in this category. 16 USC § 824a-3(d); *Southern California Edison*, 70 FERC ¶ 61,215, 52,080 (1995), *aff'd on rehearing*, 71 FERC para. 61,269 (1995). The National Association of Regulatory Utility Commissioners (“NARUC”), representing U.S. state regulators, recently wrote a letter of opposition to proposed legislation that could raise this amount contrary to PURPA. <http://www.naruc.org/about-naruc/press-releases/pr-020216/>

- On the state level, 37 of 44 states with some FIT/net metering approach have these rate treatments under review, with the trend, as penetration increases, toward removing any subsidies.⁴ See <https://nccleantech.ncsu.edu/n-c-clean-energy-technology-center-releases-q2-solar-policy-update-to-the-50-states-of-solar-report/>; https://nccleantech.ncsu.edu/wp-content/uploads/50States_Q22016_ExecSummary-1.pdf. Representative state actions include:
 - Arizona – a proceeding is pending to review its net metering rates. In the meantime, an administrative law judge ordered one utility to switch to time of use rates for distributed generation and noted the “cost-shift from DG to non-DG customers,” urging the swift completion of the pending docket “as DG penetration grows.” *UNS Electric, Inc.*, Docket No. E-042041-15-0142 (Arizona Corporation Commission Aug. 8, 2016).
 - Hawaii - The Hawaii Public Utilities Commission voted to end net metering in October 2015, stating that a transition away from net metering is essential to ensure benefits to all customers and not just customers who have the ability to install solar PV. *In the Matter of Public Utilities Commission, Instituting a Proceeding to Investigate Distributed Energy Resource Policy*, Docket No. 2014-0192, Dec. and Order No. 33258 (Haw. PUC). <http://puc.hawaii.gov/wp-content/uploads/2015/10/DER-Phase-1-DO-Summary.pdf> In a two-track model, “self-supply” customers are paid nothing for power transmitted to the grid, and “grid-supply” customers are compensated for excess power based on the 12-month on-peak avoided cost for each island grid. The “grid-supply” category caps are now met on several of the islands.
 - Nevada – In 2015, after the Nevada Legislature directed the regulator to examine net metering rates and eliminate unreasonable shifts in costs from net metering customers to other ratepayers, the Nevada Public Utilities Commission reduced the price paid for solar PV to avoided costs. http://puc.nv.gov/uploadedFiles/pucnv.gov/Content/Consumers/Be_Informed/Fact_Sheet_Net_Metering.pdf.

As for treatment of power in smaller island nations, “**Avoided cost is emerging as a cost benchmark.**” T. Couture, D. Jacobs, W. Rickers, V. Healey, “The Next Generation of Renewable Electricity Policy: How Rapid Change is Breaking Down Conventional Policy

⁴ Not every state has yet reduced its rates below retail. In California, for example, the Commission chose to delay change until 2019.

Categories” at 18 (Feb. 2015) (emphasis in original) (hereinafter referred to as “NREL Report”).⁵

The NREL report discusses how island nations present special challenges and opportunities, to which some jurisdictions have been responding in innovative ways. The Cayman Islands, Grenada and the Seychelles are discussed in particular.

The Cayman Islands uses a Customer-Owned Renewable Energy (CORE) tariff program, in which Generators can choose to connect in front of the meter (like a FIT) or behind the meter (like net metering). Under both, generators pay the retail rate for all power consumed on site, even that self-generated. They are then compensated for the power they generate at a fixed rate for a twenty-year period whether the power is consumed on site or not. System size is limited by a cap or on-site peak load.

Grenada established net metering in 2007 with credit for excess generation at the full retail rate. As a result, “it was determined that generators were likely capturing excess profits while the utility lost an estimated \$500,000 in revenue each year.” The utility then switched to a net billing policy, under which generators must purchase 100% of their power at the full retail rate and export 100% of their power to the grid. The number of participants is capped. The price paid for exported power is a fixed lower rate or the utility’s average avoided costs as adjusted annually.

Finally, the Seychelles introduced a net metering program in January 2014. Excess power is sold at a rate 88% of the utility’s cost of fuel – lower than avoided costs, in order to account for transmission losses.

BELCO would be happy to provide more information or discuss rate treatments elsewhere with the Commission at its convenience.

III.C. FIT recommendations for IPPs.

The third point of inquiry identified by the Minister is as follows:

Recommendations for development of transitional feed-in-tariffs rates for independent power producers (residential and commercial) who wish to use the electric grid to distribute the power they generate

As noted above, BELCO recommends a transitional avoided cost rate for small-scale solar PV customers investing in solar PV for their own use. Larger scale independent power producers seek to sell power not for their own use, but as a commodity, and should be subject to transparent and competitive bidding mechanisms to ensure that the BELCO ratepayers who will be paying for that power pay the lowest price possible, consistent with

⁵ A copy of this report, prepared for the NREL and discussing various jurisdictions can be found at www.nrel.gov/publications.

the Company's needs for serving ratepayers and an appropriately diverse portfolio of different types of generation, both base load and interruptible, as reflected in BELCO's IRP.

III.D. Rate structures that accurately reflect costs.

The last point of inquiry identified by the Minister is as follows:

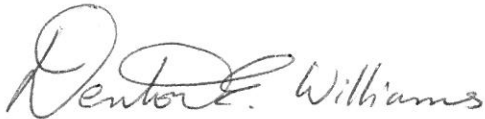
Recommendations for development of rate structures for independent power producers (residential and commercial), which accurately reflect costs incurred by BELCO.

The cost-based price that should be paid for small-scale solar PV generation is, as noted above, avoided costs. A wholly accurate reflection of the costs imposed by net metering customers in order to avoid cost-shifting among ratepayers requires further development and discussion to determine the best rate treatment in terms of single or dual metering and payment of fixed or minimum charges.

CONCLUSION

BELCO hopes that this further elaboration of its decision to curtail new entrants to its existing programme and its proposed transitional tariff for non-utility scale PV is helpful to the Commission. It looks forward to providing whatever additional information the Commission may find helpful, and ensuring that solar PV continues to expand to the optimal amount technologically and economically possible for Bermuda.

Sincerely,

A handwritten signature in cursive script that reads "Denton E. Williams".

Denton E. Williams
Chief Operating Officer, BELCO