BELIZE ELECTRICITY LIMITED
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09 February 2024

Mr. Dean Molina
Chairman
Public Utilities Commission
#4 Princess Margaret Drive
2nd Floor, Marina Towers
Belize City, Belize

Dear Chairman Molina,

Re: Responses to Stakeholder Questions on Proposed Pricing for New Energy Services

BEL is appreciative of the PUC's efforts to engage Customers in the design and development of new tariffs and rates for emerging energy services such as electric vehicle charging and grid-tied distributed generation services. We have reviewed the questions coming out of the PUC's consultation process on our initial pricing proposals and have provided our responses in Annex I of this letter.

BEL reiterates that these proposals are a starting point and call on the PUC to initiate the joint BEL-PUC Committee previously contemplated and agreed between parties to review the proposals in detail to help move towards consensus on the rate principles, structure, and initial price points for these non-traditional services. Having now the benefit of feedback from key stakeholders, we are better informed of the concerns and considerations bearing on Customers and can meet to work out a fair, balanced, and cost-reflective proposal.

The Company notes the call from some stakeholders for a level playing field in the market for Electric Vehicle charging and Solar PV (rooftop) installations. BEL assures the PUC and our Customers that it fully commits to competing under the same conditions as any other operator in the market and seeks no monopoly advantage in this regard. The Company will account separately for all business outside its core operations – transmission and distribution services – which naturally remains a monopoly and eventually migrate its new product offerings – EV charging and DG charging services specifically – under a subsidiary for transparency and accountability in the market. The pricing proposals submitted to the PUC for review relate to the recovery of utility costs associated with grid access and so are subject to regulation. These tariffs are baseline charges that all market operators will face, including BEL's own subsidiary.

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We look forward to working with the PUC to finalize these tariffs for implementation by 30 May 2024. It is important that these rates are implemented as soon as possible to support sustainable market development – all that is required is a reasonable starting point as the rate review processes allow us to adjust prices to better align with costs as actual data becomes available. We must act now and insist that the best way forward is for BEL and PUC to jointly develop the rate schemes, grounded, of course, in best practice and guided as much as practicable by the results of an updated Cost of Service Study.

Sincerely,
Belize Electricity Limited

Leon Westby
Manager, Strategy, Innovation & Regulatory Affairs

ANNEX I: Response to Questions from the Consultative Process for the New Service Rates

1. Will having an EV charger require separate metering? If not, then how is this EV rate applied?

EV Charging Stations that are a part of BEL's public electric vehicle charging network (EVCN) have dedicated meters which measure total kilowatt hour consumption at that specific charger. Currently, there are 12 chargers within the EVCN deployed across the country. Customers using these public chargers must download a mobile app which records their specific kilowatt hour consumption per charging session for billing purposes – payment options for these charges will be on a pre-payment basis initially.

Residential and Commercial customers seeking to install EV chargers at their home or business premises respectively, have two options available to them:

(1) They can install a charger after their existing meter, and so all charging consumption will be registered on that meter and billed according to the associated account's billing code/customer classification. For example, a residential customer may install a wall charger at home after their existing meter – like any new appliance – and the use of that charger will be billed at the residential tariffs. While this is possible, it is discouraged as the customer may miss out on potential benefits from an EV Charging Service Rate and depending on the existing load at the premise, the charger might cause an electrical overload. Option 2 is preferred and encouraged.

(2) The Customer may request the *EV Charging Service Rate*, so that BEL can conduct a site visit to assess the infrastructure needs for the size/capacity of the Customer's intended charger installation including confirming if a service upgrade is required for an existing service. Customers applying for the *EV Charging Service Rate* will require the installation of a separate, dedicated meter so that BEL can accurately assess the consumption associated with EV charging and apply the associated tariffs accordingly.

2. More generally, how would BEL determine how a customer is classified as EV, DG or residential / commercial / industrial?

Currently, Customers are classified according to the primary use of their electricity service:

- Residential Customers use electricity to power their households.
- Commercial I (Small Commercial Customers) apply to households or residential-type premises operating businesses and consuming less than 2,500 kilowatt hours on average per month. This is why they currently have the same tariffs as residential customers.
- Commercial II (Large Commercial Customers) are licensed businesses consuming 2,500 kilowatt hours or more on average per month.
- Industrial Customers are licensed businesses in the manufacturing, construction, mining, agriculture, fishing and forestry sector or those industries in the International Standard

Industrial Classification (ISIC) Codes where energy is provided at any BEL standard primary distribution/transmission voltage.

These classifications are rooted in the traditional electricity services. However, BEL is modernizing its service offerings to incorporate a wider scope of energy solutions. The future classifications and categorizations of customers will be defined by the type of energy solution being offered; these can be described as follows:

- **On-Grid Services** which include (1) traditional Residential and Commercial Customers using conventional meters and Industrial Customer connected to the primary distribution system and billed at the respective PUC approved tariffs; (2) AMI-based smart metering Customers with access to data analytics, Time-of-Use pricing, and pre-payment services; and (3) Grid-connected LED street, roadway, and park lighting services.
- **Grid-Tied Services (PVGRID)** which include any customer with a solar PV system interconnected to the grid whether they are exporting and selling energy to the grid. They will be billed at the grid-tied DG rates.
- **Electric Charging (EV) Station Services** which include any BEL-owned or third party-owned public and commercial EV charging stations as well as own-use EV charging stations installed on private property. They will be billed at EV Charging Service Rate.
- **Wholesale Interconnection Service** which is applicable to any major agro-productive zone such as Spanish Lookout Community (SPLC) and tourism locales such as Caye Chapel and Stake Bank which are currently off-grid and who can purchase electricity in bulk. They will be billed at the proposed Wholesale Rate.
- Tourism Customers which include specifically resorts and accommodation services with DG/Solar PV installations to support the already active marketing campaign branding Belize as a “green country” using sustainably sourced energy. The proposed tourism rate then is the same as the DG rate and aims to incentivize improved performance in this sector translating to greater indirect and induced benefits to complementary services in the economy supporting BEL’s growth strategy.

The Feed-in-tariff, which applies to all Customers with grid-tied PV systems that export energy to the grid, aims to compensate Customers for their excess energy exports.

3. What are the time intervals for TOU by identifying the peak and off-peak periods?

Previous studies – the 2014 cost of service and more recently the 2020 Least Cost Expansion Plan (LCEP) study - have analyzed historic electricity use patterns by Customers and identified high-use (peak) and low-use (off peak) periods. It is important to note that peak and off-peak periods typically vary on weekends compared to weekdays as, understandably, Customer energy use patterns are different within the work week than on weekends. Customer use patterns also vary across seasons, in dry season when temperatures are typically higher peak energy periods may extend longer as Customers ramp up electricity for cooling purposes.

Our data indicates that, generally, system peak demand periods are between 10:00 am – 12 noon and 2:00 pm to 3:00 pm and again between 7:00 pm and 8:00 pm. BEL suggests simplifying this for practicality and having an initial schedule of peak and off-peak hours as follows:

- Peak Energy Charge (per kWh) being applicable between 10:00 am and 8:00 pm
- Off Peak Energy Charge (per kWh) being applicable between 8:01 pm and 9:59 am

4. Kindly elaborate on the BEL proposed measurement intervals, peak and charge calculations for the demand charges proposed in the Grid-Tied DG, Spanish Lookout, EV and Tourism Tariffs.

BEL's pricing proposal follows the principles of cost recovery and cost reflectivity. Cost recovery requires that the utility recover its just and reasonable costs and cost reflectivity requires that the prices to end-users/Customers reflect costs to the system to provide the service.

The proposed rates have three components: (1) a demand charge of $30 per KVA per month, (2) an energy charge per kWh of 35 cents for peak hours and 30 cents for off-peak hours, and (3) a per kWh Feed-in Tariff of 13 cents. The demand charge is designed to recover the investment costs of putting the infrastructure in place to provide power when needed – these are relatively fixed costs. The energy charge is designed to recover the operational cost of serving Customers, which includes generation and power purchases costs and operating and maintenance costs[1]. Since generation and power purchases costs are heavily influenced by the time of use, we propose a peak and off-peak charge. These price points were developed back in 2021 based on assumptions exemplified in Table 1 below.

Table I: 2022|2023 Regulated Utility Costs

A	OPEX	33,506,842
B	Return	32,324,815
C	Depreciation	16,988,749
D	Taxes/License Fees	5,769,001
	Sub-Total (VAD)	**88,589,407**
E	Reference COP	172,665,417
F	Corrections	9,747,865
G	Less: Other Income	(4,854,782)
RR	**Required Revenue**	**266,147,906**

H	Energy Sales kWh	625,836,173
I	System Peak Demand Kva	128,000
J	Capacity Cost (B+C)	49,313,564
K	Monthly KVA Charge (I/H/12)	31.9
L	Unit COP (E/G)	0.28
M	Operating Cost (RR – (E+B+C))	0.07
N	Peak Charge (L+H)	0.35

[1] We had developed two versions of this pricing model – one with O&M costs treated as a function of the energy costs and the other with O&M costs treated as a function of the investment costs.

The revenue requirement (RR) for the most recently completed annual tariff review period running from 1 July 2022 through to 30 June 2023 was approximately $266.1 MN, of which $49.3 MN was recovery for investments in power delivery infrastructure. Best practice recommends that these types of "capacity costs" be allocated according to the demand Customers place on the system, measured in kilowatts (KW) or kilovolt amps (kVA). The estimated annual cumulative demand Customers place on the system is 128,000 kVA which works out to approximately $383 per kVA or $31.9 per kVA per month system wide, which is rounded down to $30.00 as a starting point for the demand charge.

The average unit cost of power – generated and purchased from independent power producers to meet Customer demand – forecasted over the medium-term (the next five years) is approximately 24 cents per kilowatt hour and BEL plans to maintain its operating expenses at 6 cents per kilowatt hour so that the lower end of the per unit operating costs is expected to be about 30 cents per kilowatt hour – the proposed off-peak energy tariff. As seen more recently, in 2022|2023, operating costs can go as high as 35 cents per kilowatt hour driven by higher unit cost of power and so the peak energy tariff is proposed to be set at this higher bound.

If the O&M cost is attached instead to the investment cost, then the monthly KVA cost is $54 and the energy charge is 28 cents per kWh during peak hours and 24 cents per kWh during off peak hours.

The feed-in tariff is set at 13 cents per kilowatt hour as this is the prevailing rate for the two distributed generation suppliers currently selling electricity to BEL. The Company notes the suggestion from a respondent to the public consultation that the feed-in tariff should be set at near 34 cents per kilowatt-hour (the estimated levelized cost of PV energy) – this of course is economically untenable as it is well above the marginal cost of power currently available to BEL from its suppliers.

5. What is the proposed market structure and how will pricing of electricity inputs be done, so that BEL is playing on a level field with other Charging Point Operators (CPOs)?

The global market structure for electric vehicle (EV) charging has and will continue to evolve rapidly as EV uptake increases. Globally, various models have been deployed to promote increased availability of necessary charging infrastructure, while maintaining a fair and competitive environment among CPOs. A common strategy is to regulate pricing of electricity inputs, hence the need to establish an EV Tariff and Customer category which sets the baseline price for EV charging service for CPOs and which reflects the capacity and operating costs to have the infrastructure in place to power the charging stations.

The current tariff structure as presented by BEL assumes that the capital costs of the charging stations are absorbed into Value Added of Delivery (VAD) and distributed across all customers and not recovered from charging station owners/users only. However, these costs are being tracked separately so that the charging stations can eventually be divested to a BEL subsidiary who will then compete with any other CPO using the EV tariff as the baseline cost and having to

differentiate and market its charging service to earn a return. *It is important to emphasize that every CPO, including BEL's subsidiary, will face the same baseline cost (the EV tariff approved by the PUC) as this the cost to access the electricity grid for capacity and power for EV charging stations and like power for any grid connected service installation – this cost is regulated.*

Actual retail charges/prices to final consumers by the CPOs could be subject to further regulation – such as an upper limit on the commercial margin added to the base tariff. The PUC may also elect to leave retail charges to final consumer unregulated and entirely subject to competitive strategies of the CPOs. The PUC is also encouraged to establish guidelines and regulations to ensure fair competition in the EV charging market. This may include rules regarding pricing transparency, non-discriminatory access to charging infrastructure, and standards for interoperability. The PUC may also monitor compliance, resolve disputes, and provide consumer protection mechanisms to safeguard the rights of EV owners through ensuring transparent pricing and billing accuracy.

6. If the PUC fixes the EV rates, how will the CPOs price for differentiated services?

BEL is of the opinion that providing a fixed tariff rate for provision of electricity to public or commercial level EV charging stations provides a fair baseline for pricing and regulations governing the provision of electricity to EVs. Having the rates in place will ensure transparency, affordability, and sustainability in the use of EV charging infrastructure. Within the framework of baseline pricing, CPOs have flexibility to offer differentiated services (such as convenience and fast charging via DC Fast Charging versus AC Rapid Charging) and prices that reflect their preferred business and pricing models. For instance, value added services and benefits (such as premium / priority parking), access to amenities linked to establishments and faster more convenient charging options may be incorporated into the pricing.

In future, Time-of-Use structures made possible through smart metering technology will also allow CPOs to implement demand driven pricing, where rates vary depending on the time of day or demand on the grid, leading to behavior-based incentivized charging when electricity demand is lower and provision of service at reduced prices. This would encourage constant dialogue between CPOs and BEL, allowing the company to optimize use of the national grid and ensure its reliability.

Providing an established regulatory framework will allow for adoption of common globally established, market responsive approaches to differentiated pricing and services, including Time-of-Use Pricing, Power Level Pricing, Location-Based Pricing (for high demand areas), Demand-Responsive Pricing at high traffic locations (such as supermarkets).

Overall, while PUC-fixed rates provide a baseline to ensure the capacity investments and operating costs for the infrastructure is recovered, CPOs would still be able to innovate and differentiate their services through various pricing strategies and value propositions that align with the goals of stakeholders and consumers involved in the EV charging ecosystem, within the bounds of the regulations set by the PUC.

7. BEL is requested to provide spreadsheets to show how the tariffs were derived, along with any assumptions and justifications for all proposed tariffs and charges.

The pricing assumptions and rate design principles are explained in the response to question 4 above. Also, it is important to note that BEL's proposal is in line with rate design in other jurisdictions. Regionally, the Caribbean Utilities Company Ltd. in the Cayman Islands in 2023, put into effect dedicated EV Charging Service Rate Class. The Billing Components include a Monthly EV Charging Facilities Charge (akin to the Demand Charge proposed by BEL), an On-Peak per kWh rate, and an Off-Peak per kWh rate.

One respondent to the consultation suggested that the Canadian model for electricity pricing, including for DG services should be followed "…whereby grid-connected [PV] users fall within their regular rate structures as designated by their usage (residential, commercial, industrial) and the energy producers (wind, solar, hydroelectric, geothermal, bio) supply their energy to the grid at an agreed credit rate." In fact, most jurisdictions in Canada have "regular rate structures" which follow the very same model BEL proposes – a fixed or capacity charge[2] for recovery of infrastructure costs and a variable energy charge for recovery of operating costs. The volumetric pricing model currently employed in Belize whereby most utility costs are recoverable through a variable energy rate is obsolete and presents an untenable revenue risk.

8. BEL is requested to provide the utility's perspective on how the proposed additional tariffs will impact the existing tariff classifications mix.

BEL maintains that introduction of rates at preferred pricing to support the transition to electrified ground transportation, support the economic viability of key industries and the productive sectors, and the overall natural growth of electricity consumption will lead to growth in electricity sales, prevent systematic defection from the grid, allowing for overall lower unit costs for electricity, thereby reducing the cost of electricity to customers.

Furthermore, a transition to a rate structure that provides fair compensation (by way of demand charges) for the backup and reliability function which the grid provides will alleviate the undue passing of costs to support the grid to other grid connected Customers who do not have DG installations.

9. Regarding the Spanish Lookout proposal, can a 115/12.47/7.2 kV substation be installed, instead of two substations as proposed: a BEL 115/22 kV substation and an FLP 22/12.47/7.2 kV substation?

The Distribution System Planning and Engineering Department at BEL will engage the SPLC principals to discuss interconnection design and alternative configurations to jointly arrive at an

[2] Ontario Energy Board

optimal solution. The Company is highly motivated to realize this interconnection as soon as possible as it presents a win-win opportunity for both parties.

10. Kindly provide responses and commentaries on the five issues raised by Caribbean Motors' in EV1 prior.

a. What does this EV charging chart apply to? For home charging, Public EV chargers that will charge a customer for usage or a EV charger used for private or public use but there is no charge passed on to the customer? Will each charger be metered separately and standalone, even if they are connected to an existing facility or meter and building?

- This query has been addressed in question 1 above.

b. Why is there a demand charge applied in this case? I understand the thought process (but don't agree with it) of the demand charge associated with DG solar. In that case someone is trying to reduce their dependence on BEL but still needs them as their backup. But in this case, it is just additional demand for BEL so charging a demand fee per KVA seems odd. Also, what is the KVA based on for the demand fee? How is that measured?

- The rationale for the pricing structure is addressed in BEL's response to question 4 above. KVA is measurable using smart meters (AMI) which will be deployed for DG and EV service installations.

c. What is the timeframe for peak and off-peak for the rates?

- This has been addressed in question 3 above.

d. How will this level the playing field in terms of competing with the existing BEL Charge N Go infrastructure? Will there be a regulated rate that BEL can charge at their chargers? It would appear challenging to compete with BEL as any charging owner appears to have to purchase power for their charger at regular retail - rates. And it appears that BEL is charging regular retail rates at their chargers. So, it would appear there is very little profit to be made by anyone wanting to purchase and install a charger to support public charging.

- This has been addressed in question 5 above.

e. Are there any thoughts on if DC super charging can charge higher rates to the consumer based on the convenience of much faster charging times to the EV owner and the much higher investment cost by the charging station owner?

- This has been addressed in question 6 above.

END