

# Public Notice FOR IMMEDIATE RELEASE JUNE 26, 2023

A Summary of Responses to PUC's Consultative Paper:

### LICENSE AND CONSENT IN RESPECT OF ELECTRICITY ACTIVITIES

Issued August 30, 2022



Q1 (a) – are there any additional generation capacity technologies that should be added to Section 3.4.1 that are not currently included?	
BTL Contribution	Given that fossil fuels also include natural gas, and petroleum, and that renewable energy technologies include Solar, Wind, Hydro, Geothermal, perhaps CHP should be micro/ mini CHP which uses technologies such as internal combustion engine, or fuel cell technology, and Stirling engine/Steam Turbine.
BEL Contribution	
MPUELE Contribution	
PUC Response	The PUC is in agreement with the BTL's definitions and interpretations and will utilize the provided guidance in setting out the technologies that are applicable to the classifications and/or definitions.

Q1 (b) – are there any additional categories that should be added to Section 3.4.3 that are not currently included?	
BTL Contribution	Appears to include the essential categories. CHP can be either under-fossil fuels or renewable.
BEL Contribution	
MPUELE Contribution	
PUC Response	The PUC takes note of the BTL comments on the categories. The PUC will consider the CHP comment under Q1 (a), kindly inform us if this was not your intent.



Section 3.4 seems to be directed to single off-grid residential. BTL does not have the necessary data to review historical data and therefore is unable to validate threshold capacities. Nevertheless, the users should be able to provide the load schedule which helps to size the energy generation system to the demand.

It is essential to define the method for determining the system capacity. For this scenario, BTL recommends both power kW and energy kWh be used to describe the system capacity. For grid-tied systems, kW is of more importance due to impact it could have on the operation and response of the electrical grid. If power kW is to be used it would be peak the power rate.

Perhaps only fossil-fuel generation technologies can be more easily determined since they are not intermittent and the maximum power capacity is based on nameplate, where the actual kW depends on the load connected to it.

**BTL Contribution** 

Renewable energy technologies are a bit different, since they are systems that depend on several aspects. Solar power generation, for example depends not only on the quantity of rated PV Modules installed, but also the rated capacity of the inverter. The final output kW and kWh depends on irradiance (W/m2) from the sun, the tilt and azimuth of PV modules, and ambient temperature, whether the inverter will reach its maximum power level or not (output cap), and whether the inverter will reduce power output if there is not much load (throttling). It is good to have record of kW of solar installed. At any instant there is a certain amount of kW· produced; however, what is more meaningful is the designed energy generation in kWh. The max instantaneous kW power is more meaningful for systems that export power to the grid since this is related to grid stability. Wind power is similar, each wind turbine whether (vertical or horizontal axis) has a rated maximum, but the instantaneous power kW depends on the instantaneous wind speed. Burning of biomass for CHP for example, depends on biomass energy per mass, and other factors that affect heat buildup.



#### In relation to 3.4.1 & 3.5.3

#### **Self-Generation, including Community Self Generation**

Self-generation is defined as where a person generates electricity for their own use and is off grid. Currently, a person/entity enjoys the freedom to self-supply up to 75 KW without authorization from the PUC. The proposal extends this significantly by preauthorizing up to 1MW of self-generation from onshore renewable technologies, up to 0.25 MW from offshore renewable technologies, and up to 2 MW of Combined Heat and Power (CHP) technologies on the condition that they first attain PUC's consent for construction and operation.

The challenge here is two-fold. On the commercial end, this could erode BEL's market share and jeopardize investment recovery in contravention of the regulatory compact between the PUC and utility investors as explained earlier and is amply supported by evidence in other jurisdictions. On the technical side, it is possible that community may want to interconnect with the grid in the future but may be prohibited from doing so if the distribution network is incompatible with BEL's standards. The consent requirement suggested by the PUC does not seem to contemplate utility standards, only planning and environmental concerns. For these two reasons alone, we would suggest retaining the License to a Particular Person for any form of generation above 75 KW.

**BEL Contribution** 

In relation to 3.4.2:

#### **Distributed Generation**

Distributed Generation (DG) is defined as where a person generates electricity from a capacity not exceeding their peak demand and who may sell the excess to the utility, or third parties and may be grid connected. BEL believes that the licensing reform efforts should be focused in this area in response to growing market demand. However, because of the technical limitations of the system there needs to be an empirical basis that informs the capacity thresholds. It is unclear how the PUC determined the thresholds and BEL would only be able to provide recommendations based on an engineering study. In the interim, it may be sufficient to retain the 75 KW threshold and utilize the



	PUC's License to Persons of a Class to pre-authorize any such DG person/entity to sell to BEL on the condition that they satisfy the Company's interconnection standards and provided that the revised rate structure is in place. Importantly, under this license, BEL must have the explicit authority to disconnect persons from the grid where they have not declared the fact that they are interconnected and/or where they do not meet or maintain the requirements of the interconnection standards.
	Additionally, the inclusion of "third party" sales permits DG licensees to be a direct supplier of energy services independent of BEL which brings back into focus the issue of loss of market share and revenue erosion that may undermine BEL's capacity to maintain the grid. How does the PUC intend to regulate prices and service quality for such licensees to protect customers? This is why some jurisdictions elect to use a Buy-All, Sell-All model, permitting DG owners to sell only to the utility and further underscores the point that the commercial considerations must be wedded to the licensing considerations.
MPUELE Contribution	In relation to 3.4.2:  'I would recommend 3kW installed'
	The PUC is agreement in adjusting the threshold value as recommended by the MPUELE.
PUC Response	In response to the BTL contribution, the PUC's understanding of the Law is that licence authorizations are made in respect of the rated capacity of a generating plant. and voltage level for network plants.
	In response to the BEL contribution the PUC appreciates the fact that BEL is comfortable with the current authorization regulatory landscape; but GoB's Policy stance of promoting DERs and a more competitive electricity market has precedence.
	The PUC takes note of the associated technical and commercial issues raised by BEL. These will be treated through a separate consultative process outside the scope of the licensing framework.



Q1 (d) – are there any additional conditions that should be added that are not currently included and why?	
BTL Contribution	As it pertains to paragraph 3.4.2 (Minor Distributed Generation), a method needs to be established to determine the allowable maximum power to sell to grid. This important since all limitations needs to be known, including the feed-in tariff.
BEL Contribution	
MPUELE Contribution	
PUC Response	The maximum power export, or excess, is the difference between the generation capacity threshold and consumption for a particular licensee. The PUC proposes to determine the applicable tariffs through a separate consultative process outside of this licensing framework consultation.

Q1 (e) – are there any additional licensing entries that should be added that are not currently included in Section 3.4? Provide your reasoning.	
BTL Contribution	No Issues
BEL Contribution	
MPUELE Contribution	
PUC Response	The PUC takes note of the BTL response.

Q1 (f) – do you agree with the Commissions' consent proceeding position? If not, what alternatives do you propose?	
BTL Contribution	No Issues
BEL Contribution	
MPUELE Contribution	
PUC Response	The PUC takes note of the BTL response.

Q2 (a) - are there any additional generation capacity technologies that should be added in Section 3.5.1 that are not currently included?	
BTL Contribution	Note response in 3.4 Q1 (a) above.
BEL Contribution	
MPUELE Contribution	
PUC Response	Kindy refer to the PUC response for 3.4 Q1 (a) above.

A Summary of Responses to PUC's Consultative Paper: LICENSE AND CONSENT IN RESPECT OF ELECTRICITY ACTIVITIES



Q2 (b) – do you agree with the proposed capacity thresholds provided for in Section 3.5.1, 3.5.2 and 3.5.3? If not, what alternative values do you propose and why?	
	Note response in 3.4 Q1 (c) above.
BTL Contribution	How is capacity determined for persons who use solar energy to "charge" the storage system? Is it determined by the peak power kW of the solar power system or the kW rate of the storage
	system? What is the output requirement if storage system is grid connected?
BEL Contribution	
MPUELE Contribution	In relation to 3.5.2:  How is peak demand calculated? Highest demand of a single event in a calendar year, average of daily peak demand of highest consumption month or monthly average of peak demand?  & >3kW<1MW
PUC Response	In response to the BTL contribution the PUC applies industry practice where if offtake is DC then the sum total of panel ratings controls; otherwise if AC offtake, as an inverter-based resource, the inverter capacity controls.  In response to the MPUELE contribution the PUC was looking for guidance from Interested parties on how to treat seasonal peaks. The PUC agrees to the storage thresholds.

Q2 (c) - do you agree with the inclusion of categories 3.5.4 to 3.5.6? If not, what alternative classification do you propose?



#### **BTL Contribution** In 3.5. 4 (Reseller) it is unclear whether the "defined physical area" will be classified as third party, or if the person needs to be a company in order to be able to resell? Secondly, what will be the process for buying and re-selling of power? Is this only for ongrid applications? In 3.5.5 (Aggregator), the Aggregator should be a company that establishes contracts with each DER owner within a boundary for buying and selling of power within the boundary owner-to-owner, and also be able to buy-sell to and from the utility via a contract. In 3.5.6 (temporary)) the temporary electrical service via a mobile generation unit is important for many and not only during construction. For example, mobile generation is important during emergencies when main backup units have failed. Emergencies require fast action and consent from the commission would cause delay. What is the procedure(s) and the timeline for consent to be granted by the Commission for capacity exceeding 75kW?



	In relation to 3.5.4:
	Reseller
BEL Contribution	Reselling is defined as where a person or group of persons procure electricity for the purpose of supplying electricity services to other persons within a defined physical area (e.g. business complexes, condos, gated communities, charging stations and etc.). Three concerns prevail here. First, the scope of supply area needs to be more precisely defined. This license provision obviously pertains to persons reselling within the boundaries of a single commercial property or residential sub-division as distinct from a community such as a village. Second, as BEL prices will remain regulated, how does the PUC intend to regulate prices of the reseller, prices which are designed to reflect a certain level of service quality performance and the primary supplier is expected to maintain?
	Aggregator
	The decision to contract with a collective of DG owners is a commercial decision on the part of BEL as the owners would have already satisfied the license requirements on an individual basis. This seems to amount to general endorsement by the PUC that DG owners can group and bargain with BEL, but this seems to be outside of the licensing scheme.
	In relation to 3.5.6:
	Temporary Supply
	There is no definition of what constitutes a temporary supply; a time limit should be clearly imposed.
MPUELE Contribution	



	In response to the BTL contribution:  A Reseller will have to have a defined area of supply or premises, in conformity with current Law. A Reseller can be any legal person. Reseller obligations will be determined by Licence Conditions and applicable to persons off-grid and on-grid.  The PUC agrees with BTL's Aggregator scope.
	The PUC agrees with BTL that an industry-wide Consent for temporary Mobile units is sensible.
	In response to the BEL contribution:
PUC Response	A Reseller will have to have a defined area of supply or premises, in conformity with current Law. Reseller obligations will be determined by Licence Conditions. Agree with BEL that this authorization is intended for private real property in the conduct of efficient electricity services to third parties within the area of supply/premises. PUC's current thinking is to define a maximum markup of input costs, similar to some jurisdictions.
	PUC does not agree with BEL's characterization for the Aggregator category. Modern regulatory frameworks across the globe (see Singapore, Australia, Hawaii, etc) all include this authorization.
	PUC believes that the term of a temporary authorization be determined at the time of authorization. Furthermore, some commercial undertakings may own and operate a mobile generating facility that will require permitting.

Q2 (d) – can you propose any additional categories for inclusion? Kindly justify your request.	
BTL Contribution	Include a category for power producers for renewable energy to sell 100% (to grid) of what can be provided by the system. For example, to be able to have solar/wind farms.
BEL Contribution	
MPUELE Contribution	

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DLIC Posnonso	In response to the BTL contribution - it is provided for under
PUC Response	Licence to a Particular Person.

Q2 (e) – are there additional conditions that should be added that are not currently included and why?		
BTL Contribution	Power generation estimate should be provided with the request to construct.	
BEL Contribution		
MPUELE Contribution		
PUC Response	The PUC request further BTL elaboration on the response to the additional condition.	

Q3 (a) - are there any additional generation capacity technologies that should be added in Section 3.6.1 that are not currently included?		
BTL Contribution	Note response in 3.4 Q1 (c) above.	
BEL Contribution		
MPUELE Contribution		
PUC Response	Kindy refer to the PUC response for 3.4 Q1 (c) above.	

Q3 (b) – do you agree with the proposed capacity thresholds provided for in Section 3.6.1 and 3.6.2? If not, what alternative values do you propose and why?		
BTL Contribution	No Issues	
BEL Contribution		
MPUELE Contribution		
PUC Response The PUC takes note of the BTL response.		



Q3 (c) - do you agree with the inclusion of categories 3.6.3 to 3.6.4 both inclusive? If not, what alternative classification do you propose?		
BTL Contribution	Is the person (company/ owner) of a large solar farm categorized as an IPP?	
	What is the bracket of kW capacity for solar farms or wind farms or any other power generation system?	
BEL Contribution		
MPUELE Contribution		
PUC Response	In response to the BTL contribution - a large solar farm must be an IPP authorization. The capacity sought will be declared under the Request for Proposals (RFP), which IPPs must participate in to add new generation capacity.	

Q3 (d) – can you propose any additional categories for inclusion? Kindly justify your request.		
BTL Contribution	Include category for power producers for renewable energy to sell 100% (to grid) of what can be provided by the system. For example, to be able to have solar/wind farms.	
BEL Contribution		
MPUELE Contribution		
PUC Response	In response to the BTL contribution - under current Law, power producers intended for public supply MUST be under a competitive process (e.g. PUC employs RFP, avoided costs as regulatory tools).	

Q3 (e) – are there any conditions that should be added and why?		
BTL Contribution	Power generation estimate should be provided with the request to construct.	
BEL Contribution		
MPUELE Contribution		
PUC Response	The PUC request further BTL elaboration on the response to the additional condition.	



### **END**



#### Ref: BTL/LRA/2022 (115)

November 14, 2022

#### Mr. Abraham Teck

Director
Regulated Services
Public Utilities Commission
4 Princess Margaret Drive
Marina Towers
2nd Floor
PO Box 300
Belize City,
Belize

Dear Mr. Teck,

### RE: CONSULTATIVE PAPER (Licence and Consent in respect of Electricity Activities)

We write on behalf of Belize Telemedia Limited ("BTL") with reference to the captioned subject matter. We also write in response to the Public Utilities Commission's Consultative Paper¹ of the 30<sup>th</sup> of August 2022.

BTL hereby submits its feedback and recommendations to the proposed regulations. For ease of reference, we itemized according to the arrangement within the regulation showcasing the original regulation, issues and recommendations.

ORIGINAL REGULATIONS	ISSUES	RECOMMENDATIONS
3.4 – Licence to All Persons	Q1 (a) - Are there any additional generation capacity technologies that should be added to Section 3.4.1 that are not currently included?	Given that fossil fuels also include natural gas, and petroleum, and that renewable energy technologies include Solar, Wind, Hydro, Geothermal, perhaps CHP should be micro/mini-CHP which uses technologies such as internal combustion engine, or fuel cell technology, and Stirling engine/Steam Turbine.

<sup>&</sup>lt;sup>1</sup> Licence and Consent in respect of Electricity Activities

ORIGINAL REGULATIONS	ISSUES	RECOMMENDATIONS
3.4 – Licence to All Persons	Q1 (b) - Are there any additional categories that should be added to Section 3.4.3 that are not currently included?	Appears to include the essential categories. CHP can be either underfossil fuels or renewable.
3.4 - Licence to All Persons	Q1 (c) - Do you agree with the proposed capacity thresholds provided in Section 3.4.1, 3.4.2 and 3.4.2? If not, what alternative values do you propose and why?	Section 3.4 seems to be directed to single off-grid residential. BTL does not have the necessary data to review historical data and therefore is unable to validate threshold capacities. Nevertheless, the users should be able to provide the load schedule which helps to size the energy generation system to the demand.
		It is essential to define the method for determining the system capacity. For this scenario, BTL recommends both power kW and energy kWh be used to describe the system capacity. For grid-tied systems, kW is of more importance due to impact it could have on the operation and response of the electrical grid. If power kW is to be used it would be peak the power rate.
		Perhaps only fossil-fuel generation technologies can be more easily determined since they are not intermittent and the maximum power capacity is based on nameplate, where the actual kW depends on the load connected to it.
		Renewable energy technologies are a bit different, since they are systems that depend on several aspects. Solar power generation, for example depends not only on the quantity of rated PV Modules installed, but also the rated capacity of the inverter. The final output kW and kWh depends on irradiance (W/m2) from the sun, the tilt and azimuth of PV modules, and ambient temperature, whether the inverter will

ORIGINAL REGULATIONS	ISSUES	RECOMMENDATIONS
		reach its maximum power level or not (output cap), and whether the inverter will reduce power output if there is not much load (throttling). It is good to have record of kW of solar installed. At any instant there is a certain amount of kW produced; however, what is more meaningful is the designed energy generation in kWh. The max instantaneous kW power is more meaningful for systems that export power to the grid since this is related to grid stability. Wind power is similar, each wind turbine whether (vertical or horizontal axis) has a rated maximum, but the instantaneous power kW depends on the instantaneous wind speed. Burning of biomass for CHP for example, depends on biomass energy per mass, and other factors that affect heat buildup.
3.4 - Licence to All Persons	Q1 (d) - Are there any additional conditions that should be added that are not currently included and why?	As it pertains to paragraph 3.4.2 (Minor Distributed Generation), a method needs to be established to determine the allowable maximum power to sell to grid. This important since all limitations needs to be known, including the feed-in-tariff.
3.4 - Licence to All Persons	Q1 (e) – Are there any additional licensing entries that should be added that are not currently included in Section 3.4? Provide your reasoning.	No Issues
3.4 - Licence to All Persons	Q1 (f) — Do you agree with the Commissions' consent proceeding position? If not, what alternatives do you propose?	No Issues

ORIGINAL REGULATIONS	ISSUES	RECOMMENDATIONS
3.5 – Licence to Persons of a Class	Q2 (a) - Are there any additional generation capacity technologies that should be added in Section 3.5.1 that are not currently included?	Note response in 3.4 Q1 (a) above.
3.5 – Licence to Persons of a Class	Q2 (b) – Do you agree with the proposed capacity thresholds provided for in Section 3.5.1, 3.5.2 and 3.5.3? If not, what alternative values do you propose and why?	Note response in 3.4 Q1 (c) above.  How is capacity determined for persons who use solar energy to "charge" the storage system? Is it determined by the peak power kW of the solar power system or the kW rate of the storage system? What is the output requirement if storage system is grid connected?
3.5 – Licence to Persons of a Class	Q2 (c) - Do you agree with the inclusion of categories 3.5.4 to 3.5.6? If not, what alternative classification do you propose?	In 3.5.4 (Reseller) it is unclear whether the "defined physical area" will be classified as third party, or if the person needs to be a company in order to be able to resell? Secondly, what will be the process for buying and re-selling of power? Is this only for on-grid applications?  In 3.5.5 (Aggregator), the Aggregator should be a company that establishes contracts with each DER owner within a boundary for buying and selling of power within the boundary owner-to-owner, and also be able to buy-sell to and from the utility via a contract.  In 3.5.6 (Temporary,) the temporary electrical service via a mobile generation unit is important for many and not only during construction. For example, mobile generation is important during emergencies when main backup units have failed. Emergencies require fast action and consent from the commission would cause delay. What is the procedure(s) and the timeline for consent to be granted by the

ORIGINAL REGULATIONS	ISSUES	RECOMMENDATIONS
		Commission for capacity exceeding 75kW?
3.5 – Licence to Persons of a Class	Q2 (d) – Can you propose any additional categories for inclusion? Kindly justify your request.	Include a category for power producers for renewable energy to sell 100% (to grid) of what can be provided by the system. For example, to be able to have solar/wind farms.
3.5 – Licence to Persons of a Class	Q2 (e) — Are there additional conditions that should be added that are not currently included and why?	Power generation estimate should be provided with the request to construct.
3.6 – Licence to a particular Person	Q3 (a) - Are there any additional generation capacity technologies that should be added in Section 3.6.1 that are not currently included?	Note response in 3.4 Q1 (c) above.
3.6 – Licence to a particular Person	Q3 (b) – Do you agree with the proposed capacity thresholds provided for in Section 3.6.1 and 3.6.2? If not, what alternative values do you propose and why?	No Issues
3.6 – Licence to a particular Person	Q3 (c) - Do you agree with the inclusion of categories 3.6.3 to 3.6.4 both inclusive? If not, what alternative classification do you propose?	Is the person (company/owner) of a large solar farm categorized as an IPP?  What is the bracket of kW capacity for solar farms or wind farms or any other power generation system?
3.6 – Licence to a particular Person	Q3 (d) — Can you propose any additional categories for inclusion? Kindly justify your request.	Include category for power producers for renewable energy to sell 100% (to grid) of what can be provided by the system. For example, to be able to have solar/wind farms.
3.6 – Licence to a particular Person	Q3 (e) — Are there any conditions that should be added and why?	Power generation estimate should be provided with the request to construct.

Thank you for your attention hereto.

Respectfully yours,

T Kileru Awich (Mr.) Internal Legal Counsel

Legal and Regulatory Affairs Department

Belize Telemedia Limited

Mr. Ivan Tesucum - Chief Executive Officer, BTL
 Mr. Leonardo Calle - Chief Operations Officer, BTL

Mr. Dean Molina - Chairman, PUC

2 1/2 Miles Philip Goldson Highway | P.O. Box 327 Belize City, Belize C.A. Telephone: 501.227.0954 | Fax: 501.223.0891



14 October 2022

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

Dear Chairman Molina,

#### Re: BEL's response to the PUC's White Paper

BEL is in receipt of the PUC's White Paper, License and Consent in Respect of Electricity Activities, submitted for consultation and comment. This is a welcomed first step towards diversifying and modernizing energy services in Belize and BEL offers its analysis in complement to the PUC's efforts.

We, of course, acknowledge the PUC's role and responsibility in regulating the electricity sector, including through fostering competition, to provide high quality services to customers at reasonable and competitive rates while also assuring the sector's viability. To accomplish this, the PUC must balance the interests of all stakeholders, especially BEL as a significant partner in the development of the sector.

BEL has been the sole national electricity provider for over 70 years licensed to supply electricity to all service areas countrywide. This arrangement was designed to achieve the economies of scale necessary to justify large investments in transmission and distribution assets which form the national electricity grid and that powers over 100,000 homes and numerous enterprises across Belize with over 99% service reliability. These investments have allowed Belize: (1) to enjoy rates of 40 cents per kwh on average - the second lowest in the CARICOM region and even lower than many states in the USA; and (2) to be the #1 renewable producer in the entire Caribbean and #2 in Central America. These investments have also insulated BEL and its customers from the global energy price shocks currently reverberating through Europe and the rest of the world.

The advent of more affordable distributed and self-generation technologies creates an opportunity to diversify the energy services market, supporting market entrants beyond BEL as a monopoly entity. However, Belizeans, like others worldwide, will continue to rely on the national electricity grid, and BEL's partnerships with large-scale energy producers, for energy security and reliability for the foreseeable future. These technologies are unable to operate cost effectively without the grid as backup. In fact, distributed generation using batteries or diesel generators as backup cost well over double the cost of power from BEL and is far less reliable.

### BELIZE **ELECTRICITY** LIMITED

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The compact which underpins the current regulatory scheme assures BEL and its stakeholders that all its reasonable costs – and hence its transmission, distribution, and supply investments – will be recovered through rates charged to customers. As a substantial portion of BEL's costs are fixed, any changes in the regulation which infringes on BEL's markets and that encourages or opens further avenues for uncontrolled grid defection will cause unit costs to spiral upwards and hence prices to rise and so threaten the viability and solvency of the company and by extension energy security for the country. Fundamentally, there can be no relaxing of licensing requirements before there is an adequate rate design with a fixed or demand charge to recover capacity costs separate from variable energy costs to protect utilities and the grid from volume-driven revenue risk. Furthermore, the many customers who cannot afford DG will disproportionately bear the cost of maintaining the grid that DG owners will likely connect to for reliability.

BEL, in its 2022 ARP submission, advised the PUC of the urgent need to implement a revised rate structure in line with international best practice and the recommendations of the Cost-of-Service Study. This matter, however, is still pending before the PUC. While development of the licensing scheme and rate design may occur in parallel, this does not seem to be the route that the PUC is taking, and it is crucial to the integrity of the market that the two come into effect in tandem. The commercial implications of relaxing licensing requirements for electricity market activities cannot be divorced from the implications of the rate design, including the need for a feed-in tariff to encourage the economic take-up and deployment of DG.

BEL is also concerned that the technical implications of relaxing license requirements are not fully considered in the White Paper. We assume there is engineering analysis that supports the determination of capacity sizes for the license categories, and if so, we hereby ask that this be shared with us. The LCEP models indicate DG penetration limits at the load center and substation level and BEL intends to do further analysis at the distribution feeder level as a necessary next step in the road map of introducing DG into the generation/grid mix further to our submissions of the DG Pricing Mechanism and Interconnection Standards (see Diagram 1 below).

The engineering analysis¹ is important given the physical limitations of the system to take on additional generation sources as per the LCEP, as well as the adjustments to be made on BEL's own part to manage intermittency of renewable energy resources scattered throughout the grid. It can be argued that this may be controlled through interconnection and commercial agreements with BEL, but that this runs the risk of market entrants making investments on the wrong presumption that they will be able to interconnect to the grid under current conditions. This is best controlled through a licensing regime which precludes the activity at the onset until certain conditions are satisfied. In this same vein, and as shown in the roadmap below, prudence dictates that a hosting capacity study be conducted to determine the amount of DG production that can be connected to the grid without endangering reliability and voltage quality for customers.

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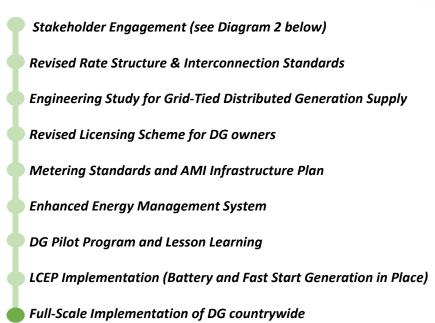
<sup>&</sup>lt;sup>1</sup> This includes, inter alia, load analysis for DER demand side changes and Network Analysis to look at asset loading, power quality, network operation and upgrade requirements, as well as rate, cost, and operation implications, reconciling with the LCEP.

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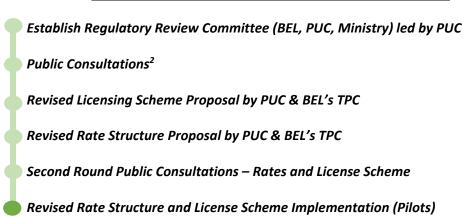


#### Diagram 1: Proposed DG Road Map



Ideally, and in keeping with international best practice, we expect that where paradigm shifts in the regulations are contemplated, the regulator would engage the utility first, as owner-operator of the grid, to ensure that proposals would not constrain the utility's capacity to operate and maintain the grid in accordance with international standards and that changes result in net benefits to customers. We would ask then that the PUC allow for direct collaboration with the BEL's Technical Planning Committee (TPC) as the next stage of consultation to review the licensing scheme, in light of stakeholder feedback, and then to go again to the public for a final round of consultation. Below we illustrate a more robust consultative process given the complex and diverse interests involved here.

#### Diagram 2: DG Stakeholder Engagement Road Map



<sup>&</sup>lt;sup>2</sup> Gather feedback on the different ways in which the public expects to be able to transact with the utility via DG can and use the information to calibrate licensing scheme. Consultations with financial institutions to support investments is also key.

Toll Free: 0.800.235.2273

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In the meantime, BEL also offers specific comments on the White Paper, organized by activities subject to license.

#### **Self-Generation, including Community Self Generation**

Self-generation is defined as where a person generates electricity for their own use and is off grid. Currently, a person/entity enjoys the freedom to self-supply up to 75 KW without authorization from the PUC. The proposal extends this significantly by pre-authorizing up to 1MW of self-generation from onshore renewable technologies, up to 0.25 MW from offshore renewable technologies, and up to 2 MW of Combined Heat and Power (CHP) technologies on the condition that they first attain PUC's consent for construction and operation.

The challenge here is two-fold. On the commercial end, this could erode BEL's market share and jeopardize investment recovery in contravention of the regulatory compact between the PUC and utility investors as explained earlier and is amply supported by evidence in other jurisdictions. On the technical side, it is possible that community may want to interconnect with the grid in the future but may be prohibited from doing so if the distribution network is incompatible with BEL's standards. The consent requirement suggested by the PUC does not seem to contemplate utility standards, only planning and environmental concerns. For these two reasons alone, we would suggest retaining the License to a Particular Person for any form of generation above 75 KW.

#### **Distributed Generation**

Distributed Generation (DG) is defined as where a person generates electricity from a capacity not exceeding their peak demand and who may sell the excess to the utility, or third parties and may be grid connected. BEL believes that the licensing reform efforts should be focused in this area in response to growing market demand. However, because of the technical limitations of the system there needs to be an empirical basis that informs the capacity thresholds. It is unclear how the PUC determined the thresholds and BEL would only be able to provide recommendations based on an engineering study. In the interim, it may be sufficient to retain the 75 KW threshold and utilize the PUC's License to Persons of a Class to pre-authorize any such DG person/entity to sell to BEL on the condition that they satisfy the Company's interconnection standards and provided that the revised rate structure is in place. Importantly, under this license, BEL must have the explicit authority to disconnect persons from the grid where they have not declared the fact that they are interconnected and/or where they do not meet or maintain the requirements of the interconnection standards.

Additionally, the inclusion of "third party" sales permits DG licensees to be a direct supplier of energy services independent of BEL which brings back into focus the issue of loss of market share and revenue erosion that may undermine BEL's capacity to maintain the grid. How does the PUC intend to regulate prices and service quality for such licensees to protect customers? This is why some jurisdictions elect to use a Buy-All, Sell-All model, permitting DG owners to sell only to the utility



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> and further underscores the point that the commercial considerations must be wedded to the licensing considerations.

#### Reseller

Reselling is defined as where a person or group of persons procure electricity for the purpose of supplying electricity services to other persons within a defined physical area (e.g. business complexes, condos, gated communities, charging stations and etc.). Three concerns prevail here. First, the scope of supply area needs to be more precisely defined. This license provision obviously pertains to persons reselling within the boundaries of a single commercial property or residential sub-division as distinct from a community such as a village. Second, as BEL prices will remain regulated, how does the PUC intend to regulate prices of the reseller, prices which are designed to reflect a certain level of service quality performance and the primary supplier is expected to maintain?

#### Aggregator

The decision to contract with a collective of DG owners is a commercial decision on the part of BEL as the owners would have already satisfied the license requirements on an individual basis. This seems to amount to general endorsement by the PUC that DG owners can group and bargain with BEL, but this seems to be outside of the licensing scheme.

#### **Temporary Supply**

There is no definition of what constitutes a temporary supply; a time limit should be clearly imposed.

#### **General Comments**

We agree with the PUC's position that in every instance a licensee should register with the PUC and supply monthly reports of their production and consumption as this is vital for planning purposes. BEL, and other stakeholders, of course rely on such information and it is hoped that there will be a mechanism in place for the timely sharing.

BEL also registers its concern about the enforcement implications of relaxing the licensing requirements. A licensee may desire to expand their capacity beyond their license allowances resulting in oversupply to the grid which can comprise power quality and present safety risks. As is, the PUC is hard pressed to ensure compliance with license conditions in place now – we refer you the FLPC case in which there is continuing violation of the law and encroachment of an unlicensed provider in BEL's licensed service area. We note that as BEL loses revenues in consequence of relaxed licensing requirements, the regulatory fees assessed against those revenues also decline and the PUC will be short on resources for enforcement of an expanded number of licensees. These proposed licenses also appear to be perpetual as there is no mention of time limitations or renewal processes which can support enforcement.

## **ELECTRICITY**

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> Overall, BEL understands the urgency and importance of stimulating evolving energy services in the development of an efficient and sustainable energy market, but we cannot rush to this at the risk of failing to consider the full breadth of technical, economic, and social implications of its proposed licensing scheme to the sector. We ask the PUC for a sit down at its earliest convenience to discuss BEL's proposed roadmap to guide the development of this very consequential market, including importantly, the need for a phased approach informed by pilot projects.

Sincerely, Belize Electricity Limited

Leon Westby

Manager, Strategy & Business Innovation

Regulatory Affairs Liaison

0.800.235.2273



### **CONSULTATIVE PAPER**

LICENCE AND CONSENT IN RESPECT OF ELECTRICITY ACTIVITIES

Issue Date: August 30, 2022

#### Consultation Procedure

The PUC invites and welcomes written submissions and comments from interested parties in the subject matter for this Consultative Paper.

#### **Submission of Comments**

The written submissions and comments should be submitted to the PUC before 4:30 PM, Friday, October 14, 2022 either:

- by hand to: Public Utilities Commission, 2<sup>nd</sup> Floor Marina Towers, Princess Margaret Drive, Belize City, Belize. *Re: Responses to the Consultative Paper Licence & Consent in respect of Electrical Activities*;
- by email to: <a href="mailto:info@puc.bz">info@puc.bz</a>;
- by mail to: P.O. Box 300, Belize City, Belize.

#### Confidentiality

The PUC intends to publish the responses to this Consultative Paper on its website. If a commenting party's response contains any information that is confidential in nature, a clearly marked "Public Version," redacted to delete the confidential information, should be provided together with a complete version that is clearly marked as the "Confidential Version."

The "Confidential Version" should highlight the information that has been redacted. The PUC requires for the respondent to provide an explanation justifying the needs to submit a response in confidential basis. The PUC has the sole discretion to determine whether to publish any submission marked as confidential.

Redactions should be strictly limited to "confidential information," meaning a trade secret, information whose commercial value would be diminished or destroyed by public disclosure, information whose disclosure would have an adverse effect on the commercial interests of the commenting party, or information that is legally subject to confidential treatment.

## Consultative Paper – Licence and Consent in respect of Electricity Activities

#### 1. INTRODUCTION

Thirty years ago, the Legislature in its wisdom created a legal framework wherein private actors were permitted to participate in a competitive electricity market for generation and supply, Belize's electricity industry was restructured under a Single Buyer model with Belize Electricity Limited ("BEL") playing a key role as a vertically-integrated utility - the generation, transmission and supply of electricity to the public being vested in the new company. From a regulatory perspective, generation activities being separated from the natural monopoly of electricity transmission and distribution.

Technology shifts, environmental pressures and deeper integration of the electricity industry into the broader economic sectors has created the impetus for fundamental changes in the structure of electricity markets. While core electricity network activities (transmission and distribution) remain in their original monopoly structures, electricity generation and supply markets are being opened up to competition to a rapidly expanding number of economic actors. For this evolution in generation and supply to materialize the network services activities will need to evolve to accommodate – interoperability of communication & physical infrastructure, smart grid technologies, etc.

The transformation of the electricity industry, which is put into action through regulations, codes of practice and licences, the Public Utilities Commission ("PUC" or "the Commission") strives to facilitate the development of competitive and sustainable electricity markets, while protecting reliability and continuity of supply.

Interested Parties are invited to comment on the proposed licensing framework, and in particular in relation to the questions raised by the Commission. Kindly provide the reasons and any relevant supporting evidence in your responses.

This consultative document does not constitute legal, commercial or technical instruction. It is intended to garner input from Interested Parties as the Commission moves ahead to make subsidiary legislation intended to create a modern electricity licence and consent regime.

#### 2. BACKGROUND

#### 2.1. Legislative Framework

The Electricity Act (1992) ("the Act") delegates to the Commission the power to **grant** Licences conducting certain Electricity Activities,

- Section 14: The Commission may grant a Licence authorizing any Person- to generate, transmit, or supply electricity.
- ♣ Section 15: Makes it an offence to undertake unlicensed energy activities, but exempts a Person that installs relevant energy infrastructure of not more than 75 kW on premises owned or occupied by him to supply those premises only.
- ♣ Section 17: Elucidates that a Licence may be granted either to all persons, to persons of a class or to a particular person.
- ♣ Section 19: More fully prescribes the special responsibilities conferred on a Licensee authorized to transmit electricity for public supply.
- ♣ Section 24: The Commission shall keep a register of licences granted

Furthermore, the Act delegates to the Commission the power to grant Consent for the construction and operation of generating stations by Persons authorized by a Licence to do so.

- ♣ Section 51-(1): A generating station shall not be constructed, extended or operated except in accordance with a Consent granted by the Commission.
- ♣ Section 51-(2): Exempt licensees do NOT require a Consent for their facilities.
- ♣ Section 51-(4): The Commission may by Order expand the Class of licensees that need NOT apply for a Consent in respect of their facilities.
- ♣ Section 48: The provisions of the First Schedule (*which relate to the use, certification, testing and maintenance of electricity meters*) shall have effect.
- ♣ Section 49: The provisions of the Second Schedule (*which relate to the impact of the facility on ecosystems*) shall have effect.
- ♣ Section 51-(8): The provisions of the Third Schedule (*which relate to the Application process, and appraisal by Planning authorities/ Other persons*) shall have effect.

In exercising those functions the Commission is required to balance, amongst other things:

- the interests of consumers and users in relation to cost, quality and availability of services;
- the need to satisfy demand for relevant services;
- # the economic and social development and well-being of Belize society;
- **the introduction and promotion of effective sustainable competition**;
- the introduction of innovation and new services and the improvement of services; and
- the environment and any effects on the environment.

As the Legislature intended that the regulatory regime is aligned to the best interests of Belize.

#### 2.2. Policy Environment

Under the National Sustainable Energy Strategy (2014), the Government of Belize expressed a desire for the PUC to put in place a modern licensing regime. Thus, BEL engaged DNV-GL

to estimate the level of variable renewable energy (VRE) penetration that may be accommodated on the Grid. Whereupon the PUC published a draft Licence & Consent Byelaw in the second half of 2017, making provisions for classes of licenses undertaking distributed generation. That Rulemaking proceeding was not suspended indefinitely.

The Government of Belize made commitments under the UNFCCC at the most recent COP held in Glasgow, Scotland. The most consequential pledges being (i) achieving at least 75% clean energy in electricity by 2030, and (ii) complete decarbonization by 2050. In keeping with these commitments, the Government of Belize endorsed the Energy Roadmap 2021, which reaffirmed its desire to create an enabling environment for distributed energy resources (DERs) at the earliest. The Commission is publishing this Consultative Paper for the purpose of making a suitable Licence & Consent Byelaw to fulfill these policy goals.

#### 3. SCOPE OF REGULATORY REGIME

This section considers various categories of activities undertaken in electricity generation, transmission and supply, the legal provisions applying to those categories, and the appropriate types of licences or exemptions for each category.

#### 3.1. Licensable and Non-licensable Activities

The Commission interpretation of the specific activities defined in Law are as follows:

- **generate** the provision of electric capacity, associated energy and ancillary services by use of relevant electricity infrastructure.
- **4** transmit
  - o the conveyance of bulk electricity from power stations to substations, or between substations by way of relevant electricity infrastructure;
  - o carrying out system operations to achieve least cost outcomes;
  - o being a participant in regional electricity markets.
- supply
  - o the conveyance of retail electricity from substations to premises via relevant electricity infrastructure;
  - o trade in electricity services with other licensees;
  - o persons undertaking public supply shall carry out customer administration.

Anything falling within these definitions must be licensed, or exempted from the requirement to apply for a licence. Once the proposed Regulations go into effect every person in Belize will be required to get a licence and be placed on the register. Failure to comply is an offence with remedies prescribed in the Electricity Act. Therefore, existing operators of electricity systems not yet authorized will need to procure the requisite licence in order to be lawful.

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what is the grace period for systems to be registered?

#### 3.2. Authorization for Generation

A person who wishes to own and operate an electricity generation plant will generally need to obtain an electricity licence granted under Section 14 of the Electricity Act <u>unless</u> certain exemptions apply (for example, the generating plant is for self-supply and has a nameplate capacity not more than 75 kW).

In determining whether to grant or extend an electricity licence, the Commission shall consider, among other things, the proposed project's

- Public purpose in advancing Belize social and economic well-being;
- ♣ Value proposition for realizing a more reliable, efficient, integrated and economical energy system; and

the applicant's:

- Ability to finance the activity.
- **Experience** in carrying on the activity.
- Ability to perform the duties that would be imposed on that person under the Electricity Act and the electricity licence, if granted.

#### 3.3. Ongoing Requirements

Compliance with any restrictions or conditions in the electricity licence is required, as well as with the statutory duties imposed under the Electricity Act. Some of the key conditions and duties are:

- ♣ Generally, a generation licensee must enter into regulatory agreements on specified terms, including:
  - o a connection agreement with BEL's network services for connection of its generating station to the transmission or distribution system;
  - o an agreement with the BEL's power system operations for the purposes of creating a contractual relationship between the power system operator and the licensee as a market participant; and
  - o an agreement between the licensee and the purchaser for the provision of metering services that is subject to conformity assessments under the supervision of the PUC.
- A generation licensee must develop and maintain a reliable, efficient, coordinated and economical system of electricity generation in accordance with the market rules and applicable codes of practice and other standards of performance issued or approved by the PUC.
- Refer any subject matter affecting the level and quality of electric service, or is likely to impact rates demanded from users, to the Commission. In particular, the disposal or re-assignment of relevant assets and disputes between licensees.

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How will the coopertive of Spanish Lookout be treated?

#### 3.4. Licence to All Persons



This licence type is allows for a light-handed approach, where few or no conditions are imposed and parties are free to engage in the defined activity with no further administrative requirement. The practical effect of such a licence is persons meeting the criteria make a single filing to the PUC in respect of technical requirements, and [if applicable] planning and environmental clearances. That is, there is no need for licensing and consent proceedings before the Commission.

The following are the categories of activity which the Commission has considered could be ubiquitous:

#### 3.4.1 Minor Self-Generation and Supply

Where a person generates electricity and the entire output is for the purpose of supplying himself only. This would comprise individuals, companies and other legal persons using small off-grid generation facilities to supply their own premises.

Generation capacity threshold – fossil-fuel fired generation technologies up to 75 kW, Renewable energy technologies (onshore) < 250 kW, Combined heat and power (CHP) < 500 kW.

The Commission proposes that these persons shall register with the Commission and on a monthly basis file their energy production and consumption.

#### 3.4.2 Minor Distributed Generation

Where a person generates electricity for himself and is permitted to sell the excess. This would comprise individuals, companies and other legal persons using small generation facilities to supply their own needs, who may resell electricity to the utility or third parties. Generation capacity threshold – Residential < 2.5 kWe, Commercial (120 V, 240 V, 480 V network) < 5 kWe, Commercial (dedicated transformer or primary network) < 25 kWe,

The Commission proposes that these persons shall register with the Commission and be required to obtain metering services from the utility. The utility on a monthly basis to file these persons energy production and consumption.

#### 3.4.3 Backup Generation and Supply

(1) Where a person generates electricity as a "backup" facility in order to supply power whenever there is an interruption to his main supply of electricity. This includes circumstances where companies and individuals are connected to the grid and operate standby generators.

If this operational status is to change the Commission shall be notified forthwith, and on a monthly basis file their energy production and hours run.

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I would recommend 3kW installed

(2) Where a person installs energy storage systems < 1 MW, and if grid-connected, does not sell any electricity services to the Utility.

Requested responses for entries in Section 3.4

- Q1 (a) are there any additional generation capacity technologies that should be added to Section 3.4.1 that are not currently included?
- Q1 (b) are there any additional categories that should be added to Section 3.4.3 that are not currently included?
- Q1(c) do you agree with the proposed capacity thresholds provided in Section 3.4.1, 3.4.2 and 3.4.2? If not, what alternative values do you propose and why?
- Q1(d) are there any additional conditions that should be added that are not currently included and why?
- Q1 (e) are there any additional licensing entries that should be added that are not currently included in Section 3.4? Provide your reasoning.
- Q1(f) do you agree with the Commissions' consent proceeding position? If not, what alternatives do you propose?

#### 3.5. Licence to Persons of a Class

This licence type is intended to be used where it is not necessary to control the individual players in the market but it is necessary to ensure compliance with certain common conditions that would apply to everyone operating under a class licence, for example conditions in respect of codes of practice, availability or disposal of assets, technology utilized, ownership structure, etc. The practical effect of such a licence to class of persons, means there may be only a consent proceeding before the Commission to consider inputs from planning and environmental authorities and affected licensees.

The following are the categories of electricity activities wherein the Commission may grant a general authorization for generation and/or supply to certain classes of persons:

#### 3.5.1 Intermediate Self-Generation and Supply

Where a person generates electricity and the entire output is for the purpose of supplying himself only. This would comprise individuals, companies and other legal persons using off-grid generation facilities to supply their own premises, who are not reselling electricity to third parties.

Generation capacity threshold –Renewable energy technologies (*onshore*) < 1 MW, Renewable energy technologies (*offshore*) < 0.25 MW, Combined heat and power (CHP) < 2 MW.

The Commission proposes that these persons shall file a Consent before constructing and operating the facility.

#### 3.5.2 Intermediate Distributed Generation

(1) Where a person generates electricity from a capacity not exceeding his peak demand, for himself and is permitted to sell the excess. This would comprise individuals, companies and other legal persons using generation facilities to supply their own needs who may resell electricity to the utility or third parties.

Generation capacity threshold – Dedicated transformer or Primary network < 250 kW<sub>e</sub>,

(2) Where a person installs energy storage systems < 1 MW, and if grid-connected, is permitted to trade electricity services with the Utility.

The Commission proposes that no Consent proceeding is necessary.

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#### 3.5.3 Community Generation and Supply

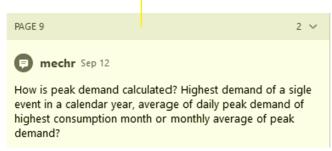
Where a grouping of persons generates electricity and the entire output is for the purpose of supplying themselves only. This would comprise local government, NGO's, cooperatives and other such legal persons using micro-, mini-grids to supply their own needs.

Generation capacity threshold –Renewable energy technologies (*onshore*) < 1 MW, Combined heat and power (CHP) < 2 MW.

. The Commission proposes that these persons may need file a Consent before constructing and operating the proposed facility

#### 3.5.4 Reseller

Where a person or grouping of persons procure electricity for the purpose of supplying electricity services to other persons within a defined physical area This would comprise Business complexes, Condos, Gated communities, charging stations and other such



arrangements of buying in bulk and distributing within the physical boundaries of a real property.

#### 3.5.5 Aggregator

Where a grouping of persons who own and operate DERs seek to collectively undertaken commercial arrangements with the Utility. Each DER owner must meet the specific classification (to all persons, class of persons, individual) to be included in the Aggregation.

#### 3.5.6 Temporary

Where a Person, other than a Utility, proposes to provide temporary electricity services using a mobile generation unit.

A Consent from the Commission is required for capacity exceeding 75 kW.

Requested responses for entries in Section 3.5

- Q2 (a) are there any additional generation capacity technologies that should be added in Section 3.5.1 that are not currently included?
- Q2 (b) do you agree with the proposed capacity thresholds provided for in Section 3.5.1, 3.5.2 and 3.5.3? If not, what alternative values do you propose and why?
- Q2 (c) do you agree with the inclusion of categories 3.5.4 to 3.5.6? If not, what alternative classification do you propose?
- Q2 (d) can you propose any additional categories for inclusion? Kindly justify your request.
- Q2 (e) are there additional conditions that should be added that are not currently included and why?

#### 3.6. Licence to a particular Person

This licence type is intended to be used where there is only one or very few players in the market and/or where the activity being licensed is essential to customers, e.g. in the case of the public supply licensees, where customers may have to rely solely on the licensee for their electricity supply. The practical effect of such a licence, means there is first a licence proceeding and thereafter, on submission of design and operational standards of performance, a consent proceeding before the Commission.

The following are the categories of activity which the Commission has considered could be granted to a Person as prescribed in Section 14 of the Electricity Act.

#### 3.6.1 Major Self-Generation and Supply

Where a person generates electricity and the entire output is for the purpose of supplying himself only. This would comprise individuals, companies and other legal persons using sizable generation facilities to supply their own premises, who are not reselling electricity to the Utility or third parties.

Generation capacity threshold –Renewable energy technologies (*onshore*) > 1 MW, Renewable energy technologies (*offshore*) > 0.25 MW, Combined heat and power (CHP) > 2 MW.

#### 3.6.2 Major Distributed Generation

Where a person generates electricity from a capacity not exceeding his peak demand, for himself and is permitted to sell the excess. This would comprise individuals, companies and other legal persons using large generation facilities to supply their own needs who may resell electricity to the utility or third parties.

Generation capacity threshold – Primary network > 250 kW<sub>e</sub> and < 1 MW<sub>e</sub>.

#### 3.6.3 Independent Power Producers

Licence application can only be countenanced as a consequence of a Person being successful in any Calls for Competition under the *aegis* of the PUC.

#### 3.6.4 Utilities

Where a person generates electricity for the wholesale market, transmits and supplies electricity to the public.

Requested responses for entries in Section 3.6

- Q3 (a) are there any additional generation capacity technologies that should be added in Section 3.6.1 that are not currently included?
- Q3 (b) do you agree with the proposed capacity thresholds provided for in Section 3.6.1 and 3.6.2? If not, what alternative values do you propose and why?
- Q3 (c) do you agree with the inclusion of categories 3.6.3 to 3.6.4 both inclusive? If not, what alternative classification do you propose?
- Q3(d) can you propose any additional categories for inclusion? Kindly justify your request.
- Q3 (e) are there any conditions that should be added and why?

#### 4. CONCLUSION

This consultative document sets out in brief the approach that the Public Utilities Commission proposes to take in respect of licensing of electricity undertakings in Belize.

The views of interested parties are hereby invited.