



**PUBLIC UTILITIES
COMMISSION
BELIZE**

CONSULTATIVE PAPER

PROPOSED LEAST COST EXPANSION PLAN &
SUBSEQUENT FILING - BEL

Issue Date:
October 13, 2023

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, November 24, 2023, either:

- by hand to: Public Utilities Commission, 2nd Floor Marina Towers, Princess Margaret Drive, Belize City, Belize. ***Re: Responses to the Consultative Paper: Least Cost Expansion Plan & Subsequent Filing - BEL;***
- by email to: info@puc.bz;
- 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: Least Cost Expansion Plan & Subsequent Filing - BEL

1. BACKGROUND TO THE CONSULTATION PROCESS

The Belize Electricity Limited (“BEL”), on April 2, 2023, made an application to the Public Utilities Commission (“the Commission” or “PUC”) to:

- a. determine the Regulated Values, Mean Electricity Rates, Tariffs, Fees and Charges in its Annual Review Proceedings Submission for the remaining Annual Tariff Period of the Full Tariff Period from July 1, 2023 to June 20, 2024;
- b. to approve new customer classifications and associated tariff schedules for Distributed Generation, Electric Vehicle charging, Spanish Lookout and Tourism;
- c. to adopt/approve the Least Cost Expansion Plan (“LCEP”) filed on March 22, 2023 and refiled on April 28, 2023; and
- d. to adopt/approve BEL' s new Connection Policy

On June 30, 2023, in the matter of the Final Decision of the Annual Review Proceedings 2023 for BEL, the Commission made its decision for the requests captured in Paragraph 1 a. above and deferred its decision for the requests captured in Paragraphs 1 b. to 1 d., both inclusive.

This consultative paper, seeks written comments from interested Parties on the BEL submission for the items in Paragraph 1 c. above.

Interested parties can view the following, in their entirety, by accessing the following links:

- the complete BEL submission:
<https://www.puc.bz/bels-submission-for-arp-2023/>
- the April 28, 2023 LCEP:
<https://www.puc.bz/bel-least-cost-expansion-plan-april-2023/>
- the Short-Term Generation Capacity Subsequent Filing:
<https://www.puc.bz/bel-short-term-generation-capacity-subsequent-filing/>

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 a decision on the BEL application.

2. LEGAL MANDATE

The Public Utilities Commission (PUC) is authorized under the Public Utilities Commission Act Cap. 223 of the Laws of Belize to serve as the economic regulator for the electricity, water and telecommunications sectors in Belize.

The primary duty of the PUC is to ensure that the services rendered by public utility providers in all three sectors are satisfactory and that the charges imposed in respect of those services are reasonable. The PUC has the power to determine and prescribe rates that may be charged in respect of utility services and the standards which must be maintained in relation to such services. In addition, the PUC is responsible for the award of licences and for monitoring and enforcing compliance with licence conditions.

Sector specific legislation provides the legal framework for the PUC to carry out its duties and functions in a particular utility sector. As obtains in the regulation of the electricity sector, the pertinent laws are the Electricity Act (No. 13 of 1992), (the “Act”), as amended by the Electricity (Amendment) Act 2007 (No. 12 of 2007) and the Electricity (Amendment) Act 2011 (No. 4 of 2011).

On December 18, 2019, the PUC mandated BEL, pursuant to Section 11 of the Act, to provide the PUC BEL’s least cost-generation plan for a minimum planning horizon of ten (10) years. BEL engaged Siemens PTI to develop and least cost and least risk system expansion plan (“LCEP”) and has filed into the PUC a copy of the said report in fulfilment to the December 18, 2019 PUC mandate. The Integrated Resource Plan (“IRP”) and LCEP cover 20 years from 2022 until 2042.

3. REGULATORY REGIME

A primary function of the PUC under the Act is to promote competition in the generation and supply of electricity and that persons authorized to provide such services are allowed to charge such rates that afford them a reasonable opportunity to recover the cost of providing such services and earn a reasonable rate of return on investment when operating in an efficient manner.

The Act also confers certain powers upon the Minister responsible for Public Utilities, including the power to make Byelaws and Regulations to give greater effect to the Act and for the better management and development of the electricity sector in Belize. The PUC may also make such Byelaws and Regulations with the approval of the Minister.

The Act further conveys certain rights and obligations on licensees and provides the general framework for the regulation of such licensees by the PUC. In addition to the Public Utilities Commission Act, the Electricity Act and subsidiary legislation made under these Acts, the PUC and licensees are required to adhere to all relevant and applicable Laws of Belize.

BEL is the only entity in Belize currently licensed to transmit, distribute and supply electricity to the public in Belize. That is, BEL acts as the “single buyer” within the electricity market structure of Belize. Subsequently, independent power producers (“IPPs”) contract with the utility to sell their entire output and must finalize an interconnection agreement with BEL to enable a physical connection to the electric grid.

Any Project Developer is required to obtain a licence and any necessary consents or authorizations from the PUC to generate electricity and supply same to BEL according to the terms and conditions of any approved PPA. The licence granted by the PUC shall set out certain rights and obligations, the terms and conditions for the operation of the generating facility, and the general conduct and codes of practice of the licensee.

Under the Laws of Belize, once a person is granted a licence to generate and enable electricity supply to the public, the rate charged to provide this service must be approved by the Commission. The practice, in general, of the PUC has been to issue power purchase agreements (“PPA’s”) for a term of 15 years that may be renewed up to the economic life of the plant.

4. POLICY DRIVERS AND OTHER DEVELOPMENTS

Energy policy is inextricably linked to Belize’s Climate and Sustainable Development agenda. At the Conference of the Parties (COP-26) the Government of Belize committed to two consequential timelines

- 2030 – The share of renewables in the electricity subsector shall be at least 75%.
- 2050 – Belize attains carbon neutrality. This commitment is exceedingly ambitious and will require all-embracing retooling in the industrial and transport sectors in particular.

Furthermore, Cabinet has endorsed the Energy Roadmap 2021 recognizing that the energy infrastructure that will power private and public services in 2050 is being designed and built now.

To that end, the Government of Belize has adopted a policy stance of:

- Intention to double down on the rational and productive use of energy;
- Accelerate broad and deep electrification everywhere;
- Additions of new electricity capacity going forward shall be renewables only; and
- Modernizing the electric grid is an absolute priority.

It is also noteworthy that the Government of Belize, as recently as August 2023, entered into a loan agreement for the construction of a 60MW Solar Energy Plant in Belize. See <https://www.pressoffice.gov.bz/gob-signs-loan-agreement-for-solar-energy-plant/>. In addition to the Solar project, the Government is actively engaged in the potential procure of between 40 and 50 MW capacity of battery storage. See <https://edition.channel5belize.com/archives/257928>

5. THE BEL IRP – LCEP PLAN

Integrated Resource Plans are electricity system planning outcomes that ensure that utilities lay out their resource needs, policy goals, physical and operational constraints, and preferred resource choices. In other words, it is the process that utilities utilize to determine how they will meet future energy demands while considering reliability, cost-effectiveness and environmental sustainability among other factors. The LCEP should primarily focus on identifying the most cost-effective, and efficient way to expand the infrastructure to meet projected demand growth. Adequate reliability is to be attained by the use of optimal capital investments and operational costs.

5.1. KEY EXTRACTS FROM THE BEL SUBMISSIONS

The Siemens report provides in summary form the additional generation sources recommended as part of the Belize Centric Strategy for a period up to 2042. The table is reproduced below, for ease of reference:

Table 14-6: Generation Location for Belize Centric Strategy

Rice Gas			
Total MW	In Service year	POI (Location)	Note
22.50	2024	Dangriga	Build 115 kV line to Dangriga

Solar			
Total MW	In Service year	POI (Location)	Note
20.00	2024	Orange Walk	Model @ 80% Pmax during peak daytime
20.00	2026	Ladyville (Includes Belize Solar)	Model @ 80% Pmax during peak daytime
20.00	2034	La Democracia	Model @ 80% Pmax during peak daytime
20.00	2036	West	Model @ 80% Pmax during peak daytime
20.00	2038	La Democracia	Model @ 80% Pmax during peak daytime
20.00	2040	La Democracia	Model @ 80% Pmax during peak daytime
20.00	2042	West	Model @ 80% Pmax during peak daytime

Storage			
Total MW	In Service year	POI (Location)	Note
10.00	2023	San Pedro	Model 5 MW at night -10 day
10.00	2023	Ladyville	Model 5 MW at night -10 day
10.00	2023	Independence	Model 5 MW at night -10 day
10.00	2023	Orange Walk	Model 5 MW at night -10 day

Wind Belize Coastal			
Total MW	In Service year	POI (Location)	Note
20.00	2029	San Pedro	Model @ 80% Pmax day or night
20.00	2031	Corozal	Model @ 80% Pmax day or night

In its April 02, 2023 submission, BEL proposes to bring on the following additional generation sources for the BEL described Phase 1 of the LCEP:

Table 3: Additional Generation Sources 2023 – 2027

Generation Technology	Capacity (MW)	Location	In-Service Year
Gas Turbine (GT) Upgrade	12	West Lake	2023
Utility Scale Solar	7	Chan Chen	2024
Utility Scale Solar	10	Maskall	2025
RICE (Natural Gas)	22.5	Dangriga	2025
Utility Scale Solar	20	Ladyville	2026
Utility Scale Solar	20	TBD	2027

The BEL September 19, 2023 submission provided the following additional details for the period 2024-2026:

Table B: Schedule of Firm Capacity Additions (and Subtractions) – 2024-2026

Units of MW	1st Half Year	2nd Half Year	1st Half 2024	2nd Half 2024	1st Half 2025	2nd Half 2025	1st Half 2026	2nd Half 2026
Peak Demand (Grid)	125.0	115.0	130.0	120.0	140.0	130.0	150.0	140.0
In-Country Capacity (Grid)	113.5	93.5	130.0	110.0	140.0	132.5	162.5	152.5
ADD: BEL GT Upgrade			12.0	12.0	12.0	12.0	12.0	12.0
ADD: CCK Power Station			4.5	4.5	4.5	4.5	4.5	4.5
ADD: BEL BESS (Battery) #1					10.0	10.0	10.0	10.0
ADD: BEL BESS (Battery) #2						10.0	10.0	10.0
ADD: BEL BESS (Battery) #3							10.0	10.0
ADD: BEL BESS (Battery) #4								10.0
ADD: NGC Rice						25.0	25.0	25.0
SUBTRACT: Bapcol Fossil Fuel						-22.5	-22.5	-22.5
In-Country Reserve Margin (Grid)	-11.5	-21.5	0.0	-10.0	0.0	2.5	12.5	12.5

The BEL April 02, 2023 submission also identified additional major capital projects that BEL proposes to undertake, as recommended by the LCEP:

Table 2: Major Capital Projects being undertaken over 2023-2027

Project	Cost	Description
Battery Energy Storage Solution	\$100M	Investment for engineering, procurement, and construction of 40MW battery storage to meet capacity requirements and energy shifting.
Smart Grid (Country-wide Rollout AMI)	\$39.23M	For full-scale deployment of AMI meters and the buildout of BEL's smart-grid strategy. Smart meters will enable BEL to access customer metering information remotely, identify anomalies and analyse trends
Gas Turbine Repowering	\$38M	Recommended by LCEP To upgrade BEL's Gas Turbine Facility at Mile 8 George Price Highway. Investment would increase capacity from 19MW to 30.9MW and allow for dual fuel operations (diesel and natural gas)
Maskall to North Ambergris Caye 69 kV submarine interconnection	\$37M	Recommended by LCEP
115kV Transmission line Democracia to Dangriga	\$29.8M	Recommended by LCEP
North Ladyville to Belize II 115 kV Transmission Line	\$19.2M	Recommended by LCEP
Customized Electricity Service (CES)	\$16.2M	To support universal access to affordable, reliable, and safe electricity to customers that requires a non-standard connection via a cost sharing agreement between BEL and the customer
Construction of New Operations Facility (JSR)	\$15M	For the construction of a new modern warehouse facility to improve inventory management and achieve cost saving benefits
New Belize II 115/22 kV substation 2	\$12.78M	Recommended by LCEP
Rural Electrification	\$11M	To support universal access to affordable, reliable, and safe electricity to customers in rural areas
EU Project Implementation (Electrification of 5 villages using Microgrid)	\$10M	With EU support, to facilitate the electrification of five villages using microgrid
Solar PV Rooftop Rental Pilot	\$9.45M	To diversify the BEL's line of services to include Solar PV which will allow customers in remote areas to be connected to the grid and support BEL's strategy of incorporating distributed generation. This investment will also increase clean in-country production and stabilize cost of power.

5.2. THE LCEP EXECUTIVE SUMMARY

Annex A of this document provides a reproduction of the *Executive Summary of the Siemens PTI Belize Electricity, Limited Integrated Resource Plan*.

5.3. REQUEST FOR COMMENTS FROM INTERESTED PARTIES

The PUC seeks your valued contribution to the following questions arising out of the LCEP and subsequent San Pedro Short-Term Generation Capacity Procurement request.

Consultation Questions – please give reason(s) to your response(s).

Q1: Can you identify any strategies provided to control and potentially reduce electricity costs for the ratepayers? Kindly comment.

Q2: Does the plan advance the equitable distribution of electricity and address the needs of all communities being served by BEL?

Q3: Are there alternative scenarios not included which may provide for a generation mix that is more consistent with least-cost provision of reliable electricity?

Q4: Does the plan comply with Belize’s COP-26 and other commitments to the environment?

Q5: Does the plan look to energy efficiency and demand flexibility as a core method to offset the increase demand of electrification?

Q6: Does the plan provide for improved grid resilience?

Q7: Does the plan cater for reliable energy supplies?

Q8: Does the plan make use of mature technologies and adequately consider emerging technologies in this expansion plan?

Q9: Does the plan align with Government energy policies?

Q10: Can you identify and provide economic benefits derived from the implementation of this plan?

Consultation Questions – please give reason(s) to your response(s).

Q11: In the short and medium term (not exceeding five years), which parts of the plan *do you support*?

Q12: In the short and medium term (not exceeding five years), which parts of the plan *you do not support*?

Q13: Are there other short-term solutions that could provide alternatives to the BEL proposed \$30 million, 21 MW mobile gas turbine short-term generation capacity for San Pedro, AC? Kindly elaborate.

Q14: Are you aware, that in setting utility rates, the customer pays for the value of the asset including a reasonable return on investment once the investment is approved by the PUC?

Q15: How do you see the San Pedro short-term generation plan impacting the overall LCEP plan?

Q16: Do you have any additional views on the assumptions, assessment methodology and conclusions set out in the Siemen’s Report.

The PUC has set out specific issues on which Interested Parties are invited to comment. However, Interested Parties should make any other comment(s) that they wish, which may not have been covered by the issues raised in the consultative paper.

The submissions will be taken into consideration in making an appropriate determination on the BEL requested tariff schedule amendments. The views of Interested Parties are hereby invited.

END

Annex A