

BATANGAS II ELECTRIC COOPERATIVE, INC.
POWER SUPPLY PROCUREMENT PLAN

In compliance with the Department of Energy's (DOE) Department Circular No. DC 2018-02-0003, "Adopting and Prescribing the Policy for the Competitive Selection Process in the Procurement by the Distribution Utilities of Power Supply Agreement for the Captive Market" or the Competitive Selection process (CSP) Policy, the Power Supply Procurement Plan (PSPP) Report is hereby created, pursuant to the Section 4 of the said Circular.

The PSPP refers to the DUs' plan for the acquisition of a variety of demand-side and supply-side resources to cost-effectively meet the electricity needs of its customers. The PSPP is an integral part of the Distribution Utilities' Distribution Development Plan (DDP) and must be submitted to the Department of Energy with supported Board Resolution and/or notarized Secretary's Certificate.

The Third-Party Bids and Awards Committee (TPBAC), Joint TPBAC or Third Party Auctioneer (TPA) shall submit to the DOE and in the case of Electric Cooperatives (ECs), through the National Electrification Administration (NEA) the following:

- a. Power Supply Procurement Plan;
- b. Distribution Impact Study/ Load Flow Analysis conducted that served as the basis of the Terms of Reference; and
- c. Due diligence report of the existing generation plant

All Distribution Utilities' shall follow and submit the attached report to the Department of Energy for posting on the DOE CSP Portal. For ECs such reports shall be submitted to DOE and NEA. The NEA shall review the submitted report within ten (10) working days upon receipt prior to its submission to DOE for posting at the DOE CSP Portal.

The content of the PSPP shall be consistent with the DDP. The tables and graph format to be use on the PSPP report is provided on the following sheets. Further, the PSPP shall contain the following sections:

- I. Table of Contents
- II. Introduction
- III. Energy and Demand Forecast (10 year historical and forecast)
- IV. Energy Sales and Purchase
- V. Daily Load Profile and Load Duration Curve
- VI. Existing Contracts & Existing GenCos due diligence report
- VII. Currently approved SAGR for Off-Grid ECs to be passed-on to consumers;
- VIII. DU's Current Supply and Demand
- IX. Distribution Impact Study
- X. Schedule of Power Supply Procurement
- XI. Timeline of the CSP

TABLE OF CONTENTS

- I. Introduction
- II. Energy Sales and Purchase
- III. Demand
- IV. Load Profile and Load Duration Curve
- V. Power Supply Contracts
- VI. Distribution Impact Study
- VII. Schedule of CSP
- VIII. Monthly Data

INTRODUCTION

DISTRIBUTION UTILITIES PROFILE

DU's Franchise MAP

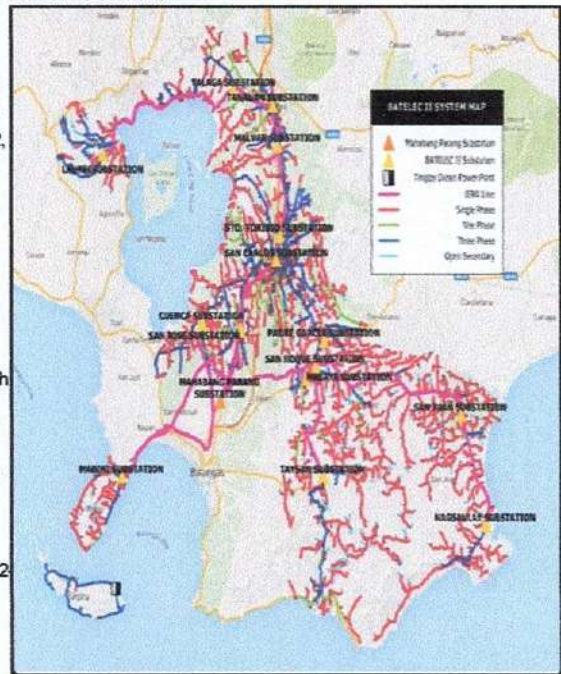
BATELEC II PROFILE AS OF DECEMBER 2017

The Batangas II Electric Cooperative, Inc. (BATELEC II) is one of the two (2) Electric Cooperatives that distribute electricity to Batangas province with its principal office at Antipolo del Norte, Lipa City. It was organized and was duly registered with the National Electrification Administration (NEA) on August 12, 1977.

Its franchise area encompasses two(2) cities and fifteen(15) municipalities in the province of Batangas, distributed in a geographical tract approximately 3,166 sq. kms. in size. The two cities are Lipa and Tanauan while the fifteen municipalities are Alitagtag, Cuenca, Mataas na Kahoy, Balete, San Jose, Mabini, Tingloy, Rosario, Padre Garcia, Taysan, San Juan, Lobo, Malvar, Talisay and Laurel.

A total of 302,997 active connections was recorded as of December 2017 with twenty two(22) units of power transformers installed in fifteen(15) distribution substations with a total capacity of 210.6MVA. A total of 898,305,990 energy (including customers served by RES) was sold for 2017, posting a 5-year compounded annual load growth rate of 3.44%. Meanwhile, peak demand for 2017 was recorded at 171.876MW higher than 2016 at 160.590MW.

Line projects were continuously implemented franchise wide to improve the system reliability and maintain the systems loss within the cap of 13%. The 12 month average systems loss as of December 2017 is 10.58%.



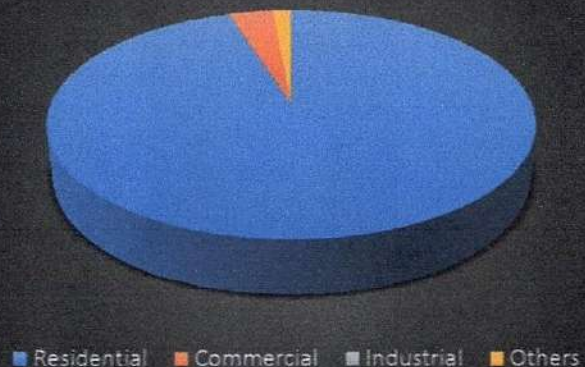
Number of Billed Customer Connections in	ACTUAL	FORECAST									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Residential	244,751	252,757	262,195	271,634	281,073	290,512	299,951	309,390	318,828	328,267	337,706
Commercial	8,942	9,121	9,253	9,384	9,516	9,647	9,779	9,910	10,042	10,173	10,305
Industrial	33	34	35	36	37	38	39	40	41	43	45
Others	3,740	3,864	3,970	4,077	4,186	4,297	4,410	4,523	4,639	4,755	4,873
Contestable Customers served by RES	10	10	11	11	11	12	12	13	13	13	14
Total (Captive Customers)	257,466	265,776	275,453	285,131	294,812	304,494	314,179	323,863	333,550	343,238	352,929

The increase in demand is attributable to the continuously growing number of billed connections from captive market.

Urbanization and industrialization is remarkable not only in the two cities in the franchise area but also in top class municipalities.

Commercial buildings, schools, BPOs, and other industries continuously sprouts in the coverage area of BATELEC II.

2017 No. of Billed Customers

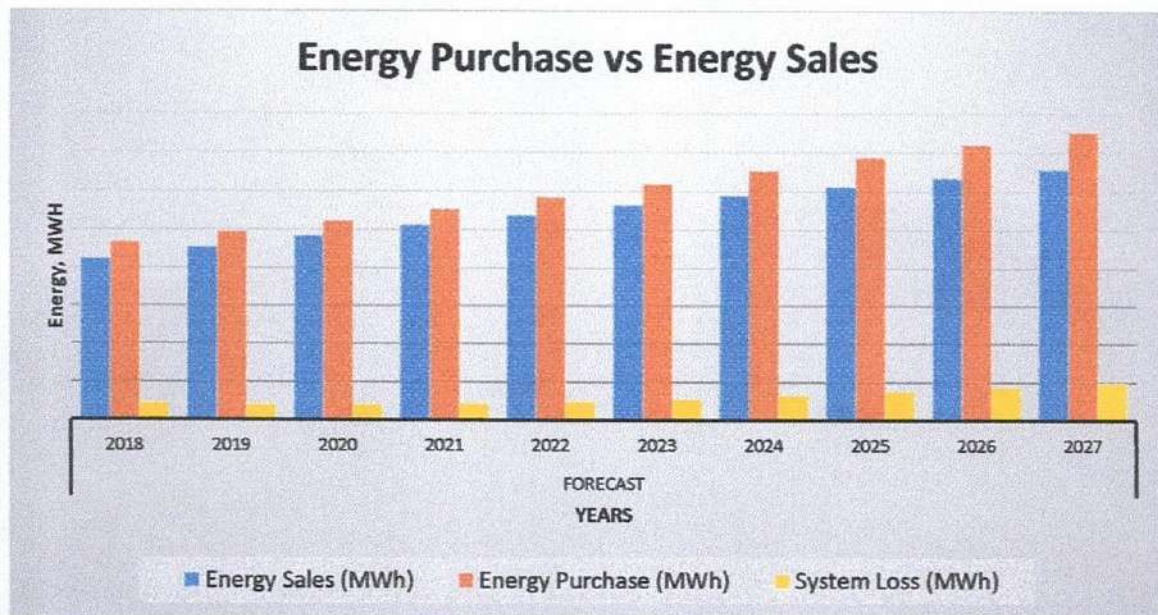


ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Energy Sales (MWh)	476,812	544,504	628,445	662,625	693,679	663,242	681,479	732,554	811,790	769,988
Energy Purchase (MWh)	562,235	555,391	611,760	704,984	739,494	753,282	761,959	815,688	901,841	866,666
System Loss (MWh)	79,661	68,320	76,539	76,869	85,555	90,040	80,481	83,135	90,052	96,678

ENERGY SALES AND PURCHASE	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Energy Sales (MWh)	844,052	905,042	963,421	1,019,331	1,072,945	1,124,439	1,173,973	1,221,696	1,267,736	1,312,212
Energy Purchase (MWh)	931,693	984,235	1,041,642	1,103,055	1,167,614	1,234,458	1,302,729	1,371,567	1,440,112	1,507,504
System Loss (MWh)	87,640	79,193	78,221	83,724	94,668	110,019	128,756	149,872	172,376	195,292

Note: Actual and forecasted energy sales and purchase for captive customers.



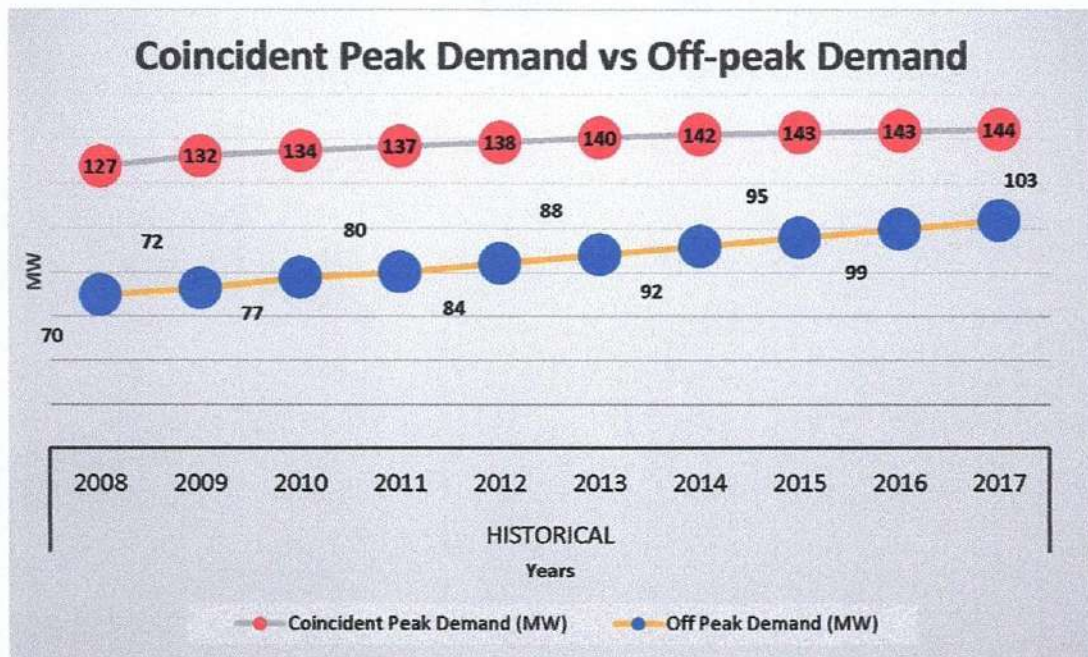
Brief highlight/report

Presently, BATELEC II was being supplied by GN Mariveles Coal Plant, Ltd. (GMCP), with long term contract of 20years which commenced its operation in the year 2014. Recently, BATELEC II engaged in another contract of additional 20MW to be utilized by year 2020. The additional contracted capacity was considered to augment the existing capacity which will spare the cooperative from sourcing power from the market. This will introduce a reasonable rate to the existing consumers and competitive rate that can be offered to contestable customers. Generally, it can be realized that there is a drop of losses in terms of mwh in the year 2014 and 2017. This was due to system improvement campaign of Batelec II by reducing the technical and non-technical losses. There were launching of meter clustering, massive replacement of defective meters, massive program to eliminate pilferage and many more.

DEMAND

Demand	HISTORICAL									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Coincident Peak Demand (MW)	99.03	106.4	116.9	120.5	130.2	119.3	129	129	137	125
Off Peak Demand (MW)	37	31	35	41	51	52	50	51	57	60

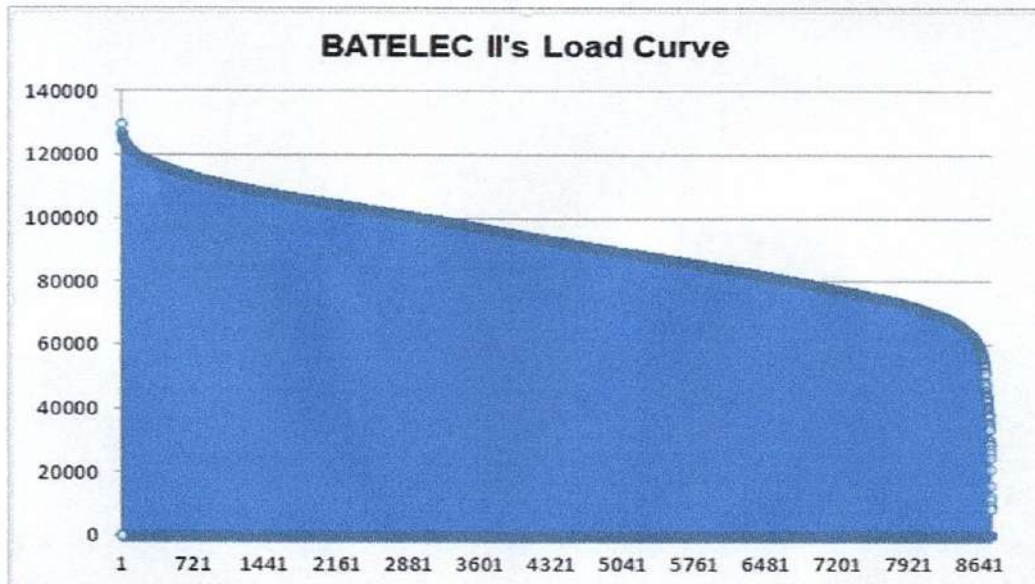
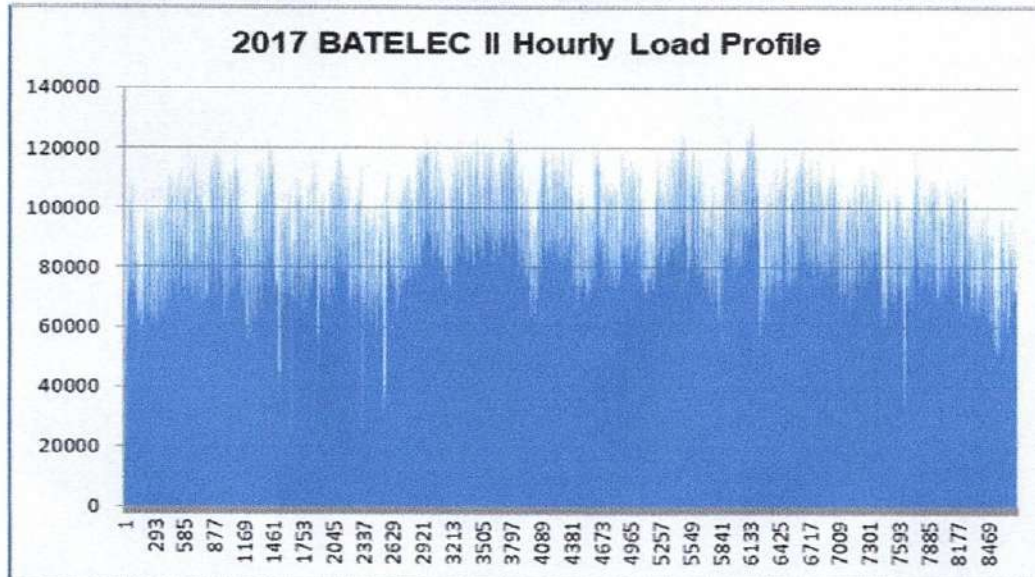
Demand	HISTORICAL									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Coincident Peak Demand (MW)	127	132	134	137	138	140	142	143	143	144
Off Peak Demand (MW)	70	72	77	80	84	88	92	95	99	103



Brief highlight of historical demand and forecasting methodology and result

In 2012, a certain bigload customer went on shutdown - - the reason why there is a huge drop down of demand in 2013 as per CPD. Consequently, there are also customer-switch transpired in 2014 and 2016 as well as in 2017 due to mandatory migration of contestable customers. Even though there are possible switches for contestable market in the near future, there still potential load growth to be consider for captive market.

LOAD PROFILE AND LOAD DURATION CURVE

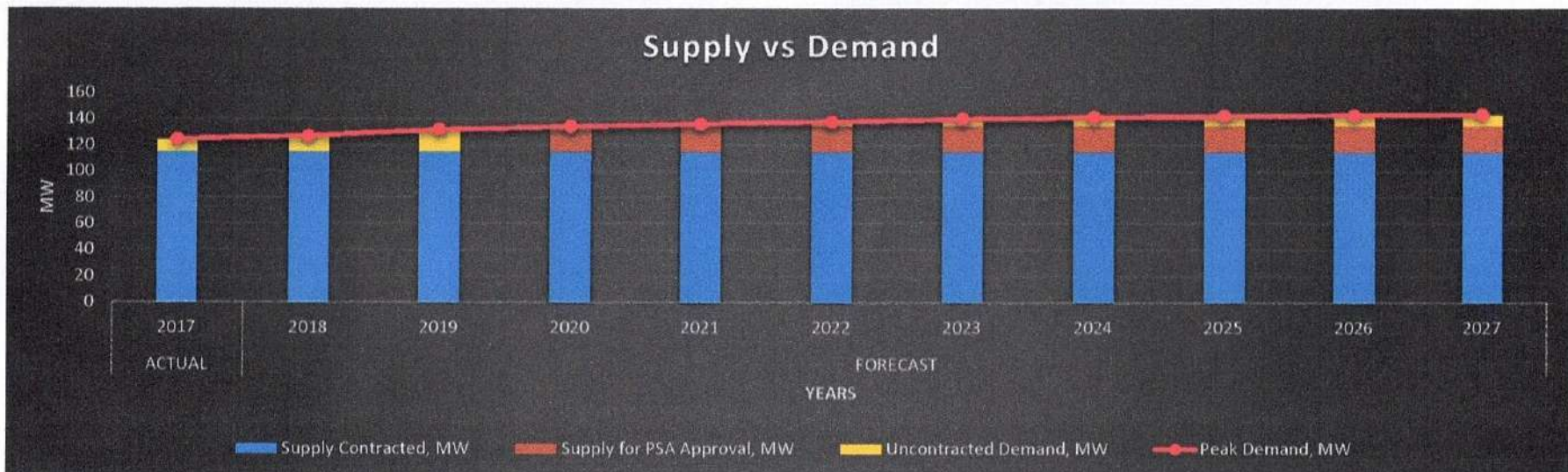


Brief highlight:

Based from the graph above, it is shown that the peaking is at 120 mega-watt level and above. There is also instance/s of major drop in demand. This is primarily due to power interruption. By eliminating the outlier in the data (or those trading days that has power outage) -- it can be declared that the baseload is somewhere in the level of 50 mega-watt. Meanwhile, it can also be seen that the intermediate or mid-merit requirement of Batelec II is between 60mW to 90mW level.

MIXSUPPLY VS DEMAND AND THE OPTIMAL SUPPLY

Supply Demand	ACTUAL	FORECAST									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Peak Demand, MW	124.8705	127.4786	132.194	134.469	136.64	138.29993	140.356	141.8	142.66	143.441	144.033
Supply Contracted, MW	115	115	115	115	115	115	115	115	115	115	115
GMCP	115	115	115	115	115	115	115	115	115	115	115
Generation Plant Name 2											
Generation Plant Name 3											
Supply for PSA Approval, MW	0	0	0	20	20	20	20	20	20	20	20
GNPD				20	20	20	20	20	20	20	20
Generation Plant Name 2											
Generation Plant Name 3											
Uncontracted Demand, MW	9.87049	12.4786	17.1938	0	1.6406	3.2999254	5.35604	6.7972	7.66042	8.44142	9.03275



POWER SUPPLY PROCUREMENT PLAN

List of Existing Contracts and Details

Supply Contracted	Plant Owner/ Operator	Capacity Factor	PSA Effectivity (MM/YR)	PSA Expiration (MM/YR)	Contracted Capacity, MW	Contracted Energy, MWH	Base / Mid-merit / Peaking	Embedded/ Grid Connected	Utility-owned/ NPC/ IPP/ NPC-IPP	Status	Fuel Type	Installed Capacity (MW)	Net Dependable Capacity (MW)
GenCo 1	GMCP	65% to 100%	Feb-14	Feb-29	115	563136.6	Base / Mid-merit / Peaking	Grid Connected	IPP	Commercial Operation	coal-fired: sub-critical	651.6	632
GenCo 2													
GenCo 3													
GenCo 4													
GenCo 5													

BATELEC II (BII) strategically entered in to power supply contract with GMCP by nominating bilateral contract quantities (bcq) with much flexibility. This means Batelec II can nominate bcq with resulting capacity factor ranging from 65% to 100%. Logically, Batelec II buys power from WESM during off-peak periods (where most of the time spot prices are low) and buys power from bilateral supplier during peak periods. Contract with GMCP will expire come CY 2028. In consideration of BII's potential load growth, BII opted to increase its contracted capacity by conducting in-house CSP way back 2016. The contract was awarded to GNPD being the least cost evaluated offer for baseload requirement of Batelec II and will commence on 2020.

DISTRIBUTION IMPACT STUDY

Brief discussion on the following:

BATELEC II power distribution is composed of distribution substations, sub transmission lines and distribution lines. With distribution line voltage ranging from 13.2kV and 13.8 kV, and sub-transmission line voltage of 69 kV, it covers 15 municipalities and 2 cities composing of 483 Barangays.

Given this, the system forecast for demand, energy losses and load factor, if done separately, would become complicated. This is due to very dynamic nature of the feeders within the system's load transfers and switching would render it hard to have a normalized loading for a specific substation or feeder. Thus, we only did forecast on our system energy sales and purchases to derive system loss. From this forecast, we derived all substation and feeder loading using weighted average method for the next 5 years.

The 2-year projects are formulated to address the issues on safety, capacity, reliability, statutory compliance and customer requests. BATELEC II system will be ready for the load growth if the said projects will be implemented. After 2 years, new projects are yet to be determined.

The loading of substations were also considered in the project formulation so that the load growth will not be an issue in the coming years. Substation loadings are always closely monitored.

For project formulation, compliance to regulatory standards is always considered especially on system loss and power quality issues. Ongoing analysis of all BATELEC II feeders using engineering software like Distribution System Application Software is used to come up with projects to meet the minimum standards set by PGC and PDC. Compliance to these standards is always a priority because it will always provide benefits to the electric cooperative.

POWER SUPPLY PROCUREMENT PLAN

10 Year Monthly Data

Year	Forecast			Contracted and For PSA Approval Demand and Energy		Uncontracted Demand and Energy		Committed for CSP	
	Coincident Peak Demand (MW)	Off Peak Demand (MW)	Energy Requirement (MWh)	Demand (MW)	Energy (MWh)	Uncontracted Demand (MW)	Uncontracted Energy (MWh)	Demand (MW)	Energy (MWh)
2018									
Jan	111.81	69.52	65,933.84	115.00	59,902.25	-	6,031.59		
Feb	119.08	69.94	68,859.87	115.00	56,024.25	4.08	12,835.62		
Mar	121.83	74.49	66,020.09	115.00	32,211.05	6.83	33,809.04		
Apr	124.61	84.89	75,980.77	115.00	61,175.45	9.61	14,805.32		
May	133.07	93.91	80,535.04	115.00	58,879.90	18.07	21,655.14		
Jun	126.03	95.09	75,049.34	115.00	58,918.82	11.03	16,130.53		
Jul	120.65	80.96	69,571.82	115.00	54,618.58	5.65	14,953.23		
Aug	119.83	83.24	71,400.41	115.00	56,054.16	4.83	15,346.26		
Sep	127.48	94.29	72,253.94	115.00	56,724.23	12.48	15,529.71		
Oct	120.81	87.78	69,353.78	115.00	54,447.41	5.81	14,906.37		
Nov	122.18	84.21	65,913.08	115.00	51,746.23	7.18	14,166.85		
Dec	114.67	79.25	63,180.07	115.00	49,600.63	-	13,579.44		
2019									
Jan	128.12	72.54	66,390.33	115.00	52,120.90	13.12	14,269.43		
Feb	118.54	72.50	73,485.19	115.00	57,690.85	3.54	15,794.34		
Mar	121.34	77.53	66,512.93	115.00	52,217.15	6.34	14,295.78		
Apr	130.40	87.41	75,478.59	115.00	59,255.81	15.40	16,222.79		
May	134.22	95.33	82,340.21	115.00	64,642.64	19.22	17,697.57		
Jun	132.19	98.51	83,178.34	115.00	65,300.63	17.19	17,877.71		
Jul	125.12	89.61	77,305.01	115.00	60,689.67	10.12	16,615.34		
Aug	126.27	87.91	79,265.74	115.00	62,228.97	11.27	17,036.77		
Sep	131.71	95.85	80,180.94	115.00	62,947.47	16.71	17,233.47		
Oct	124.77	88.46	77,071.22	115.00	60,506.13	9.77	16,565.10		
Nov	125.78	84.68	73,381.91	115.00	57,609.76	10.78	15,772.14		
Dec	117.80	81.65	70,451.41	115.00	55,309.13	2.80	15,142.28		
2020									
Jan	131.72	78.72	70,672.79	131.72	55,482.92	-	15,189.87		
Feb	121.00	77.46	78,225.30	121.00	61,412.16	-	16,813.14		
Mar	125.50	82.29	70,803.29	125.50	55,585.38	-	15,217.92		
Apr	134.26	91.80	80,347.28	134.26	63,078.06	-	17,269.23		
May	137.13	101.42	87,651.50	135.00	68,812.36	2.13	18,839.14		
Jun	134.47	104.40	88,543.69	134.47	69,512.79	-	19,030.90		
Jul	125.83	92.75	82,291.51	125.83	64,604.41	-	17,687.10		
Aug	128.56	94.75	84,378.72	128.56	66,243.01	-	18,135.71		
Sep	134.19	101.14	85,352.95	134.19	67,007.85	-	18,345.11		
Oct	127.16	92.26	82,042.64	127.16	64,409.03	-	17,633.61		
Nov	127.51	88.21	78,115.35	127.51	61,325.84	-	16,789.51		
Dec	119.01	87.90	74,995.83	119.01	58,876.80	-	16,119.03		
2021									
Jan	134.90	81.34	74,774.12	134.90	58,702.74	-	16,071.37		
Feb	123.40	79.85	82,764.92	123.40	64,976.06	-	17,788.85		
Mar	129.46	87.41	74,912.20	129.46	58,811.15	-	16,101.05		
Apr	135.13	94.42	85,010.05	135.00	66,738.64	0.13	18,271.41		
May	140.64	107.79	92,738.14	135.00	72,805.72	5.64	19,932.42		
Jun	136.64	109.92	93,682.12	135.00	73,546.80	1.64	20,135.31		
Jul	129.25	97.72	87,067.11	129.25	68,353.57	-	18,713.53		
Aug	131.71	100.35	89,275.44	131.71	70,087.26	-	19,188.18		
Sep	138.29	106.04	90,306.21	135.00	70,896.49	3.29	19,409.72		
Oct	129.90	99.04	86,803.79	129.90	68,146.85	-	18,656.94		
Nov	130.40	91.96	82,648.59	130.40	64,884.74	-	17,763.85		
Dec	120.72	88.79	79,348.03	120.72	62,293.58	-	17,054.46		

POWER SUPPLY PROCUREMENT PLAN

Year	Forecast			Contracted and For PSA Approval Demand and Energy		Uncontracted Demand and Energy		Committed for CSP	
	Coincident Peak Demand (MW)	Off Peak Demand (MW)	Energy Requirement (MWh)	Demand (MW)	Energy (MWh)	Uncontracted Demand (MW)	Uncontracted Energy (MWh)	Demand (MW)	Energy (MWh)
2022									
Jan	135.70	84.56	78,707.08	135.00	61,790.39	0.70	16,916.69		
Feb	126.90	83.91	87,118.18	126.90	68,393.67	-	18,724.51		
Mar	131.65	90.33	78,852.42	131.65	61,904.49	-	16,947.93		
Apr	138.88	100.77	89,481.40	135.00	70,248.96	3.88	19,232.44		
May	144.98	112.03	97,615.98	135.00	76,635.15	9.98	20,980.83		
Jun	138.30	114.70	98,609.60	135.00	77,415.21	3.30	21,194.39		
Jul	130.66	101.21	91,646.66	130.66	71,948.83	-	19,697.83		
Aug	131.94	102.67	93,971.14	131.94	73,773.71	-	20,197.43		
Sep	140.08	111.62	95,056.13	135.00	74,625.50	5.08	20,430.63		
Oct	131.88	103.11	91,369.49	131.88	71,731.24	-	19,638.26		
Nov	132.48	97.88	86,995.74	132.48	68,297.54	-	18,698.19		
Dec	122.40	93.92	83,521.58	122.40	65,570.09	-	17,951.49		
2023									
Jan	143.13	88.79	82,484.45	135.00	64,755.87	8.13	17,728.57		
Feb	127.00	87.80	91,299.22	127.00	71,676.07	-	19,623.15		
Mar	132.42	94.74	82,636.76	132.42	64,875.45	-	17,761.31		
Apr	140.82	105.10	93,775.85	135.00	73,620.39	5.82	20,155.46		
May	145.97	116.98	102,300.83	135.00	80,313.08	10.97	21,987.75		
Jun	140.36	120.11	103,342.14	135.00	81,130.58	5.36	22,211.57		
Jul	132.10	106.97	96,045.03	132.10	75,401.85	-	20,643.18		
Aug	134.10	108.14	98,481.07	134.10	77,314.31	-	21,166.76		
Sep	142.26	116.32	99,618.13	135.00	78,206.98	7.26	21,411.15		
Oct	133.70	107.24	95,754.56	133.70	75,173.81	-	20,580.75		
Nov	134.06	101.53	91,170.90	134.06	71,575.32	-	19,595.57		
Dec	123.31	97.97	87,530.00	123.31	68,716.98	-	18,813.03		
2024									
Jan	146.43	92.88	86,118.10	135.00	67,608.54	11.43	18,509.56		
Feb	128.64	91.60	95,321.19	128.64	74,833.59	-	20,487.60		
Mar	134.86	99.06	86,277.13	134.86	67,733.39	-	18,543.74		
Apr	142.98	109.44	97,906.93	135.00	76,863.57	7.98	21,043.36		
May	148.52	122.46	106,807.46	135.00	83,851.08	13.52	22,956.37		
Jun	141.80	125.53	107,894.64	135.00	84,704.60	6.80	23,190.04		
Jul	133.24	111.20	100,276.07	133.24	78,723.50	-	21,552.57		
Aug	135.52	113.29	102,819.42	135.00	80,720.21	0.52	22,099.22		
Sep	144.47	121.45	104,006.57	135.00	81,652.20	9.47	22,354.37		
Oct	135.48	111.94	99,972.80	135.00	78,485.42	0.48	21,487.39		
Nov	135.65	105.68	95,187.21	135.00	74,728.41	0.65	20,458.81		
Dec	124.14	101.99	91,385.93	124.14	71,744.14	-	19,641.79		
2025									
Jan	149.26	96.66	89,618.81	135.00	70,356.83	14.26	19,261.98		
Feb	129.74	95.38	99,196.01	129.74	77,875.58	-	21,320.43		
Mar	136.45	103.59	89,784.31	135.00	70,486.76	1.45	19,297.55		
Apr	144.29	114.17	101,886.85	135.00	79,988.08	9.29	21,898.78		
May	150.66	128.16	111,149.19	135.00	87,259.64	15.66	23,889.55		
Jun	142.66	131.22	112,280.57	135.00	88,147.85	7.66	24,132.72		
Jul	134.26	116.17	104,352.30	134.26	81,923.62	-	22,428.68		
Aug	136.37	118.27	106,999.04	135.00	84,001.49	1.37	22,997.55		
Sep	146.27	126.92	108,234.45	135.00	84,971.37	11.27	23,263.08		
Oct	136.77	117.30	104,036.71	135.00	81,675.86	1.77	22,360.85		
Nov	136.90	110.40	99,056.58	135.00	77,766.12	1.90	21,290.46		
Dec	124.59	105.68	95,100.78	124.59	74,660.55	-	20,440.23		

POWER SUPPLY PROCUREMENT PLAN

Year	Forecast			Contracted and For PSA Approval Demand and Energy		Uncontracted Demand and Energy		Committed for CSP	
	Coincident Peak Demand (MW)	Off Peak Demand (MW)	Energy Requirement (MWh)	Demand (MW)	Energy (MWh)	Uncontracted Demand (MW)	Uncontracted Energy (MWh)	Demand (MW)	Energy (MWh)
2026									
Jan	152.20	100.56	92,996.18	135.00	73,008.30	17.20	19,987.88		
Feb	130.77	99.37	102,934.30	130.77	80,810.40	-	22,123.91		
Mar	137.59	107.70	93,167.91	135.00	73,143.12	2.59	20,024.79		
Apr	146.11	119.32	105,726.56	135.00	83,002.50	11.11	22,724.05		
May	152.71	133.35	115,337.95	135.00	90,548.10	17.71	24,789.85		
Jun	143.44	136.69	116,511.97	135.00	91,469.78	8.44	25,042.19		
Jul	134.80	120.89	108,284.91	134.80	85,010.99	-	23,273.93		
Aug	136.78	122.80	111,031.40	135.00	87,167.17	1.78	23,864.24		
Sep	147.63	132.31	112,313.37	135.00	88,173.60	12.63	24,139.77		
Oct	137.89	121.95	107,957.43	135.00	84,753.89	2.89	23,203.54		
Nov	137.92	115.19	102,789.63	135.00	80,696.81	2.92	22,092.81		
Dec	124.92	110.08	98,684.74	124.92	77,474.20	-	21,210.54		
2027									
Jan	156.42	104.77	96,258.76	135.00	75,569.64	21.42	20,689.12		
Feb	130.89	103.41	106,545.53	130.89	83,645.46	-	22,900.08		
Mar	138.32	112.27	96,436.51	135.00	75,709.19	3.32	20,727.32		
Apr	147.14	124.15	109,435.75	135.00	85,914.47	12.14	23,521.28		
May	153.81	138.94	119,384.34	135.00	93,724.79	18.81	25,659.55		
Jun	144.03	142.46	120,599.54	135.00	94,678.80	9.03	25,920.74		
Jul	135.15	126.08	112,083.86	135.00	87,993.42	0.15	24,090.44		
Aug	137.36	128.11	114,926.70	135.00	90,225.24	2.36	24,701.46		
Sep	148.94	137.71	116,253.64	135.00	91,266.98	13.94	24,986.66		
Oct	138.81	126.87	111,744.89	135.00	87,727.30	3.81	24,017.59		
Nov	138.67	119.68	106,395.78	135.00	83,527.89	3.67	22,867.89		
Dec	124.90	114.30	102,146.88	124.90	80,192.22	-	21,954.67		