

## POWER SUPPLY PROCUREMENT PLAN

### **BANELCO**

#### **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

For inquiries, you may send it at [doe.csp@gmail.com](mailto:doe.csp@gmail.com) or you may contact us through telephone numbers (02) 840-2173 and (02) 479-2900 local 202.

## **TABLE OF CONTENTS**

### **I. INTRODUCTION**

BANELCO'S SYSTEM MAP

BANELCO'S NUMBER OF CONSUMERS PER TYPE

### **II. ENERGY SALES & PURCHASE**

### **III. 10 YEARS HISTORICAL DEMAND AND FORECAST**

### **IV. LOAD PROFILE & LOAD DURATION CURVE**

### **V. EXITING POWER SUPPLY CONTRACTS**

MIX SUPPLY VS DEMAND AND THE OPTIMAL SUPPLY

LIST OF EXITING CONTRACTS & DETAILS

SAGR FOR GENCOS

### **VI. DISTRIBUTION IMPACT STUDY**

### **VII. SCHEDULE OF CSP**

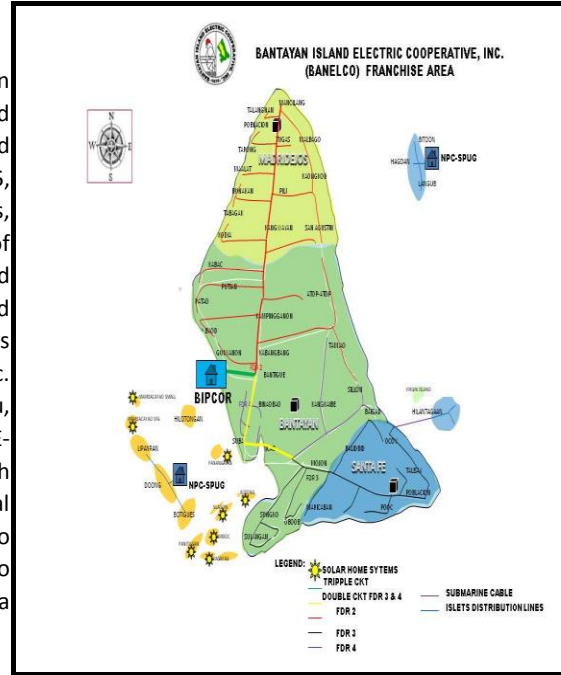
### **VII. ANNEX MONTHLY DATA**

# INTRODUCTION

## DISTRIBUTION UTILITIES PROFILE

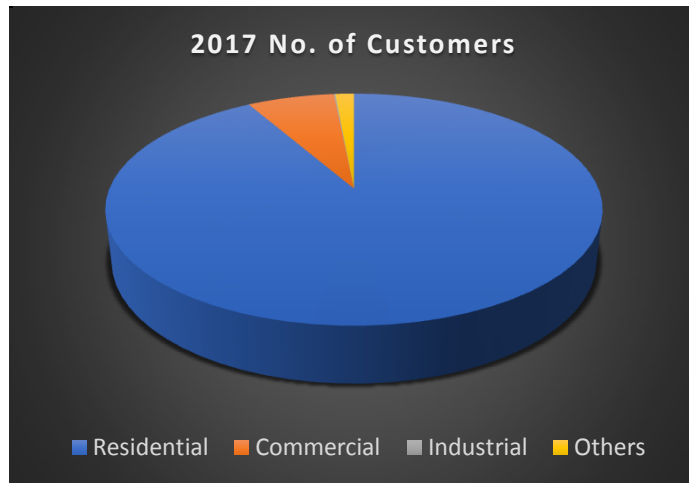
DU's Franchise MAP

BANELCO was registered with the National Electrification Commission (NEC) on September 29, 1978, and granted franchise to operate an electric light and power for a period of fifty (50) years, with Certificate No. III, from August 15, 1984, in the areas comprising the three (3) municipalities, Bantayan, Madridejos & Sta. Fe. The coverage area of BANELCO consists of three municipalities of Bantayan Island with a total of 49 barangays, including nine-island barangays. Just like the other 118 rural electric cooperatives nationwide, the Bantayan Island Electric Cooperative, Inc. (BANELCO) located at Balintawak, Bantigue, Bantayan, Cebu, with telefax number (032)4609281, (032)4609112, and E-mail address banelconline@yahoo.com, derived its birth from the provisions of Republic Act 6038, Presidential Decree No. 269, and by Republic Act 1645. As provided also in the aforementioned laws, BANELCO exists primarily to effect total electrification in its coverage area, on an area coverage basis.



Number of Customer	ACTUAL		FORECAST								
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Residential	25774	28628	30500	32307	34080	35811	37503	39157	40775	42358	43908
Commercial	1895	2020	2035	2050	2065	2080	2095	2110	2125	2140	2155
Industrial	31	32	33	34	35	36	37	38	39	40	41
Others	405	410	414	427	434	442	451	459	468	476	485
Contestable Customers served by RES											
Total (Captive)	28105	31090	32982	34818	36614	38369	40086	41764	43407	45014	46589

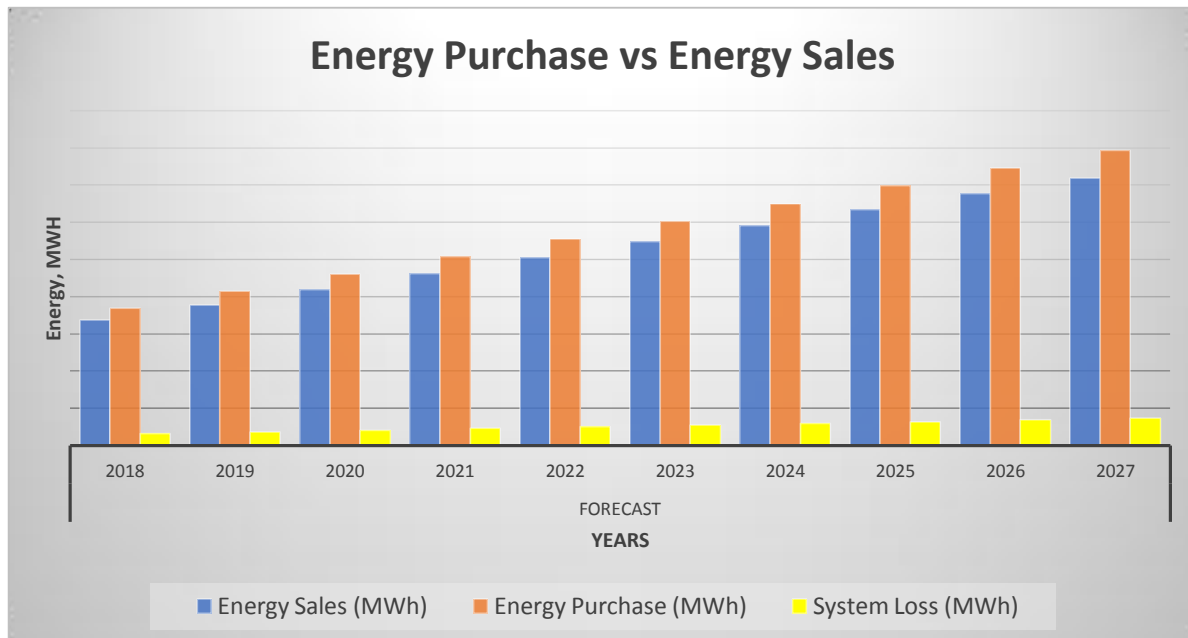
Bantayan Island at present is one of the most tourist destination due to its prestine and white sand beaches. After the closure of Boracay, many tourist diverted to Bantayan Island which causes the demand to rise abnormally.



## ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Energy Sales (MWh)	14096	15404	17248	18165	20036	19442	16765	22453	26801	29736
Energy Purchase (MWh)	15614	17248	19392	19867	21889	21240	18331	24547	29321	32187
System Loss (MWh)	1518.1	1843.9	2143.3	1702.1	1853.5	1797.4	1566.3	2094	2519.1	2450.9

ENERGY SALES AND PURCHASE	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Energy Sales (MWh)	33697	37746	41923	46177	50475	54790	59106	63409	67689	71941
Energy Purchase (MWh)	36880	41411	46017	50736	55507	60270	65033	69796	74559	79322
System Loss (MWh)	3182.6	3665.4	4094.3	4558.5	5032.4	5479.9	5927.3	6387.5	6869.9	7381.2



### Brief highlight/report

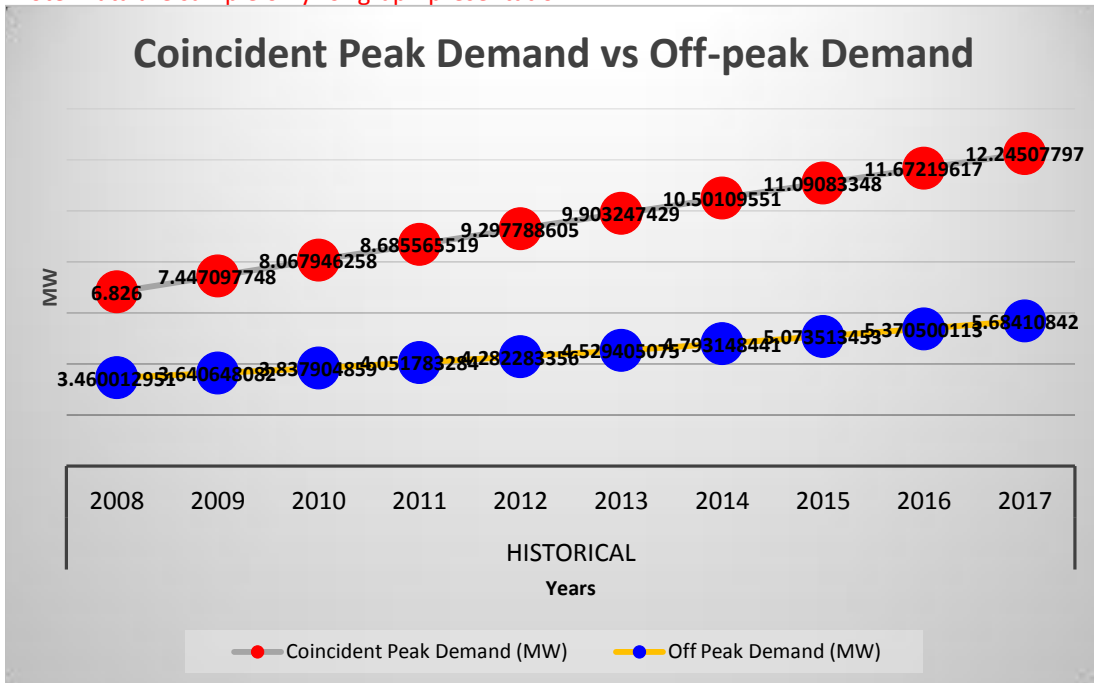
An average growth rate of 8.77% for the first five years and 7.35% for the 6th to 15th year forecast for both Megawatthour Purchased and Sales . This is because of the current development of Bantayan Island with respect to tourism and also because of the on going projects of DOE and NEA for the total electrification thru NIHE by DOE and SEP/BLEP by NEA. Single Digit Systems Loss was also well maintained by BANELCO for almost ten years.

## DEMAND

Demand	HISTORICAL									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Coincident Peak Demand (MW)	3.42	3.5	3.755	4.8	4.625	4.225	4.2	4.5	5.26	5.87
Off Peak Demand (MW)	2.22	2.35	2.57	2.65	2.75	2.86	2.85	2.95	3.15	3.35

Demand	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Coincident Peak Demand (MW)	6.826	7.447	8.068	8.686	9.298	9.903	10.5	11.09	11.67	12.25
Off Peak Demand (MW)	3.46	3.641	3.838	4.052	4.282	4.529	4.793	5.074	5.371	5.684

Note: Data are sample only for graph presentation

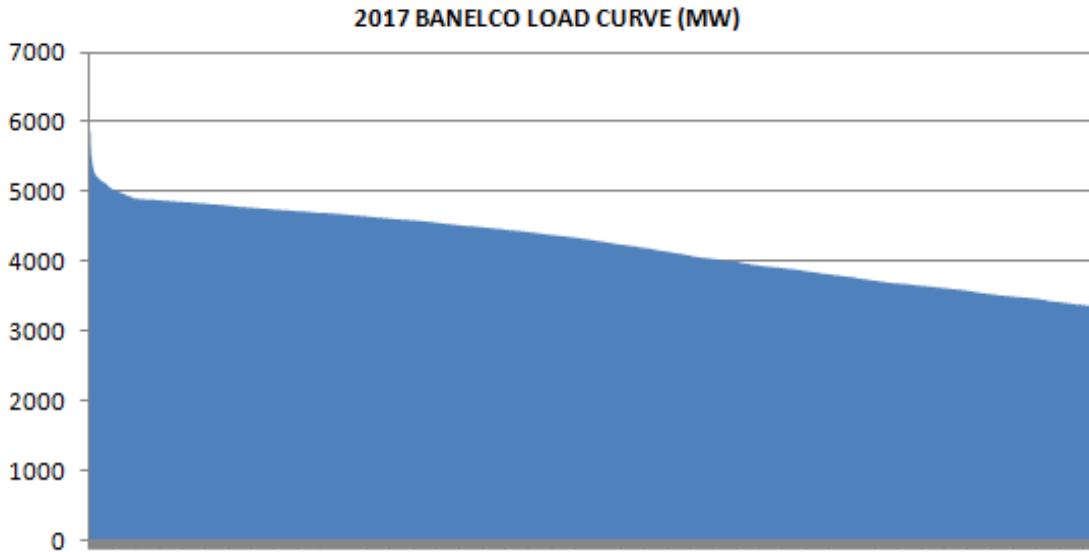
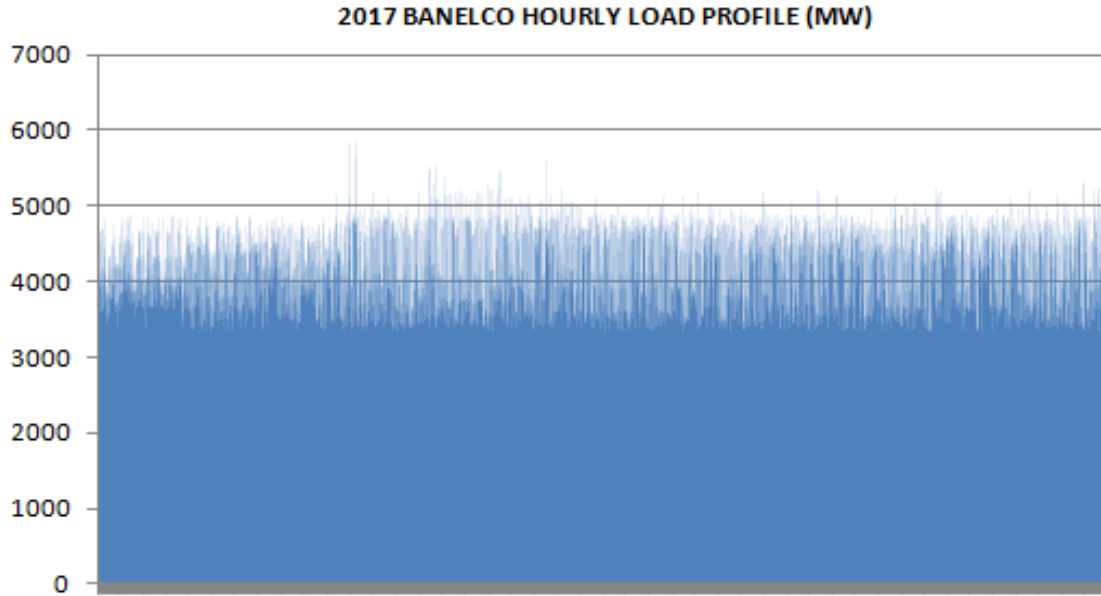


Last November 8, 2013, BANELCO was badly hit by Super Typhoon Yolanda. All data in the early months of the year 2014 are not normal since the co-op is in the rehabilitation stage especially in the month of January wherein, there is no recorded operation due to the devastation. Some commercial and industrial consumers are struggling to reach the normal level of their operation which is evident in the actual data for 2013 and 2014. For the purpose of forecasting, data for 2013 and 2014 were assumed to be in normal operation. This could be justified by the actual numbers in the latter part of 2014. To date, BANELCO operates in normal operation. For the forecasted data, an average annual growth rate of 5.55% for the first five years and 4.76% for the 6th to 15th year.

# POWER SUPPLY PROCUREMENT PLAN

Vertical line on the left side of the page.

## LOAD PROFILE AND LOAD DURATION CURVE



Brief highlight:

Base Load -3.35

Load - 5.87

Peak

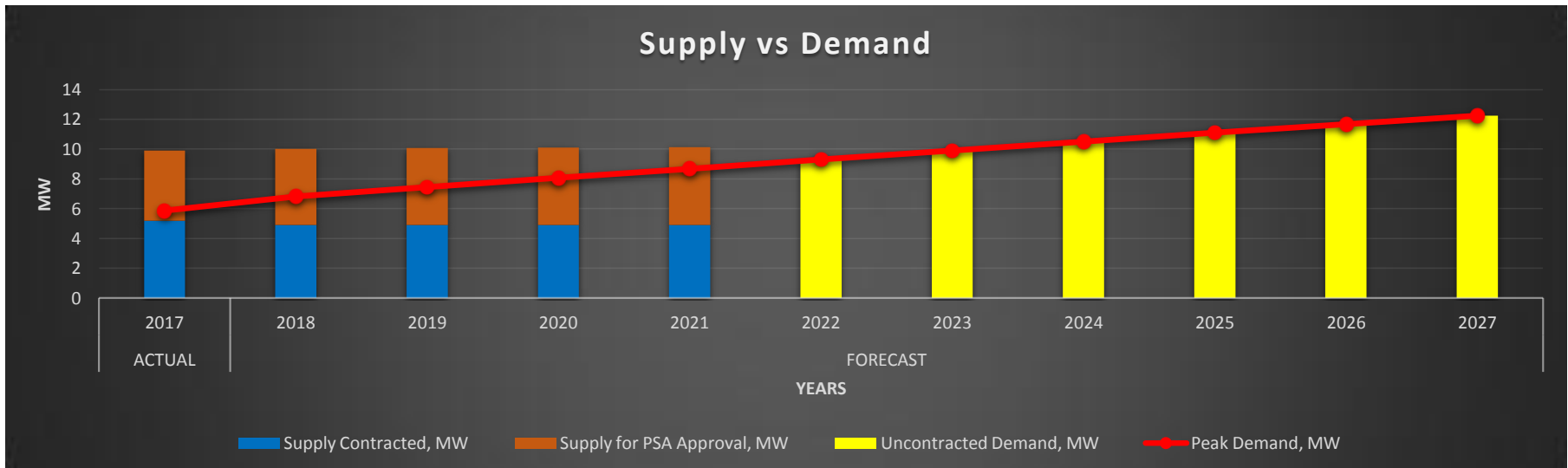
# POWER SUPPLY PROCUREMENT PLAN



### MIXSUPPLY VS DEMAND AND THE OPTIMAL SUPPLY (MAINLAND)

Supply Demand	ACTUAL	FORECAST									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
<b>Peak Demand, MW</b>	<b>5.87</b>	<b>6.826</b>	<b>7.4470977</b>	<b>8.067946</b>	<b>8.685566</b>	<b>9.297789</b>	<b>9.903247</b>	<b>10.5011</b>	<b>11.09083</b>	<b>11.6722</b>	<b>12.24508</b>
<b>Supply Contracted, MW</b>	<b>5.188</b>	<b>4.892</b>	<b>4.892</b>	<b>4.892</b>	<b>4.892</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Generation Plant Name 1	4.892	4.892	4.892	4.892	4.892						
Generation Plant Name 2	0.2										
Generation Plant Name 3	0.096										
<b>Supply for PSA Approval, MW</b>	<b>4.708</b>	<b>5.139</b>	<b>5.17</b>	<b>5.201</b>	<b>5.231</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Generation Plant Name 1	4.708	4.708	4.708	4.708	4.708						
Generation Plant Name 2		0.235	0.251	0.267	0.282						
Generation Plant Name 3		0.196	0.211	0.226	0.241						
<b>Uncontracted Demand, MW</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9.297789</b>	<b>9.903247</b>	<b>10.5011</b>	<b>11.09083</b>	<b>11.6722</b>	<b>12.24508</b>

Note: Data are sample only for graph presentation



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	BIPCOR	0.8	NOV. 2006	NOV. 2021	LOAD FOLLOWING	36000/yr				ACTIVE	BUNKER	11.17	9.60
GenCo 2	NPC-SPUG DOONG	0.8	JAN. 2011	DEC. 2017	0.2	335				ACTIVE	DIESEL	0.3	0.28
GenCo 3	NPC-SPUG GUINTAR	0.8	JAN. 2011	DEC. 2017	0.096	161				ACTIVE	DIESEL	0.3	0.28
GenCo 4													
GenCo 5													

\* Existing contract already expired. For 2018 is still on the process for revision...

For PSA Approval

At the mainland, BANELCO has an existing exclusive contract with BIPCOR (load following) as a sole generation company which expires on November 2021. On May 2011, ERC approved the application of BANELCO and BIPCOR for the first ammendment of PSA to install additional 1.7MW to address the increasing demand to guarantee the delivery of 4.892 MW as minimum Guaranteed Net Capacity and 36,000,000 kwhrs to BANELCO. **On October 2017, BANELCO and BIPCOR applies for the second ammendment of PSA under ERC Case No. 2017-099 RC to install another 3.0 MW generator to meet the projected demand until 2021 to guarantee the delivery of the 9.6 MW as Guaranteed Net Capacity of the Plant and 36,500,000 kwHrs annually to BANELCO but as to date, we are still waiting for ERC's approval.** At present, the maximum demand in the mainland has increased and exceeded BANELCO's forecast resulting to an inadequate standby cold reserve capacity and the reduction of the Minimum Dependable Capacity as required by the Grid Code for the existing generators. This however causes BIPCOR to install the applied new 3.0MW generator even if we are still waiting for the approval of the said application. This abnormal increase of demand was mainly due to the improvement of tourism of the island and the ongoing Sitio Electrification and Baragay Line Enhancement Program of NEA and NIHE of DOE.

## POWER SUPPLY PROCUREMENT PLAN

Meanwhile, at the islets (Genco 2 & 3) has an existing contract with NPC-SPUG for Doong ang Guntarcan Islets which expires on December 2018. The NPC-SPUG Doong will soon be take over by BIPCOR upon the implementation of submarine cable project (NEA-BLEP) to connect Doong, Botigues and Lipayran islets from the mainland. **The SAGR for BIPCOR is PhP 7.232, for NPC-SPUG Doong is Php 5.633 and for NPC-SPU Guntarcan is PhP 5.64.**

## DISTRIBUTION IMPACT STUDY

BANELCO has no direct concern on Capacity problem on substation considering that we are an Off-Grid Distribution Utility and connected to IPP for the mainland and NPC-SPUG for our islets that owns and maintains the generating and substation systems. Based on our assessment, our existing system such as lines for primary and secondary is capable to carry the future loads for the next five (5) years except our Feeder 2 backbone lines which is already deteriorated and more than 30 years already and needs replacement . This project was already filed to ERC CAPEX and still pending for approval. As pursuant to the Philippine Distribution Code and The Philippine Electrical code, we are mandated to comply with its provisions in order to attain maximum stability and safety of power distribution. In order to ensure the reliability and safety of the system, these deteriorated conductor wires must be replaced/corrected for the soonest possible time

POWER SUPPLY PROCUREMENT PLAN

**SCHEDULE OF CSP**

Base / mid-merit / peaking	For CSP		Proposed contract period		Proposed schedule (MM/YYYY)						
	Demand (MW)	Energy (MWh)	Start Month and Year	End Month and Year	Publication of Invitation to Bid	Pre-bid Conference	Submission and Opening of Bids	Bid Evaluation	Awarding	PSA Signing	Joint Application to ERC
Base (Load Following)	12.0		Nov. 9, 2021	Nov. 9, 2036	Feb. 21 &28, 2019	Mar. 12, 2019	Mar. 21, 2019	Mar. 22, 2019	Apr. 1, 2019	Apr. 16, 2019	Apr. 23, 2019

BANELCO is still on the process for data gathering for our TOR for the next CSP to be scheduled next year. We need also an assistance from NEA and DOE for the said TOR for our Power Supply Plan. On October 2017, BANELCO and BIPCOR applies for the second amendment of PSA under ERC Case No. 2017-099 RC to install additional 3.0 MW generator to meet the projected demand until 2021. As to date, BANELCO & BIPCOR is still waiting for ERC's approval for the said ammendment.

## 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 Requireme nt (MWh)	Demand (MW)	Energy (MWh)	Uncontra cted Demand (MW)	Uncontrac ted Energy (MWh)	Deman d (MW)	Energy (MWh)
2018									
Jan	5.45	2.76	2,667.3					5.45	3,497
Feb	5.70	2.89	2,761.0					5.70	3,497
Mar	6.40	3.24	2,709.3					6.40	3,497
Apr	6.42	3.25	3,256.1					6.42	3,497
May	6.66	3.38	3,333.9					6.66	3,497
Jun	6.60	3.35	3,222.6					6.60	3,497
Jul	6.54	3.31	2,973.0					6.54	3,497
Aug	6.78	3.43	2,988.8					6.78	3,497
Sep	6.71	3.40	3,077.5					6.71	3,497
Oct	6.75	3.42	2,948.7					6.75	3,497
Nov	6.77	3.43	3,019.3					6.77	3,497
Dec	6.83	3.46	3,005.9					6.83	3,497
2019									
Jan	6.77	3.31	3,097.2					6.77	3,497
Feb	6.91	3.38	2,856.2					6.91	3,497
Mar	7.10	3.47	2,679.5					7.10	3,497
Apr	7.45	3.64	3,112.3					7.45	3,497
May	7.21	3.53	3,596.6	99.85				7.21	3,497
Jun	7.18	3.51	3,485.4					7.18	3,497
Jul	7.18	3.51	3,235.7					7.18	3,497
Aug	7.23	3.53	3,251.5					7.23	3,497
Sep	7.11	3.47	3,340.2					7.11	3,497
Oct	7.24	3.54	3,211.4					7.24	3,497
Nov	7.31	3.57	3,282.0					7.31	3,497
Dec	7.33	3.58	3,268.7					7.33	3,497
2020									
Jan	7.48	3.56	3,378.8					7.48	3,497
Feb	7.53	3.58	3,137.8					7.53	3,497
Mar	7.71	3.67	2,961.2					7.71	3,497
Apr	8.07	3.84	3,393.9					8.07	3,497
May	7.71	3.67	3,878.3	381.51				7.71	3,497
Jun	7.73	3.68	3,767.0	270.24				7.73	3,497
Jul	7.92	3.77	3,517.4	20.61				7.92	3,497
Aug	7.97	3.79	3,533.2	36.38				7.97	3,497
Sep	7.95	3.78	3,621.8	125.05				7.95	3,497
Oct	7.88	3.75	3,493.1					7.88	3,497
Nov	7.95	3.78	3,563.7	66.92				7.95	3,497
Dec	7.97	3.79	3,550.3	53.52				7.97	3,497
2021									
Jan	8.09	3.77	4,123.8	626.98				8.09	3,497

POWER SUPPLY PROCUREMENT PLAN

Feb	8.14	3.79	3,882.8	385.99				8.14	3,497
Mar	8.32	3.88	3,706.1	209.33				8.32	3,497
Apr	8.69	4.05	4,138.9	642.08				8.69	3,497
May	8.32	3.88	4,623.2	1,126.45				8.32	3,497
Jun	8.34	3.89	4,512.0	1,015.18				8.34	3,497
Jul	8.54	3.98	4,262.3	765.55				8.54	3,497
Aug	8.59	4.01	4,278.1	781.33				8.59	3,497
Sep	8.57	4.00	4,366.8	870.00				8.57	3,497
Oct	8.50	3.96	4,238.1	741.27				8.50	3,497
Nov	8.57	4.00	4,308.7	811.86				8.57	3,497
Dec	8.59	4.01	4,295.3	798.47				8.59	3,497
2022									
Jan	8.71	4.00	4,521.4			8.71	4,521.4		
Feb	8.76	4.02	4,280.4			8.76	4,280.4		
Mar	8.94	4.11	4,103.7			8.94	4,103.7		
Apr	9.30	4.28	4,536.5			9.30	4,536.5		
May	8.94	4.11	5,020.9			8.94	5,020.9		
Jun	8.96	4.12	4,909.6			8.96	4,909.6		
Jul	9.15	4.21	4,660.0			9.15	4,660.0		
Aug	9.20	4.24	4,675.7			9.20	4,675.7		
Sep	9.18	4.23	4,764.4			9.18	4,764.4		
Oct	9.11	4.19	4,635.7			9.11	4,635.7		
Nov	9.18	4.23	4,706.3			9.18	4,706.3		
Dec	9.20	4.24	4,692.9			9.20	4,692.9		
2023									
Jan	9.31	4.25	4,918.3			9.31	4,918.3		
Feb	9.36	4.27	4,677.3			9.36	4,677.3		
Mar	9.54	4.36	4,500.6			9.54	4,500.6		
Apr	9.90	4.53	4,933.4			9.90	4,933.4		
May	9.54	4.36	5,417.8			9.54	5,417.8		
Jun	9.56	4.37	5,306.5			9.56	5,306.5		
Jul	9.76	4.46	5,056.9			9.76	5,056.9		
Aug	9.81	4.48	5,072.6			9.81	5,072.6		
Sep	9.79	4.48	5,161.3			9.79	5,161.3		
Oct	9.72	4.44	5,032.6			9.72	5,032.6		
Nov	9.79	4.48	5,103.2			9.79	5,103.2		
Dec	9.81	4.48	5,089.8			9.81	5,089.8		
2024									
Jan	9.91	4.51	5,315.2			9.91	5,315.2		
Feb	9.96	4.54	5,074.2			9.96	5,074.2		
Mar	10.14	4.62	4,897.6			10.14	4,897.6		
Apr	10.50	4.79	5,330.3			10.50	5,330.3		
May	10.14	4.62	5,814.7			10.14	5,814.7		
Jun	10.16	4.63	5,703.4			10.16	5,703.4		
Jul	10.36	4.72	5,453.8			10.36	5,453.8		
Aug	10.41	4.75	5,469.5			10.41	5,469.5		
Sep	10.39	4.74	5,558.2			10.39	5,558.2		
Oct	10.32	4.71	5,429.5			10.32	5,429.5		
Nov	10.39	4.74	5,500.1			10.39	5,500.1		
Dec	10.41	4.75	5,486.7			10.41	5,486.7		

POWER SUPPLY PROCUREMENT PLAN

2025									
Jan	10.50	4.79	5,712.1			10.50	5,712.1		
Feb	10.55	4.82	5,471.1			10.55	5,471.1		
Mar	10.73	4.90	5,294.5			10.73	5,294.5		
Apr	11.09	5.07	5,727.2			11.09	5,727.2		
May	10.73	4.90	6,211.6			10.73	6,211.6		
Jun	10.75	4.91	6,100.3			10.75	6,100.3		
Jul	10.95	5.00	5,850.7			10.95	5,850.7		
Aug	11.00	5.03	5,866.5			11.00	5,866.5		
Sep	10.98	5.02	5,955.1			10.98	5,955.1		
Oct	10.91	4.99	5,826.4			10.91	5,826.4		
Nov	10.98	5.02	5,897.0			10.98	5,897.0		
Dec	11.00	5.03	5,883.6			11.00	5,883.6		
2026									
Jan	11.08	5.09	6,109.0			11.08	6,109.0		
Feb	11.13	5.11	5,868.0			11.13	5,868.0		
Mar	11.31	5.20	5,691.4			11.31	5,691.4		
Apr	11.67	5.37	6,124.1			11.67	6,124.1		
May	11.31	5.20	6,608.5			11.31	6,608.5		
Jun	11.33	5.21	6,497.2			11.33	6,497.2		
Jul	11.53	5.30	6,247.6			11.53	6,247.6		
Aug	11.58	5.33	6,263.4			11.58	6,263.4		
Sep	11.56	5.32	6,352.0			11.56	6,352.0		
Oct	11.49	5.28	6,223.3			11.49	6,223.3		
Nov	11.56	5.32	6,293.9			11.56	6,293.9		
Dec	11.58	5.33	6,280.5			11.58	6,280.5		
2027									
Jan	11.65	5.40	6,505.9			11.65	6,505.9		
Feb	11.70	5.43	6,264.9			11.70	6,264.9		
Mar	11.88	5.51	6,088.3			11.88	6,088.3		
Apr	12.25	5.68	6,521.0			12.25	6,521.0		
May	11.88	5.51	7,005.4			11.88	7,005.4		
Jun	11.90	5.52	6,894.1			11.90	6,894.1		
Jul	12.10	5.62	6,644.5			12.10	6,644.5		
Aug	12.15	5.64	6,660.3			12.15	6,660.3		
Sep	12.13	5.63	6,749.0			12.13	6,749.0		
Oct	12.06	5.60	6,620.2			12.06	6,620.2		
Nov	12.13	5.63	6,690.8			12.13	6,690.8		
Dec	12.15	5.64	6,677.4			12.15	6,677.4		