



NEECO II

Area 2

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NEECO II – Area 2

Power Supply Procurement Plan (PSPP)

2019

GRID

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; &
- 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 PSSP 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

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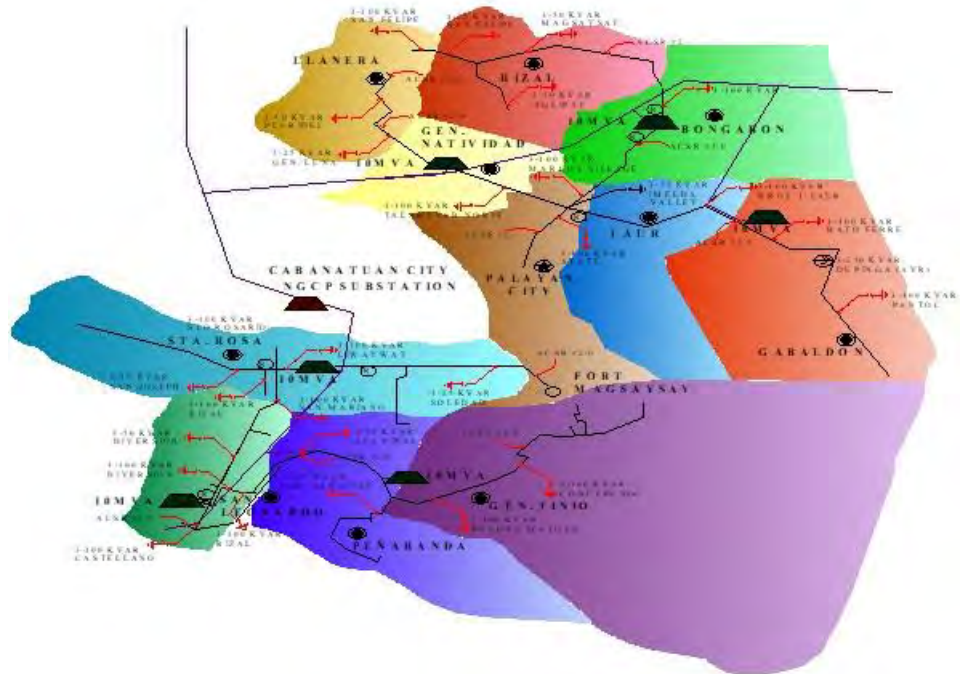
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INTRODUCTION

DISTRIBUTION UTILITIES PROFILE

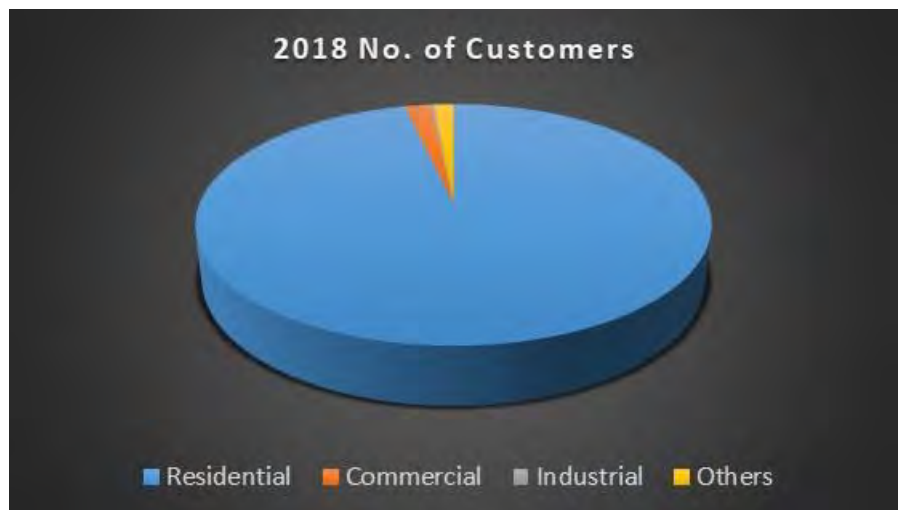
NEECO II - Area 2 has a license/franchise #209, dated November 24, 2004 and expires on 2040. A franchise area of 1,934.2 square kilometers which covers 10 Towns and 1 City, namely: Sta. Rosa, San Leonardo, Penaranda, Papaya (Gen. Tinio), Bongabon, Laur, Gabaldon (Bitulok & Sabani), Llanera, Gen. Natividad, Rizal and Palayan City. Upon the assumption of the operation and supervision of the area coverage of the defunct NEECO III by NEECO II - Area 2, the following barangays were already included in its area coverage, hence, no document is available at the file of this cooperative. As of December 2018 it has 225 barangays, 128,897 potential households and 118,512 energized consumers.

Franchise MAP



Number of Customer Connections in Franchise	Actual	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	93,416	95,722	99,147	102,702	106,388	110,204	114,150	118,227	122,434	126,772	131,239
Commercial	1,889	1,926	1,991	2,064	2,146	2,235	2,330	2,432	2,541	2,655	2,774
Industrial	232	255	276	297	318	339	360	381	402	423	444
Others	1,409	1,459	1,510	1,561	1,610	1,661	1,711	1,761	1,811	1,860	1,910
Contestable Customers served by RES											
Total (Captive Customers)	96,946	99,362	102,924	106,624	110,462	114,439	118,551	122,801	127,188	131,710	136,367

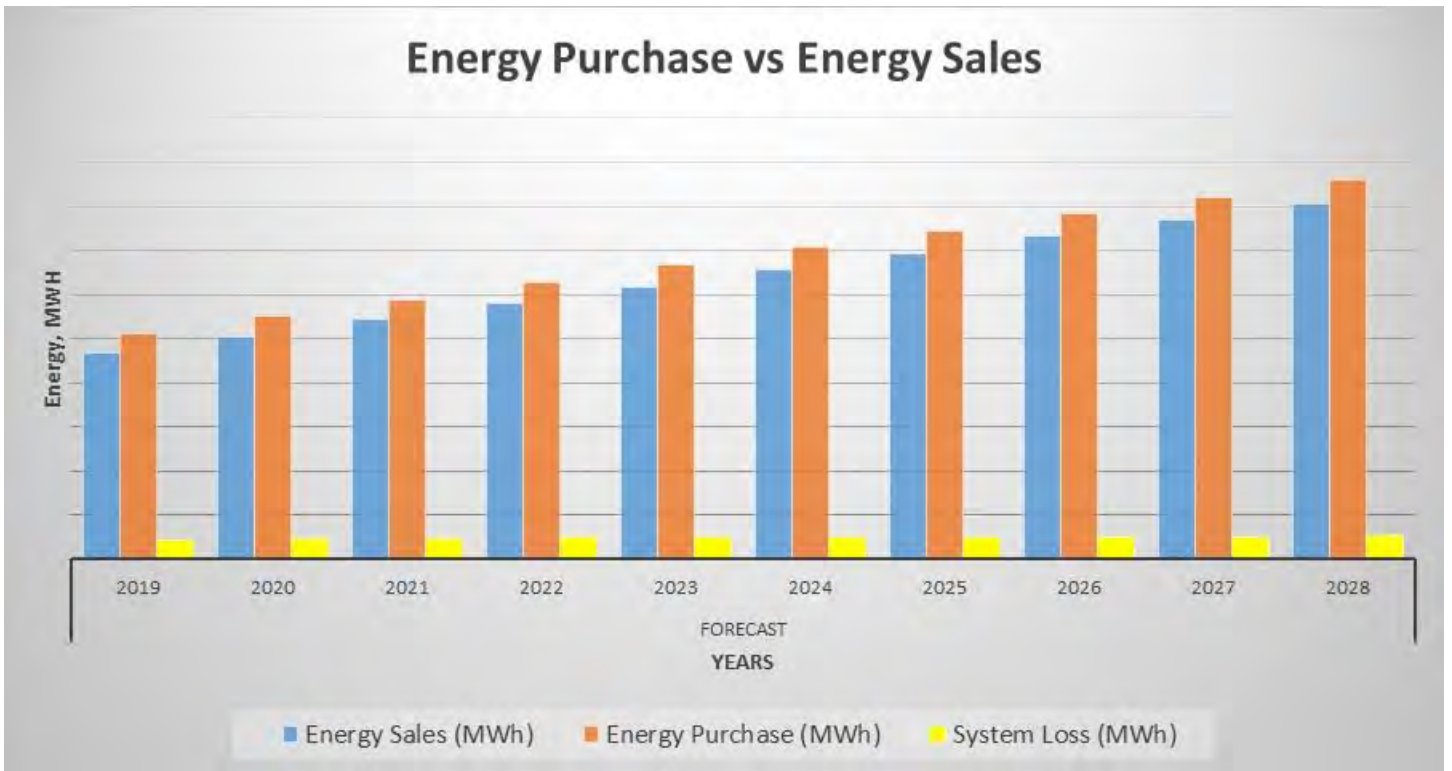
One of the factors in the increase of demand are the increase of poultry, piggery, onion storage, rice mills and malls.



ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE (MWh)	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Energy Sales	104,529	119,060	122,248	130,958	144,503	156,534	160,973	181,856	201,366	218,342
Energy Purchase	115,870	131,839	134,584	144,704	159,590	172,582	180,512	198,812	219,880	236,820
System Loss	11,341	12,779	12,335	13,746	15,086	16,049	19,538	16,956	18,512	18,477

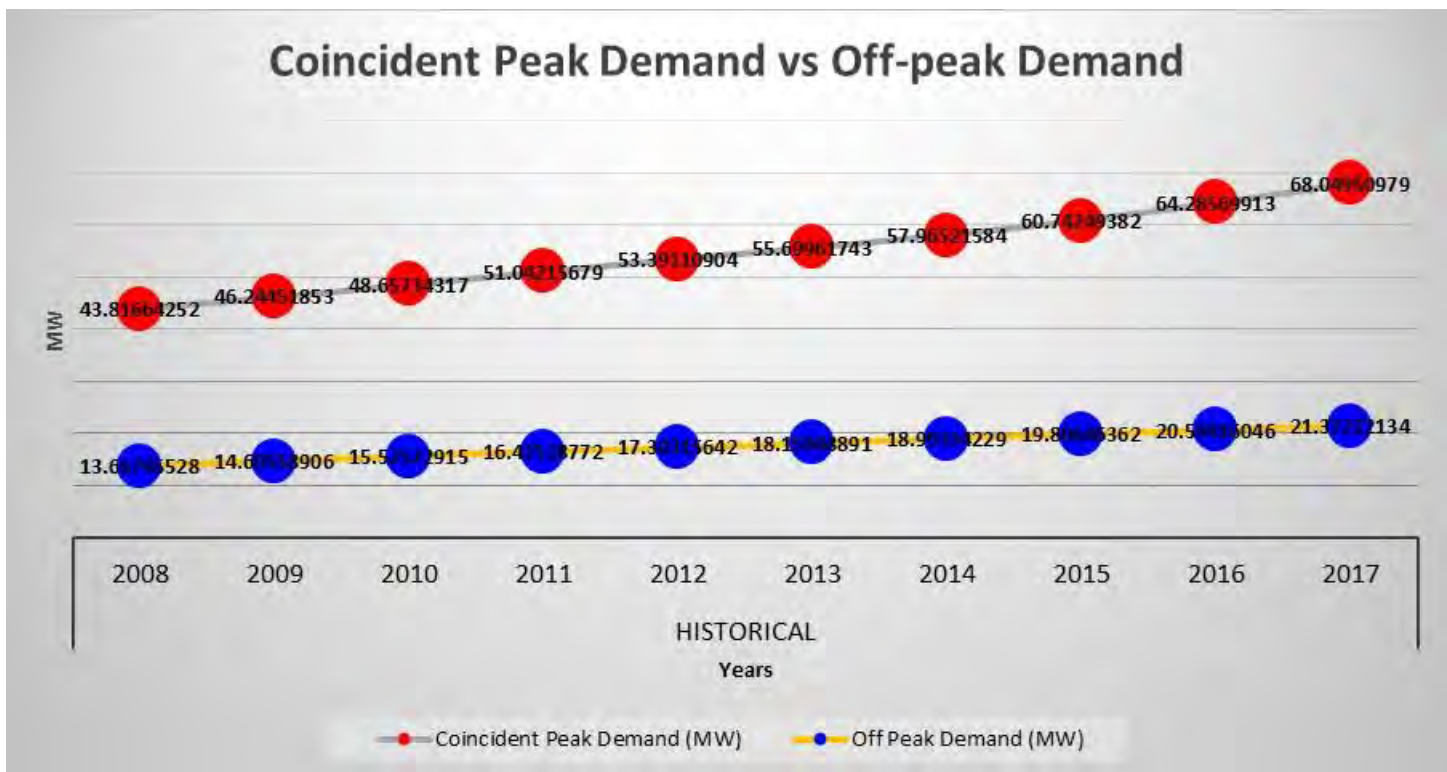
ENERGY SALES AND PURCHASE (MWh)	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Energy Sales	234,008	252,392	271,145	290,119	309,199	328,289	347,314	366,207	384,917	403,394
Energy Purchase	255,544	275,004	294,603	314,230	333,804	353,271	372,593	391,744	410,707	429,469
System Loss	21,536	22,612	23,459	24,110	24,605	24,981	25,279	25,537	25,790	26,075



DEMAND

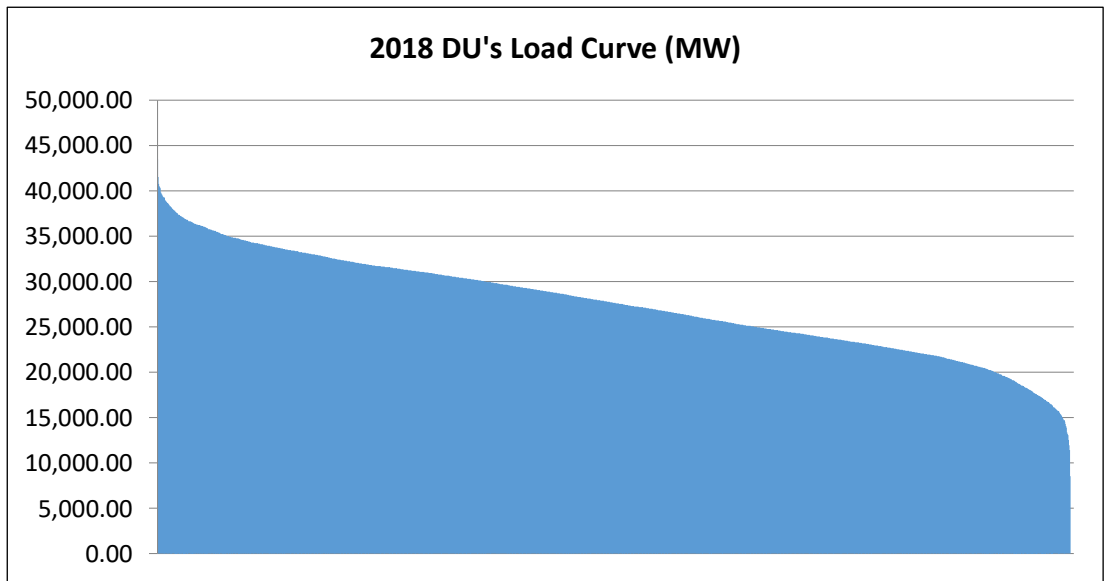
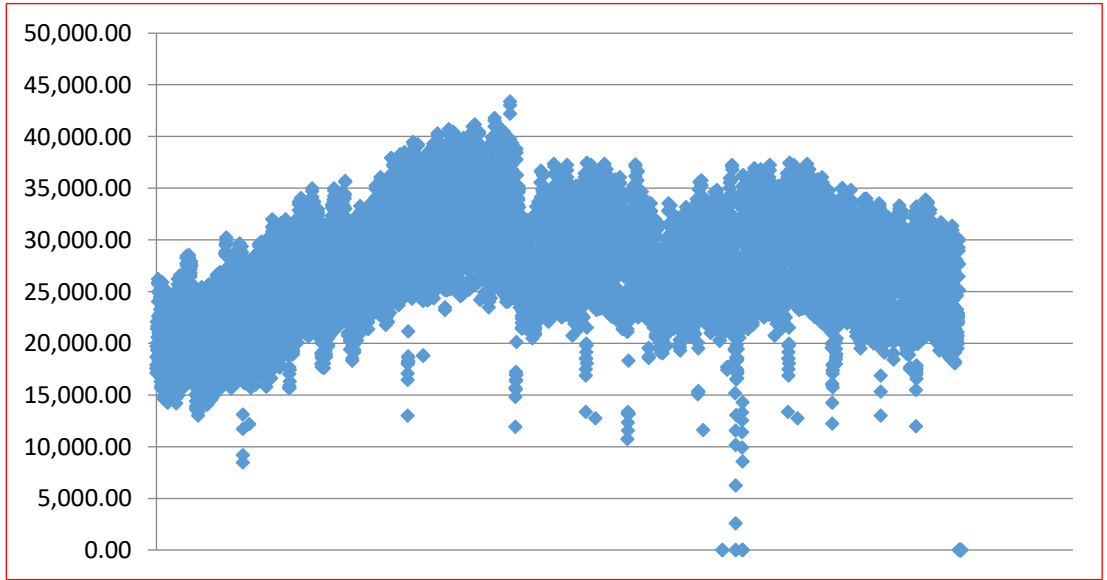
DEMAND (MW)	FORECAST									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coincident Peak	22.12	25.48	26.00	26.66	31.19	34.78	34.66	36.22	39.58	43.42
Off Peak	6.608	8.218	7.728	8.428	9.072	8.372	8.880	10.669	10.602	11.72

DEMAND (MW)	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Coincident Peak	43.82	46.24	48.66	51.04	53.39	55.7	57.97	60.74	64.29	68.05
Off Peak	13.67	14.61	15.53	16.43	17.3	18.16	18.99	19.81	20.6	21.37



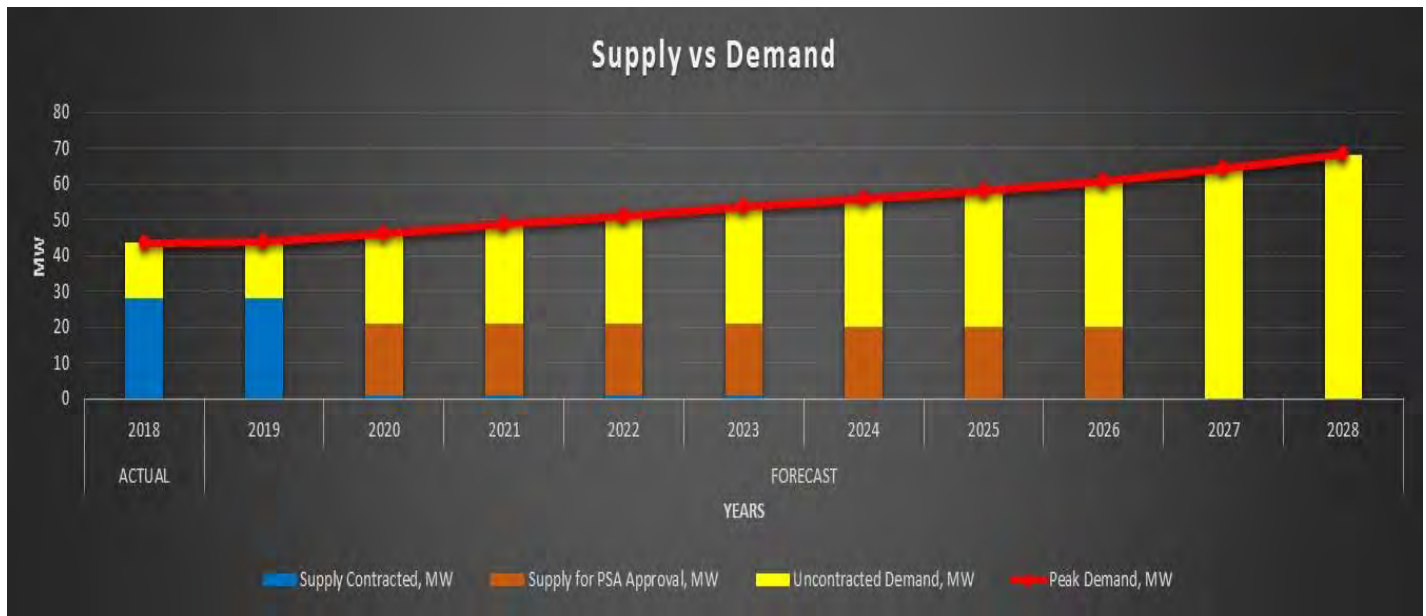
LOAD PROFILE AND LOAD DURATION CURVE

LC	LP
43,418.48	19,725.44
43,051.54	18,672.36
42,204.54	17,927.42
41,797.98	17,539.20
41,523.16	17,137.82
41,198.08	17,574.90
41,166.58	17,555.58
41,125.42	17,124.10
40,976.74	19,374.46
40,950.56	20,001.94
40,752.60	21,395.64
40,724.46	22,075.06
40,684.70	22,140.02
40,639.20	22,023.54
40,514.74	21,696.92
40,503.12	21,644.98
40,471.76	20,613.60
40,466.44	24,064.18
40,441.10	25,749.50
40,426.82	26,203.94
40,372.50	25,914.56
40,336.10	24,958.50
40,317.76	22,585.36
40,289.76	21,072.38
40,268.34	19,667.06
40,263.72	18,897.34
40,032.02	18,268.18
39,987.64	17,460.66
39,905.18	17,403.54
39,815.86	18,018.42
39,802.70	18,205.04
39,797.66	17,978.52
39,797.52	20,783.00
39,794.58	20,797.42
39,754.12	21,598.92
39,662.00	21,810.18
39,655.98	22,289.12
39,634.28	22,721.72
39,606.00	22,812.16
39,579.12	22,631.28
39,556.72	21,742.56



MIXSUPPLY VS DEMAND AND THE OPTIMAL SUPPLY

Supply Demand	Actual	Forecast									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Peak Demand, MW	43.418	43.816	46.244	48.657	51.042	53.391	55.699	57.965	60.742	64.285	68.049
Supply Contracted, MW	28	28	1	1	1	1	0	0	0	0	0
Generation Plant Name 1	SMEC	SMEC									
Generation Plant Name 2	PNOC	PNOC	PNOC	PNOC	PNOC						
Supply for PSA Approval, MW	0	0	20	20	20	20	20	20	20	0	0
Generation Plant Name 1			MPGC	MPGC	MPGC	MPGC	MPGC	MPGC	MPGC		
Uncontracted Demand, MW	15.418	15.816	25.244	27.657	30.042	32.391	35.699	37.965	40.742	64.285	68.049



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	San Miguel Energy Corporation (SMEC)		Dec./ 2016	Dec./ 2019	27		Base	Grid Connected	SMEC		Coal		
GenCo 2	Philippine National Oil Company-Renewables Corpoation (PNOC-RC)		Dec./ 2015	Dec./ 2023	1		Base	Embedded	PNOC-RC		Hydro	1	0.8

In the Letter of Agreement between NEECO II-A2 and SMEC, the Additional Volume of Energy will be on top of PSC's contract capacity of Twenty Seven Thousand Kilowatts (27,000 kW). It means that the nature of the supply of the additional volume of energy will be Energy Based/ Load Following.

DISTRIBUTION IMPACT STUDY

NEECO II - Area 2 was on the process of upgrading the overloaded power transformer and planning to install additional power transformer to comply with the growing demands. Replacement of undersize distribution lines were also part of the project to have best power quality. Capacity and reliability were given priorities. Feasible solution were considered to determine the most practical and be the first alternative solutions.

Over extended 69kV sub-transmission line affects the power quality delivered to the consumers.

As of 2018, two (2) out of six (6) power transformers are overloaded.

Philippines Distribution Code (PDC) compliance was submitted last year 2018.

SCHEDULE OF CSP

Base / Mid- merit / Peaking	For CSP		Proposed		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	Demand (MW)	Energy (MWh)
Base Load	37		Dec. 2020	Dec. 2030	02/21/2020 to 02/28/2020	3/6/2020	3/31/2020	4/1/2020	4/17/2020	4/28/2020 to 5/4/2020	5/5/2020 to 5/11/2020	02/21/2020 to 02/28/2020	3/6/2020
Base Load	5	22,000	Dec. 2022	Dec. 2047									

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)
2019									
Jan	31.11	14.37	18,136.67	28.00		3.11	Load Following		
Feb	32.44	13.67	17,861.50	28.00		4.44	Load Following		
Mar	37.92	16.84	18,616.90	28.00		9.92	Load Following		
Apr	41.49	19.92	23,921.95	28.00		13.49	Load Following		
May	43.82	19.49	24,980.29	28.00		15.82	Load Following		
Jun	41.95	20.21	24,524.55	28.00		13.95	Load Following		
Jul	39.11	18.68	22,091.74	28.00		11.11	Load Following		
Aug	39.05	17.56	22,286.21	28.00		11.05	Load Following		
Sep	39.06	16.99	22,249.30	28.00		11.06	Load Following		
Oct	38.61	16.42	20,154.92	28.00		10.61	Load Following		
Nov	35.48	17.32	21,091.34	28.00		7.48	Load Following		
Dec	33.98	16.72	19,629.13	28.00		5.98	Load Following		
2020									
Jan	32.56	15.36	19,517.72	1.00		31.56		37.00	
Feb	34.18	14.61	19,221.61	1.00		33.18		37.00	
Mar	40.34	17.99	20,034.52	1.00		39.34		37.00	
Apr	43.60	21.28	25,743.54	1.00		42.60		37.00	
May	46.24	20.82	26,882.47	1.00		45.24		37.00	
Jun	44.02	21.60	26,392.03	1.00		43.02		37.00	
Jul	40.43	19.96	23,773.96	1.00		39.43		37.00	
Aug	40.36	18.76	23,983.24	1.00		39.36		37.00	
Sep	40.81	18.15	23,943.52	1.00		39.81		37.00	
Oct	41.30	17.54	21,689.66	1.00		40.30		37.00	
Nov	37.30	18.51	22,697.38	1.00		36.30		37.00	
Dec	35.53	17.87	21,123.84	1.00		34.53		37.00	
2021									
Jan	34.06	16.33	20,908.78	1.00		33.06		37.00	
Feb	35.93	15.53	20,591.55	1.00		34.93		37.00	
Mar	42.72	19.13	21,462.41	1.00		41.72		37.00	
Apr	45.70	22.62	27,578.32	1.00		44.70		37.00	
May	48.66	22.14	28,798.42	1.00		47.66		37.00	
Jun	46.28	22.96	28,273.02	1.00		45.28		37.00	
Jul	41.73	21.22	25,468.36	1.00		40.73		37.00	
Aug	41.65	19.95	25,692.56	1.00		40.65		37.00	
Sep	42.52	19.30	25,650.01	1.00		41.52		37.00	
Oct	44.03	18.65	23,235.51	1.00		43.03		37.00	
Nov	39.18	19.68	24,315.06	1.00		38.18		37.00	
Dec	37.17	18.99	22,629.36	1.00		36.17		37.00	

2022									
Jan	35.62	17.27	22,301.71	1.00		34.62		37.00	
Feb	37.68	16.43	21,963.35	1.00		36.68		37.00	
Mar	45.05	20.23	22,892.22	1.00		44.05		37.00	
Apr	47.77	23.93	29,415.57	1.00		46.77		37.00	
May	51.04	23.42	30,716.95	1.00		50.04		37.00	
Jun	48.75	24.29	30,156.55	1.00		47.75		37.00	
Jul	43.02	22.45	27,165.05	1.00		42.02		37.00	
Aug	42.93	21.10	27,404.18	1.00		41.93		37.00	
Sep	44.18	20.42	27,358.80	1.00		43.18		37.00	
Oct	46.77	19.73	24,783.44	1.00		45.77		37.00	
Nov	41.11	20.82	25,934.91	1.00		40.11		37.00	
Dec	38.92	20.09	24,136.91	1.00		37.92		37.00	
2023									
Jan	37.24	18.20	23,690.92	1.00		36.24		42.00	
Feb	39.44	17.30	23,331.49	1.00		38.44		42.00	
Mar	47.31	21.31	24,318.22	1.00		46.31		42.00	
Apr	49.80	25.21	31,247.92	1.00		48.80		42.00	
May	53.39	24.67	32,630.37	1.00		52.39		42.00	
Jun	51.42	25.59	32,035.06	1.00		50.42		42.00	
Jul	44.31	23.65	28,857.21	1.00		43.31		42.00	
Aug	44.19	22.23	29,111.24	1.00		43.19		42.00	
Sep	45.80	21.51	29,063.03	1.00		44.80		42.00	
Oct	49.50	20.78	26,327.25	1.00		48.50		42.00	
Nov	43.10	21.93	27,550.44	1.00		42.10		42.00	
Dec	40.79	21.17	25,640.45	1.00		39.79		42.00	
2024									
Jan	38.93	19.10	25,072.55			38.93		42.00	
Feb	41.20	18.16	24,692.15			41.20		42.00	
Mar	49.53	22.37	25,736.43			49.53		42.00	
Apr	51.80	26.46	33,070.26			51.80		42.00	
May	55.70	25.89	34,533.33			55.70		42.00	
Jun	54.31	26.85	33,903.31			54.31		42.00	
Jul	45.58	24.82	30,540.13			45.58		42.00	
Aug	45.44	23.33	30,808.97			45.44		42.00	
Sep	47.38	22.57	30,757.95			47.38		42.00	
Oct	52.21	21.81	27,862.62			52.21		42.00	
Nov	45.14	23.01	29,157.15			45.14		42.00	
Dec	42.78	22.21	27,135.77			42.78		42.00	
2025									
Jan	40.69	19.97	26,443.90			40.69		42.00	
Feb	42.96	18.99	26,042.70			42.96		42.00	
Mar	51.68	23.40	27,144.09			51.68		42.00	
Apr	53.76	27.68	34,879.04			53.76		42.00	
May	57.97	27.08	36,422.14			57.97		42.00	

Jun	57.42	28.08	35,757.66			57.42		42.00	
Jul	46.86	25.96	32,210.53			46.86		42.00	
Aug	46.68	24.40	32,494.08			46.68		42.00	
Sep	48.92	23.61	32,440.26			48.92		42.00	
Oct	54.90	22.81	29,386.58			54.90		42.00	
Nov	47.24	24.07	30,751.91			47.24		42.00	
Dec	44.90	23.23	28,619.97			44.90		42.00	
2026									
Jan	42.52	20.83	27,803.12			42.52		42.00	
Feb	44.72	19.81	27,381.30			44.72		42.00	
Mar	53.78	24.40	28,539.30			53.78		42.00	
Apr	55.68	28.86	36,671.84			55.68		42.00	
May	60.19	28.24	38,294.25			60.19		42.00	
Jun	60.74	29.29	37,595.61			60.74		42.00	
Jul	48.12	27.07	33,866.16			48.12		42.00	
Aug	47.92	25.45	34,164.28			47.92		42.00	
Sep	50.42	24.62	34,107.70			50.42		42.00	
Oct	57.55	23.79	30,897.05			57.55		42.00	
Nov	49.40	25.10	32,332.57			49.40		42.00	
Dec	47.17	24.23	30,091.04			47.17		42.00	
2027									
Jan	44.44	21.66	29,148.96			44.44		42.00	
Feb	46.49	20.60	28,706.72			46.49		42.00	
Mar	55.83	25.37	29,920.77			55.83		42.00	
Apr	57.57	30.02	38,446.97			57.57		42.00	
May	62.36	29.37	40,147.92			62.36		42.00	
Jun	64.29	30.46	39,415.46			64.29		42.00	
Jul	49.39	28.15	35,505.48			49.39		42.00	
Aug	49.16	26.46	35,818.03			49.16		42.00	
Sep	51.89	25.60	35,758.71			51.89		42.00	
Oct	60.16	24.74	32,392.65			60.16		42.00	
Nov	51.61	26.11	33,897.65			51.61		42.00	
Dec	49.60	25.20	31,547.63			49.60		42.00	
2028									
Jan	46.45	22.48	30,480.58			46.45		42.00	
Feb	48.26	21.37	30,018.13			48.26		42.00	
Mar	57.83	26.33	31,287.65			57.83		42.00	
Apr	59.41	31.14	40,203.36			59.41		42.00	
May	64.50	30.47	41,982.01			64.50		42.00	
Jun	68.05	31.60	41,216.09			68.05		42.00	
Jul	50.65	29.21	37,127.49			50.65		42.00	
Aug	50.39	27.46	37,454.32			50.39		42.00	
Sep	53.32	26.56	37,392.29			53.32		42.00	
Oct	62.73	25.67	33,872.46			62.73		42.00	
Nov	53.87	27.09	35,446.21			53.87		42.00	
Dec	52.19	26.14	32,988.83			52.19		42.00	