

**SURSECO II'S POWER SUPPLY
PROCUREMENT PLAN
FOR
CY 2018 - 2027**

SURIGAO DEL SUR 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 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

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

TABLE OF CONTENTS

Introduction

Energy & Demand Forecast (10 year historical and forecast)

Energy Sales and Purchase

Daily Load Profile and Load Duration Curve

Existing Contracts & Existing GenCos due diligence report

Committed Energy and Demand for CSP

SURSECO II's Current Supply and Demand

Distribution Impact Study

Schedule of Power Supply Procurement

Timeline of the CSP

Forecast Methodology

INTRODUCTION

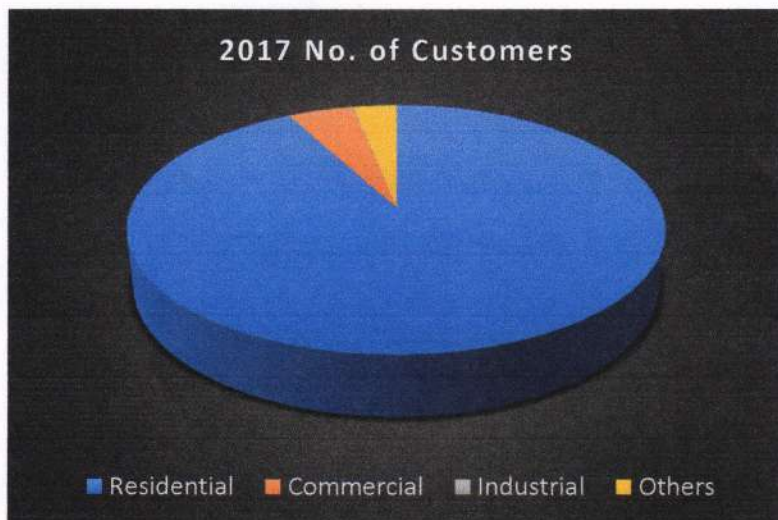
DISTRIBUTION UTILITIES PROFILE

Pursuant to the provisions of Republic Act 6038 as amended by Presidential Decree 269; and similar to the experience of other electric Cooperatives, the Surigao del Sur II Electric Cooperative, Inc. (SURSECO II) was organized as a private, non-stock, non-profit membership and service-oriented Cooperative on September 10, 1979. The franchise area of SURSECO II is situated along the coastal part of the first political district of the province with a total land area of 3365 square kilometers. Thus, at present, SURSECO II is serving 13 municipalities, namely Carrascal, Cantilan, Madrid, Carmen, Lanuza, Cortes, Tago, Bayabas, Cagwait, Marihatag, San Miguel, San Agustin, Lianga, and 1 city which is the City of Tandag.



Number of Customer	ACTUAL	FORECAST									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Residential	60,221	61,811	63,382	64,846	66,219	67,513	68,737	69,899	71,006	72,064	73,076
Commercial	3,041	3,116	3,190	3,264	3,338	3,412	3,485	3,559	3,633	3,707	3,781
Industrial	68	72	75	79	83	86	89	92	95	97	99
Others	1,963	2,062	2,204	2,395	2,646	2,969	3,375	3,873	4,475	5,191	6,033
Contestable Cus	-	-	-	-	-	-	-	-	-	-	-
Total (Captive)	65,293	67,061	68,851	70,584	72,285	73,980	75,687	77,424	79,210	81,059	82,990

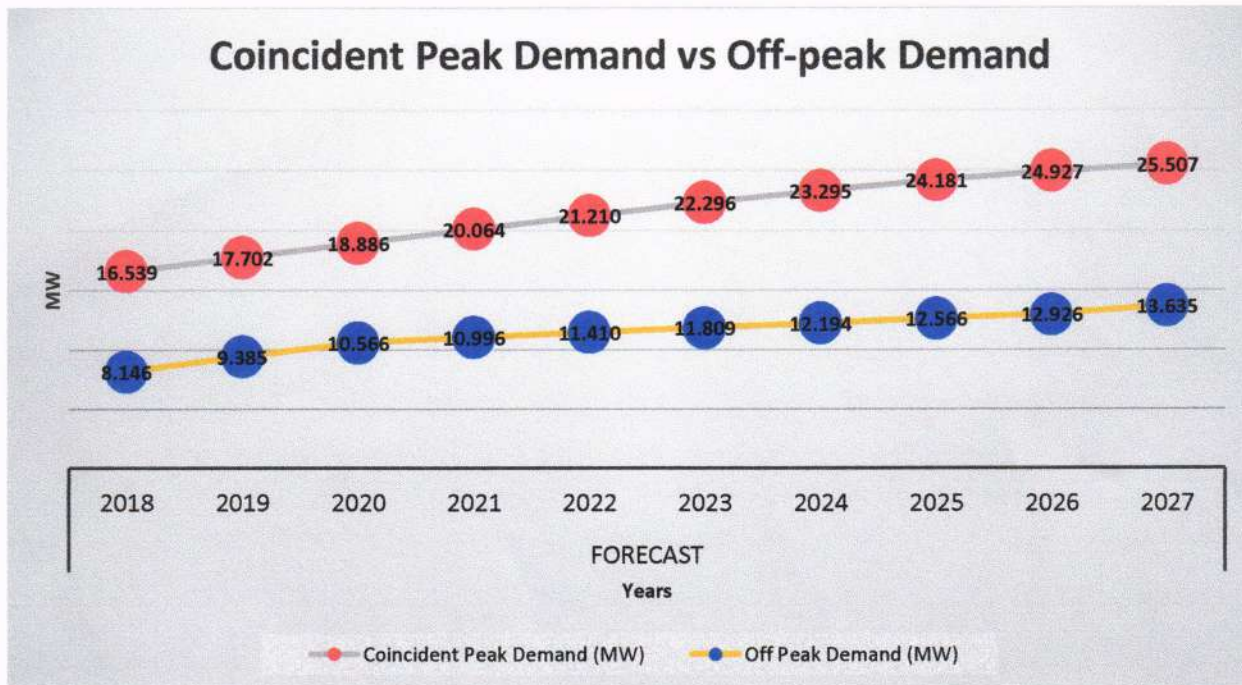
Based on SURSECO II's load forecast, there is no indicative entry of big loads or spotload on 2018-2027.



DEMAND

Demand	HISTORICAL									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Coincident Peak Demand (MW)	9.263	10.699	11.976	12.763	11.766	12.297	12.870	13.391	14.423	15.398
Off Peak Demand (MW)						5.382	5.914	6.196	7.192	7.056

Demand	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Coincident Peak Demand (MW)	16.539	17.702	18.886	20.064	21.210	22.296	23.295	24.181	24.927	25.507
Off Peak Demand (MW)	8.146	9.385	10.566	10.996	11.410	11.809	12.194	12.566	12.926	13.635



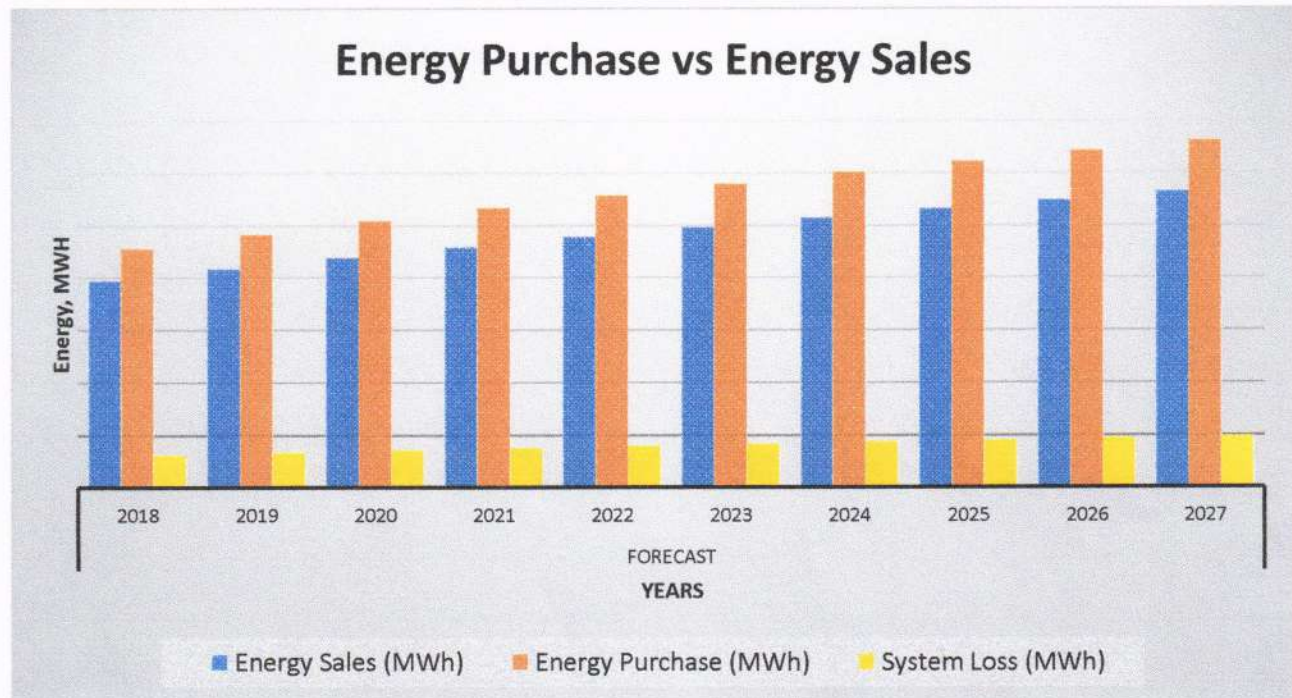
From 2015 to 2017, SURSECO II's increase in demand was due to the significant entry of spot loads, namely: Gaisano Capital, Jollibee, and Prince Hypermart.

For 2018-2027, the increase in forecasted demand is proportionate with the increasing number of captive consumers only.

ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Energy Sales (MWh)	38,775	44,463	48,541	48,502	50,366	53,028	57,476	61,450	71,544	74,862
Energy Purchase (MWh)	43,634	49,712	54,598	54,972	57,517	60,939	65,890	70,499	82,072	86,018
System Loss (MWh)	4,755	5,135	6,056	6,469	7,151	7,911	8,414	9,049	10,527	11,156

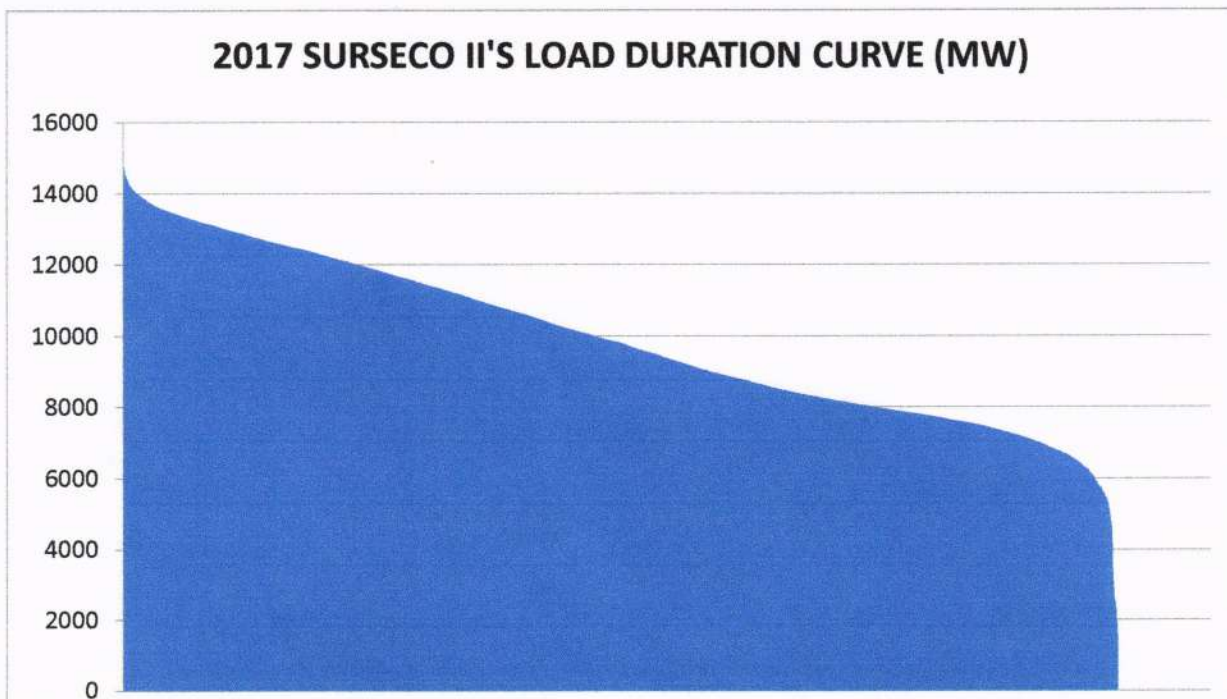
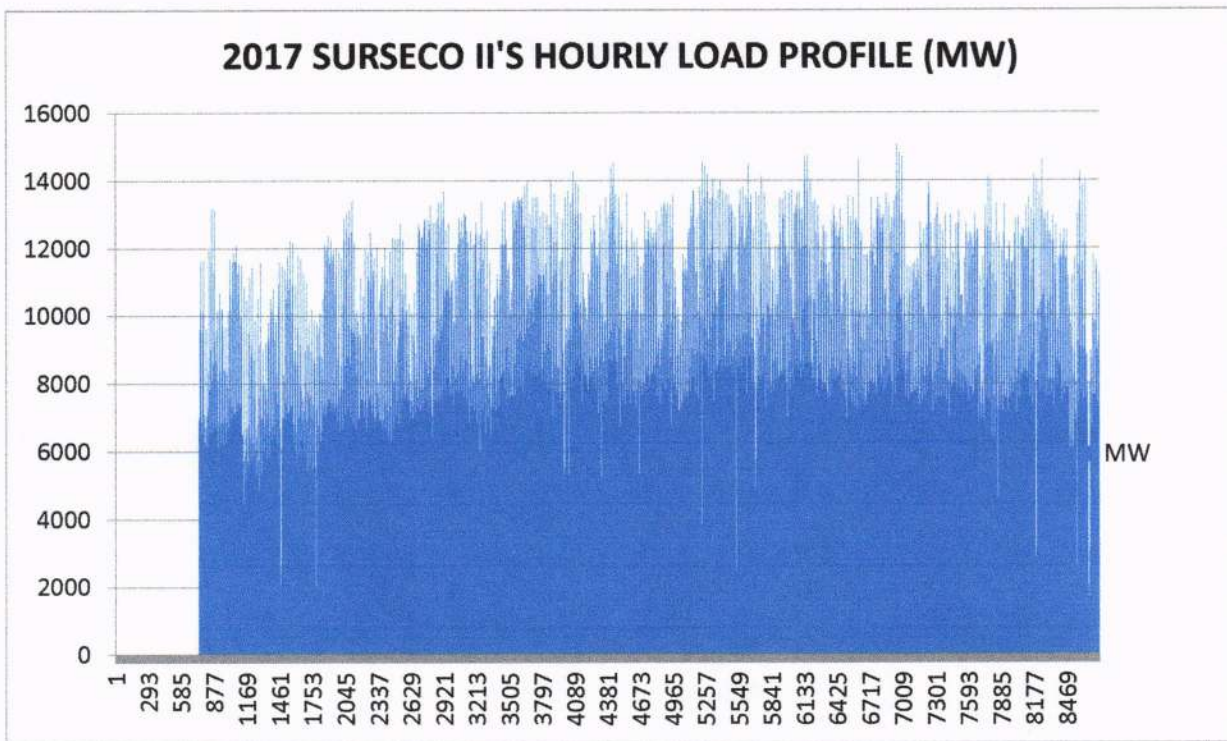
ENERGY SALES AND PURCHASE	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Energy Sales (MWh)	78,824	83,339	87,630	91,717	95,618	99,350	102,928	106,366	109,675	112,865
Energy Purchase (MWh)	91,153	96,577	101,742	106,668	111,376	115,884	120,210	124,369	128,373	132,236
System Loss (MWh)	12,329	13,238	14,112	14,951	15,758	16,534	17,282	18,003	18,699	19,371



The sudden increase of SURSECO II's sales on 2016 was due to the 3 spot loads namely:

- Gaisano Capital - energized with 3-500 kVA transformer on November 2015 and total energy consumed of 1,629,600 kWh on 2016 (decreased on 2017 due to installation of solar power owned by Gaisano)
- Prince Hypermart - energized with 3-100 kVA transformer on November 2015 and total energy consumed of 227,080 kWh on 2016
- Jollibee - energized with 3-75 kVA transformer on October 2015 and total energy consumed of 465,034.60 kWh on 2016

LOAD PROFILE AND LOAD DURATION CURVE

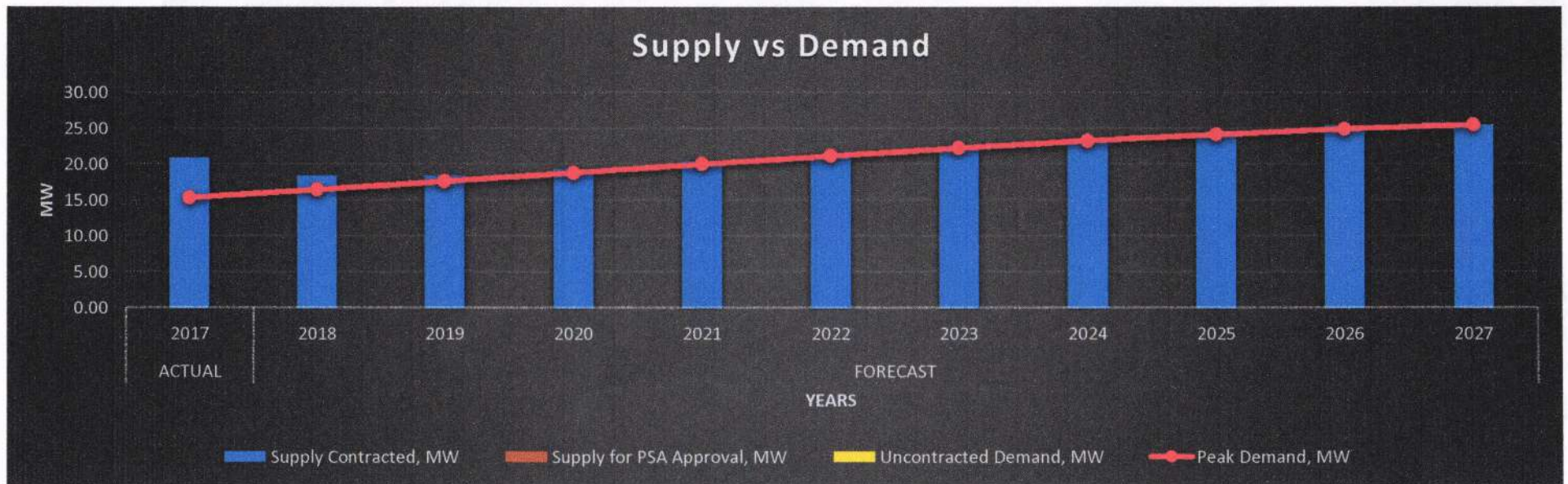


Based on SURSECO II's 2017 Load Profile, the base load is 6 MW and coincident peak demand is 15.4 MW.

Load Profile for January 2017 billing period is unavailable (no data from NGCP).

MIX SUPPLY VS DEMAND AND THE OPTIMAL SUPPLY

Supply Demand	ACTUAL	FORECAST									
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Peak Demand, MW	15.40	16.54	17.70	18.89	20.06	21.21	22.30	23.29	24.18	24.93	25.51
Supply Contracted, MW	20.98	18.46	18.46	19.46	20.46	21.46	22.46	23.46	24.46	25.46	25.46
NPC-PSALM	2.516	non-firm	0	0	0	0	0	0	0	0	0
KEGI	5.461	5.461	5.461	5.461	5.461	5.461	5.461	5.461	5.461	5.461	5.461
TSI	3	3	3	3	3	3	3	3	4	5	5
SMCPC	5	5	5	5	5	5	5	5	5	5	5
FDC	5	5	5	6	7	8	9	10	10	10	10
Supply for PSA Approval, MW	0	0	0	0	0	0	0	0	0	0	0
Generation Plant Name 1	0	0	0	0	0	0	0	0	0	0	0
Generation Plant Name 2	0	0	0	0	0	0	0	0	0	0	0
Generation Plant Name 3	0	0	0	0	0	0	0	0	0	0	0
Uncontracted Demand, MW	0	0	0	0	0	0	0	0	0	0	0



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)
NPC-PSALM	NPC-PSALM	80%	12/17	12/18	non-firm	non-firm	Mid-merit/Peaking	Grid-connected	NPC	operational	mix		
KEGI	KEGI		09/14	09/24	5.461	13713.7	Peaking	Grid-connected	IPP	operational	diesel	7.8	7.057
TSI	TSI		09/15	09/40	5*	43800	Base	Grid-connected	IPP	operational	coal	150	130
SMCPC	SMCPC		12/16	12/26	5	43800	Base	Grid-connected	IPP	operational	coal	300	
FDC	FDC		10/16	10/26	10**	87600	Base	Grid-connected	IPP	operational	coal	405	

Base power suppliers are TSI, SMCPC, and FDC. NPC-PSALM is for mid-merit and peaking, while KEGI is for peaking and emergency purposes only.

SURSECO II has no additional power requirement until 2027 unless there is a large spot load.

Power Supply Agreement with KEGI will be renewed effective September 26, 2024.

Power Supply Agreement with SMCPC will be renewed effective December 26, 2026.

Power Supply Agreement with FDC will be renewed effective October 14, 2026.

*Contracted demand to TSI is 5 MW, but SURSECO II's actual demand and billing is 3 MW only .

**5MW out of 10 MW contracted capacity to FDC is non-firm, and only 5MW is billed monthly. The actual CRF bill of SURSECO II will depend upon the actual nomination of the coop on a monthly basis (if nomination exceeds 5MW) .

SURSECO II will contract out its Renewable Portfolio Standard (RPS) requirement if NPC-PSALM will be privatized (in accordance with Department Circular No. DC2017-12-0015).

TSI exceeds its maximum outage allowance for 2018 (based on the Power Supply Contract between TSI and SURSECO II).

COMMITTED ENERGY AND DEMAND FOR CSP

[illegible]

DISTRIBUTION IMPACT STUDY

SURSECO II has enough power requirement until 2027. Therefore, SURSECO II will not hold any power supply procurement until such time and there is no need for this study.

All existing power suppliers of SURSECO II have undergone grid and distribution impact studies in compliance with the requirements set forth in the Philippine Grid Code and Philippine Distribution Code.

10 Year Monthly Data

Year	Forecast			Contracted Demand and Energy		Uncontracted Demand and Energy		Committed for CSP	
	Coinciden t Peak Demand (MW)	Off Peak Demand (MW)	Energy Requirement (MWh)	Demand (MW)	Energy (MWh)	Uncontr acted Demand (MW)	Uncontr acted Energy (MWh)	Demand (MW)	Energy (MWh)
2018									
Jan	14.27	6.60	5,977.14	25.461	18,331.92	-	-	-	-
Feb	13.86	6.95	5,692.57	25.461	18,942.98	-	-	-	-
Mar	13.81	7.31	5,526.62	25.461	17,109.79	-	-	-	-
Apr	14.38	7.87	6,456.95	25.461	18,942.98	-	-	-	-
May	15.10	8.42	6,704.47	25.461	18,331.92	-	-	-	-
Jun	15.55	8.81	7,103.17	25.461	18,942.98	-	-	-	-
Jul	15.37	8.65	6,783.49	25.461	18,331.92	-	-	-	-
Aug	15.67	9.19	7,385.25	25.461	18,942.98	-	-	-	-
Sep	16.54	8.87	7,162.33	25.461	18,942.98	-	-	-	-
Oct	16.25	8.64	6,841.38	25.461	18,331.92	-	-	-	-
Nov	15.32	8.31	6,792.67	25.461	18,942.98	-	-	-	-
Dec	16.24	8.15	6,398.06	25.461	18,331.92	-	-	-	-
2019									
Jan	15.69	7.61	6,319.53	25.461	18,331.92	-	-	-	-
Feb	15.05	8.00	6,018.66	25.461	18,942.98	-	-	-	-
Mar	15.49	8.42	5,843.20	25.461	17,109.79	-	-	-	-
Apr	15.43	9.07	6,826.82	25.461	18,942.98	-	-	-	-
May	15.97	9.70	7,088.52	25.461	18,331.92	-	-	-	-
Jun	16.55	10.15	7,510.06	25.461	18,942.98	-	-	-	-
Jul	16.64	9.97	7,172.07	38.461	27,691.92	-	-	-	-
Aug	17.33	10.59	7,808.31	38.461	28,614.98	-	-	-	-
Sep	16.97	10.22	7,572.62	38.461	28,614.98	-	-	-	-
Oct	17.70	9.95	7,233.28	38.461	27,691.92	-	-	-	-
Nov	17.22	9.57	7,181.78	38.461	28,614.98	-	-	-	-
Dec	17.48	9.39	6,764.56	38.461	27,691.92	-	-	-	-
2020									
Jan	16.74	8.56	6,644.90	38.461	27,691.92	-	-	-	-
Feb	16.06	9.01	6,328.53	38.461	28,614.98	-	-	-	-
Mar	16.53	9.48	6,144.04	38.461	26,768.86	-	-	-	-
Apr	16.46	10.21	7,178.31	38.461	28,614.98	-	-	-	-
May	17.04	10.92	7,453.48	38.461	27,691.92	-	-	-	-
Jun	17.65	11.43	7,896.72	38.461	28,614.98	-	-	-	-
Jul	17.75	11.22	7,541.33	38.461	27,691.92	-	-	-	-
Aug	18.49	11.92	8,210.32	38.461	28,614.98	-	-	-	-
Sep	18.11	11.51	7,962.50	38.461	28,614.98	-	-	-	-
Oct	18.89	11.20	7,605.69	38.461	27,691.92	-	-	-	-
Nov	18.38	10.78	7,551.54	38.461	28,614.98	-	-	-	-
Dec	18.65	10.57	7,112.84	38.461	27,691.92	-	-	-	-

POWER SUPPLY PROCUREMENT PLAN

2021									
Jan	17.79	8.91	6,954.77	38.461	27,691.92	-	-	-	-
Feb	17.06	9.38	6,623.66	38.461	28,614.98	-	-	-	-
Mar	17.56	9.87	6,430.56	38.461	25,845.79	-	-	-	-
Apr	17.49	10.63	7,513.06	38.461	28,614.98	-	-	-	-
May	18.11	11.37	7,801.06	38.461	27,691.92	-	-	-	-
Jun	18.76	11.89	8,264.97	38.461	28,614.98	-	-	-	-
Jul	18.86	11.68	7,893.00	38.461	27,691.92	-	-	-	-
Aug	19.65	12.41	8,593.20	38.461	28,614.98	-	-	-	-
Sep	19.24	11.98	8,333.82	38.461	28,614.98	-	-	-	-
Oct	20.06	11.66	7,960.37	38.461	27,691.92	-	-	-	-
Nov	19.52	11.22	7,903.69	38.461	28,614.98	-	-	-	-
Dec	19.82	11.00	7,444.54	38.461	27,691.92	-	-	-	-
2022									
Jan	18.81	9.25	7,250.58	38.461	27,691.92	-	-	-	-
Feb	18.03	9.73	6,905.38	38.461	28,614.98	-	-	-	-
Mar	18.56	10.24	6,704.07	38.461	25,845.79	-	-	-	-
Apr	18.49	11.03	7,832.61	38.461	28,614.98	-	-	-	-
May	19.14	11.79	8,132.86	38.461	27,691.92	-	-	-	-
Jun	19.83	12.34	8,616.50	38.461	28,614.98	-	-	-	-
Jul	19.94	12.12	8,228.72	38.461	27,691.92	-	-	-	-
Aug	20.77	12.88	8,958.69	38.461	28,614.98	-	-	-	-
Sep	20.34	12.43	8,688.28	38.461	28,614.98	-	-	-	-
Oct	21.21	12.10	8,298.95	38.461	27,691.92	-	-	-	-
Nov	20.64	11.64	8,239.86	38.461	28,614.98	-	-	-	-
Dec	20.95	11.41	7,761.17	38.461	27,691.92	-	-	-	-
2023									
Jan	19.77	9.57	7,533.59	38.461	27,691.92	-	-	-	-
Feb	18.95	10.07	7,174.92	38.461	28,614.98	-	-	-	-
Mar	19.51	10.60	6,965.75	38.461	25,845.79	-	-	-	-
Apr	19.43	11.42	8,138.34	38.461	28,614.98	-	-	-	-
May	20.12	12.21	8,450.31	38.461	27,691.92	-	-	-	-
Jun	20.84	12.77	8,952.83	38.461	28,614.98	-	-	-	-
Jul	20.96	12.54	8,549.91	38.461	27,691.92	-	-	-	-
Aug	21.83	13.33	9,308.38	38.461	28,614.98	-	-	-	-
Sep	21.38	12.86	9,027.41	38.461	28,614.98	-	-	-	-
Oct	22.30	12.52	8,622.88	38.461	27,691.92	-	-	-	-
Nov	21.70	12.05	8,561.48	38.461	28,614.98	-	-	-	-
Dec	22.02	11.81	8,064.12	38.461	27,691.92	-	-	-	-
2024									
Jan	20.65	9.88	7,804.94	38.461	27,691.92	-	-	-	-
Feb	19.80	10.40	7,433.34	38.461	28,614.98	-	-	-	-
Mar	20.38	10.94	7,216.64	38.461	26,768.86	-	-	-	-
Apr	20.30	11.79	8,431.47	38.461	28,614.98	-	-	-	-
May	21.02	12.60	8,754.68	38.461	27,691.92	-	-	-	-
Jun	21.78	13.19	9,275.30	38.461	28,614.98	-	-	-	-
Jul	21.90	12.95	8,857.86	38.461	27,691.92	-	-	-	-
Aug	22.81	13.76	9,643.65	38.461	28,614.98	-	-	-	-

POWER SUPPLY PROCUREMENT PLAN

Sep	22.34	13.28	9,352.56	38.461	28,614.98	-	-	-	-
Oct	23.29	12.93	8,933.46	38.461	27,691.92	-	-	-	-
Nov	22.67	12.44	8,869.85	38.461	28,614.98	-	-	-	-
Dec	23.01	12.19	8,354.57	38.461	27,691.92	-	-	-	-
2025									
Jan	21.44	10.18	8,065.62	38.461	27,691.92	-	-	-	-
Feb	20.56	10.72	7,681.61	38.461	28,614.98	-	-	-	-
Mar	21.16	11.28	7,457.67	38.461	25,845.79	-	-	-	-
Apr	21.08	12.15	8,713.07	38.461	28,614.98	-	-	-	-
May	21.82	12.99	9,047.08	38.461	27,691.92	-	-	-	-
Jun	22.60	13.59	9,585.08	38.461	28,614.98	-	-	-	-
Jul	22.73	13.35	9,153.71	38.461	27,691.92	-	-	-	-
Aug	23.68	14.18	9,965.74	38.461	28,614.98	-	-	-	-
Sep	23.19	13.69	9,664.93	38.461	28,614.98	-	-	-	-
Oct	24.18	13.33	9,231.83	38.461	27,691.92	-	-	-	-
Nov	23.53	12.82	9,166.10	38.461	28,614.98	-	-	-	-
Dec	23.88	12.57	8,633.61	38.461	27,691.92	-	-	-	-
2026									
Jan	22.10	10.48	8,316.51	38.461	27,691.92	-	-	-	-
Feb	21.19	11.02	7,920.56	38.461	28,614.98	-	-	-	-
Mar	21.81	11.60	7,689.65	38.461	25,845.79	-	-	-	-
Apr	21.73	12.50	8,984.10	38.461	28,614.98	-	-	-	-
May	22.49	13.36	9,328.50	38.461	27,691.92	-	-	-	-
Jun	23.30	13.98	9,883.24	38.461	28,614.98	-	-	-	-
Jul	23.43	13.73	9,438.44	38.461	27,691.92	-	-	-	-
Aug	24.41	14.59	10,275.73	38.461	28,614.98	-	-	-	-
Sep	23.90	14.08	9,965.57	38.461	28,614.98	-	-	-	-
Oct	24.93	13.71	9,519.00	38.461	27,691.92	-	-	-	-
Nov	24.26	13.19	9,451.22	28.461	21,174.98	-	-	-	-
Dec	24.62	12.93	8,902.17	28.461	20,491.92	-	-	-	-
2027									
Jan	22.62	11.05	8,558.39	23.461	16,891.92	-	-	-	-
Feb	21.69	11.63	8,150.92	23.461	17,454.98	-	-	-	-
Mar	22.32	12.23	7,913.31	23.461	15,765.79	-	-	-	-
Apr	22.23	13.18	9,245.40	23.461	17,454.98	-	-	-	-
May	23.02	14.09	9,599.81	23.461	16,891.92	-	-	-	-
Jun	23.84	14.75	10,170.69	23.461	17,454.98	-	-	-	-
Jul	23.97	14.48	9,712.96	23.461	16,891.92	-	-	-	-
Aug	24.98	15.39	10,574.60	23.461	17,454.98	-	-	-	-
Sep	24.46	14.85	10,255.41	23.461	17,454.98	-	-	-	-
Oct	25.51	14.46	9,795.85	23.461	16,891.92	-	-	-	-
Nov	24.82	13.91	9,726.11	23.461	17,454.98	-	-	-	-
Dec	25.19	13.64	9,161.08	23.461	16,891.92	-	-	-	-

Energy Purchase (Whole System)

No.	Customer Class	Forecasting Model	Validity Tests			Accuracy Test	Annual Average Growth Rate		Remarks	
			Adj. R ² (>0.99/0.8)	t-stat (t >2 or <-2)		p-value (<0.1)	MAPE (<5%)	Historical		Forecast
	Energy Purchased (Whole System)	Y = a ln t ² + b ln t + c	0.997	a	20.1053	0.000	1.76%	7.78%	5.45%	Passed
				b	(4.9619)	0.004				
				c	33.8038	0.000				

Energy Sales per Customer Type

No.	Customer Class	Forecasting Model	Validity Tests			Accuracy Test	Annual Average Growth Rate		Remarks	
			Adj. R ² (>0.99/0.8)	t-stat (t >2 or <-2)	p-value (<0.1)	MAPE (<5%)	Historical	Forecast		
1	Residential	Y = aInt2 + bInt1 + c	0.9946	a	14.763	0.000	1.88%	7.75%	4.81%	Passed
				b	-2.493	0.055				
				c	30.454	0.000				
				d						
				e						
				f						
2	Commercial	Y = aInt2 + bInt1 + c	0.9916	a	12.817	0.000	2.43%	6.35%	4.68%	Passed
				b	-3.102	0.027				
				c	27.510	0.000				
				d						
				e						
				f						
3	Industrial	Y = aInt2 + bInt1 + c	0.9921	a	13.9656	3.38403E-05	4.84%	16.48%	8.85%	Passed
				b	-4.0392	0.009930933				
				c	9.0242	0.000279091				
				d						
				e						
				f						
4	Public Building	Y = aInt2 + bInt1 + c	0.9973	a	20.5092	5.09991E-06	1.88%	11.72%	6.46%	Passed
				b	-3.2995	0.021486693				
				c	24.2729	2.21223E-06				
				d						
				e						
				f						
5	Street Light	Y = aInt2 + bInt1 + c	0.9973	a	20.5092	5.09991E-06	1.88%	11.72%	6.46%	Passed
				b	-3.2995	0.021486693				
				c	24.2729	2.21223E-06				
				d						
				e						
				f						
Entire System		Y = a + bt	0.995	a	32.8943	5.25145E-08	3.01%	7.53%	5.97%	Passed
				b	36.9113	2.63839E-08				

Peak Demand

No.	Substation	Forecasting Model	Validity Tests			Accuracy Test	Annual Average Growth Rate		Remarks	
			Adj. R ² (>0.99/0.8)	t-stat (t >2 or <-2)		p-value (<0.1)	MAPE (<5%)	Historical		Forecast
1	M1-Substation	Y = d(ln t) ³ + b ln t + a	0.9908	a	17.3235	6.51658E-05	2.18%	1.29%	4.92%	Passed
				b	-5.5019	0.005321509				
				c	33.4583	4.75942E-06				
				d						
				e						
				f						
6	M2-Substation	Y = c t ² + b t + a	0.9892	a	-5.5471	0.005166679	0.84%	4.83%	3.17%	Passed
				b	14.5657	0.000129213				
				c	61.5003	4.18676E-07				
				d						
				e						
				f						
7	M3-Substation	Y = e t ⁻¹ + d t ³ + b t + a	0.9932	a	-2.9162	0.061685905	1.81%	8.86%	6.24%	Passed
				b	8.3663	0.003580743				
				c	2.6206	0.078963276				
				d	11.6792	0.001348624				
				e						
				f						
8	M4-Substation	Y = d(ln t) ³ + b ln t + a	0.9920	a	16.4661	7.96488E-05	1.99%	3.12%	5.17%	Passed
				b	-3.2476	0.031447292				
				c	29.9382	7.41349E-06				
				d						
				e						
				f						
Entire System		Y = a ln t ² + b ln t + c	0.999	a	39.7819	1.89209E-07	3.70%	4.96%	6.48%	Passed
				b	-16.8339	1.35239E-05				
				c	88.1151	3.56824E-09				

No. of Customers per Class

No.	Customer Class	Forecasting Model	Validity Tests			Accuracy Test	Annual Average Growth Rate		Remarks	
			Adj. R ² (>0.99/0.8)	t-stat (t >2 or <-2)	p-value (<0.1)	MAPE (<5%)	Historical	Forecast		
1	Residential	Y = a ln t ² + b ln t + c	0.9936	a	5.8884	0.004158712	0.52%	4.76%	2.35%	Passed
				b	2.8234	0.047661489				
				c	112.0221	3.80808E-08				
				d						
				e						
				f						
2	Commercial	Y = a + b t	0.9957	a	284.4823	0.00	0.28%	2.62%	2.32%	Passed
				b	37.2337	0.00				
				c						
				d						
				e						
				f						
3	Industrial	Y = a t ³ + b t ² + c t - 1 + d	0.9924	a	-3.8695	0.01800087	1.20%	5.34%	4.63%	Passed
				b	4.9518	0.007751508				
				c	-2.2882	0.084019948				
				d	26.9767	1.1226E-05				
				e						
				f						
4	Others	Y = a t ³ + b t ² + c t - 1 + d	0.9979	a	-8.3941	0.001102177	0.43%	3.95%	3.31%	Passed
				b	10.3008	0.000501019				
				c	-5.8217	0.004335261				
				d	82.7358	1.27924E-07				
				e						
				f						