

## POWER SUPPLY PROCUREMENT PLAN

### **VISAYAN ELECTRIC CO., 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

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.

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## INTRODUCTION

### DISTRIBUTION UTILITIES PROFILE

DU's Franchise MAP

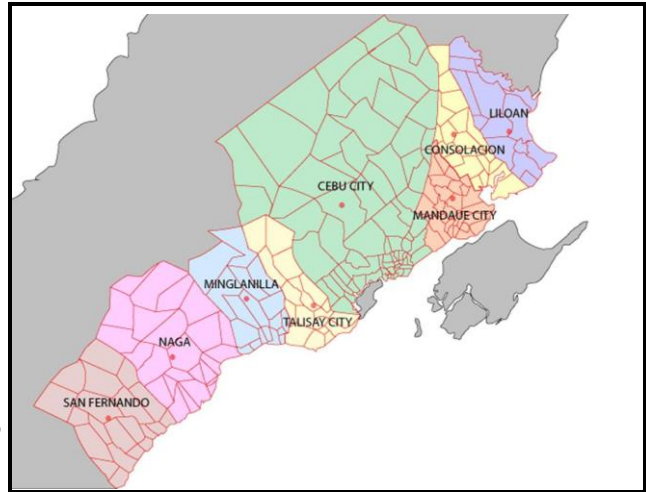
Visayan Electric is the second largest privately-owned electric distribution utility in the country.

With a franchise covering Cebu City, Mandaue City, Talisay City and City of Naga and the municipalities of San Fernando, Minglanilla, Consolacion and Liloan. Visayan Electric services a population of approximately 1.7M and a total area of 672 square kilometers.

Visayan Electric has 437,823 customers as of December 2018, with 20 distribution substations strategically located throughout its franchise.

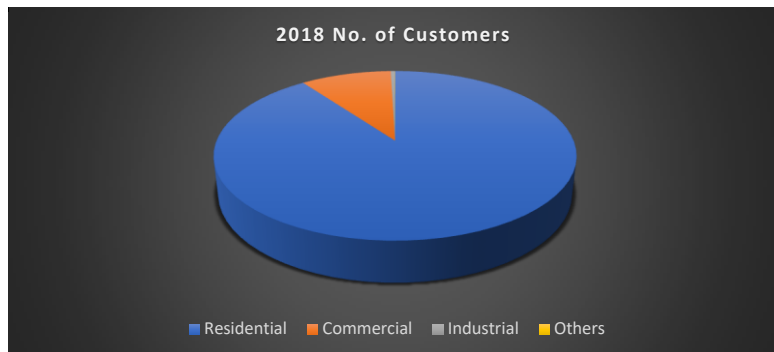
As of December 2018, Visayan Electric hit a cumulative 30,020 GWh in energy sales posting a 10-year compounded annual growth rate of 5.44%. Meanwhile, peak demand was recorded at 525 MW for the year 2018.

One of Visayan Electric's approaches to keep rates at reasonable levels is by maintaining its systems losses well within the government mandated feeder loss cap of 6.5%, as well as optimizing its bilateral contracts and the spot market. The 12-



Number of Customer	ACTUAL	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	393,729	406,403	421,931	438,087	454,896	472,387	490,588	509,530	529,243	549,762	569,475
Commercial	42,006	42,316	42,926	43,546	44,176	44,817	45,469	46,132	46,807	47,492	48,167
Industrial	1,858	1,926	2,013	2,100	2,187	2,273	2,358	2,442	2,525	2,607	2,689
Others	158	158	158	158	158	158	158	158	158	158	158
Contestable C	72	108	108	108	108	108	108	108	108	108	108
Total (Captive	437,823	450,911	467,136	483,999	501,526	519,744	538,682	558,371	578,841	600,127	620,597

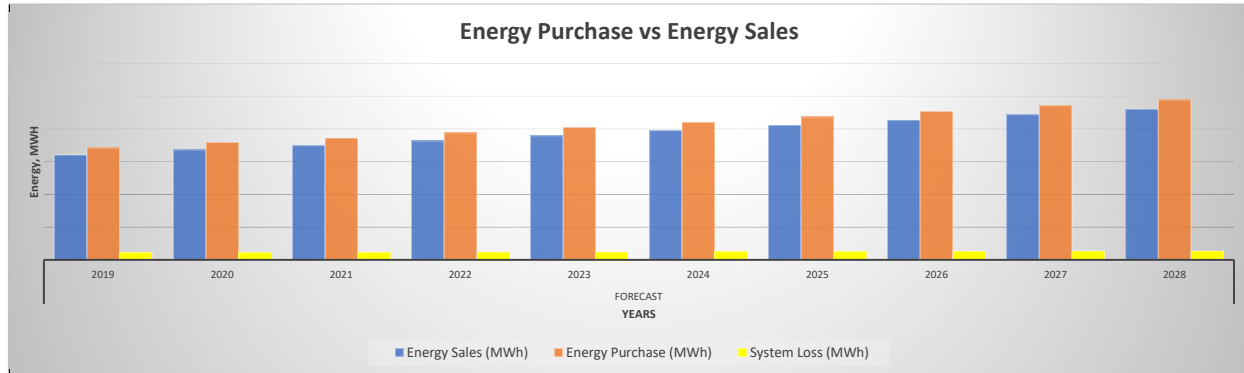
Visayan Electric's positive outlook in the kWh sales is driven by the country's positive economic forecast. This is also brought by the normal economic growth of the region which includes the increasing demand from Real Estate, Commercial Buildings and BPOs.



## ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Energy Sales (MWh)	1,829,500	1,996,097	2,122,226	2,300,959	2,417,353	2,527,846	2,585,704	2,790,611	2,796,073	3,001,999
Energy Purchase (MWh)	2,016,096	2,225,584	2,349,040	2,524,296	2,621,676	2,742,651	2,797,473	2,994,606	3,000,802	3,218,513
System Loss (MWh)	186,596	229,487	226,819	223,337	204,323	214,805	211,770	203,995	204,729	216,514

ENERGY SALES AND PURCHASE	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Energy Sales (MWh)	3,198,662	3,360,618	3,484,813	3,636,837	3,793,524	3,950,206	4,109,159	4,267,938	4,438,463	4,604,896
Energy Purchase (MWh)	3,418,922	3,588,314	3,717,247	3,875,540	4,038,517	4,201,212	4,366,038	4,530,402	4,706,918	4,878,808
System Loss (MWh)	220,259	227,695	232,434	238,703	244,993	251,006	256,879	262,463	268,455	273,912



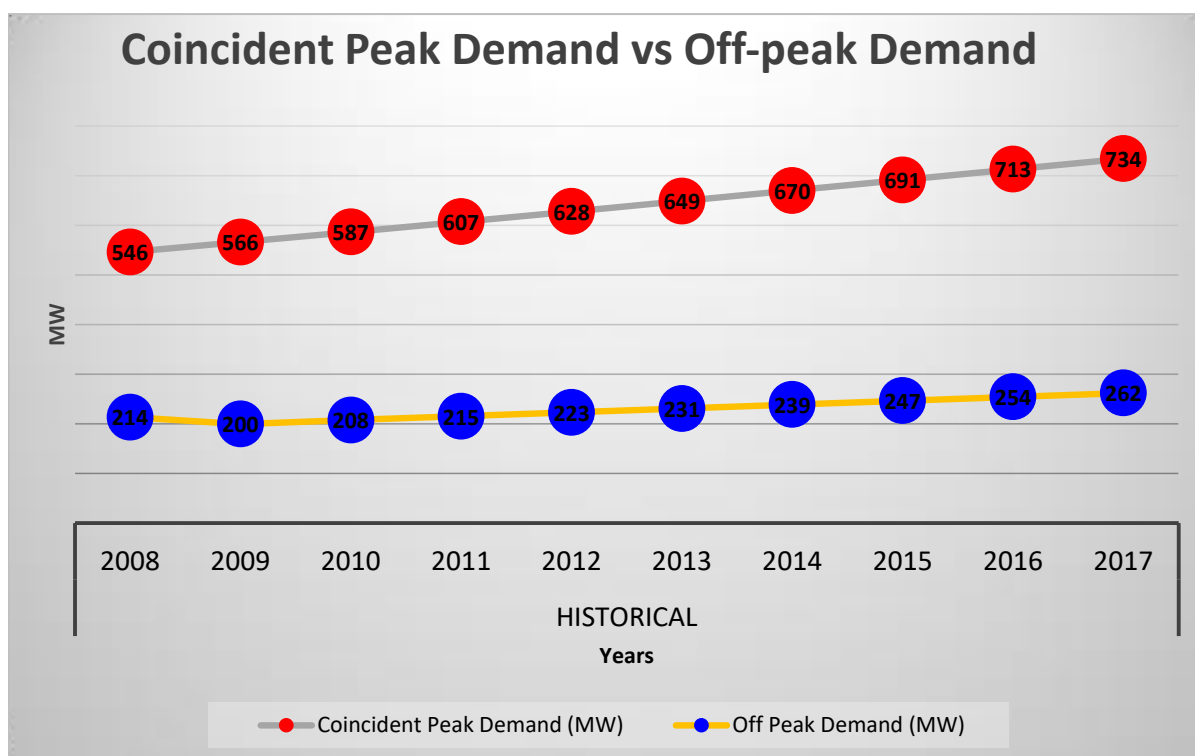
## Brief highlight/report

VECO's contract with Southwest Luzon Power Generation Company has expired on June 25, 2018, however, VECO have contracted 150MW with Therma Visayas Inc. which has been approved by ERC and was on precommercial operation in 2018.

## DEMAND

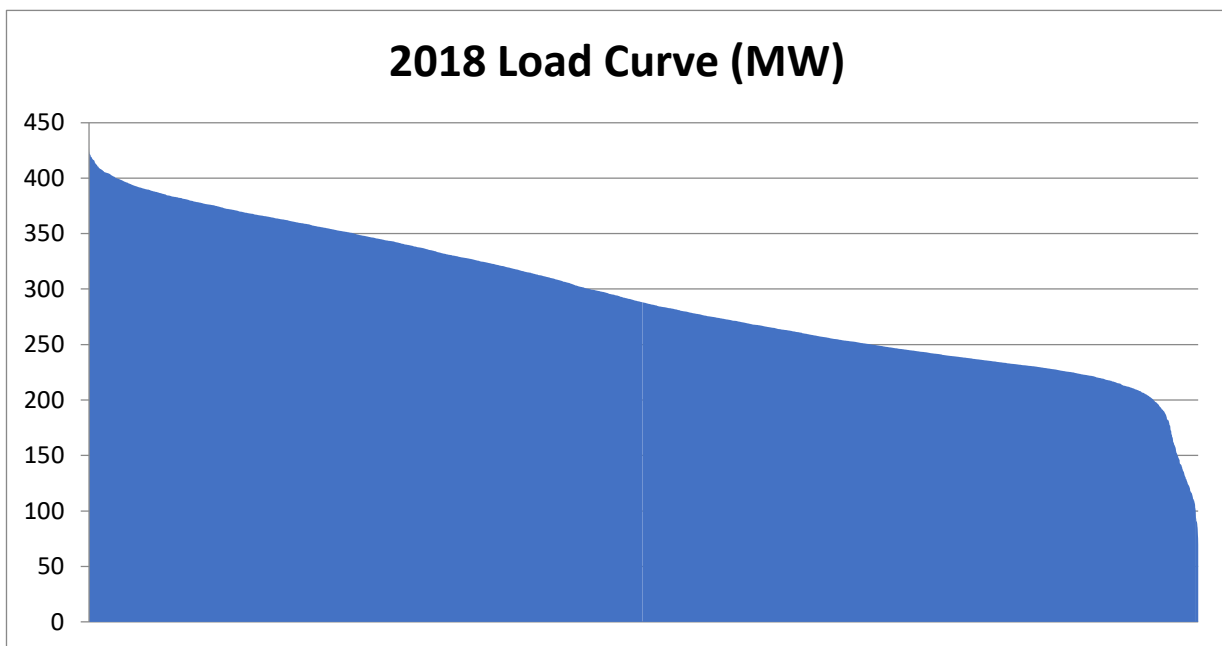
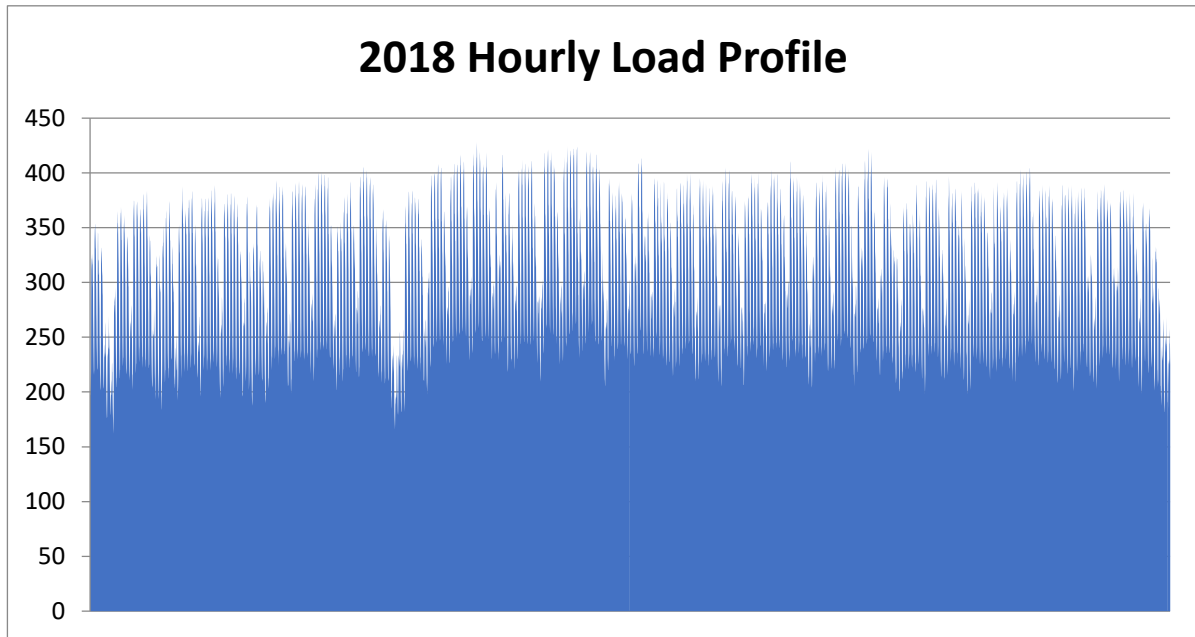
Demand	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coincident Peak Demand (MW)	336	378	407	412	433	459	475	509	504	525
Off Peak Demand (MW)	112	83	130	141	0	122	31	183	188	205

Demand	HISTORICAL									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Coincident Peak Demand (MW)	546	566	587	607	628	649	670	691	713	734
Off Peak Demand (MW)	214	200	208	215	223	231	239	247	254	262



Visayan Electric's peak demand above does not include the demand of its directly connected customer. In 2013, the minimum demand was below 1MW due to the Typhoon Yolanda in November. In 2015, demand was observed low on February 19 when the high voltage direct current ("HVDC") link connecting Luzon and Visayas grids tripped. Looking forward, Visayan Electric is projecting a yearly increase of 20MW. This is brought by the normal economic growth of the region which includes the demand from Real Estate, Commercial Buildings and BPOs.

## LOAD PROFILE AND LOAD DURATION CURVE

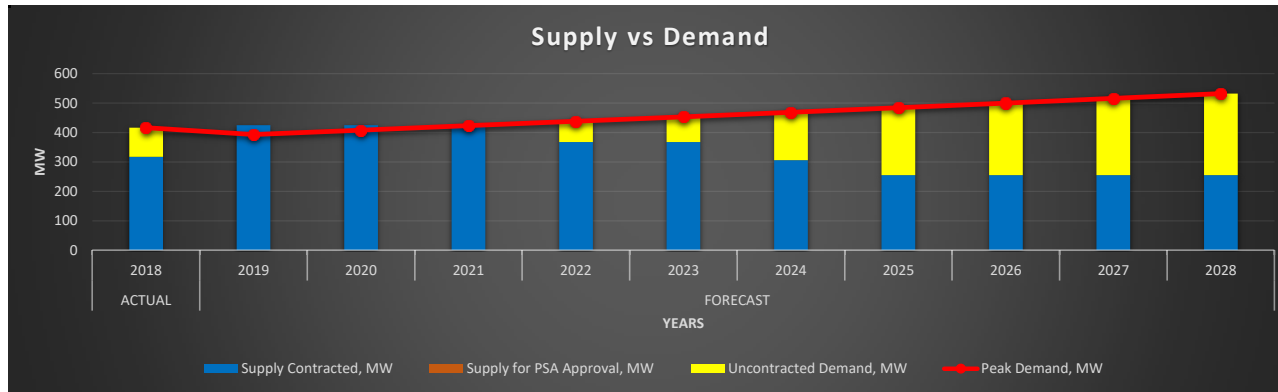


#### Brief highlight:

Base on the load curve identify the base-load, mid-merit and peaking. As such the data can be used for the strategy in contracting the DUs demand requirement.

## MIX SUPPLY VS DEMAND AND THE OPTIMAL SUPPLY

Supply Demand	ACTUAL	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Peak Demand, MW	416	393	408	423	438	453	468	484	500	516	532
Supply Contracted, MW	317.2365	424.73	424.73	424.73	367.73	367.73	306.01	255	255	255	255
Green Core Geothermal Inc	51.01	51.01	51.01	51.01	51.01	51.01	51.01				
Cebu Energy Development	105	105	105	105	105	105	105	105	105	105	105
Cebu Private Power Corporation	61.72	61.72	61.72	61.72	61.72	61.72					
Vivant Energy Corporation	17	17	17	17							
Southwest Luzon Power	42.51										
Aboitiz Energy Solutions Inc.	40	40	40	40							
Therma Visayas Inc.		150	150	150	150	150	150	150	150	150	150
Supply for PSA Approval, MW	0	0	0	0	0	0	0	0	0	0	0
Generation Plant Name 1											
Generation Plant Name 2											
Generation Plant Name 3											
Uncontracted Demand, MW	98.77436	0	0	0	70.31467	85.28274	162.3934	229.0274	245.1487	261.1649	277.488



## 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)
Aboitiz Energy Solutions Inc. (AESI)	PSALM		01/2015	07/2021	40	350,400.00		Base	IPP		Geothermal		
Vivant Energy Corporation (VEC)	PSALM		01/2015	07/2021	17	148,920.00		Base	IPP		Geothermal		
Green Core Geothermal, Inc.	Green Core Geothermal, Inc.		01/2011	12/2024	51.00777	446,828.07		Base	IPP		Geothermal		
Cebu Energy Development Corporation (CEDC)	Cebu Energy Development Corporation		03/2011	02/2036	105	919,800.00		Mid-merit	IPP		Coal		
Cebu Private Power Corporation (CPPC)	Cebu Private Power Corporation		06/1998	11/2023	61.72	540,667.20		Peaking	IPP		Diesel		
Therma Visayas Inc. (TVI)	Therma Visayas Inc. (TVI)		2019	15 years	150	1,314,000.00			IPP		Coal		

VECO contracting considers its base load, intermediate, and peaking requirements. On the daily trading of electricity, VECO dispatches first its minimum contractual obligation from suppliers. The remaining requirement is optimized by prioritizing the suppliers with least variable generation cost. The variable cost such as fuel, labor, and operating expenses is the cost incurred in relation to the volume generated by the power plant.



## DISTRIBUTION IMPACT STUDY

Visayan Electric Company, Inc. (Visayan Electric) is the second largest electric utility in the Philippines. It serves the cities of Cebu, Mandaue, Talisay, Naga and four municipalities of the greater part of Metro Cebu - Liloan, Consolacion, Minglanilla and San Fernando. Visayan Electric's power system is composed of subtransmission and distribution substation and lines which serve voltages from 138kV to 230V.

The forecasted system demand would trigger the creation of projects that would address capacity and reliability issues. External and internal reforms and issuances such as ordinances and resolutions would, likewise, trigger the creation of projects for safety, customer request, statutory compliance and the like. The proposed 5-year projects are determinable; those beyond the same span of forecast horizon can still be catered by Visayan Electric's robust power system.

Distribution impact studies have been conducted by Visayan Electric to evaluate and determine the impact of any modification unto to the system. Modifications may be brought about by entry of a large load or entry of generating plant. Issues that may arise are reported and considered as part of the formulated projects and initiatives of Visayan Electric. Compliance to regulatory and industry standards are likewise part of the committed effort of Visayan Electric.

## POWER SUPPLY PROCUREMENT PLAN

## SCHEDULE OF CSP

Note: No plan for CSP yet

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## 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	335	131	166,227	274.73	204,397.63	-	-		
Feb	345	135	173,748	274.73	204,397.63	-	-		
Mar	370	145	191,521	274.73	191,210.69	-	-		
Apr	383	150	201,323	424.73	315,997.63	-	-		
May	393	154	205,490	424.73	305,804.16	-	-		
Jun	386	151	200,726	424.73	315,997.63	-	-		
Jul	369	144	188,658	424.73	305,804.16	-	-		
Aug	367	144	189,502	424.73	305,804.16	-	-		
Sep	381	149	193,872	424.73	315,997.63	-	-		
Oct	386	151	194,308	424.73	315,997.63	-	-		
Nov	389	152	198,877	424.73	305,804.16	-	-		
Dec	390	153	197,812	424.73	315,997.63	-	-		
2020									
Jan	352	138	175,013	424.73	315,997.63	-	-		
Feb	360	141	180,375	424.73	315,997.63	-	-		
Mar	384	150	198,147	424.73	285,417.22	-	-		
Apr	398	156	207,950	424.73	315,997.63	-	-		
May	408	159	214,953	424.73	305,804.16	-	-		
Jun	401	157	210,136	424.73	315,997.63	-	-		
Jul	384	150	197,945	424.73	305,804.16	-	-		
Aug	402	157	209,481	424.73	305,804.16	-	-		
Sep	394	154	205,260	424.73	315,997.63	-	-		
Oct	403	158	208,465	424.73	315,997.63	-	-		
Nov	391	153	203,435	424.73	305,804.16	-	-		
Dec	402	157	207,844	424.73	315,997.63	-	-		
2021						-	-		
Jan	367	144	182,527	424.73	315,997.63	-	-		
Feb	375	146	187,957	424.73	315,997.63	-	-		
Mar	399	156	205,942	424.73	285,417.22	-	-		
Apr	413	161	215,841	424.73	315,997.63	-	-		
May	423	165	223,171	424.73	305,804.16	-	-		
Jun	416	163	218,059	424.73	315,997.63	-	-		
Jul	399	156	206,020	367.73	264,764.16	31.29	-		
Aug	417	163	217,333	367.73	264,764.16	49.77	-		
Sep	409	160	213,133	367.73	273,589.63	41.45	-		
Oct	418	163	216,284	367.73	273,589.63	50.33	-		
Nov	407	159	211,322	367.73	264,764.16	38.84	-		
Dec	417	163	215,649	367.73	273,589.63	49.05	-		
2022									
Jan	382	149	192,421	367.73	273,589.63	13.82	-		
Feb	389	152	198,767	367.73	273,589.63	21.27	-		
Mar	414	162	213,357	367.73	247,113.22	45.95	-		
Apr	427	167	223,356	367.73	273,589.63	59.56	-		
May	438	171	231,034	367.73	264,764.16	70.32	-		
Jun	430	168	225,596	367.73	273,589.63	62.60	-		
Jul	413	162	213,443	367.73	264,764.16	45.67	-		
Aug	432	169	226,907	367.73	264,764.16	64.15	-		

## POWER SUPPLY PROCUREMENT PLAN

Sep	424	166	220,621	367.73	273,589.63	55.83	-		
Oct	432	169	229,952	367.73	273,589.63	64.71	-		
Nov	421	165	221,831	367.73	264,764.16	53.22	-		
Dec	431	169	226,195	367.73	273,589.63	63.43	-		
2023									
Jan	396	155	202,538	367.73	273,589.63	28.07	-		
Feb	403	158	208,949	367.73	273,589.63	35.51	-		
Mar	428	167	224,710	367.73	247,113.22	60.20	-		
Apr	442	173	234,294	367.73	273,589.63	73.81	-		
May	453	176	238,929	367.73	264,764.16	85.28	-		
Jun	445	174	233,065	367.73	273,589.63	76.85	-		
Jul	428	167	221,910	367.73	264,764.16	59.92	-		
Aug	446	174	237,669	367.73	264,764.16	78.39	-		
Sep	438	171	230,091	367.73	273,589.63	70.08	-		
Oct	447	175	238,310	367.73	273,589.63	78.96	-		
Nov	435	170	232,181	367.73	264,764.16	67.46	-		
Dec	445	174	233,990	367.73	273,589.63	77.68	-		
2024									
Jan	416	163	212,686	306.01	227,669.95	109.79	-		
Feb	423	166	219,312	306.01	227,669.95	117.23	-		
Mar	448	175	235,213	306.01	212,981.57	141.92	22,231.13		
Apr	462	180	244,906	306.01	227,669.95	155.53	17,236.23		
May	468	184	247,046	306.01	220,325.76	162.40	26,720.39		
Jun	465	182	243,549	306.01	227,669.95	158.57	15,879.15		
Jul	448	175	232,288	306.01	220,325.76	141.64	11,962.44		
Aug	466	182	248,257	306.01	220,325.76	160.11	27,930.88		
Sep	458	179	240,602	306.01	227,669.95	151.80	12,932.32		
Oct	467	183	245,620	306.01	227,669.95	160.68	17,950.13		
Nov	455	178	239,573	306.01	220,325.76	149.18	19,247.31		
Dec	465	182	242,473	306.01	227,669.95	159.40	14,802.61		
2025									
Jan	436	170	222,917	255.00	189,720.00	180.80	33,196.69		
Feb	443	173	229,676	255.00	189,720.00	188.24	39,955.95		
Mar	468	183	245,715	255.00	171,360.00	212.93	74,355.01		
Apr	482	188	255,136	255.00	189,720.00	226.54	65,416.06		
May	484	192	259,635	255.00	183,600.00	229.03	76,035.33		
Jun	484	190	251,162	255.00	189,720.00	228.58	61,441.76		
Jul	468	183	242,733	255.00	183,600.00	212.65	59,132.52		
Aug	483	190	256,380	255.00	183,600.00	228.12	72,780.42		
Sep	478	187	249,113	255.00	189,720.00	222.80	59,393.39		
Oct	484	190	254,567	255.00	189,720.00	228.68	64,847.33		
Nov	475	186	249,778	255.00	183,600.00	220.19	66,177.72		
Dec	483	190	251,851	255.00	189,720.00	228.41	62,131.01		
2026									
Jan	481	178	257,647	255.00	189,720.00	225.80	67,927.02		
Feb	483	181	257,539	255.00	189,720.00	228.24	67,819.42		
Mar	478	191	258,428	255.00	171,360.00	222.93	87,068.10		
Apr	500	196	262,430	255.00	189,720.00	244.54	72,709.71		
May	500	200	271,675	255.00	183,600.00	245.15	88,075.17		
Jun	495	197	258,775	255.00	189,720.00	239.58	69,054.82		
Jul	488	191	249,654	255.00	183,600.00	232.65	66,054.01		
Aug	497	198	249,235	255.00	183,600.00	242.12	65,634.66		
Sep	498	195	257,620	255.00	189,720.00	242.80	67,899.82		
Oct	497	198	257,409	255.00	189,720.00	241.68	67,689.34		
Nov	495	194	249,626	255.00	183,600.00	240.19	66,025.59		
Dec	500	198	257,323	255.00	189,720.00	245.04	67,603.39		
2027									

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Jan	486	186	258,803	255.00	189,720.00	230.80	69,083.08		
Feb	489	189	259,864	255.00	189,720.00	234.24	70,144.18		
Mar	510	199	269,606	255.00	171,360.00	254.93	98,245.60		
Apr	512	204	270,764	255.00	189,720.00	256.54	81,043.91		
May	516	208	276,325	255.00	183,600.00	261.16	92,724.90		
Jun	515	205	279,502	255.00	189,720.00	259.58	89,782.36		
Jul	513	199	260,091	255.00	183,600.00	257.65	76,491.26		
Aug	516	206	271,333	255.00	183,600.00	261.12	87,732.60		
Sep	508	202	268,708	255.00	189,720.00	252.80	78,988.19		
Oct	511	206	263,455	255.00	189,720.00	255.68	73,734.59		
Nov	514	201	271,278	255.00	183,600.00	259.19	87,677.52		
Dec	515	205	263,605	255.00	189,720.00	260.41	73,884.78		
2028									
Jan	506	194	258,367	255.00	189,720.00	250.80	68,646.64		
Feb	513	197	260,948	255.00	189,720.00	258.24	71,228.24		
Mar	528	206	280,122	255.00	177,480.00	272.93	102,642.48		
Apr	532	212	288,529	255.00	189,720.00	276.55	98,808.90		
May	532	216	293,447	255.00	183,600.00	277.49	109,846.73		
Jun	527	213	283,327	255.00	189,720.00	271.58	93,607.48		
Jul	528	206	269,355	255.00	183,600.00	272.95	85,754.92		
Aug	526	214	285,220	255.00	183,600.00	271.19	101,620.02		
Sep	528	210	274,294	255.00	189,720.00	272.81	84,573.71		
Oct	532	214	286,661	255.00	189,720.00	276.69	96,940.95		
Nov	530	209	280,510	255.00	183,600.00	275.20	96,910.24		
Dec	530	213	278,157	255.00	189,720.00	275.41	88,436.57		