

DAGUPAN ELECTRIC CORPORATION
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.

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INTRODUCTION

PROFILE

Dagupan Electric Corporation (DECORP) is a privately owned corporation engaged in distribution of electricity. It was given an exclusive franchise by Congress thru RA 9969 to operate an electric light and power in the City and Municipalities of Dagupan, Calasiao, San Fabian, Sta. Barbara, San Jacinto, Manaog and Barangays Cruz and Bolingit of San Carlos City, all in the province of Pangasinan

DECORP operates and maintain a highly reliable distribution system, which is regularly being maintained to meet safety and reliability standards and growing customer demand. It maintains three (3) substations located at Bacayao, San Jacinto and Dagupan City with a combined capacity of 156 MVA.

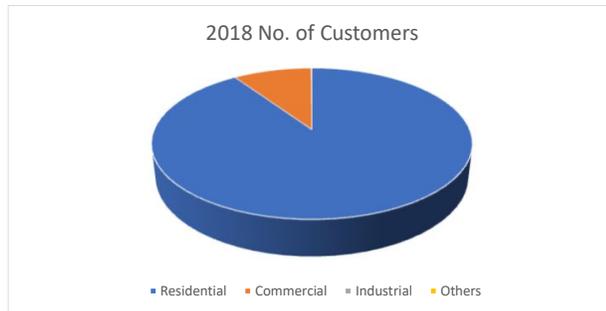
DECORP services 349.33 sq. km. or 6.5% of total Pangasinan land area. In 2018, DECORP distributes electricity to 118,060 customers, consisting of 106,827 residential and 11,233 non residential customers.

FRANCHISE MAP



Number of Customer Connections in Franchise	ACTUAL		FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Residential	106,828	111,120	115,175	119,393	123,779	128,342	133,088	138,026	143,163	148,509	154,071	
Commercial	11,148	11,565	11,970	12,391	12,830	13,287	13,762	14,257	14,772	15,309	15,868	
Industrial	18	19	19	20	20	20	20	20	20	20	20	
Others	67	67	67	67	67	67	67	67	67	67	67	
Contestable Customers served by RES	2	2	2	2	2	2	2	2	2	2	2	
Total (Captive Customers)	118,061	122,771	127,231	131,871	136,696	141,716	146,937	152,370	158,022	163,905	170,026	

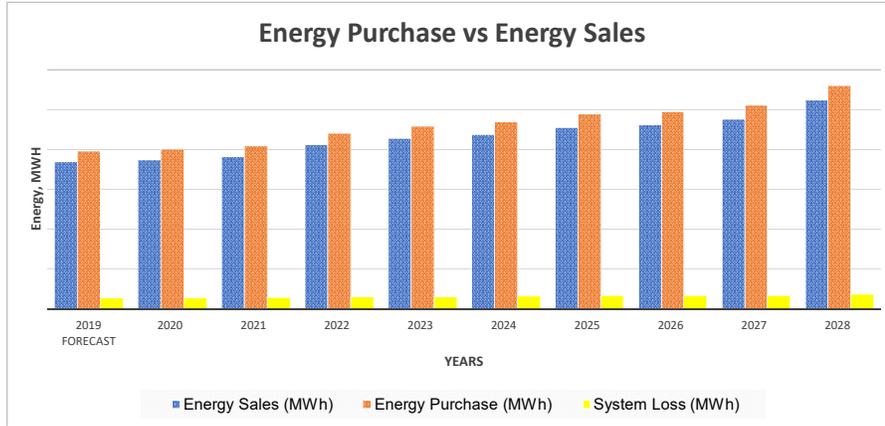
DECORP's energy sales are expected to grow at a yearly average rate of 4% from 2019 to 2028. The growth in demand mainly attributed to the projected increase in customer volume. DECORP has six (6) large load customers, wherein two (2) will become fully operational in 2019, while the other three (3) are uprating their loads, and the remaining is a new customer



ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Energy Sales (MWh)	234,087.10	255,268.92	253,529.01	269,471.72	285,560.20	286,572.66	300,792.77	334,333.09	352,275.23	365,257.04
Energy Purchase (MWh)	252,453.15	276,961.74	272,698.96	288,214.52	302,196.98	305,142.84	324,982.80	356,474.19	374,381.60	391,857.59
System Loss (MWh)	18,366.05	21,692.81	19,169.95	18,742.80	16,636.78	18,570.18	24,190.03	22,141.10	22,106.36	26,600.55

ENERGY SALES AND PURCHASE	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Energy Sales (MWh)	369,276.53	373,399.14	382,135.14	412,088.17	427,769.08	438,526.59	455,939.47	462,803.95	477,326.90	524,142.81
Energy Purchase (MWh)	396,583.31	400,882.72	410,127.14	442,129.75	458,850.07	470,223.75	488,778.95	495,914.18	511,310.45	561,360.70
System Loss (MWh)	27,306.77	27,483.58	27,992.00	30,041.57	31,080.99	31,697.16	32,839.48	33,110.23	33,983.55	37,217.89

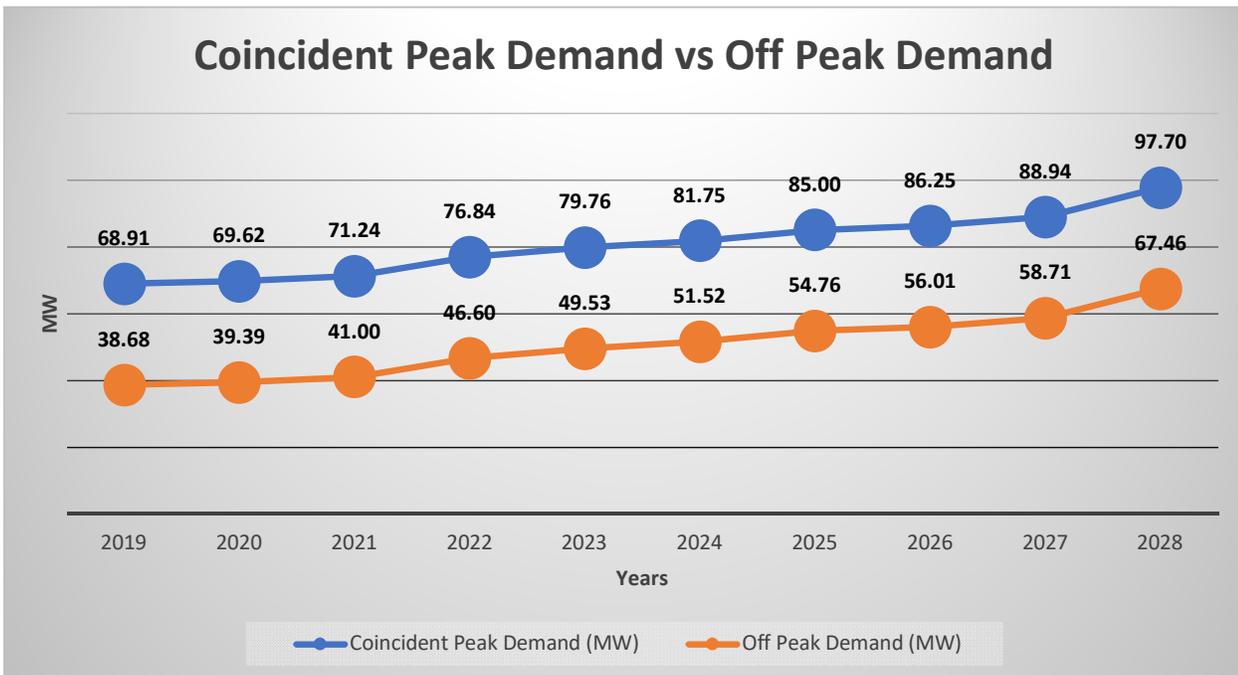


DECORP's energy sales and purchased from 2009 to 2018 grew at an average rate of 5% due to the expected growth in customer volume. Using historical data as reference, energy consumption forecasts for 2019 to 2028 were done using customer indexation methodology for residential and small commercial, historical linear technique for street lighting customers and specific identification method for large commercial and industrial customers

DEMAND

Demand	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coincident Peak Demand (MW)	45.61	51.09	51.96	55.02	52.54	53.61	55.58	60.41	62.73	66.8
Off Peak Demand (MW)	18.92	22.27	23.77	17.93	26.77	28.09	29.05	32.91	33.19	36.57

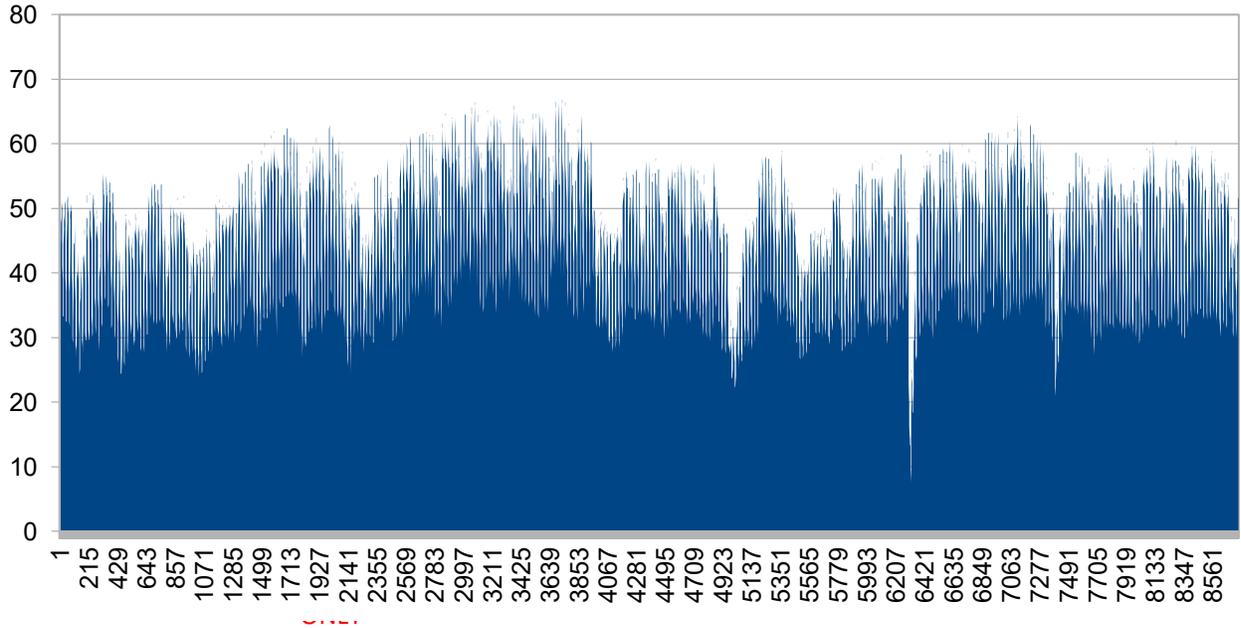
Demand	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Coincident Peak Demand (MW)	68.91	69.62	71.24	76.84	79.76	81.75	85	86.25	88.94	97.7
Off Peak Demand (MW)	38.68	39.39	41	46.6	49.53	51.52	54.76	56.01	58.71	67.46



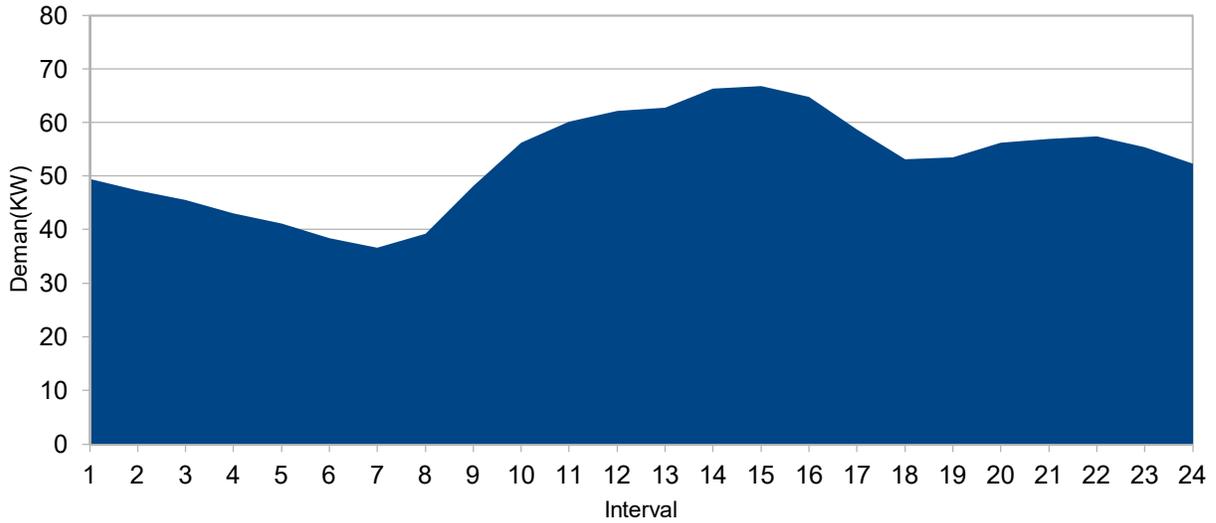
DECORP's demand increased at an average rate of 4% from 2009 to 2018, with a significant increase in 2018 due to the entry of two large load customers. The demand forecasts from 2019 to 2028 considered historical demand trends, economic factors and energy purchased. One-off event, such as election period, was also considered in deriving the demand forecast.

LOAD PROFILE AND LOAD DURATION CURVE

2018 DECORP's Hourly Load Profile (MW)



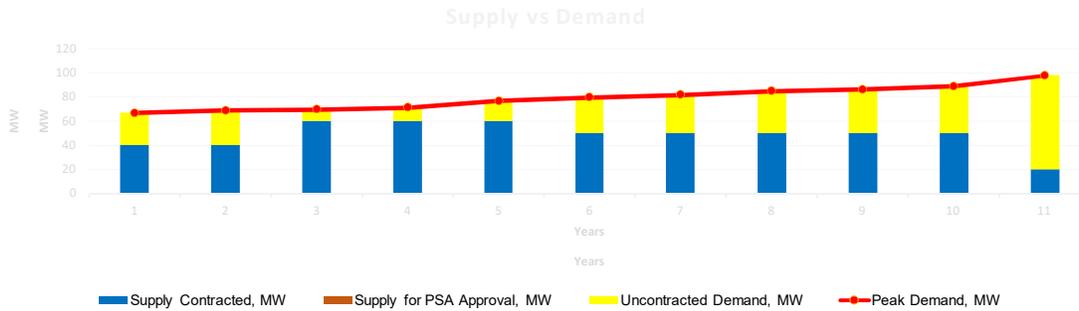
2018 DECORP Load Curve



DECORP has a 10MW contract with SN Aboitiz Power Benguet, Inc. (SNAP) for its base load requirement, a 30MW contract with GNPowder Ltd, Co.(GMCP) for its mid merit requirement and residual energy or peaking from the Wholesale Electricity Spot Market (WESM)

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	66.799	68.911	69.619	71.236	76.836	79.762	81.751	84.998	86.246	88.940	97.698
Supply Contracted, MW	40	40	60	60	60	50	50	50	50	50	20
GMCP	30	30	30	30	30	30	30	30	30	30	
SNAP	10	10	10	10	10						
SEI			20	20	20	20	20	20	20	20	20
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	26.799	28.911	9.619	11.236	16.836	29.762	31.751	34.998	36.246	38.940	77.698



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)
GMCP	GMCP	0.7	12/26/12	12/25/27	30MW	183,960	Midmerit	Grid Connected	IPP	Running	Coal	650	632
SNAP	SNAP	1	10/26/12	10/25/22	10MW	87,600	Baseload	Grid Connected	IPP	Running	Hydro	360	380
SEI	SEI	0.1651	03/26/20	03/25/45	20MW	28,918	Peaking	Embedded	IPP	On – going construction	Solar	20	16

Currently, GMCP and SNAP provides the bulk of DECORP's electricity requirements, the deficit is sourced from WESM. On December 19, 2017, ERC approved the Electricity Supply Agreement (ESA) between DECORP and SEI under ERC Case No. 2016-154RC. Under the ESA, SEI will install, construct and operate a 20MWp (DC) embedded solar power plant

DISTRIBUTION IMPACT STUDY

DECORP has an existing three (3) substations with a total installed capacity of 156 MVA and 27 distribution line feeders. Given the current substation loading of 51.28% and forecasted load growth until 2028, DECORP plans to install additional 25MVA substation in 2020 and another 25 MVA in 2022. While for distribution line feeders, the projected loading until 2028 ranges from 31.54% to 74.73%. DECORP's substations and distribution line feeders can accommodate load growth for the next ten(10) years.

On December 19, 2017, the Energy Regulatory Commission (ERC) approved the Electricity Supply Agreement (ESA) between Sunasia Energy Inc. (SEI) and DECORP. It is an embedded solar power plant with an aggregate capacity of 20MWp (DC), expected to be constructed during the latter part of 2019. Being an embedded generator, the required DIS was done to evaluate its impact on our distribution system. However, it is exempt from System Impact Study (SIS) as provided for in ERC Resolution No. 18, Series of 2015, "A Resolution Adopting the Grid Management Committee's Recommendations to Exempt Certain Power Plants from the Conduct of System Impact Study and Clarifying and Expanding the Requirements for a Thorough Conduct of Facilities Study", which states that, "Certain power plants shall be exempted from the conduct of System Impact Study (SIS), particularly those directly connected to the grid with capacities of 20MW and below in Luzon and 5 MW in Visayas and Mindanao grids, which, as determined by the Transmission System Provider, have no or negligible impact on the grid."

DECORP is one of the five (5) distribution utilities adjudged as 100% compliant with the Philippine Distribution Code (PDC) by the Distribution Management Committee(DMC).

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	56.7		30,358.7	40	23,064.0	16.7	7,294.7		
Feb	54.4		30,455.1	40	23,064.0	14.4	7,391.1		
Mar	65.5		30,351.9	40	20,832.0	25.5	9,519.9		
Apr	68.2		35,574.7	40	23,064.0	28.2	12,510.7		
May	68.3		35,834.4	40	22,320.0	28.3	13,514.4		
Jun	66.7		35,161.5	40	23,064.0	26.7	12,097.5		
Jul	64.4		32,782.8	40	22,320.0	24.4	10,462.8		
Aug	65.7		33,060.1	40	23,064.0	25.7	9,996.1		
Sep	63.3		33,393.5	40	23,064.0	23.3	10,329.5		
Oct	64.3		32,986.2	40	22,320.0	24.3	10,666.2		
Nov	65.2		34,045.3	40	23,064.0	25.2	10,981.3		
Dec	64.4		32,578.8	40	22,320.0	24.4	10,258.8		
2020									
Jan	59.4		30,797.3	40	23,064.0	19.4	7,733.3		
Feb	62.1		30,846.3	40	23,064.0	22.1	7,782.3		
Mar	63.6		30,698.0	40	21,576.0	23.6	9,122.0		
Apr	68.0		35,938.1	60	26,105.8	8.0	9,832.3		
May	69.0		36,199.4	60	24,878.8	9.0	11,320.6		
Jun	67.4		35,521.1	60	25,672.1	7.4	9,848.9		
Jul	65.2		33,120.0	60	24,544.2	5.2	8,575.8		
Aug	66.5		33,399.1	60	25,108.4	6.5	8,290.7		
Sep	64.1		33,736.2	60	25,416.3	4.1	8,319.9		
Oct	64.9		33,321.9	60	24,435.7	4.9	8,886.2		
Nov	65.8		34,393.5	60	25,337.6	5.8	9,055.9		
Dec	65.0		32,911.7	60	24,489.7	5.0	8,422.0		
2021									
Jan	60.8		31,502.4	60	25,314.6	0.8	6,187.8		
Feb	63.6		31,552.8	60	25,562.1	3.6	5,990.7		
Mar	67.8		31,403.1	60	23,472.6	7.8	7,930.5		
Apr	70.2		36,767.0	60	26,087.3	10.2	10,679.7		
May	70.6		37,031.4	60	24,863.2	10.6	12,168.2		
Jun	69.0		36,341.7	60	25,656.3	9.0	10,685.4		
Jul	66.6		33,890.7	60	24,530.7	6.6	9,359.9		
Aug	68.0		34,173.3	60	25,096.0	8.0	9,077.3		
Sep	65.5		34,518.8	60	25,402.0	5.5	9,116.8		
Oct	66.4		34,087.1	60	24,422.9	6.4	9,664.2		
Nov	67.4		35,188.0	60	25,323.8	7.4	9,864.2		
Dec	66.6		33,670.8	60	24,476.5	6.6	9,194.3		
2022									
Jan	65.6		33,941.5	60	25,296.6	5.6	8,644.8		
Feb	68.6		33,996.9	60	25,542.2	8.6	8,454.7		
Mar	73.1		33,843.1	60	23,451.6	13.1	10,391.5		
Apr	75.9		39,636.6	60	26,063.3	15.9	13,573.3		
May	76.2		39,910.7	60	24,843.0	16.2	15,067.7		
Jun	74.5		39,183.3	60	25,635.7	14.5	13,547.6		
Jul	72.0		36,560.9	60	24,513.1	12.0	12,047.8		
Aug	73.4		36,854.6	60	25,079.8	13.4	11,774.8		
Sep	70.7		37,229.8	60	25,383.4	10.7	11,846.4		
Oct	71.7		36,734.8	60	24,406.1	11.7	12,328.7		
Nov	72.8		37,938.8	50	17,865.8	22.8	20,073.0	20.0	14,880.0
Dec	71.8		36,298.7	50	17,763.3	21.8	18,535.4	20.0	14,400.0
2023									
Jan	68.1		35,216.2	50	17,838.7	18.1	17,377.4	20.0	14,880.0
Feb	71.2		35,274.2	50	18,082.3	21.2	17,191.9	20.0	14,880.0
Mar	75.9		35,118.2	50	18,222.6	25.9	16,895.6	20.0	13,440.0
Apr	78.9		41,135.8	50	18,599.2	28.9	22,536.6	20.0	14,880.0
May	79.1		41,415.2	50	18,126.8	29.1	23,288.5	20.0	14,400.0
Jun	77.3		40,667.8	50	18,175.0	27.3	22,492.7	20.0	14,880.0
Jul	74.8		37,955.5	50	17,799.5	24.8	20,156.0	20.0	14,400.0
Aug	76.2		38,255.3	50	17,623.6	26.2	20,631.7	20.0	14,880.0
Sep	73.4		38,645.9	50	17,924.8	23.4	20,721.1	20.0	14,880.0
Oct	74.4		38,118.4	50	17,693.4	24.4	20,425.0	20.0	14,400.0
Nov	75.6		39,375.9	50	17,847.8	25.6	21,528.0	20.0	14,880.0
Dec	74.6		37,671.7	50	17,746.2	24.6	19,925.5	20.0	14,400.0

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)
2024									
Jan	69.8		36,083.5	50	17,813.8	19.8	18,269.7	20.0	14,880.0
Feb	72.9		36,143.3	50	18,054.6	22.9	18,088.7	20.0	14,880.0
Mar	74.8		35,985.6	50	18,285.1	24.8	17,700.5	20.0	13,920.0
Apr	80.9		42,155.6	50	18,565.7	30.9	23,590.0	20.0	14,880.0
May	81.1		42,438.8	50	18,098.5	31.1	24,340.2	20.0	14,400.0
Jun	79.2		41,677.5	50	18,146.3	29.2	23,531.2	20.0	14,880.0
Jul	76.7		38,903.9	50	17,775.0	26.7	21,128.9	20.0	14,400.0
Aug	78.2		39,207.9	50	17,601.1	28.2	21,606.8	20.0	14,880.0
Sep	75.4		39,609.0	50	17,898.8	25.4	21,710.1	20.0	14,880.0
Oct	76.2		39,059.7	50	17,670.1	26.2	21,389.6	20.0	14,400.0
Nov	77.4		40,353.4	50	17,822.8	27.4	22,530.6	20.0	14,880.0
Dec	76.4		38,605.6	50	17,722.3	26.4	20,883.4	20.0	14,400.0
2025									
Jan	72.6		37,498.0	50	17,803.5	22.6	19,694.5	20.0	14,880.0
Feb	75.9		37,560.7	50	18,043.3	25.9	19,517.4	20.0	14,880.0
Mar	80.9		37,400.5	50	18,181.3	30.9	19,219.2	20.0	13,440.0
Apr	84.3		43,819.4	50	18,551.9	34.3	25,267.5	20.0	14,880.0
May	84.3		44,108.4	50	18,087.0	34.3	26,021.4	20.0	14,400.0
Jun	82.4		43,324.9	50	18,134.5	32.4	25,190.4	20.0	14,880.0
Jul	79.7		40,451.7	50	17,765.0	29.7	22,686.7	20.0	14,400.0
Aug	81.3		40,762.3	50	17,591.8	31.3	23,170.4	20.0	14,880.0
Sep	78.3		41,180.5	50	17,888.2	28.3	23,292.3	20.0	14,880.0
Oct	79.3		40,595.1	50	17,660.5	29.3	22,934.6	20.0	14,400.0
Nov	80.5		41,948.2	50	17,812.5	30.5	24,135.7	20.0	14,880.0
Dec	79.5		40,129.3	50	17,712.5	29.5	22,416.8	20.0	14,400.0
2026									
Jan	73.6		38,042.4	50	17,786.1	23.6	20,256.3	20.0	14,880.0
Feb	77.0		38,106.2	50	18,023.9	27.0	20,082.3	20.0	14,880.0
Mar	82.1		37,944.9	50	18,160.9	32.1	19,784.0	20.0	13,440.0
Apr	85.4		44,459.1	50	18,528.5	35.4	25,930.7	20.0	14,880.0
May	85.6		44,750.6	50	18,067.3	35.6	26,683.4	20.0	14,400.0
Jun	83.7		43,958.3	50	18,114.4	33.7	25,843.9	20.0	14,880.0
Jul	80.9		41,046.2	50	17,747.8	30.9	23,298.4	20.0	14,400.0
Aug	82.5		41,359.6	50	17,576.1	32.5	23,783.5	20.0	14,880.0
Sep	79.5		41,784.4	50	17,870.1	29.5	23,914.3	20.0	14,880.0
Oct	80.4		41,185.8	50	17,644.2	30.4	23,541.6	20.0	14,400.0
Nov	81.7		42,561.4	50	17,795.0	31.7	24,766.4	20.0	14,880.0
Dec	80.7		40,715.2	50	17,695.7	30.7	23,019.5	20.0	14,400.0
2027									
Jan	75.9		39,216.2	50	17,768.8	25.9	21,447.4	20.0	14,880.0
Feb	79.4		39,282.4	50	18,004.7	29.4	21,277.7	20.0	14,880.0
Mar	84.6		39,119.0	50	18,140.6	34.6	20,978.4	20.0	13,440.0
Apr	88.1		45,839.7	50	18,505.3	38.1	27,334.4	20.0	14,880.0
May	88.3		46,136.1	50	18,047.7	38.3	28,088.3	20.0	14,400.0
Jun	86.3		45,325.2	50	18,094.5	36.3	27,230.7	20.0	14,880.0
Jul	83.5		42,330.3	50	17,730.9	33.5	24,599.5	20.0	14,400.0
Aug	85.1		42,649.3	50	17,560.5	35.1	25,088.8	20.0	14,880.0
Sep	82.0		43,088.3	50	17,852.1	32.0	25,236.2	20.0	14,880.0
Oct	83.0		42,459.9	50	17,628.1	33.0	24,831.8	20.0	14,400.0
Nov	84.3		43,884.6	50	17,777.6	34.3	26,107.0	20.0	14,880.0
Dec	83.2		41,979.5	50	17,679.2	33.2	24,300.3	20.0	14,400.0
2028									
Jan	83.4		43,030.4	20	2,120.6	63.4	40,909.8	20.0	14,880.0
Feb	87.1		43,104.4	20	2,353.8	67.1	40,750.6	20.0	14,880.0
Mar	89.4		42,934.8	20	2,577.0	69.4	40,357.9	20.0	13,920.0
Apr	97.0		50,327.5	20	2,848.7	77.0	47,478.8	20.0	14,880.0
May	97.0		50,638.8	20	2,396.3	77.0	48,242.5	20.0	14,400.0
Jun	94.8		49,769.3	20	2,442.6	74.8	47,326.8	20.0	14,880.0
Jul	92.0		46,507.0	20	2,083.0	72.0	44,424.0	20.0	14,400.0
Aug	93.6		46,843.1	20	1,914.6	73.6	44,928.6	20.0	14,880.0
Sep	90.3		47,328.6	20	2,202.9	70.3	45,125.6	20.0	14,880.0
Oct	91.1		46,600.5	20	1,981.4	71.1	44,619.1	20.0	14,400.0
Nov	92.6		48,186.8	20	2,129.3	72.6	46,057.6	20.0	14,880.0
Dec	91.4		46,089.4	20	2,031.9	71.4	44,057.5	20.0	14,400.0