

SIARGAO 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 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 or you may contact us through telephone numbers (02) 840-2173 and (02) 479-2900 local 202.

TABLE OF CONTENTS

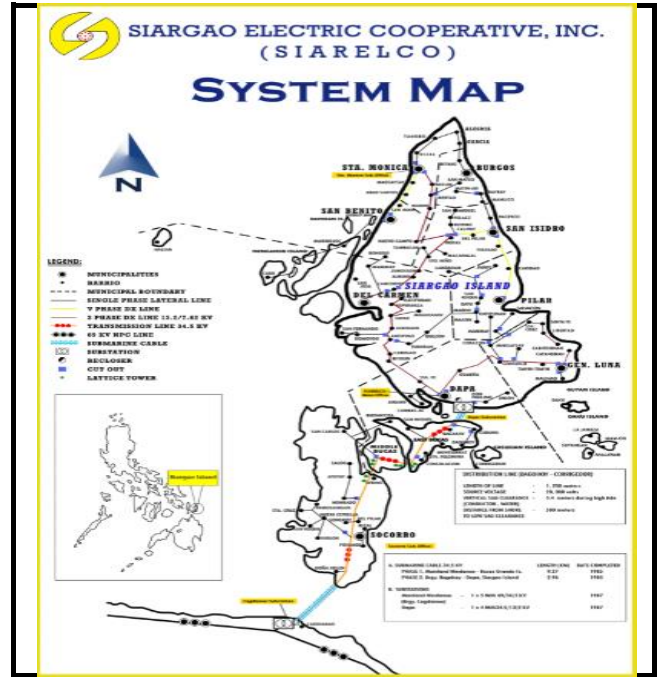
	Pages
Introduction	3
Energy Sales and Purchase	4
Demand	5
Load Profile and Load Duration Curve	6
Existing Power Supply Contracts	7-8
Distribution Impact Study	9
Schedule of CSP	10
Annex Monthly Data	11-13

INTRODUCTION

DISTRIBUTION UTILITIES PROFILE

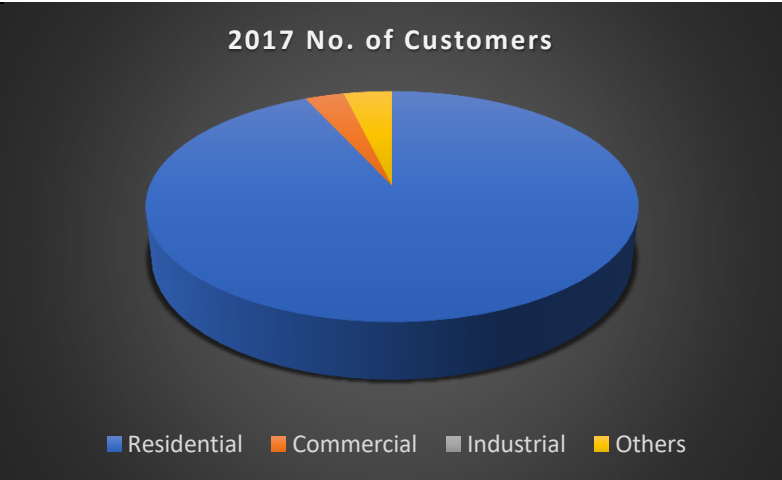
On September 8, 1979, Siargao Electric Cooperative, Inc. (SIARELCO) was organized in the province of Surigao del Norte to serve nine (9) municipalities and their remote barangays. Siargao Electric Cooperative, Inc. (SIARELCO) was formed in accordance with the provisions of Presidential Decree 269 under the National Electrification Administration (NEA)

With support from the National Electrification Administration (NEA), SIARELCO has been an active partner for countryside development for almost three (3) decades. In the earlier period of SIARELCO’s dedicated service to the public, short and long-range plans were formulated to guide the operations and systems of the cooperative in its efforts to fulfill its goal of being a technically viable electric service.



Number of Customer	ACTUAL	FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	28,114	30,116	31,571	33,276	34,983	36,684	38,373	40,047	41,703	43,339	44,956
Commercial	919	984	1,032	1,088	1,143	1,199	1,254	1,309	1,363	1,417	1,470
Industrial		0	0	0	0	0	0	0	0	0	0
Others	1,141	1,222	1,281	1,350	1,420	1,489	1,558	1,625	1,693	1,759	1,824
Contestable Customers served by RES											
Total (Captive Customers)	30,174	32,322	33,884	35,714	37,546	39,372	41,185	42,981	44,759	46,515	48,250

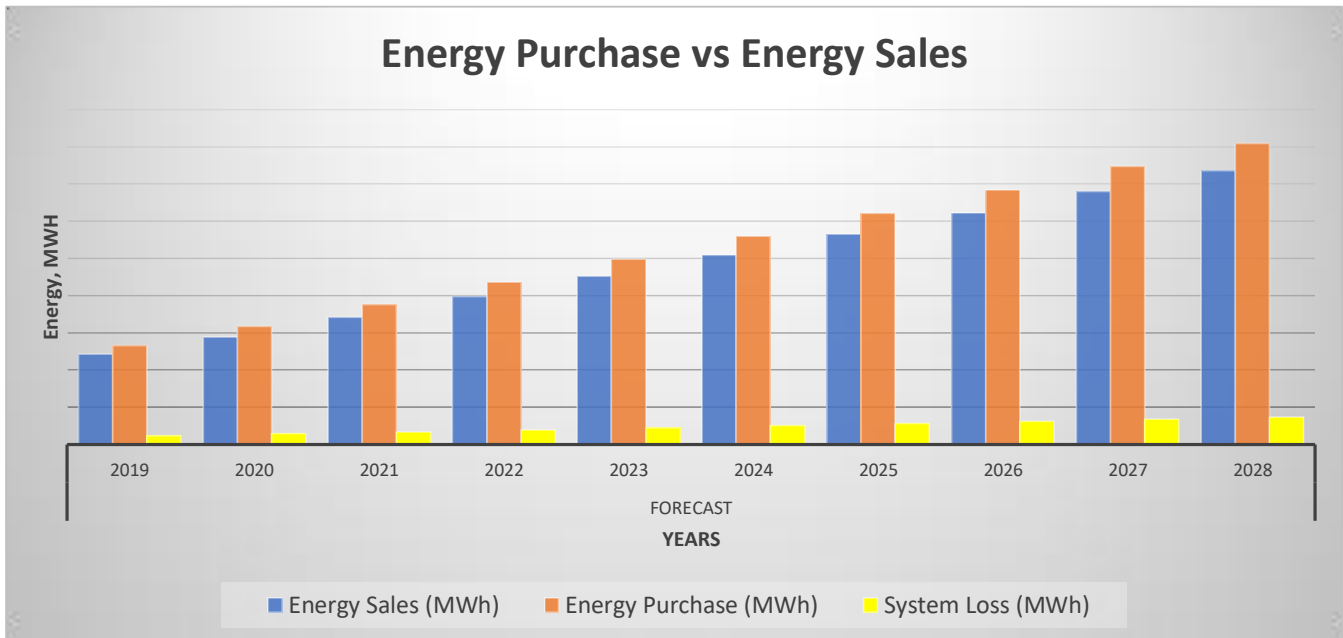
The pie chart shows that SIARELCO's customers is highly residential considering that it is an Island EC. Sitio Electrification Program and Barangay Line Enhancement Program under the NEA contributed to the increase in numbers of residential consumers.



ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Energy Sales (MWh)	10,806	10,658	12,043	14,111	15,774	16,858	19,226	23,873	28,738	38,537
Energy Purchase (MWh)	11,424	11,313	13,225	15,020	17,124	18,388	20,952	26,142	31,463	42,178
System Loss (MWh)	618.84	654.92	1,182	909.16	1,350	1,530	1,726	2,269	2,724	3,641

ENERGY SALES AND PURCHASE	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Energy Sales (MWh)	48,549	57,751	68,398	79,362	90,530	101,820	113,173	124,546	135,906	147,230
Energy Purchase (MWh)	53,094	63,462	75,162	87,211	99,484	111,890	124,366	136,864	149,347	161,791
System Loss (MWh)	4,545	5,712	6,765	7,849	8,954	10,070	11,193	12,318	13,441	14,561

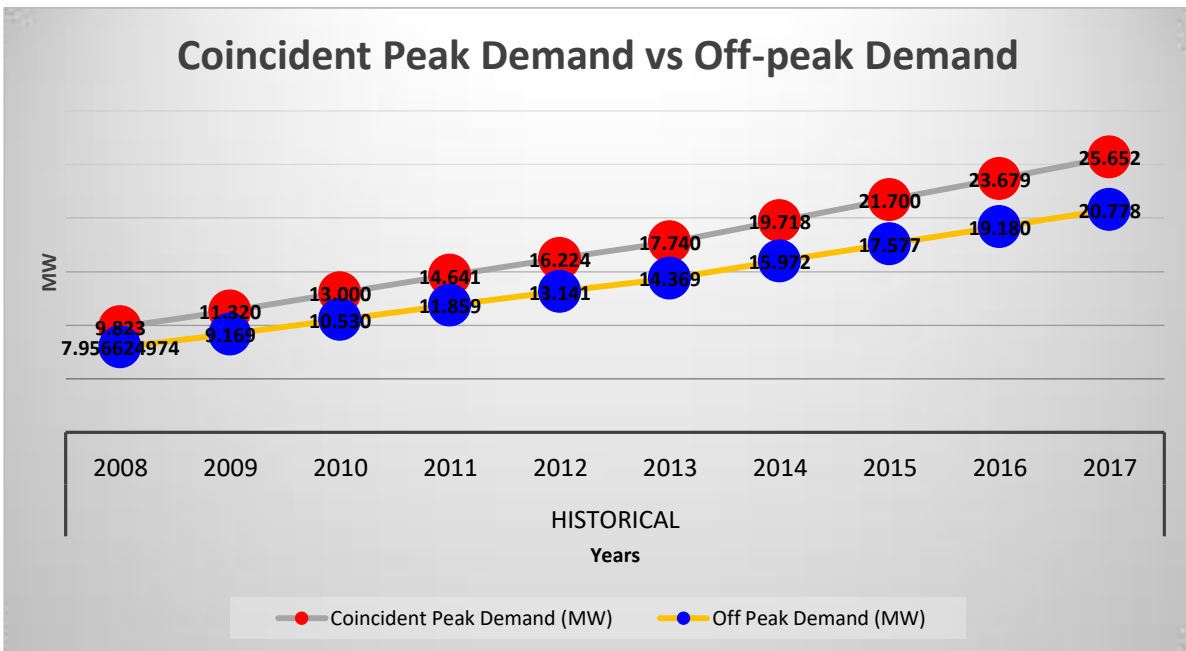


The graph shows that the energy requirement of SIARELCO is continuously increasing over time. This is due to the new commercial resorts being constructed in General Luna and the continuing increase of energy requirements of the residential consumers. SIARELCO is aiming to maintain its system loss in single digit until year 2028.

DEMAND

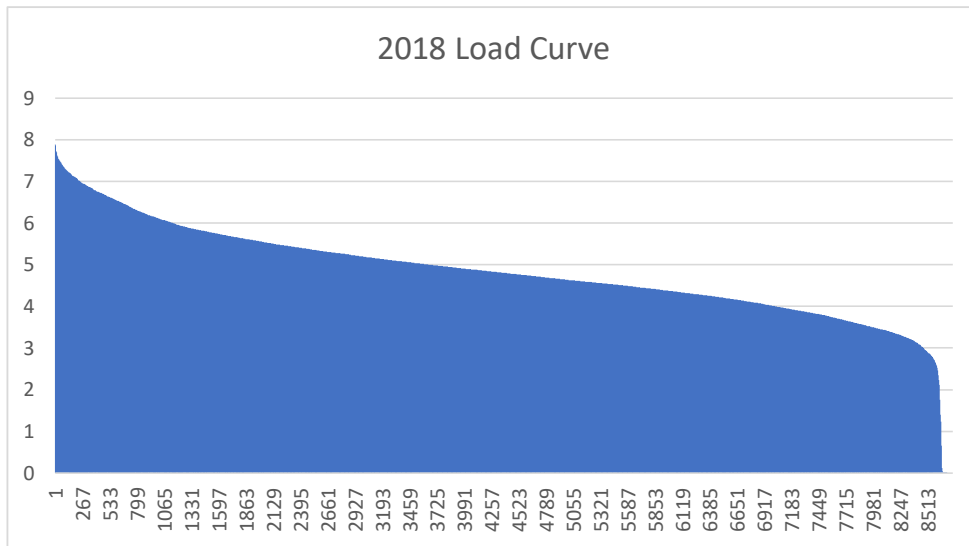
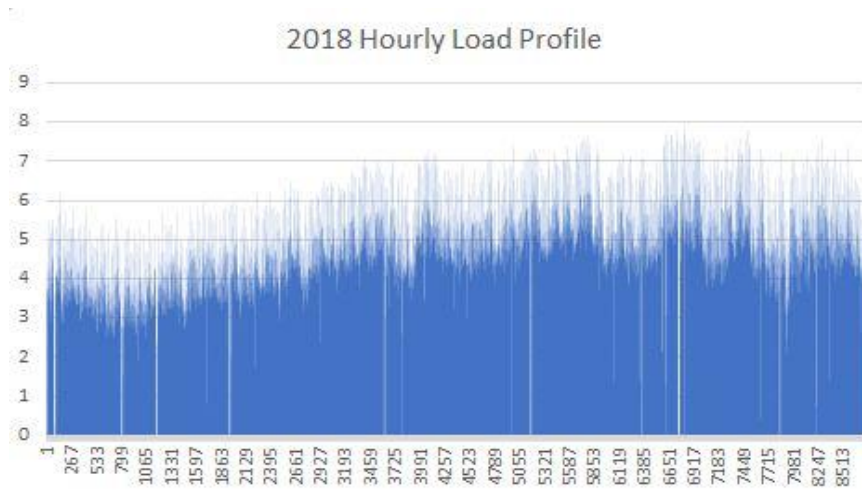
Demand	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coincident Peak Demand (MW)	2.530	2.700	2.920	3.130	3.460	3.827	4.214	5.098	5.769	7.896
Off Peak Demand (MW)	1.771	1.890	2.044	2.191	2.422	2.679	2.950	4.1294	4.6731	6.3955

Demand	HISTORICAL									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Coincident Peak Demand (MW)	9.823	11.320	13.000	14.641	16.224	17.740	19.718	21.700	23.679	25.652
Off Peak Demand (MW)	7.957	9.169	10.530	11.859	13.141	14.369	15.972	17.577	19.180	20.778



Historical data shows that the SIARELCO's demand has increased significantly for the past ten (10) years from 2.5MW in 2009 to 7.9MW in 2018. This significant increase is due to the new buildings, hotels and resorts being constructed in General Luna and the increasing number of tourists and foreigners residing in the island. SIARELCO's Energy requirement was forecasted using the Cubic and Logarithmic Trend with Horizon model provided by the National Electrification Administration with a Mean Absolute Percentage Error (MAPE) of 3.0% using seven (7) years historical data. The Peak Demand requirement was forecasted using the forecasted energy and assuming an increasing load factor of 2% for the next five (5) years and fixed load factor on the sixth year onwards. Possible entry of big load consumers such as new hotels and resorts was also been considered.

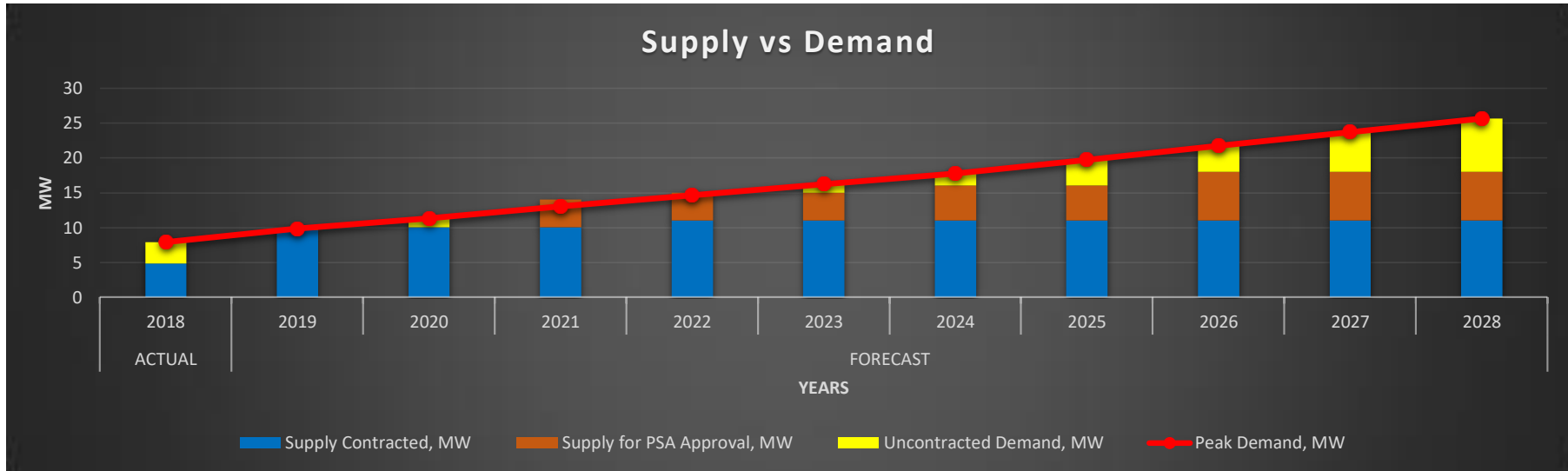
LOAD PROFILE AND LOAD DURATION CURVE



As shown in the load curve, SIARELCO's Base Load is about 3MW, the Intermediate Load is about 2MW and peaking of 2MW. SIARELCO's peak hours is between 6pm - 8pm.

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	7.90	9.82	11.32	13.00	14.64	16.22	17.74	19.72	21.70	23.68	25.65
Supply Contracted, MW	4.814794	9.67	10	10	11	11	11	11	11	11	11
NPC-PSALM	4.25	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
HEDCOR	0.57	1.67	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
GN POWER		2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Supply for PSA Approval, MW	0	0	0	4	4	4	5	5	7	7	7
NPC-PSALM				4.000	4.000	4.000	5.000	5.000	7.000	7.000	7.000
HEDCOR											
GN POWER											
Uncontracted Demand, MW	3.080906	0.152994	1.319584	0	0	1.2236943	1.740103	3.718131	3.699569	5.678827	7.651743



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			2019	2023	6	43,233	Base/Mid				Mixed		
HEDCOR			2018	2020	2	8,760	Base				Hydro		
GN POWER			2019	2051	2	11,300	Base				Coal		
GenCo 4													
GenCo 5													

Our CSEE with NPC-PSALM recently renewed until year 2023 with a contract demand of 6MW. However, we are planning to increased our contracted demand with NPC-PSALM by next year considering that NPC-PSALM has an excess capacity.

DISTRIBUTION IMPACT STUDY

The existing 10/12.5MVA Power Transformer in Cagdianao substation will be upgraded to 20/25MVA and the 5MVA Power Transformer in Dapa,SDN will be upgraded to 10/12.5MVA by year 2020 to cater the increasing load in Siargao and Bucas Grande Islands.

With the entry of the embedded generation to be run as baseload on year 2023 (2MW), year 2025 (3MW) and year 2027 (3MW), the loading of our submarine cable will be relieved and overloading will be prevented considering that the capacity of our submarine cable is only 24MW. Likewise, our transmission charge will be lessen and the requirement of RPS will be complied.

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 Requirem ent (MWh)	Demand (MW)	Energy (MWh)	Uncontra cted Demand (MW)	Uncontracte d Energy (MWh)	Demand (MW)	Energy (MWh)
2019									
Jan	8.028	6.503	3,775	9.000	3,775	(0.97)	-		
Feb	7.126	5.772	3,455	9.000	3,455	(1.87)	-		
Mar	7.341	5.946	3,391	9.000	3,391	(1.66)	-		
Apr	8.440	6.837	4,273	9.000	4,273	(0.56)	-		
May	9.191	7.444	4,937	10.000	4,937	(0.81)	-		
Jun	9.242	7.486	4,930	10.000	4,930	(0.76)	-		
Jul	9.460	7.662	4,675	10.000	4,675	(0.54)	-		
Aug	9.488	7.685	4,732	10.000	4,732	(0.51)	-		
Sep	9.323	7.552	4,732	10.000	4,732	(0.68)	-		
Oct	9.823	7.957	4,732	10.000	4,732	(0.18)	-		
Nov	9.674	7.836	4,732	10.000	4,732	(0.33)	-		
Dec	9.378	7.596	4,732	10.000	4,732	(0.62)	-		
2020									
Jan	9.251	7.494	4,367	10.000	4,367	(0.75)	-		
Feb	8.212	6.651	4,121	10.000	4,121	(1.79)	-		
Mar	8.459	6.852	4,778	10.000	4,778	(1.54)	-		
Apr	9.726	7.878	4,514	10.000	4,514	(0.27)	-		
May	10.591	8.579	5,390	11.500	5,390	(0.91)	-		
Jun	10.650	8.626	5,477	11.500	5,477	(0.85)	-		
Jul	10.901	8.830	5,651	11.500	5,651	(0.60)	-		
Aug	10.933	8.856	6,167	11.500	6,167	(0.57)	-		
Sep	10.744	8.702	5,761	11.500	5,761	(0.76)	-		
Oct	11.320	9.169	5,884	11.500	5,884	(0.18)	-		
Nov	11.148	9.030	5,691	11.500	5,691	(0.35)	-		
Dec	10.807	8.753	5,663	11.500	5,663	(0.69)	-		
2021									
Jan	10.625	8.606	5,172	13.000	5,172	(2.38)	-		
Feb	9.431	7.639	4,880	13.000	4,880	(3.57)	-		
Mar	9.715	7.870	5,658	13.000	5,658	(3.28)	-		
Apr	11.171	9.048	5,346	13.000	5,346	(1.83)	-		
May	12.163	9.852	6,384	13.000	6,384	(0.84)	-		
Jun	12.231	9.907	6,487	13.000	6,487	(0.77)	-		
Jul	12.520	10.141	6,692	13.000	6,692	(0.48)	-		
Aug	12.556	10.171	7,303	13.000	7,303	(0.44)	-		
Sep	12.339	9.994	6,823	13.000	6,823	(0.66)	-		
Oct	13.000	10.530	6,969	13.000	6,969	0.00	-		
Nov	12.804	10.371	6,740	13.000	6,740	(0.20)	-		
Dec	12.411	10.053	6,707	13.000	6,707	(0.59)	-		
2022									
Jan	11.965	9.692	6,001	13.000	6,001	(1.03)	-		

Feb	10.621	8.603	5,663	13.000	5,663	(2.38)	-		
Mar	10.941	8.862	6,565	13.000	6,565	(2.06)	-		
Apr	12.580	10.190	6,203	13.000	6,203	(0.42)	-		
May	13.698	11.096	7,407	13.000	5,967	0.70	1,440.00		
Jun	13.774	11.157	7,527	13.000	6,039	0.77	1,488.00		
Jul	14.099	11.420	7,765	13.000	6,325	1.10	1,440.00		
Aug	14.141	11.454	8,474	13.000	6,986	1.14	1,488.00		
Sep	13.896	11.255	7,917	13.000	6,429	0.90	1,488.00		
Oct	14.641	11.859	8,086	13.000	6,646	1.64	1,440.00		
Nov	14.419	11.680	7,820	13.000	6,332	1.42	1,488.00		
Dec	13.977	11.322	7,782	13.000	6,342	0.98	1,440.00		
2023									
Jan	13.259	10.740	6,846	14.300	5,358	(1.04)	1,488.00		
Feb	11.769	9.533	6,460	14.300	4,972	(2.53)	1,488.00		
Mar	12.124	9.821	7,489	14.300	6,145	(2.18)	1,344.00	2.00	1,344
Apr	13.940	11.292	7,076	14.300	5,588	(0.36)	1,488.00	2.00	1,488
May	15.179	12.295	8,450	14.300	7,010	0.88	1,440.00	2.00	1,440
Jun	15.264	12.364	8,587	14.300	7,099	0.96	1,488.00	2.00	1,488
Jul	15.624	12.655	8,858	14.300	7,418	1.32	1,440.00	2.00	1,440
Aug	15.670	12.692	9,667	14.300	8,179	1.37	1,488.00	2.00	1,488
Sep	15.398	12.472	9,031	14.300	7,543	1.10	1,488.00	2.00	1,488
Oct	16.224	13.141	9,224	14.300	7,784	1.92	1,440.00	2.00	1,440
Nov	15.978	12.942	8,921	14.300	7,433	1.68	1,488.00	2.00	1,488
Dec	15.489	12.546	8,877	14.300	7,437	1.19	1,440.00	2.00	1,440
2024									
Jan	14.499	11.744	7,700	14.300	6,212	0.20	1,488.00	2.00	1,488
Feb	12.869	10.424	7,265	14.300	5,777	(1.43)	1,488.00	2.00	1,488
Mar	13.258	10.739	8,423	14.300	7,079	(1.04)	1,344.00	2.00	1,344
Apr	15.243	12.347	7,958	14.300	6,470	0.94	1,488.00	2.00	1,488
May	16.598	13.445	9,503	14.300	5,903	2.30	3,600.00	2.00	1,440
Jun	16.691	13.519	9,657	14.300	5,937	2.39	3,720.00	2.00	1,488
Jul	17.084	13.838	9,963	14.300	6,363	2.78	3,600.00	2.00	1,440
Aug	17.134	13.879	10,872	14.300	7,152	2.83	3,720.00	2.00	1,488
Sep	16.837	13.638	10,157	14.300	6,437	2.54	3,720.00	2.00	1,488
Oct	17.740	14.369	10,374	14.300	6,774	3.44	3,600.00	2.00	1,440
Nov	17.472	14.152	10,033	14.300	6,313	3.17	3,720.00	2.00	1,488
Dec	16.936	13.719	9,984	14.300	6,384	2.64	3,600.00	2.00	1,440
2025									
Jan	16.115	13.053	8,558	14.300	4,838	1.82	3,720.00	2.00	1,488
Feb	14.304	11.586	8,075	14.300	4,355	0.00	3,720.00	2.00	1,488
Mar	14.736	11.936	9,362	14.300	6,002	0.44	3,360.00	5.00	3,360
Apr	16.943	13.724	8,846	14.300	5,126	2.64	3,720.00	5.00	3,720
May	18.449	14.944	10,563	14.300	6,963	4.15	3,600.00	5.00	3,600
Jun	18.552	15.027	10,734	14.300	7,014	4.25	3,720.00	5.00	3,720
Jul	18.989	15.381	11,074	14.300	7,474	4.69	3,600.00	5.00	3,600
Aug	19.045	15.426	12,085	14.300	8,365	4.74	3,720.00	5.00	3,720
Sep	18.715	15.159	11,290	14.300	7,570	4.41	3,720.00	5.00	3,720
Oct	19.718	15.972	11,531	14.300	7,931	5.42	3,600.00	5.00	3,600
Nov	19.420	15.730	11,152	14.300	7,432	5.12	3,720.00	5.00	3,720
Dec	18.825	15.248	11,097	14.300	7,497	4.52	3,600.00	5.00	3,600

2026									
Jan	17.735	14.365	9,418	17.000	5,698	0.73	3,720.00	5.00	3,720
Feb	15.741	12.751	8,887	17.000	5,167	(1.26)	3,720.00	5.00	3,720
Mar	16.217	13.136	10,303	17.000	6,943	(0.78)	3,360.00	5.00	3,360
Apr	18.645	15.103	9,734	17.000	6,014	1.65	3,720.00	5.00	3,720
May	20.303	16.445	11,624	17.000	8,024	3.30	3,600.00	5.00	3,600
Jun	20.416	16.537	11,813	17.000	8,093	3.42	3,720.00	5.00	3,720
Jul	20.897	16.927	12,186	17.000	8,586	3.90	3,600.00	5.00	3,600
Aug	20.959	16.976	13,299	17.000	9,579	3.96	3,720.00	5.00	3,720
Sep	20.595	16.682	12,424	17.000	8,704	3.60	3,720.00	5.00	3,720
Oct	21.700	17.577	12,689	17.000	9,089	4.70	3,600.00	5.00	3,600
Nov	21.371	17.311	12,272	17.000	8,552	4.37	3,720.00	5.00	3,720
Dec	20.717	16.780	12,212	17.000	8,612	3.72	3,600.00	5.00	3,600
2027									
Jan	19.352	15.675	10,277	17.000	6,557	2.35	3,720.00	5.00	3,720
Feb	17.177	13.914	9,698	17.000	5,978	0.18	3,720.00	5.00	3,720
Mar	17.696	14.334	11,243	17.000	7,883	0.70	3,360.00	5.00	3,360
Apr	20.346	16.480	10,622	17.000	6,902	3.35	3,720.00	5.00	3,720
May	22.155	17.945	12,685	17.000	6,925	5.15	5,760.00	8.00	5,760
Jun	22.278	18.045	12,890	17.000	6,938	5.28	5,952.00	8.00	5,952
Jul	22.803	18.471	13,298	17.000	7,538	5.80	5,760.00	8.00	5,760
Aug	22.870	18.525	14,512	17.000	8,560	5.87	5,952.00	8.00	5,952
Sep	22.474	18.204	13,558	17.000	7,606	5.47	5,952.00	8.00	5,952
Oct	23.679	19.180	13,847	17.000	8,087	6.68	5,760.00	8.00	5,760
Nov	23.321	18.890	13,392	17.000	7,440	6.32	5,952.00	8.00	5,952
Dec	22.606	18.311	13,326	17.000	7,566	5.61	5,760.00	8.00	5,760
2028									
Jan	20.965	16.981	11,133	18.000	5,181	2.96	5,952.00	8.00	5,952
Feb	18.608	15.073	10,506	18.000	4,554	0.61	5,952.00	8.00	5,952
Mar	19.170	15.528	12,180	18.000	6,804	1.17	5,376.00	8.00	5,376
Apr	22.041	17.854	11,507	18.000	5,555	4.04	5,952.00	8.00	5,952
May	24.001	19.441	13,742	18.000	7,982	6.00	5,760.00	8.00	5,760
Jun	24.134	19.549	13,964	18.000	8,012	6.13	5,952.00	8.00	5,952
Jul	24.703	20.010	14,406	18.000	8,646	6.70	5,760.00	8.00	5,760
Aug	24.776	20.068	15,721	18.000	9,769	6.78	5,952.00	8.00	5,952
Sep	24.346	19.721	14,687	18.000	8,735	6.35	5,952.00	8.00	5,952
Oct	25.652	20.778	15,001	18.000	9,241	7.65	5,760.00	8.00	5,760
Nov	25.264	20.464	14,508	18.000	8,556	7.26	5,952.00	8.00	5,952
Dec	24.490	19.837	14,436	18.000	8,676	6.49	5,760.00	8.00	5,760