

POWER SUPPLY PROCUREMENT PLAN

ANGELES 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

DISTRIBUTION UTILITIES PROFILE

The third largest electric company in Luzon was known as Angeles Light and Power Plant when it formally started operating on July 10, 1923. It came to be known as Angeles Electric Corporation (AEC) when it was incorporated and registered with the Securities and Exchange Commission in 1959.

AEC's franchise area is Angeles City in the Province of Pampanga. It has a total land area of 62.17 sq. km. and is composed of 33 barangays with a total population of 411,634.

Angeles City's electricity requirements are served through 4 substations totaling 165 MVA in capacity.

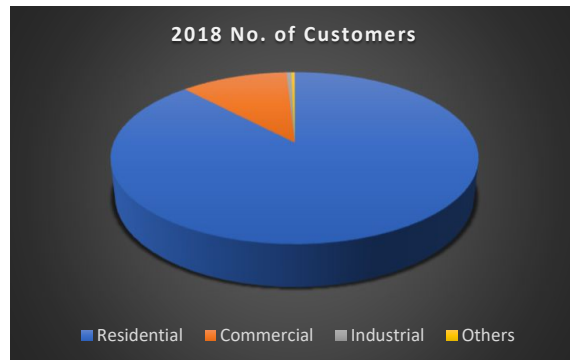
AEC holds the distinction of being the first electric utility company to achieve 100% electrification of all areas within the franchise coverage. This was achieved in 1969.

As of December 2018, AEC serves 118,186 customers, 88% of which or 103,951 are residential customers.



Number of Customer Connections in Franchise	ACTUAL		FORECAST									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Residential	103,951	107,756	111,632	115,754	120,054	124,537	129,117	133,858	138,827	143,906	149,106	
Commercial	13,218	13,538	13,864	14,209	14,571	14,935	15,294	15,670	16,079	16,495	16,901	
Industrial	586	565	546	527	515.3	502	492	484	476	467	455	
Others	431	418	405	394	384	375	366	357	348	339	330	
Contestable Customers served by RES	4	4	4	4	4	4	4	4	4	4	4	
Total (Captive Customers)	118,182	122,273	126,444	130,880	135,521	140,345	145,265	150,365	155,726	161,203	166,788	

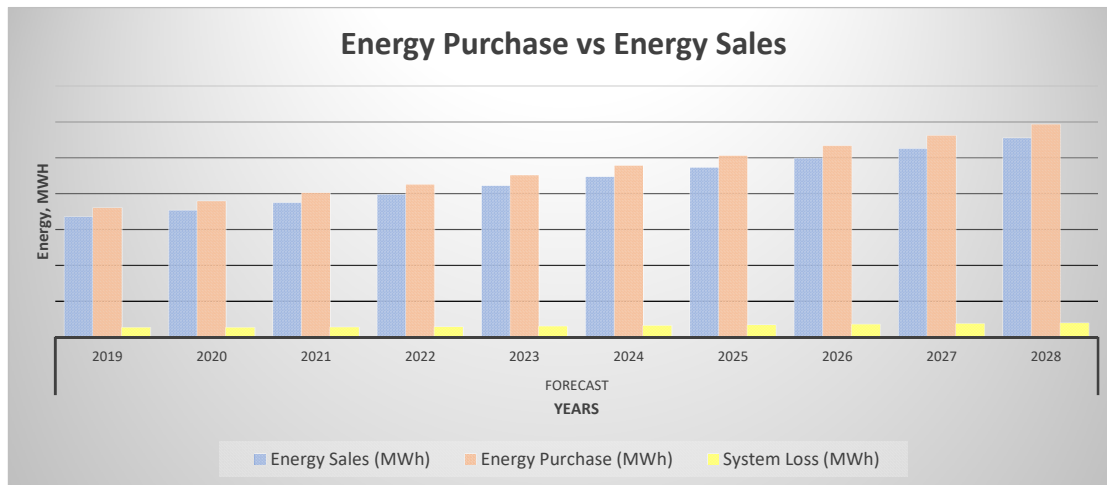
The increase in demand was spurred by the energization of hotels in the Balibago area, the increased economic activity inside the Angeles Industrial Park, the increase in new subdivision constructions.



ENERGY SALES AND PURCHASE

ENERGY SALES AND PURCHASE	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Energy Sales (MWh)	361,164	413,607	405,535	432,709	459,344	482,472	516,045	568,600	603,845	629,940
Energy Purchase (MWh)	390,541	448,952	443,140	469,130	496,696	527,254	563,879	620,675	652,980	677,955
System Loss (MWh)	29,377	35,344	37,605	36,421	37,352	44,782	47,834	52,075	49,135	48,016

ENERGY SALES AND PURCHASE	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Energy Sales (MWh)	668,778	705,718	748,530	794,858	842,319	892,455	944,648	995,787	1,049,912	1,108,776
Energy Purchase (MWh)	719,503	757,208	802,283	850,116	900,876	954,497	1,010,319	1,065,012	1,122,901	1,185,857
System Loss (MWh)	50,725	51,490	53,753	55,258	58,557	62,042	65,671	69,226	72,989	77,081

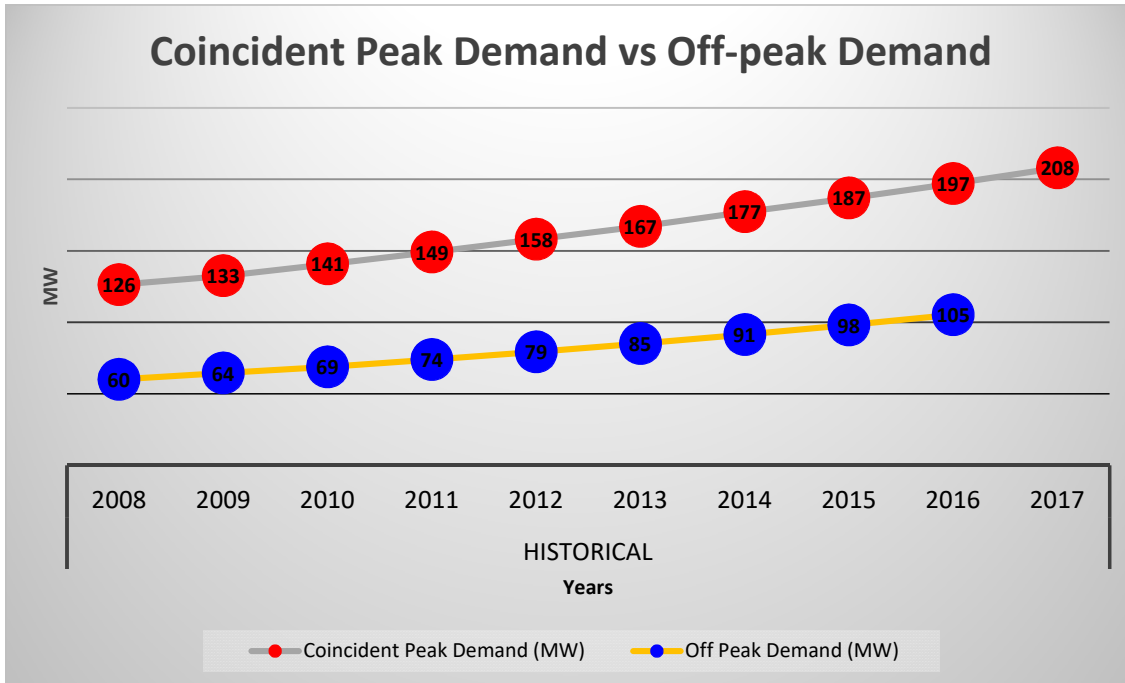


AEC's feeder losses are below the cap set forth in ERC Resolution No. 20, Series of 2017 but will continue to assess the distribution system and implement capital expenditure projects to keep system losses in check.

DEMAND

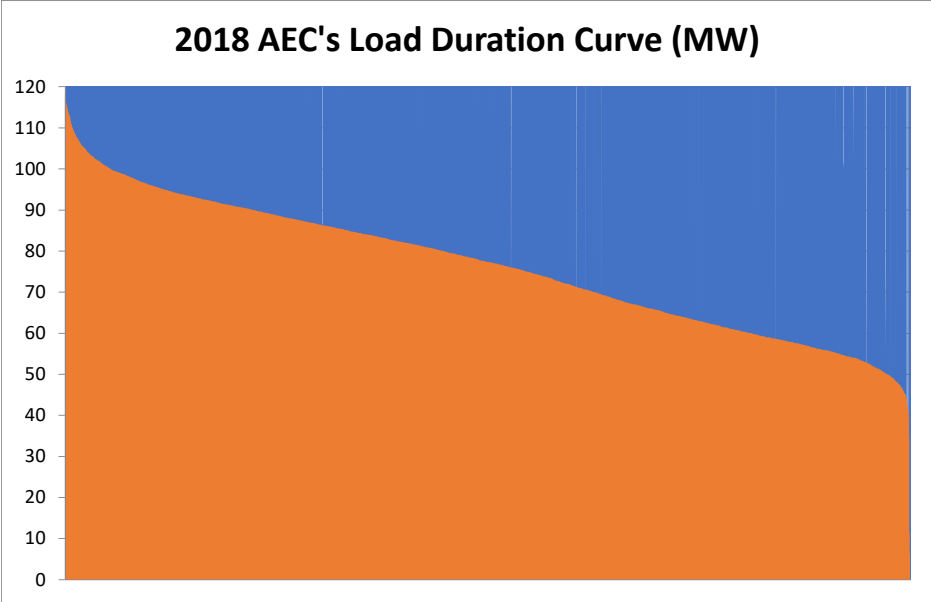
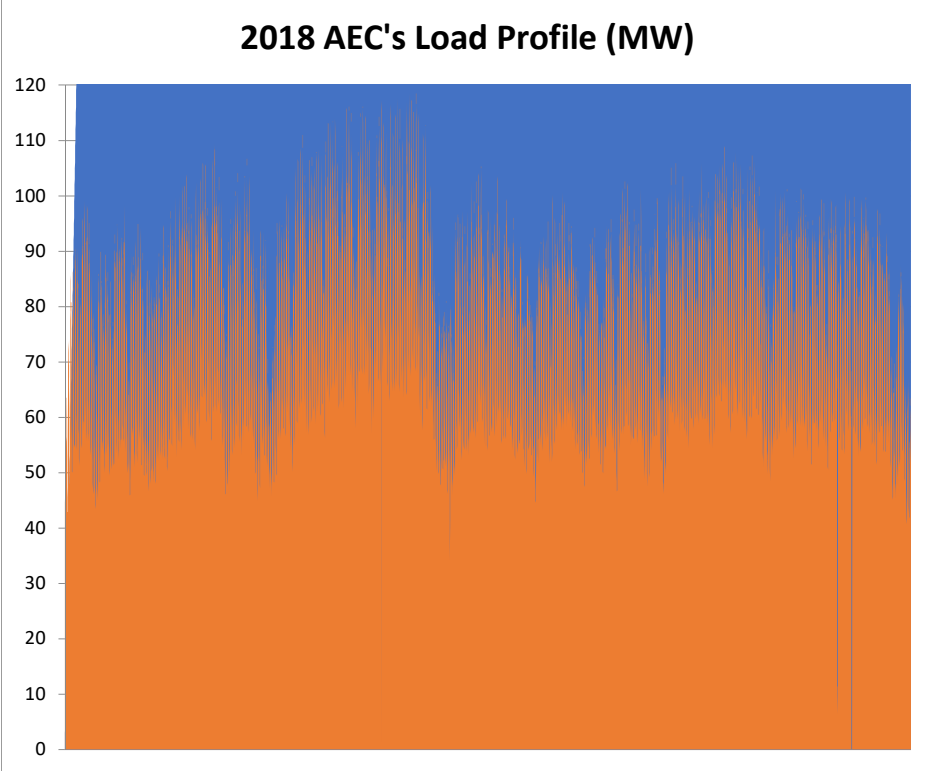
Demand	HISTORICAL									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coincident Peak Demand (MW)	69	77	75	80	87	94	98	105	110	119
Off Peak Demand (MW)	29	34	31	36	40	44	46	52	54	56

Demand	FORECAST									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Coincident Peak Demand (MW)	126	133	141	149	158	167	177	187	197	208
Off Peak Demand (MW)	60	64	69	74	79	85	91	98	105	112



Regression Analysis is used to forecast the energy requirements. Then, forecasted demands are determined by using the latest historical load factor (year 2018) for the succeeding forecast years.

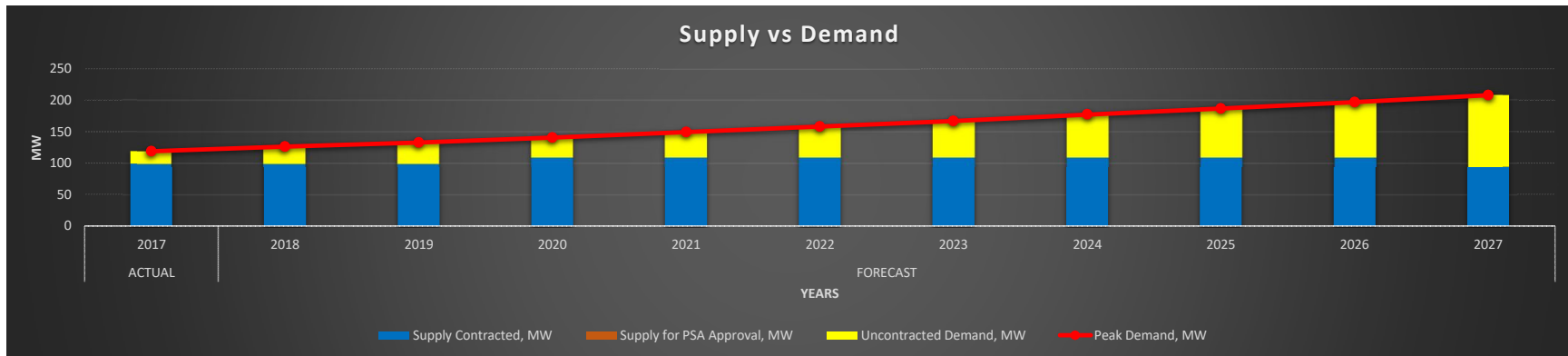
LOAD PROFILE AND LOAD DURATION CURVE



Brief highlight:
For Year 2018, the peak load was 119 MW, average load was about 76 MW.

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	119.000	126.293	132.548	140.823	149.219	158.129	167.083	177.339	186.939	197.100	208.151
Supply Contracted, MW	99	99	99	109	109	109	109	109	109	109	94
GNPower Mariveles	67	67	67	72	72	72	72	72	72	72	72
ANDA Power Corp.	10	10	10	15	15	15	15	15	15	15	15
Angeles Power, Inc.	22	22	22	22	22	22	22	22	22	22	22
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	20.000	27.293	33.548	31.823	40.219	49.129	58.083	68.339	77.939	88.100	114.151



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)
GNPower Mariveles	Power Partners Ltd. Co. and Pacific Manufacturing Resources, Inc.	65%	Mar-14	Feb-29	67 MW-72 MW	361,612.800	Base	Grid Connected	IPP	Active	Coal	600	
ANDA Power Corp.	Formosa Heavy Industries	100%	Nov-16	Sep-26	10 MW (5 years), 15 MW (next 5 years)	131,760.000	Base	Grid Connected	IPP	Active	Coal	82	
Angeles Power, Inc. (Calibu Power Plant)	Angeles Power, Inc.	(peaking supply)	Jan-17	Dec-26	22 MW		Peaking	Embedded	IPP	Active	Diesel/Bunker	27.5	

Both GNPower and ANDA provide baseload supply while Angeles Power Inc.'s Calibu Power Plant provides peaking supply which runs only when necessary.

DISTRIBUTION IMPACT STUDY



POWER SUPPLY PROCUREMENT PLAN

Jan	111.914	65.23	68,235.346	109.00	41,294.40	2.91	26,940.95		
Feb	118.727	68.94	72,733.967	109.00	41,294.40	9.73	31,439.57		
Mar	132.773	75.79	69,934.317	109.00	40,214.40	23.77	29,719.92		
Apr	133.319	76.84	78,239.433	109.00	41,294.40	24.32	36,945.03		
May	141.867	79.35	85,624.479	109.00	40,934.40	32.87	44,690.08		
Jun	136.371	79.04	77,576.652	109.00	41,294.40	27.37	36,282.25		
Jul	139.387	77.38	72,134.502	109.00	40,934.40	30.39	31,200.10		
Aug	139.633	76.39	73,735.418	109.00	41,294.40	30.63	32,441.02		
Sep	131.956	74.85	75,124.225	109.00	41,294.40	22.96	33,829.82		
Oct	131.628	74.76	79,705.348	109.00	40,934.40	22.63	38,770.95		
Nov	126.544	72.98	76,578.344	109.00	41,294.40	17.54	35,283.94		
Dec	129.979	73.60	71,254.326	109.00	40,934.40	20.98	30,319.93		
2024									
Jan	120.385	70.16	72,296.758	109.00	41,294.40	11.38	31,002.36		
Feb	127.870	74.27	77,063.140	109.00	41,294.40	18.87	35,768.74		
Mar	142.870	78.76	74,096.853	109.00	40,214.40	33.87	33,882.45		
Apr	143.079	82.51	82,896.296	109.00	41,294.40	34.08	41,601.90		
May	152.239	85.17	90,720.904	109.00	40,934.40	43.24	49,786.50		
Jun	146.451	84.89	82,194.065	109.00	41,294.40	37.45	40,899.66		
Jul	149.689	83.25	76,427.994	109.00	40,934.40	40.69	35,493.59		
Aug	150.092	82.26	78,124.198	109.00	41,294.40	41.09	36,829.80		
Sep	141.826	80.59	79,595.668	109.00	41,294.40	32.83	38,301.27		
Oct	141.481	80.50	84,449.462	109.00	40,934.40	32.48	43,515.06		
Nov	136.045	78.50	81,136.338	109.00	41,294.40	27.04	39,841.94		
Dec	139.723	79.27	75,495.430	109.00	40,934.40	30.72	34,561.03		
2025									
Jan	129.711	75.04	76,524.880	109.00	41,294.40	20.71	35,230.48		
Feb	137.953	79.56	81,570.013	109.00	41,294.40	28.95	40,275.61		
Mar	148.686	87.49	78,430.249	109.00	40,574.40	39.69	37,855.85		
Apr	153.806	88.11	87,744.309	109.00	41,294.40	44.81	46,449.91		
May	163.625	91.40	96,026.523	109.00	40,934.40	54.62	55,092.12		
Jun	157.526	90.66	87,001.009	109.00	41,294.40	48.53	45,706.61		
Jul	161.009	89.04	80,897.722	109.00	40,934.40	52.01	39,963.32		
Aug	161.596	88.06	82,693.125	109.00	41,294.40	52.60	41,398.73		
Sep	152.679	86.26	84,250.651	109.00	41,294.40	43.68	42,956.25		
Oct	152.320	86.19	89,388.308	109.00	40,934.40	43.32	48,453.91		
Nov	146.497	83.97	85,881.423	109.00	41,294.40	37.50	44,587.02		
Dec	150.446	84.88	79,910.619	109.00	40,934.40	41.45	38,976.22		
2026									
Jan	139.875	80.47	80,667.544	109.00	41,294.40	30.88	39,373.14		
Feb	148.958	85.45	85,985.795	109.00	41,294.40	39.96	44,691.39		
Mar	166.129	93.98	82,676.060	109.00	40,214.40	57.13	42,461.66		
Apr	165.488	94.34	92,494.335	109.00	41,294.40	56.49	51,199.94		
May	176.020	98.08	101,224.906	109.00	40,934.40	67.02	60,290.51		
Jun	169.592	97.09	91,710.797	109.00	41,294.40	60.59	50,416.40		
Jul	173.343	95.49	85,277.110	109.00	40,934.40	64.34	44,342.71		
Aug	174.141	94.52	87,169.706	109.00	41,294.40	65.14	45,875.31		
Sep	164.511	92.58	88,811.548	109.00	41,294.40	55.51	47,517.15		
Oct	164.137	92.52	94,227.333	109.00	40,934.40	55.14	53,292.93		
Nov	157.894	90.06	90,530.602	94.00	30,134.40	63.89	60,396.20		
Dec	162.139	91.13	84,236.570	94.00	30,134.40	68.14	54,102.17		
2027									
Jan	151.023	86.29	85,052.226	94.00	30,134.40	57.02	54,917.83		
Feb	161.046	91.78	90,659.550	94.00	30,134.40	67.05	60,525.15		
Mar	179.445	100.95	87,169.915	94.00	30,134.40	85.45	57,035.52		
Apr	178.286	101.01	97,521.862	94.00	30,134.40	84.29	67,387.46		
May	189.588	105.22	106,726.983	94.00	30,134.40	95.59	76,592.58		
Jun	182.812	103.96	96,695.735	94.00	30,134.40	88.81	66,561.33		
Jul	186.855	102.39	89,912.344	94.00	30,134.40	92.86	59,777.94		
Aug	187.897	101.45	91,907.813	94.00	30,134.40	93.90	61,773.41		
Sep	177.483	99.35	93,638.897	94.00	30,134.40	83.48	63,504.50		
Oct	177.095	99.30	99,349.056	94.00	30,134.40	83.10	69,214.66		

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Nov	170.392	96.58	95,451.391	94.00	30,134.40	76.39	65,316.99		
Dec	174.965	97.83	88,815.246	94.00	30,134.40	80.96	58,680.85		
2028									
Jan	163.267	91.85	89,544.347	94.00	30,134.40	69.27	59,409.95		
Feb	174.342	97.69	88,679.888	94.00	30,134.40	80.34	58,545.49		
Mar	194.080	107.45	87,475.081	94.00	30,134.40	100.08	57,340.68		
Apr	192.325	107.51	100,063.261	94.00	30,134.40	98.32	69,928.86		
May	204.462	112.00	109,837.329	94.00	30,134.40	110.46	79,702.93		
Jun	197.315	110.66	108,034.652	94.00	30,134.40	103.32	77,900.25		
Jul	201.680	108.98	105,289.687	94.00	30,134.40	107.68	75,155.29		
Aug	203.004	107.98	104,869.185	94.00	30,134.40	109.00	74,734.79		
Sep	191.725	105.75	104,783.785	94.00	30,134.40	97.72	74,649.39		
Oct	191.324	105.69	101,222.014	94.00	30,134.40	97.32	71,087.61		
Nov	184.118	102.80	101,576.202	94.00	30,134.40	90.12	71,441.80		
Dec	189.054	104.13	99,298.480	94.00	30,134.40	95.05	69,164.08		