## **NAME OF DU**

### 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**

Brief description of DUs Franchise including among others the DUs status of operation and performance, customer count and household energization level

**Number of Customer Connections in Franchise** 

MERALCO secured its franchise through Republic Act No. 9209. Its area is 9,685 km2 and covers the whole of Metro Manila, the whole provinces of Bulacan, Cavite and Rizal, and portions of the provinces of Laguna, Quezon, Batangas and Pampanga. About 27% of Philippine population is located in MERALCO's franchise and about 99% of households have already been energized.

### DU's Franchise MAP



	FORECAST											
2020	2021	2022	2023	2024	2025	2026	2027	2028				
6,542,429	6,785,147	7,037,943	7,300,907	7,574,637	7,859,887	8,157,765	8,470,376	8,804,668				
542,204	558,321	575,173	592,713	611,007	630,163	650,355	671,987	696,557				
10,012	10,066	10,129	10,199	10,275	10,364	10,465	10,588	10,769				
4,851	4,914	4,981	5,052	5,126	5,206	5,291	5,388	5,514				

8,505,620

1.070

8,823,877

1.083

9,158,339

1.095

9,517,508

1.110

8,201,046

1.059

Total (Captive Customers)

Contestable Customers switched to RES\*

Residential

Commercial

Industrial

Others

Total energy sales excluding wheeled energy from generator wheeling customers reached 43,509 GWh, up 5.1% from its 2017 level.

ACTUAL

2018

6,085,023

6,611,588

511,910

9,920

4,735

935

2019

6,309,219

6,850,717

526,747

9,960

4,791

962

7,099,496

976

7,358,448

999

7,628,226

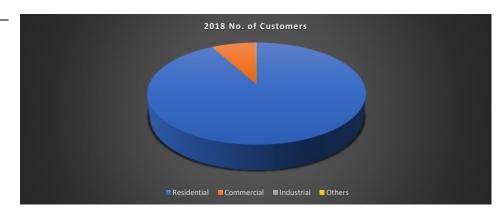
1.021

7,908,871

1.039

The increase in consumption was driven by the non-residential segment, with commercial and industrial customer classes growing at 5.1% and 6.7%, respectively. Commercial sales growth was driven by the (i) real estate sub-sector due to office space take up by IT-BPM and offshore gaming industry, (ii) retail trade with ramp-up of existing mixed-use malls, and (iii) hotels due to steady increase in foreign tourism and significant growth from domestic tourism. Industrial sales growth was driven by manufacturers of semiconductors, rubbers and plastics, and food and beverage.

Residential sales on the other hand, registered a modest growth of 3.8% with the ramp-up of existing customers and newly energized accounts. Residential customer base grew by 4.7% in 2018.



<sup>\*</sup>Includes all RESes

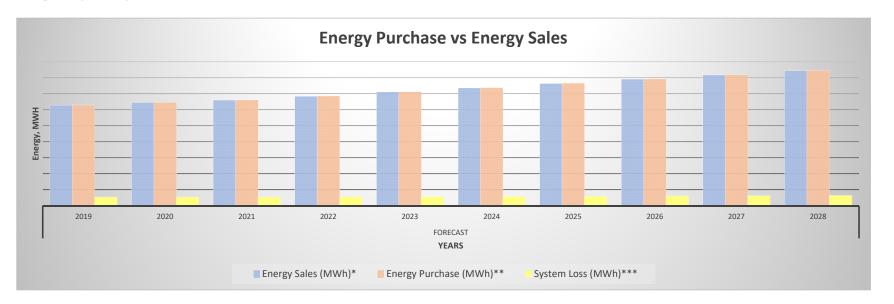
# **ENERGY SALES AND PURCHASE**

CAPTIVE ENERGY SALES AND		HISTORICAL								
PURCHASE	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Energy Sales (MWh)*	27,274,572	29,976,164	30,313,930	32,471,112	30,992,650	27,704,081	29,037,225	31,622,243	30,645,439	30,562,158
Energy Purchase (MWh)**	27,346,292	30,050,680	30,380,008	32,528,644	31,050,311	27,760,777	29,093,729	31,681,130	30,705,248	30,623,370
System Loss (MWh)***	2,647,391	2,650,471	2,410,674	2,463,681	2,508,944	2,407,812	2,534,635	2,686,507	2,601,313	2,619,039
	_	_	_	_	-	30,168,589	31,628,364	34,367,637	33,306,561	33,242,409

CAPTIVE ENERGY SALES AND		FORECAST									
PURCHASE	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Energy Sales (MWh)*	31,372,267	32,225,666	32,961,942	34,206,514	35,527,332	36,788,029	38,187,745	39,517,539	40,823,114	42,139,612	
Energy Purchase (MWh)**	31,435,147	32,290,007	33,027,778	34,274,525	35,597,564	36,860,407	38,262,317	39,594,235	40,901,877	42,220,517	
System Loss (MWh)***	2,705,420	2,715,608	2,727,427	2,763,382	2,797,814	2,883,355	2,970,769	3,055,385	3,137,727	3,223,139	
	34 140 567	35 005 616	35 755 205	37 037 908	38 395 378	39 743 762	41 233 N87	42 649 620	44 039 604	45 443 656	

<sup>\*</sup>Energy Sales excludes company use and generator wheeling

<sup>\*\*\*</sup>Figures represent System Loss of MERALCO NSI (inclusive of Contestable Customers)



<sup>\*\*</sup>Energy Purchase excludes System Loss

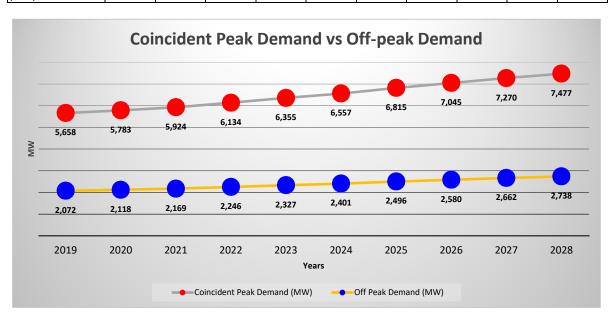
From 2019 to 2028, total energy sales growth, inclusive of contestable energy sales, is expected to return to long-run historical average following the effects of a high-income, low-price environment in 2016. Sales growth in the next ten years will be driven by moderate economic growth and addition to the customer base.

The increase in consumption though may be tempered by customer responses to public policies on the promotion of RE resources and EE measures. Customers that have their own solar PV installations draw less energy from the distribution utility. With the continued promotion of RE, growth of such customers is expected to hold back energy sales growth for MERALCO. Similarly, EE measures have the effect of reducing MERALCO's energy sales. About 79% of large commercial and industrial customers in MERALCO can readily comply with target energy consumption reductions provided in the Energy Efficiency and Conservation Act.

# **CAPTIVE DEMAND**

Canting Domand	HISTORICAL									
Captive Demand	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coincident Peak Demand (MW)	4,910	5,374	5,283	5,633	5,928	5,195	5,298	5,687	5,400	5,506
Off Peak Demand (MW)	808	1,881	1,865	1,845	2,053	1,731	1,563	1,964	2,150	2,016

Captive Demand	FORECAST									
Captive Demand	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Coincident Peak Demand (MW)	5,658	5,783	5,924	6,134	6,355	6,557	6,815	7,045	7,270	7,477
Off Peak Demand (MW)	2,072	2,118	2,169	2,246	2,327	2,401	2,496	2,580	2,662	2,738



# Historical Data (2009 - 2018):

Coincident Peak Demand - based on 2019 DDP Submission

Off Peak Demand - minimum value derived from actual hourly captive demand

## Forecast Demand (2019 - 2028):

Coincident Peak Demand - based on forecasted captive demand assuming total franchise demand growth rate of 2.76% and migration rate of contestable costumers from 2013 - 2018

Off Peak Demand - prorated using the ratio Off Peak Demand to Coincident Peak Demand of 2018 actual data

# SUPPLY MIX VS DEMAND AND THE OPTIMAL SUPPLY

Comple Dominal	ACTUAL					FORE	ECAST				
Supply Demand	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Peak Demand <sup>[a]</sup> , MW	5,506	5,658	5,783	5,924	6,134	6,355	6,557	6,815	7,045	7,270	7,477
Supply Contracted, MW	5,175	5,300	3,372	3,137	3,137	3,137	2,733	2,733	1,178	1,178	640
Baseload Supply	3,330	3,835	2,255	2,235	2,385	2,475	1,875	1,875	775	775	455
Quezon Power Philippines Ltd	460	460	460	460	460	460	460	460			
SEM-Calaca Power Corporation	250										
Masinloc Power Partners Co. Ltd	260	260									
Therma Luzon Inc Pagbilao Plant	250	250									
San Miguel Energy Corp Sual Plant	330	330									
Panay Energy Development Corporation [b]	70	70	70								
San Buenaventura Power Ltd. Co.		455	455	455	455	455	455	455	455	455	455
First Gas Power Corporation (FGPC – Sta. Rita) [Baseload]	640	840	710	740	840	900	640	640			
FGP Corp. (FGP – San Lorenzo) [Baseload]	320	420	350	370	420	450	320	320	320	320	
First NatGas Power Corporation (FNPC - San Gabriel) [Baseload]	210	210	210	210	210	210					
South Premiere Power Corp Ilijan Plant [Baseload]	540	540									
Mid-merit and Peaking Supply	1,845	1,465	1,117	902	752	662	858	858	403	403	185
First Gas Power Corporation (FGPC – Sta. Rita) [Mid-merit]	455	255	385	355	255	195	455	455			
FGP Corp. (FGP – San Lorenzo) [Mid-merit]	218	118	188	168	118	88	218	218	218	218	
First NatGas Power Corporation (FNPC - San Gabriel) [Mid-merit]	204	204	204	204	204	204					
South Premiere Power Corp Ilijan Plant [Mid-merit]	525	525									
Therma Mobile Inc. <sup>[c]</sup>	200	165	165								
Panay Power Corp. (PPC)	45										
Toledo Power Corp. (TPC)	28										
1590 Energy Corp. (1590EC)	170										
Millennium Energy, Inc. (MEI) [d]		73									
Solar Philippines Tanauan Corporation			50	50	50	50	50	50	50	50	50
PowerSource First Bulacan Solar, Inc.		50	50	50	50	50	50	50	50	50	50
Solar Philippines Tarlac Corporation		75	75	75	75	75	85	85	85	85	85
Supply for PSA Approval, MW	0	0	50	50	50	50	50	50	50	50	50
Solar Philippines Tarlac Corporation (Phase 2) [e]			50	50	50	50	50	50	50	50	50
Supply for CSP, MW	0	0	1,900	2,000	2,100	2,300	3,000	3,200	5,100	5,100	5,900
CSP for Baseload Supply	0	0	1,200	1,200	1,200	1,200	1,900	2,100	3,400	3,400	3,900
Baseload (1,200 MW) [CSP Schedule: 2019]			1,200	1,200	1,200	1,200	700	900	1,200	1,200	1,200
Baseload (1,200 MW) [CSP Schedule: 2019]							1,200	1,200	1,200	1,200	1,200
Baseload (1,000 MW) [CSP Schedule: 2020]							,	<u> </u>	1,000	1,000	1,000
Baseload (500 MW) [CSP Schedule: 2020]									,	,	500
CSP for Mid-merit and Peaking Supplies	0	0	700	800	900	1,100	1.100	1.100	1,700	1,700	2.000
Mid-merit (500 MW) [CSP Schedule: 2019]			500	500	500	500	500	1,100	1,700	1,700	2,000
Mid-merit (600 MW) [CSP Schedule: 2020]			300	300	300	300	600	600	600	600	600
Mid-merit (600 MW) [CSP Schedule: To Be Determined]							000	000	600	600	600
Peaking (200 MW) for 2020 [CSP Schedule: 2019] [f]		<b>—</b>	200		<b>—</b>			<b>+</b>	000	000	000

Peaking (800 MW) for 2028 [CSP Schedule: To Be Determined] [f]  Uncontracted Demand [g], MW	331	358	461	737	846	867	773	832	717	941	800 <b>887</b>
Peaking (500 MW) for 2027 [CSP Schedule: To Be Determined] [f]										500	
Peaking (500 MW) for 2026 [CSP Schedule: To Be Determined] [f]									500		
Peaking (500 MW) for 2025 [CSP Schedule: To Be Determined] [f]								500			
Peaking (600 MW) for 2023 [CSP Schedule: To Be Determined] [f]						600					
Peaking (400 MW) for 2022 [CSP Schedule: To Be Determined] [f]					400						
Peaking (300 MW) for 2021 [CSP Schedule: To Be Determined] [f]				300							

<sup>[</sup>a] Forecasted captive demand figures assumes a contestable customer migration under a voluntary RCOA regime.

<sup>[</sup>g] Actual uncontracted demand represents difference between supply and captive demand, and may not be consistent with actual WESM purchases of Meralco.

Projected uncontracted demand (2019 to 2028) depends heavily on RCOA implementation. Such uncontracted demand may be sourced from WESM, depending on prevailing prices.

These uncontracted demand will only occur during the annual peak demand.



<sup>[</sup>b] Power supply agreement with PEDC is subject of request for CSP exemption pursuant to the DOE CSP Advisory dated August 16, 2019.

<sup>&</sup>lt;sup>[c]</sup> Power supply agreement with TMO implemented starting April 26, 2019.

<sup>&</sup>lt;sup>[d]</sup> Power supply agreement with MEI implemented starting April 26, 2019.

<sup>[</sup>e] Indicative SCOD assumes approval by ERC on July 2019.

<sup>&</sup>lt;sup>[f]</sup> Contracted annually for summer months with term of up to 5 months only (IPSAs).

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)
Quezon Power Philippines Ltd. Co.	Quezon Power Philippines Ltd. Co.	59.77%	May 2000	May 2025	460	2,408,557	Base	Grid Connected	Non- NPC/IPP	Running	Coal	511	460
First Gas Power Corporation (FGPC – Sta. Rita)	First Gas Power Corporation	75.39%	August 2000	August 2025	1,000	7,224,224	Base / Mid- merit	Grid Connected	Non- NPC/IPP	Running	Natural Gas	1,095	1,040
FGP Corp. (FGP – San Lorenzo)	FGP Corp.	73.33%	October 2002	October 2027	500	3,598,620	Base / Mid- merit	Grid Connected	Non- NPC/IPP	Running	Natural Gas	549	540
SEM-Calaca Power Corporation	SEM-Calaca Power Corporation	82.21%	December 2011	December 2018	250	1,800,363	Base	Grid Connected	Non- NPC/IPP	Running	Coal	600	570
Masinloc Power Partners Co, Ltd.	Masinloc Power Partners Co, Ltd.	53.75%	December 2012	December 2019	260	1,224,196	Base	Grid Connected	Non- NPC/IPP	Running	Coal	630	630
Therma Luzon Inc Pagbilao Plant	Therma Luzon Inc.	69.41%	December 2012	December 2019	250	1,520,024	Base	Grid Connected	Non- NPC/IPP	Running	Coal	764	764
San Miguel Energy Corp Sual Plant	San Miguel Energy Corp.	60.24%	December 2012	December 2019	330	1,741,300	Base	Grid Connected	Non- NPC/IPP	Running	Coal	1,294	1,294
South Premiere Power Corp Ilijan Plant	South Premiere Power Corp.	60.70%	December 2012	December 2019	1,065	5,662,653	Base / Mid- merit	Grid Connected	Non- NPC/IPP	Running	Natural Gas	1,271	1,200
Therma Mobile Inc.	Therma Mobile Inc.	14.77%	November 2013	June 2018	200	129,045	Peaking	Embedded	Non- NPC/IPP	Running	Bunker C/Diesel	242	200
Panay Power Corp. (PPC)	Global Business Power Corp. (GBPC) - PPC	0.00%	April 2016	February 2018	45	0	Peaking	Embedded	Non- NPC/IPP	Running	Bunker C/Diesel	92	79
Toledo Power Corp. (TPC)	Global Business Power Corp TPC	12.10%	April 2016	February 2018	28	5,040	Peaking	Embedded	Non- NPC/IPP	Running	Bunker C/Diesel	46	37
1590 Energy Corp. (1590EC)	1590 Energy Corp. (1590EC)	0.00%	April 2016	February 2018	170	0	Peaking	Grid Connected	Non- NPC/IPP	Running	Bunker C/Diesel	235	180
Panay Energy Development Corporation	Panay Energy Development Corporation	62.69%	February 2017	February 2037	70	384,409	Base	Grid Connected	Non- NPC/IPP	Running	Coal	150	150
First NatGas Power Corporation (FNPC – San Gabriel)	First NatGas Power Corporation (FNPC)	60.21%	July 2018	February 2024	414	1,095,952	Base / Mid- merit	Grid Connected	Non- NPC/IPP	Running	Natural Gas	430	414
Philippine Power and Development Company (Philpodeco)	Philippine Power and Development Company (Philpodeco)		May 2014	May 2019		3,755		Embedded	Non- NPC/IPP	Running	Hydro	1	1

<sup>\*</sup> Capacity Factor values are based on 2018 actual data.

<sup>\*\*</sup> Contracted Energy are based on the 2018 actual energy delivered to Meralco by the existing contracts

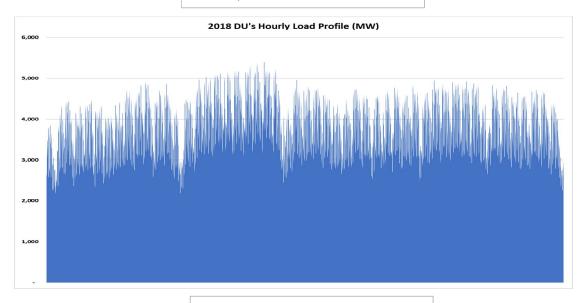
<sup>\*\*\*</sup> Based on Installed and Net Dependable Capacities from ERC Resolution no.04, Series of 2018

### Brief Description:

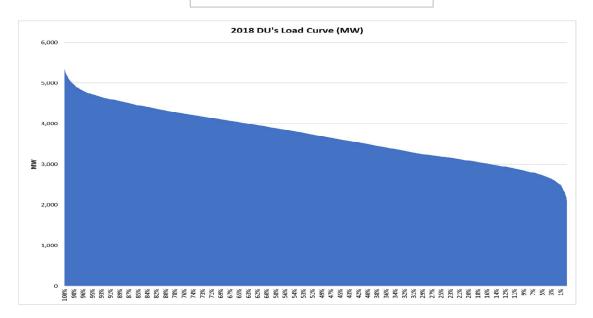
The supply outlook for MERALCO during the long-term 2019-2028 is the result of its franchise demand growth rate, estimated transfer of contestable customers due to RCOA implementation and expiration of its existing PSAs and PPAs power supply contracts. Reduction in MERALCO's contracted capacities starts on 2019 wherein its PSA with SEM-Calaca will expire. The remaining PSAs with AES-Masinloc, SMEC-Sual, SPPC-Ilijan and TLI-Pagbilao will all expire by end of 2019, while its PPAs with FGPC-Sta Rita and QPPL will terminate on 2025 and that with FGP-San Lorenzo on 2027. The PSAs with First NatGas Power Corporation (414 MW, implemented starting 2018), San Buenaventura Power Ltd. Co. (455 MW, to be implemented starting 2019), solar Philippines Tanlauan Corporation (50 MW), PowerSource First Bulacan Solar (50 MW, to be implemented starting 2019), and Solar Philippines Tarlac Corporation (85 MW, to be implemented starting 2019) were all granted provisional authority/interim relief. Note that for 2019, IPSAs for Therma Mobile, Inc. - TMO (165 MW) and Millennium Energy, Inc. - MEI (73 MW), both implemented starting May 2019, were granted CSP exemptions and still awaiting for ERC approval. In addition to these, Solar Philippines Tarlac Corporation - Phase 2 (50 MW, to be implemented starting 2020) is also pending ERC approval.

# LOAD PROFILE AND LOAD DURATION CURVE

Captive Demand Load Profile



Captive Demand Load Duration Curve



## Brief highlight:

MERALCO's captive peak demand in 2018 reached 5,506 MW, 2.0% higher than the 5,400 MW in the previous year. According to the 2018 load curve, MERALCO captive requirement are as follows: Baseload - 3,304 MW (60% of captive peak demand)

Mid-Merit - 826 MW (15% of captive peak demand)

Peaking - 1,376 MW (25% of captive peak demand, inclusive of 10% WESM)

# **DISTRIBUTION IMPACT STUDY**

## **Sub-transmission Capacity Expansion**

Considering the forecasted 2.761% compounded average annual load growth from 2019 to 2028, thirty-one (31) delivery point power transformers and twenty-five (25) subtransmission lines are expected to be overloaded or critically-loaded during single line/bank outage contingency (N-1). To address these deficiencies, twenty (20) delivery point substation projects and fifteen (15) subtransmission line construction/uprating projects are proposed.

Likewise, to improve the reliability of supply to the existing and proposed distribution substations, seventeen (17) projects involving re-termination, construction of second or alternate subtransmission feed and reconfiguration of distribution substation shall be implemented. These projects would provide N-1 and prevent prolonged interruptions during outage. Also, three (3) projects involving development of switching station shall be implemented to provide adequate capacity to serve large load applications in Bulacan, Cavite and Laguna.

Further, installation of capacitor bank at delivery point substation shall be implemented to improve the system efficiency of subtransmission system.

## 2019-2028 Subtransmission Projects

Project Name	Calendar	Objective to Comply	Brief Description				
1 Toject Hume	Year	Objective to comply	CONSTRUCTION OF A TOTAL OF Z.S KIII AND UPTALING				
Development of Calamba 230 kV-115 kV Delivery Point Substation	2019	To provide N-1 contingency to Calauan and Sta. Rosa Delivery Point Power Transformers and to relieve the overloading of Los Baños-Dila 115 kV Line.	of 3.4 km 115 kV lines using 2-795 MCM ACSR per phase to provide four (4) 115 kV outlets for Calamba delivery point substation. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and associated protection/control equipment and				
Construction of San Jose Delivery Point's 115 kV Lines	2019	To prevent the overloading of Balintawak-Bagbaguin, Balintawak-Diliman, Duhat-Marilao and Bagbaguin-Sitio Gitna 115 kV Lines and to unload the Duhat and Balintawak Delivery Point Power Transformers during N-1 contingency.	Construction of a total of 28.5 km 115 kV lines (two circuits) using 2-795 MCM ACSR per phase to cut-in the NGCP-San Jose Substation to Camarin-Novaliches 115 kV line. Installation of line terminations and associated protection/control equipment.				
Conjunctive MERALCO Project to the Installation of Zapote (Las Piñas) 5th 300 MVA Power Transformer	2019	To provide outlet for NGCP's Zapote 5th 300 MVA Power Transformer and to serve the increasing power demand in Sector 3.	Construction of a total of 0.4 km 115 kV line using 2-795 MCM ACSR per phase and 2-1200 mm <sup>2</sup> Cu, XLPE per phase from MERALCO's Zapote 115 kV Substation to NGCP's Zapote 5th 300 MVA Power Transformer.				
Cut-in of TMC 2 Substation	2019	To enhance the reliability of supply and to provide N-1 contingency to TMC 2 Substation by providing alternate 115 kV feed.	Construction of 0.1 km 115 kV line extension using 2-795 MCM ACSR per phase and installation of line termination and associated protection/control equipment.				
Construction of New Teresa-Tagbac 115 kV Line	To improve the reliability of supply to serve		Construction of 3.7 km 115 kV line using 1-795 MCM ACSR per phase. Installation of line terminations and associated protection/control equipment.				

		T	TCONSTRUCTION OF A LOCAL OF 7.0 KIN 113 KV IIIIE
Construction of San Mateo-Diliman- Marikina 115 kV Line	2019	To enhance the reliability of supply and to provide alternate 115 kV feed to San Mateo and Parang Substations.	using 2-795 MCM ACSR per phase from San Mateo Substation to the tapping point at Diliman leg of Diliman-Kamuning-Santolan 115 kV Line and from Marikina Substation to the tapping point at Diliman leg of Diliman-Kamuning-Santolan line. Installation of line
Reliability Improvement of Mahabang Parang- Batangas City 69 kV Lines	2019	To improve the reliability of supply to serve Batangas City Substation and large industrial plant in Batangas City.	Installation of 709 meters 69 kV line using 1-795 MCM ACSR per phase and associated steel poles along Mahabang Parang-Batangas City 69 kV Lines 1 & 2.
Construction of Parang-Cubao 115 kV Line (Formerly Construction of Parang-Marikina 115 kV Line)	2020	To enhance the reliability of supply and to strengthen the Sector 2 115 kV System.	Construction of 8.0 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line terminations and associated protection/control equipment.
Expansion of Amadeo 230 kV-115 kV Delivery Point Substation	2020	To provide N-1 contingency to Amadeo and Dasmariñas Delivery Point Power Transformers and to augment the capacity in Cavite Sector.	Installation of one (1) 300 MVA, 220 kV-115 kV-13.8 kV power transformer, associated protection/control equipment and metering facility.
Reliability Improvement of LIIP Substation	2020	To improve the reliability of supply to serve LIIP Substation.	Installation of 115 kV gas insulated switchgear (GIS) at LIIP Substation.
Uprating of TMC 2- FCIE 115 kV Line	2020	To provide additional capacity to prevent the overloading of TMC 2-FCIE 115 kV Line.	Uprating of 15.3 km 115 kV line using 1-795 MCM ACCR per phase.
Reliability Improvement of Malinta Substation	2020	To improve the reliability of supply to serve Malinta Substation.	Installation of 115 kV gas insulated switchgear (GIS) at Malinta Substation.
Rebuilding of Biñan- San Pedro 115 kV Line	2020	To prevent the overloading of Biñan-San Pedro 115 kV Line during N-1 contingency and to provide switching flexibility between Sector 3 and Laguna Sector.	Rebuilding of 4.3 km 115 kV line using 2-795 MCM ACSR per phase to uprate the Biñan-San Pedro Line.

Rebuilding Portion of Saog-Veinte Reales- Malinta 115 kV Lines	2020	To prevent the overloading of Saog-Veinte Reales and Veinte Reales-Malinta 115 kV Lines during N-1 contingency.	Rebuilding of a total of 8.1 km 115 kV lines using 1-795 MCM ACCR per phase.
Construction of CND- Alagao 69 kV Line 2	2020	To provide additional outlet to Alagao Switching Station to serve the large industrial plants in Bulacan area and to relieve the overloading of CND-Alagao 69 kV Line 1 during N-1 contingency.	Construction of 21.0 km 69 kV line using 1-795 MCM ACSR per phase. Installation of associated protection/control equipment.
Installation of Malolos 3rd 150 MVA, 230 kV-69 kV Power Transformer	2020	To provide N-1 contingency to Malolos Delivery Point Power Transformers and to augment the capacity in Bulacan Sector.	Installation of one (1) 150 MVA, 220 kV-69 kV-13.8 kV power transformer and associated protection/control equipment.
Expansion of Tayabas 230 kV-115 kV Delivery Point Substation	2020	To provide N-1 contingency to the lone Tayabas Delivery Point Power Transformer.	Installation of one (1) 300 MVA, 230 kV-115 kV-13.8 kV power transformer and associated protection/control equipment at Tayabas delivery point substation. Uprating of a total of 2.4 km 115 kV lines to 2-795 MCM ACSR per phase.
Conjunctive Works to Expansion of CND Delivery Point with 3rd 230 kV-69 kV Power Transformer	2020	To provide outlet for NGCP's CND (San Rafael) 3rd 230 kV-69 kV Power Transformer and to augment the capacity in Bulacan Sector.	Installation of power transformer termination, associated protection/control equipment and metering facility.
Development of Alagao and Casalat 69 kV Switching Station	2020	To strengthen the 69 kV System and improve the reliability of supply to serve large industrial plants in Bulacan Sector.	(Akle) and Casalat 69 kV switching stations and installation of line terminations and associated protection/control equipment.  Construction of a total of 10.3 km 69 kV lines using 1-795 MCM ACSR per phase and acquisition of ECC's 14.3 km San Miguel-ECC
Construction of PAGCOR 1-CBP1A 115 kV Line	2020	115 kV Line during N-1 contingency and to enhance the reliability of supply and augment the capacity to serve large load applications in Central Business Park 1-A and PAGCOR Entertainment City by providing alternate 115 kV outlet to PAGCOR 1 and	Construction of 2.4 km 115 kV line using 1-795 MCM ACCR per phase and 2-1200 mm <sup>2</sup> Cu, XLPE per phase. Reconductoring of 0.6 km 115 kV line using 1-795 MCM ACCR per phase.
Construction of BF Parañaque-NAIA 3- Malibay 115 KV Line	2020	To prevent the overloading of Zapote-PAGCOR 1, PAGCOR 1-Malibay and Sucat-Sunvalley 115 kV Lines during N-1 contingency.	Construction of a total of 10.9 km 115 kV line using 2-795 MCM ACSR per phase and 2-1200 mm <sup>2</sup> Cu, XLPE per phase.

Installation of 115 kV Capacitor Bank at Duhat Substation	2020	To improve the system efficiency of Sector 1 115 kV System.	Installation of one (1) 50 MVAR three-phase capacitor bank and associated protection/control equipment.
Development of Antipolo 230 kV-115 kV Delivery Point Substation	2020	To provide N-1 contingency to Dolores Delivery Point Power Transformers and Dolores-Cainta 115 kV Line and to augment the capacity in Sector 2.	Construction of a total of 15.4 km 115 kV lines (two circuits) using 2-795 MCM ACSR per phase to provide two (2) outlets for Antipolo Delivery Point Substation. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers, and associated protection/control equipment.
Development of SMYAC 115 kV Switching Station	2021	To enhance the reliability of supply to serve large industrial plant in Cavite area	Development of 115 kV switching station and construction of approximately 0.4 km 115 kV line using 2-795 MCM ACSR per phase.
Acquisition of Pililla 115 kV Switching Station	2021	To undertake the operation and maintenance of 115 kV facilities of Alternergy's Pililla Switching Station since it become part of MERALCO's distribution system.	Acquisition of Alternergy's Pililla 115 kV switching station and its 6.5 km 115 kV outlet.
Rebuilding Portion of Amadeo-Gateway- FCIE 115 kV Line	2021	To relieve the overloading of the portion of Amadeo-Gateway-FCIE 115 kV Line during N-1 contingency.	Rebuilding of 4.3 km 115 kV line using 2-795 MCM ACSR per phase to uprate the portion of Amadeo-Gateway-FCIE Line.
Rebuilding of North Port-Tegen 115 kV Line	2021	To prevent the overloading of North Port- Tegen 115 kV Line during N-1 contingency.	Rebuilding of 5.6 km 115 kV line using 2-795 MCM ACSR per phase.
Construction of Araneta- Mandaluyong-SM Shangrila 115 kV Line	2021	To provide N-1 contingency and likewise enhance the reliability of the 115 kV system in Sector 2.	Construction of 6.8 km 115 kV line using 2-795 MCM ACSR per phase.
Construction of Gardner-Pamplona- San Pedro 115 kV Line	2021	To prevent the overloading of Sucat-Filinvest 115 kV Line and Zapote-Pamplona Uno 115 kV Lines during N-1 contingency.	Construction of 5.0 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line termination and associated protection/control equipment.

Construction of Amadeo-Silang 115 kV Line	2021	To provide additional outlet to Amadeo Delivery Point Substation to serve the increasing power demand in Cavite area and to prevent the overloading of Dasmariñas-Silang and Amadeo-Tagaytay West 115 kV Lines during N-1 contingency.	Construction of 7.5 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line terminations and associated protection/control equipment.
Reliability Improvement of Baliuag Substation	2021	To improve the reliability of supply to serve Baliuag Substation.	Installation of associated protection/control equipment at Baliuag Substation.
Development of FBGC 230 kV-115 kV Delivery Point Substation	2021	To provide N-1 contingency to Zapote and Sucat Delivery Point Power Transformers and to augment the capacity in Sector 3.	Construction of a total of 5.7 km 115 kV lines using 2-795 MCM ACSR per phase and 2-1200 mm <sup>2</sup> XLPE per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and 115 kV gas insulated switchgear (GIS).
Development of Manila (Navotas) 230 kV-115 kV Delivery Point Substation	2022	To prevent the overloading of Paco Delivery Point Power Transformers and further unload the Duhat and Balintawak Delivery Point Power Transformers during N-1 contingency and to augment the capacity in Sector 1.	Construction of a total of 6.0 km 115 kV lines using 2-795 MCM ACSR per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and 115 kV gas insulated switchgear (GIS).
Construction of Dolores-Bridgetowne- Manggahan-Marikina 115 kV Line	2022	To enhance the reliability of supply and to strengthen the Sector 2 115 kV System.	Construction of 0.5 km 115 kV line using 2-795 MCM ACSR per phase.
Reliability Improvement of Meycauayan Substation	2022	To improve the reliability of supply to serve Meycauayan Substation.	Installation of associated protection/control equipment at Meycauayan Substation.
Reliability Improvement of San Miguel Substation	2022	To improve the reliability of supply to serve San Miguel Substation.	Installation of associated protection/control equipment at San Miguel Substation.
Development of Sta. Rita 230 kV-13.8 kV Delivery Point Substation	2022	To provide adequate capacity to serve large load application in Batangas area.	Installation of one (1) 50 MVA, 230 kV-13.8 kV power transformer and associated protection/control equipment.

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Development of Plaridel 230 kV-69 kV Delivery Point Substation	2023	To provide N-1 contingency to Malolos Delivery Point Power Transformers and to augment the capacity to Bulacan Sector.	Construction of a total of 3.7 km 69 kV lines using 1-795 MCM ACSR per phase. Installation of one (1) 300 MVA, 230 kV-69 kV-13.8 kV power transformer and associated protection/control equipment.
Construction of Sto. Tomas-San Pablo 115 kV Line	2023	To enhance the reliability of supply to Sto. Tomas and San Pablo Substations by providing alternate feed through looping of these substations.	Construction of 26.0 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line terminations and associated, protection/control equipment.
Construction of Island Cove-Maple Grove 115 kV Line	2023	To enhance the reliability of supply and to provide alternate 115 kV feed to Island Cove Substation.	Construction of a total of 13.2 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line termination and associated protection/control equipment.
Rebuilding of Dila-Los Baños and Portion of Los Baños-Calamba Delivery Point 115 kV Lines	2023	To prevent the overloading of Dila-Los Baños and Los Baños-Calamba Delivery Point Substation 115 kV Lines during N-1 contingency.	Rebuilding of a total of 12.0 km 115 kV lines using 1-795 MCM ACCR per phase.
Expansion of Calamba 230 kV-115 kV Delivery Point Substation with 3 <sup>rd</sup> 300 MVA 230 kV-115 kV Power Transformer	2023	To provide N-1 contingency to Calamba Delivery Point Power Transformers.	Installation of one (1) 300 MVA, 230kV- 115kV-13.8kV power transformer, associated protection/control equipment and metering facility.
Installation of 2nd 300 MVA, 230 kV- 115kV Power Transformer at Tayabas Delivery Point Substation	2023	To provide operational flexibility and to ensure continuous adequacy of delivery point substation capacity in serving the increasing loads during N-1 contingency.	Replace 100 MVA, 230kV-115kV-13.8kV power transformer with 300 MVA, 230kV-115kV-13.8kV power transformer at Tayabas delivery point substation.
Development of LNPI 115 kV Switching Station	2023	To enhance the reliability of supply to serve large industrial plant in Laguna area.	Development of 115 kV switching station and construction of approximately 1.4 km 115 kV line using 2-795 MCM ACSR per phase.
Cut-in of Manggahan 115 kV-34.5 kV Substation	2023	To enhance the reliability of supply and to provide N-1 contingency to Manggahan Substation by providing alternate 115 kV feed.	Construction of 0.5 km 115 kV line using 2- 1200 mm <sup>2</sup> CU, XLPE per phase and rebuilding of 0.4 km 115 kV line using 1-795 MCM ACCR per phase.

Cut-in of Calamba 115 kV-34.5 kV Substation	2024	To enhance the reliability of supply and to provide N-1 contingency to Calamba 115kV-34.5kV Substation by providing alternate 115 kV feed.	Construction of 2.1 km and uprating of 2.1 km 115 kV lines using 2-795 MCM ACSR per phase for the cut-in of Calamba substation and installation of associated protection/control equipment.			
Re-termination of Masinag - Marikina and Santolan - Filinvest Activa 115 kV Lines	2024	To enhance the reliability of supply and to strengthen the Sector 2 115 kV System.	Construction of 0.1 km 115 kV line using 2-795 MCM ACSR per phase.			
Development of Pinamucan 230 kV- 69 kV Delivery Point Substation	2024	To prevent the overloading of Mahabang Parang Delivery Point Power Transformers during N-1 contingency and to augment the capacity in Batangas area.	Construction of 10.0 km 69 kV lines using 1-795 MCM ACSR per phase and 69 kV switchyard. Installation of two (2) 150 MVA, 230 kV-69 kV-13.8 kV power transformers and associated protection/control equipment.			
Development of Kawit 230 kV-115 kV Delivery Point Substation	2025	To provide N-1 contingency to Dasmariñas and Amadeo Delivery Point Power Transformers and to augment the capacity in Cavite Sector.	Construction of 8.0 km 115 kV line using 2-795 MCM ACSR per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and associated protection/control equipment.			
Cut-in of Gateway 115 kV-34.5 kV Substation	2025	To enhance the reliability of supply and to provide N-1 contingency to Gateway Substation by providing alternate 115 kV feed.	Construction of 0.5 km 115 kV line using 2- 795 MCM ACSR per phase to cut-in the Gateway substation to Amadeo-Gateway- FCIE 115 kV Line. Installation of line termination and associated protection/control equipment.			
Construction of Calauan-Pila 115 kV Line	2025	To enhance the reliability of supply and to provide N-1 contingency to Pila Substation by providing alternate 115 kV feed.	Construction of 11.0 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line termination and associated protection/control equipment.			
Development of Taguig 230 kV-115 kV Delivery Point Substation	2026	To provide N-1 contingency to Zapote, FBGC and Sucat Delivery Point Power Transformers and to augment the capacity in Sector 3.	Construction of a total of 14.0 km 115 kV lines using 2-795 MCM ACSR per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and 115 kV gas insulated switchgear (GIS).			
Loyola Heights 230 Arane VV-115 kV Delivery 2026 Trans		To provide N-1 contingency to Antipolo, Araneta and Dolores Delivery Point Power Transformers and to augment the capacity to Sector 2.	Construction of a total of 1.0 km 115 kV lines using 2-795 MCM ACSR per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and 115 kV gas insulated switchgear (GIS).			

Construction of CLIP- Pala-Pala 115 kV Line	2027	To enhance the reliability of supply to CLIP Substation by providing alternate 115 kV feed.	Construction of 9.5 km 115 kV line using 2-795 MCM ACSR per phase. Installation of line terminations and associated, protection/control equipment.			
Development of Lawang Bato 230 kV- 115 kV Delivery Point Substation	2027	To provide N-1 contingency to Manila (Navotas), Duhat and Balintawak Delivery Point Power Transformers and to augment the capacity in Sector 1.	Construction of a total of 7.0 km 115 kV lines using 2-795 MCM ACSR per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and 115 kV gas insulated switchgear (GIS).			
Development of Pasay 230 kV-115 kV Delivery Point Substation	2028	To prevent the overloading of Zapote, FBGC, Taguig and Sucat Delivery Point Power Transformers during N-1 contingency and to augment the capacity in Sector 3.	Construction of 4.0 km 115 kV lines using 2- 1200 Cu, XLPE per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and 115 kV gas insulated switchgear (GIS).			
Development of Nuvali 230 kV-115 kV Delivery Point Substation	2028	To provide N-1 contingency to Sta. Rosa and Calamba Delivery Point Power Transformers and to augment the capacity in Laguna Sector.	Construction of 5.6 km 115 kV line using 2-795 MCM ACSR per phase. Installation of two (2) 300 MVA, 230 kV-115 kV-13.8 kV power transformers and associated protection/control equipment.			

# **SCHEDULE OF CSP\***

	For CSP Proposed contract period		ntract period	Proposed schedule (MM/YYYY)							
Base / Mid-merit / Peaking	Demand (MW)	Energy (MWh)	Start Month and Year	End Month and Year	Publication of Invitation to Bid	Pre-bid Conference	Submission and Opening of Bids	Bid Evaluation	Awarding	PSA Signing	Joint Application to ERC
Baseload	1,200		26-Dec-2019	25-Dec-2029	12-Jul-2019	08-Aug-2019	09-Sep-2019	16-Sep-2019	16-Sep-2019	23-Sep-2019	27-Sep-2019
Baseload	1,200		26-Mar-2024	25-Mar-2044	15-Jul-2019	09-Aug-2019	10-Sep-2019	17-Sep-2019	17-Sep-2019	24-Sep-2019	30-Sep-2019
Mid-merit	500		26-Dec-2019	25-Dec-2024	16-Jul-2019	08-Aug-2019	11-Sep-2019	18-Sep-2019	18-Sep-2019	25-Sep-2019	01-Oct-2019
Peaking	200		26-Feb-2020	25-Jul-2020	4th Qtr 2019	TBD	TBD	TBD	TBD	TBD	TBD
Baseload**	1,000		26-Aug-2025	25-Aug-2045	1st Qtr 2020	TBD	TBD	TBD	TBD	TBD	TBD
Baseload**	500		26-Oct-2027	25-Oct-2047	1st Qtr 2020	TBD	TBD	TBD	TBD	TBD	TBD
Mid-merit**	600		26-Dec-2023	25-Dec-2044	1st Qtr 2020	TBD	TBD	TBD	TBD	TBD	TBD
Mid-merit**	600		26-Dec-2025	25-Dec-2046	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	300		26-Feb-2021	25-Jul-2021	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	400		26-Feb-2022	25-Jul-2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	600		26-Feb-2023	25-Jul-2023	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	500		26-Feb-2025	25-Jul-2025	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	500		26-Feb-2026	25-Jul-2026	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	500		26-Feb-2027	25-Jul-2027	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Peaking**	800		26-Feb-2028	25-Jul-2028	TBD	TBD	TBD	TBD	TBD	TBD	TBD

<sup>\*</sup> Dates indicated are indicative

<sup>\*\*</sup> Capacity and type of contract are subject to change depending on forecasted demand of captive customers, RPS and GEOP implementation, and RCOA migration.

# 10 Year Monthly Data

		Forecast		Contracted and F		Uncontracted De	mand and Energy	Committed for CSP			
Year	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			(111111)								
Jan	4,780	2,072	2,436,201	4,557.45	1,996,131.14	223	440,070				
Feb	5,016	2,402	2,728,957	4,557.45	2,195,647.31	459	533,310				
Mar	5,197	2,525	2,645,358	4,607.45	2,348,907.16	590	296,451				
Apr	5,489	2,242	2,911,025	4,607.45	2,576,902.53	882	334,122				
May	5,628	3,010	3,156,157	4,845.45	2,759,574.38	783	396,582				
Jun	5,658	2,499	3,021,979	4,845.45	2,724,435.45	813	297,544				
Jul	5,086	2,487	2,813,934	4,845.45	2,497,337.22	240	316,597				
Aug	5,001	2,543	2,886,431	4,845.45	2,416,123.38	156	470,307				
Sep	5,201	2,338	2,920,685	4,845.45	2,341,282.33	356	579,402				
Oct	5,230	2,951	3,001,139	5,227.45	2,482,687.06	3	518,452				
Nov	5,107	2,600	2,916,990	5,227.45	2,529,524.75	-	387,465				
Dec	4,959	2,257	2,705,318	5,227.45	2,340,186.85	-	365,131				
2020											
Jan	4,886	2,118	2,639,249	3,422.45	1,680,233	1,464	959,016	1,700	834,606		
Feb	5,127	2,456	2,785,453	3,422.45	1,545,711	1,705	1,239,742	1,700	767,786		
Mar	5,312	2,581	2,699,944	3,422.45	1,739,736	1,890	960,208	1,900	965,828		
Apr	5,611	2,292	2,970,856	3,422.45	1,992,559	2,188	978,296	1,900	1,106,186		
May	5,753	3,077	3,220,781	3,257.45	1,995,755	2,496	1,225,026	1,900	1,164,081		
Jun	5,783	2,555	3,084,445	3,257.45	1,956,881	2,526	1,127,564	1,900	1,141,407		
Jul	5,199	2,542	2,872,608	3,257.45	1,792,558	1,941	1,080,049	1,900	1,045,561		
Aug	5,112	2,599	2,946,748	3,257.45	1,739,257	1,855	1,207,491	1,700	907,685		
Sep	5,317	2,390	2,981,687	3,257.45	1,761,226	2,059	1,220,461	1,700	919,150		
Oct	5,346	3,017	3,063,617	3,257.45	1,752,601	2,089	1,311,016	1,700	914,649		
Nov	5,220	2,658	2,978,019	3,257.45	1,648,566	1,962	1,329,453	1,700	860,355		
Dec	5,068	2,307	2,762,208	3,257.45	1,532,323	1,811	1,229,886	1,700	799,690		
2021											
Jan	5,005	2,169	2,695,809	3,187.45	1,646,170	1,817	1,049,639	1,700	872,741		
Feb	5,252	2,515	2,845,136	3,187.45	1,506,349	2,064	1,338,787	1,700	799,771		
Mar	5,441	2,644	2,757,838	3,187.45	1,673,402	2,254	1,084,437	2,000	1,058,332		
Apr	5,747	2,347	3,034,617	3,187.45	1,923,157	2,559	1,111,460	2,000	1,213,316		
May	5,893	3,152	3,289,966	3,187.45	1,934,099	2,706	1,355,866	2,000	1,221,752		
Jun	5,924	2,617	3,150,558	3,187.45	1,900,997	2,737	1,249,561	2,000	1,197,957		
Jul	5,325	2,603	2,934,057	3,187.45	1,739,144	2,137	1,194,913	2,000	1,097,368		
Aug	5,236	2,662	3,009,751	3,187.45	1,686,689	2,049	1,323,062	1,700	905,028		
Sep Oct	5,446	2,448	3,045,445	3,187.45	1,709,546	2,258	1,335,899	1,700	916,461		
Nov	5,476 5,347	3,090 2,722	3,129,177 3,041,673	3,187.45 3,187.45	1,700,347 1,597,573	2,289 2,159	1,428,830 1,444,100	1,700 1,700	911,973 857,842		
Dec	5,192	2,722	2,821,179	3,187.45	1,487,251	2,159	1,333,928	1,700	797,355		
2022	3,132	2,303	2,021,179	3,167.43	1,467,231	2,004	1,333,320	1,700	131,333		
Jan	5,182	2,246	2,792,288	3,187.45	1,646,170	1,995	1,146,118	1,700	872,741		
Feb	5,438	2,604	2,947,008	3,187.45	1,506,349	2,250	1,440,659	1,700	799,771		
Mar	5,634	2,738	2,856,355	3,187.45	1,673,402	2,447	1,182,954	2,100	1,111,248		
Apr	5,950	2,430	3,142,718	3,187.45	1,923,157	2,763	1,219,562	2,100	1,273,982		
May	6,102	3,263	3,406,850	3,187.45	1,934,099	2,703	1,472,751	2,100	1,282,840		
Jun	6,134	2,709	3,263,243	3,187.45	1,900,997	2,946	1,362,246	2,100	1,257,855		
Jul	5,513	2,696	3,039,647	3,187.45	1,739,144	2,326	1,300,503	2,100	1,152,237		
Aug	5,422	2,756	3,118,235	3,187.45	1,686,689	2,234	1,431,546	1,700	905,028		
Sep	5,639	2,535	3,155,176	3,187.45	1,709,546	2,451	1,445,630	1,700	916,461		
Oct	5,670	3,199	3,241,663	3,187.45	1,700,347	2,483	1,541,316	1,700	911,973		
Nov	5,536	2,819	3,151,400	3,187.45	1,597,573	2,348	1,553,828	1,700	857,842		
Dec	5,375	2,447	2,923,323	3,187.45	1,487,251	2,188	1,436,072	1,700	797,355		
2023											
Jan	5,369	2,327	2,894,319	3,187.45	1,646,170	2,181	1,248,149	1,700	872,741		
Feb	5,634	2,698	3,054,756	3,187.45	1,506,349	2,446	1,548,407	1,700	799,771		
Mar	5,837	2,836	2,960,482	3,187.45	1,673,402	2,650	1,287,081	2,300	1,217,082		
Apr	6,165	2,518	3,256,880	3,187.45	1,923,157	2,977	1,333,724	2,300	1,395,313		
May	6,322	3,381	3,530,188	3,187.45	1,934,099	3,134	1,596,089	2,300	1,405,015		
Jun	6,355	2,807	3,382,388	3,187.45	1,900,997	3,167	1,481,391	2,300	1,377,651		
Jul	5,712	2,793	3,151,497	3,187.45	1,739,144	2,525	1,412,353	2,300	1,261,973		
Aug	5,617	2,856	3,233,203	3,187.45	1,686,689	2,430	1,546,514	1,700	905,028		
Sep	5,842	2,626	3,271,454	3,187.45	1,709,546	2,654	1,561,908	1,700	916,461		
Oct	5,874	3,315	3,360,778	3,187.45	1,700,347	2,687	1,660,431	1,700	911,973		
Nov	5,735	2,920	3,267,715	3,187.45	1,597,573	2,548	1,670,143	1,700	857,842		
Dec	5,569	2,535	3,031,715	3,187.45	1,487,251	2,382	1,544,464	1,700	797,355		
2024	<u> </u>										
Jan	5,539	2,401	2,995,677	3,197.45	1,406,642	2,342	1,589,035	1,800	789,342		
Feb	5,813	2,784	3,161,792	3,197.45	1,280,081	2,615	1,881,711	1,800	719,621		
Mar	6,023	2,926	3,063,933	2,783.45	1,444,732	3,239	1,619,201	1,800	943,207		
Apr	6,361	2,598	3,370,314	2,783.45	1,678,346	3,577	1,691,968	2,400	1,456,353		
May	6,522	3,488	3,652,755	2,783.45	1,690,057	3,739	1,962,698	2,400	1,468,563		
Jun	6,557	2,896	3,500,753	2,783.45	1,657,408	3,773	1,843,345	2,400	1,436,333		

Jul	5,894	2,881	3,262,583	2,783.45	1,516,024	3,110	1,746,559	2,400	1,315,747
Aug	5,796	2,946	3,347,377	2,783.45	1,470,969	3,012	1,876,408	2,400	1,277,271
Sep	6,027	2,709	3,386,931	2,783.45	1,491,342	3,244	1,895,589	2,400	1,293,605
Oct	6,061	3,420	3,479,086	2,783.45	1,480,641	3,277	1,998,444	3,000	1,606,389
Nov	5,917	3,013	3,383,223	2,783.45	1,389,616	3,134	1,993,607	3,000	1,509,687
Dec	5,746	2,616	3,139,338	2,783.45	1,292,590	2,963	1,846,748	3,000	1,401,794
2025									
Jan	5,758	2,496	3,107,473	2,783.45	1,353,689	2,974	1,753,783	2,700	1,305,616
Feb	6,042	2,894	3,279,883	2,783.45	1,230,221	3,259	2,049,662	2,700	1,188,787
Mar	6,260	3,042	3,177,909	2,783.45	1,393,723	3,477	1,784,186	3,200	1,619,432
Apr	6,612	2,700	3,495,083	2,783.45	1,623,221	3,828	1,871,862	3,200	1,879,798
May	6,780	3,626	3,787,352	2,783.45	1,635,055	3,996	2,152,297	3,200	1,896,207
Jun	6,815	3,011	3,631,256	2,783.45	1,602,639	4,032	2,028,617	3,200	1,853,515
Jul	6,126	2,995	3,385,507	2,783.45	1,465,877	3,343	1,919,630	3,200	1,697,924
Aug	6,024	3,063	3,473,834	2,783.45	1,422,463	3,241	2,051,370	2,700	1,390,892
Sep	6,265	2,816	3,514,805	2,783.45	1,442,258	3,482	2,072,547	3,700	1,930,473
Oct	6,300	3,555	3,609,915	2,783.45	1,431,318	3,517	2,178,598	3,700	1,917,065
Nov	6,151	3,132	3,511,221	2,783.45	1,342,952	3,368	2,168,268	3,700	1,801,252
Dec	5,973	2,719	3,258,850	2,783.45	1,248,953	3,189	2,009,897	3,700	1,672,131
2026									
Jan	5,952	2,580	3,213,836	1,228.35	562,273	4,723	2,651,563	4,600	2,084,677
Feb	6,246	2,991	3,392,229	1,228.35	506,167	5,017	2,886,062	4,600	1,885,896
Mar	6,471	3,144	3,286,375	1,228.35	571,252	5,243	2,715,123	5,100	2,441,600
Apr	6,834	2,791	3,613,862	1,228.35	677,552	5,606	2,936,310	5,100	2,869,643
May	7,008	3,748	3,915,534	1,228.35	682,635	5,780	3,232,899	5,100	2,900,600
Jun	7,045	3,112	3,755,430	1,228.35	664,866	5,817	3,090,564	5,100	2,808,600
Jul	6,333	3,096	3,502,376	1,228.35	617,023	5,104	2,885,352	5,100	2,612,895
Aug	6,227	3,166	3,594,038	1,228.35	601,031	4,999	2,993,006	4,600	2,297,631
Sep	6,476	2,911	3,636,361	1,228.35	612,221	5,248	3,024,140	4,600	2,333,909
Oct	6,512	3,675	3,734,318	1,228.35	603,002	5,284	3,131,317	4,600	2,303,371
Nov	6,358	3,237	3,632,876	1,228.35	566,848	5,130	3,066,028	4,600	2,171,914
Dec	6,174	2,811	3,372,387	1,228.35	527,162	4,946	2,845,225	4,600	2,011,544
2027	-,	,-	, , ,	,	, ,	,	,, .	,,,,,,	
Jan	6,142	2,662	3,318,191	1,228.35	562,273	4,913	2,755,918	4,600	2,084,677
Feb	6,445	3,087	3,502,456	1,228.35	506,167	5,217	2,996,289	4,600	1,885,896
Mar	6,678	3,245	3,392,779	1,228.35	571,252	5,449	2,821,527	5,100	2,441,600
Apr	7,053	2,881	3,730,363	1,228.35	677,552	5,824	3,052,811	5,100	2,869,643
Mav	7,232	3,868	4.041,236	1,228.35	682,635	6,004	3,358,601	5,100	2,900,600
Jun	7,270	3,211	3,877,253	1,228.35	664,866	6,041	3,212,387	5,100	2,808,600
Jul	6,535	3,195	3,617,076	1,228.35	617,023	5,306	3,000,053	5,100	2,612,895
Aug	6,426	3,267	3,712,023	1,228.35	601,031	5,198	3,110,991	4,600	2,297,631
Sep	6,683	3,004	3,755,670	1,228.35	612,221	5,455	3,143,449	4,600	2,333,909
Oct	6,720	3,792	3,856,405	1,228.35	603,002	5,492	3,253,403	4,600	2,303,371
Nov	6,561	3,341	3,752,292	1,228.35	566,848	5,333	3,185,444	5,100	2,407,992
Dec	6,371	2,900	3,483,860	1,228.35	527,162	5,143	2,956,697	5,100	2,230,190
2028	-,	_,,,,,	0,100,000	-,		-,	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0,200	
Jan	6,317	2,738	3,423,652	690.00	243,251	5,627	3,180,401	5,100	1,808,229
Feb	6,629	3,175	3,613,842	690.00	209,056	5,939	3,404,786	5,100	1,578,762
Mar	6,868	3,337	3,500,351	690.00	307,742	6,178	3,192,609	5,900	2,780,983
Apr	7,254	2,963	3,848,208	690.00	397,945	6,564	3,450,263	5,900	3,502,043
May	7,438	3,978	4,168,457	690.00	404,322	6,748	3,764,134	5,900	3,573,338
Jun	7,438	3,303	4,000,383	690.00	387,609	6,787	3,612,775	5,900	3,399,567
Jul	6,721	3,286	3,732,866	690.00	344,281	6,031	3,388,585	5,900	3,047,795
Aug	6,609	3,360	3,831,092	690.00	334,281	5,919	3,496,884	5,100	2,562,304
Sep	6,874	3,090	3,876,084	690.00	338,476	6,184	3,537,608	5,100	2,582,504
Oct	6,874	3,900	3,979,678	690.00	330,329	6,222	3,649,349	5,100	2,533,915
Nov	6,748	3,436	3,979,678	690.00	330,329	6,058	3,564,787	5,100	2,333,915
Dec		2,983	, ,	690.00	281,986	5,863		5,100	
Dec	6,553	2,983	3,596,258	690.00	281,986	5,863	3,314,272	5,100	2,165,561

<sup>\*</sup> Projected contracted energy is based on the contracted capacity and projected dispatch for each of the power suppliers.

\*\* Projected energy committed for CSP is derived from projected dispatch factor of contracted PSAs.