

# **Power Supply Procurement Plan 2021**

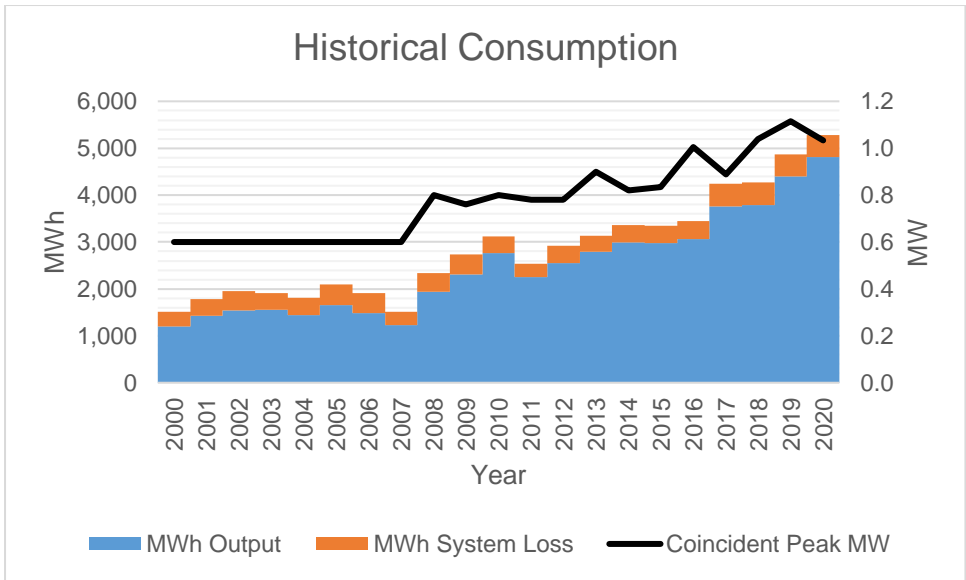
**Lubang Island**

## Historical Consumption Data

	Coincident Peak MW	MWh Offtake	MWh Input	MWh Output	MWh System Loss	Load Factor	Discrepancy	System Loss
2000	0.60	1,529	1,529	1,195	317	29%	-1.13%	20.74%
2001	0.60	1,783	1,783	1,427	356	34%	0.00%	19.97%
2002	0.60	1,952	1,952	1,535	417	37%	0.00%	21.36%
2003	0.60	1,907	1,907	1,562	346	36%	0.00%	18.12%
2004	0.60	1,807	1,807	1,437	370	34%	0.00%	20.48%
2005	0.60	2,094	2,094	1,648	445	40%	0.00%	21.26%
2006	0.60	1,905	1,905	1,483	422	36%	0.00%	22.15%
2007	0.60	1,520	1,520	1,229	290	29%	-0.06%	19.09%
2008	0.80	2,341	2,341	1,946	395	33%	0.00%	16.87%
2009	0.76	2,740	2,740	2,314	426	41%	0.00%	15.55%
2010	0.80	3,120	3,120	2,763	356	45%	-0.01%	11.42%
2011	0.78	2,543	2,543	2,250	293	37%	-0.01%	11.52%
2012	0.78	2,927	2,927	2,555	372	43%	-0.01%	12.71%
2013	0.90	3,129	3,129	2,795	334	40%	0.00%	10.67%
2014	0.82	3,364	3,364	2,986	379	47%	0.01%	11.26%
2015	0.84	3,343	3,343	2,977	366	46%	0.00%	10.95%
2016	1.01	3,446	3,446	3,067	380	39%	0.03%	11.02%
2017	0.89	4,240	4,240	3,759	482	55%	0.03%	11.38%
2018	1.04	4,274	4,274	3,788	485	47%	-0.01%	11.35%
2019	1.12	4,863	4,863	4,393	476	50%	0.14%	9.79%
2020	1.03	5,276	5,276	4,816	460	58%	0.00%	8.72%

Peak Demand increased from 0.84 MW in 2015 to 1.01 MW in 2016 at a rate of 16.83% due to the additional industrial load of 100 KW. MWh Offtake increased from 3,446 MWh in 2016 to 4,240 MWh in 2017 at a rate of 18.73% due to additional genset rented by NPC from MONARC. Within the same period, Load Factor ranged from 39% to 55%. There was an abrupt change in consumption on 2017 due to stability of supply. While Peak Demand decrease from 1.12 MW in 2019 to 1.03 MW in 2020 because normal expected activities from balikbayan's usually at summer period did not occurred due to pandemic.

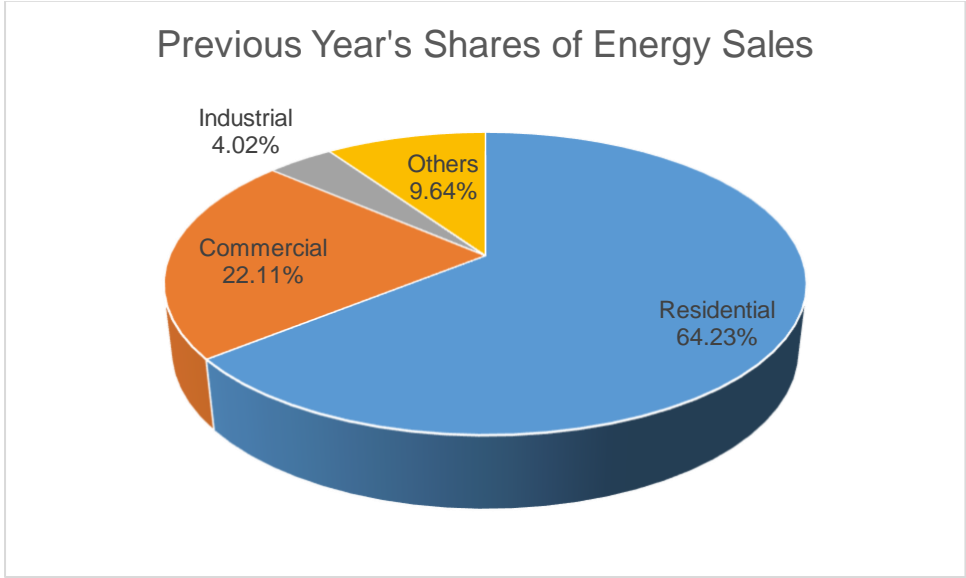
Previous data on first quarter of 2013 was copied to the first quarter of 2014 on Mwh Input. On 2015 sales & purchased of cabra island was added thus resulting to inconsistency of data. As a result feeder technical loss on the same years was affected. Data was already corrected.



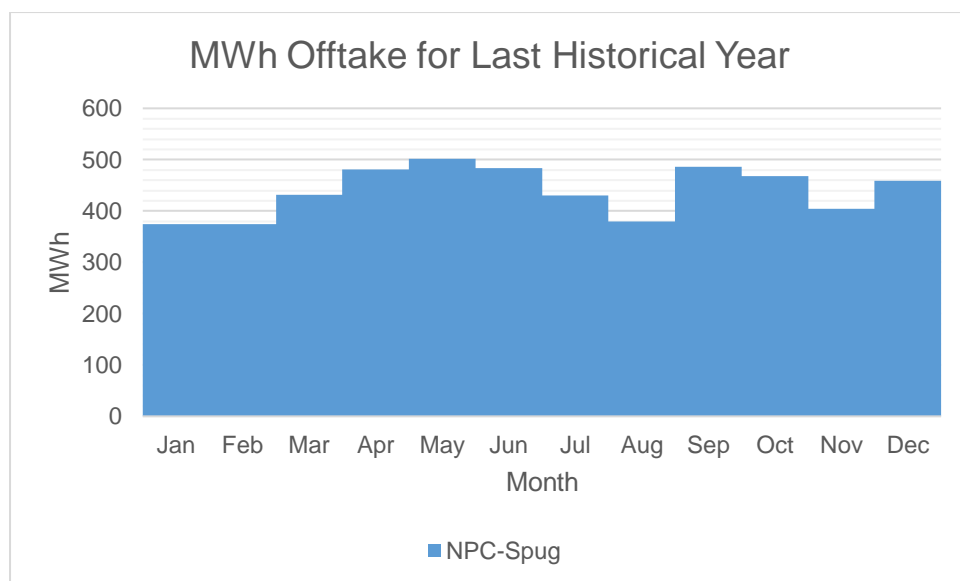
MWh Output increased from year 2016 to year 2020 at a rate of 8.49%, while MWh System Loss decreased at a rate of 10.45% within the same period.



System Loss ranged from 8.72% to 22.15%. System Loss peaked at 22.15% on year 2006 because of Line tripping and old meters.

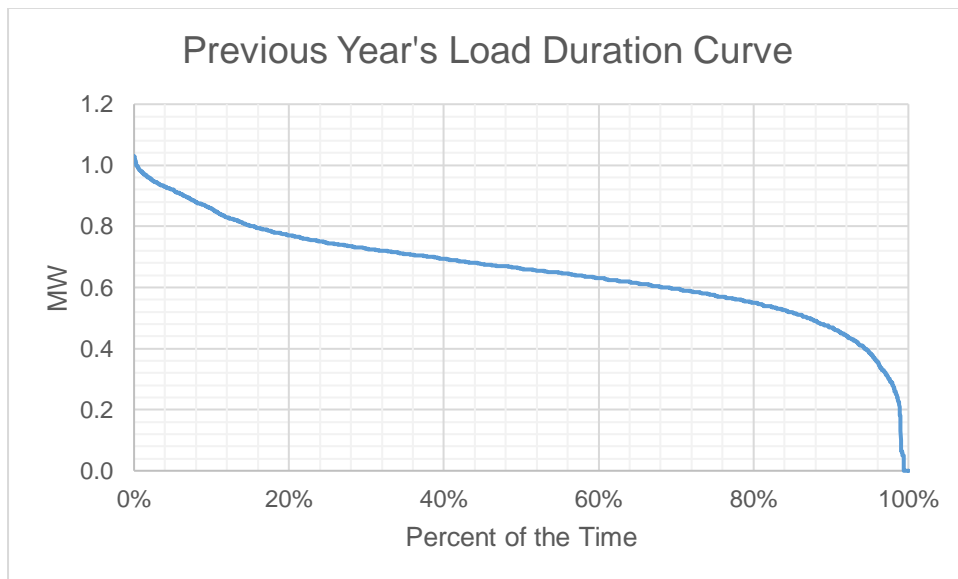


Residential customers account for the bulk of energy sales at 64.23% due to the high number of connections. In contrast, Industrial customers accounted for only 4.02% of energy sales due to the low number of connections.

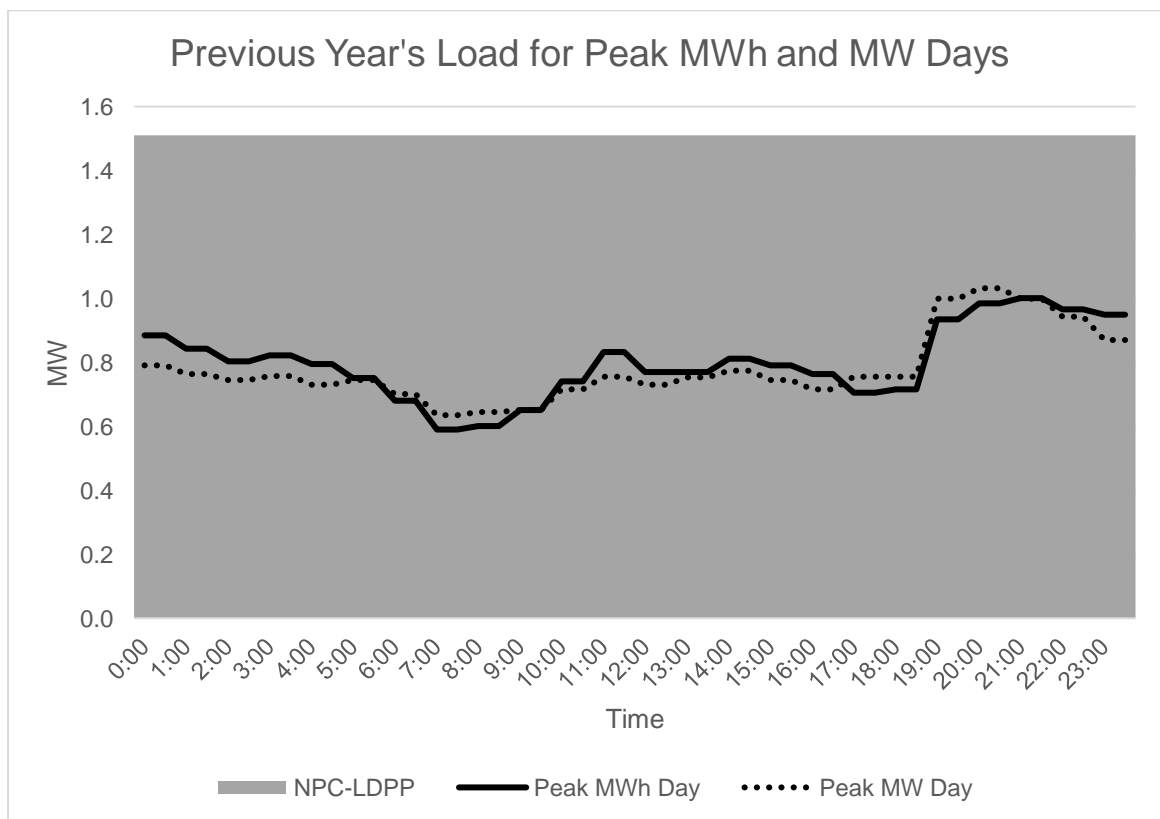


For 2020, the total Offtake for the last historical year is lower than the quantity stipulated in the PSA.

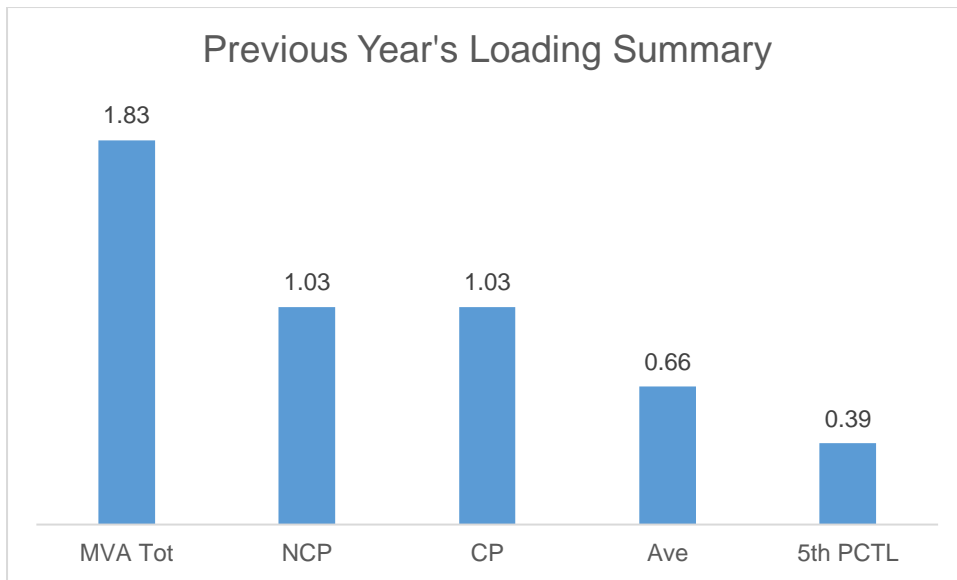
## Previous Year's Load Profile



Based on the Load Duration Curve, the minimum load is 0.250 MW and the maximum load is 1.03 MW for the last historical year.



Peak MW occurred on 2000H and Peak daily MWh occurred on 2100H due to absence of recreational and entertainment activities because of the pandemic compare to last year. As shown in the Load Curves, the available supply is higher than the Peak Demand.



The Non-coincident Peak Demand is 1.03 MW, which is around 56.28% of the total substation capacity of 1.83 MVA at a power factor of 96%. The load factor or the ratio between the Average Load of 0.66 MW and the Non-coincident Peak Demand is 64.08% of. A safe estimate of the true minimum load is the fifth percentile load of 0.39 MW which is 37.86% of the Non-coincident Peak Demand.

Metering Point	Substation MVA	Substation Peak MW
LDPP	1.825	1.032

The substations loaded at above 70% are none. As of this time, improvement in Lubang Island is ongoing so we have a chance to meet the present Capacity Demand and we are expecting that there will be a shortage in the near future.

## Forecasted Consumption Data

		Coincident Peak MW	Contracted MW	Pending MW	Planned MW	Retail Electricity Suppliers MW	Existing Contracting Level	Target Contracting Level	MW Surplus / Deficit
2021	Jan	0.91	1.51	0.00	0.000		167%	167%	0.61
	Feb	0.90	1.51	0.00	0.000		167%	167%	0.61
	Mar	1.03	1.51	0.00	0.000		147%	147%	0.48
	Apr	1.06	1.51	0.00	0.000		142%	142%	0.45
	May	1.30	1.51	0.00	0.000		116%	116%	0.21
	Jun	1.04	1.51	0.00	0.000		145%	145%	0.47
	Jul	1.04	1.51	0.00	0.000		145%	145%	0.47
	Aug	0.99	1.51	0.00	0.000		153%	153%	0.52
	Sep	1.06	1.51	0.00	0.000		142%	142%	0.45
	Oct	1.04	1.51	0.00	0.000		145%	145%	0.47
	Nov	1.00	1.51	0.00	0.000		151%	151%	0.51
	Dec	1.05	1.51	0.00	0.000		144%	144%	0.46
2022	Jan	0.97	1.51	0.00	0.000		155%	155%	0.54
	Feb	0.97	1.51	0.00	0.000		155%	155%	0.54
	Mar	1.11	1.51	0.00	0.000		137%	137%	0.40
	Apr	1.14	1.51	0.00	0.000		132%	132%	0.37
	May	1.40	1.51	0.00	0.000		108%	108%	0.11
	Jun	1.12	1.51	0.00	0.000		134%	134%	0.39
	Jul	1.12	1.51	0.00	0.000		135%	135%	0.39
	Aug	1.06	1.51	0.00	0.000		142%	142%	0.45
	Sep	1.14	1.51	0.00	0.000		132%	132%	0.37
	Oct	1.12	1.51	0.00	0.000		135%	135%	0.39
	Nov	1.07	1.51	0.00	0.000		141%	141%	0.44
	Dec	1.13	1.51	0.00	0.000		134%	134%	0.38
2023	Jan	1.05	1.51	0.00	0.000		144%	144%	0.46
	Feb	1.05	1.51	0.00	0.000		144%	144%	0.46
	Mar	1.19	1.51	0.00	0.000		127%	127%	0.32
	Apr	1.23	1.51	0.00	0.000		123%	123%	0.28

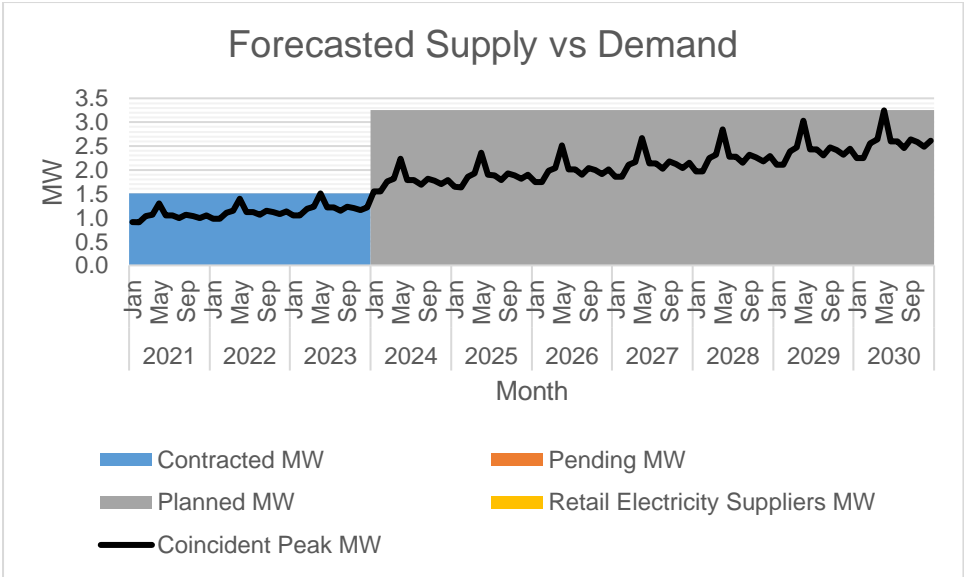
	May	1.51	1.51	0.00	0.000		100%	100%	0.00
	Jun	1.21	1.51	0.00	0.000		125%	125%	0.30
	Jul	1.21	1.51	0.00	0.000		125%	125%	0.30
	Aug	1.15	1.51	0.00	0.000		132%	132%	0.36
	Sep	1.23	1.51	0.00	0.000		123%	123%	0.28
	Oct	1.20	1.51	0.00	0.000		126%	126%	0.31
	Nov	1.16	1.51	0.00	0.000		131%	131%	0.35
	Dec	1.22	1.51	0.00	0.000		124%	124%	0.30
2024	Jan	1.55	0.00	0.00	3.250		0%	210%	1.70
	Feb	1.55	0.00	0.00	3.250		0%	210%	1.70
	Mar	1.76	0.00	0.00	3.250		0%	185%	1.49
	Apr	1.82	0.00	0.00	3.250		0%	179%	1.44
	May	2.23	0.00	0.00	3.250		0%	146%	1.02
	Jun	1.79	0.00	0.00	3.250		0%	182%	1.46
	Jul	1.79	0.00	0.00	3.250		0%	182%	1.47
	Aug	1.69	0.00	0.00	3.250		0%	192%	1.56
	Sep	1.82	0.00	0.00	3.250		0%	179%	1.43
	Oct	1.78	0.00	0.00	3.250		0%	183%	1.47
	Nov	1.71	0.00	0.00	3.250		0%	190%	1.54
	Dec	1.79	0.00	0.00	3.250		0%	181%	1.46
2025	Jan	1.64	0.00	0.00	3.250		0%	198%	1.61
	Feb	1.64	0.00	0.00	3.250		0%	198%	1.61
	Mar	1.86	0.00	0.00	3.250		0%	174%	1.39
	Apr	1.92	0.00	0.00	3.250		0%	169%	1.33
	May	2.36	0.00	0.00	3.250		0%	137%	0.89
	Jun	1.89	0.00	0.00	3.250		0%	172%	1.36
	Jul	1.89	0.00	0.00	3.250		0%	172%	1.36
	Aug	1.79	0.00	0.00	3.250		0%	181%	1.46
	Sep	1.92	0.00	0.00	3.250		0%	169%	1.33
	Oct	1.88	0.00	0.00	3.250		0%	173%	1.37
	Nov	1.81	0.00	0.00	3.250		0%	180%	1.44
	Dec	1.90	0.00	0.00	3.250		0%	171%	1.35
2026	Jan	1.74	0.00	0.00	3.250		0%	187%	1.51



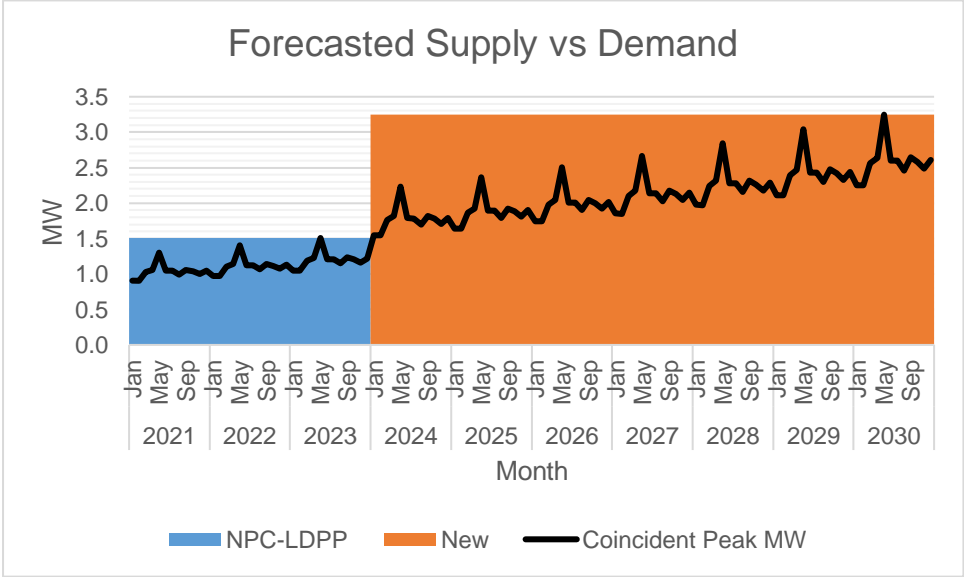
	Feb	1.74	0.00	0.00	3.250		0%	187%	1.51
	Mar	1.98	0.00	0.00	3.250		0%	164%	1.27
	Apr	2.04	0.00	0.00	3.250		0%	159%	1.21
	May	2.51	0.00	0.00	3.250		0%	130%	0.74
	Jun	2.01	0.00	0.00	3.250		0%	162%	1.24
	Jul	2.01	0.00	0.00	3.250		0%	162%	1.24
	Aug	1.90	0.00	0.00	3.250		0%	171%	1.35
	Sep	2.04	0.00	0.00	3.250		0%	159%	1.21
	Oct	2.00	0.00	0.00	3.250		0%	163%	1.25
	Nov	1.92	0.00	0.00	3.250		0%	169%	1.33
	Dec	2.02	0.00	0.00	3.250		0%	161%	1.23
2027	Jan	1.85	0.00	0.00	3.250		0%	175%	1.40
	Feb	1.85	0.00	0.00	3.250		0%	176%	1.40
	Mar	2.10	0.00	0.00	3.250		0%	155%	1.15
	Apr	2.17	0.00	0.00	3.250		0%	150%	1.08
	May	2.67	0.00	0.00	3.250		0%	122%	0.58
	Jun	2.14	0.00	0.00	3.250		0%	152%	1.11
	Jul	2.14	0.00	0.00	3.250		0%	152%	1.12
	Aug	2.02	0.00	0.00	3.250		0%	161%	1.23
	Sep	2.17	0.00	0.00	3.250		0%	150%	1.08
	Oct	2.12	0.00	0.00	3.250		0%	153%	1.13
	Nov	2.04	0.00	0.00	3.250		0%	159%	1.21
	Dec	2.15	0.00	0.00	3.250		0%	152%	1.11
2028	Jan	1.98	0.00	0.00	3.250		0%	165%	1.27
	Feb	1.97	0.00	0.00	3.250		0%	165%	1.28
	Mar	2.24	0.00	0.00	3.250		0%	145%	1.01
	Apr	2.31	0.00	0.00	3.250		0%	140%	0.94
	May	2.85	0.00	0.00	3.250		0%	114%	0.41
	Jun	2.28	0.00	0.00	3.250		0%	143%	0.97
	Jul	2.28	0.00	0.00	3.250		0%	143%	0.97
	Aug	2.16	0.00	0.00	3.250		0%	151%	1.09
	Sep	2.32	0.00	0.00	3.250		0%	140%	0.93
	Oct	2.26	0.00	0.00	3.250		0%	144%	0.99

	Nov	2.18	0.00	0.00	3.250		0%	149%	1.07
	Dec	2.29	0.00	0.00	3.250		0%	142%	0.96
2029	Jan	2.11	0.00	0.00	3.250		0%	154%	1.14
	Feb	2.11	0.00	0.00	3.250		0%	154%	1.14
	Mar	2.39	0.00	0.00	3.250		0%	136%	0.86
	Apr	2.47	0.00	0.00	3.250		0%	132%	0.78
	May	3.04	0.00	0.00	3.250		0%	107%	0.21
	Jun	2.43	0.00	0.00	3.250		0%	134%	0.82
	Jul	2.43	0.00	0.00	3.250		0%	134%	0.82
	Aug	2.30	0.00	0.00	3.250		0%	141%	0.95
	Sep	2.47	0.00	0.00	3.250		0%	131%	0.78
	Oct	2.42	0.00	0.00	3.250		0%	134%	0.83
	Nov	2.32	0.00	0.00	3.250		0%	140%	0.93
	Dec	2.44	0.00	0.00	3.250		0%	133%	0.81
2030	Jan	2.25	0.00	0.00	3.250		0%	144%	1.00
	Feb	2.25	0.00	0.00	3.250		0%	144%	1.00
	Mar	2.56	0.00	0.00	3.250		0%	127%	0.69
	Apr	2.64	0.00	0.00	3.250		0%	123%	0.61
	May	3.25	0.00	0.00	3.250		0%	100%	0.00
	Jun	2.60	0.00	0.00	3.250		0%	125%	0.65
	Jul	2.60	0.00	0.00	3.250		0%	125%	0.65
	Aug	2.46	0.00	0.00	3.250		0%	132%	0.79
	Sep	2.64	0.00	0.00	3.250		0%	123%	0.61
	Oct	2.58	0.00	0.00	3.250		0%	126%	0.67
	Nov	2.48	0.00	0.00	3.250		0%	131%	0.77
	Dec	2.61	0.00	0.00	3.250		0%	125%	0.64

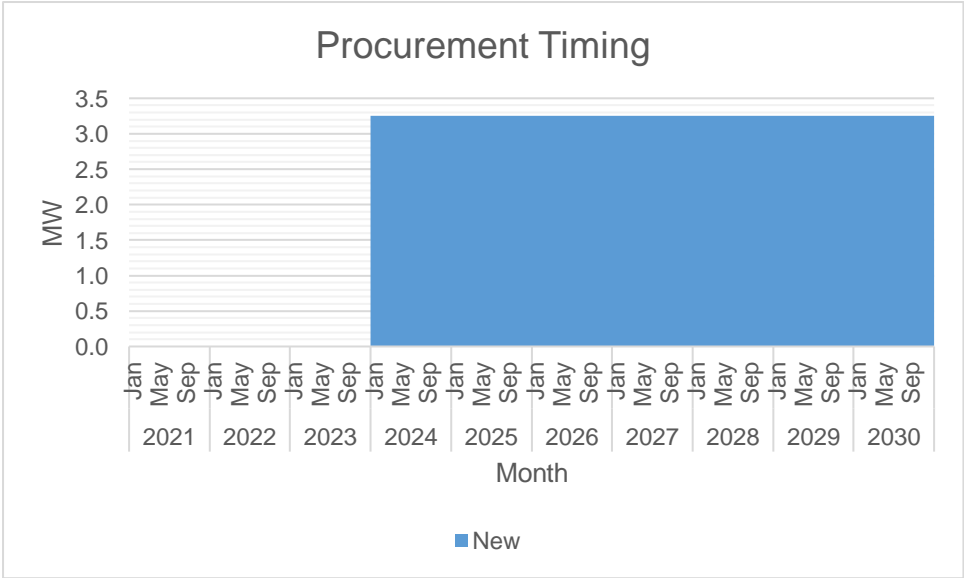
The Peak Demand was forecasted using Cubic Trending with Horizon  $[Y = dt^3 + bt + a]$  with the Adj  $R^2$  0.972 and its MAPE accuracy test is 4.64% and was assumed to occur on the month of May due to summer season. Monthly Peak Demand is at its lowest on the month of January due to cool season. In general, Peak Demand is expected to grow at a rate of 9.17% annually. Radar station with a minimum load of 400 KW to 600 KW maximum is expected to Reactivate on year 2024.



The available supply is generally above the Peak Demand. This is because we are expecting more consumers.



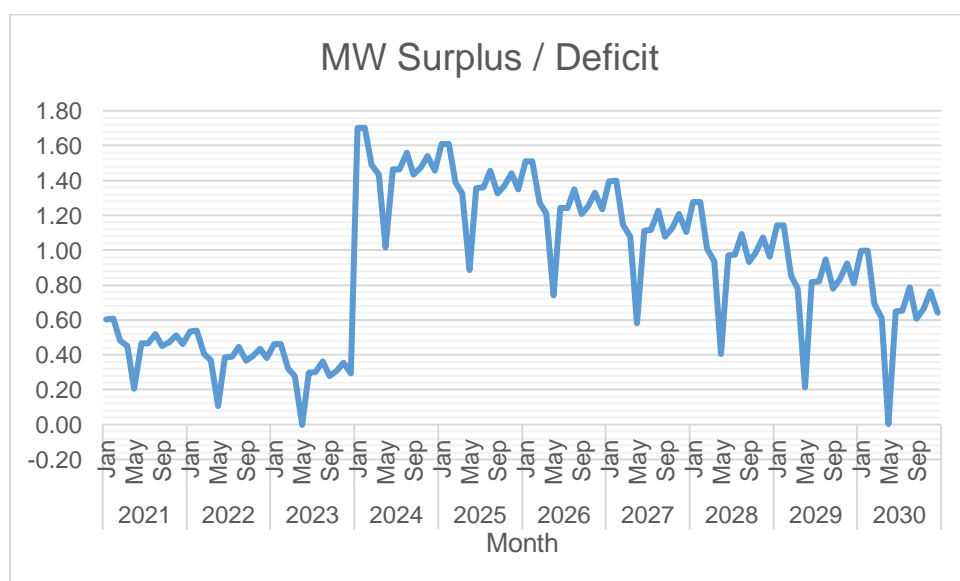
Of the available supply, the largest is 2.23 MW from 2024. This is followed by 3.25 MW from 2030.



The first wave of supply procurement will be for 2.23 MW planned to be available by the month of January. This will be followed by 2031.



Currently, while it appears that LUBELCO is contracted above 100% and even around 200% at times, as said above, there is no over contracting. The highest target contracting level is 210% which is expected to occur on 2024. The lowest target contracting level is 100% which is expected to occur on May 2030.



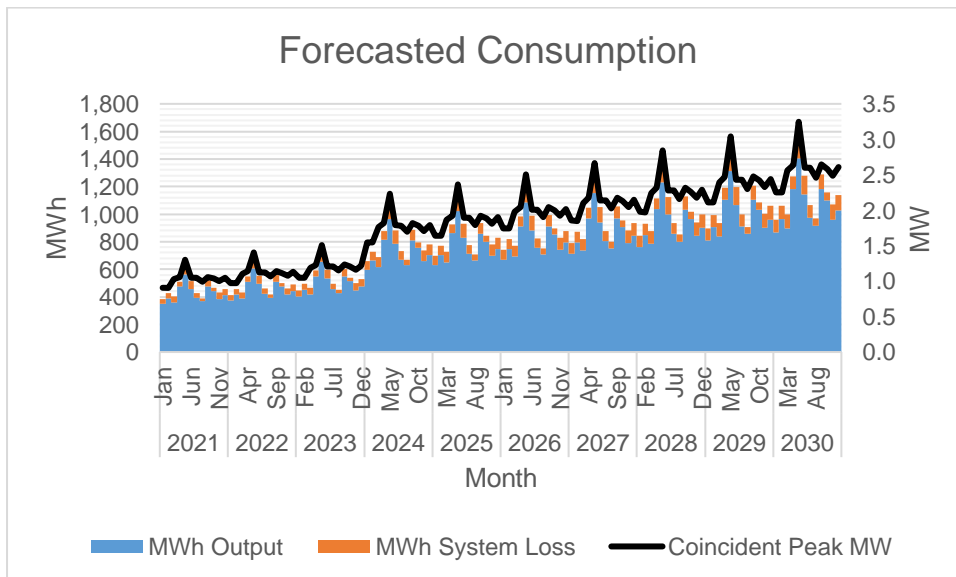
Currently, there is under-contracting by 0.61 MW. The highest surplus is 1.70 MW which is expected to occur on the month of January 2024. The lowest surplus is 0.61 MW which is expected to occur on the month of April 2030.

		MWh Offtake	MWh Output	MWh System Loss	Transm'n Loss	System Loss
2021	Jan	385	348	38	-0.12%	9.77%
	Feb	426	388	38	-0.14%	8.92%
	Mar	401	360	42	-0.17%	10.45%
	Apr	511	475	37	-0.13%	7.19%
	May	617	563	54	-0.10%	8.81%
	Jun	514	459	56	-0.13%	10.81%
	Jul	427	392	36	-0.14%	8.36%
	Aug	390	368	22	-0.08%	5.72%
	Sep	517	474	43	-0.06%	8.34%
	Oct	465	442	23	-0.08%	5.02%
	Nov	430	386	44	-0.06%	10.28%
	Dec	456	412	44	-0.04%	9.74%
2022	Jan	414	374	41	-0.12%	9.77%
	Feb	458	418	41	-0.14%	8.92%
	Mar	431	387	45	-0.17%	10.45%
	Apr	550	511	40	-0.12%	7.19%
	May	664	606	59	-0.10%	8.81%
	Jun	553	493	60	-0.13%	10.81%
	Jul	460	422	38	-0.14%	8.36%
	Aug	419	396	24	-0.09%	5.72%
	Sep	556	510	46	-0.07%	8.34%
	Oct	501	476	25	-0.08%	5.02%
	Nov	463	415	48	-0.07%	10.28%
	Dec	491	443	48	-0.04%	9.74%
2023	Jan	447	403	44	-0.12%	9.77%
	Feb	494	450	44	-0.14%	8.92%
	Mar	465	417	49	-0.17%	10.45%
	Apr	592	550	43	-0.12%	7.19%
	May	716	653	63	-0.10%	8.82%
	Jun	596	532	64	-0.12%	10.81%
	Jul	496	455	41	-0.14%	8.36%
	Aug	452	426	26	-0.09%	5.72%
	Sep	599	550	50	-0.07%	8.34%
	Oct	540	513	27	-0.08%	5.02%
	Nov	499	448	51	-0.07%	10.28%
	Dec	529	478	52	-0.05%	9.74%
2024	Jan	659	595	65	-0.09%	9.78%
	Feb	729	664	65	-0.10%	8.92%
	Mar	686	615	72	-0.12%	10.46%
	Apr	874	812	63	-0.09%	7.19%
	May	1,056	964	93	-0.07%	8.82%
	Jun	879	785	95	-0.09%	10.81%
	Jul	732	671	61	-0.10%	8.36%
	Aug	667	629	38	-0.07%	5.72%
	Sep	884	811	74	-0.05%	8.34%
	Oct	797	757	40	-0.06%	5.02%
	Nov	736	661	76	-0.05%	10.28%

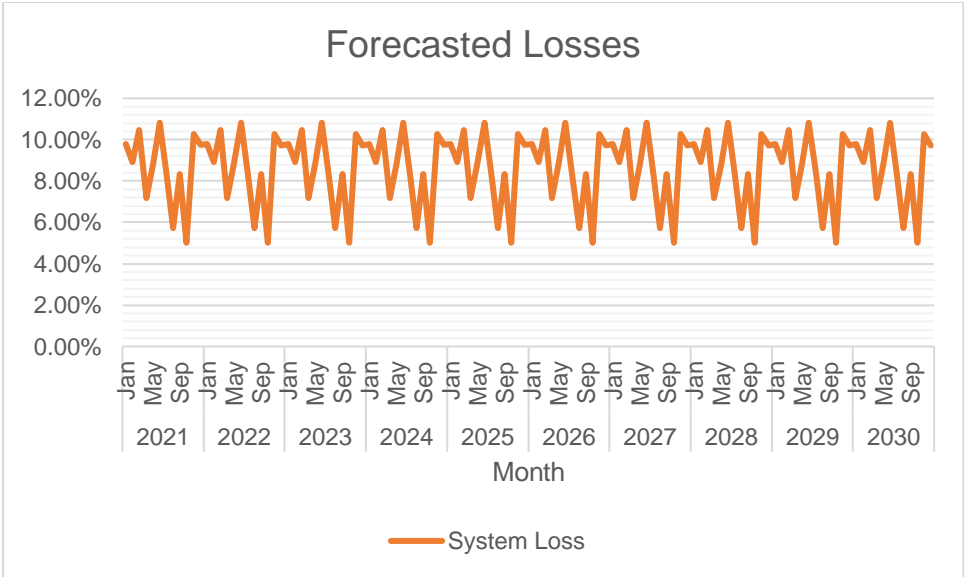
	Dec	781	705	76	-0.04%	9.74%
2025	Jan	698	631	68	-0.09%	9.78%
	Feb	772	704	69	-0.10%	8.92%
	Mar	727	651	76	-0.12%	10.46%
	Apr	926	860	67	-0.09%	7.19%
	May	1,119	1,021	99	-0.07%	8.82%
	Jun	931	831	101	-0.09%	10.81%
	Jul	775	711	65	-0.10%	8.36%
	Aug	706	666	40	-0.07%	5.72%
	Sep	937	859	78	-0.05%	8.34%
	Oct	844	802	42	-0.06%	5.02%
	Nov	780	700	80	-0.06%	10.28%
	Dec	827	747	81	-0.04%	9.74%
2026	Jan	741	669	73	-0.08%	9.78%
	Feb	819	747	73	-0.10%	8.92%
	Mar	771	691	81	-0.11%	10.46%
	Apr	983	913	71	-0.08%	7.19%
	May	1,188	1,084	105	-0.07%	8.82%
	Jun	988	882	107	-0.09%	10.81%
	Jul	822	754	69	-0.10%	8.36%
	Aug	750	707	43	-0.07%	5.72%
	Sep	994	912	83	-0.05%	8.34%
	Oct	895	851	45	-0.06%	5.02%
	Nov	827	743	85	-0.06%	10.28%
	Dec	878	793	86	-0.04%	9.74%
2027	Jan	788	712	77	-0.08%	9.78%
	Feb	871	794	78	-0.09%	8.92%
	Mar	820	735	86	-0.11%	10.46%
	Apr	1,046	971	75	-0.08%	7.19%
	May	1,263	1,153	111	-0.07%	8.82%
	Jun	1,051	938	114	-0.08%	10.81%
	Jul	875	802	73	-0.09%	8.36%
	Aug	797	752	46	-0.07%	5.72%
	Sep	1,058	970	88	-0.05%	8.34%
	Oct	953	905	48	-0.06%	5.02%
	Nov	880	790	91	-0.06%	10.28%
	Dec	934	843	91	-0.04%	9.74%
2028	Jan	840	759	82	-0.08%	9.78%
	Feb	929	847	83	-0.09%	8.92%
	Mar	874	784	92	-0.11%	10.46%
	Apr	1,115	1,035	80	-0.08%	7.19%
	May	1,347	1,229	119	-0.07%	8.82%
	Jun	1,121	1,000	121	-0.08%	10.81%
	Jul	933	855	78	-0.09%	8.36%
	Aug	850	802	49	-0.07%	5.72%
	Sep	1,127	1,034	94	-0.05%	8.34%
	Oct	1,015	965	51	-0.06%	5.02%
	Nov	938	842	97	-0.06%	10.28%
	Dec	995	899	97	-0.04%	9.74%

2029	Jan	897	810	88	-0.08%	9.78%
	Feb	991	904	89	-0.09%	8.92%
	Mar	933	837	98	-0.10%	10.46%
	Apr	1,190	1,105	86	-0.08%	7.19%
	May	1,437	1,312	127	-0.06%	8.82%
	Jun	1,196	1,068	129	-0.08%	10.81%
	Jul	996	913	83	-0.09%	8.36%
	Aug	907	856	52	-0.07%	5.72%
	Sep	1,203	1,104	100	-0.05%	8.34%
	Oct	1,084	1,030	54	-0.06%	5.02%
	Nov	1,001	899	103	-0.06%	10.28%
	Dec	1,063	960	104	-0.04%	9.74%
2030	Jan	959	866	94	-0.08%	9.78%
	Feb	1,060	966	95	-0.08%	8.92%
	Mar	998	894	105	-0.10%	10.46%
	Apr	1,272	1,182	92	-0.07%	7.19%
	May	1,537	1,402	136	-0.06%	8.82%
	Jun	1,279	1,141	138	-0.08%	10.81%
	Jul	1,064	976	89	-0.09%	8.36%
	Aug	970	915	56	-0.07%	5.72%
	Sep	1,287	1,180	107	-0.05%	8.34%
	Oct	1,159	1,101	58	-0.06%	5.02%
	Nov	1,071	961	110	-0.06%	10.28%
	Dec	1,136	1,026	111	-0.04%	9.74%

MWh Offtake was forecasted using Forecasting model Cubic Trending with Horizon [ $Y = dt^3 + bt + a$ ] with the Adj  $R^2$  0.972 and its MAPE accuracy test is 4.64%. The assumed load factor is 61%.



MWh Output was expected to grow at a rate of 8.08% annually.



System Loss is expected to range from 5.02% to 10.81%.

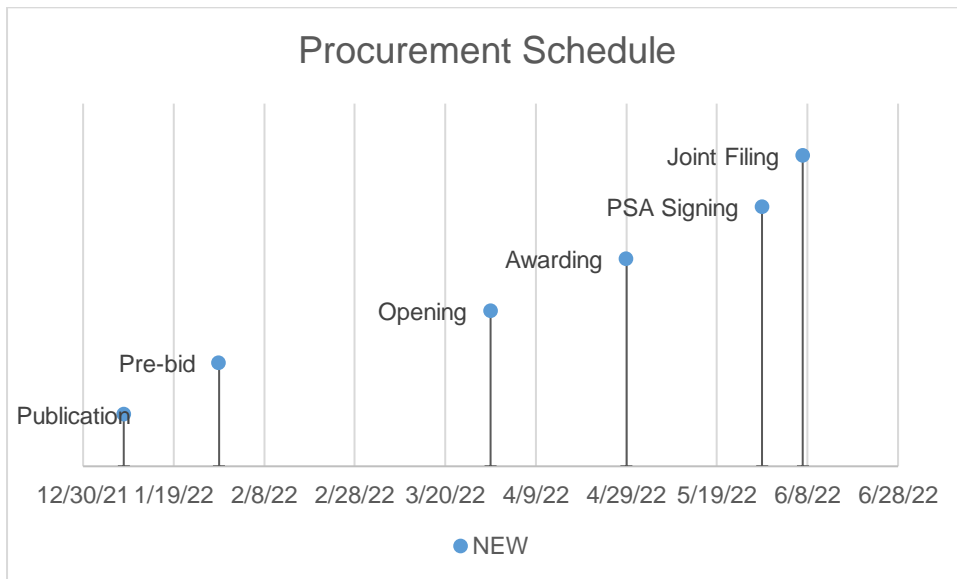


## Power Supply

Case No.	Type	GenCo	Minimum MW	Minimum MWh/yr	PSA Start	PSA End
NPC-LPDD	Base	National Power Corporation	0.662	6807.43	12/20/2018	12/25/2023

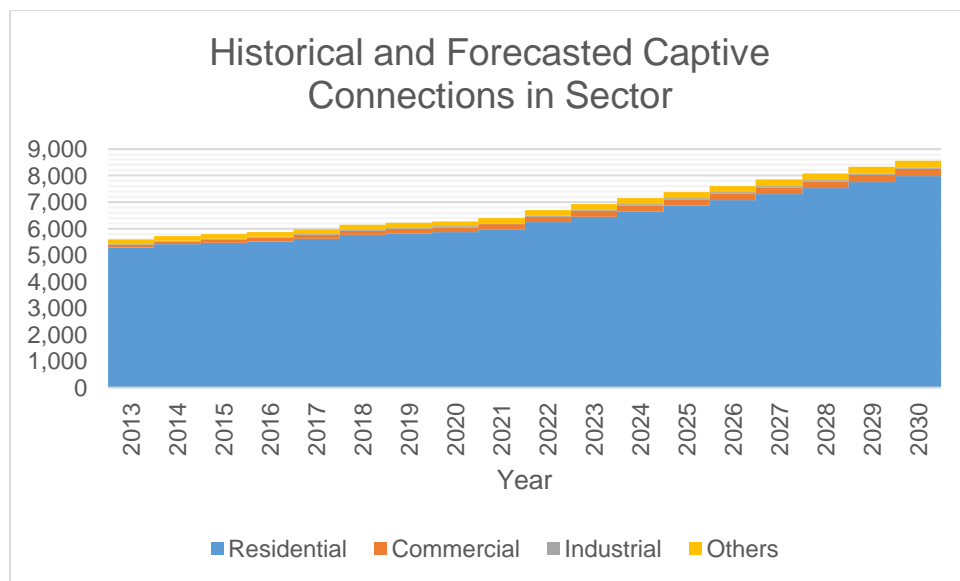
The PSA with NPC was filed and procured. There was no CSP for the supply provided by NPC-SPUG which is the sole generator. NPC-SPUG is generally satisfactory in performing its generation functions. We did not meet the expected Load on the PSA from 2019 onwards because the planned Reactivation of RADAR on the 2<sup>nd</sup> Quarter of the said year was cancelled. The minimum peak demand is 0.662 MW and minimum energy is 6807.43 MWh/yr. The actual billed overall monthly charge under the PSA is 5.6404 P/kWh. This is the generation rate in LUBELCO's franchise area, being a SIIG.

	NEW
Type	Base
Minimum MW	3.25
Minimum MWh/yr	9,480
PSA Start	1/1/2024
PSA End	12/31/2030
Publication	1/8/2022
Pre-bid	1/29/2022
Opening	3/30/2022
Awarding	4/29/2022
PSA Signing	5/29/2022
Joint Filing	6/7/2022



For the procurement of 3.25 MW of supply and minimum energy of 9,480 MWh which is planned to be available on 2024 up to 2030, the first publication or launch of CSP will be on January 2022. Joint filing is planned on June 2022, or 150 days later, in accordance with DOE’s 2018 CSP Policy.

## Captive Customer Connections



The number of Residential connections is expected to grow at a rate of 3.06% annually. Said customer class is expected to account for 93.03% of the total consumption.