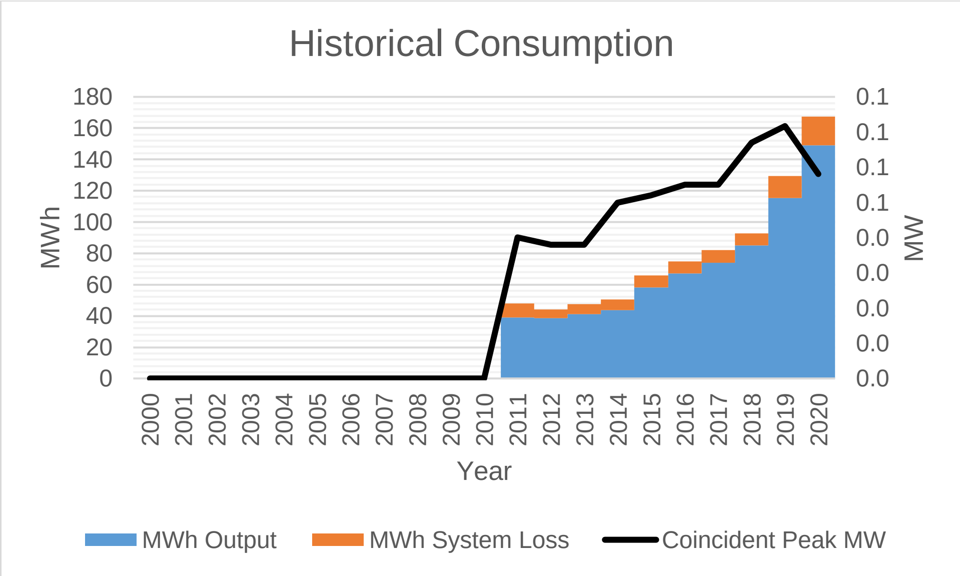
Power Supply Procurement Plan 2021

Cabra Island

Historical Consumption Data

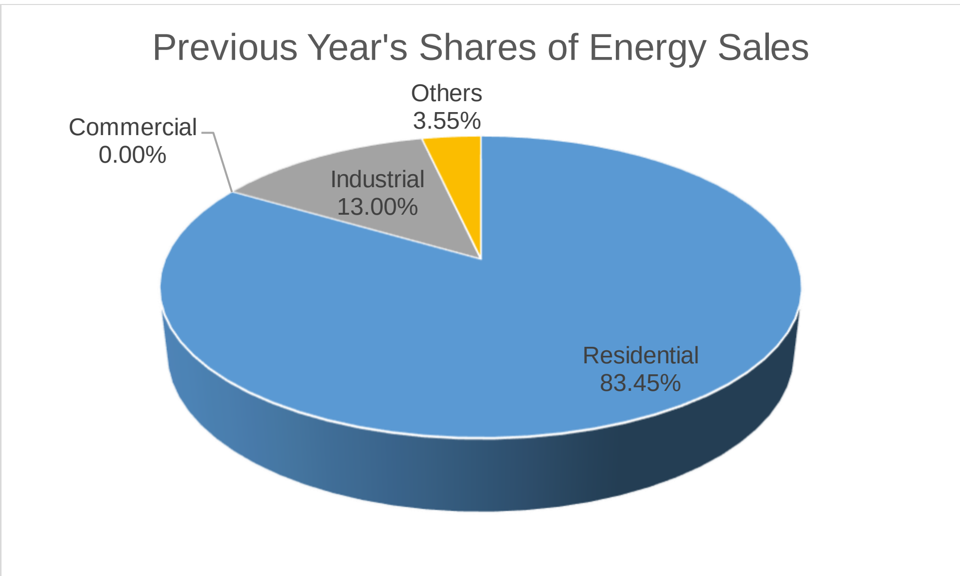
	Coincident Peak MW	MWh Offtake	MWh Input	MWh Output	MWh System Loss	Load Factor	Discrepancy	System Loss
2000	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2001	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2002	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2003	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2004	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2005	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2006	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2007	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2008	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2009	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2010	0.00	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2011	0.04	48	48	39	9	14%	0.00%	18.24%
2012	0.04	44	44	39	6	13%	0.00%	12.46%
2013	0.04	47	47	41	6	14%	0.00%	12.89%
2014	0.05	51	51	44	7	12%	0.00%	13.95%
2015	0.05	66	66	58	8	14%	0.00%	11.54%
2016	0.06	75	75	67	8	16%	0.00%	10.15%
2017	0.06	82	82	74	8	17%	0.00%	9.93%
2018	0.07	93	93	85	8	16%	0.00%	8.15%
2019	0.07	129	129	116	14	21%	0.00%	10.66%
2020	0.06	168	168	149	18	33%	0.00%	10.94%

Peak Demand decreased from 0.07 MW in 2019 to 0.06 MW in 2020 at a rate of -23% because we did not meet the expected load for the month of May since many balikbayan’s are not going back in the island for vacation due to pandemic. But MWh Offtake increased from 129 MWh in 2019 to 168 MWh in 2020 at a rate of 23% due to additional operating hours from 16 to 24 hours. Within the same period, Load Factor ranged from 21% to 33%. There was an abrupt change in consumption on 2020 due to additional operating hours. The Cabra Island was operated by COOP from 1991 to 2009 and insufficient data was recorded from 2000-2010. The operation was taken over by NPC and the PSA of Lubang and Cabra Island were combined. The Power Supply Agreement (PSA) is from 2010 for both Lubang Mainland and Cabra Island and ended last 2018. Lubelco extended PSA for another five (5) years from 2019-2023.

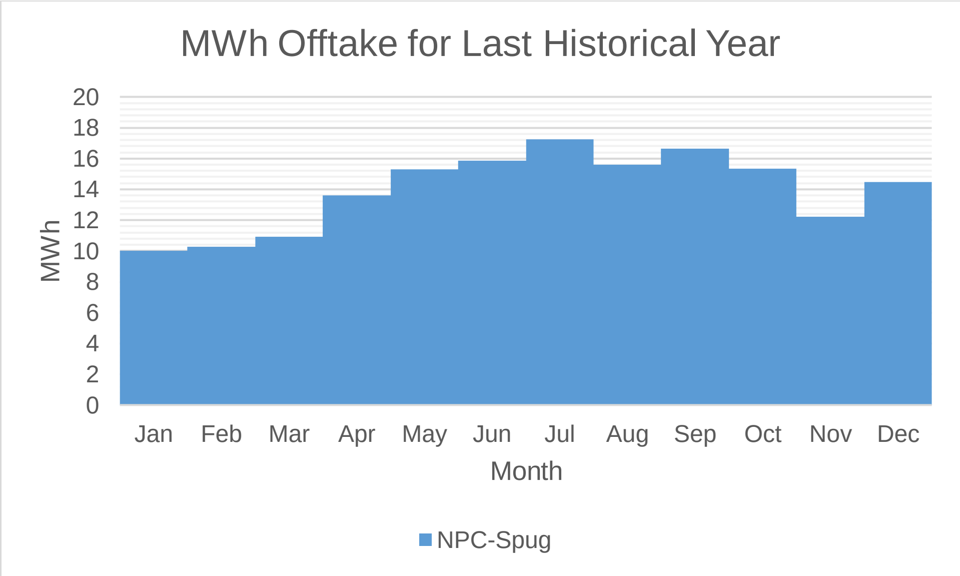


MWh Output increased from year 2019 to year 2020 at a rate of 22.15%, while MWh System Loss increased at a rate of 0.28% within the same period.

System Loss ranged from 8.15% to 18.24%. System Loss peaked at 18.24% on year 2011 because of Line tripping.

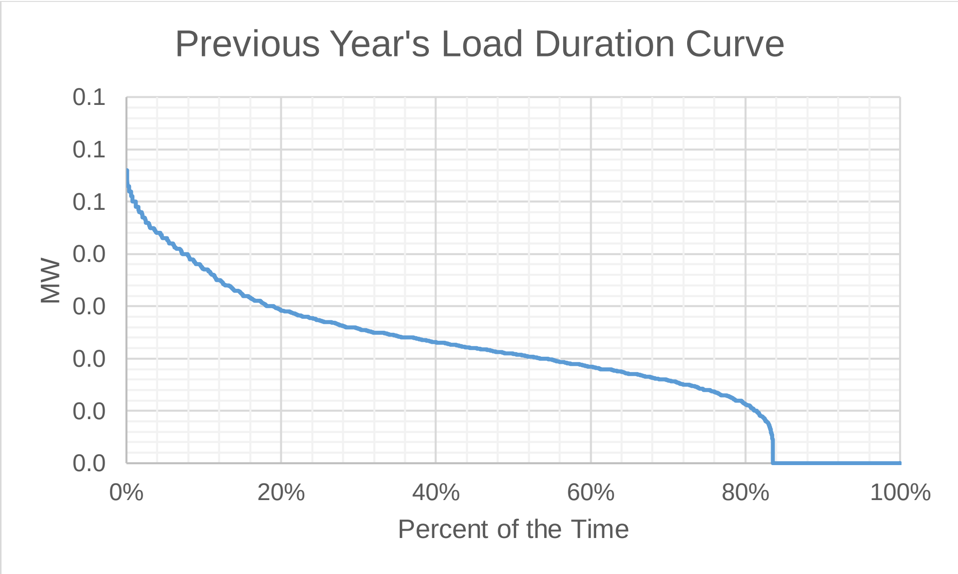


Residential customers account for the bulk of energy sales at 83.45% due to the high number of connections. In contrast, Public building & Street Lights customers accounted for only 3.55% of energy sales due to the low number of connections.

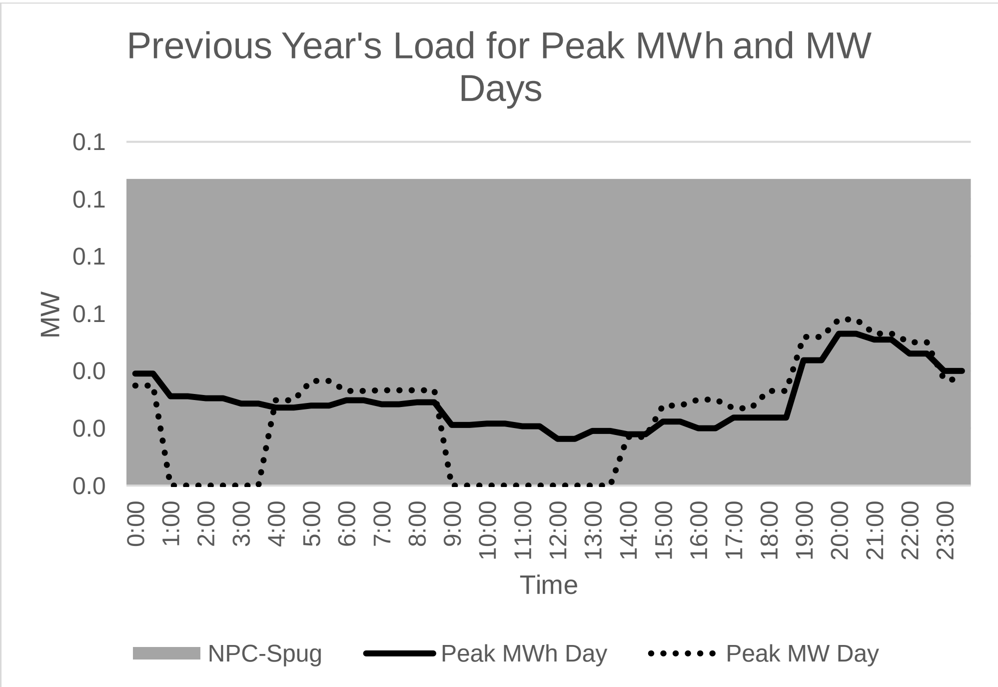


For 2020, the total Offtake for the last historical year is lower than the quantity stipulated in the PSA.

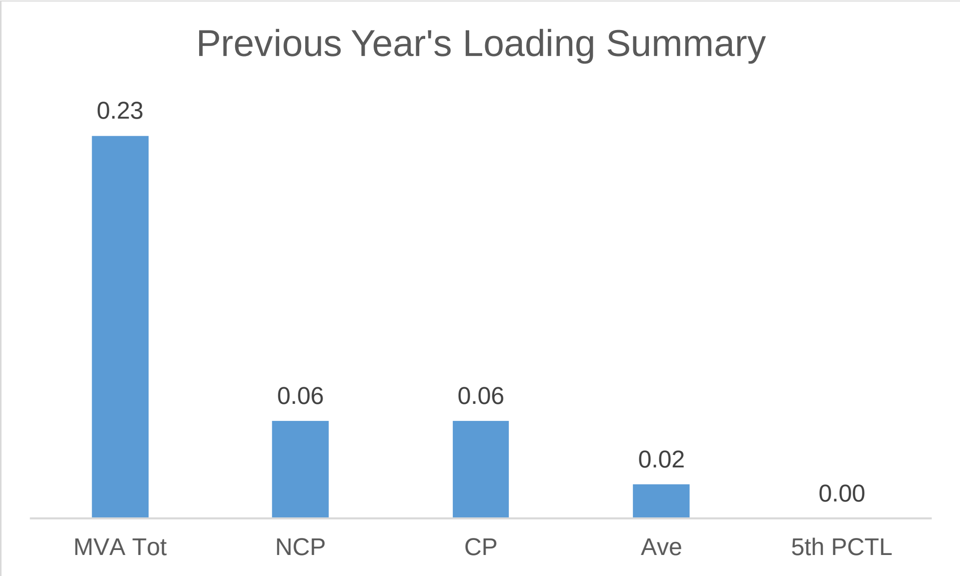
Previous Year's Load Profile



Based on the Load Duration Curve, the minimum load is 0.011 MW and the maximum load is 0.058 MW for the last historical year.



Peak MW and Peak daily MWh occurred on 2000H 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 0.06 MW, which is around 26.09% of the total substation capacity of 0.23 MV. The load factor or the ratio between the Average Load of 0.02 MW and the Non-coincident Peak Demand is 33.33% of. A safe estimate of the true minimum load is the fifth percentile load of 0 MW which is 0% of the Non-coincident Peak Demand.

Metering Point	Substation MVA	Substation Peak MW
CDPP	0.227	0.058

The substations loaded at above 70% are none.

Forecasted Consumption Data

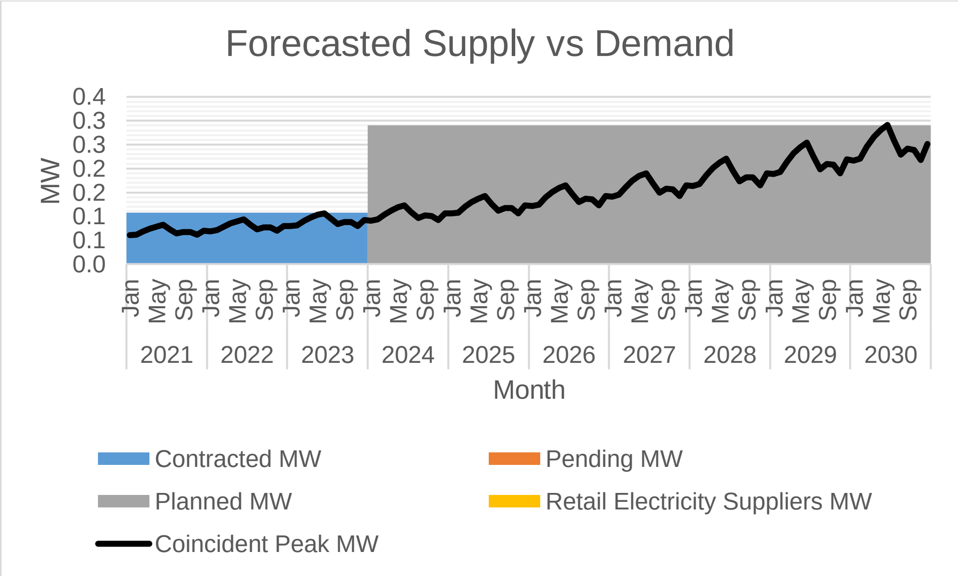
		Coincident Peak MW	Contracted MW	Pending MW	Planned MW	Retail Electricity Suppliers MW	Existing Contracting Level	Target Contracting Level	MW Surplus / Deficit
2021	Jan	0.06	0.11	0.00	0.000		177%	177%	0.05
	Feb	0.06	0.11	0.00	0.000		173%	173%	0.05
	Mar	0.07	0.11	0.00	0.000		155%	155%	0.04
	Apr	0.07	0.11	0.00	0.000		143%	143%	0.03
	May	0.08	0.11	0.00	0.000		136%	136%	0.03
	Jun	0.08	0.11	0.00	0.000		131%	131%	0.03
	Jul	0.07	0.11	0.00	0.000		148%	148%	0.03
	Aug	0.06	0.11	0.00	0.000		167%	167%	0.04
	Sep	0.07	0.11	0.00	0.000		158%	158%	0.04
	Oct	0.07	0.11	0.00	0.000		159%	159%	0.04
	Nov	0.06	0.11	0.00	0.000		175%	175%	0.05
	Dec	0.07	0.11	0.00	0.000		152%	152%	0.04
2022	Jan	0.07	0.11	0.00	0.000		155%	155%	0.04
	Feb	0.07	0.11	0.00	0.000		152%	152%	0.04
	Mar	0.08	0.11	0.00	0.000		136%	136%	0.03
	Apr	0.08	0.11	0.00	0.000		126%	126%	0.02
	May	0.09	0.11	0.00	0.000		119%	119%	0.02
	Jun	0.09	0.11	0.00	0.000		115%	115%	0.01
	Jul	0.08	0.11	0.00	0.000		130%	130%	0.02
	Aug	0.07	0.11	0.00	0.000		147%	147%	0.03
	Sep	0.08	0.11	0.00	0.000		139%	139%	0.03
	Oct	0.08	0.11	0.00	0.000		140%	140%	0.03
	Nov	0.07	0.11	0.00	0.000		154%	154%	0.04
	Dec	0.08	0.11	0.00	0.000		134%	134%	0.03
2023	Jan	0.08	0.11	0.00	0.000		135%	135%	0.03
	Feb	0.08	0.11	0.00	0.000		132%	132%	0.03
	Mar	0.09	0.11	0.00	0.000		119%	119%	0.02
	Apr	0.10	0.11	0.00	0.000		110%	110%	0.01

	May	0.10	0.11	0.00	0.000		104%	104%	0.00
	Jun	0.11	0.11	0.00	0.000		100%	100%	0.00
	Jul	0.09	0.11	0.00	0.000		113%	113%	0.01
	Aug	0.08	0.11	0.00	0.000		128%	128%	0.02
	Sep	0.09	0.11	0.00	0.000		121%	121%	0.02
	Oct	0.09	0.11	0.00	0.000		122%	122%	0.02
	Nov	0.08	0.11	0.00	0.000		134%	134%	0.03
	Dec	0.09	0.11	0.00	0.000		116%	116%	0.02
2024	Jan	0.09	0.00	0.00	0.291		0%	319%	0.20
	Feb	0.09	0.00	0.00	0.291		0%	312%	0.20
	Mar	0.10	0.00	0.00	0.291		0%	280%	0.19
	Apr	0.11	0.00	0.00	0.291		0%	259%	0.18
	May	0.12	0.00	0.00	0.291		0%	245%	0.17
	Jun	0.12	0.00	0.00	0.291		0%	237%	0.17
	Jul	0.11	0.00	0.00	0.291		0%	266%	0.18
	Aug	0.10	0.00	0.00	0.291		0%	302%	0.19
	Sep	0.10	0.00	0.00	0.291		0%	286%	0.19
	Oct	0.10	0.00	0.00	0.291		0%	288%	0.19
	Nov	0.09	0.00	0.00	0.291		0%	317%	0.20
	Dec	0.11	0.00	0.00	0.291		0%	274%	0.18
2025	Jan	0.11	0.00	0.00	0.291		0%	276%	0.19
	Feb	0.11	0.00	0.00	0.291		0%	270%	0.18
	Mar	0.12	0.00	0.00	0.291		0%	242%	0.17
	Apr	0.13	0.00	0.00	0.291		0%	224%	0.16
	May	0.14	0.00	0.00	0.291		0%	212%	0.15
	Jun	0.14	0.00	0.00	0.291		0%	205%	0.15
	Jul	0.13	0.00	0.00	0.291		0%	230%	0.16
	Aug	0.11	0.00	0.00	0.291		0%	261%	0.18
	Sep	0.12	0.00	0.00	0.291		0%	247%	0.17
	Oct	0.12	0.00	0.00	0.291		0%	249%	0.17
	Nov	0.11	0.00	0.00	0.291		0%	274%	0.18
	Dec	0.12	0.00	0.00	0.291		0%	237%	0.17
2026	Jan	0.12	0.00	0.00	0.291		0%	238%	0.17

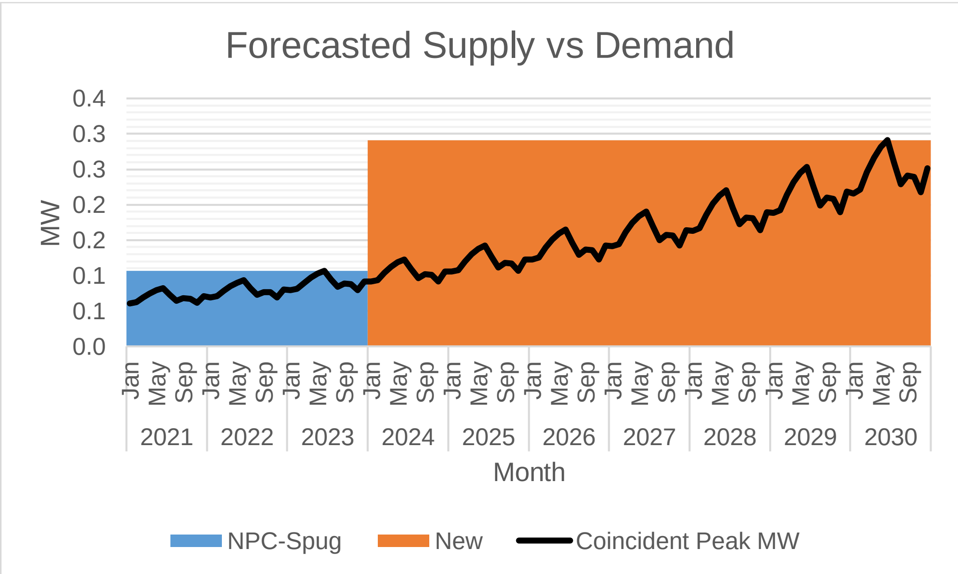
	Feb	0.12	0.00	0.00	0.291		0%	233%	0.17
	Mar	0.14	0.00	0.00	0.291		0%	209%	0.15
	Apr	0.15	0.00	0.00	0.291		0%	193%	0.14
	May	0.16	0.00	0.00	0.291		0%	183%	0.13
	Jun	0.16	0.00	0.00	0.291		0%	177%	0.13
	Jul	0.15	0.00	0.00	0.291		0%	199%	0.14
	Aug	0.13	0.00	0.00	0.291		0%	225%	0.16
	Sep	0.14	0.00	0.00	0.291		0%	213%	0.15
	Oct	0.14	0.00	0.00	0.291		0%	215%	0.16
	Nov	0.12	0.00	0.00	0.291		0%	237%	0.17
	Dec	0.14	0.00	0.00	0.291		0%	205%	0.15
2027	Jan	0.14	0.00	0.00	0.291		0%	206%	0.15
	Feb	0.14	0.00	0.00	0.291		0%	201%	0.15
	Mar	0.16	0.00	0.00	0.291		0%	181%	0.13
	Apr	0.17	0.00	0.00	0.291		0%	167%	0.12
	May	0.18	0.00	0.00	0.291		0%	158%	0.11
	Jun	0.19	0.00	0.00	0.291		0%	153%	0.10
	Jul	0.17	0.00	0.00	0.291		0%	172%	0.12
	Aug	0.15	0.00	0.00	0.291		0%	195%	0.14
	Sep	0.16	0.00	0.00	0.291		0%	184%	0.13
	Oct	0.16	0.00	0.00	0.291		0%	186%	0.13
	Nov	0.14	0.00	0.00	0.291		0%	205%	0.15
	Dec	0.16	0.00	0.00	0.291		0%	177%	0.13
2028	Jan	0.16	0.00	0.00	0.291		0%	178%	0.13
	Feb	0.17	0.00	0.00	0.291		0%	174%	0.12
	Mar	0.19	0.00	0.00	0.291		0%	156%	0.11
	Apr	0.20	0.00	0.00	0.291		0%	145%	0.09
	May	0.21	0.00	0.00	0.291		0%	137%	0.08
	Jun	0.22	0.00	0.00	0.291		0%	132%	0.07
	Jul	0.20	0.00	0.00	0.291		0%	149%	0.10
	Aug	0.17	0.00	0.00	0.291		0%	169%	0.12
	Sep	0.18	0.00	0.00	0.291		0%	160%	0.11
	Oct	0.18	0.00	0.00	0.291		0%	161%	0.11

	Nov	0.16	0.00	0.00	0.291		0%	177%	0.13
	Dec	0.19	0.00	0.00	0.291		0%	153%	0.10
2029	Jan	0.19	0.00	0.00	0.291		0%	155%	0.10
	Feb	0.19	0.00	0.00	0.291		0%	151%	0.10
	Mar	0.21	0.00	0.00	0.291		0%	136%	0.08
	Apr	0.23	0.00	0.00	0.291		0%	126%	0.06
	May	0.24	0.00	0.00	0.291		0%	119%	0.05
	Jun	0.25	0.00	0.00	0.291		0%	115%	0.04
	Jul	0.23	0.00	0.00	0.291		0%	129%	0.07
	Aug	0.20	0.00	0.00	0.291		0%	146%	0.09
	Sep	0.21	0.00	0.00	0.291		0%	139%	0.08
	Oct	0.21	0.00	0.00	0.291		0%	140%	0.08
	Nov	0.19	0.00	0.00	0.291		0%	154%	0.10
	Dec	0.22	0.00	0.00	0.291		0%	133%	0.07
2030	Jan	0.22	0.00	0.00	0.291		0%	135%	0.08
	Feb	0.22	0.00	0.00	0.291		0%	132%	0.07
	Mar	0.25	0.00	0.00	0.291		0%	118%	0.04
	Apr	0.27	0.00	0.00	0.291		0%	109%	0.02
	May	0.28	0.00	0.00	0.291		0%	103%	0.01
	Jun	0.29	0.00	0.00	0.291		0%	100%	0.00
	Jul	0.26	0.00	0.00	0.291		0%	113%	0.03
	Aug	0.23	0.00	0.00	0.291		0%	127%	0.06
	Sep	0.24	0.00	0.00	0.291		0%	121%	0.05
	Oct	0.24	0.00	0.00	0.291		0%	122%	0.05
	Nov	0.22	0.00	0.00	0.291		0%	134%	0.07
	Dec	0.25	0.00	0.00	0.291		0%	116%	0.04

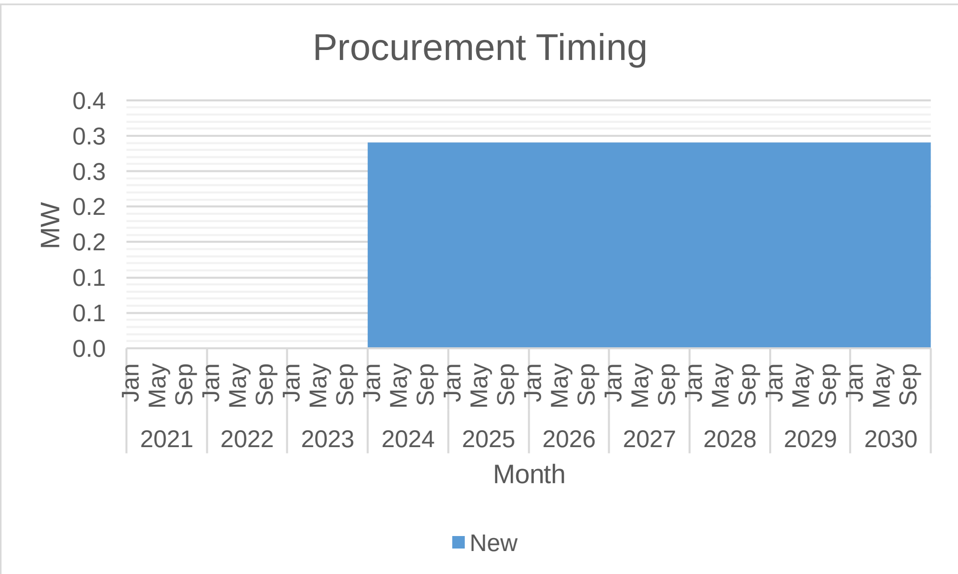
The Peak Demand was forecasted using Cubic Trending with Horizon [Y = dt3 + ct2 + a] with the Adj R^2 0.998 and its MAPE accuracy test is 3.10% and was assumed to occur on the month of May due to summer season. Monthly Peak Demand is at its lowest on the month of December due to cool season. In general, Peak Demand is expected to grow at a rate of 14.11% annually.



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

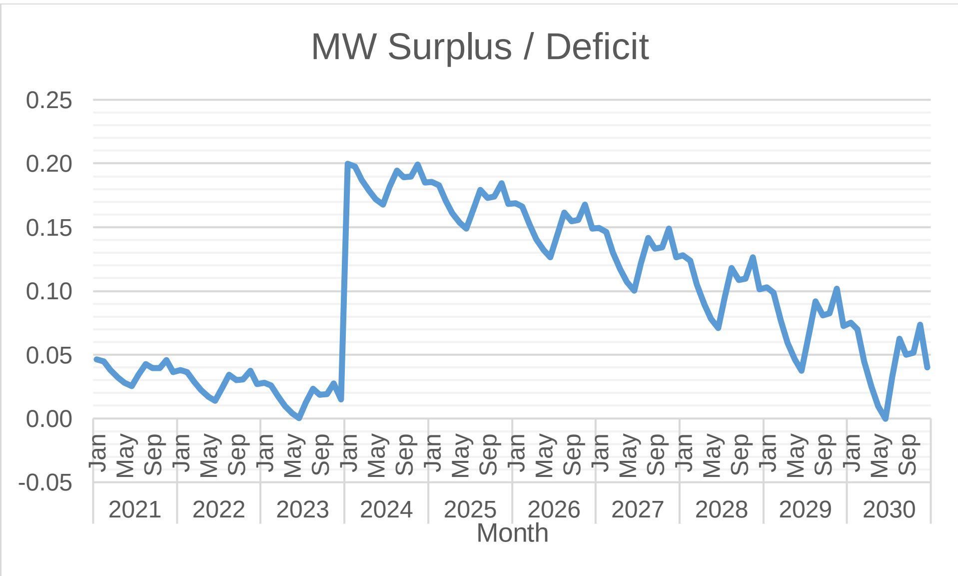


Of the available supply, the largest is 0.291 MW from 2030.



The first wave of supply procurement will be for 0.123 MW planned to be available by the month of January. This will be followed by 2030.

Currently, there is over contracting by 13.89%. The highest target contracting level is 319% which is expected to occur on 2024. The lowest target contracting level is 109% which is expected to occur on 2030.



Currently, there is over-contracting by 0.002 MW. The highest surplus is 0.20 MW which is expected to occur on the month of January 2024. The lowest surplus is 0.01 MW which is expected to occur on the month of May 2030.

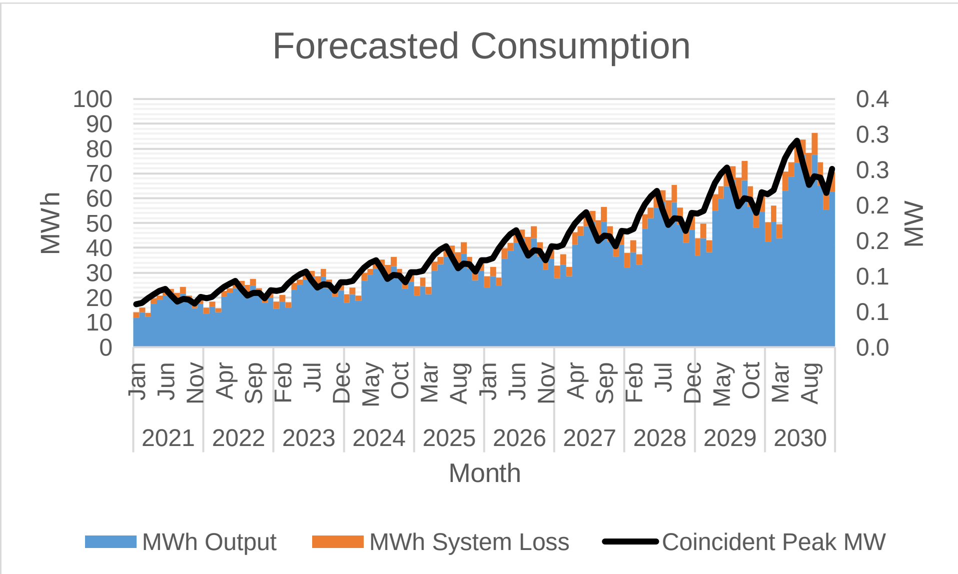
		MWh Offtake	MWh Output	MWh System Loss	Transm'n Loss	System Loss
2021	Jan	14	12	2	0.00%	15.70%
	Feb	16	14	2	0.00%	11.63%
	Mar	14	12	2	0.00%	11.50%
	Apr	20	18	2	0.00%	10.82%
	May	21	19	2	0.00%	7.75%
	Jun	23	21	2	0.00%	9.77%
	Jul	23	22	2	0.00%	7.50%

	Aug	22	19	3	0.00%	12.93%
	Sep	24	22	3	0.00%	10.36%
	Oct	21	18	3	0.00%	12.78%
	Nov	18	16	2	0.00%	12.49%
	Dec	20	18	2	0.00%	10.87%
2022	Jan	16	14	3	0.00%	15.70%
	Feb	18	16	2	0.00%	11.63%
	Mar	16	14	2	0.00%	11.50%
	Apr	23	20	2	0.00%	10.82%
	May	24	22	2	0.00%	7.75%
	Jun	26	24	3	0.00%	9.77%
	Jul	27	25	2	0.00%	7.50%
	Aug	25	22	3	0.00%	12.93%
	Sep	28	25	3	0.00%	10.36%
	Oct	24	21	3	0.00%	12.78%
	Nov	20	18	3	0.00%	12.49%
	Dec	22	20	2	0.00%	10.87%
2023	Jan	18	16	3	0.00%	15.70%
	Feb	21	18	2	0.00%	11.63%
	Mar	18	16	2	0.00%	11.50%
	Apr	26	23	3	0.00%	10.82%
	May	27	25	2	0.00%	7.75%
	Jun	30	27	3	0.00%	9.77%
	Jul	31	28	2	0.00%	7.50%
	Aug	29	25	4	0.00%	12.93%
	Sep	32	28	3	0.00%	10.36%
	Oct	27	24	3	0.00%	12.78%
	Nov	23	20	3	0.00%	12.49%
	Dec	26	23	3	0.00%	10.87%
2024	Jan	21	18	3	0.00%	15.70%
	Feb	24	21	3	0.00%	11.63%
	Mar	21	19	2	0.00%	11.50%
	Apr	30	27	3	0.00%	10.82%
	May	31	29	2	0.00%	7.75%
	Jun	35	31	3	0.00%	9.77%
	Jul	35	33	3	0.00%	7.50%
	Aug	33	29	4	0.00%	12.93%
	Sep	36	33	4	0.00%	10.36%
	Oct	31	27	4	0.00%	12.78%
	Nov	27	23	3	0.00%	12.49%
	Dec	30	27	3	0.00%	10.87%
2025	Jan	25	21	4	0.00%	15.70%
	Feb	28	25	3	0.00%	11.63%
	Mar	24	21	3	0.00%	11.50%
	Apr	35	31	4	0.00%	10.82%
	May	36	34	3	0.00%	7.75%
	Jun	40	36	4	0.00%	9.77%
	Jul	41	38	3	0.00%	7.50%
	Aug	38	33	5	0.00%	12.93%

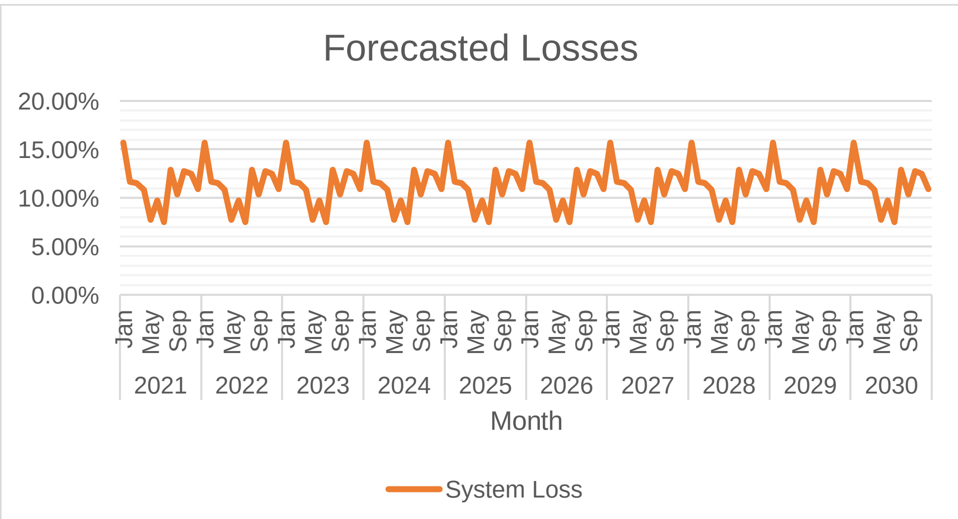
	Sep	42	38	4	0.00%	10.36%
	Oct	36	32	5	0.00%	12.78%
	Nov	31	27	4	0.00%	12.49%
	Dec	34	31	4	0.00%	10.87%
2026	Jan	28	24	4	0.00%	15.70%
	Feb	32	29	4	0.00%	11.63%
	Mar	28	25	3	0.00%	11.50%
	Apr	40	36	4	0.00%	10.82%
	May	42	39	3	0.00%	7.75%
	Jun	47	42	5	0.00%	9.77%
	Jul	47	44	4	0.00%	7.50%
	Aug	44	39	6	0.00%	12.93%
	Sep	49	44	5	0.00%	10.36%
	Oct	42	37	5	0.00%	12.78%
	Nov	36	31	4	0.00%	12.49%
	Dec	40	35	4	0.00%	10.87%
2027	Jan	33	28	5	0.00%	15.70%
	Feb	37	33	4	0.00%	11.63%
	Mar	32	29	4	0.00%	11.50%
	Apr	46	41	5	0.00%	10.82%
	May	49	45	4	0.00%	7.75%
	Jun	54	49	5	0.00%	9.77%
	Jul	55	51	4	0.00%	7.50%
	Aug	51	45	7	0.00%	12.93%
	Sep	57	51	6	0.00%	10.36%
	Oct	49	43	6	0.00%	12.78%
	Nov	41	36	5	0.00%	12.49%
	Dec	46	41	5	0.00%	10.87%
2028	Jan	38	32	6	0.00%	15.70%
	Feb	43	38	5	0.00%	11.63%
	Mar	37	33	4	0.00%	11.50%
	Apr	53	48	6	0.00%	10.82%
	May	56	52	4	0.00%	7.75%
	Jun	62	56	6	0.00%	9.77%
	Jul	63	59	5	0.00%	7.50%
	Aug	59	52	8	0.00%	12.93%
	Sep	65	59	7	0.00%	10.36%
	Oct	56	49	7	0.00%	12.78%
	Nov	48	42	6	0.00%	12.49%
	Dec	53	47	6	0.00%	10.87%
2029	Jan	44	37	7	0.00%	15.70%
	Feb	50	44	6	0.00%	11.63%
	Mar	43	38	5	0.00%	11.50%
	Apr	62	55	7	0.00%	10.82%
	May	65	60	5	0.00%	7.75%
	Jun	72	65	7	0.00%	9.77%
	Jul	73	67	5	0.00%	7.50%
	Aug	68	59	9	0.00%	12.93%
	Sep	75	67	8	0.00%	10.36%

	Oct	65	57	8	0.00%	12.78%
	Nov	55	48	7	0.00%	12.49%
	Dec	61	55	7	0.00%	10.87%
2030	Jan	50	42	8	0.00%	15.70%
	Feb	57	50	7	0.00%	11.63%
	Mar	50	44	6	0.00%	11.50%
	Apr	71	63	8	0.00%	10.82%
	May	74	69	6	0.00%	7.75%
	Jun	82	74	8	0.00%	9.77%
	Jul	84	77	6	0.00%	7.50%
	Aug	78	68	10	0.00%	12.93%
	Sep	86	77	9	0.00%	10.36%
	Oct	75	65	10	0.00%	12.78%
	Nov	63	55	8	0.00%	12.49%
	Dec	70	63	8	0.00%	10.87%

MWh Offtake was forecasted using Cubic Trending with Horizon [Y = dt3 + ct2 + a] with the Adj R^2 0.998 and its MAPE accuracy test is 3.10%. The assumed load factor is 50%.



MWh Output was expected to grow at a rate of 13.80% annually.



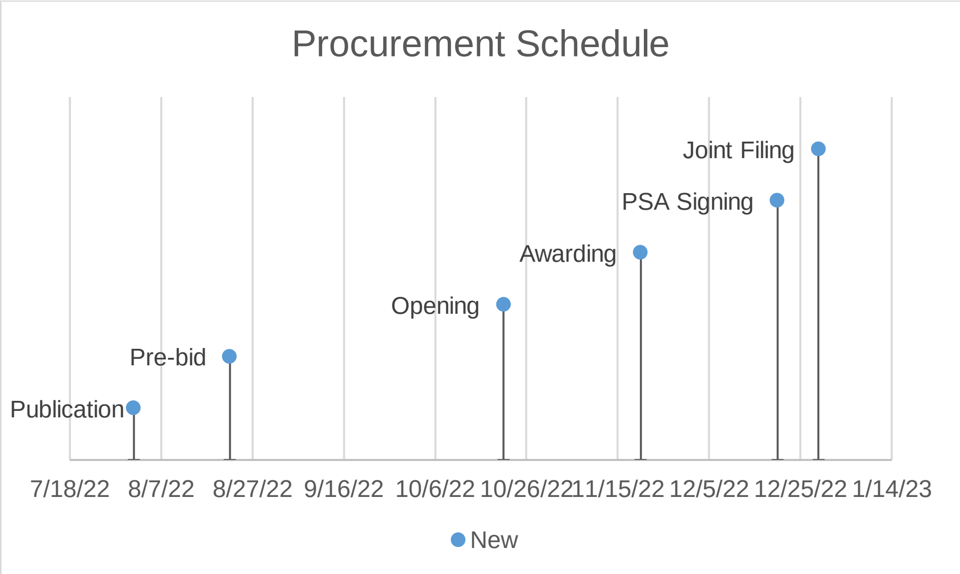
System Loss is expected to range from 7.75% to 15.70%.

Power Supply

Case No.	Type	GenCo	Minimum MW	Minimum MWh/yr	PSA Start	PSA End
NPC-Spug	Base	National Power Corporation	0.04	97.14	12/26/2018	12/25/2023

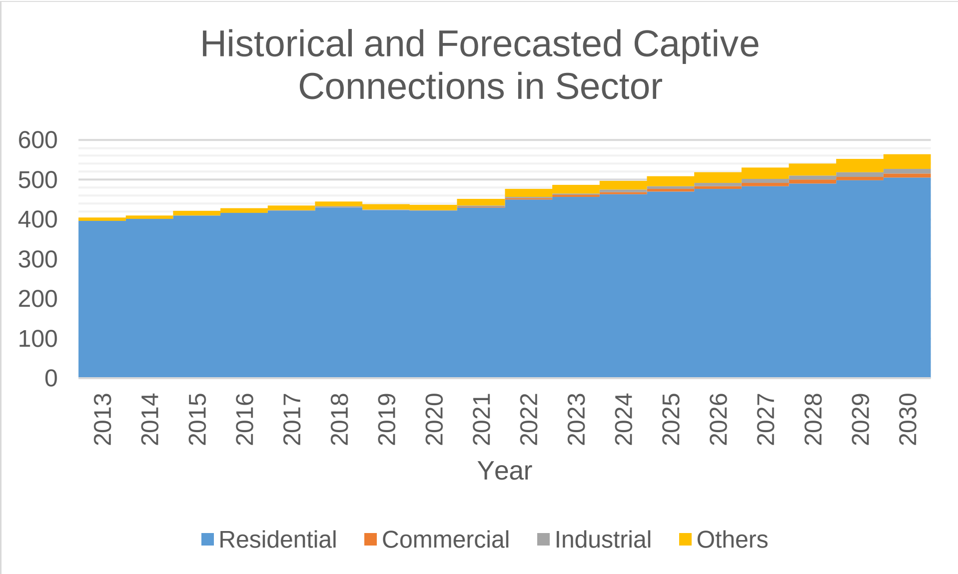
The PSA with NPC was filed and procured. There was no CSP for the supply provided by NPC-SPUG which is the sole generator. NPC-SPUG is generally satisfactory in performing its generation functions. The minimum peak demand is 0.04 MW and minimum energy is 97.14 MWh/yr. The actual billed overall monthly 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	0.290
Minimum MWh/yr	355
PSA Start	1/1/2024
PSA End	12/12/2030
Publication	8/1/2022
Pre-bid	8/22/2022
Opening	10/21/2022
Awarding	11/20/2022
PSA Signing	12/20/2022
Joint Filing	12/29/2022



For the procurement of 0.29 MW of supply and minimum energy of 355 MWh which is planned to be available on 2024 up to 2030, the first publication or launch of CSP will be on August 2022. Joint filing is planned on December 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 2.52% annually. Said customer class is expected to account for 89.54% of the total consumption. We did not meet the target connections on the previous forecast due to Pandemic on 2020 and we lowered down the expected number of connections on 2021 from 443 to 430 due to the current situation.