Power Supply Procurement Plan [2024-2033]

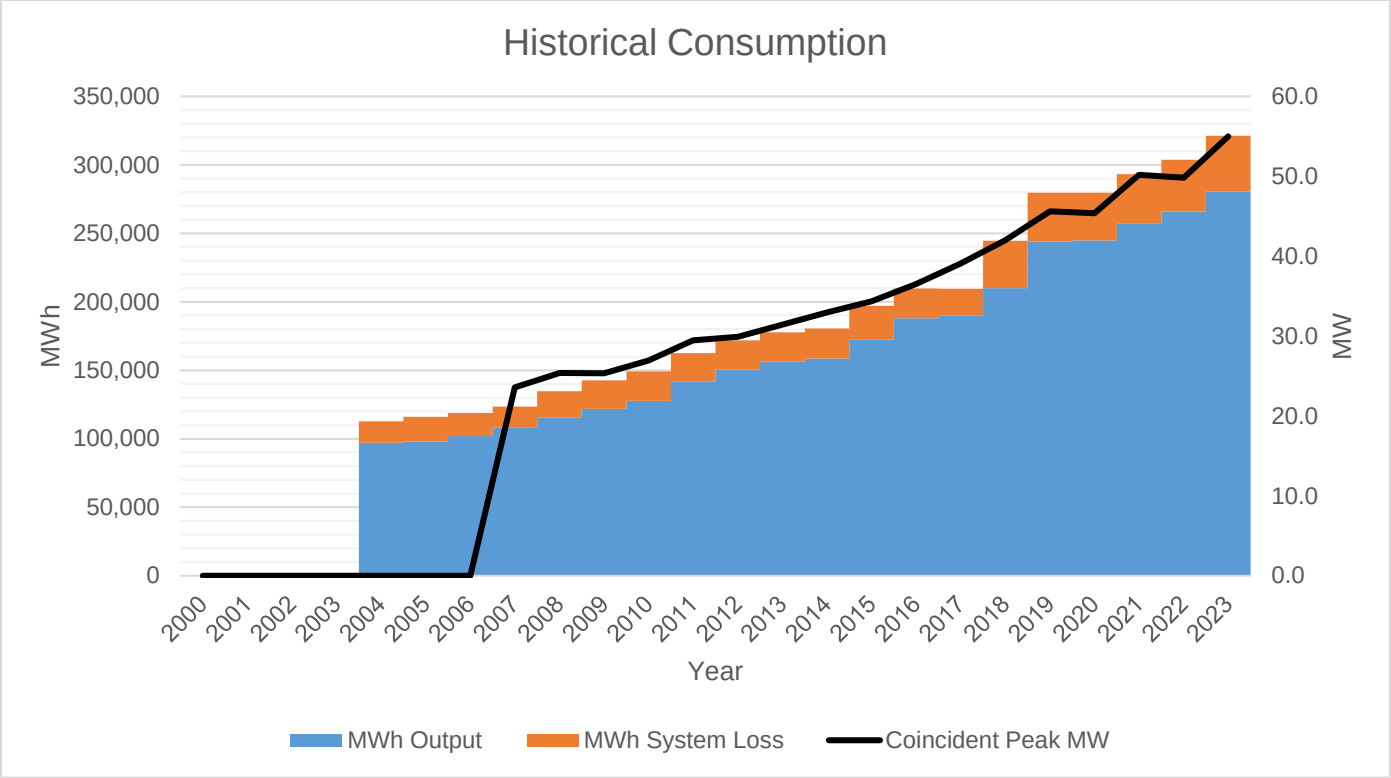
GRID

Zamboanga del Norte Electric Cooperative, Inc. (ZANECO)

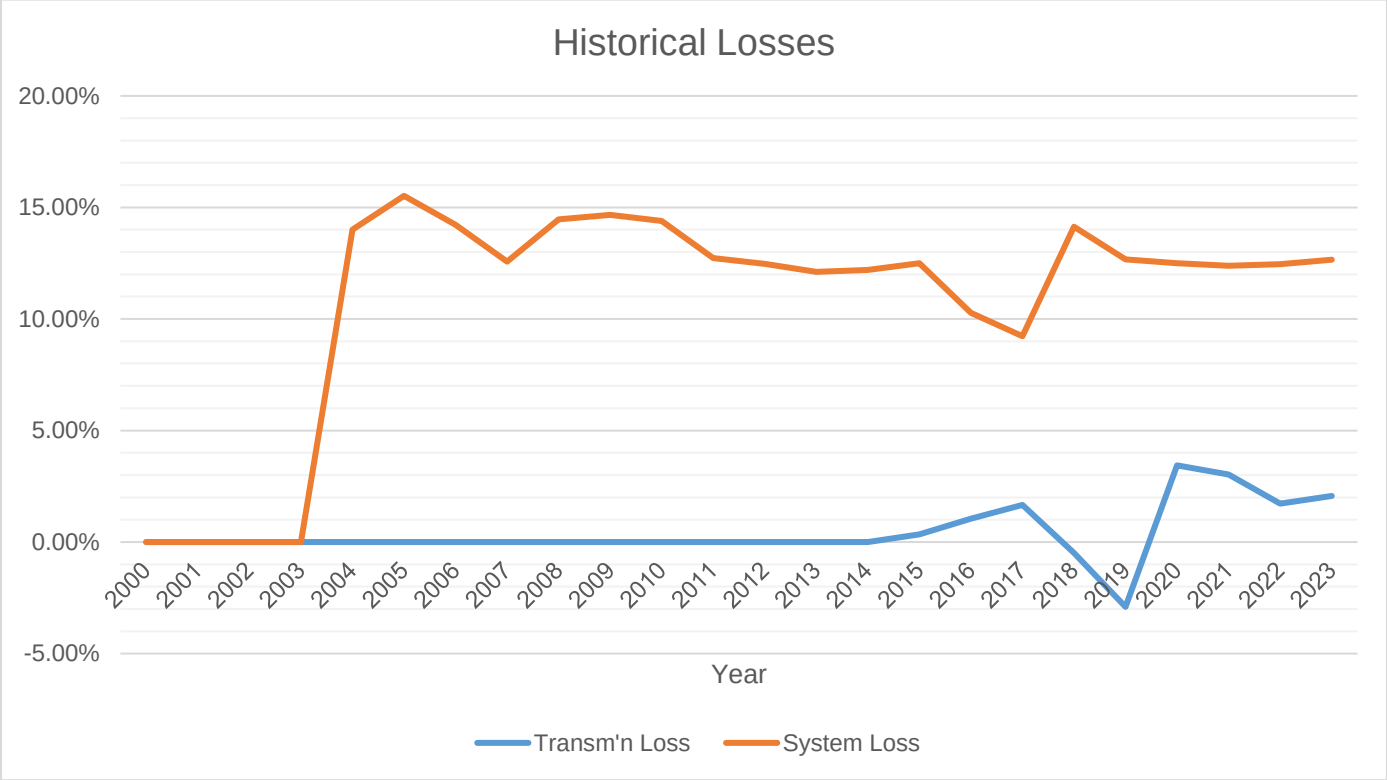
Historical Consumption Data

	Coincident Peak MW	MWh Offtake	WESM	MWh Input	MWh Output	MWh System Loss	Load Factor	Discrepancy	Transm'n Loss	System Loss
2000	0.00	0	0	0	0	0	0%	0.00%	0.00%	0.00%
2001	0.00	0	0	0	0	0	0%	0.00%	0.00%	0.00%
2002	0.00	0	0	0	0	0	0%	0.00%	0.00%	0.00%
2003	0.00	0	0	0	0	0	0%	0.00%	0.00%	0.00%
2004	0.00	112,836	0	112,836	97,038	15,798	0%	0.00%	0.00%	14.00%
2005	0.00	116,085	0	116,085	98,069	18,017	0%	0.00%	0.00%	15.52%
2006	0.00	118,865	0	118,865	101,964	16,902	0%	0.00%	0.00%	14.22%
2007	23.56	123,531	0	123,531	108,002	15,530	60%	0.00%	0.00%	12.57%
2008	25.37	134,709	0	134,709	115,229	19,480	61%	0.00%	0.00%	14.46%
2009	25.32	142,739	0	142,739	121,799	20,939	64%	0.00%	0.00%	14.67%
2010	26.95	149,257	0	149,257	127,767	21,490	63%	0.00%	0.00%	14.40%
2011	29.48	162,615	0	162,615	141,919	20,696	63%	0.00%	0.00%	12.73%
2012	29.91	171,982	0	171,982	150,530	21,451	66%	0.00%	0.00%	12.47%
2013	31.42	177,718	0	177,718	156,188	21,530	65%	0.00%	0.00%	12.11%
2014	32.96	180,520	0	180,520	158,508	22,012	63%	0.00%	0.00%	12.19%
2015	34.35	197,788	0	197,116	172,466	24,649	66%	0.00%	0.34%	12.51%
2016	36.53	211,844	0	209,620	188,073	21,547	66%	0.00%	1.05%	10.28%
2017	39.08	213,008	0	209,458	190,119	19,339	61%	0.00%	1.67%	9.23%
2018	42.00	243,414	0	244,611	210,028	34,582	66%	0.00%	-0.49%	14.14%
2019	45.63	271,620	0	279,511	244,090	35,421	70%	0.00%	-2.91%	12.67%
2020	45.37	289,638	0	279,684	244,708	34,976	70%	0.00%	3.44%	12.51%
2021	50.17	302,286	0	293,139	256,839	36,301	67%	0.00%	3.03%	12.38%
2022	49.80	308,953	0	303,639	265,832	37,807	70%	0.00%	1.72%	12.45%
2023	54.99	327,976	65,871	321,217	280,562	40,655	67%	0.00%	2.06%	12.66%

Peak Demand increased from 49.80 MW in 2022 to 54.99 MW in 2023. An abnormal increase and decrease in peak demand between 2020, 2021, and 2022 were due to the economic impact of covid-19 pandemic. The month of November 2023 reached its peak demand of 54.99 MW. The MWh Offtake increased from 308,953 MWh in 2022 to 327,976 MWh in 2023. Within the same period, the Load Factor ranged from 70% to 67% in 2023.



MWh Output increased from the year 2022 at 49.62 MWh to 54.99 MWh in the year 2023, while MWh System Loss increased from 37,807 MWh to 40,655 MWh consecutively.



Generally, System Loss ranged from 9.23% to 15.52%. System Loss peaked at 15.52% in the year 2005. If the Capital Expenditure Network Projects are approved and implemented, it will reduce the system loss and meet the single digit that every cooperative aims.

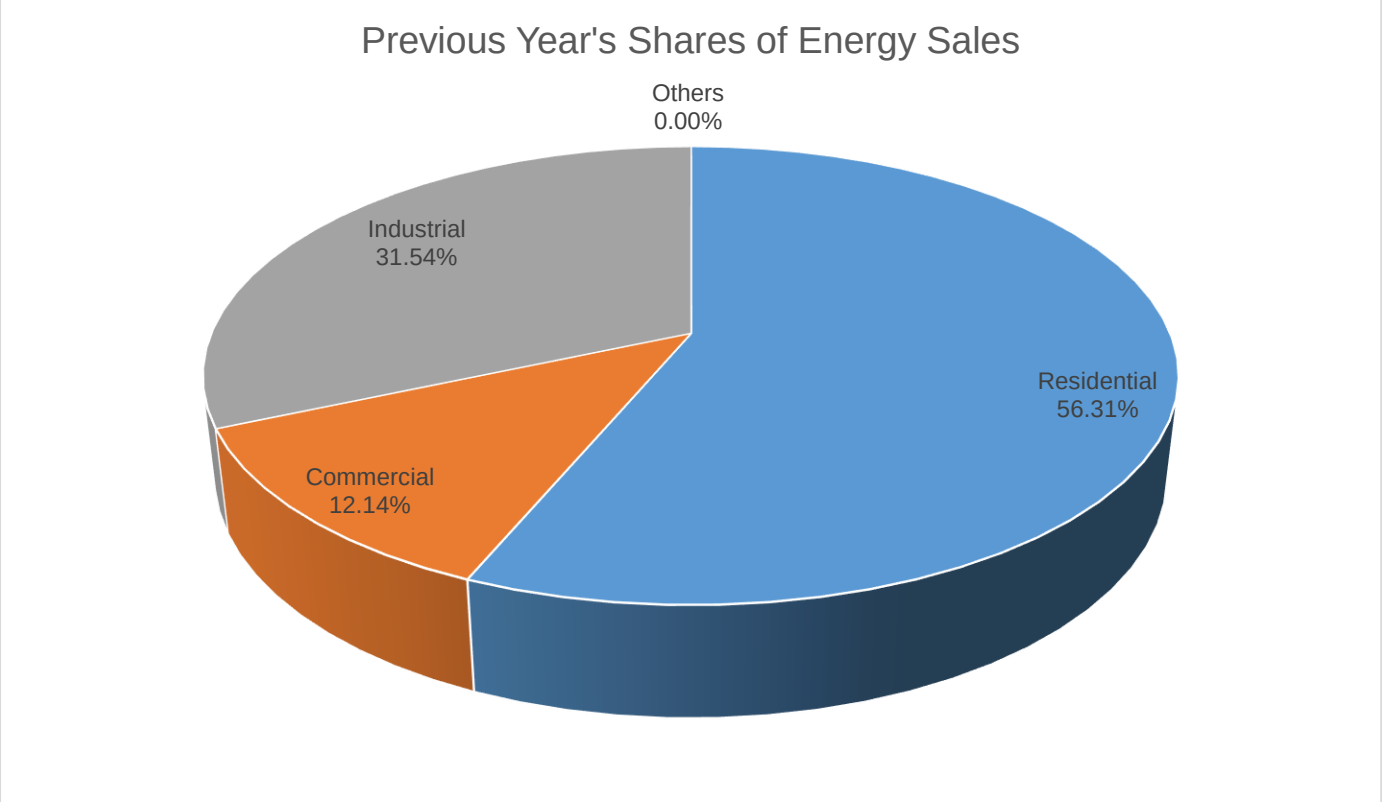
Historically, there is only limited available data for the Transmission Loss. The calculation started in the year 2015 with erratic data. Per DOE-EPIMB DDP Form 2021-01-001 Template, the Transmission loss + system input (energy purchased) = Offtake MWh, then system loss (sub-

transmission loss + substation loss + feeder loss+ non-technical loss) + system output (energy sales) = system input.

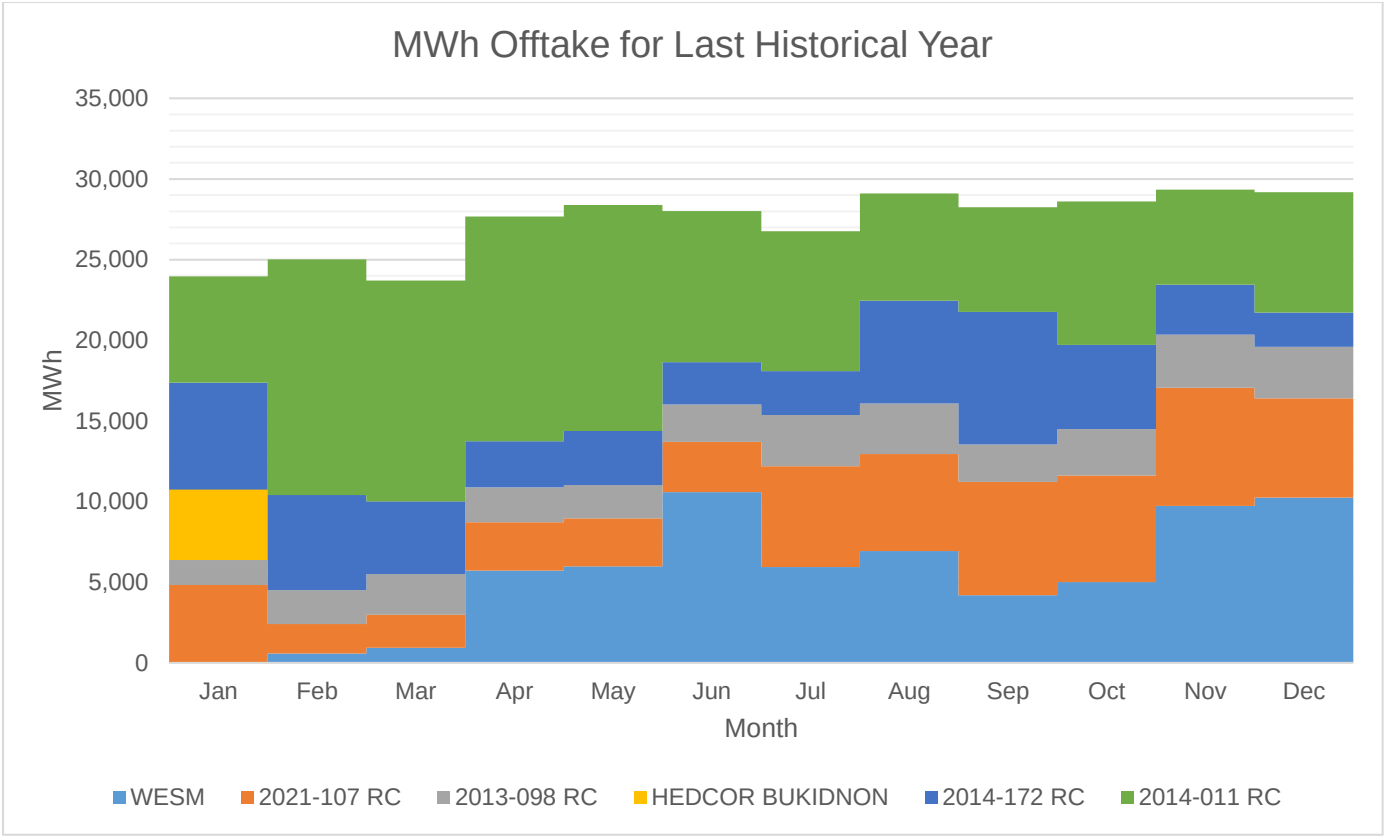
For transmission loss, the abrupt changes starting in April 2023 are due to the input of MWh Offtake from WESM, which began in February as a transition. However, April 2023 marks the start of the normal nomination to WESM.

The System Loss Cap from the Energy Regulatory Commission (ERC) under Resolution No.11 Series of 2011, Resolution No.10 2c Series of 2018, and Resolution No. 20, Series of 2017 entitled “Rules for Setting the Distribution System Loss Cap and Establishing Performance Incentive Scheme for Distribution Efficiency” in which the DSL = SUBTRANSMISSION LOSS + SUBSTATION LOSS + FEEDER LOSS. With this new scheme, the measurement of the Distribution Utilities will start from the feeder Losses up to the Kilowatt-hour meter of end-users.

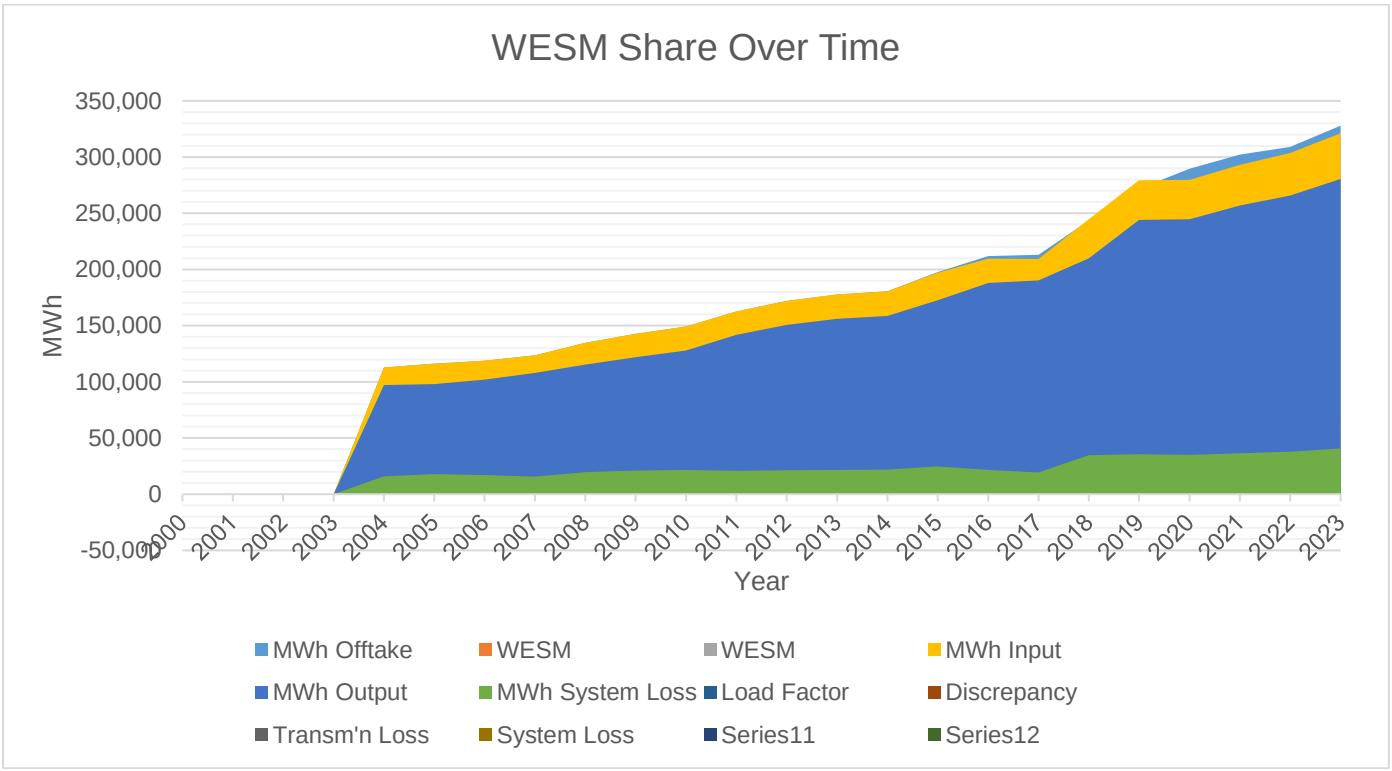
System Loss was calculated through a Load Flow Study conducted in January 2024 by the Technical Data Processors (TDP) using Synergee software. Ideally, there be no negative results of either technical loss or non-technical loss but for the sake of balancing the system, negative results reflected.



Residential customers account for the bulk of energy sales at 56.31% despite the low number of connections. In contrast, Commercial customers accounted for only 12.14% of energy sales and 31.54% for Higher voltage or industrial customers.

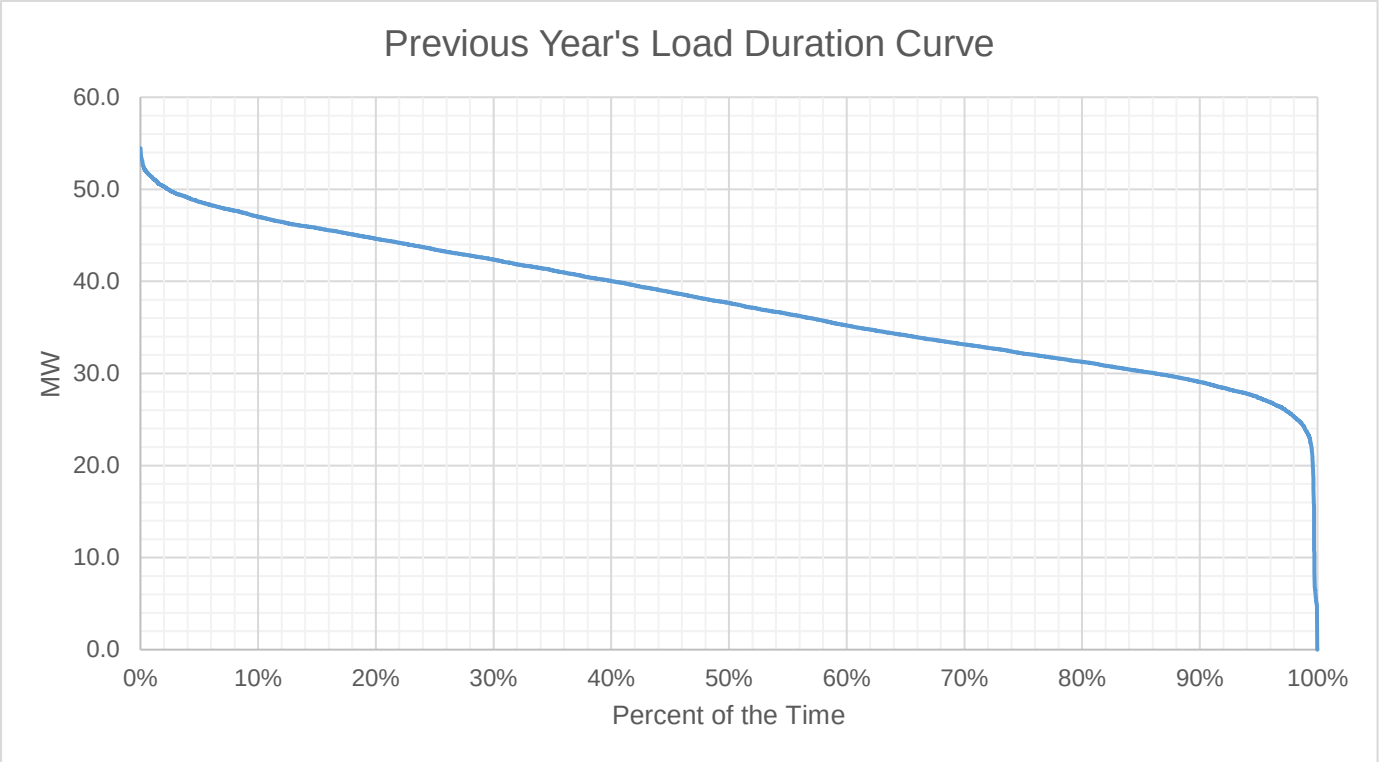


For 2023, the total Offtake for the last historical year is lower than the quantity stipulated in the PSA. The PSA with GN Power Kauswagan Ltd. Co. (GNPK) accounts for the bulk of MWh Offtake.



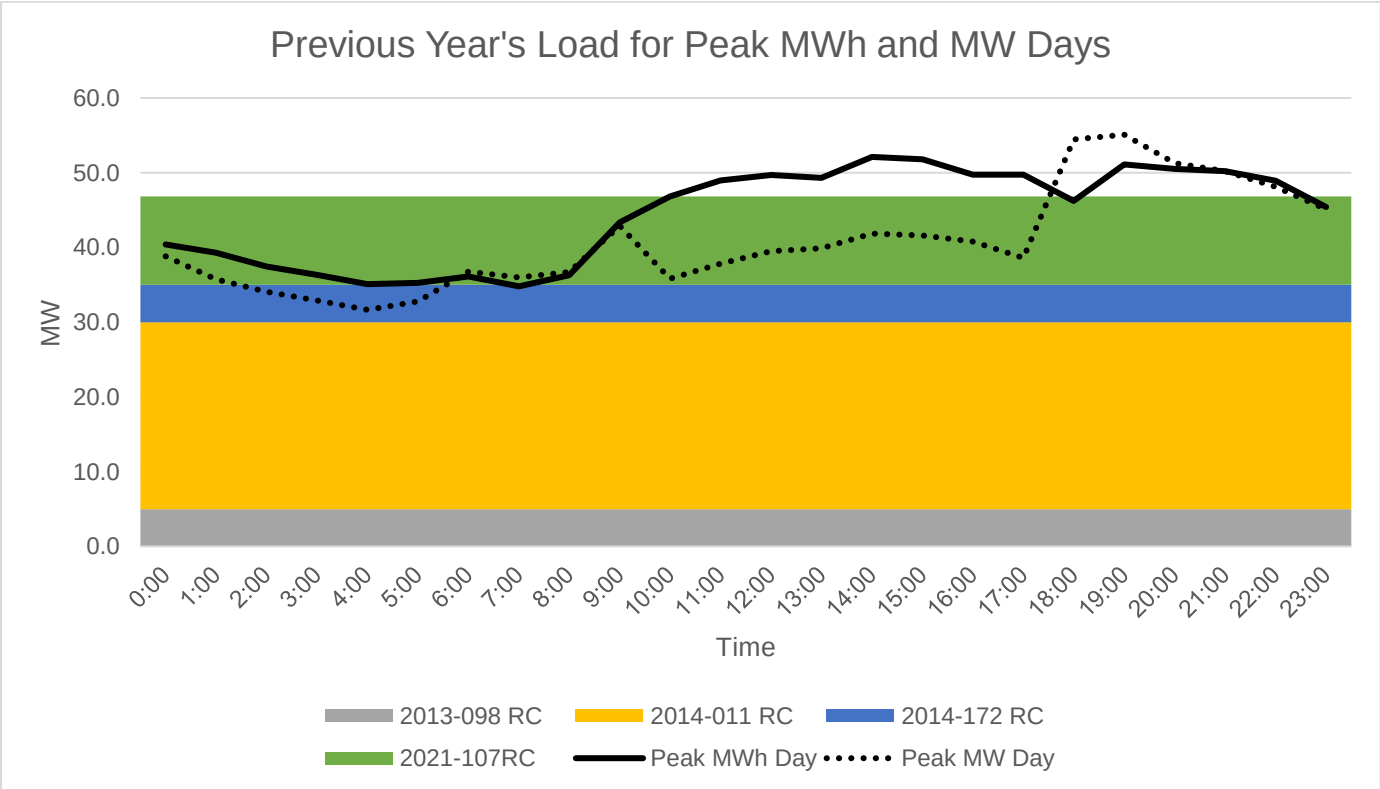
WESM Offtake in the year 2023 is at a monthly average of 5,988MWH. The share of WESM in the total Offtake ranged from 2.33% to 35.16%. The net WESM transaction is negative from 582.54MWH to 10,257.04MWH because of opting to source from WESM due to the competitive market price.

Previous Year's Load Profile



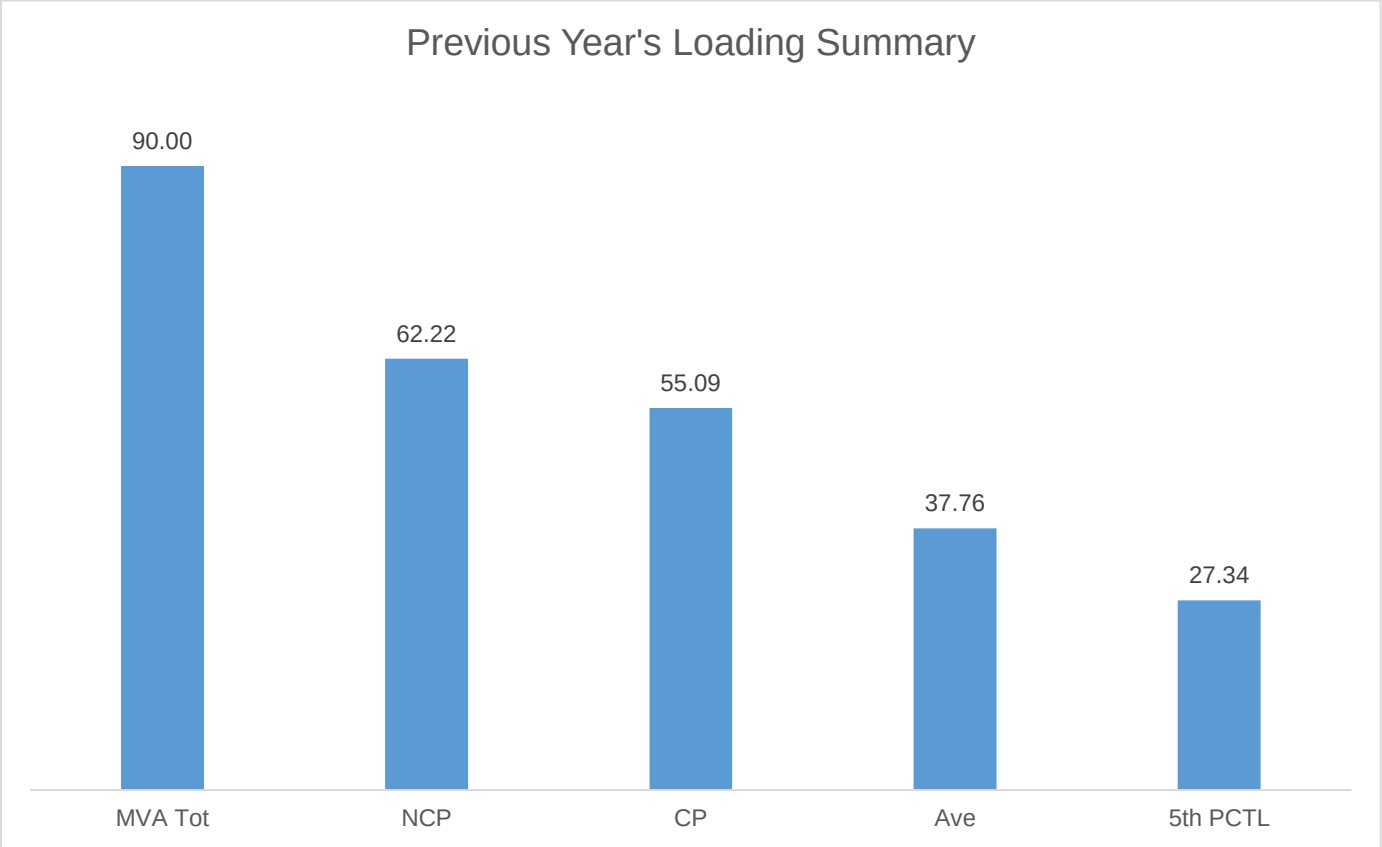
Based on the Load Duration Curve, the minimum load is 0 MW and the maximum load is 54.99 MW for the last historical year.

For the load profile of 2023, you will notice that the M3 substation is zero because the substation was on standby. It was removed from the grid last December 13, 2020, for refurbishment. The said substation's rehabilitation is still ongoing with no specific date for its completion.



Peak MW occurred on November 14, 2023 due to the increase of consumption of the consumers caused by the reduction of power rate of ZANECO during this period. Peak daily MWh occurred on

May 16, 2023 due to the extended dry and warm season in the country which lasted until May 2023. As shown in the Load Curves, the available supply is lower than the Peak Demand.



The Non-Coincident Peak Demand is 62.22 MW, which is around 69% of the total substation capacity of 90 MVA at a power factor of 99.51%. The load factor or the ratio between the Average Load of 37.76 MW and the Coincident Peak Demand is 55.36% of 55.09 MW. A safe estimate of the true minimum load is the fifth percentile load of 27.34 MW which is 45% of the Non-Coincident Peak Demand.

Metering Point	Substation MVA	Substation Peak MW
M1-POLO	20	15.42
M2-SALUG	5	4.91
M3-PIAO (Standby)	5	-
M4-OBAY	20	20.45
M5-LILOY	5	4.91
M6-IRASAN	20	8.86
M7-SINDANGAN	5	5.33
M8-PETRA CEMENT	10	2.34

The substations loaded above 70% are M2- Salug, M4-Polanco, M5-Liloy and M7-Sindangan substations. The M2-Salug reached 79% in December 2023 with 100% Power Factor, M4-Polanco reached 83% in November 2023 with 98.77% PF, M5-Liloy reached 98% in August 2023 at 99.96% PF, and M7-Sindangan reached 87% in November 2023 at 97.74% PF.
This loading problems of some substations will be addressed after the energization of 2x5 MVA Labason substations and an additional 5MVA as N-1 Contingency in Sindangan Substation which is expected to be 100% complete this coming March and April of 2024. Moreover, the management

also planned to implement the 5MVA Piñan substation and is expected to be implemented by the end of 2024. Then, the M4-Polanco substation overloaded capacity problem will be addressed in the proposal for the Construction of a new substation in Dipolog City, it will be applied in the Multi-Year Capex 2025-2027.

The M3-Piao (Roxas) substation was removed from the Grid last December 13, 2020, for the replacement of the dilapidated wood Substation Gantry Structure with steel structures and the upgrading into the substation automation system and SCADA-ready by purchasing various modern equipment. However, there is no specific date confirmed by technical personnel when comes to the date of re-energization of the said substation.

Forecasted Consumption Data

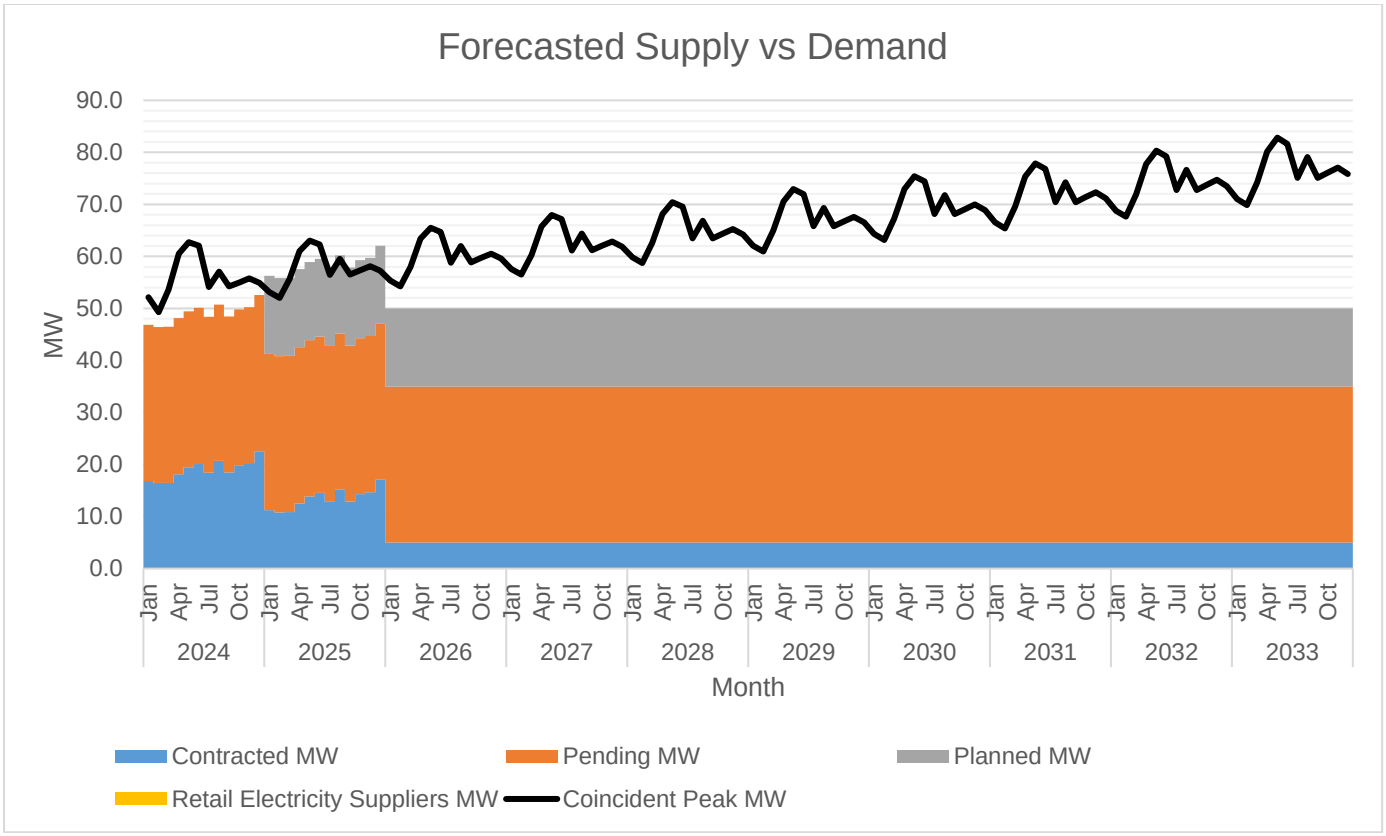
		Coincident Peak MW	Contracted MW	Pending MW	Planned MW	Retail Electricity Suppliers MW	Existing Contracting Level	Target Contracting Level	MW Surplus / Deficit
2024	Jan	52.15	16.85	30.00	0.000		32%	90%	-5.30
	Feb	49.29	16.44	30.00	0.000		33%	94%	-2.85
	Mar	53.65	16.48	30.00	0.000		31%	87%	-7.16
	Apr	60.52	18.12	30.00	0.000		30%	80%	-12.40
	May	62.72	19.45	30.00	0.000		31%	79%	-13.26
	Jun	62.04	20.09	30.00	0.000		32%	81%	-11.95
	Jul	54.14	18.41	30.00	0.000		34%	89%	-5.73
	Aug	57.07	20.74	30.00	0.000		36%	89%	-6.33
	Sep	54.22	18.47	30.00	0.000		34%	89%	-5.75
	Oct	55.00	19.84	30.00	0.000		36%	91%	-5.16
	Nov	55.78	20.25	30.00	0.000		36%	90%	-5.53
	Dec	54.92	22.55	30.00	0.000		41%	96%	-2.37
2025	Jan	53.12	11.25	30.00	15.000		21%	106%	3.13
	Feb	52.04	10.83	30.00	15.000		21%	107%	3.79
	Mar	55.64	10.87	30.00	15.000		20%	100%	0.23
	Apr	60.98	12.54	30.00	15.000		21%	94%	-3.44
	May	63.03	13.90	30.00	15.000		22%	93%	-4.13
	Jun	62.32	14.55	30.00	15.000		23%	96%	-2.76
	Jul	56.47	12.83	30.00	15.000		23%	102%	1.36
	Aug	59.52	15.21	30.00	15.000		26%	101%	0.69
	Sep	56.54	12.88	30.00	15.000		23%	102%	1.34
	Oct	57.35	14.29	30.00	15.000		25%	103%	1.94
	Nov	58.15	14.70	30.00	15.000		25%	103%	1.56
	Dec	57.24	17.05	30.00	15.000		30%	108%	4.81
2026	Jan	55.36	5.00	30.00	15.000		9%	90%	-5.36
	Feb	54.27	5.00	30.00	15.000		9%	92%	-4.27
	Mar	57.97	5.00	30.00	15.000		9%	86%	-7.97
	Apr	63.38	5.00	30.00	15.000		8%	79%	-13.38
	May	65.50	5.00	30.00	15.000		8%	76%	-15.50
	Jun	64.73	5.00	30.00	15.000		8%	77%	-14.73
	Jul	58.80	5.00	30.00	15.000		9%	85%	-8.80
	Aug	61.97	5.00	30.00	15.000		8%	81%	-11.97
	Sep	58.86	5.00	30.00	15.000		8%	85%	-8.86
	Oct	59.69	5.00	30.00	15.000		8%	84%	-9.69
	Nov	60.51	5.00	30.00	15.000		8%	83%	-10.51
	Dec	59.57	5.00	30.00	15.000		8%	84%	-9.57
2027	Jan	57.59	5.00	30.00	15.000		9%	87%	-7.59
	Feb	56.49	5.00	30.00	15.000		9%	89%	-6.49
	Mar	60.29	5.00	30.00	15.000		8%	83%	-10.29
	Apr	65.78	5.00	30.00	15.000		8%	76%	-15.78
	May	67.98	5.00	30.00	15.000		7%	74%	-17.98
	Jun	67.15	5.00	30.00	15.000		7%	74%	-17.15
	Jul	61.13	5.00	30.00	15.000		8%	82%	-11.13
	Aug	64.41	5.00	30.00	15.000		8%	78%	-14.41

		Coincident Peak MW	Contracted MW	Pending MW	Planned MW	Retail Electricity Suppliers MW	Existing Contracting Level	Target Contracting Level	MW Surplus / Deficit
	Sep	61.17	5.00	30.00	15.000		8%	82%	-11.17
	Oct	62.03	5.00	30.00	15.000		8%	81%	-12.03
	Nov	62.88	5.00	30.00	15.000		8%	80%	-12.88
	Dec	61.89	5.00	30.00	15.000		8%	81%	-11.89
2028	Jan	59.83	5.00	30.00	15.000		8%	84%	-9.83
	Feb	58.72	5.00	30.00	15.000		9%	85%	-8.72
	Mar	62.62	5.00	30.00	15.000		8%	80%	-12.62
	Apr	68.18	5.00	30.00	15.000		7%	73%	-18.18
	May	70.45	5.00	30.00	15.000		7%	71%	-20.45
	Jun	69.56	5.00	30.00	15.000		7%	72%	-19.56
	Jul	63.46	5.00	30.00	15.000		8%	79%	-13.46
	Aug	66.86	5.00	30.00	15.000		7%	75%	-16.86
	Sep	63.49	5.00	30.00	15.000		8%	79%	-13.49
	Oct	64.38	5.00	30.00	15.000		8%	78%	-14.38
	Nov	65.25	5.00	30.00	15.000		8%	77%	-15.25
	Dec	64.21	5.00	30.00	15.000		8%	78%	-14.21
2029	Jan	62.07	5.00	30.00	15.000		8%	81%	-12.07
	Feb	60.95	5.00	30.00	15.000		8%	82%	-10.95
	Mar	64.95	5.00	30.00	15.000		8%	77%	-14.95
	Apr	70.57	5.00	30.00	15.000		7%	71%	-20.57
	May	72.93	5.00	30.00	15.000		7%	69%	-22.93
	Jun	71.98	5.00	30.00	15.000		7%	69%	-21.98
	Jul	65.79	5.00	30.00	15.000		8%	76%	-15.79
	Aug	69.31	5.00	30.00	15.000		7%	72%	-19.31
	Sep	65.81	5.00	30.00	15.000		8%	76%	-15.81
	Oct	66.72	5.00	30.00	15.000		7%	75%	-16.72
	Nov	67.62	5.00	30.00	15.000		7%	74%	-17.62
	Dec	66.54	5.00	30.00	15.000		8%	75%	-16.54
2030	Jan	64.31	5.00	30.00	15.000		8%	78%	-14.31
	Feb	63.18	5.00	30.00	15.000		8%	79%	-13.18
	Mar	67.28	5.00	30.00	15.000		7%	74%	-17.28
	Apr	72.97	5.00	30.00	15.000		7%	69%	-22.97
	May	75.40	5.00	30.00	15.000		7%	66%	-25.40
	Jun	74.39	5.00	30.00	15.000		7%	67%	-24.39
	Jul	68.12	5.00	30.00	15.000		7%	73%	-18.12
	Aug	71.76	5.00	30.00	15.000		7%	70%	-21.76
	Sep	68.13	5.00	30.00	15.000		7%	73%	-18.13
	Oct	69.06	5.00	30.00	15.000		7%	72%	-19.06
	Nov	69.98	5.00	30.00	15.000		7%	71%	-19.98
	Dec	68.86	5.00	30.00	15.000		7%	73%	-18.86
2031	Jan	66.55	5.00	30.00	15.000		8%	75%	-16.55
	Feb	65.41	5.00	30.00	15.000		8%	76%	-15.41
	Mar	69.61	5.00	30.00	15.000		7%	72%	-19.61
	Apr	75.37	5.00	30.00	15.000		7%	66%	-25.37
	May	77.88	5.00	30.00	15.000		6%	64%	-27.88
	Jun	76.81	5.00	30.00	15.000		7%	65%	-26.81

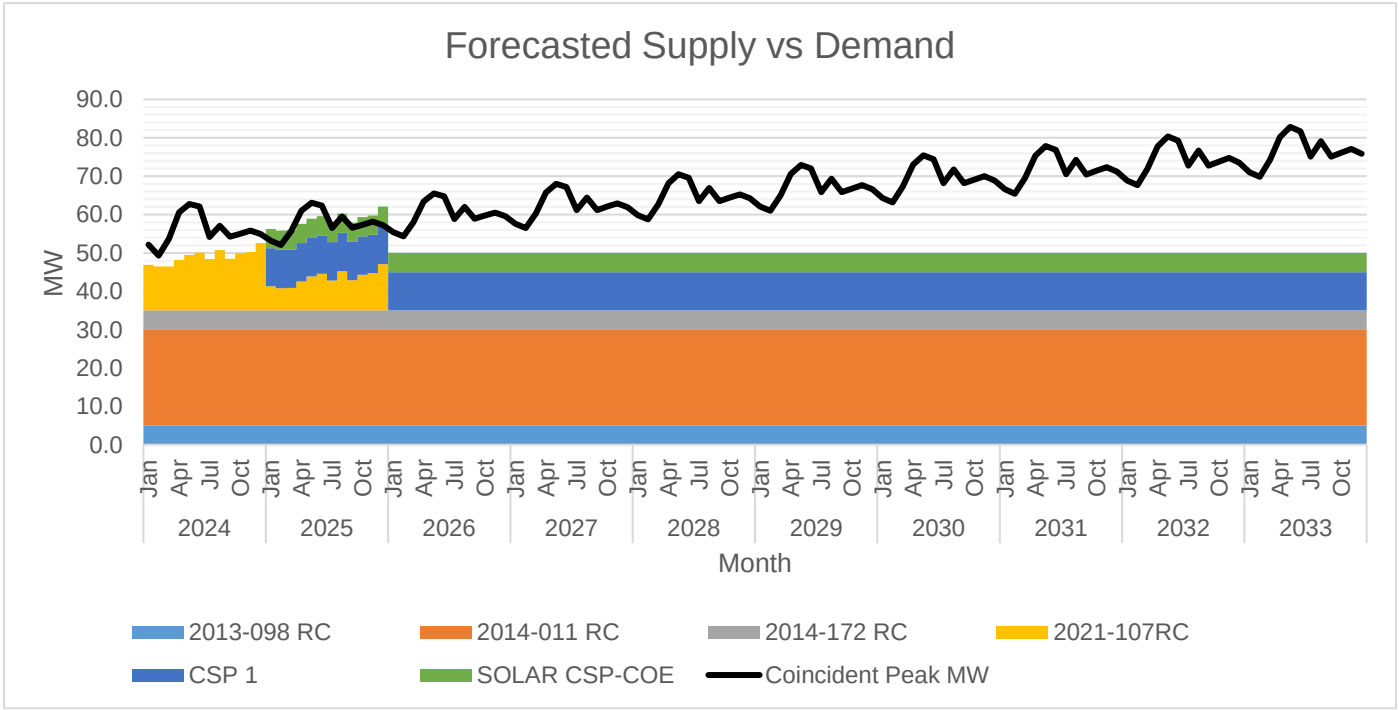
		Coincident Peak MW	Contracted MW	Pending MW	Planned MW	Retail Electricity Suppliers MW	Existing Contracting Level	Target Contracting Level	MW Surplus / Deficit
	Jul	70.45	5.00	30.00	15.000		7%	71%	-20.45
	Aug	74.21	5.00	30.00	15.000		7%	67%	-24.21
	Sep	70.44	5.00	30.00	15.000		7%	71%	-20.44
	Oct	71.41	5.00	30.00	15.000		7%	70%	-21.41
	Nov	72.35	5.00	30.00	15.000		7%	69%	-22.35
	Dec	71.18	5.00	30.00	15.000		7%	70%	-21.18
2032	Jan	68.79	5.00	30.00	15.000		7%	73%	-18.79
	Feb	67.63	5.00	30.00	15.000		7%	74%	-17.63
	Mar	71.94	5.00	30.00	15.000		7%	70%	-21.94
	Apr	77.77	5.00	30.00	15.000		6%	64%	-27.77
	May	80.35	5.00	30.00	15.000		6%	62%	-30.35
	Jun	79.23	5.00	30.00	15.000		6%	63%	-29.23
	Jul	72.78	5.00	30.00	15.000		7%	69%	-22.78
	Aug	76.66	5.00	30.00	15.000		7%	65%	-26.66
	Sep	72.76	5.00	30.00	15.000		7%	69%	-22.76
	Oct	73.75	5.00	30.00	15.000		7%	68%	-23.75
	Nov	74.72	5.00	30.00	15.000		7%	67%	-24.72
	Dec	73.50	5.00	30.00	15.000		7%	68%	-23.50
2033	Jan	71.03	5.00	30.00	15.000		7%	70%	-21.03
	Feb	69.86	5.00	30.00	15.000		7%	72%	-19.86
	Mar	74.27	5.00	30.00	15.000		7%	67%	-24.27
	Apr	80.16	5.00	30.00	15.000		6%	62%	-30.16
	May	82.82	5.00	30.00	15.000		6%	60%	-32.82
	Jun	81.64	5.00	30.00	15.000		6%	61%	-31.64
	Jul	75.12	5.00	30.00	15.000		7%	67%	-25.12
	Aug	79.10	5.00	30.00	15.000		6%	63%	-29.10
	Sep	75.08	5.00	30.00	15.000		7%	67%	-25.08
	Oct	76.09	5.00	30.00	15.000		7%	66%	-26.09
	Nov	77.09	5.00	30.00	15.000		6%	65%	-27.09
	Dec	75.83	5.00	30.00	15.000		7%	66%	-25.83

The Peak Demand was forecasted using Short Term Load Forecasting using Seasonal Effects and was assumed to occur in the month of November based on seven (7) years of historical loads. Monthly Peak Demand is at its lowest in the month of February based on the actual metering data of NGCP. In general, Peak Demand is expected to grow at an average rate of 3.72%.

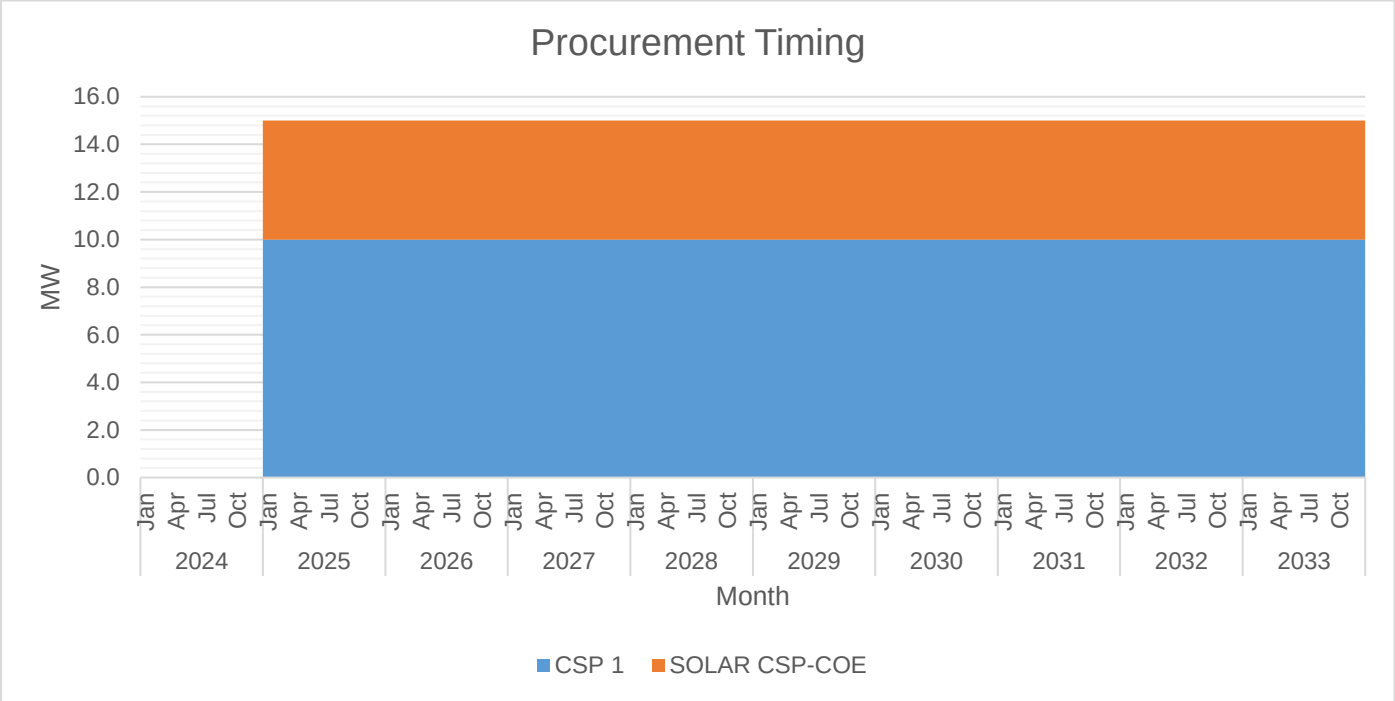
With the commencement of WESM Mindanao last January 26, 2023 pursuant to DOE Circular No. 2022-12-0039, ZANECO sourced additional supply from the market in order to eliminate supply deficiency in the franchise area for year 2023 and 2024. As of to date, the market price is cheaper and for the mean time ZANECO takes the opportunity of buying power in the market, however, the cooperative will be including another supply procurement in the succeeding PSPP submissions. At present, there is an on-going CSP for the supply of 10MW and CSP-exempted 5MW Renewable Energy sources which will have a commercial operation date on January 2025 subject to ERC's approval.



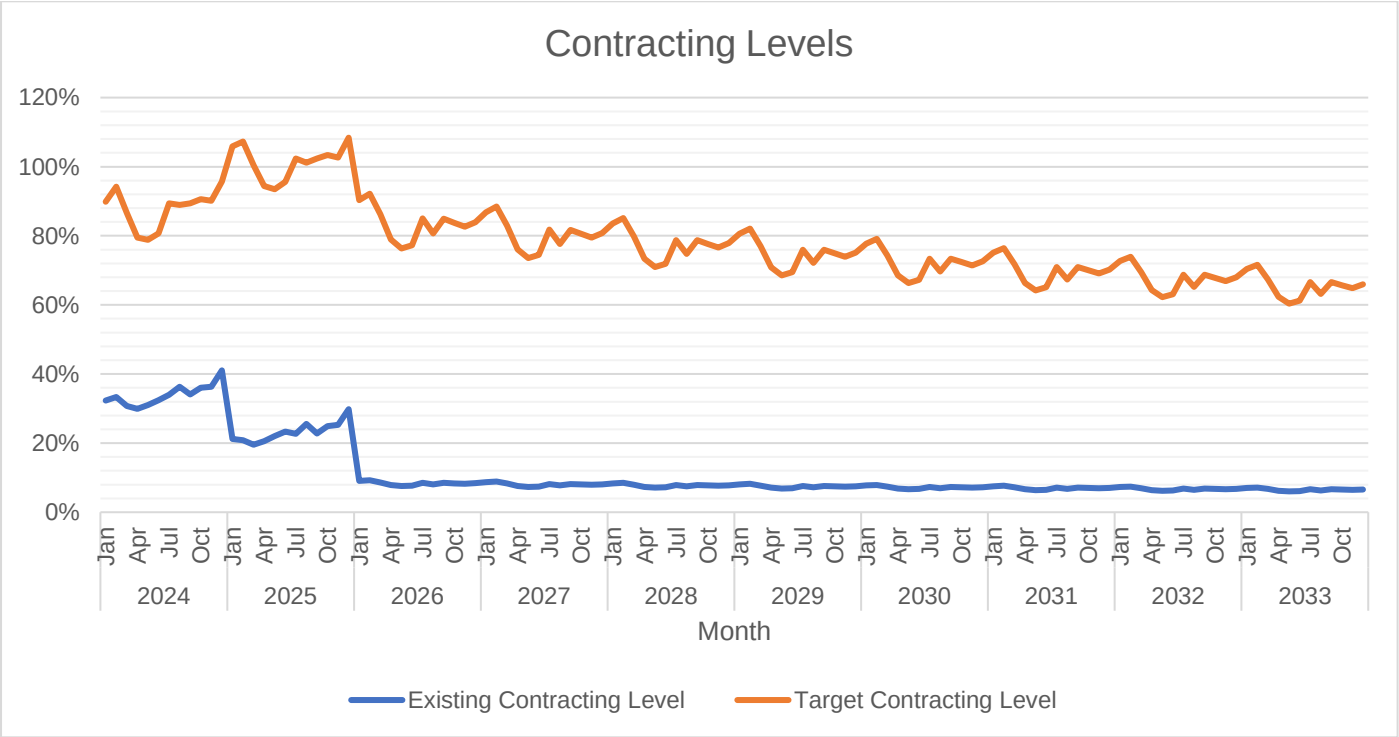
The available supply is generally below the Peak Demand. This is because PSALM shall only supply until year 2025 and the reduction of the supply contract of GNPK from 35MW to 25MW based on the ERC Order dated February 23, 2023 under ERC Case No. 2014-011RC which Commission only acknowledges the original contracted capacity. While, for the succeeding years, ZANECO has yet to plan its procurement of power supply requirements for the captive customers. The conduct of another round of CSP will be on hold for now due to the incoming commercial operation of Retail Competition and Open Access (RCOA) in Mindanao, and the pending renewal of the ZANECO franchise which is in the document preparation stage. This is in order to avoid future contractual obligation for the cooperative and the member-consumers due to the unused contracted capacity and non-renewal of the franchise.



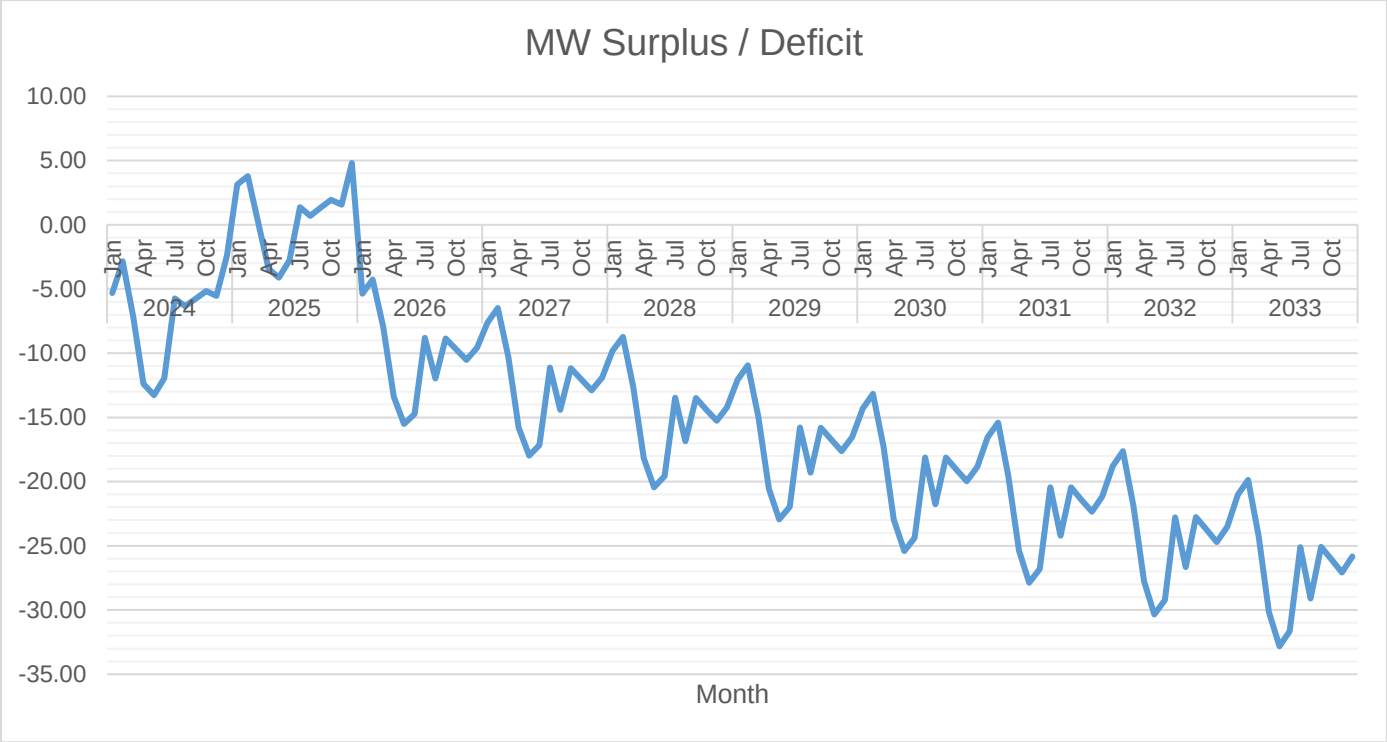
Of the available supply, the largest is 25 MW PSA from GN Power Kauswagan Ltd. Co. This is followed by 10 MW mid-merit supply from the planned CSP of ZANECO.



The first wave of supply procurement will be for 10 MW mid-merit supply planned to be available by the month of January 2025. This planned CSP was already approved based on the 2021-2030 PSPP of ZANECO. To date, ZANECO has already submitted the CSP documents before the NEA for the initial review prior the conduct of pre-screening conference for the latter's issuance of the Notice of Completion of PSA documents. This will be followed by the procurement of mid-merit supply from a renewable energy source. ZANECO and Astronergy Development Dipolog Inc. has executed a Renewable Energy Supply Agreement (RESA) last December 12, 2023. This power supply procurement is exempted from the conduct of CSP under Section 2.3.4 of the DOE Department Circular No. DC2023-06-0021, which is the supply to Distribution Utilities (DU) from any generating plant embedded in its franchise area utilizing renewable energy resources, wherein the contracted capacity of the embedded generation plant/s shall not exceed 10MW per DU.



Currently, the contracting level is 36%, however, ERC has already granted provisional authority from other power supply agreements which allows them to deliver supply to ZANECO. The highest target contracting level is 108% which is expected to occur in the year 2025.



Currently, there is under-contracting by 2.37MW which is the highest deficit and is expected to occur on the month of December 2024. The lowest deficit is 32.82 MW which is expected to occur on the month of May 2033.

As per submitted Renewable Portfolio Standard (RPS) compliance, ZANECO has an RE certificate shortfall starting in the year 2023. With this factor, the procurement of 10MW and a 5MW mid-merit supply would alleviate the supply deficiency in the future and help with the compliance to the Renewable Portfolio Standards (RPS Rules).

		MWh Offtake	MWh Output	MWh System Loss	Transm'n Loss	System Loss
2024	Jan	29,405	24,845	3,909	2.22%	13.59%
	Feb	28,414	24,667	3,242	1.78%	11.62%
	Mar	28,488	24,475	3,461	1.94%	12.39%
	Apr	34,061	28,535	4,579	2.78%	13.83%
	May	34,293	29,085	4,118	3.18%	12.40%
	Jun	33,711	28,706	4,053	2.82%	12.37%
	Jul	28,674	25,163	2,830	2.38%	10.11%
	Aug	30,397	26,999	2,968	1.41%	9.91%
	Sep	29,726	26,548	2,759	1.41%	9.41%
	Oct	30,115	26,612	2,882	2.06%	9.77%
	Nov	31,244	28,233	2,929	0.26%	9.40%
	Dec	31,404	28,529	2,798	0.25%	8.93%
2025	Jan	28,255	25,313	2,719	0.79%	9.70%
	Feb	28,945	26,137	3,221	-1.43%	10.97%
	Mar	28,514	24,724	2,968	2.88%	10.72%

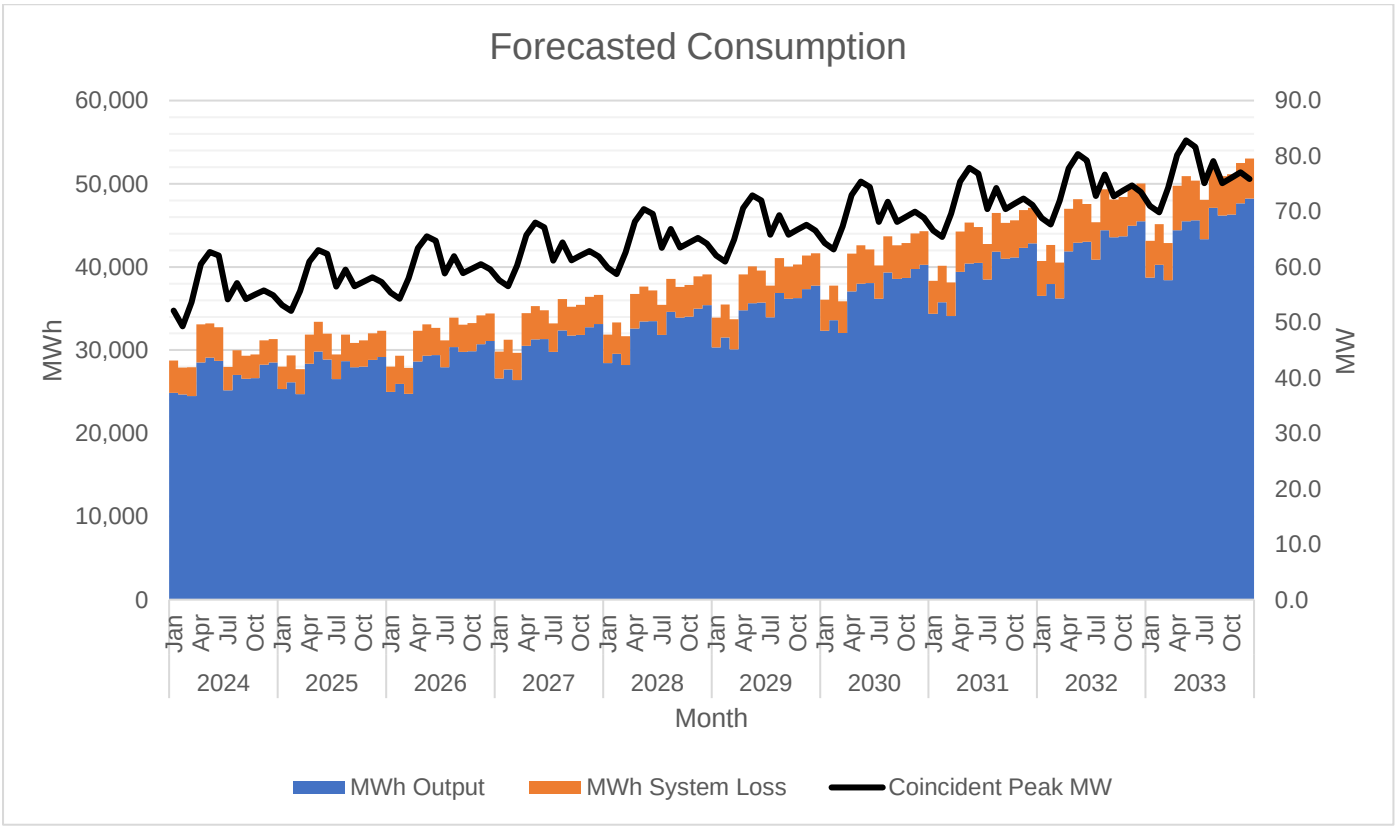
		MWh Offtake	MWh Output	MWh System Loss	Transm'n Loss	System Loss
	Apr	32,040	28,346	3,526	0.53%	11.06%
	May	32,566	29,817	3,599	-2.61%	10.77%
	Jun	32,586	28,878	3,108	1.84%	9.72%
	Jul	30,920	26,501	2,986	4.63%	10.13%
	Aug	32,895	28,680	3,184	3.13%	9.99%
	Sep	31,719	27,920	2,949	2.68%	9.55%
	Oct	32,002	28,005	3,151	2.64%	10.12%
	Nov	32,808	28,812	3,194	2.44%	9.98%
	Dec	32,889	29,158	3,173	1.70%	9.81%
2026	Jan	28,968	24,962	3,050	3.30%	10.89%
	Feb	31,166	25,947	3,371	5.93%	11.50%
	Mar	29,377	24,760	3,103	5.15%	11.14%
	Apr	33,684	28,622	3,692	4.07%	11.42%
	May	34,236	29,337	3,767	3.30%	11.38%
	Jun	33,658	29,402	3,260	2.96%	9.98%
	Jul	31,905	27,934	3,236	2.30%	10.38%
	Aug	34,824	30,364	3,547	2.62%	10.46%
	Sep	33,872	29,767	3,295	2.39%	9.97%
	Oct	33,643	29,857	3,410	1.12%	10.25%
	Nov	35,090	30,718	3,452	2.62%	10.10%
	Dec	35,009	31,087	3,313	1.74%	9.63%
2027	Jan	30,844	26,609	3,231	3.25%	10.83%
	Feb	32,683	27,659	3,577	4.43%	11.45%
	Mar	31,317	26,394	3,290	5.21%	11.08%
	Apr	35,864	30,511	3,920	4.00%	11.38%
	May	35,652	31,274	3,997	1.07%	11.33%
	Jun	35,675	31,342	3,465	2.43%	9.96%
	Jul	33,810	29,778	3,439	1.75%	10.35%
	Aug	37,717	32,368	3,766	4.20%	10.42%
	Sep	36,064	31,732	3,494	2.32%	9.92%
	Oct	36,322	31,828	3,623	2.40%	10.22%
	Nov	37,323	32,745	3,664	2.45%	10.06%
	Dec	37,759	33,139	3,507	2.95%	9.57%
2028	Jan	32,897	28,440	3,405	3.20%	10.69%
	Feb	34,893	29,562	3,775	4.46%	11.32%
	Mar	33,443	28,210	3,470	5.27%	10.95%
	Apr	38,252	32,610	4,140	3.93%	11.27%
	May	38,879	33,425	4,218	3.18%	11.21%
	Jun	38,104	33,499	3,664	2.47%	9.86%
	Jul	36,114	31,826	3,636	1.81%	10.25%
	Aug	39,428	34,594	3,978	2.17%	10.31%
	Sep	38,466	33,915	3,687	2.25%	9.80%
	Oct	38,707	34,017	3,829	2.22%	10.12%
	Nov	39,768	34,997	3,870	2.27%	9.96%
	Dec	40,113	35,418	3,695	2.49%	9.45%
2029	Jan	34,992	30,323	3,567	3.15%	10.53%
	Feb	37,146	31,519	3,960	4.49%	11.16%

		MWh Offtake	MWh Output	MWh System Loss	Transm'n Loss	System Loss
	Mar	35,610	30,078	3,638	5.32%	10.79%
	Apr	40,688	34,770	4,345	3.87%	11.11%
	May	41,355	35,638	4,425	3.12%	11.05%
	Jun	40,581	35,717	3,850	2.50%	9.73%
	Jul	38,464	33,934	3,819	1.85%	10.12%
	Aug	41,990	36,885	4,175	2.21%	10.17%
	Sep	40,915	36,161	3,866	2.17%	9.66%
	Oct	41,139	36,270	4,021	2.06%	9.98%
	Nov	42,262	37,315	4,062	2.09%	9.82%
	Dec	42,514	37,764	3,869	2.07%	9.29%
2030	Jan	37,199	32,320	3,728	3.10%	10.34%
	Feb	39,521	33,595	4,143	4.51%	10.98%
	Mar	37,894	32,059	3,804	5.36%	10.61%
	Apr	43,255	37,060	4,548	3.81%	10.93%
	May	43,964	37,985	4,630	3.07%	10.86%
	Jun	43,192	38,069	4,033	2.52%	9.58%
	Jul	40,941	36,168	4,001	1.89%	9.96%
	Aug	44,689	39,314	4,371	2.24%	10.01%
	Sep	43,496	38,542	4,044	2.09%	9.50%
	Oct	43,703	38,659	4,212	1.91%	9.82%
	Nov	44,890	39,772	4,252	1.93%	9.66%
	Dec	45,045	40,250	4,041	1.67%	9.12%
2031	Jan	39,547	34,384	3,963	3.04%	10.33%
	Feb	42,047	35,740	4,410	4.51%	10.98%
	Mar	40,324	34,106	4,047	5.38%	10.61%
	Apr	45,985	39,426	4,845	3.73%	10.94%
	May	46,738	40,411	4,927	3.00%	10.87%
	Jun	45,918	40,500	4,299	2.44%	9.60%
	Jul	43,576	38,478	4,262	1.92%	9.97%
	Aug	47,510	41,825	4,653	2.17%	10.01%
	Sep	46,241	41,003	4,300	2.03%	9.49%
	Oct	46,430	41,127	4,485	1.76%	9.83%
	Nov	47,686	42,312	4,525	1.78%	9.66%
	Dec	47,836	42,821	4,296	1.50%	9.12%
2032	Jan	41,961	36,520	4,190	2.98%	10.29%
	Feb	44,643	37,961	4,670	4.51%	10.95%
	Mar	42,821	36,225	4,283	5.40%	10.57%
	Apr	48,791	41,875	5,132	3.65%	10.92%
	May	49,591	42,921	5,215	2.93%	10.83%
	Jun	48,722	43,016	4,556	2.36%	9.58%
	Jul	46,184	40,868	4,516	1.73%	9.95%
	Aug	50,411	44,423	4,927	2.10%	9.98%
	Sep	49,063	43,551	4,549	1.96%	9.46%
	Oct	49,233	43,682	4,750	1.63%	9.81%
	Nov	50,559	44,941	4,789	1.64%	9.63%
	Dec	50,803	45,481	4,543	1.53%	9.08%
2033	Jan	44,372	38,718	4,423	2.77%	10.25%

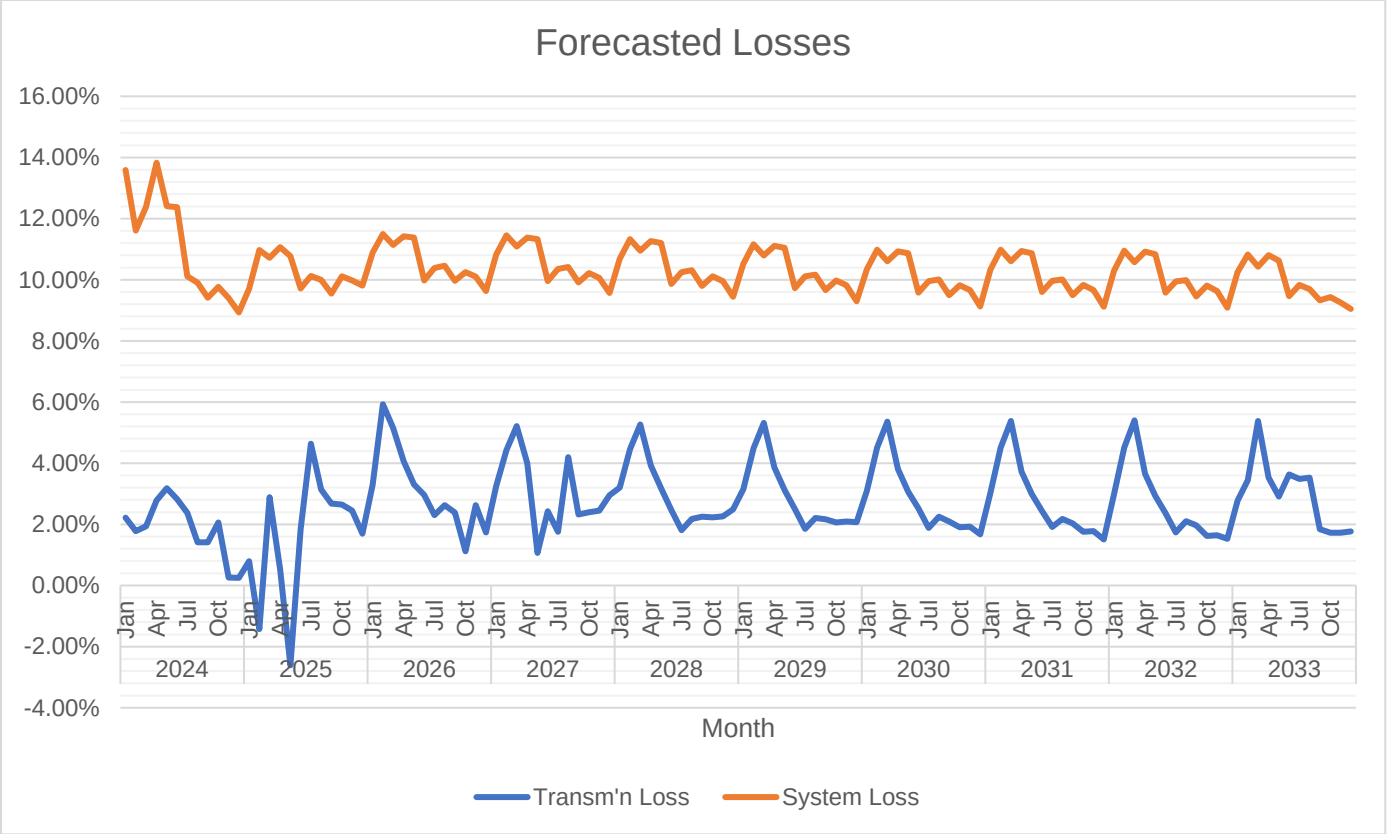
		MWh Offtake	MWh Output	MWh System Loss	Transm'n Loss	System Loss
	Feb	46,738	40,246	4,885	3.44%	10.82%
	Mar	45,317	38,406	4,473	5.38%	10.43%
	Apr	51,595	44,397	5,376	3.53%	10.80%
	May	52,441	45,505	5,409	2.91%	10.62%
	Jun	52,274	45,606	4,769	3.63%	9.47%
	Jul	49,790	43,329	4,724	3.49%	9.83%
	Aug	54,060	47,098	5,056	3.53%	9.69%
	Sep	51,883	46,173	4,753	1.85%	9.33%
	Oct	52,033	46,312	4,821	1.73%	9.43%
	Nov	53,430	47,646	4,859	1.73%	9.26%
	Dec	53,967	48,219	4,796	1.76%	9.05%

MWh Offtake was forecasted using Short Term Load Forecasting using Seasonal Effects.

System Loss was calculated through a Load Flow Study conducted in January 2024 by the Technical Data Processors (TDP) using Synergee software. Based on the same study, the Distribution System can adequately convey electricity to customers.



MWh Output was expected to grow at a rate of 3.12% annually.



Transmission Loss is expected to range from 2.06% to 2.85% while System Loss is expected to range from 10.20% to 9.56% in 2033. The system loss will likely get the single digit when the two (2) Multiyear Capital projects (CapEx) 2019-2021 and 2022-2024 applied and pre-filed to the Energy Regulatory Commission are approved and implemented. Especially on the implementation of construction of substations, and rehabilitation and conductor uprating on primary lines.

Power Supply

Case No.	Type	GenCo	Maximum MW	Maximum MWh/yr	Minimum MW	Minimum MWh/yr	PSA Start	PSA End
2013-098 RC	Base	Therma South, Inc.	5.00	43,800	2.00	17,520	9/18/2015	9/17/2040
2021-107RC	Intermediate	Power Sector Assets and Liabilities Management Corporation	14.04	78,568	5.24	51,789	12/26/2023	12/25/2025

The **PSA with Therma South, Inc. filed with ERC under Case No. 2013-098 RC** was through submission of proposal and was subsequently evaluated prior execution of PSA. It was selected to provide for baseload requirements due to the experienced region-wide power supply deficiency problem in Mindanao. Historically, the utilization of the PSA is 70%. Outages of the plant and reduced nomination led to unserved energy of around 13,102 MWh in the past year. The actual billed overall monthly charge under the PSA ranged from 7.72 P/kWh to 15.01 P/KWh in the same period.

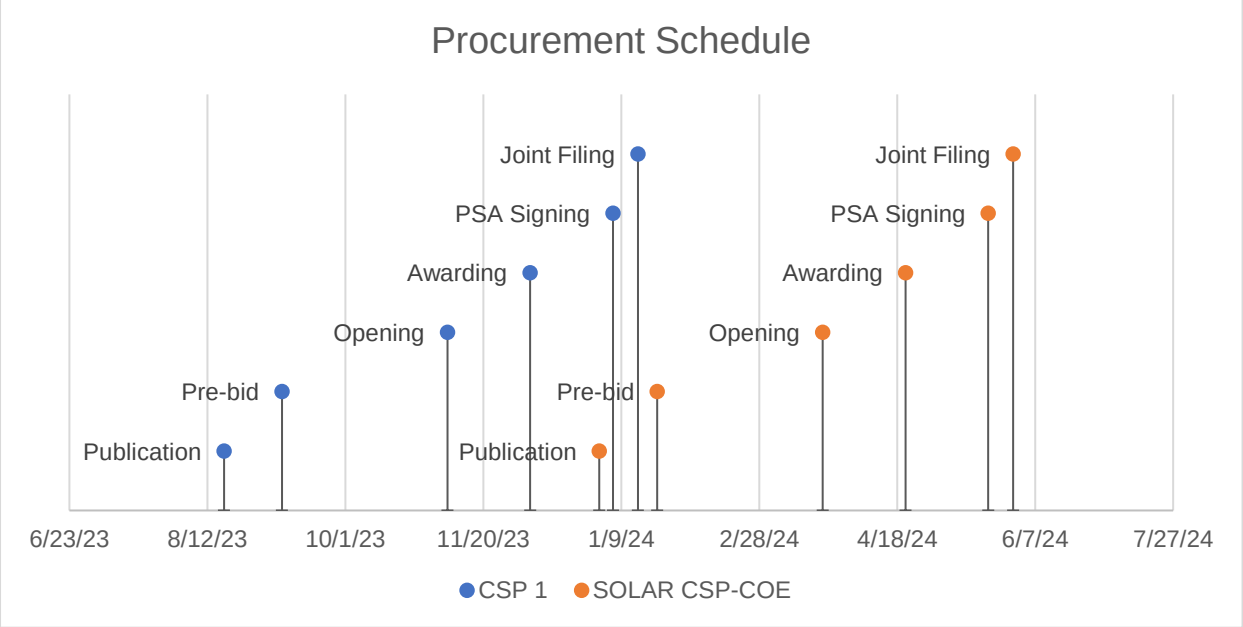
The **PSA with Power Sector Assets and Liabilities Management Corporation** filed with ERC was procured under the existing provisions of RA 9136. ZANECO has renewed the CSEE for years 2021-2023. It was selected to provide for intermediate requirements due to the expiration of the existing Contracts for the Supply of Electric Energy (CSEE). Historically, the utilization of the PSA is 96%. Outages of the plant and reduced supply allocations led to unserved energy in the past year of 2,261 MWh. The actual billed overall monthly charge under the PSA ranged from 2.62 P/kWh to 3.02 P/KWh in the same period. ZANECO has extended the CSEE thru a Letter of Agreement for the year 2024-2025.

Case No.	Type	GenCo	Maximum MW	Maximum MWh/yr	Minimum MW	Minimum MWh/yr	PSA Start	PSA End
2014-011 RC	Base	GN Power Kauswagan Ltd.	25.00	188,340	12.50	109,500	8/26/2019	8/25/2039
2014-172 RC	Base	Sarangani Energy Corporation	5.00	39,600	2.00	17,520	10/10/2019	10/9/2044

The **PSA with GN Power Kauswagan Ltd. Co. filed with ERC under Case No. 2014-011 R**C was procured through a competitive bidding. It was selected to provide for baseload requirements due to the insufficiency of existing supply in Mindanao and to address power shortfall in the future. Historically, the utilization of the PSA is 62%. Outages of the plant, and reduction of nomination led to unserved energy of around 72,113 MWh in the past year. The actual billed overall monthly charge under the PSA ranged from 5.01 P/kWh to 16.20 P/KWh in the same period. To date, the power supply contract with GNPK is still on a provisional authority as granted by the Energy Regulatory Commission, which is issuing Order for both the parties to comply on the submission of updated data.

The **PSA with Sarangani Energy Corporation filed with ERC under Case No. 2014-172 R**C was procured through submission of proposal and was subsequently evaluated prior execution of PSA. It was selected to provide for baseload requirements due to the risk of suffering power shortages caused by the steadily increasing demand of power in the franchise area. Historically, the utilization of the PSA is 135%. The increase of utilized energy is due to the sales program offer by SEC which greatly reduced the power rates. The actual billed overall monthly charge under the PSA ranged from 5.18 P/kWh to 10.13 P/KWh in the same period. To date, the power supply contract with SEC is still on a provisional authority as granted by the Energy Regulatory Commission.

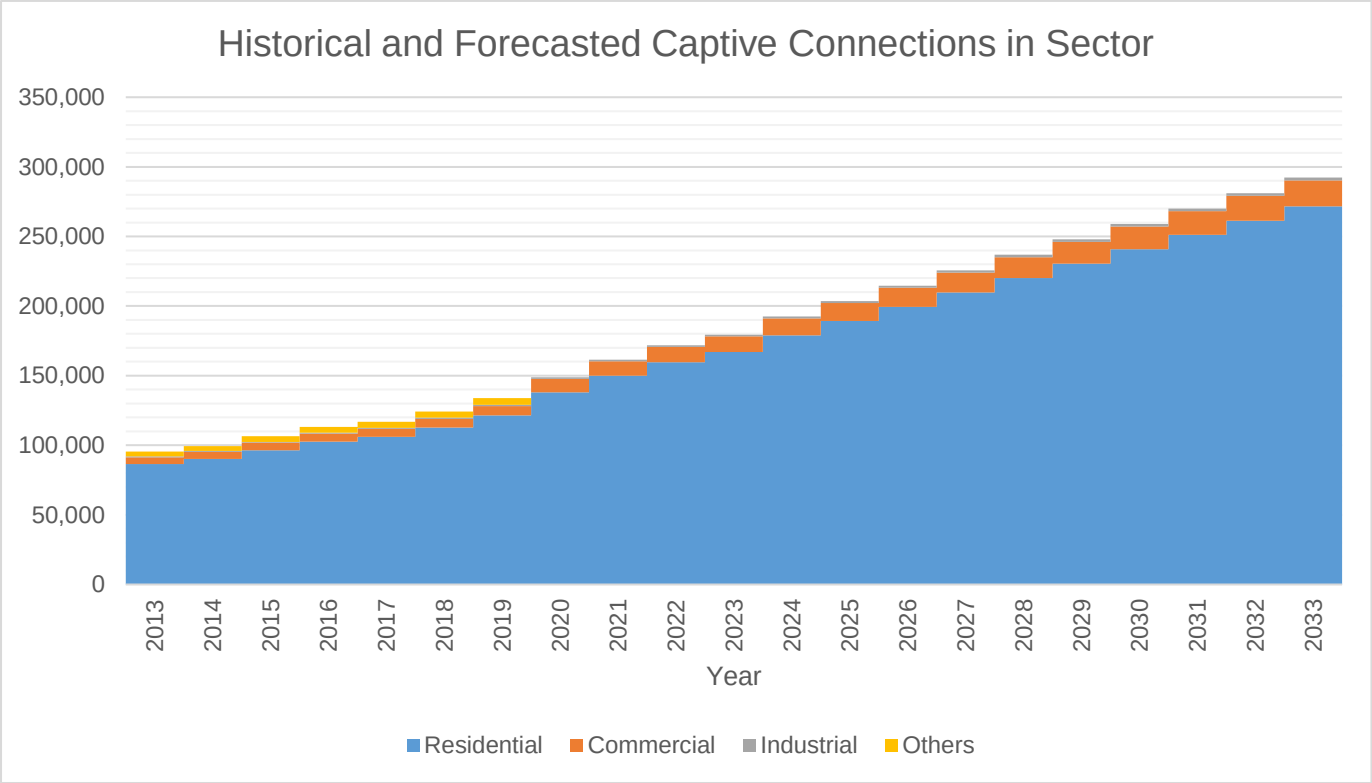
	CSP 1	SOLAR CSP-COE
Type	Intermediate	Intermediate
Maximum MW	10.00	5.00
Maximum MWh/yr	70,080	11,250
Minimum MW	6.00	5.00
Minimum MWh/yr	52,560	11,250
PSA Start	1/1/2025	1/1/2025
PSA End	12/31/2049	12/31/2044
Publication	8/18/2023	1/1/2024
Pre-bid	9/8/2023	1/22/2024
Opening	11/7/2023	3/22/2024
Awarding	12/7/2023	4/21/2024
PSA Signing	1/6/2024	5/21/2024
Joint Filing	1/15/2024	5/30/2024



For the procurement of 10MW of supply which is planned to be available on January 2025, the publication for its negotiated procurement was on August 18, 2023. Joint filing is planned on January 15, 2024, or 150 days later, in accordance with DOE's 2018 CSP Policy. This procurement was already approved by DOE and was published in its portal last October 2021. To date, ZANECO has already submitted the CSP documents before the NEA for the initial review prior the conduct of pre-screening conference for the latter's issuance of the Notice of Completion of PSA documents.

For the procurement of 5MW of supply, which is planned to be available on January 2025, the Renewable Energy Supply Agreement (RESA) with Astronergy Development Dipolog, Inc. was already executed last December 12, 2023. Joint filing is planned at the earliest date this year. This power supply procurement is exempted from the conduct of CSP under Section 2.3.4 of the DOE Department Circular No. DC2023-06-0021, which is the supply to Distribution Utilities (DU) from any generating plant embedded in its franchise area utilizing renewable energy resources, wherein the contracted capacity of the embedded generation plant/s shall not exceed 10MW per DU.

Captive Customer Connections



The total number of 179,430 connections in 2023, and 166,886 residential connections is expected to grow at a rate of 4.65% on average annually. The said customer class is expected to account for 93% of the total connections.

Per ERC Resolution 20 Series of 2009, Section 4, Article 6- Development of New Customer Classes 6.4, the new customer class shall be residential, low voltage and higher voltage from the existing customer type: Residential, Commercial, Industrial, Street lights and Public Buildings.