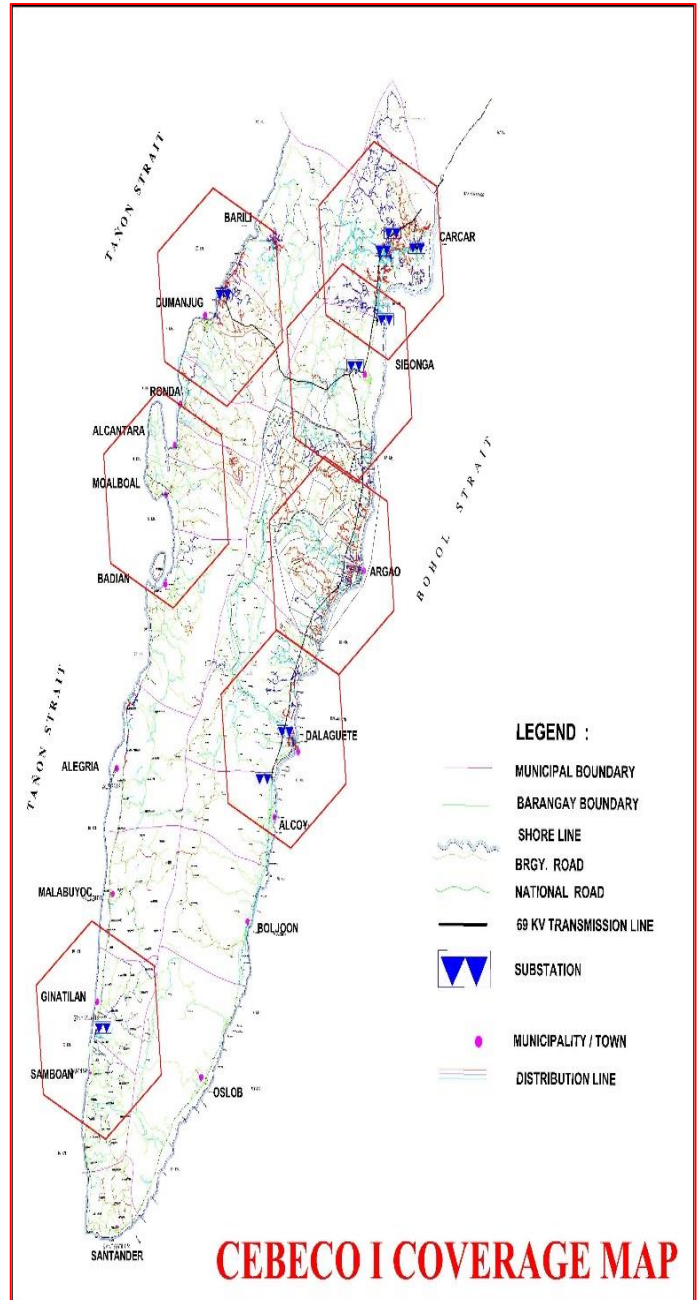


# **Distribution Development Plan 2024**

**CEBU I ELECTRIC COOPERATIVE, INC.**

## General Information

The CEBECO I's franchise was granted on February 7, 1980 by virtue of National Electrification Commission under Certificate of Franchise No. 056 and is set to expire in year 2030.



The CEBECO I's franchise area consists of 366 barangays in the City of Carcar and the Municipalities of Barili, Dumanjug, Ronda, Alcantara, Moalboal, Badian, Alegria, Malabuyoc, Ginatilan, Samboan, Santander, Sibonga, Argao, Dalaguete, Alcoy, Boljoon and Oslob in the Province of Cebu. The franchise area is 1,749 square kilometers in size with a population of 250,000 based on 2015 Census. On the other hand, CEBECO I have experienced huge damages of its distribution system and facilities brought about by Super Typhoon Odette in December 2021 that affected most of our residential consumers, commercial and industrial establishments as well as the public buildings.

CEBECO I serves Residential, Commercial, Industrial and Others (Public Buildings and Street Lights).

## Historical and Forecasted Consumption Data

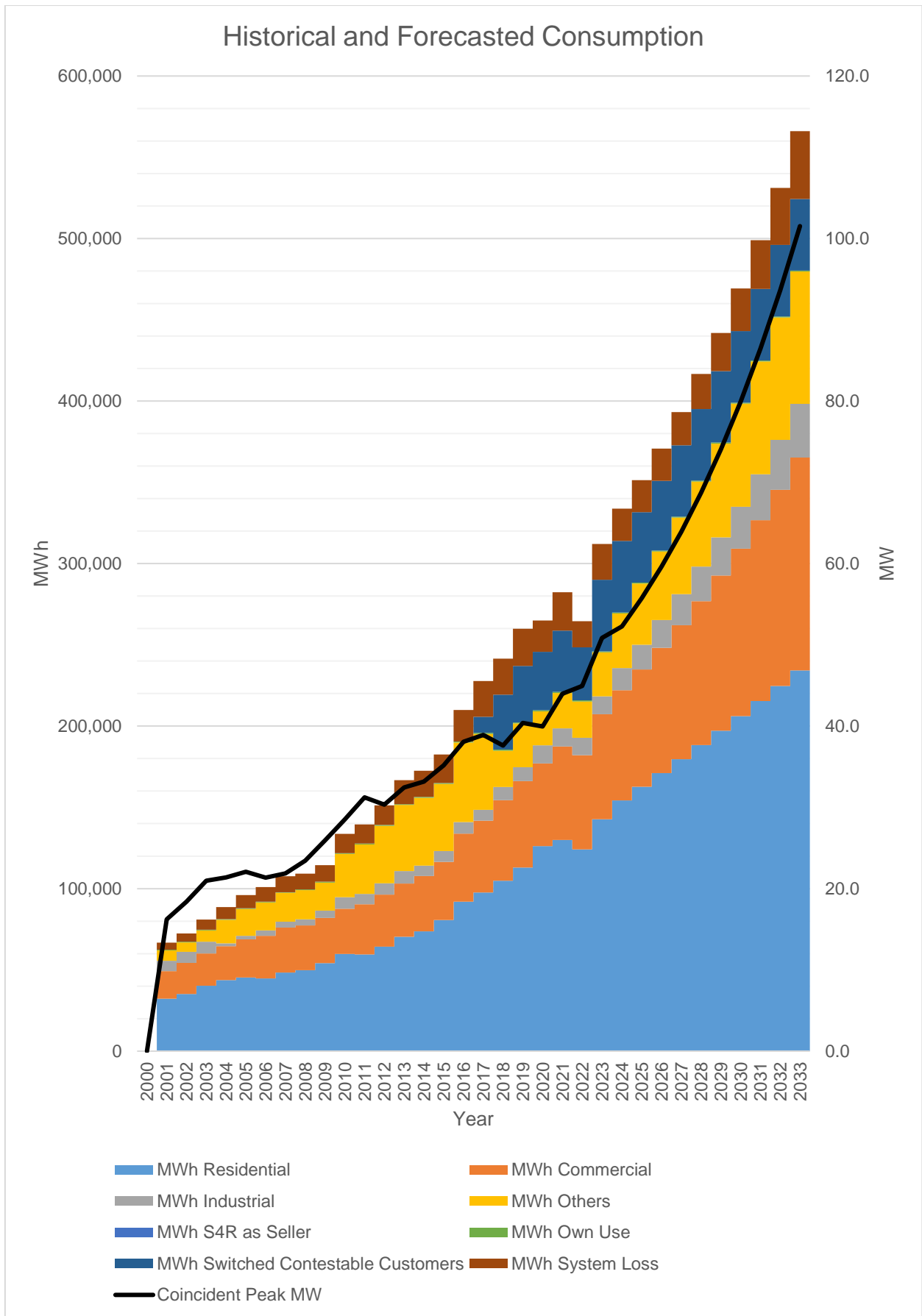
	Coincident Peak MW	MWh Offtake	MWh Transm'n Loss	MWh Residential	MWh Commercial	MWh Industrial	MWh Others	MWh S4R as Seller	MWh Own Use	MWh Switched Contestable Customers	MWh System Loss
2000	0.00	0	0	0	0	0	0	0	0	0	0
2001	16.21	66,772	0	32,214	17,064	6,378	6,297	0	408	0	4,412
2002	18.39	72,435	0	35,122	19,142	6,857	5,834	0	393	0	5,088
2003	20.97	80,931	0	40,182	19,841	7,262	7,003	0	405	0	6,238
2004	21.38	88,701	0	43,642	20,977	1,698	14,502	0	414	0	7,467
2005	22.07	95,968	0	45,253	23,468	2,174	16,608	0	342	0	8,123
2006	21.34	100,993	0	44,743	26,222	3,260	17,376	0	375	0	9,017
2007	21.88	107,615	0	48,421	27,602	3,630	17,784	0	378	0	9,800
2008	23.42	109,186	0	49,742	27,518	3,828	17,935	0	459	0	9,704
2009	25.92	114,353	0	54,091	27,908	4,467	17,291	0	469	0	10,127
2010	28.51	133,738	0	59,837	27,823	7,106	26,599	0	444	0	11,929
2011	31.23	139,493	0	59,553	30,789	6,384	30,481	0	568	0	11,718
2012	30.35	151,289	0	64,325	32,031	6,896	35,412	0	538	0	12,087
2013	32.45	166,765	0	70,324	32,757	7,699	40,723	0	516	0	14,746
2014	33.18	172,482	0	73,707	34,028	6,360	41,788	0	552	0	16,048
2015	35.16	182,531	0	80,693	35,776	6,602	41,335	0	634	0	17,492
2016	38.06	209,850	0	92,037	41,863	7,014	48,943	0	620	0	19,372
2017	38.90	227,731	0	97,594	44,261	6,637	46,674	0	676	9,852	22,037
2018	37.60	241,532	0	104,840	49,594	8,071	22,294	0	717	33,877	22,138
2019	40.40	259,951	0	113,028	53,134	8,600	26,866	0	670	34,679	22,973

2020	39.95	264,997	0	126,125	50,909	11,208	20,871	0	677	35,868	19,339
2021	43.98	282,401	0	129,871	57,562	11,166	21,743	0	672	37,670	23,718
2022	44.94	264,550	0	124,095	57,960	10,743	22,365	0	650	32,597	16,140
2023	50.84	312,130	0	142,696	64,548	11,022	27,129	0	614	44,029	22,091
2024	52.27	333,778	0	154,315	67,830	13,630	33,548	0	614	44,029	19,812
2025	55.74	351,344	0	162,662	72,140	15,296	37,650	0	614	43,277	19,704
2026	59.62	371,900	0	171,114	76,988	17,135	42,175	0	614	44,029	19,845
2027	63.93	393,182	0	179,682	82,435	19,124	47,072	0	614	43,854	20,400
2028	68.73	416,631	0	188,379	88,541	21,244	52,290	0	614	44,029	21,534
2029	74.06	441,888	0	197,215	95,364	23,474	57,779	0	614	44,029	23,412
2030	79.96	469,294	0	206,204	102,966	25,794	63,488	0	614	44,029	26,200
2031	86.47	499,013	0	215,355	111,406	28,182	69,365	0	614	44,029	30,062
2032	93.65	531,211	0	224,681	120,744	30,617	75,361	0	614	44,029	35,165
2033	101.52	566,052	0	234,193	131,040	33,080	81,423	0	614	44,029	41,673

The above table is a consolidation of consumption data for all Sectors, namely Residential, Commercial, Industrial, Contestable Customers and Others (Public Buildings and Street Lights). The largest Sector is Residential consumers which accounts for around 45.72% of the MWh Offtake.

	<b>Transm'n Loss</b>	<b>System Loss</b>	<b>Load Factor</b>	<b>Switched Contestable Customers</b>
2000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2001	0.00%	6.61%	47%	0.00%
2002	0.00%	7.02%	45%	0.00%
2003	0.00%	7.71%	44%	0.00%
2004	0.00%	8.42%	47%	0.00%
2005	0.00%	8.46%	50%	0.00%
2006	0.00%	8.93%	54%	0.00%
2007	0.00%	9.11%	56%	0.00%
2008	0.00%	8.89%	53%	0.00%
2009	0.00%	8.86%	50%	0.00%
2010	0.00%	8.92%	54%	0.00%
2011	0.00%	8.40%	51%	0.00%
2012	0.00%	7.99%	57%	0.00%
2013	0.00%	8.84%	59%	0.00%
2014	0.00%	9.30%	59%	0.00%
2015	0.00%	9.58%	59%	0.00%
2016	0.00%	9.23%	63%	0.00%
2017	0.00%	9.68%	67%	4.33%
2018	0.00%	9.17%	73%	14.03%
2019	0.00%	8.84%	73%	13.34%
2020	0.00%	7.30%	76%	13.54%
2021	0.00%	8.40%	73%	13.34%
2022	0.00%	6.10%	67%	12.32%
2023	0.00%	7.08%	70%	14.11%
2024	0.00%	5.94%	73%	13.19%
2025	0.00%	5.61%	72%	12.32%
2026	0.00%	5.34%	71%	11.84%
2027	0.00%	5.19%	70%	11.15%
2028	0.00%	5.17%	69%	10.57%
2029	0.00%	5.30%	68%	9.96%
2030	0.00%	5.58%	67%	9.38%
2031	0.00%	6.02%	66%	8.82%
2032	0.00%	6.62%	65%	8.29%
2033	0.00%	7.36%	64%	7.78%

Historically, the overall Transmission Loss remains at 0% since the basis of our power billing is the reading at NGCP metering points located at our respective substations while the overall System Loss ranged from 6.10% to 9.68%. Overall System Loss peaked at 9.68% on year 2017 because of various factors that have contributed much in the rise of CEBECO I's system's loss.



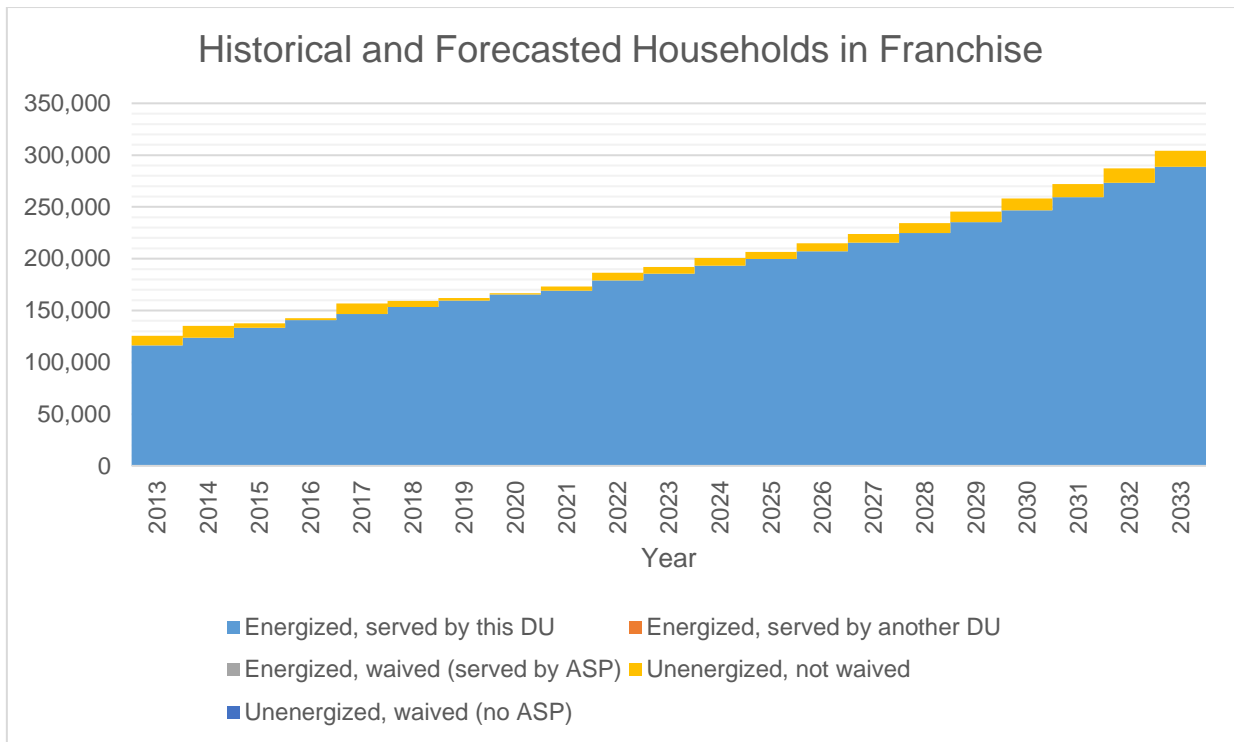
Residential customers account for the bulk of energy sales at 58.15% despite the effects brought about by the onslaught of super typhoon Odette. In contrast, Industrial customers accounted for only 4.99% of energy sales. These figures are expected to drastically change in the following years due to various commercial and industrial developments within the coverage area.

## Historical and Forecasted Customer Data

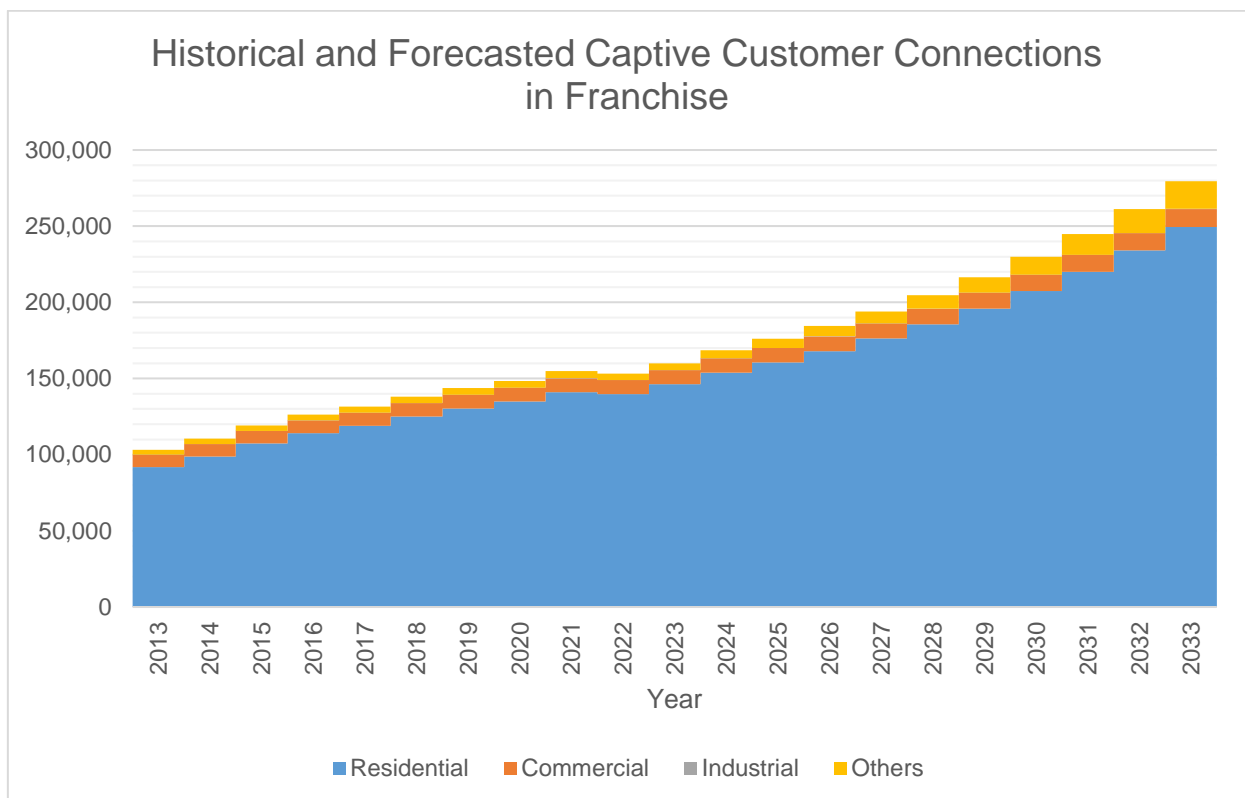
	Number of barangays in franchise	Number of households in franchise	Number of barangays outside franchise being served	Number of customer connections outside franchise	Number of captive customer connections	Number of contestable customers	NCP MW of switched contestable customers	Total MWh of switched contestable customers
2013	366	125,700	3	479	103,238	4	0.00	0
2014	366	135,100	3	508	110,463	4	0.00	0
2015	366	137,500	3	533	119,232	4	0.00	0
2016	366	142,600	3	581	126,364	4	0.00	0
2017	366	156,700	3	611	131,598	4	6.81	33,234
2018	366	159,300	3	639	138,068	4	7.20	33,877
2019	366	161,958	3	703	143,692	4	7.42	34,679
2020	366	166,689	3	770	148,460	4	8.22	31,203
2021	366	173,111	3	754	154,816	4	7.96	38,522
2022	366	186,326	3	783	153,194	4	7.80	32,433
2023	366	192,102	3	813	159,936	4	7.97	35,732
2024	366	200,710	3	845	168,554	4	7.97	35,732
2025	366	206,511	3	877	176,007	4	7.97	35,732
2026	366	214,771	3	911	184,426	4	7.97	35,732
2027	366	223,980	3	948	193,920	4	7.97	35,732
2028	366	234,229	3	985	204,594	4	7.97	35,732
2029	366	245,602	3	1,023	216,558	4	7.97	35,732
2030	366	258,187	3	1,063	229,917	4	7.97	35,732
2031	366	272,067	3	1,105	244,780	4	7.97	35,732
2032	366	287,333	3	1,146	261,254	4	7.97	35,732
2033	366	304,069	3	1,187	279,446	4	7.97	35,732

The number of barangays in the franchise is expected to remain the same due to unchanged franchise area and there are no developments that could lead to producing new barangays. The number of barangays outside the franchise area being served by CEBECO I is expected to remain the same due to slow increase of new consumers closer to the tapping pole.

The number of Contestable Customers is expected to be the same within the forecasted period. Within the same timeframe, the total MW accounted for switched Contestable Customers may remain at 7.97 MW with a corresponding offtake of 35,732 MWh. There was no evident increase in the forecast in the offtake of the switched Contestable Customers since there were no available data or communication from those customers regarding major development in their company.



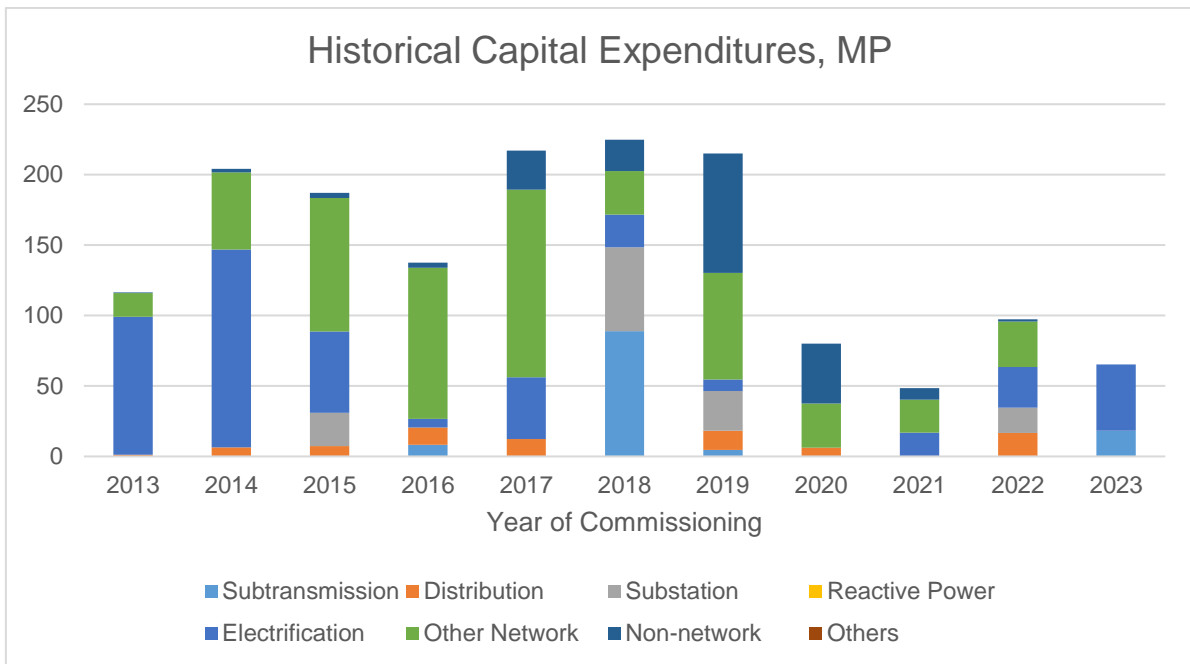
The number of households is expected to increase by 4.70% annually.



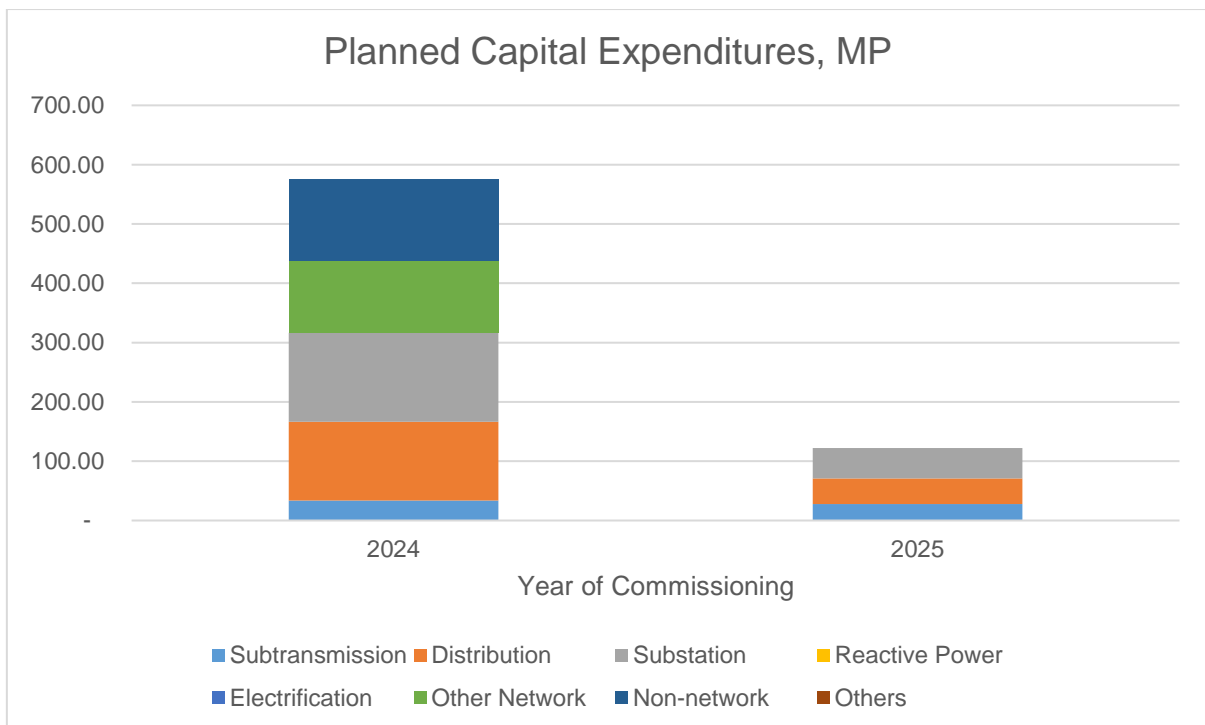
The number of captive customers is expected to increase by 5.74% annually.



# Capital Projects



The past CAPEX projects resulted in a rate increase of around 0.0677 P/kWh since September 2018. The total amount is expected to be recovered from the customers by the year 2028. The majority of the projects is financed through bank loans, with Electrification projects accounting for the bulk.



The planned CAPEX projects are expected to result in a rate adjustment of around 0.0495 P/kWh upon approval of ERC. The total amount is expected to be recovered from the customers by the year 2030. The majority of the projects will be financed through bank loans, with Other Network projects accounting for the bulk. There were no Smart Grid projects included in our latest CAPEX 2022-2024 application but CEBECO I has included SCADA project in the 2019-2021 CAPEX Application.

## Distribution System Assets

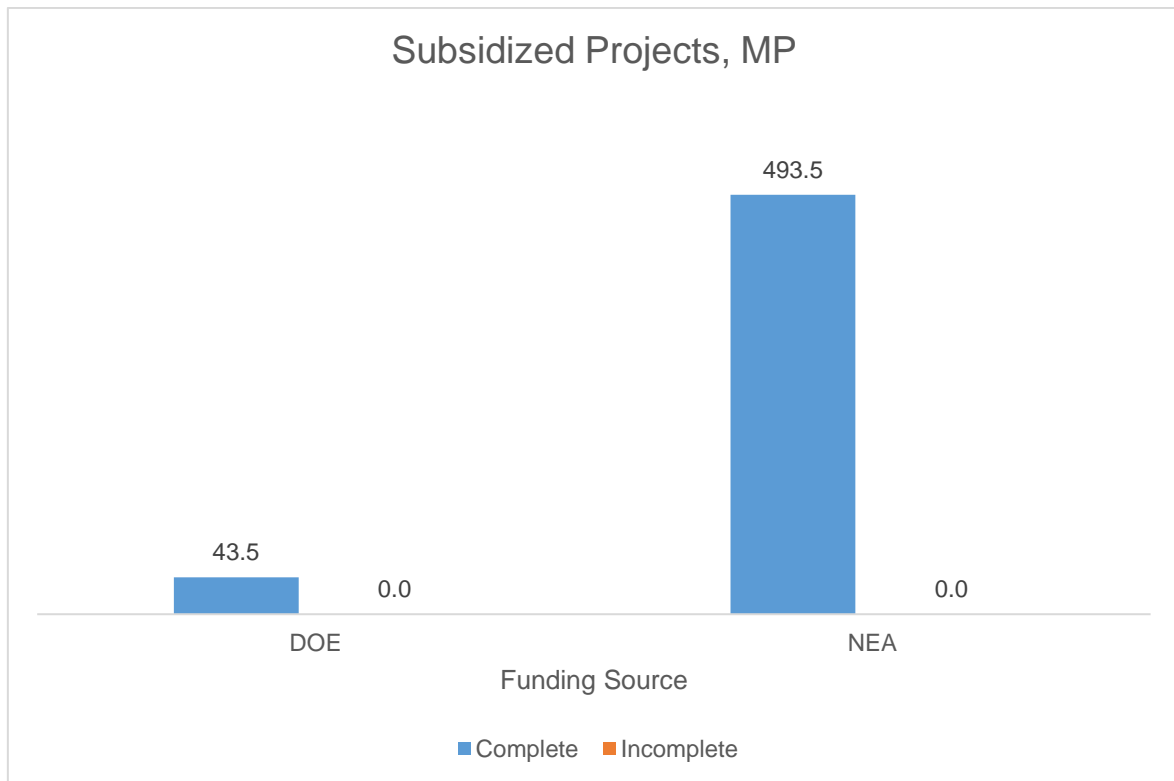
<b>Subtransmission Line ckm</b>	26
<b>Distribution Line ckm</b>	1,889
<b>Pole Count</b>	30,332
<b>Substation Transformer MVA</b>	91.75
<b>Distribution Transformer MVA</b>	89.35
<b>Capacitor MVAr</b>	5.28

The quantities of distribution system assets are adequate.

<b>Transformer</b>	<b>Max MVA</b>	<b>Months to Reach 70%</b>
DUMANJUG SUBSTATION	12.50	4
MOALBOAL SUBSTATION	12.50	23
GINATILAN SUBSTATION	12.50	64
DALAGUETE SUBSTATION	12.50	16
ARGAO SUBSTATION	12.50	63
SIBONGA SUBSTATION	6.25	55
CARCAR LIBURON SUBSTATION	12.50	4
CARCAR COGON SUBSTATION	6.25	1
NCM PLANT	25.00	N/A
MARCEL FOOD SCIENCES	4.69	N/A
PMSC	3.75	N/A

Dumanjug Substation is expected to be loaded at 70% in 4 months. This will be addressed by an additional substation of 10 MVA. On the other hand, Liburon and Cogon, Carcar Substations is expected to reach 70% in 4 and 1 month, respectively. This will be addressed upon the completion of the ongoing uprating of the Cogon Carcar Substation to 10 MVA Substation.

## Subsidized Projects



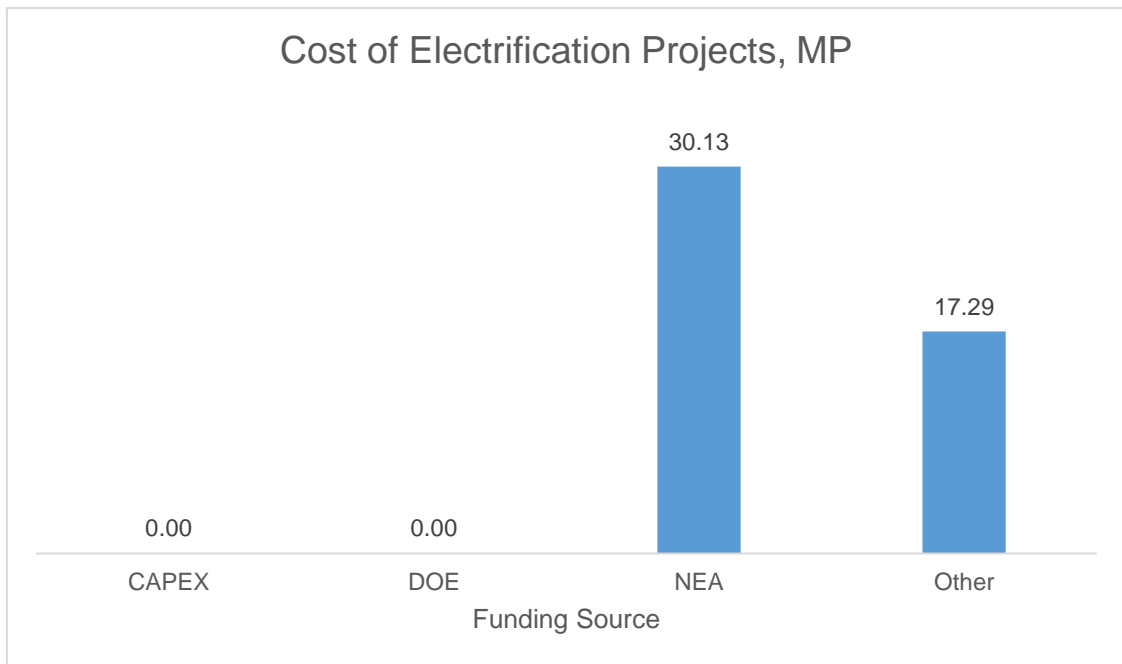
The source of subsidy mostly came from NEA which accounts for P 493.5 million disbursed since 2011.

## Household Electrification

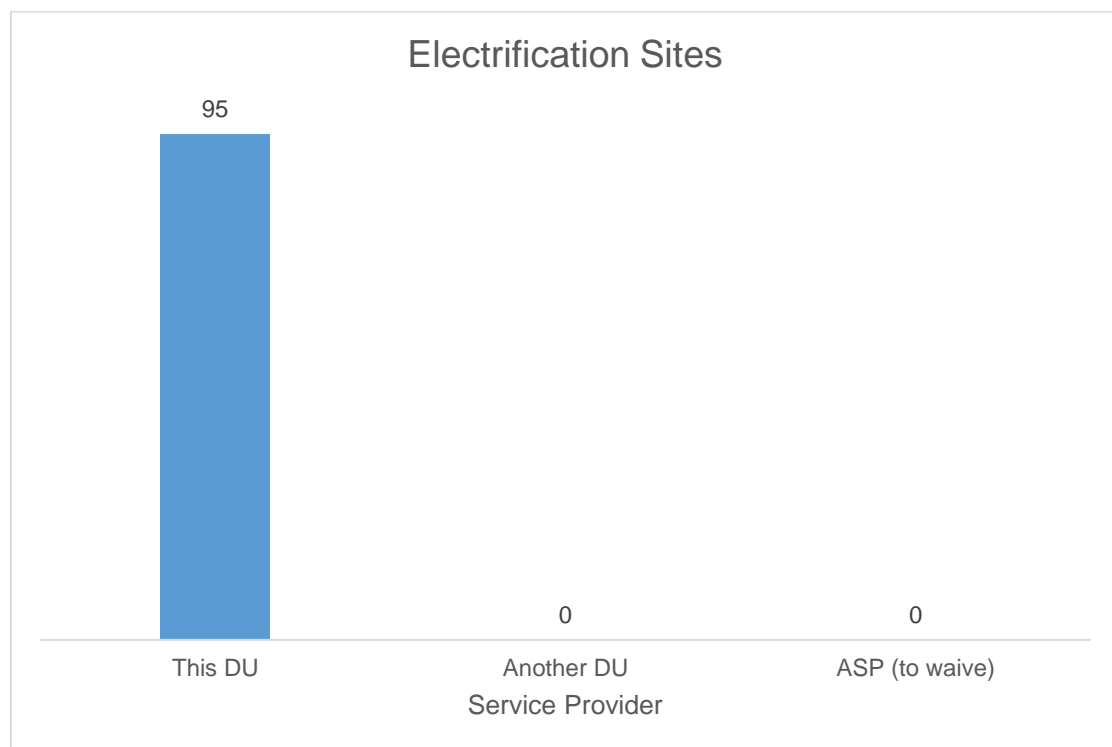
Province	Municipality / City	Energized, Grid-connected	Energized, Not Grid-connected	Total Energized
Cebu	Alcantara	3966	0	3966
Cebu	Alcoy	4683	0	4683
Cebu	Alegria	5417	0	5417
Cebu	Argao	20479	0	20479
Cebu	Badian	9607	0	9607
Cebu	Barili	18550	0	18550
Cebu	Boljoon	4062	0	4062
Cebu	City of Carcar	31590	0	31590
Cebu	Dalaguete	17317	0	17317
Cebu	Dumanjug	14154	0	14154
Cebu	Ginatilan	4183	0	4183
Cebu	Malabuyoc	4632	0	4632
Cebu	Moalboal	10296	0	10296
Cebu	Oslob	7784	0	7784
Cebu	Ronda	5229	0	5229
Cebu	Samboan	5740	0	5740
Cebu	Santander	5454	0	5454
Cebu	Sibonga	12361	0	12361
Total		185504	0	185504

The total number of household connections is 185,504. The bulk of these are in the City of Carcar. On the other hand, there are still continuous program for electrifying the unenergized sitios under the area of CEBECO I mostly funded by NEA subsidies every year. These sitios were mostly extensions only brought about by the growing population within the area.

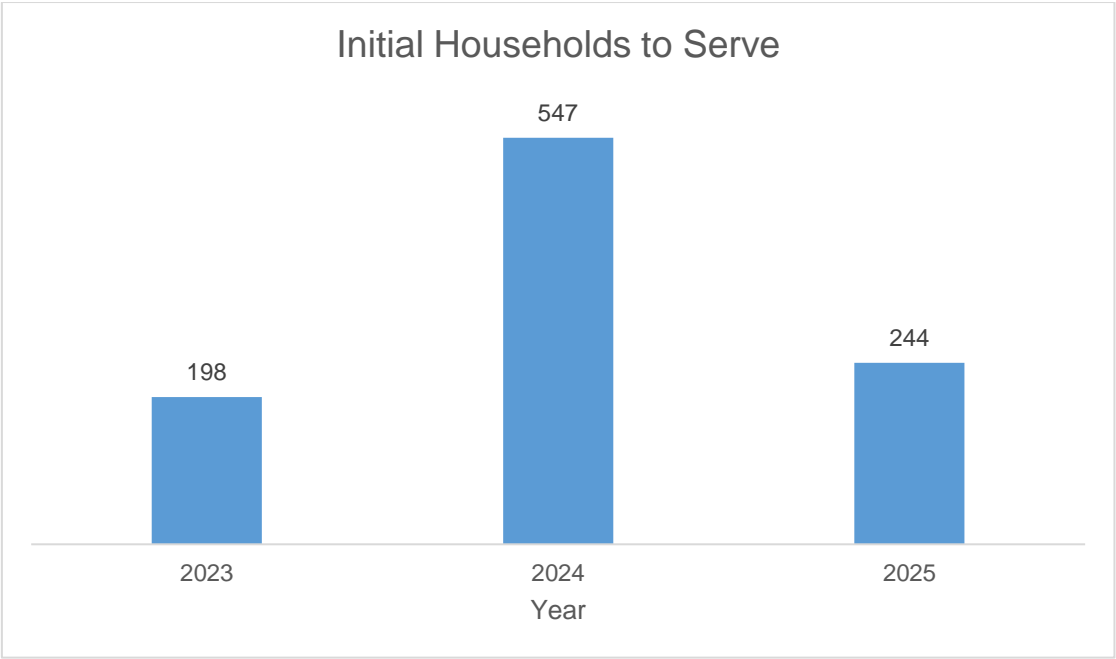
## General Electrification



Planned electrification projects amounting to P 30.13 Million will be funded mostly from NEA which accounts for 63.54% of the total.

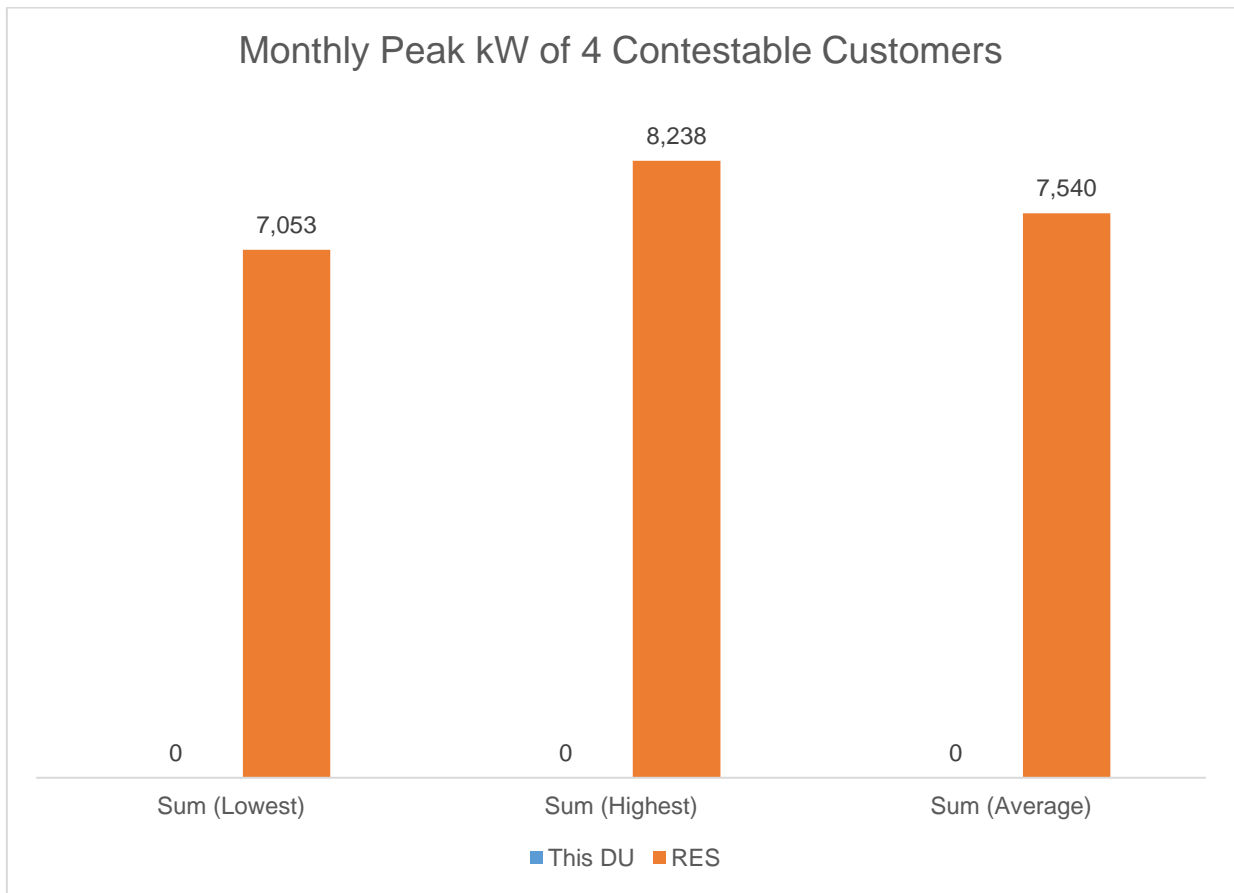


The areas of Southern Cebu which are within the franchise area of CEBECO I is served by this DU only.



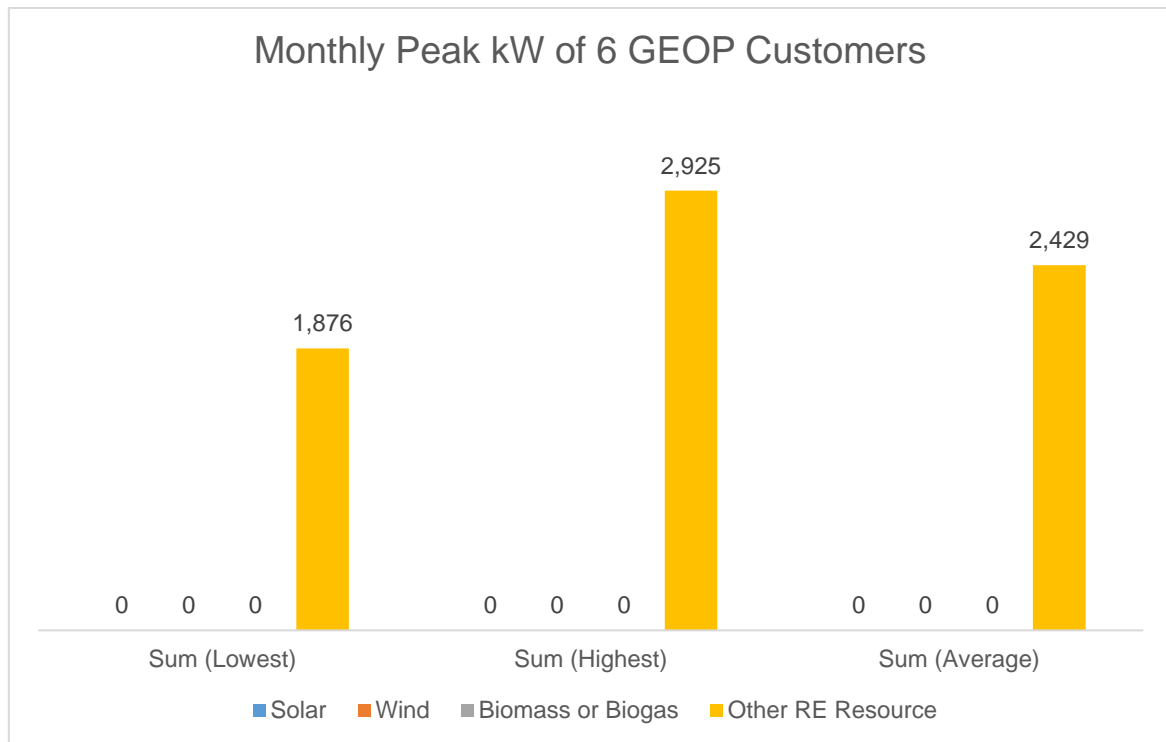
The majority of households to be served by electrification projects will be catered to on the year 2024.

## Contestable Customers



The highest non-coincident demand is 8,238 kW for switched Contestable Customers. The combined demand is around 14.79% of the previous year's system peak.

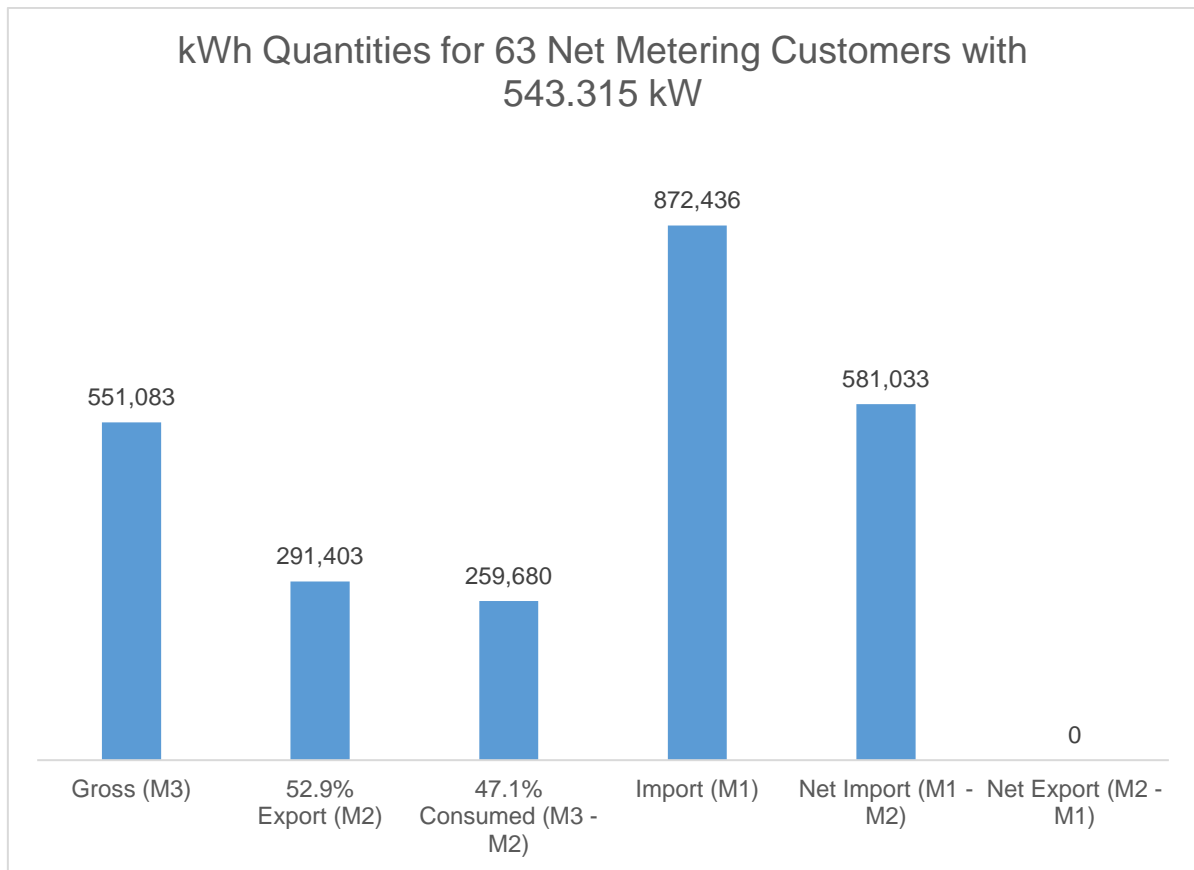
## GEOP Customers



The highest non-coincident demand is 2,925 kW, which is around 5.25% of the previous year's system peak. CEBECO I is using the existing DOE and ERC guidelines for GEOP Customers.



## Net Metering Customers



The variability of the output of net metering customers adversely affect the stability and reliability of the Distribution System.

The total gross generation measured from REC meters is 551,083 kWh. Of this, 291,403 kWh or 52.9% is exported. The total consumption as measured from import meters is 872,436 kWh. As the total import is larger than the total export, the net metering customers are net an importer as a whole. CEBECO I is using the existing DOE and ERC guidelines for Net Metering Customers.

## Historical Reliability Indices

Year	SAIFI	MAIFI	SAIDI (h)	CAIDI (h)
2017	0.21	0.00	0.13	0.60
2018	0.00	0.00	0.00	0.00
2019	0.00	0.00	0.00	0.00
2020	5.02	0.00	8.35	1.66
2021	10.34	0.00	19.85	1.92
2022	10.60	0.00	743.70	70.18
2023	3.51	0.00	4.43	1.26

For “Power Supplier” outages, indices are within standards. These outages were brought about by various factors within the system but necessary measures were already taken to lessen or even eradicate the possibility of another outage within this system.

Year	SAIFI	MAIFI	SAIDI (h)	CAIDI (h)
2015	0.17	0.00	0.18	1.05
2016	0.12	0.00	0.20	1.71
2017	0.81	0.00	0.67	0.82
2018	0.74	0.00	1.07	1.44
2019	1.10	0.00	1.15	1.05
2020	0.51	0.00	1.11	2.17
2021	0.73	0.00	0.77	1.06
2022	0.87	0.00	0.72	0.83
2023	0.22	0.00	0.24	1.08

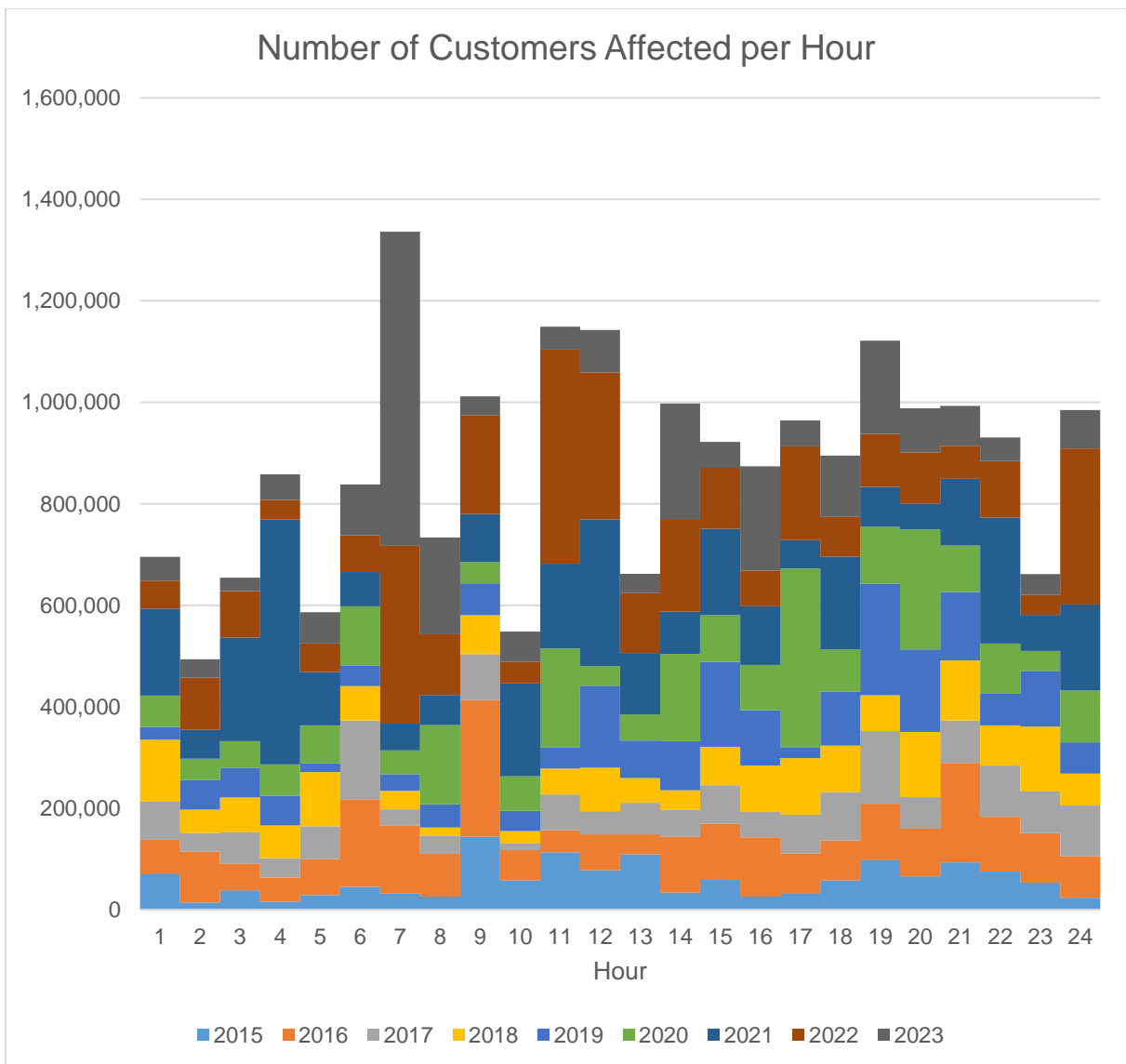
For “Major Storm Disaster” outages, indices are within standards. Outages from this category is mostly brought about by the harsh weather which resulted in poles and trees being toppled down going to the distribution line. Preventive measures are still ongoing to minimize the occurrence of this outages during this kind of weather.

Year	SAIFI	MAIFI	SAIDI (h)	CAIDI (h)
2015	1.53	0.27	6.36	3.53
2016	1.84	0.00	12.07	6.57
2017	0.42	0.00	1.72	4.07
2018	0.32	0.00	1.52	4.67
2019	0.15	0.00	0.04	0.28
2020	0.00	0.00	0.01	1.29
2021	0.22	0.00	1.03	4.66
2022	2.40	0.11	22.58	8.98
2023	3.95	0.00	31.97	8.10

For “Scheduled” outages, indices are within standards. These outages are necessary to maintain the reliability and quality of the distribution system under the areas of CEBECO I. This is also to further minimize the unscheduled outages within the system.

Year	SAIFI	MAIFI	SAIDI (h)	CAIDI (h)
2015	9.34	0.34	7.83	0.81
2016	16.07	0.94	15.89	0.93
2017	10.99	0.52	12.27	1.07
2018	11.90	0.14	10.59	0.88
2019	12.13	0.31	13.21	1.06
2020	10.60	0.56	9.77	0.88
2021	10.46	0.28	12.38	1.15
2022	7.66	0.03	8.77	1.14
2023	8.28	0.08	9.82	1.17

For all other outages, the indices are within ERC’s benchmarks. These outages were brought about by various factors but are mostly due to increased vegetation within the distribution system and are still being addressed so as to minimize the instances of outages.



The largest number of customer interruptions occurred at hour 7 which did not coincide with the peak period. The second largest number of customer interruptions occurred at hour 11 which also did not coincide with the peak period. Peak period occurred at hour 18 on November 3, 2023.