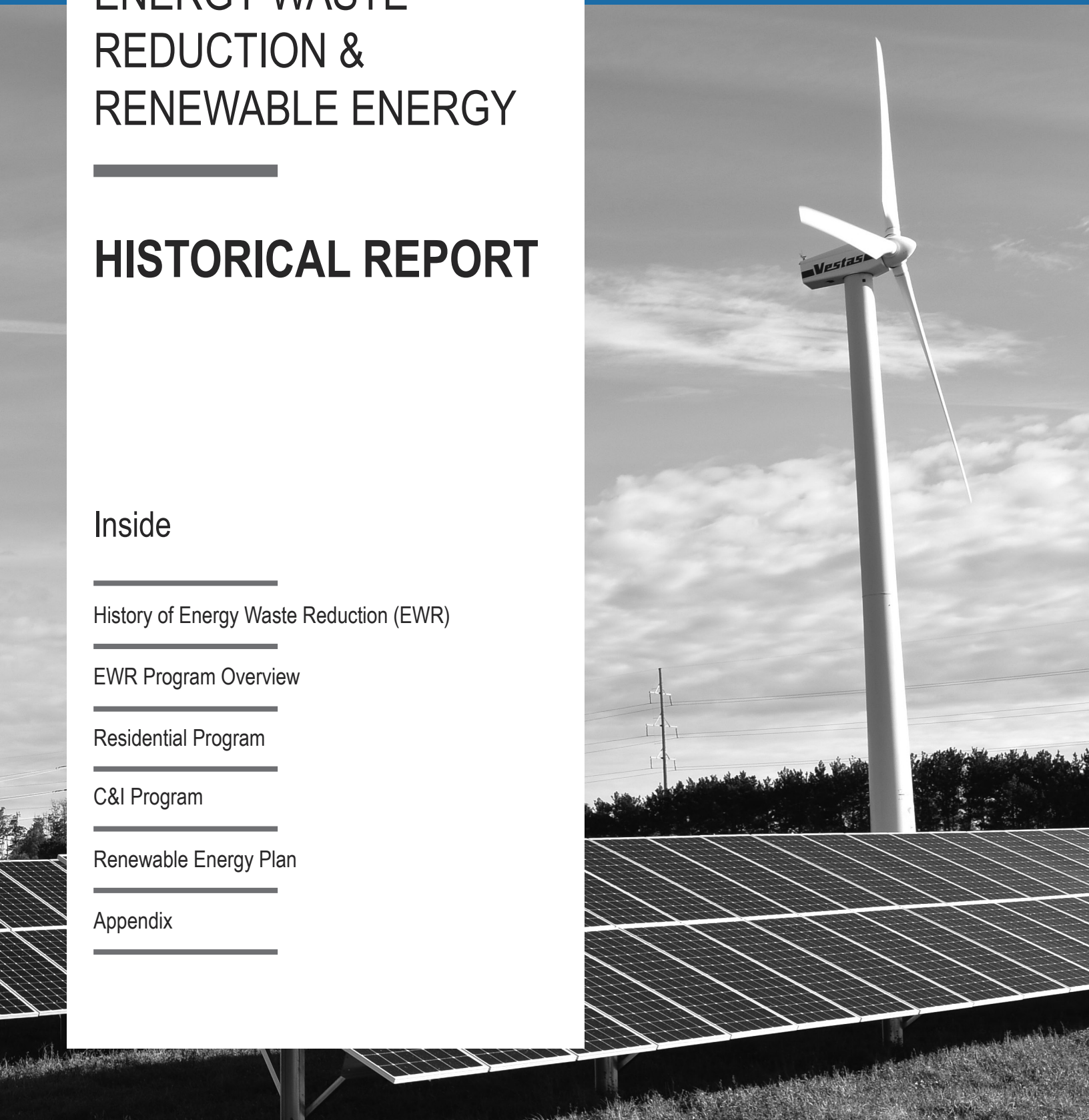
TRAVERSE CITY LIGHT & POWER

ENERGY WASTE REDUCTION & RENEWABLE ENERGY

HISTORICAL REPORT



Inside

HISTORY

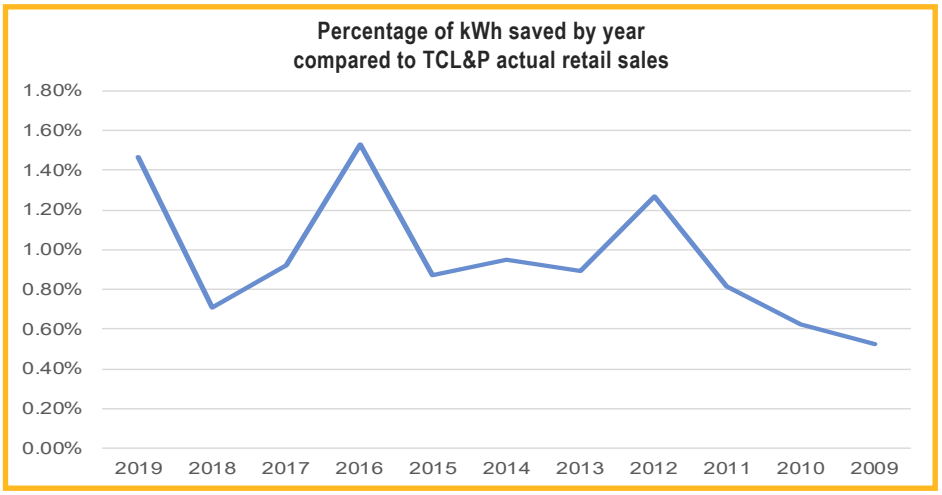
Traverse City Light & Power's (TCL&P) Energy Waste Reduction (EWR) program was launched in June 2009, as a result of the Clean, Renewable and Efficient Energy Act, also known as Public Act 295 (PA 295), as amended by Public Act 342 of 2016 (PA 342). Upon its inception in 2009, TCL&P joined a group through the Michigan Public Power Agency (MPPA) to have the EWR program created, built and maintained. Franklin Energy was selected to manage that program for the municipal electric utilities.

While many utilities throughout the state decided to charge customers a base fee, TCL&P did not and was still able to keep electric rates among the lowest in the state.

In 2017, TCL&P made the decision to hire a full-time position to manage the EWR program. Starting January 2018, the utility's EWR program was run completely in-house allowing for a more customized program focused solely on TCL&P's rate payers. Having full control of the program also gives TCL&P the ability to build a better program for our low income customers and help fund more creative projects for our pilot programs.

PROGRAM OVERVIEW

PA342 requires all Michigan electric utilities to reduce electric consumption by 1% of its 2017 overall retail sales. The following chart shows EWR savings achieved in relation to retail sales in kWh. This is not indicative of the goals filed with the state because they are filed years in advance. For example, 2018 – 2020's goals are based on 2016's retail sales.



TCL&P goals filed with the state are shown below and they are adjusted year by year depending on how the previous year's programs have performed. If a goal is not met, then the remaining amount is applied to the next year. However, if it over performs then the overage can reduce the next year's goal. By law only 1/3 of the current year's overall goal may be reduced.

EWR GOALS FILED WITH THE STATE OF MICHIGAN

Main Categories	2018	2019	2020
Residential	595,767	657,034	706,298
Commercial	2,916,570	2,929,650	2,975,651
TOTAL	**3,512,337**	**3,586,685**	**3,681,949**

TCL&P's main categories are further broken into the following subcategories:

COMMERCIAL

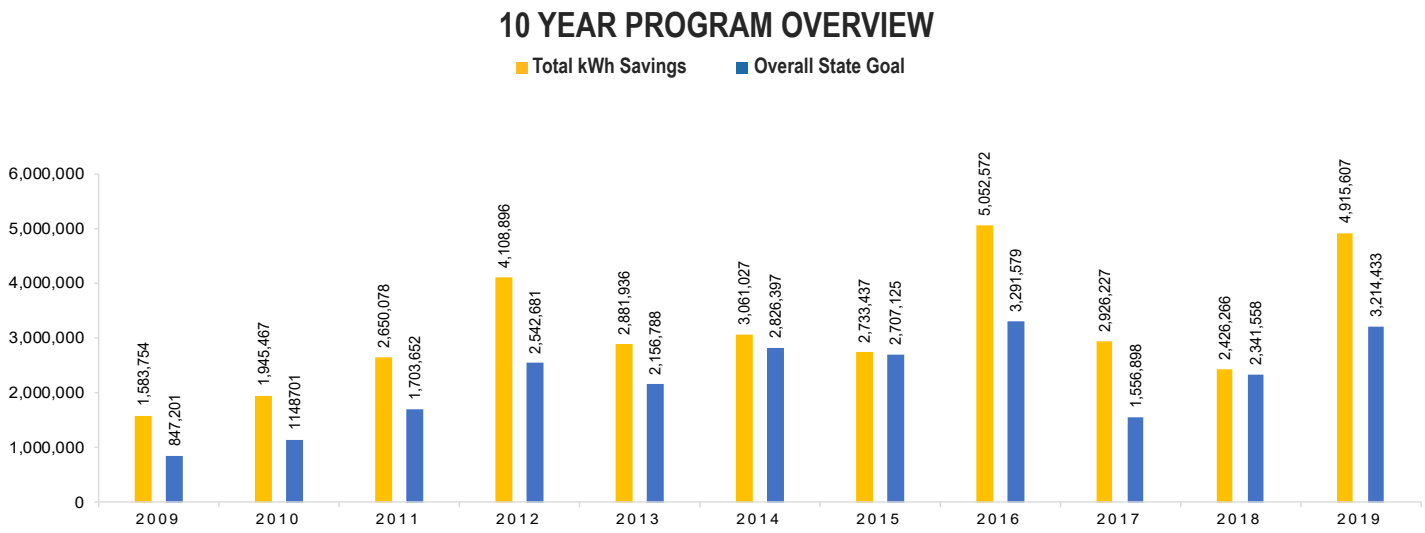
- Business Services
- Educational Services
- Pilot Program

RESIDENTIAL

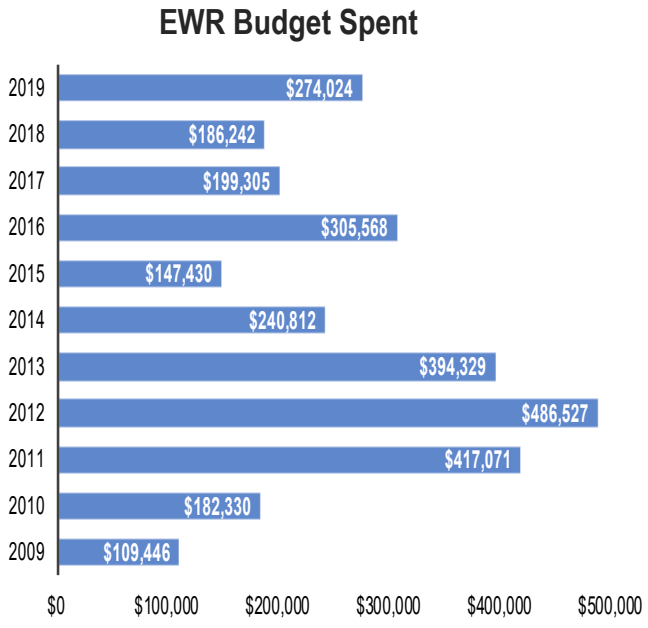
- Residential Services
- Educational Services
- Pilot Program
- Low Income Services

PROGRAM OVERVIEW

Every utility in the state must follow the Michigan Energy Measures Database (MEMD) which assigns kilowatt hour (kWh) savings to each energy saving measure that can be used for EWR programs. Each utility (or third-party administrator) will then decide on the measures they want to implement into their program. This is the greatest advantage for the TCL&P EWR program having its own administrator. The measures chosen can be specific to TCL&P rate payers and the area's demographics.

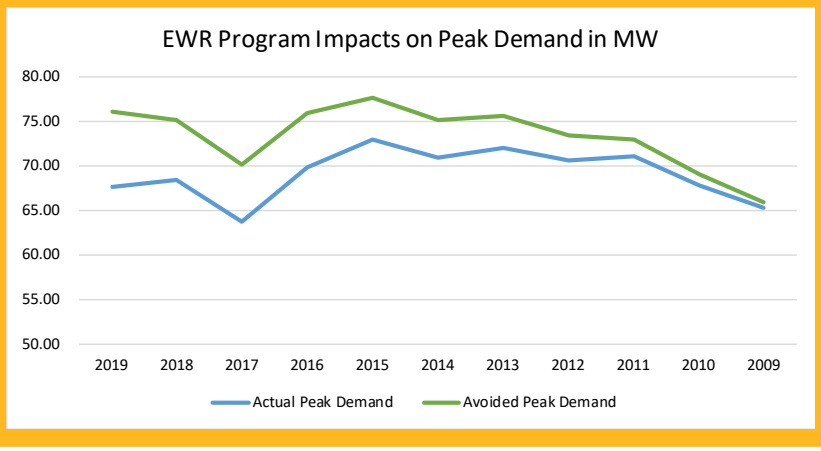


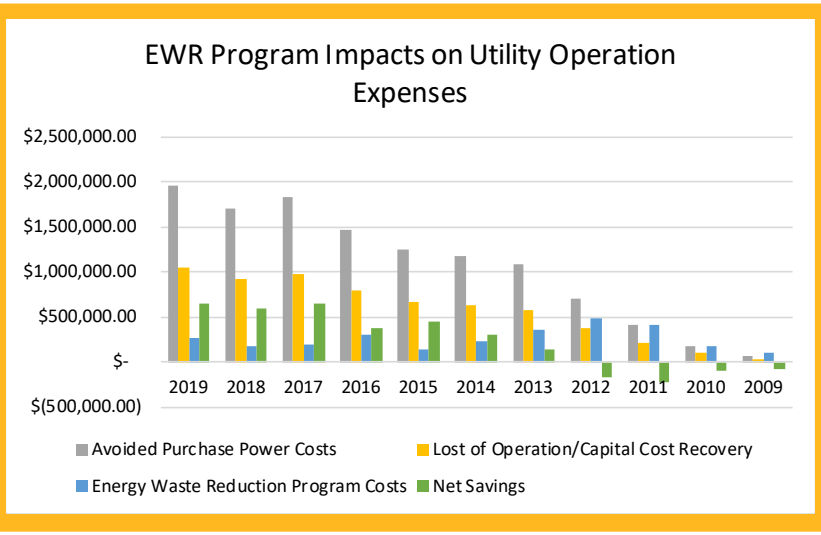
Once the measures are chosen, they are assigned a rebate amount. The target for TCL&P is $0.08 per kWh saved. This means a measure that may have a savings of 100 kWh would have a rebate of $8.00. This is just the starting point though. Rebates are then adjusted based on factors like cost, energy savings, and innovation. For example, LED light bulbs have come down in price significantly over the years resulting in TCL&P's rebate exceeding the cost to purchase. Therefore, the rebate has been adjusted throughout the years to reflect the change even though the energy savings remains relatively the same. On the flip side, if there is an emerging technology or energy saving measure that we would like to see gain traction in our area, the rebate is increased to help push it to our market.

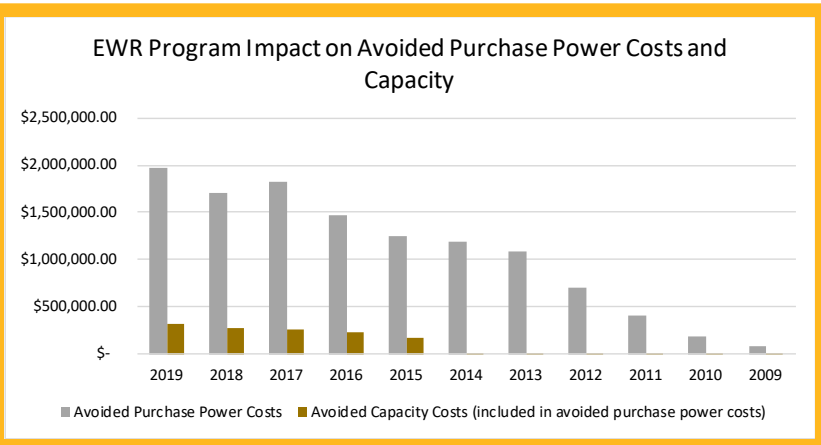


IN PERSPECTIVE

Through December 2019 TCL&P's EWR program has saved 34,272,940 kilowatt hours.



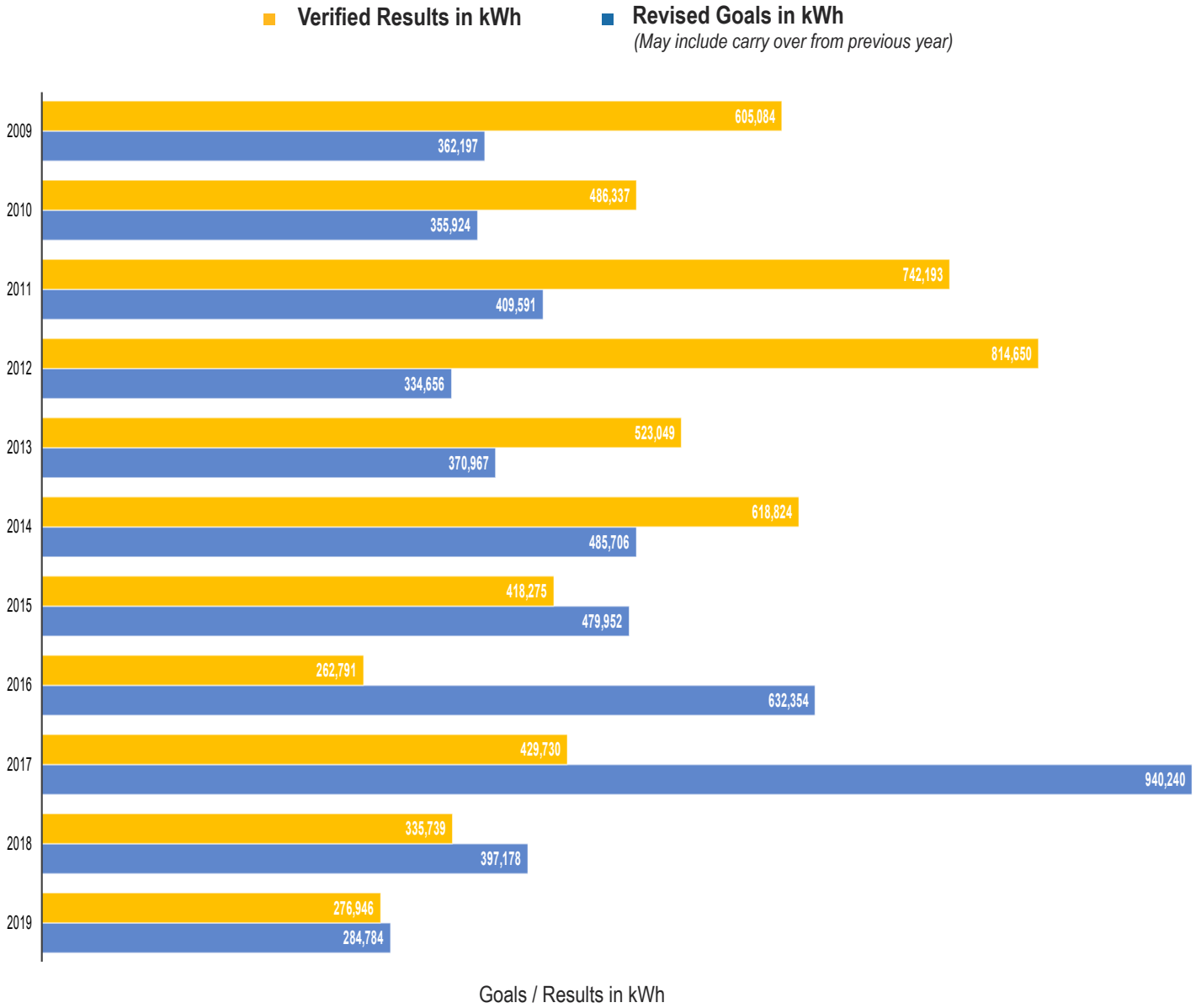




RESIDENTIAL PROGRAM

While TCL&P's residential utility accounts makeup 73% of the 12,996 meters that are active, they only accounted for 17% of the 341,482,534 kWh energy consumed in 2018. This is consistent from year to year. This is also reflected in the lower energy saving goals each year.

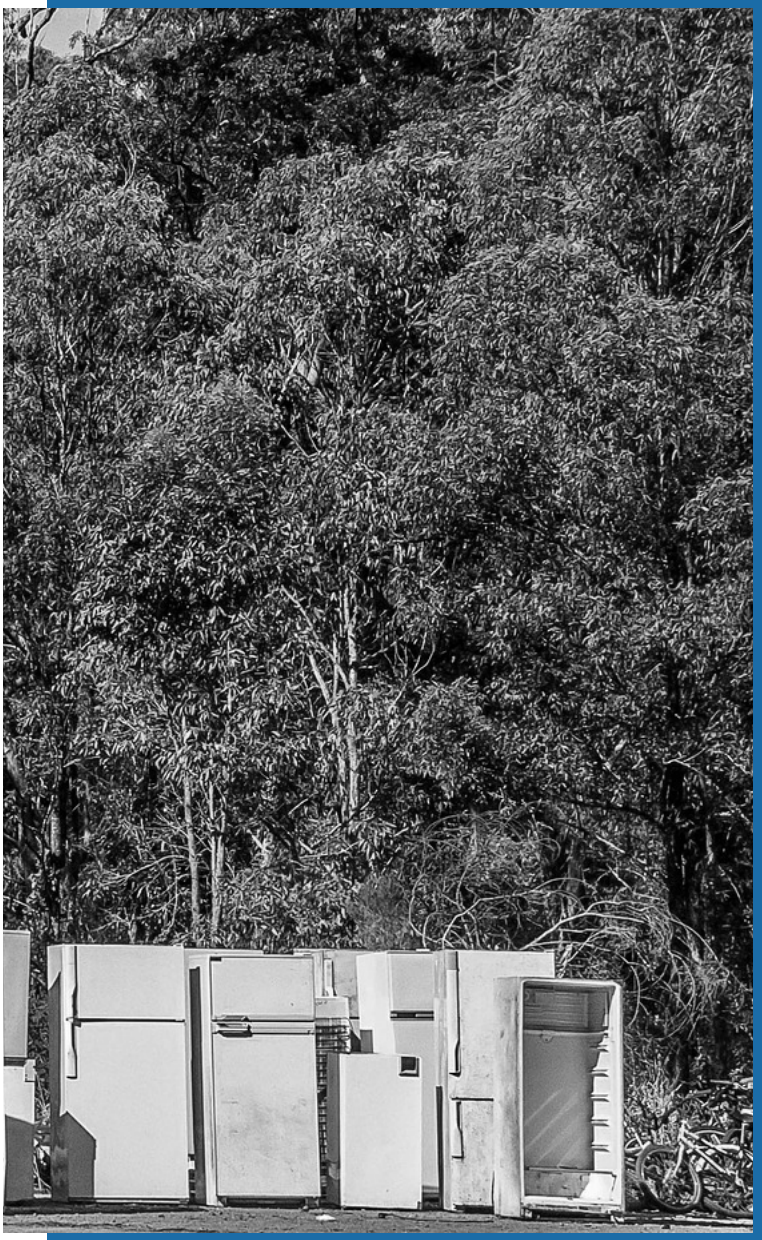
The chart below shows the comparison between actual results verses the energy saving goals established over the last 10 years. Note, for 2019, the results were based on the data as of 1/1/2020.



RESIDENTIAL PROGRAM

While each individual goal is important and is managed separately (see Appendix), the overall goal for the residential program is the most important number. This means exceeding our recycling or residential services goal can alleviate the need to reach the full pilot or educational goal if we have not found a project that is a good fit.

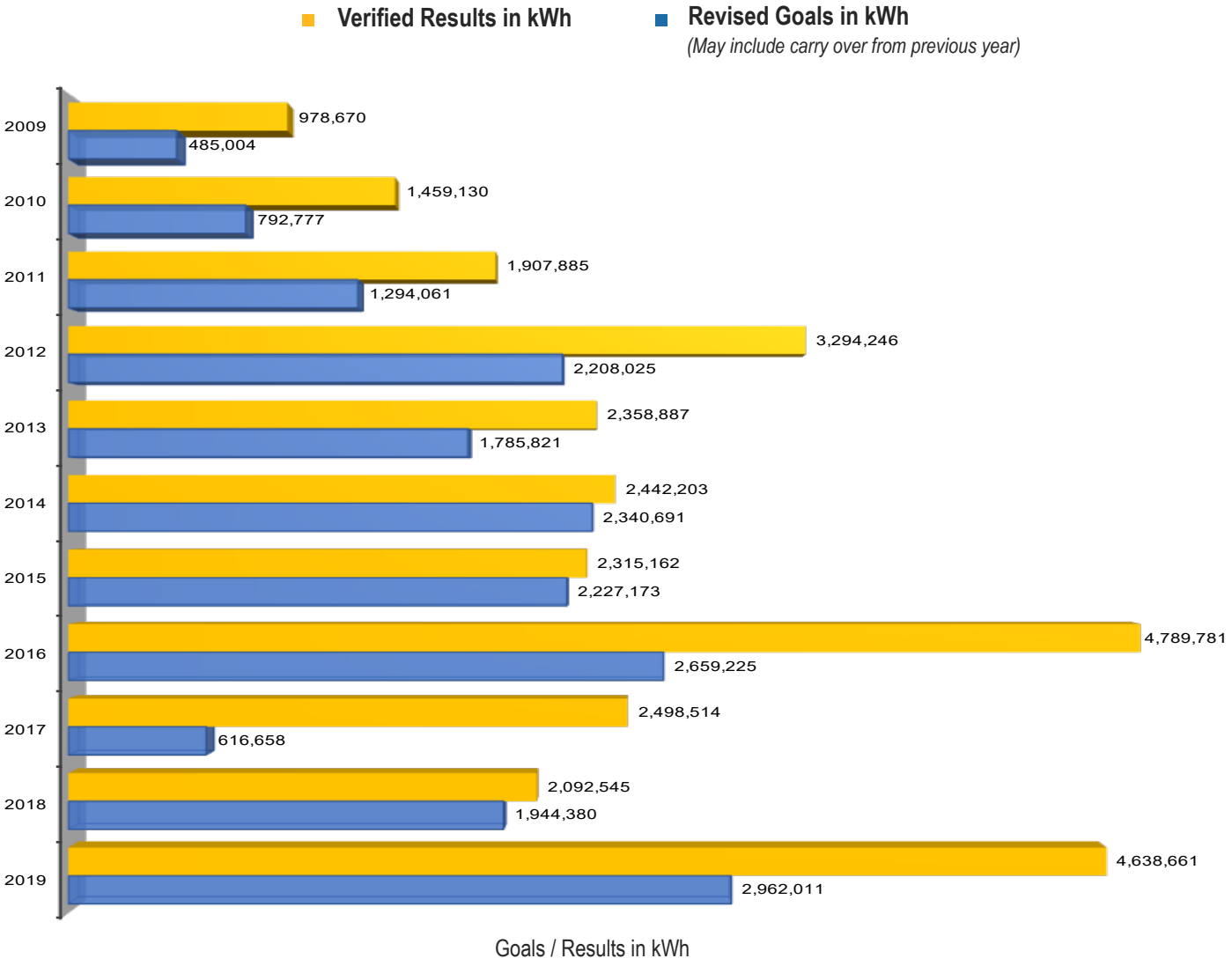
This is true for all programs within the residential program with the exception of the low-income program. While low income is included in the overall goal, it is treated independently and must be achieved each year. Whatever money is budgeted for the low-income program must be spent to achieve that goal and cannot be moved to another program.



C&I PROGRAM

83% of TCL&P's energy consumption comes from its commercial and industrial customers (C&I). This makes the C&I sector a very important piece to the EWR program. While there are not nearly as many meters as our residential customers, the reduction in energy consumption needed to meet the State of Michigan's required goals is much higher. Since inception, TCL&P has achieved its commercial and industrial goal every year (including 2019), with 3 out of the last 5 exceeding 150% of its goal. Of the 34,268,904 kWh that the EWR program has saved, 28,775,684 kWh have come from the C&I program.

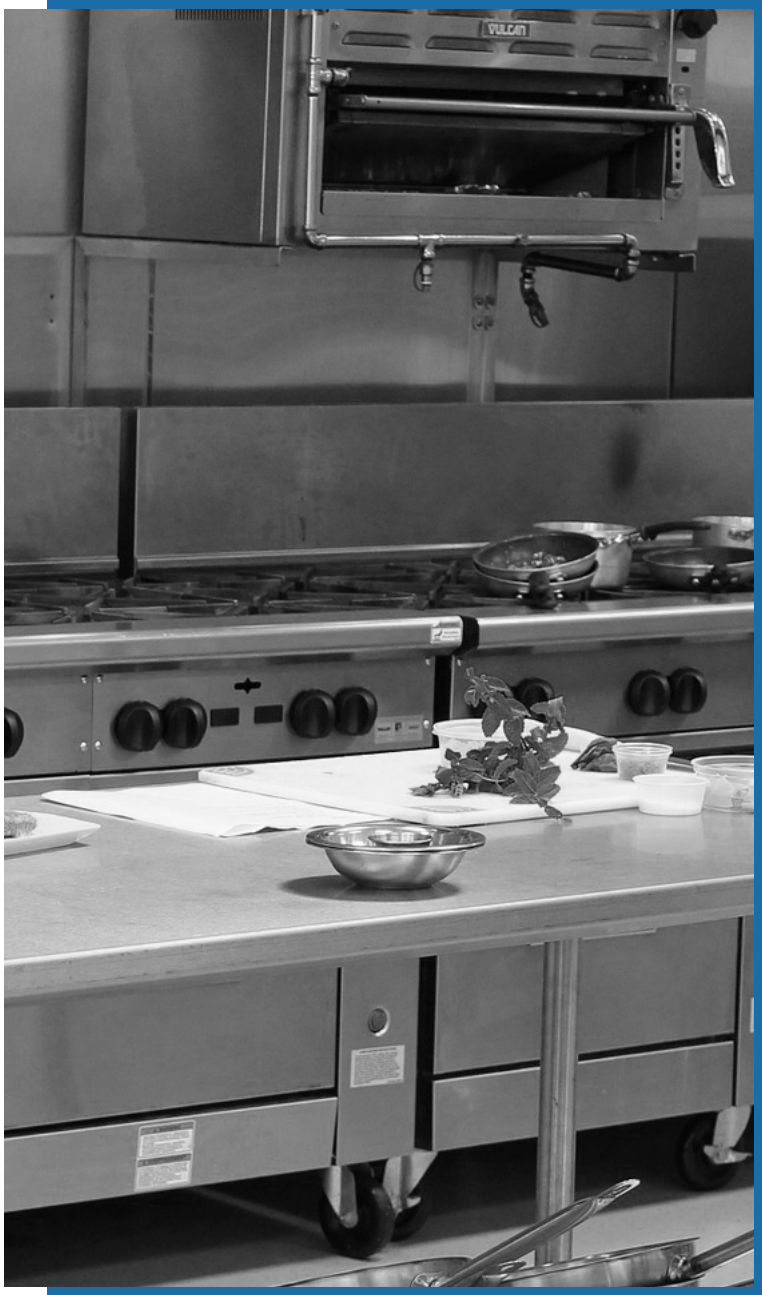
Below shows how the C&I program performed over the last 10 years in relation to the goal each year.



COMMERCIAL PROGRAM

The C&I program is split up into three sub programs: business services, pilot/emerging technologies, and educational programs. Business services is our core program that incentivizes every TCL&P commercial and industrial customer to upgrade facilities to more efficient products and processes. While the majority of these rebates are on lighting, just like our residential program, there are a wider variety of energy efficiency projects that are being performed every year. From variable speed drives and variable frequency drives to more efficient pumps and industrial kitchen equipment. With such a broad range of commercial businesses in Traverse City, the opportunities for efficiency projects are endless and make for a very exciting future for the Energy Waste Reduction program.

The pilot/emerging technologies program is a very forward focused program that allows TCL&P to be more creative with some of the EWR funds. With this program, we can identify emerging technologies that help to reduce our carbon footprint. Every year we seek out projects that would impact a large group as opposed to just a few.

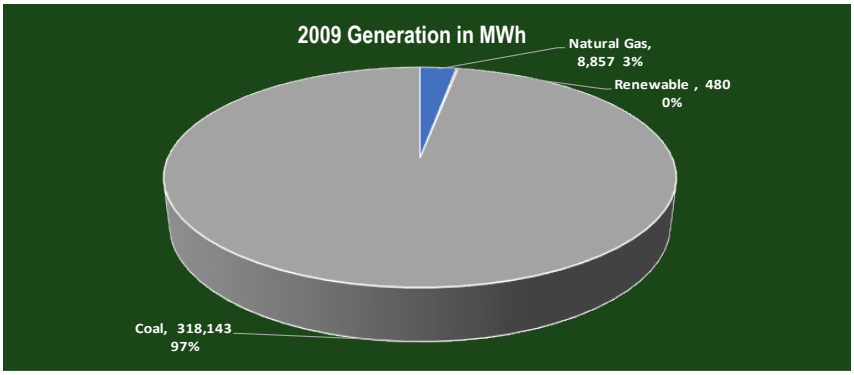


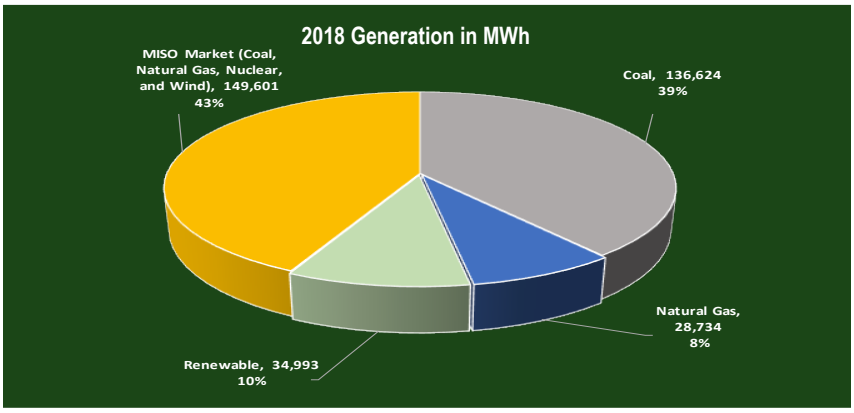
RENEWABLE ENERGY PLAN

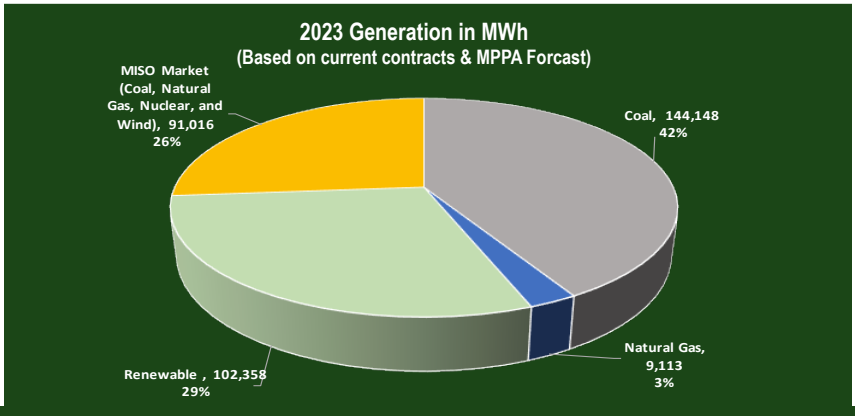
In August 2018, the Traverse City Light and Power (TCL&P) Board made a strong commitment to renewable energy resources to minimize our communities' impact on the environment while providing our customers safe, affordable and cleaner generation sources. This strong commitment was through a strategic plan goal that outlined the following:

- First, TCL&P will obtain new generation capacity from clean energy to meet or exceed the statutory mandate from clean and renewable energy sources by 2021;
- Second, TCL&P intends to obtain sufficient generation to fulfill at least 40% of its energy portfolio requirements from clean and renewable energy by 2025;
- Third, the utility will strive to obtain 100% of its generation with renewable energy by or before 2040.

Historically, as we look at where we have been, where we are now and where we see ourselves in the future, attaining the goal by 2040 seems attainable with the advancement in technology. As the charts indicate, in 2009 the utility provided enough renewable energy to power the equivalent of approximately 70 residential homes. In 2018 we show an increase to what would be equivalent to approximately 5,106 residential homes and this is expected to grow to 14,938 homes in 2023.







RENEWABLE ENERGY PLAN

Currently TCL&P's renewable energy resources portfolio consists of the following:

WIND

- The M-72 turbine (600 KW turbine) which generates approximately .4 MWh of generation a year.
- The Stoney Corners wind farm (5 - 2 MW turbines) located in McBain, Michigan, which generates approximately 24,255 MWh of generation a year.

SOLAR

- The Heritage 3 MW solar project located near the M-72 turbine which is tied directly to our distribution system. It is expected the utility will receive approximately 5,338 MWh of generation a year.

LANDFILL GAS

- Two landfill energy projects with Granger Electric of Michigan and North American Natural Resources. The utility receives approximately 9,768 MWh of generation a year.

In addition to these renewable energy resources, the utility continues to provide customers the opportunity to have renewable energy generation on private property through the net metering program. The policy was adopted in 2010 and at that time there were two project installations with a combined total of 39.32 KW in generation capacity. In the 2019 report to the EIA, the utility had 24 installations, mostly solar, which provided total project installations of 195.63 KW in generation capacity, which provided an excess amount of 74,963 kWh of energy sold back to the utility.

RENEWABLE ENERGY PLAN

As we look ahead, TCL&P's renewable generation portfolio will continue to expand as we participate in these new renewable generation projects currently on the horizon.

- The Pegasus Wind Farm currently under construction located in the thumb of Michigan. Once constructed the utility is expected to receive approximately 7,586 MWh of generation a year.
- The utility recently signed purchase power commitments with two different energy companies for additional solar energy. The first is Ranger's Assembly Solar I and II project which will provide approximately 33,533 MWh of generation. The second is Invenergy's project in Calhoun County which will provide 23,511 MWh of generation a year.
- Two additional projects under consideration include a potential solar array on utility owned property along Cedar Run Road as well as working with Cherry Capital Airport to install up to 10 MW of solar generation on airport owned property.

APPENDIX - RESIDENTIAL

Revised Goals in kWh												
Category	Program	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Residential	Low Income Services	78,674	75,901	22,827	22,827	22,827	22,598	22,258	21,947	17,399	13,692	13,034
	Residential Services	490,137	432,769	415,135	415,135	415,135	208,365	282,366	278,418	150,678	189,415	266,721
	Appliance Recycling	31,970	30,843	Inc. In Res Services	Inc. In Res Services	Inc. In Res Services	202,607	122,419	120,707	156,599	112,060	67,584
	Educational Services	21,095	21,095	49,768	49,768	49,768	49,269	48,528	47,849	36,392	24,454	14,858
	Pilot Programs	35,159	35,159	82,947	82,947	82,947	82,115	80,880	79,748	48,523	16,303	
	Carryover	(372,251)	(198,589)	369,563	61,677	(90,725)	(79,248)	(185,484)	(214,013)			
	TOTAL	**284,784**	**397,178**	**940,240**	**632,354**	**479,952**	**485,706**	**370,967**	**334,656**	**409,591**	**355,924**	**362,197**

Verified Results in kWh												
Category	Program	2019 (as of 1/1/20)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Residential	Low Income Services	52,420	18,113	11,043	12,183	65,102	48,578	21,578	26,056	18,895	20,356	13,034
	Residential Services	188,115	263,114	216,078	200,435	211,561	331,894	151,711	381,196	319,556	267,011	486,563
	Appliance Recycling	*Included In Res Services*	42,350	69,894	0	88,487	88,871	147,519	156,841	195,217	158,213	90,629
	Educational Services	20,048	12,162	49,768	49,768	53,125	51,113	103,873	155,959	154,981	24,454	14,858
	Pilot Programs	0	0	82,947	405	0	98,368	98,368	94,598	53,544	16,303	0
	TOTAL	**260,583**	**335,739**	**429,730**	**262,791**	**418,275**	**618,824**	**523,049**	**814,650**	**742,193**	**486,337**	**605,084**
	Actual to Goal Difference	**(24,201)**	**(61,439)**	**(510,510)**	**(369,563)**	**(61,677)**	**133,118**	**152,082**	**479,994**	**332,602**	**130,413**	**242,887**

Program Budget												
Category	Program	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Residential	Low Income Services	$23,596	$22,765	$4,648	$4,648	$4,648	$4,602	$4,533	$4,164	$15,640	$8,900	$3,800
	Residential Services	$74,836	$66,986	$91,261	$91,261	$91,261	$90,346	$47,597	$23,109	$29,083	$6,906	$1,061
	Appliance Recycling	$5,721	$5,519	Inc in Res Services	Inc in Res Services	Inc in Res Services	Inc in Res Services	$28,489	$19,104	$31,931	$19,163	$9,246
	Educational Services	$3,678	$3,654	$8,126	$8,126	$8,126	$8,044	$7,526	$7,265	$5,865	$3,338	$1,343
	Pilot Programs	$6,130	$6,090	$13,543	$13,543	$13,543	$13,407	$12,544	$12,108	$7,820	$2,225	
	TOTAL	**$113,961**	**$105,014**	**$117,578**	**$117,578**	**$117,578**	**$116,399**	**$100,689**	**$65,750**	**$90,339**	**$40,532**	**$15,450**

Actual Money Spent												
Category	Program	2019 (as of 1/1/20)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Residential	Low Income Services	$9,581	$1,076	$3,316	$3,316		$4,874	$12,373	$6,236	$2,298	$2,791	$3,800
	Residential Services	$12,176	$25,195	$17,468	$26,013	$12,196	$44,228	$18,397	$33,866	$20,934	$4,939	$146
	Appliance Recycling	$1,850	$2,250	$3,280	$0		$7,260	$12,898	$21,231	$31,931	$19,164	$9,246
	Educational Services	$3,496	$3,160	$5,798	$5,798		$8,345	$16,109	$23,680	$24,997	$3,338	$1,343
	Pilot Programs	$0	$0	$9,663	$9,663		$15,259	$15,259	$15,328	$71,346	$2,225	
	TOTAL	**$27,102**	**$31,681**	**$39,525**	**$44,790**	**$12,196**	**$79,966**	**$75,036**	**$100,341**	**$151,506**	**$32,457**	**$14,535**
	Actual to Goal Difference	**($86,859)**	**($73,333)**	**($78,053)**	**($72,788)**	**($105,382)**	**($36,433)**	**($25,653)**	**$34,591**	**$61,167**	**($8,075)**	**($915)**

APPENDIX - COMMERCIAL

Revised Goals in kWh												
Category	Program	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
C&I	Business Services	2,694,401	2,642,960	2,614,499	2,614,499	2,614,499	2,588,277	2,549,324	2,080,428	1,209,146	752,020	470,146
	Educational Programs	100,354	102,604	49,768	49,768	49,768	49,269	48,528	47,849	36,392	24,454	14,858
	Pilot/Emerging Technology	167,256	171,006	82,947	82,947	82,947	82,115	80,880	79,748	48,523	16,303	
	Carryover	0	(972,190)	(2,130,556)	(87,989)	(520,041)	(378,970)	(892,911)				
	Subtotal - Residential	**2,962,011**	**1,944,380**	**616,658**	**2,659,225**	**2,227,173**	**2,340,691**	**1,785,821**	**2,208,025**	**1,294,061**	**792,777**	**485,004**

Verified Results in kWh												
Category	Program	2019 (as of 1/1/20)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
C&I	Business Services	4,553,993	1,908,119	2,363,782	4,739,913	*2,176,291*	2,221,372	2,120,579	2,940,728	1,642,390	*1,418,373*	963,812
	Educational Programs	0	68,403	49,768	49,768	*53,125*	51,113	103,873	155,959	154,981	*24,454*	14,858
	Pilot/Emerging Technology	84,668	114,005	82,947	100	85,746	169,718	134,435	197,559	110,514	16,303	
	TOTAL	**4,638,661**	**2,092,545**	**2,498,514**	**4,789,781**	**2,315,162**	**2,442,203**	**2,358,887**	**3,294,246**	**1,907,885**	**1,459,130**	**978,670**
	Actual to Goal Difference	**1,676,650**	**148,165**	**1,881,856**	**2,130,556**	**87,989**	**101,512**	**573,066**	**1,086,221**	**613,824**	**666,353**	**493,666**

Program Budget												
Category	Program	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
C&I	Business Services	$212,963	$395,284	$369,961	$369,961	$369,961	$366,250	$266,654	$282,586	$202,119	$127,374	$64,858
	Educational Programs	$15,009	$15,346	$8,126	$8,126	$8,126	$8,044	$7,526	$7,265	$24,997	$3,338	$1,343
	Pilot/Emerging Technology	$25,015	$25,576	$13,543	$13,543	$13,543	$13,407	$12,544	$12,108	$89,396	$2,225	
		$252,987	**$436,205**	**$391,630**	**$391,630**	**$391,630**	**$387,701**	**$286,724**	**$301,959**	**$316,512**	**$132,937**	**$66,201**

Actual Money Spent												
Category	Program	2019 (as of 1/1/20)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
C&I	Business Services	$223,441	$127,519	$144,319	$245,317	$113,565	$152,501	$242,578	$332,511	$251,880	$144,310	$93,568
	Educational Programs	$0	$15,346	$5,798	$5,798	$8,126	$8,345	$16,109	$23,680	$5,865	$3,338	$1,343
	Pilot/Emerging Technology	$12,663	$11,696	$9,663	$9,663	$13,543	$0	$20,850	$29,995	$7,820	$2,225	
		$236,104	**$154,561**	**$159,780**	**$260,778**	**$135,234**	**$160,846**	**$279,537**	**$386,186**	**$265,565**	**$149,873**	**$94,911**
	Actual to Goal Difference	**($16,883)**	**($281,644)**	**($231,850)**	**($130,852)**	**($256,396)**	**($226,855)**	**($7,187)**	**$84,227**	**($50,947)**	**$16,936**	**$28,710**

APPENDIX - IN PERSPECTIVE

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Residential and Commercial Total kWh Saved	4,899,244	2,428,285	2,928,244	5,052,572	2,733,437	3,061,027	2,881,936	4,108,896	2,650,078	1,945,467	1,583,754
Utility Sales kWh	333,936,766	341,482,534	318,110,907	330,484,931	314,874,367	321,847,769	322,419,729	324,655,547	323,964,961	313,549,051	303,437,762
kWh saved by year	4,899,244	2,428,285	2,928,244	5,052,572	2,733,437	3,061,027	2,881,936	4,108,896	2,650,078	1,945,467	1,583,754
Cumulative Total kWh Saved	34,272,940	29,373,696	26,945,411	24,017,167	18,964,595	16,231,158	13,170,131	10,288,195	6,179,299	3,529,221	1,583,754
Avoided Purchase Power Costs	$ 1,967,760.88	$ 1,710,187.70	$ 1,829,582.86	$ 1,471,139.39	$ 1,251,390.64	$ 1,184,945.77	$ 1,088,249.59	$ 698,072.16	$ 408,632.50	$ 186,485.06	$ 75,240.19
Avoided Capacity Costs (included in avoided purchase power cost	$ 323,106.97	$ 274,996.55	$ 253,727.26	$ 228,222.39	$ 167,007.01	$ 14,742.46	$ 12,768.50	$ 8,733.06	$ 5,468.79	$ 3,081.55	$ 1,371.30
Lost of Operation/Capital Cost Recovery	$ 1,059,563.55	$ 920,870.30	$ 985,160.00	$ 792,151.98	$ 673,825.73	$ 638,047.72	$ 585,980.55	$ 375,885.01	$ 220,032.89	$ 100,415.03	$ 40,513.95
Energy Waste Reduction Program Costs	$ 263,206.19	$ 186,242.25	$ 199,305.00	$ 305,568.29	$ 135,234.00	$ 240,812.00	$ 354,573.00	$ 486,527.00	$ 417,071.00	$ 182,330.00	$ 109,446.00
Net Savings	$ 644,991.14	$ 603,075.15	$ 645,117.86	$ 373,419.12	$ 442,330.91	$ 306,086.05	$ 147,696.04	$ (164,339.85)	$ (228,471.38)	$ (96,259.97)	$ (74,719.76)
Actual Peak Demand	67.72	68.43	63.83	69.79	72.90	71.00	72.08	70.66	71.05	67.87	65.30
Avoided Peak Demand	76.08	75.11	70.12	75.98	77.58	75.22	75.60	73.51	72.92	69.01	65.95
Percentage of kWh saved by year compared to utility sales	1.47%	0.71%	0.92%	1.53%	0.87%	0.95%	0.89%	1.27%	0.82%	0.62%	0.52%

Note: This represents a simplified version of the impact of the Energy Waste Reduction Program on the utility peak demand and purchase power costs. This does not incorporate other external factors such as weather, it assumes a ten year life cycle cost, and line losses are not incorporated into the calculations.