Report
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February 28, 2025

VIA: ELECTRONIC MAIL

Ms. Elisabeth Draper, Director
Division of Economics
Florida Public Service Commission
Room 225E – Gerald L. Gunter Building
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850
EDraper@psc.state.fl.us

Re: Tampa Electric Company's Summary of 2024 DSM Program Accomplishments

Dear Ms. Draper:

Enclosed for filing is Tampa Electric Company's Summary of 2024 Demand Side Management Program Accomplishments.

Thank you for your assistance in connection with this matter.

Sincerely,

Malcolm N. Means

MNM/bml
Enclosure

cc: Paula K. Brown (w/o enc.)
Ashley Sizemore (w/o enc.)
Michael Barrett (w/enc.) MBarrett@psc.state.fl.us

TAMPA ELECTRIC'S 2024

Demand Side Management Program Accomplishments Report

TECO
TAMPA ELECTRIC
AN EMERA COMPANY

Executive Summary

Executive Summary:

In 2024, Tampa Electric achieved all of the annual and cumulative Residential and Commercial/Industrial ("Comm/Ind") and combined Demand and Annual Energy ("AE") DSM goals.

2024 Residential Goals		Actual Residential DSM Achieved	
SkW:	2.5 MW	SkW:	9.8 MW
WkW:	6.1 MW	WkW:	8.5 MW
AE:	5.5 GWh	AE:	22.2 GWh

2024 Comm/Ind Goals		Actual Comm/Ind DSM Achieved	
SkW:	3.2 MW	SkW:	12.3 MW
WkW:	1.7 MW	WkW:	9.2 MW
AE:	9.6 GWh	AE:	86.5 GWh

2024 Combined Goals		Actual Combined DSM Achieved	
SkW:	5.7 MW	SkW:	22.1 MW
WkW:	7.8 MW	WkW:	17.7 MW
AE:	15.1 GWh	AE:	108.7 GWh

This 2024 DSM Annual Report provides the required DSM reporting information as required by the Commission, including providing updates on historical program accomplishments, challenges and highlights that occurred.

2024 DSM Summary Highlights:

- Tampa Electric's team members that facilitate the conservation related activities experienced zero injuries during 2024.

- The company performed 9,495 Walk-Through Energy Audits for Residential customers, including 2,861 as part of the Residential Walk-Through and Computer Assisted Energy Audit programs and 6,634 as a component of the company's Neighborhood Weatherization program.

- 52,794 of the company's customers took advantage of the Residential Customer Assisted Energy Audit (online).

- The company installed weatherization on 6,634 homes as part of the Neighborhood Weatherization program. This participation rate brings the overall penetration level of this program to approximately 48 percent for all qualifying customers.

- The company's Program Support Team processed 6,531 energy efficiency rebates paid to customers, most within ten business days of receiving all the required documents for verification.

- Tampa Electric completed the fourth and final year of operational testing of the Integrated Renewable Energy System ("IRES"). A detailed summary report is included within this report.

- The company completed its first commercial battery installations as part of the small to mid-size commercial battery Research and Development (R&D) project. A summary of these activities within this R&D project is included within this report.

- In 2024, the company received approval of its DSM goals for the 2025-2034 period and filed its DSM plan and standards for commission approval.

- The image below is one of the company's Commercial Energy Analyst presenting the Commission's Triple E award winner for the final quarter of 2023 to Veterans Ford.

Challenges:

In 2024, the company faced numerous challenges created by the combination of storms Helene and Milton and their impact on the electric grid. One notable non-storm related challenge that impacted delivering DSM programs was the system

used for rebate processing, audit scheduling, and audit report generation being unavailable for a time due to a cyber-attack on the service company that hosts the platform. Tampa Electric is very proud of the collaboration and teamwork that was performed by the Residential Energy Management Team, the Commercial Energy Management Team, and the Program Support Teams that support the day-to-day operations of its DSM programs. During the time while the solution was being migrated to a new hosting service and was unavailable, the teams were able to manage manually scheduling customer audit appointments so that there was no impact to customers. All teams stepped up to perform the high-quality walk-through commercial and residential energy audits while keeping records to later input into the system, and manually creating reporting for the company's customers, while back-office staff stepped up to perform extensive testing to support an aggressive go live date. The company worked hard to minimize the duration that rebate processing was suspended, as well as to expedite the processing and reconciliation of submitted rebates once the system was live.

For 2025:

Tampa Electric remains committed to offering DSM programs that advance the policy objectives of FEECA, are directly monitorable, yield measurable results and are cost-effective to deliver. The company will continue its advertising campaign of bill inserts, print media and television advertisements aimed at educating customers on opportunities to participate in programs to assist in meeting their energy efficiency requirements.

Annual Report on DSM Program Accomplishments

Table of Contents

Historical Participation, Achievements, and Expenditures

Historical Participation, Achievements and Expenditures:

Tampa Electric has been offering cost-effective energy efficiency programs since September 1978, when the company started its first residential walk-through energy audit program, known as the Residential Conservation Service. Following the enactment of the Florida Energy Efficiency and Conservation Act ("FEECA"), the company began expanding its offering of Demand Side Management ("DSM") programs to include other energy efficiency and load management programs such as Heating and Air Conditioning, Storage Water Heating, Commercial Energy Audits, Efficiency Buildings, Residential Load Management, Commercial/Industrial Interruptible and Co-Generation. These programs were all designed to achieve the objectives of FEECA, including:

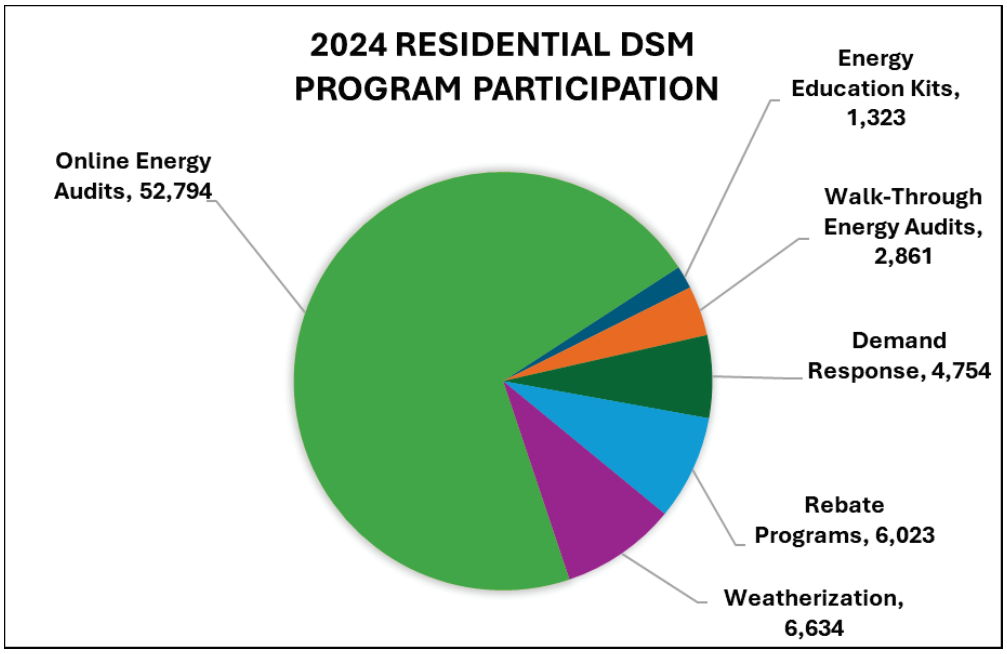
1. Reducing the growth rates of weather-sensitive peak demand and electricity usage.
2. Increasing the efficiency of the production and use of electricity and natural gas.
3. Encouraging demand-side renewable energy systems.
4. Conserving expensive resources, particularly petroleum fuels.

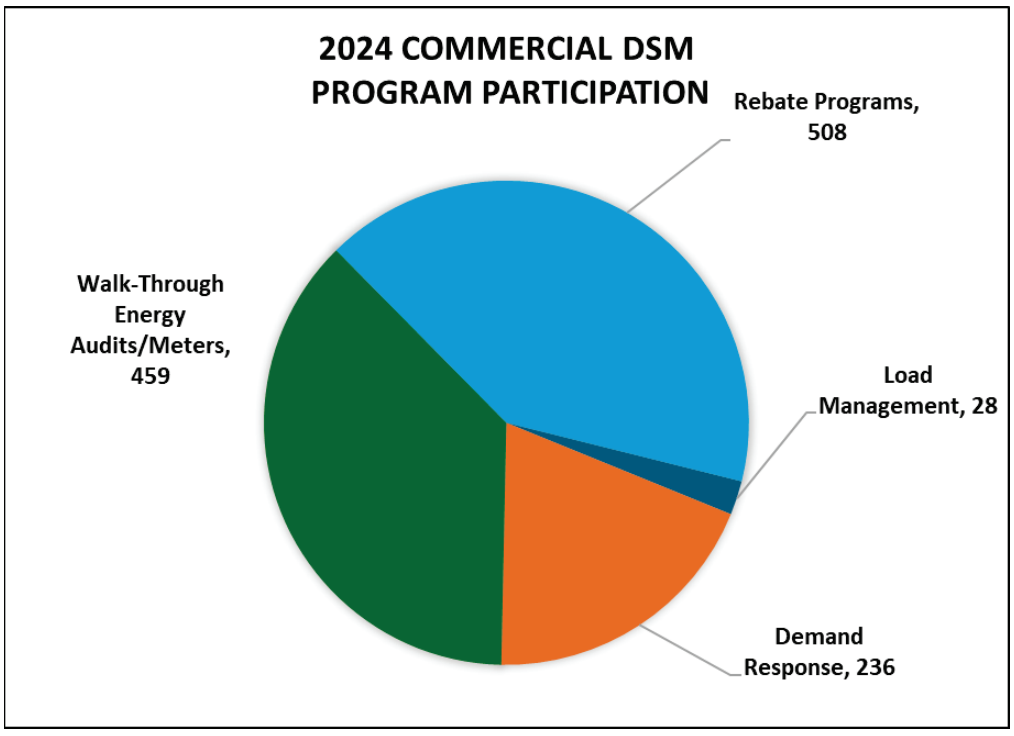
In 2024, Tampa Electric continued to provide the largest portfolio of residential and commercial/industrial energy and demand savings programs in the state of Florida through its Commission approved 2020-2029 DSM Plan. This comprehensive energy efficiency portfolio provides programs in which all customers can participate in and helps customers save energy, demand, money, and benefits all of the company's customers by reducing the company's need to purchase, produce, and deliver additional energy, in addition to reducing emissions to the environment.

Tampa Electric received approval of its 2020-2024 Demand Side Management ("DSM") goals in Order No. PSC-2019-0509-FOF-EG, issued on November 26, 2019, in Docket No. 20190021-EG. The company received approval of its 2020-2029 DSM Plan in Order No. PSC-2020-0274-PAA-EG, issued on August 3, 2020, in Docket No. 20200053-EG. Tampa Electric transitioned to the DSM programs within the 2020-2029 DSM Plan on November 2, 2020, pursuant to receiving final approval of the supporting DSM standards on September 8, 2020.

Customer Participation:

In 2024, Tampa Electric facilitated the participation of 74,389 residential and 1,233 commercial/industrial customers in the company's DSM programs. The charts below provide the breakdown of how these customers participated in the company's DSM programs for the January through December 2024 period:





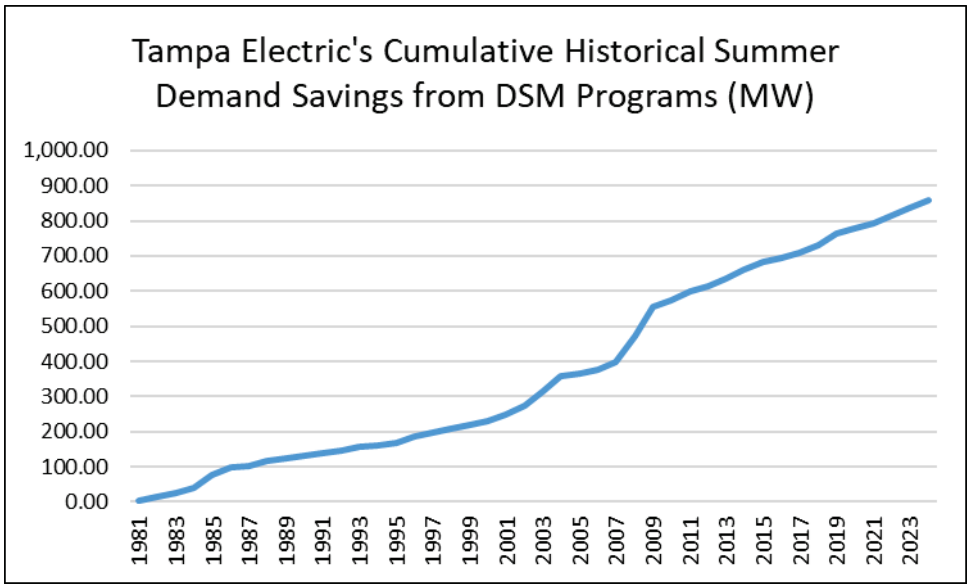
On a historical basis, as of the end of 2024, Tampa Electric has conducted 379,545 Residential and Commercial Walk-Through energy audits, provided 610,337 online, phone or mail in energy audits, paid 531,074 rebates for energy efficient upgrades, and has performed weatherization on 85,664 homes.

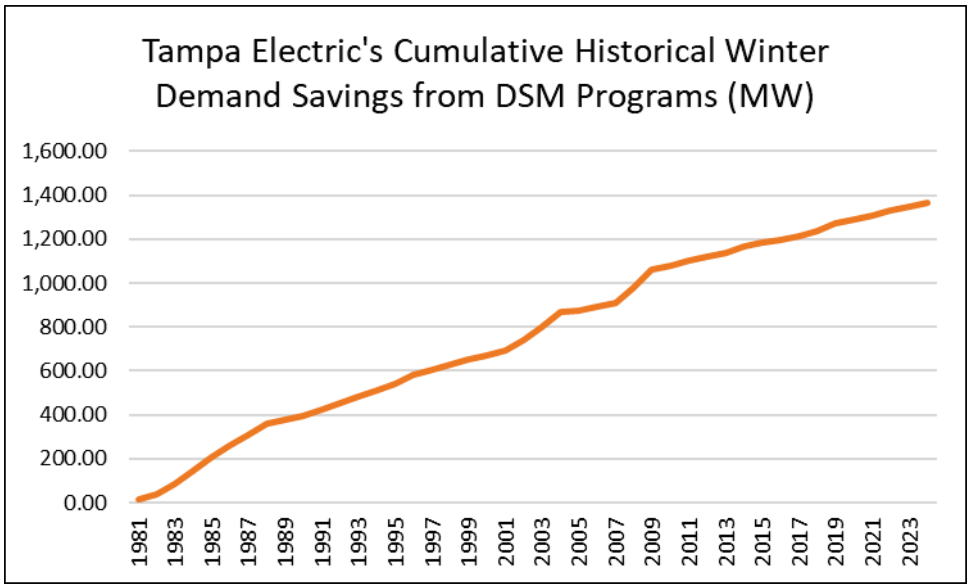
DSM Achievements:

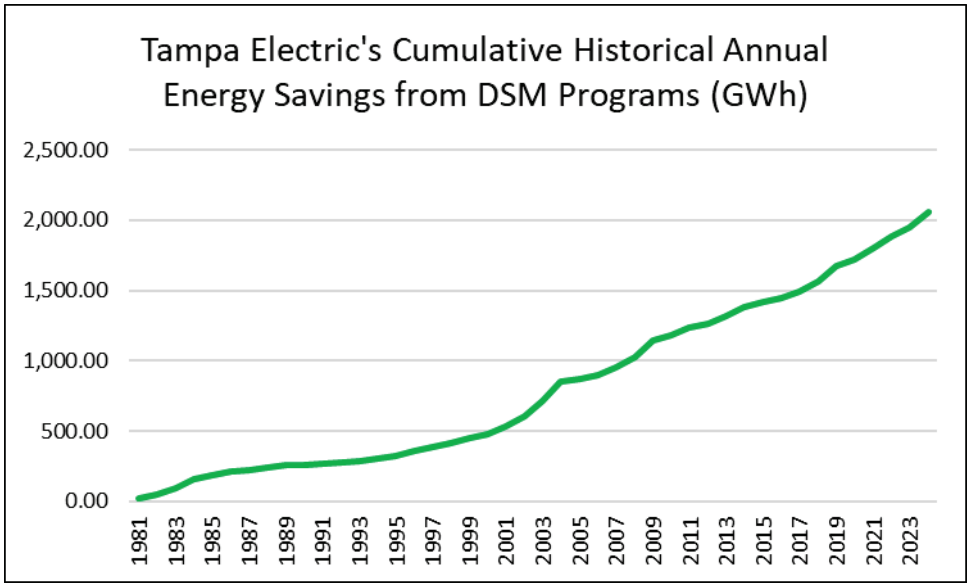
Since the establishment of FEECA and the end of 2024, the company's DSM programs have achieved the following cumulative demand and energy savings:

Summer Demand Savings:	857.24 MW
Winter Demand Savings:	1,367.53 MW
Annual Energy Savings:	2,058.82 GWh

It is important to note that the annual energy savings documented for achievement includes only one year of energy savings from the participation in a given DSM program. These energy savings also do not include naturally occurring energy efficiency or savings that would occur from updated building codes or savings that would come from training events. The savings do include demand and energy savings that do not contribute toward the achievement of the annual DSM goals set forth by the Commission (such as behavioral savings quantified). These continued Demand Savings achievements have eliminated the need for over seven 180 MW power plants. The charts below show the cumulative demand and energy savings the company has achieved since 1981:

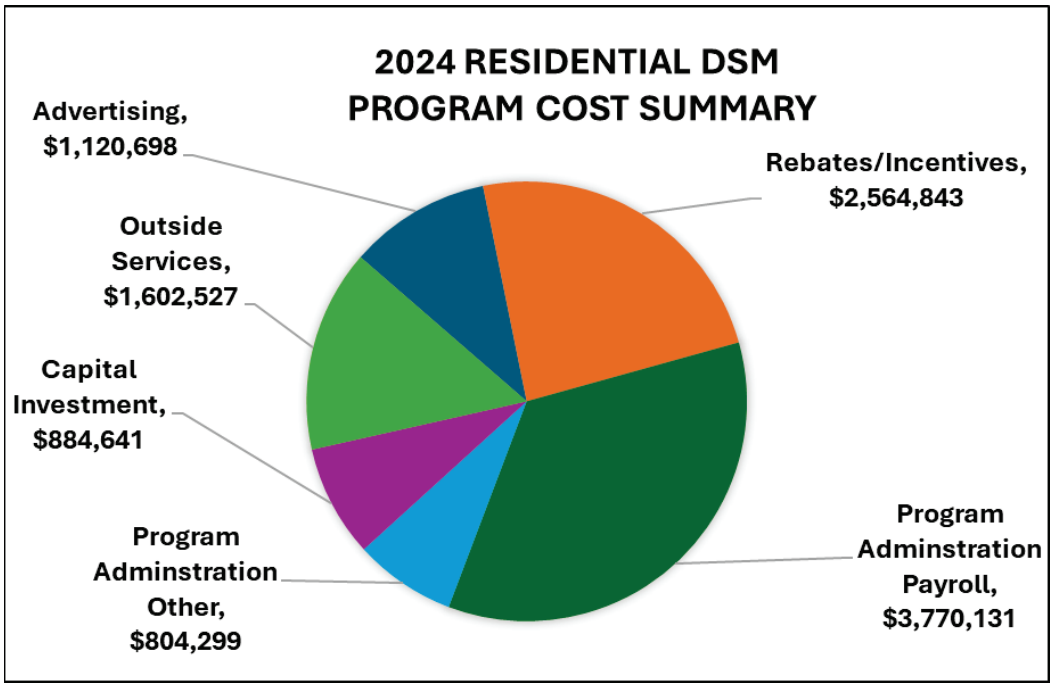


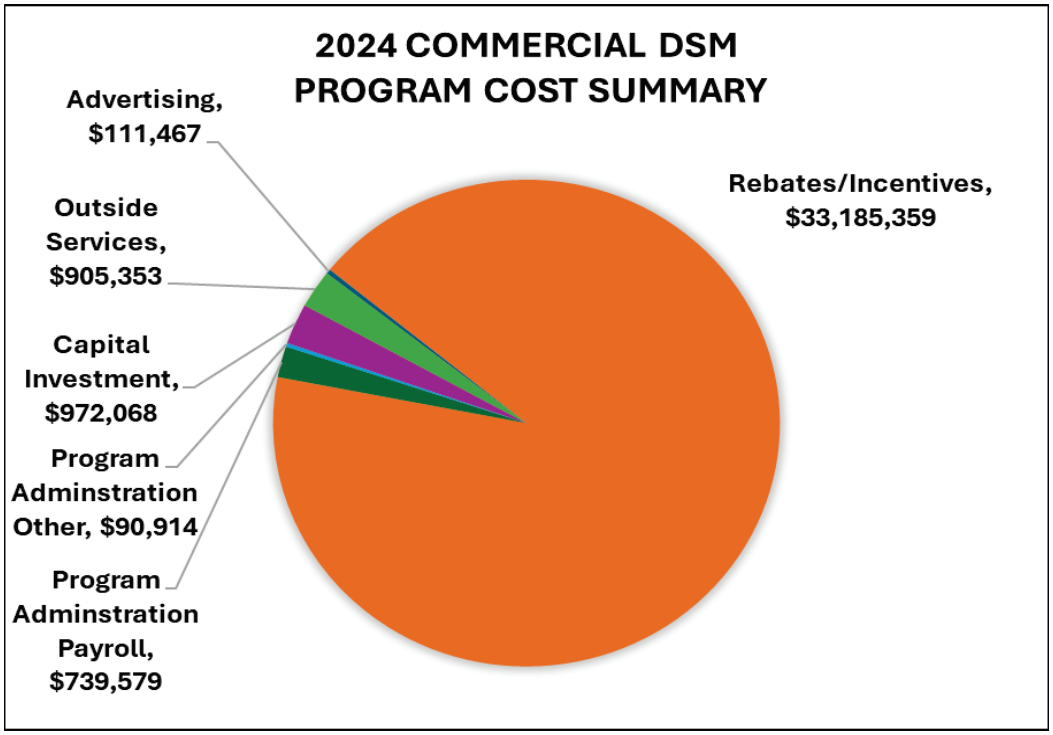




Expenditures:

In 2024, Tampa Electric facilitated the participation of 74,389 residential and 1,233 commercial/industrial customers in the company's DSM programs. The charts below provide the breakdown of the initial true-up costs that were incurred to fund their participation in the company's DSM programs for the January through December 2024 period:


2024 RESIDENTIAL DSM
PROGRAM COST SUMMARY
Advertising, $1,120,698
Rebates/Incentives, $2,564,843
Outside Services, $1,602,527
Capital Investment, $884,641
Program Adminstration Other, $804,299
Program Adminstration Payroll, $3,770,131


2024 COMMERCIAL DSM
PROGRAM COST SUMMARY
Advertising, $111,467
Rebates/Incentives, $33,185,359
Outside Services, $905,353
Capital Investment, $972,068
Program Adminstration Other, $90,914
Program Adminstration Payroll, $739,579

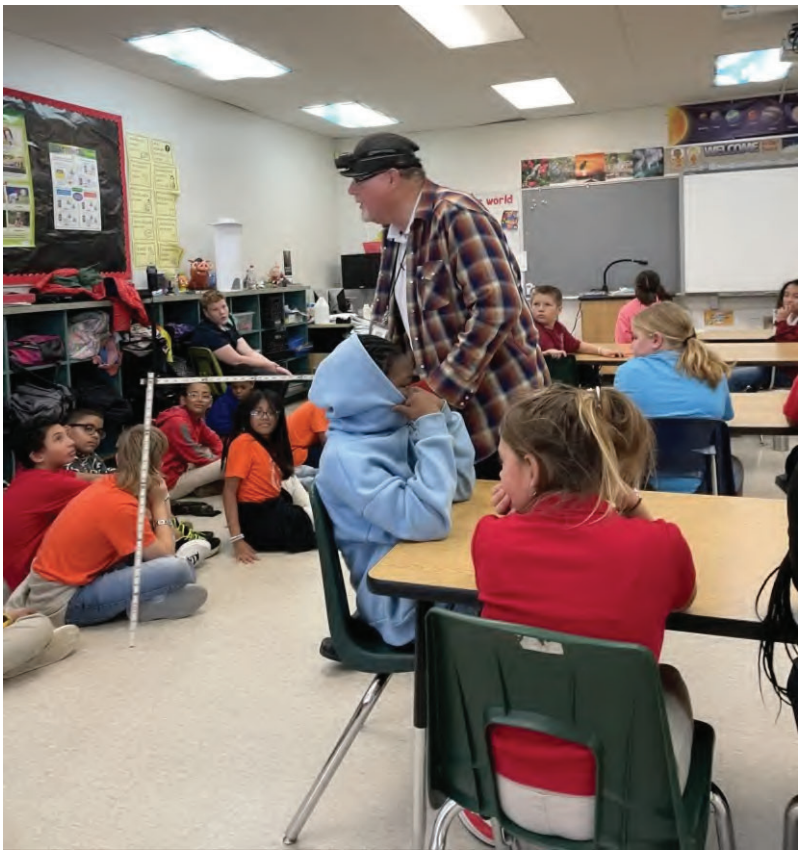
Energy Audits

Energy Audits:

Residential Energy Audits:

Tampa Electric facilitates four types of energy audits for residential customers. A walk-through energy audit, an online energy audit, a comprehensive energy audit, and a Building Energy-Efficiency Ratings Systems ("BERS") energy audit. The walk-through and online energy audit are free to take advantage of, while the comprehensive and BERS audit have a nominal additional fee to have these performed.

All of Tampa Electric's Residential Energy Analysts that conduct energy audits are required to achieve and maintain a professional certification in energy auditing or energy management.



Residential Energy Analyst explaining the audit process to students at Lake Shipp Elementary School in Winter Haven FL.

Commercial Energy Audits:

Tampa Electric facilitates two types of energy audits for commercial/industrial customers. A walk-through energy audit and a comprehensive energy audit. The walk-through energy audit is free to take advantage of, while the comprehensive energy audit has a nominal additional fee to have it performed.

All of Tampa Electric's Commercial/Industrial Energy Analysts that conduct energy audits are required to achieve and maintain the Certified Energy Manager ("CEM") professional certification.

Tampa Electric Commercial/Industrial Energy Analyst taking notes during their walk-through.

Members of the company's Commercial Energy Management Team presenting at a Tech Talk event.

The table below provides the summary detail of “audit information by type” for the Energy Audits performed by Tampa Electric in 2024.

Tampa Electric's 2024 Energy Audits Performed by Energy Audit Type				
	Walk-Through, BERS, and Computer Assisted	Online	Phone	Total
Residential	2,865	52,794	0	55,659
	Walk-Through and Comprehensive	Online	Phone	Total
Commercial	459	N/A	0	459

On a historical basis, as of the end of 2024, Tampa Electric has conducted 379,545 Residential and Commercial Walk-Through energy audits and provided 610,337 online, phone or mail in energy audits.

Energy Education and Weatherization Activities

Energy Education and Weatherization Activities:

Energy Education:

Tampa Electric's Energy and Renewable Education, Awareness and Agency Outreach program is comprised of three distinct initiatives:

1) Public energy and renewable education
2) Energy awareness
3) Agency outreach

This portion of the program is designed to establish opportunities for engaging groups of customers and students in energy-efficiency and renewable energy related discussions in an organized setting. Tampa Electric recognizes the importance of educating students and motivating customers through participation in its energy audits and raising awareness of energy conservation, energy efficiency and renewable energy efficiency. This program provides the opportunity to accomplish these initiatives for large groups in one setting.

Tampa Electric Energy Analyst educating students at the Plato Academy Charter School in Tampa on how they can help save energy.

Tampa Electric participated in over 83 designated energy education and awareness events across the company's service area in 2024. These events do not include the daily interactions of energy education that Tampa Electric Team Members have with customers through email,

phone calls, or one-on-one discussions nor with customers that are participating in one of Tampa Electric's Commission approved DSM programs. These events cover educating all ages, income classes and rate classes of customers on energy education and awareness. Several highlighted events include:

- Paint the Town Tampa
- Martin Luther King Parade/TE ERG
- Lake Ship Elementary School
- Tampa Bay Lighting Games
- Community Development Council
- Representative Myers Townhall Fairgrounds
- JR Buccaneers Movie Night
- Spring Break Festival
- Tampa Electric's Leadership Lunch
- WEDU Wont You Be My Neighbor
- Representative Myers Townhall Sumner Highschool
- PRIDE Parade Festival Local Bay Area
- Representative Myers Townhall EPJ Center
- Downtown Tampa Community DUCK RACE
- Monday Coffee with Aston Park Community Sessions
- Sulfur Springs Earth Day
- ECOFEST Learning Gate Community School
- Bay Area Apartment Association Low Income Multifamily
- Tampa Bay Buccaneers Draft Day Event
- Great American Teach In
- City of Oldsmar Hurricane Expo Days
- Representative Myers Townhall USF
- Wellswood HOA Community Meeting
- Clean Air Fair Downtown Tampa
- Florida Aging Council Association Attendance
- PLATO Academy
- Rise & Shine Senior Day Event
- Juneteenth 5k/WALK-RUN
- Representative Castor's Community Event
- BEAT the HEAT Community Engagement
- UNITY In Our Community Celebration
- NAACP Community Event
- ALL PRO DAD
- Tampa Police Night OUT
- Children's Vision Events
- 2024 STATE OF DOWNTOWN Tampa
- Mayors Neighborhood University Saturday Sessions
- Tampa Bay Buccaneers Raymond James Stadium
- Great American Heart Walk

Tampa Electric Energy Analyst speaking with commercial customers at the South Tampa Chamber of Commerce Business Expo.

Tampa Electric commits to continue partnering with neighborhood service centers to ensure customers who need assistance in reducing their energy usage and associated cost will receive the appropriate energy education and guidance. Participants will be provided with an energy efficiency kit containing the following energy saving devices and supporting information appropriate for the audience.

- Four LED lamps
- HVAC filter whistle
- Two low flow faucet aerators
- Wall plate thermometer
- Water heating temperature check card for adjustment of the water heater
- Energy savings education handout

In 2024, Tampa Electric provided 1,323 of these energy efficiency kits to qualifying customers.

Additionally, as part of energy education and awareness, the program has a component to encourage the conservation of energy and for the promotion of energy efficiency through local school systems by partnering

with high schools' driver's education classes. In 2024, the company has been collaborating with the school district to reengage the energy efficiency and electric vehicle ("EV") training curriculum. The school district has been working through the potential redesign of their drivers' education program. Because of this potential redesign, there were no students trained in 2024 for this part of the program.

Tampa Electric completed work on developing an effective platform to provide quality information on Renewable Energy and made it available to customers in the early part of 2024.

Agency Outreach:

Tampa Electric is involved on many fronts with different agencies that provide assistance or guidance to ensure that low-income / vulnerable customers have an equitable access to the company's DSM programs. In 2024, these activities included partnerships with:

Consortium for Energy Efficiency ("CEE"). In 2024, the company concluded its participation in the first phase of the study for Energy Equity through the CEE. The purpose of this study is to convene broad participation from behavior professionals within the energy efficiency industry to build consensus on characterizing and defining hard to reach audiences, and to ensure that program administrators are equitably serving all their customers, including audiences such as income eligible, low-English proficient, indigenous peoples, rural residential, and small/medium sized businesses. Through this study, the company collaborates with other trusted and respected US and Canadian program administrators with both equity and behavior responsibilities. The study also provides member sponsors with the opportunity to learn successful approaches to engaging precisely defined underserved customers in both the electric and natural gas sectors.

Florida Housing Coalition. In 2024 team members represented TECO on topics related to weatherization and other energy efficiency programs. Through these meetings, TECO has developed a connection with the Hillsborough County commissioner, which led to an event aimed at supporting low-income families. The collaboration has opened doors for future events and collaborations with the county, which we're excited to explore further.

Center of Economic Development Organization. In 2002, the company joined in a new partnership early with The Center of Economic Development Organization to create awareness and provide education to veterans, disabled customers, seniors, and low-income homeowners. This partnership allows the company to be in several communities working with other community volunteers to deliver energy education and

installation of the weatherization program. Through this partnership for 2024, the company was able to educate 369 customers and join efforts with local businesses in a community cleanup which included 21 energy audits, adding weatherization measures including duct seal and insulation.

Tampa Electric Energy Program Manager speaking at a town hall event about Neighborhood Weatherization.

Weatherization:

Tampa Electric's Neighborhood Weatherization program offers a comprehensive energy efficiency kit and increased energy education, with the addition of the walk-through energy audit that was added in the most recent DSM Plan, to assist low-income residential customers in becoming more energy efficient. The comprehensive energy efficiency kit includes the following 12 energy savings measures, in addition to ceiling insulation and/or duct sealing depending on the needs of the home:

- Six light emitting diode ("LED") lamps
- HVAC filter whistle
- Installation of up to three low flow faucet aerators
- Installation of up to two low flow shower heads
- Installation of a wall plate thermometer
- A water heating temperature check card for adjustment of the water heater
- Installation of hot water pipe insulation, if necessary

- Installation of weather stripping, if necessary
- Installation of caulking to seal windows, if necessary
- Installation of sealing foam to seal air infiltration issues, if necessary
- Refrigerator coil cleaning brush
- Installation of ceiling insulation, if needed
- Repair of duct seal, if needed
- Walk-Through Energy Audit
- Energy savings education handout

In 2024, Tampa Electric provided 6,634 customers with the weatherization of their homes. It is important to note that homes can be single family, manufactured, mobile or multi-family homes. For qualification, the company uses Florida Census Tract data to determine eligibility and the customer does not need to own the home. On a historical basis, Tampa Electric has performed weatherization on 85,644 homes.

Pilot Programs and Research and Development Updates

**Integrated Renewable Energy System,
five-year pilot program – update:**

The Integrated Renewable Energy System ("IRES") – Pilot Program completed its final year of study in 2024 following its commissioning in 2021. The system consists of 862 kW photovoltaic system located on five carports, five commercial-sized powerpack batteries capable of storing 1,160 kWh of energy, six dual headed level "2" electric vehicle charging systems, and 10 industrial truck battery charging stations. This pilot program had three main purposes: the first was to evaluate the ability to maximize the demand side management benefits from this integrated system, second was to determine the ideal operating parameters that a commercial or industrial customer would operate this type of system, and third, to use the installation and its associated operational information as an education platform for commercial and industrial customers seeking information on this type of system and its benefits, concerns, and capabilities. A final report is attached detailing the company's learnings during this pilot.

**Commercial Battery Storage,
Research and Development - Update:**

In the last quarter of 2016, Tampa Electric partnered with the University of South Florida ("USF") College of Engineering to assist in the performance of this Conservation Research and Development ("CRD") project to evaluate the feasibility of potentially offering a battery storage DSM program for commercial/industrial customers. This CRD project will evaluate these small to mid-size commercial battery storage installations through research and field study with at least one battery being installed at a commercial/industrial customer's facility. Tampa Electric specified the size of battery for this CRD project to be between 10 kW and 150 kW with the project from inception to completion lasting approximately three-years. The original timeline was to afford enough time to study these batteries and potentially justify a DSM program within the company's 2020-2029 DSM Plan if the results were positive. The original R&D project was projected to cost approximately $250,000 to achieve the following objectives:

- Evaluate the potential for battery storage for the use of load shifting on demand savings.
- Evaluate the efficiency of load shifting from a battery storage system and the associated control and monitoring system.
- Evaluate the impact on the total energy consumption of the battery and facility when used in a load shifting capacity (versus reliability).
- Evaluate and compare batteries based on performance and cycling tolerance when used in Florida's climate.
- Examine the associated costs from cradle to disposition of battery.
- Evaluate the load profile impact on power vs. capacity tradeoffs.

To achieve these objectives, the small to mid-size Commercial Battery Storage project was broken down into the following four main phases:

1. Battery selection
2. Identify commercial facilities
3. Battery vendor selection
4. Installation of storage system

Phase 1 was completed by USF in 2017. Tampa Electric included a copy of the battery research study in the company's annual DSM report that was filed with the Commission on March 1, 2018. In 2017, after completion of the initial portion of the CRD project, the company sought product availability and costs and found that the prices were greater than the allocation of funds allowed as an R&D program and placed the pursuit of this CRD project on hold until the prices of the batteries dropped to an acceptable level. The company's Commercial Energy Management Team ("CEMT") has continued to keep a pulse on the market and monitors the prices of the batteries to continue the CRD project. In addition to monitoring the prices of the batteries to continue the CRD project, Tampa Electric also filed for an increase in the allowable funds to be used for CRD in the company's most recently filed and Commission approved 2020-2029 DSM Plan. In the 2020-2029 DSM Plan, the program costs were increased on an annual basis from $200,000 per year to $400,000 per year and increased the five-year period total allowable costs from $1,000,000 to $2,000,000.

In 2024, the company completed installations at two sites. Below are the details of each installation site and the lessons learned through the construction and operation of these Bulk Energy Storage Systems (BESS) in 2024.

- Installation Sites
    - MacDonald Training Center ("MTC") - 5420 W Cypress St, Tampa, FL
        - MacDonald Training Center (MTC) is a private non-profit uniting hope with opportunity for people with all disabilities. For over 70 years, MTC's provided exceptional vocational educational programs, life skills enrichments, and employment placement services to people with disabilities. MTC's Day Services in Hillsborough County include programs for people with Intellectual Disabilities, Autism, Deaf and hard of hearing.
        - This installation features a Peak Shaving Battery Energy Storage System ("BESS") designed to optimize energy usage and reduce costs.
        - It comprises two powerful 15kW inverters and twenty Lithium Iron Phosphate ("LFP") 5.12 kWh batteries with advanced integrated Battery Management Systems (BMS), configured to deliver reliable energy support, for a total of 102 kWh of energy storage capacity.
        - The batteries are housed in five sturdy, outdoor-rated cabinets placed on a robust concrete equipment pad, ensuring durability

and protection against the elements. The interconnection setup is designed for seamless integration into the facility's existing electrical systems.

- Current Transformers ("CT") are installed in such a manner to measure the facility's electrical load, and the BESS works to offset the facility's peak demand.

- Sayde Gibbs Martin Community Center: City of Plant City - 1601 E Dr. Martin Luther King Jr Blvd, Plant City, FL
  - The Community Center focuses on special interest classes and after-school youth programs. Their goal is to provide residents and visitors with a beautiful facility that offers both scheduled and unscheduled activities. These activities are designed to help children stay active and take meaningful steps toward a bright future.
  - This site also employs a Peak Shaving BESS, tailored for efficient energy management.
  - It utilizes a single, high-capacity Sol-Ark 60K-3P-480V-N inverter (60.0 kVA / 120.0 kWh) to maximize output.
  - The system includes two state-of-the-art L3-HVR-60KWH LFP battery systems, situated on a sturdy concrete equipment pad, and interconnected via a 3-Phase 480V system to facilitate efficiency. The interconnection setup is designed for seamless integration into the facility's existing electrical systems.
  - Current Transformers (CT) are installed at this facility as well, these are used to measure the facility's electrical load, and the BESS works to offset the facility's peak demand.

In these projects, securing customer engagement proved vital. TECO prioritized establishing clear and effective communication channels that fostered strong stakeholder buy-in. At MTC, the company proactively addressed concerns regarding the aesthetic impact of the battery system. The company was able to incorporate a mural design with the BESS, a key requirement by the customer to secure their commitment to the project. When scheduling interconnection outages, the company made sure to minimize disruptions to the ongoing operations of the facility. Additionally, the company conducted thorough commercial energy audits at both locations to identify opportunities for enhancing efficiency. These audits resulted in strategic recommendations aimed at reducing waste. Furthermore, while monitoring the facility's load through the battery management system, the company identified opportunities for adjustment of the facility's air conditioning controls. Implementing corrective actions was essential to enable load shedding during overnight hours, ensuring the BESS could recharge effectively.

Commercial Energy Analyst Inspecting BESS at McDonald Training Center

The site considerations presented marked differences between MTC and Sayde Gibbs Martin. The MTC site was originally constructed in 1953. Since then, the facility has had multiple expansions, which included additional electrical service entrance conductors. A core principle of using BESS for peak shaving is to measure the facility's total instantaneous electrical load. Due to the unique construction of the electrical service at MTC, it required additional efforts to address divided electrical loads. Energy audits helped pinpoint behavioral changes that could significantly reduce energy waste.

In stark contrast, Sadye Gibbs Martin's modern construction from 2019 posed fewer challenges and allowed for more efficient use of space. The building construction documents were accurate and readily available, facilitating a smooth and trouble-free project planning and design phase. The interconnection of the system is anticipated to occur within just two weeks, with monitoring of load and billing impacts planned over the next three years.

Contractors involved in the construction of the BESS were held to stringent safety protocols. Daily risk assessments and extensive Hazard and Operability (HAZOP) studies were conducted to identify and mitigate potential risks. Additionally, the company raised the insurance requirements from $2 million to $5 million to align with TECO's standards. The legal agreements required proactive collaboration

with legal and procurement teams to ensure compliance with organizational policies. However, restrictions on three-party agreements led to delays that necessitated renegotiations and adjustments to the company's vendor selections.

BESS installation at Sayde Gibbs Martin Community Center during commissioning

During the 2024 hurricane season, MTC encountered significant water intrusion during Hurricane Helene due to the record-breaking storm surge, resulting in damage to five batteries. The risk of damage due to extreme flooding was a possible hazard the company reviewed during project planning and the HAZOP study. As a result of the HAZOP, the company took action to install the battery cabinets on an elevated cement pad with additional elevation provided within the battery cabinets. Unfortunately, the additional elevation provided was not enough to prevent damage from the record storm surge. After the storm, the company found the iron phosphate LFP batteries battery system exhibited impressive safety features by effectively isolating damaged batteries, as designed.

Following the storm, damaged batteries were promptly removed and stored for proper disposal. In preparation for Hurricane Milton, proactive measures were taken to carefully remove and store the batteries, ensuring their safety during the storm. Once the storm passed and the company's system restoration was completed, the batteries were successfully reinstalled, along with five new replacement batteries.

By leveraging the insights gained from the MTC experience, TECO was able to enhance efficiency, mitigate risks, and boost customer satisfaction at Sayde Gibbs Martin. These projects lay a solid groundwork for future battery storage installations, showcasing the company's commitment to innovation and excellence in energy management. Selecting two customers with different system configurations will enhance learning and diversify operational insights, maximizing project value for customers.

2024 DSM Program Achievements

The following pages present individual program participation levels and summaries that demonstrate the company achievements toward its annual residential, commercial, and combined DSM goals as described in Rule 25-17.0021(5), Florida Administrative Code.

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL ALTERNATE AUDIT (aka Walk-Thru Audit or EA Free)
Program Start Date: May 1981
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	628,392	8,400	8,400	1.3%	8,304	8,304	1.3%	(96)
2016	640,090	640,090	8,400	16,800	2.6%	6,902	15,206	2.4%	(1,594)
2017	651,770	651,770	7,800	24,600	3.8%	5,501	20,707	3.2%	(3,893)
2018	662,917	662,917	6,000	30,600	4.6%	7,667	28,374	4.3%	(2,226)
2019	677,922	677,922	6,500	37,100	5.5%	6,786	35,160	5.2%	(1,940)
2020	691,719	691,719	5,000	42,100	6.1%	1,514	36,674	5.3%	(5,426)
2021	704,770	704,770	3,700	45,800	6.5%	1,035	37,709	5.4%	(8,091)
2022	721,172	721,172	4,400	50,200	7.0%	4,308	42,017	5.8%	(8,183)
2023	736,127	736,127	4,050	54,250	7.4%	4,090	46,107	6.3%	(8,143)
2024	748,314	748,314	4,000	58,250	7.8%	2,861	48,968	6.5%	(9,282)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 2,861

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.10	0.10	274.66	294.71
Winter kW Reduction	0.13	0.14	363.35	389.87
Annual kWh Reduction	625	660	1,788,125	1,888,260

Annual Demand and Energy Savings, Note 1

Participants 2,861

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	274.66	294.71
Winter kW Reduction	363.35	389.87
Annual kWh Reduction	1,788,125	1,888,260

Utility Cost per Installation ($): 746
Total Program Cost of the Utility ($000): 2,135.6
Net Benefits of Measures Installed During Reporting Period ($000): (1,487.4)
Note 1: Demand and energy savings not included in achievements

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL CUSTOMER ASSISTED AUDITS
Program Start Date: June 1996
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	628,392	1,390	1,390	0.2%	658	658	0.1%	(732)
2016	640,090	640,090	1,200	2,590	0.4%	1,017	1,675	0.3%	(915)
2017	651,770	651,770	500	3,090	0.5%	409	2,084	0.3%	(1,006)
2018	662,917	662,917	800	3,890	0.6%	27,734	29,818	4.5%	25,928
2019	677,922	677,922	35,000	38,890	5.7%	57,370	87,188	12.9%	48,298
2020	691,719	691,719	42,000	80,890	11.7%	59,766	146,954	21.2%	66,064
2021	704,770	704,770	60,000	140,890	20.0%	68,540	215,494	30.6%	74,604
2022	721,172	721,172	75,000	215,890	29.9%	109,802	325,296	45.1%	109,406
2023	736,127	736,127	75,000	290,890	39.5%	100,189	425,485	57.8%	134,595
2024	748,314	748,314	60,000	350,890	46.9%	52,794	478,279	63.9%	127,389

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 52,794

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.07	0.08	3,801.17	4,078.65
Winter kW Reduction	0.10	0.10	5,015.43	5,381.56
Annual kWh Reduction	469	495	24,760,386	26,146,968

Annual Demand and Energy Savings, Note 1 Participants 52,794

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	3,801.17	4,078.65
Winter kW Reduction	5,015.43	5,381.56
Annual kWh Reduction	24,760,386	26,146,968

Utility Cost per Installation ($):	8
Total Program Cost of the Utility ($000):	411.0
Net Benefits of Measures Installed During Reporting Period ($000):	161.8

Note 1: Demand and energy savings not included in achievements

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL RCS AUDIT (Computer Assisted - Paid)
Program Start Date: January 1981
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	628,392	0	0	0.0%	5	5	0.0%	5
2016	640,090	640,090	4	4	0.0%	9	14	0.0%	10
2017	651,770	651,770	10	14	0.0%	4	18	0.0%	4
2018	662,917	662,917	10	24	0.0%	2	20	0.0%	(4)
2019	677,922	677,922	1	25	0.0%	1	21	0.0%	(4)
2020	691,719	691,719	1	26	0.0%	0	21	0.0%	(5)
2021	704,770	704,770	1	27	0.0%	0	21	0.0%	(6)
2022	721,172	721,172	4	31	0.0%	2	23	0.0%	(8)
2023	736,127	736,127	4	35	0.0%	5	28	0.0%	(7)
2024	748,314	748,314	4	39	0.0%	4	32	0.0%	(7)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

	Participants	4		
	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.10	0.10	0.38	0.41
Winter kW Reduction	0.13	0.14	0.51	0.55
Annual kWh Reduction	625	660	2,500	2,640

Annual Demand and Energy Savings, Note 1

	Participants	4
	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.38	0.41
Winter kW Reduction	0.51	0.55
Annual kWh Reduction	2,500	2,640

Utility Cost per Installation ($):	636
Total Program Cost of the Utility ($000):	2.5
Net Benefits of Measures Installed During Reporting Period ($000):	(1.1)

Note 1: Demand and energy savings not included in achievements

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL CEILING INSULATION
Program Start Date: November 1982
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	494,802	7,200	7,200	1.5%	3,057	3,057	0.6%	(4,143)
2016	640,090	491,745	2,760	9,960	2.0%	1,293	4,350	0.9%	(5,610)
2017	651,770	490,452	1,255	11,215	2.3%	945	5,295	1.1%	(5,920)
2018	662,917	489,507	1,300	12,515	2.6%	594	5,889	1.2%	(6,626)
2019	677,922	488,913	550	13,065	2.7%	595	6,484	1.3%	(6,581)
2020	691,719	488,318	450	13,515	2.8%	265	6,749	1.4%	(6,766)
2021	704,770	488,053	400	13,915	2.9%	382	7,131	1.5%	(6,784)
2022	721,172	487,671	475	14,390	3.0%	425	7,556	1.5%	(6,834)
2023	736,127	487,246	480	14,870	3.1%	480	8,036	1.6%	(6,834)
2024	748,314	486,766	450	15,320	3.1%	369	8,405	1.7%	(6,915)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 369

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.32	0.35	118.818	127.49
Winter kW Reduction	0.42	0.45	156.456	167.88
Annual kWh Reduction	673	711	248,337	262,244

Annual Demand and Energy Savings

Participants 369

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	118.82	127.49
Winter kW Reduction	156.46	167.88
Annual kWh Reduction	248,337	262,244

Utility Cost per Installation ($):	374
Total Program Cost of the Utility ($000):	137.9
Net Benefits of Measures Installed During Reporting Period ($000):	45.1

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL DUCT REPAIR
Program Start Date: September 1992
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	480,750	1,680	1,680	0.3%	1,895	1,895	0.4%	215
2016	640,090	478,855	2,040	3,720	0.8%	1,293	3,188	0.7%	(532)
2017	651,770	477,562	1,530	5,250	1.1%	1,176	4,364	0.9%	(886)
2018	662,917	476,386	1,300	6,550	1.4%	1,997	6,361	1.3%	(189)
2019	677,922	474,389	1,000	7,550	1.6%	1,078	7,439	1.6%	(111)
2020	691,719	473,311	500	8,050	1.7%	251	7,690	1.6%	(360)
2021	704,770	473,060	385	8,435	1.8%	267	7,957	1.7%	(478)
2022	721,172	472,793	300	8,735	1.8%	420	8,377	1.8%	(358)
2023	736,127	472,373	400	9,135	1.9%	315	8,692	1.8%	(443)
2024	748,314	472,058	550	9,685	2.1%	557	9,249	2.0%	(436)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 557

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.20	0.21	110.84	118.93
Winter kW Reduction	0.33	0.36	185.48	199.02
Annual kWh Reduction	696	735	387,672	409,382

Annual Demand and Energy Savings

Participants 557

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	110.84	118.93
Winter kW Reduction	185.48	199.02
Annual kWh Reduction	387,672	409,382

Utility Cost per Installation ($):	219
Total Program Cost of the Utility ($000):	121.8
Net Benefits of Measures Installed During Reporting Period ($000):	22.8

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: ENERGY AND RENEWABLE EDUCATION, AWARENESS AND AGENCY OUTREACH
Program Start Date: May 2011
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	628,392	2,000	2,000	0.3%	1,412	1,412	0.2%	(588)
2016	640,090	640,090	2,000	4,000	0.6%	461	1,873	0.3%	(2,127)
2017	651,770	651,770	500	4,500	0.7%	975	2,848	0.4%	(1,652)
2018	662,917	662,917	750	5,250	0.8%	806	3,654	0.6%	(1,596)
2019	677,922	677,922	700	5,950	0.9%	1,304	4,958	0.7%	(992)
2020	691,719	691,719	750	6,700	1.0%	445	5,403	0.8%	(1,297)
2021	704,770	704,770	1,400	8,100	1.1%	810	6,213	0.9%	(1,887)
2022	721,172	721,172	2,200	10,300	1.4%	2,488	8,701	1.2%	(1,599)
2023	736,127	736,127	2,000	12,300	1.7%	2,401	11,102	1.5%	(1,198)
2024	748,314	748,314	2,000	14,300	1.9%	1,323	12,425	1.7%	(1,875)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 1,323

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.04	0.04	54.24	58.20
Winter kW Reduction	0.05	0.05	66.15	70.98
Annual kWh Reduction	366	386	484,218	511,334

Annual Demand and Energy Savings

Participants 1,323

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	54.24	58.20
Winter kW Reduction	66.15	70.98
Annual kWh Reduction	484,218	511,334

Utility Cost per Installation ($):	301
Total Program Cost of the Utility ($000):	398.7
Net Benefits of Measures Installed During Reporting Period ($000):	(255.8)

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: ENERGY STAR for NEW MULTI-FAMILY RESIDENCES
Program Start Date: June 2017
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	0	0	0	0	0.0%	0	0	0.0%	0
2016	0	0	0	0	0.0%	0	0	0.0%	0
2017	201,074	3,820	600	600	15.7%	0	0	0.0%	(600)
2018	207,026	5,952	600	1,200	20.2%	0	0	0.0%	(1,200)
2019	210,907	3,881	250	1,450	37.4%	264	264	6.8%	(1,186)
2020	215,519	4,612	0	1,450	31.4%	0	264	5.7%	(1,186)
2021	236,621	6,025	0	1,450	24.1%	0	264	4.4%	(1,186)
2022	243,555	6,893	0	1,450	21.0%	0	264	3.8%	(1,186)
2023	247,955	5,207	0	1,450	27.8%	0	264	5.1%	(1,186)
2024	256,655	8,924	0	1,450	16.2%	0	264	3.0%	(1,186)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.44	0.47	0.00	0.00
Winter kW Reduction	0.30	0.32	0.00	0.00
Annual kWh Reduction	1,460	1,542	0	0

Annual Demand and Energy Savings

Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($):	0
Total Program Cost of the Utility ($000):	(0.0)
Net Benefits of Measures Installed During Reporting Period ($000):	1.1

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: ENERGY STAR for NEW HOMES (formerly RESIDENTIAL NEW CONSTRUCTION)
Program Start Date: Closed New Construction and opened ENERGY STAR November 2015
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	4,361	2,400	2,400	55.0%	2,494	2,494	57.2%	94
2016	640,090	3,870	1,200	3,600	93.0%	403	2,897	74.9%	(703)
2017	651,770	2,953	1,000	4,600	155.8%	640	3,537	119.8%	(1,063)
2018	662,917	9,544	1,000	5,600	58.7%	823	4,360	45.7%	(1,240)
2019	677,922	9,929	1,000	6,600	66.5%	849	5,209	52.5%	(1,391)
2020	691,719	9,798	1,000	7,600	77.6%	858	6,067	61.9%	(1,533)
2021	704,770	9,931	1,160	8,760	88.2%	1,006	7,073	71.2%	(1,687)
2022	721,172	8,706	720	9,480	108.9%	708	7,781	89.4%	(1,699)
2023	736,127	7,699	600	10,080	130.9%	770	8,551	111.1%	(1,529)
2024	748,314	8,145	700	10,780	132.4%	348	8,899	109.3%	(1,881)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 348

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	1.98	2.12	689.04	739.34
Winter kW Reduction	0.60	0.64	209.15	224.42
Annual kWh Reduction	5,378	5,679	1,871,544	1,976,350

Annual Demand and Energy Savings

Participants 348

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	689.04	739.34
Winter kW Reduction	209.15	224.42
Annual kWh Reduction	1,871,544	1,976,350

Utility Cost per Installation ($):	1,071
Total Program Cost of the Utility ($000):	372.8
Net Benefits of Measures Installed During Reporting Period ($000):	1,654.2

TAMPA ELECTRIC COMPANY
UNDOCKETED
DSM ACCOMPLISHMENTS
FILED: FEBRUARY 28, 2025

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: ENERGY STAR POOL PUMPS
Program Start Date: November 2020
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017									
2018									
2019				Program was started on November 2, 2020					
2020	691,719	480,812	3	3	0.0%	10	10	0.0%	7
2021	704,770	489,251	510	513	0.1%	628	638	0.1%	125
2022	721,172	484,551	900	1,413	0.3%	1,193	1,831	0.4%	418
2023	736,127	492,572	1,150	2,563	0.5%	1,460	3,291	0.7%	728
2024	748,314	491,659	1,125	3,688	0.8%	1,170	4,461	0.9%	773

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 1,170

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	1.72	1.84	2,010.06	2,156.79
Winter kW Reduction	0.00	0.00	0.00	0.00
Annual kWh Reduction	3,162	3,339	3,699,540	3,906,714

Annual Demand and Energy Savings

Participants 1,170

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	2,010.06	2,156.79
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	3,699,540	3,906,714

Utility Cost per Installation ($):	397
Total Program Cost of the Utility ($000):	464.9
Net Benefits of Measures Installed During Reporting Period ($000):	126.4

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: ENERGY STAR THERMOSTATS
Program Start Date: November 2020
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017									
2018									
2019				Program was started on November 2, 2020					
2020	691,719	691,719	5	5	0.0%	42	42	0.0%	37
2021	704,770	704,770	1,000	1,005	0.1%	950	992	0.1%	(13)
2022	721,172	721,172	1,040	2,045	0.3%	1,403	2,395	0.3%	350
2023	736,127	736,127	1,300	3,345	0.5%	1,505	3,900	0.5%	555
2024	748,314	748,314	1,800	5,145	0.7%	1,001	4,901	0.7%	(244)

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 1,001

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.24	0.25	236.24	253.48
Winter kW Reduction	0.00	0.00	0.00	0.00
Annual kWh Reduction	262	277	262,262	276,949

Annual Demand and Energy Savings Participants 1,001

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	236.24	253.48
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	262,262	276,949

Utility Cost per Installation ($):	104
Total Program Cost of the Utility ($000):	103.9
Net Benefits of Measures Installed During Reporting Period ($000):	40.3

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL HEATING AND COOLING
Program Start Date: July 2000
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	628,392	3,840	3,840	0.6%	5,214	5,214	0.8%	1,374
2016	640,090	640,090	3,480	7,320	1.1%	3,693	8,907	1.4%	1,587
2017	651,770	651,770	4,200	11,520	1.8%	3,341	12,248	1.9%	728
2018	662,917	662,917	4,000	15,520	2.3%	3,371	15,619	2.4%	99
2019	677,922	677,922	3,500	19,020	2.8%	3,638	19,257	2.8%	237
2020	691,719	691,719	3,400	22,420	3.2%	3,578	22,835	3.3%	415
2021	704,770	704,770	3,230	25,650	3.6%	2,839	25,674	3.6%	24
2022	721,172	721,172	2,930	28,580	4.0%	2,643	28,317	3.9%	(263)
2023	736,127	736,127	1,800	30,380	4.1%	1,681	29,998	4.1%	(382)
2024	748,314	748,314	1,775	32,155	4.3%	1,645	31,643	4.2%	(512)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 1,645

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.20	0.21	320.78	344.19
Winter kW Reduction	0.21	0.22	340.52	365.37
Annual kWh Reduction	394	416	648,130	684,425

Annual Demand and Energy Savings

Participants 1,645

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	320.78	344.19
Winter kW Reduction	340.52	365.37
Annual kWh Reduction	648,130	684,425

Utility Cost per Installation ($):	183
Total Program Cost of the Utility ($000):	301.7
Net Benefits of Measures Installed During Reporting Period ($000):	33.1

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: NEIGHBORHOOD WEATHERIZATION
Program Start Date: March 2008
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	109,703	6,600	6,600	6.0%	7,912	7,912	7.2%	1,312
2016	640,090	111,745	7,250	13,850	12.4%	5,495	13,407	12.0%	(443)
2017	651,770	113,784	6,250	20,100	17.7%	6,550	19,957	17.5%	(143)
2018	662,917	115,730	7,000	27,100	23.4%	7,389	27,346	23.6%	246
2019	677,922	118,350	7,000	34,100	28.8%	6,740	34,086	28.8%	(14)
2020	691,719	120,758	6,500	40,600	33.6%	1,760	35,846	29.7%	(4,754)
2021	704,770	123,037	6,050	46,650	37.9%	2,923	38,769	31.5%	(7,881)
2022	721,172	125,900	7,940	54,590	43.4%	9,159	47,928	38.1%	(6,662)
2023	736,127	128,511	7,800	62,390	48.5%	8,258	56,186	43.7%	(6,204)
2024	748,314	130,638	8,500	70,890	54.3%	6,634	62,820	48.1%	(8,070)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 6,634

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.53	0.57	3,542.56	3,801.16
Winter kW Reduction	0.64	0.69	4,265.66	4,577.06
Annual kWh Reduction	1,932	2,040	12,816,888	13,534,634

Annual Demand and Energy Savings

Participants 6,634

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	3,542.56	3,801.16
Winter kW Reduction	4,265.66	4,577.06
Annual kWh Reduction	12,816,888	13,534,634

Utility Cost per Installation ($):	344
Total Program Cost of the Utility ($000):	2,281.0
Net Benefits of Measures Installed During Reporting Period ($000):	(9,178.1)

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: ENERGY PLANNER
Program Start Date: September 2007
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	628,392	1,000	1,000	0.2%	1,088	1,088	0.2%	88
2016	640,090	640,090	1,000	2,000	0.3%	910	1,998	0.3%	(2)
2017	651,770	651,770	1,000	3,000	0.5%	574	2,572	0.4%	(428)
2018	662,917	662,917	1,000	4,000	0.6%	747	3,319	0.5%	(681)
2019	677,922	677,922	1,250	5,250	0.8%	897	4,216	0.6%	(1,034)
2020	691,719	691,719	750	6,000	0.9%	138	4,354	0.6%	(1,646)
2021	704,770	704,770	900	6,900	1.0%	98	4,452	0.6%	(2,448)
2022	721,172	721,172	650	7,550	1.0%	341	4,793	0.7%	(2,757)
2023	736,127	736,127	700	8,250	1.1%	480	5,273	0.7%	(2,977)
2024	748,314	748,314	700	8,950	1.2%	355	5,628	0.8%	(3,322)

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 355

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	2.01	2.15	712.49	764.50
Winter kW Reduction	3.13	3.36	1,112.57	1,193.79
Annual kWh Reduction	1,156	1,221	410,380	433,361

Annual Demand and Energy Savings, Note 1 Participants 355

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	712.49	764.50
Winter kW Reduction	1,112.57	1,193.79
Annual kWh Reduction	410,380	433,361

Utility Cost per Installation ($) Note 1:	659
Total Program Cost of the Utility ($000):	2,443.3
Net Benefits of Measures Installed During Reporting Period ($000):	2,862.3

Note 1: Utility costs based upon total program costs and total participation

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL PRIME TIME PLUS (Residential Load Management)
Program Start Date: November 2020
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017									
2018									
2019				Program was started on November 2, 2020					
2020									
2021				First customer was brought onto Program in December 2022					
2022	721,172	721,172	15	15	0.0%	1	1	0.0%	(14)
2023	736,127	736,127	450	465	0.1%	537	538	0.1%	73
2024	748,314	748,314	1,000	1,465	0.2%	645	1,183	0.2%	(282)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 645

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	1.93	2.07	1,246.79	1,337.80
Winter kW Reduction	1.89	2.03	1,219.05	1,308.04
Annual kWh Reduction	0	0	0	0

Annual Demand and Energy Savings, Note 1

Participants 645

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	1,246.79	1,337.80
Winter kW Reduction	1,219.05	1,308.04
Annual kWh Reduction	0	0

Utility Cost per Installation ($) Note 1:	1,344
Total Program Cost of the Utility ($000):	1,404.1
Net Benefits of Measures Installed During Reporting Period ($000):	12.3

Note 1: Utility costs based upon total program costs and total participation

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: RESIDENTIAL WINDOW REPLACEMENT
Program Start Date: March 2008
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	628,392	619,895	1,608	1,608	0.3%	1,811	1,811	0.3%	203
2016	640,090	629,783	1,584	3,192	0.5%	1,417	3,228	0.5%	36
2017	651,770	640,046	1,800	4,992	0.8%	1,482	4,710	0.7%	(282)
2018	662,917	649,710	1,600	6,592	1.0%	1,817	6,527	1.0%	(65)
2019	677,922	662,898	1,800	8,392	1.3%	1,878	8,405	1.3%	13
2020	691,719	674,817	1,775	10,167	1.5%	1,875	10,280	1.5%	113
2021	704,770	685,993	1,400	11,567	1.7%	1,176	11,456	1.7%	(111)
2022	721,172	701,219	1,100	12,667	1.8%	1,051	12,507	1.8%	(160)
2023	736,127	715,123	1,350	14,017	2.0%	1,236	13,743	1.9%	(274)
2024	748,314	726,074	1,200	15,217	2.1%	933	14,676	2.0%	(541)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 933

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.13	0.14	125.02	134.15
Winter kW Reduction	0.41	0.44	386.26	414.46
Annual kWh Reduction	235	248	219,255	231,533

Annual Demand and Energy Savings

Participants 933

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	125.02	134.15
Winter kW Reduction	386.26	414.46
Annual kWh Reduction	219,255	231,533

Utility Cost per Installation ($):	202
Total Program Cost of the Utility ($000):	188.0
Net Benefits of Measures Installed During Reporting Period ($000):	45.8

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: FREE COMMERCIAL/INDUSTRIAL AUDIT
Program Start Date: July 1983
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	888	888	1.1%	913	913	1.1%	25
2016	80,875	80,875	860	1,748	2.2%	764	1,677	2.1%	(71)
2017	81,532	81,532	870	2,618	3.2%	1,211	2,888	3.5%	270
2018	81,740	81,740	1,200	3,818	4.7%	797	3,685	4.5%	(133)
2019	82,359	82,359	800	4,618	5.6%	866	4,551	5.5%	(67)
2020	83,332	83,332	500	5,118	6.1%	238	4,789	5.7%	(329)
2021	84,093	84,093	400	5,518	6.6%	101	4,890	5.8%	(628)
2022	89,415	89,415	700	6,218	7.0%	766	5,656	6.3%	(562)
2023	90,567	90,567	950	7,168	7.9%	976	6,632	7.3%	(536)
2024	91,647	91,647	700	7,868	8.6%	459	7,091	7.7%	(777)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 459

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.09	0.10	42.69	45.68
Winter kW Reduction	0.09	0.10	43.15	46.17
Annual kWh Reduction	817	859	375,003	394,503

Annual Demand and Energy Savings, Note 1

Participants 459

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	42.69	45.68
Winter kW Reduction	43.15	46.17
Annual kWh Reduction	375,003	394,503

Utility Cost per Installation ($): 1,040
Total Program Cost of the Utility ($000): 477.5
Net Benefits of Measures Installed During Reporting Period ($000): (130.1)
Note 1: Demand and energy savings not included in achievements

TAMPA ELECTRIC COMPANY
UNDOCKETED
DSM ACCOMPLISHMENTS
FILED: FEBRUARY 28, 2025

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMPREHENSIVE COMMERCIAL/INDUSTRIAL AUDIT
Program Start Date: May 1981
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	6	6	0.0%	1	1	0.0%	(5)
2016	80,875	80,875	10	16	0.0%	4	5	0.0%	(11)
2017	81,532	81,532	8	24	0.0%	0	5	0.0%	(19)
2018	81,740	81,740	4	28	0.0%	1	6	0.0%	(22)
2019	82,359	82,359	2	30	0.0%	1	7	0.0%	(23)
2020	83,332	83,332	1	31	0.0%	0	7	0.0%	(24)
2021	84,093	84,093	1	32	0.0%	0	7	0.0%	(25)
2022	89,415	89,415	1	33	0.0%	0	7	0.0%	(26)
2023	90,567	90,567	1	34	0.0%	0	7	0.0%	(27)
2024	91,647	91,647	1	35	0.0%	0	7	0.0%	(28)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.09	0.10	0.00	0.00
Winter kW Reduction	0.09	0.10	0.00	0.00
Annual kWh Reduction	817	859	0	0

Annual Demand and Energy Savings, Note 1

Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($): 0
Total Program Cost of the Utility ($000): 0.3
Net Benefits of Measures Installed During Reporting Period ($000): (1.4)
Note 1: Demand and energy savings not included in achievements

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL CHILLERS
Program Start Date: March 2008
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	7,733	10	10	0.1%	7	7	0.1%	(3)
2016	80,875	8,851	10	20	0.2%	5	12	0.1%	(8)
2017	81,532	8,887	11	31	0.3%	7	19	0.2%	(12)
2018	81,740	9,023	8	39	0.4%	1	20	0.2%	(19)
2019	82,359	9,119	9	48	0.5%	5	25	0.3%	(23)
2020	83,332	9,089	2	50	0.6%	1	26	0.3%	(24)
2021	84,093	9,174	1	51	0.6%	0	26	0.3%	(25)
2022	89,415	9,365	3	54	0.6%	0	26	0.3%	(28)
2023	90,567	9,831	6	60	0.6%	3	29	0.3%	(31)
2024	91,647	9,973	3	63	0.6%	1	30	0.3%	(33)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 1

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	6.16	6.59	6.16	6.59
Winter kW Reduction	2.48	2.65	2.48	2.65
Annual kWh Reduction	17,863	18,792	17,863	18,792

Annual Demand and Energy Savings, Note 1

Participants 1

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	6.16	6.59
Winter kW Reduction	2.48	2.65
Annual kWh Reduction	17,863	18,792

Utility Cost per Installation ($):	8,276
Total Program Cost of the Utility ($000):	8.3
Net Benefits of Measures Installed During Reporting Period ($000):	3.5

Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: CONSERVATION VALUE
Program Start Date: April 1991
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	4	4	0.0%	4	4	0.0%	0
2016	80,875	80,875	4	8	0.0%	2	6	0.0%	(2)
2017	81,532	81,532	3	11	0.0%	0	6	0.0%	(5)
2018	81,740	81,740	2	13	0.0%	0	6	0.0%	(7)
2019	82,359	82,359	1	14	0.0%	0	6	0.0%	(8)
2020	83,332	83,332	1	15	0.0%	0	6	0.0%	(9)
2021	84,093	84,093	0	15	0.0%	0	6	0.0%	(9)
2022	89,415	89,415	1	16	0.0%	0	6	0.0%	(10)
2023	90,567	90,567	1	17	0.0%	0	6	0.0%	(11)
2024	91,647	91,647	2	19	0.0%	0	6	0.0%	(13)

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	185.40	198.38	0.00	0.00
Winter kW Reduction	0.00	0.00	0.00	0.00
Annual kWh Reduction	19,244	20,245	0	0

Annual Demand and Energy Savings, Note 1 Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($): 0
Total Program Cost of the Utility ($000): 0.1
Net Benefits of Measures Installed During Reporting Period ($000): 0.4
Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL COOLING - DX
Program Start Date: July 2000
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	127	127	0.2%	234	234	0.3%	107
2016	80,875	80,875	130	257	0.3%	9	243	0.3%	(14)
2017	81,532	81,532	16	273	0.3%	0	243	0.3%	(30)
2018	81,740	81,740	5	278	0.3%	25	268	0.3%	(10)
2019	82,359	82,359	5	283	0.3%	15	283	0.3%	0
2020	83,332	83,332	15	298	0.4%	14	297	0.4%	(1)
2021	84,093	84,093	15	313	0.4%	44	341	0.4%	28
2022	89,415	89,415	40	353	0.4%	56	397	0.4%	44
2023	90,567	90,567	80	433	0.5%	174	571	0.6%	138
2024	91,647	91,647	100	533	0.6%	144	715	0.8%	182

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 144

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.98	1.05	141.12	151.00
Winter kW Reduction	0.00	0.00	0.00	0.00
Annual kWh Reduction	1,717	1,806	247,248	260,105

Annual Demand and Energy Savings, Note 1

Participants 144

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	141.12	151.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	247,248	260,105

Utility Cost per Installation ($):	315
Total Program Cost of the Utility ($000):	45.4
Net Benefits of Measures Installed During Reporting Period ($000):	1.0

Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL DEMAND RESPONSE
Program Start Date: March 2008
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	12,302	1	1	0.0%	4	4	0.0%	3
2016	80,875	12,937	1	2	0.0%	0	4	0.0%	2
2017	81,532	13,383	1	3	0.0%	0	4	0.0%	1
2018	81,740	13,730	1	4	0.0%	1	5	0.0%	1
2019	82,359	13,804	1	5	0.0%	0	5	0.0%	0
2020	83,332	14,079	1	6	0.0%	0	5	0.0%	(1)
2021	84,093	14,561	1	7	0.0%	0	5	0.0%	(2)
2022	89,415	15,066	1	8	0.1%	0	5	0.0%	(3)
2023	90,567	15,294	1	9	0.1%	0	5	0.0%	(4)
2024	91,647	15,869	1	10	0.1%	0	5	0.0%	(5)

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	404.04	432.32	0.00	0.00
Winter kW Reduction	404.04	432.32	0.00	0.00
Annual kWh Reduction	30,298	31,873	0	0

Annual Demand and Energy Savings, Note 1 Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($), Note 2: 31,833
Total Program Cost of the Utility ($000): 3,278.8
Net Benefits of Measures Installed During Reporting Period ($000): 251.0
Note 1: Savings from measured data
Note 2: Utility costs based upon total program costs and total participation

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: FACILITY ENERGY MANAGEMENT SYSTEM
Program Start Date: November 2020
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017									
2018									
2019				Program was started on November 2, 2020					
2020	83,332	83,332	2	2	0.0%	0	0	0.0%	(2)
2021	84,093	84,093	2	4	0.0%	2	2	200.0%	(2)
2022	89,415	89,415	4	8	0.0%	2	4	400.0%	(4)
2023	90,567	90,567	60	68	0.1%	26	30	3000.0%	(38)
2024	91,647	91,647	80	148	0.2%	90	120	12000.0%	(28)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 90

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	15.64	16.73	1,407.60	1,506.13
Winter kW Reduction	2.32	2.48	208.80	223.42
Annual kWh Reduction	607,467	639,055	54,672,030	57,514,976

Annual Demand and Energy Savings, Note 1

Participants 90

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	1,407.60	1,506.13
Winter kW Reduction	208.80	223.42
Annual kWh Reduction	54,672,030	57,514,976

Utility Cost per Installation ($):	21,004
Total Program Cost of the Utility ($000):	1,890.4
Net Benefits of Measures Installed During Reporting Period ($000):	34.8

Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: INDUSTRIAL LOAD MANAGEMENT
Program Start Date: September 1999
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	79,457	820	0	0	0.0%	0	0	0.0%	0
2016	80,875	848	0	0	0.0%	0	0	0.0%	0
2017	81,532	816	0	0	0.0%	0	0	0.0%	0
2018	81,740	954	0	0	0.0%	1	1	0.1%	1
2019	82,359	981	0	0	0.0%	1	2	0.2%	2
2020	83,332	840	1	1	0.1%	1	3	0.4%	2
2021	84,093	850	0	1	0.1%	0	3	0.4%	2
2022	89,415	856	0	1	0.1%	0	3	0.4%	2
2023	90,567	839	0	1	0.1%	0	3	0.4%	2
2024	91,647	871	0	1	0.1%	0	3	0.3%	2

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	5,060.00	5,414.20	0.00	0.00
Winter kW Reduction	4,757.00	5,089.99	0.00	0.00
Annual kWh Reduction	1,184,085	1,245,657	0	0

Annual Demand and Energy Savings, Note 1 Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($), Note 2:	781,744
Total Program Cost of the Utility ($000):	21,888.8
Net Benefits of Measures Installed During Reporting Period ($000):	1,067.4

Note 1: Savings from measured data
Note 2: Utility costs based upon total program costs and total participation

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL STREET AND OUTDOOR LIGHTING CONVERSION
Program Start Date: February 2018
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017				Program was started in February 2018					
2018	209,821	209,821	42,115	42,115	20.1%	31,936	31,936	15.2%	(10,179)
2019	209,821	177,885	40,000	82,115	46.2%	32,366	64,302	36.1%	(17,813)
2020	209,821	145,519	40,000	122,115	83.9%	25,469	89,771	61.7%	(32,344)
2021	209,821	120,050	24,000	146,115	121.7%	69,231	159,002	132.4%	12,887
2022	209,821	50,819	50,819	196,934	387.5%	41,992	200,994	395.5%	4,060
2023	209,821	8,827	8,827	205,761	2331.0%	8,827	209,821	2377.0%	4,060
2024				Program was retired in April 2023					

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00	0.00	0.00
Winter kW Reduction	0.13	0.14	0.00	0.00
Annual kWh Reduction	576	606	0	0

Annual Demand and Energy Savings, Note 1 Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($): 0
Total Program Cost of the Utility ($000): 0.0
Net Benefits of Measures Installed During Reporting Period ($000): 13,420.0
Note 1: Demand and energy savings not included in achievements

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL LIGHTING - CONDITIONED SPACE
Program Start Date: January 1991
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	6	6	0.0%	86	86	0.1%	80
2016	80,875	80,875	57	63	0.1%	159	245	0.3%	182
2017	81,532	81,532	75	138	0.2%	228	473	0.6%	335
2018	81,740	81,740	110	248	0.3%	193	666	0.8%	418
2019	82,359	82,359	475	723	0.9%	421	1,087	1.3%	364
2020	83,332	83,332	200	923	1.1%	186	1,273	1.5%	350
2021	84,093	84,093	150	1,073	1.3%	143	1,416	1.7%	343
2022	89,415	89,415	115	1,188	1.3%	131	1,547	1.7%	359
2023	90,567	90,567	115	1,303	1.4%	79	1,626	1.8%	323
2024	91,647	91,647	75	1,378	1.5%	52	1,678	1.8%	300

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 52

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	15.51	16.60	806.52	862.98
Winter kW Reduction	12.08	12.93	628.16	672.13
Annual kWh Reduction	76,757	80,748	3,991,364	4,198,915

Annual Demand and Energy Savings, Note 1 Participants 52

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	806.52	862.98
Winter kW Reduction	628.16	672.13
Annual kWh Reduction	3,991,364	4,198,915

Utility Cost per Installation ($): 4,591
Total Program Cost of the Utility ($000): 238.7
Net Benefits of Measures Installed During Reporting Period ($000): 3,572.1
Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL LIGHTING - UNCONDITIONED SPACE
Program Start Date: March 2008
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	2	2	0.0%	16	16	0.0%	14
2016	80,875	80,875	13	15	0.0%	60	76	0.1%	61
2017	81,532	81,532	50	65	0.1%	338	414	0.5%	349
2018	81,740	81,740	50	115	0.1%	246	660	0.8%	545
2019	82,359	82,359	200	315	0.4%	132	792	1.0%	477
2020	83,332	83,332	70	385	0.5%	93	885	1.1%	500
2021	84,093	84,093	115	500	0.6%	101	986	1.2%	486
2022	89,415	89,415	85	585	0.7%	100	1,086	1.2%	501
2023	90,567	90,567	50	635	0.7%	38	1,124	1.2%	489
2024	91,647	91,647	60	695	0.8%	46	1,170	1.3%	475

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 46

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	23.83	25.50	1,096.18	1,172.91
Winter kW Reduction	23.83	25.50	1,096.18	1,172.91
Annual kWh Reduction	138,004	145,180	6,348,184	6,678,290

Annual Demand and Energy Savings, Note 1

Participants 46

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	1,096.18	1,172.91
Winter kW Reduction	1,096.18	1,172.91
Annual kWh Reduction	6,348,184	6,678,290

Utility Cost per Installation ($): 4,275
Total Program Cost of the Utility ($000): 196.7
Net Benefits of Measures Installed During Reporting Period ($000): 2,500.6
Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL OCCUPANCY SENSORS
Program Start Date: March 2008
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	20	20	0.0%	2	2	0.0%	(18)
2016	80,875	80,875	15	35	0.0%	12	14	0.0%	(21)
2017	81,532	81,532	15	50	0.1%	4	18	0.0%	(32)
2018	81,740	81,740	12	62	0.1%	7	25	0.0%	(37)
2019	82,359	82,359	5	67	0.1%	3	28	0.0%	(39)
2020	83,332	83,332	6	73	0.1%	4	32	0.0%	(41)
2021	84,093	84,093	7	80	0.1%	4	36	0.0%	(44)
2022	89,415	89,415	7	87	0.1%	3	39	0.0%	(48)
2023	90,567	90,567	7	94	0.1%	6	45	0.0%	(49)
2024	91,647	91,647	180	274	0.3%	170	215	0.2%	(59)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 170

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	39.29	42.04	6,679.30	7,146.85
Winter kW Reduction	31.43	33.63	5,343.10	5,717.12
Annual kWh Reduction	98,486	103,607	16,742,620	17,613,236

Annual Demand and Energy Savings, Note 1

Participants 170

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	6,679.30	7,146.85
Winter kW Reduction	5,343.10	5,717.12
Annual kWh Reduction	16,742,620	17,613,236

Utility Cost per Installation ($): 6,297
Total Program Cost of the Utility ($000): 1,070.5
Net Benefits of Measures Installed During Reporting Period ($000): 21.0
Note 1: Savings from measured data

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL LOAD MANAGEMENT- CYCLIC
Program Start Date: January 1988
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	0	0	0.0%	0	0	0.0%	0
2016	80,875	80,875	0	0	0.0%	0	0	0.0%	0
2017	81,532	81,532	0	0	0.0%	0	0	0.0%	0
2018	81,740	81,740	0	0	0.0%	0	0	0.0%	0
2019	82,359	82,359	0	0	0.0%	0	0	0.0%	0
2020	83,332	83,332	0	0	0.0%	0	0	0.0%	0
2021	84,093	84,093	0	0	0.0%	0	0	0.0%	0
2022	89,415	89,415	0	0	0.0%	0	0	0.0%	0
2023	90,567	90,567	0	0	0.0%	0	0	0.0%	0
2024	90,567	90,567	0	0	0.0%	0	0	0.0%	0

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	13.20	14.12	0.00	0.00
Winter kW Reduction	0.00	0.00	0.00	0.00
Annual kWh Reduction	0	0	0	0

Annual Demand and Energy Savings, Note 1

Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($), Note 1:	1,403
Total Program Cost of the Utility ($000):	4.2
Net Benefits of Measures Installed During Reporting Period ($000):	0.0

Note 1: Utility costs based upon total program costs and total participation

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL LOAD MANAGEMENT- EXTENDED
Program Start Date: January 1988
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	0	0	0.0%	0	0	0.0%	0
2016	80,875	80,875	0	0	0.0%	0	0	0.0%	0
2017	81,532	81,532	0	0	0.0%	0	0	0.0%	0
2018	81,740	81,740	0	0	0.0%	0	0	0.0%	0
2019	82,359	82,359	0	0	0.0%	0	0	0.0%	0
2020	83,332	83,332	0	0	0.0%	0	0	0.0%	0
2021	84,093	84,093	0	0	0.0%	0	0	0.0%	0
2022	89,415	89,415	0	0	0.0%	0	0	0.0%	0
2023	90,567	90,567	0	0	0.0%	0	0	0.0%	0
2024	91,647	91,647	0	0	0.0%	0	0	0.0%	0

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	92.00	98.44	0.00	0.00
Winter kW Reduction	60.00	64.20	0.00	0.00
Annual kWh Reduction	0	0	0	0

Annual Demand and Energy Savings Participants 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($):	0
Total Program Cost of the Utility ($000):	0.0
Net Benefits of Measures Installed During Reporting Period ($000):	0.0

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL SMART THERMOSTATS
Program Start Date: November 2020
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017									
2018									
2019				Program was started on November 2, 2020					
2020	83,332	83,332	5	5	0.0%	0	0	0.0%	(5)
2021	84,093	84,093	50	55	0.1%	2	2	0.0%	(53)
2022	89,415	89,415	180	235	0.3%	137	139	0.2%	(96)
2023	90,567	90,567	15	250	0.3%	7	146	0.2%	(104)
2024	91,647	91,647	10	260	0.3%	3	149	0.2%	(111)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 3

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	11.13	11.91	33.39	35.73
Winter kW Reduction	4.06	4.34	12.18	13.03
Annual kWh Reduction	14,600	15,359	43,800	46,078

Annual Demand and Energy Savings

Participants 3

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	33.39	35.73
Winter kW Reduction	12.18	13.03
Annual kWh Reduction	43,800	46,078

Utility Cost per Installation ($):	4,769
Total Program Cost of the Utility ($000):	14.3
Net Benefits of Measures Installed During Reporting Period ($000):	64.2

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: STANDBY GENERATOR
Program Start Date: January 1991
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	2,304	0	0	0.0%	4	4	0.2%	4
2016	80,875	2,449	1	1	0.0%	0	4	0.2%	3
2017	81,532	2,430	1	2	0.1%	6	10	0.4%	8
2018	81,740	2,486	1	3	0.1%	1	11	0.4%	8
2019	82,359	2,608	7	10	0.4%	9	20	0.8%	10
2020	83,332	2,490	6	16	0.6%	14	34	1.4%	18
2021	84,093	2,515	5	21	0.8%	6	40	1.6%	19
2022	89,415	2,527	10	31	1.2%	2	42	1.7%	11
2023	90,567	2,585	13	44	1.7%	17	59	2.3%	15
2024	91,647	2,641	12	56	2.1%	5	64	2.4%	8

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants 5

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	263.94	282.42	1,319.70	1,412.08
Winter kW Reduction	263.94	282.42	1,319.70	1,412.08
Annual kWh Reduction	26,394	27,766	131,970	138,832

Annual Demand and Energy Savings, Note 1

Participants 5

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	1,319.70	1,412.08
Winter kW Reduction	1,319.70	1,412.08
Annual kWh Reduction	131,970	138,832

Utility Cost per Installation ($), Note 2: 42,444
Total Program Cost of the Utility ($000): 5,517.8
Net Benefits of Measures Installed During Reporting Period ($000): 5,569.6
Note 1: Savings from measured data
Note 2: Utility costs based upon total program costs and total participation

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: VARIABLE FREQUENCY DRIVE CONTROL FOR COMPRESSORS
Program Start Date: November 2020
Reporting Period: Annual 2024

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015									
2016									
2017									
2018									
2019				Program was started on November 2, 2020					
2020	83,332	83,332	2	2	0.0%	0	0	0.0%	(2)
2021	84,093	84,093	2	4	0.0%	1	1	0.0%	(3)
2022	89,415	89,415	7	11	0.0%	21	22	0.0%	11
2023	90,567	90,567	20	31	0.0%	16	38	0.0%	7
2024	91,647	91,647	10	41	0.0%	2	40	0.0%	(1)

Annual Demand and Energy Savings - 2020-2029 DSM Plan Participants 2

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	4.09	4.38	8.18	8.75
Winter kW Reduction	4.09	4.38	8.18	8.75
Annual kWh Reduction	10,251	10,784	20,502	21,568

Annual Demand and Energy Savings, Note 1 Participants 2

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	8.18	8.75
Winter kW Reduction	8.18	8.75
Annual kWh Reduction	20,502	21,568

Utility Cost per Installation ($):	51,566
Total Program Cost of the Utility ($000):	103.1
Net Benefits of Measures Installed During Reporting Period ($000):	19.8

Demand Side Management Annual Report

Utility: Tampa Electric Company
Program Name: COMMERCIAL WATER HEATING
Program Start Date: March 2008
Reporting Period: Annual 2020

a	b	c	d	e	f	g	h	i	j
Year	Total Number of Customers	Total Number of Eligible Customers	Total Number of Projected Participants	Projected Cumulative Number of Program Participants	Projected Cumulative Penetration Level % [(e/c)x100]	Actual Annual Number of Program Participants	Actual Cumulative Number of Program Participants	Actual Cumulative Penetration Level % [(h/c)x100]	Actual Participation Over (Under) Projected Participants (h-e)
2015	80,277	80,277	1	1	0.0%	0	0	0.0%	(1)
2016	80,875	80,875	1	2	0.0%	0	0	0.0%	(2)
2017	81,532	81,532	3	5	0.0%	0	0	0.0%	(5)
2018	81,740	81,740	3	8	0.0%	0	0	0.0%	(8)
2019	82,359	82,359	1	9	0.0%	0	0	0.0%	(9)
2020	83,332	83,332	0	9	0.0%	0	0	0.0%	(9)
2021	84,093	84,093	0	9	0.0%	0	0	0.0%	(9)
2022	89,415	89,415	1	10	0.0%	0	0	0.0%	(10)
2023	90,567	90,567	1	11	0.0%	0	0	0.0%	(11)
2024	91,647	91,647	1	12	0.0%	0	0	0.0%	(12)

Annual Demand and Energy Savings - 2020-2029 DSM Plan

Participants: 0

	Per Installation		Program Total	
	@ Meter	@ Generator	@ Meter	@ Generator
Summer kW Reduction	0.87	0.93	0.00	0.00
Winter kW Reduction	0.58	0.62	0.00	0.00
Annual kWh Reduction	5,128	5,395	0	0

Annual Demand and Energy Savings - Combined

Participants: 0

	Program Total	
	@ Meter	@ Generator
Summer kW Reduction	0.00	0.00
Winter kW Reduction	0.00	0.00
Annual kWh Reduction	0	0

Utility Cost per Installation ($):	0
Total Program Cost of the Utility ($000):	0.0
Net Benefits of Measures Installed During Reporting Period ($000):	0.0

Comparison of Annual Achieved kW and kWh Reductions
with Public Service Commission Established Goals
Savings at the Generator

Utility: TAMPA ELECTRIC COMPANY

Residential

	Winter Peak MW Reduction			Summer Peak MW Reduction			GWh Energy Reduction		
Year	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	12.3	2.6	473.1%	10.8	1.1	981.8%	21.2	1.8	1,177.8%
2016	7.7	4.1	187.8%	5.1	1.6	318.8%	13.2	3.5	377.1%
2017	6.9	5.2	132.7%	4.7	2.2	213.6%	14.9	4.8	310.4%
2018	8.0	6.5	123.0%	5.6	2.7	205.7%	17.1	6.1	280.3%
2019	8.3	7.6	108.8%	5.7	3.1	184.5%	16.8	6.9	243.2%
2020	3.5	7.6	45.5%	2.6	3.3	78.2%	8.9	7.4	120.3%
2021	4.5	8.0	55.8%	6.4	3.3	194.2%	16.4	7.7	213.1%
2022	9.5	7.4	127.8%	11.1	3.0	369.8%	30.4	6.9	441.0%
2023	10.3	6.8	151.5%	12.5	2.9	431.0%	29.6	6.3	469.8%
2024	8.5	6.1	139.7%	9.8	2.5	393.4%	22.2	5.5	404.1%

Commercial/Industrial

	Winter Peak MW Reduction			Summer Peak MW Reduction			GWh Energy Reduction		
Year	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	8.1	1.2	675.0%	11.7	1.7	688.2%	12.5	3.9	320.5%
2016	2.9	1.3	223.1%	4.4	2.5	176.0%	17.8	6.0	296.7%
2017	9.2	1.6	575.0%	10.4	2.7	385.2%	30.2	8.0	377.5%
2018	13.0	1.7	767.1%	15.0	3.3	453.6%	33.7	9.2	365.9%
2019	22.4	1.6	1401.9%	29.2	3.3	885.9%	74.6	9.9	753.4%
2020	10.4	1.7	612.5%	11.8	3.5	336.0%	26.1	10.3	253.3%
2021	4.7	1.9	246.2%	5.6	3.6	156.8%	20.4	10.4	196.1%
2022	7.1	1.9	376.0%	12.3	3.3	372.2%	26.6	10.2	261.2%
2023	7.2	1.8	400.0%	8.1	3.5	231.4%	30.3	9.9	306.1%
2024	9.2	1.7	542.5%	12.3	3.2	384.5%	86.5	9.6	900.9%

Combined

	Winter Peak MW Reduction			Summer Peak MW Reduction			GWh Energy Reduction		
Year	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	20.4	3.8	536.8%	22.5	2.8	803.6%	33.7	5.7	591.2%
2016	10.6	5.4	196.3%	9.5	4.1	231.7%	31.0	9.5	326.3%
2017	16.1	6.8	236.8%	15.1	4.9	308.2%	45.1	12.8	352.3%
2018	21.0	8.2	256.5%	20.5	6.0	342.1%	50.8	15.3	331.8%
2019	30.7	9.2	333.7%	35.0	6.4	546.2%	91.4	16.8	543.9%
2020	13.9	9.3	149.1%	14.3	6.8	210.9%	35.0	17.7	197.7%
2021	9.1	9.9	92.3%	12.1	6.9	174.7%	36.8	18.1	203.3%
2022	16.6	9.3	178.5%	23.4	6.3	371.0%	57.1	17.1	333.8%
2023	17.5	8.6	203.5%	20.6	6.4	321.9%	59.9	16.2	369.8%
2024	17.7	7.8	227.5%	22.1	5.7	388.4%	108.7	15.1	720.0%

Comparison of Cumulative Achieved kW and kWh Reductions
with Public Service Commission Established Goals
Savings at the Generator

Utility: TAMPA ELECTRIC COMPANY

Residential

	Winter Peak MW Reduction			Summer Peak MW Reduction			GWh Energy Reduction		
Year	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	12.3	2.6	473.1%	10.8	1.1	981.8%	21.2	1.8	1,177.8%
2016	20.0	6.7	298.5%	15.9	2.7	588.9%	34.4	5.3	649.1%
2017	26.9	11.9	226.1%	20.6	4.9	420.4%	49.3	10.1	488.1%
2018	34.9	18.4	189.6%	26.2	7.6	344.1%	66.4	16.2	409.9%
2019	43.2	26.0	166.0%	31.9	10.7	297.9%	83.2	23.1	360.1%
2020	46.6	33.6	138.7%	34.5	14.0	246.1%	92.1	30.5	301.9%
2021	51.1	41.6	122.8%	40.9	17.3	236.2%	108.5	38.2	284.0%
2022	60.5	49.0	123.5%	52.0	20.3	256.0%	138.9	45.1	308.0%
2023	70.8	55.8	126.9%	64.5	23.2	277.8%	168.5	51.4	327.9%
2024	79.4	61.9	128.2%	74.3	25.7	289.1%	190.7	56.9	335.2%

Commercial/Industrial

	Winter Peak MW Reduction			Summer Peak MW Reduction			GWh Energy Reduction		
Year	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	8.1	1.2	675.0%	11.7	1.7	688.2%	12.5	3.9	320.5%
2016	11.0	2.5	440.0%	16.1	4.2	383.3%	30.3	9.9	306.1%
2017	20.2	4.1	492.7%	26.5	6.9	384.1%	60.5	17.9	338.0%
2018	33.2	5.8	573.1%	41.5	10.2	406.6%	94.2	27.1	347.5%
2019	55.7	7.4	752.3%	70.7	13.5	523.7%	168.7	37.0	456.1%
2020	66.1	9.1	726.2%	82.5	17.0	485.1%	194.8	47.3	411.9%
2021	70.8	11.0	643.3%	88.1	20.6	427.7%	215.2	57.7	373.0%
2022	77.9	12.9	603.9%	100.4	23.9	420.0%	241.9	67.9	356.2%
2023	85.1	14.7	578.9%	108.5	27.4	396.0%	272.2	77.8	349.8%
2024	94.3	16.4	575.2%	120.8	30.6	394.8%	358.7	87.4	410.4%

Combined

	Winter Peak MW Reduction			Summer Peak MW Reduction			GWh Energy Reduction		
Year	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance	Total Achieved	Commission Approved Goal	% Variance
2015	20.4	3.8	536.8%	22.5	2.8	803.6%	33.7	5.7	591.2%
2016	31.0	9.2	337.0%	32.0	6.9	463.8%	64.7	15.2	425.7%
2017	47.1	16.0	294.4%	47.1	11.8	399.2%	109.8	28.0	392.1%
2018	68.1	24.2	281.6%	67.6	17.8	379.9%	160.6	43.3	370.8%
2019	98.8	33.4	295.9%	102.6	24.2	423.9%	251.9	60.1	419.2%
2020	112.7	42.7	263.9%	116.9	31.0	377.2%	286.9	77.8	368.8%
2021	121.8	52.6	231.6%	129.0	37.9	340.3%	323.7	95.9	337.6%
2022	138.4	61.9	223.7%	152.3	44.2	344.7%	380.8	113.0	337.0%
2023	155.9	70.5	221.2%	172.9	50.6	341.8%	440.7	129.2	341.1%
2024	173.7	78.3	221.8%	195.1	56.3	346.5%	549.4	144.3	380.7%

Appendix A

INTEGRATED RENEWABLE ENERGY STORAGE SYSTEM (IRES) PILOT

Tampa Electric

Contents

Background

The Integrated Renewable Energy System (IRES) Pilot was a five-year program to study the capabilities and demand-side management (DSM) opportunities of a fully integrated renewable energy system. This pilot project was a first-of-its-kind installation in Florida, providing a valuable opportunity to explore and integrate several innovative technologies.

The pilot program had three core objectives:

1. **Demand-Side Management Optimization**: Assess the system's capability to enhance DSM benefits by integrating renewable energy and battery storage.
2. **Operational Insights for Customers**: Identify the optimal operating parameters for commercial and industrial users to effectively manage similar systems.
3. **Educational Platform**: Serve as a resource to educate commercial and industrial stakeholders about the system's advantages, limitations, and practical applications, leveraging real-world performance data to inform decision-making.

The system's performance was evaluated based on total energy delivered, peak demand reduction, average discharge duration, and solar generation capacity. The environmental impact was also assessed, including CO_2 reduction, NOx reduction, SOx reduction, and other relevant metrics.

Throughout the duration of the pilot, the Tampa Electric team actively engaged with customers regarding the Integrated Renewable Energy System (IRES). The team presented at a large luncheon for the Business Owners and Managers Association (BOMA), participated in presenting at the Florida Building Engineers and Facility Maintenance Show, and hosted a Tech Talk for invited commercial customers where we discussed IRES and related technology. Through these interactions, it was determined that both customers and industry experts were keenly interested in learning about this intriguing pilot program. The presentations were consistently well received and customers responded that they found value in learning about the IRES.

Key findings from the pilot project highlighted the system's ability to work as designed in both normal and stand-alone conditions, the importance of integrating AI-powered software for better system utilization, and the need for resilient communication systems and regular maintenance.

Overall, the IRES Pilot Project provided valuable insights and lessons learned, which will contribute to future deployments and support DSM programs in Florida.

Tampa Electric will take the lessons learned from this pilot project and combine those insights to enhance its understanding of the technology, both as an integrated system and as individual components. This knowledge will greatly contribute to the current Commercial Battery R&D project.

Project Details

The commercial/industrial Integrated Renewable Energy System was a five-year pilot program to study the capabilities and DSM opportunities of a fully integrated renewable energy system.

The system incorporates an 862-kW photovoltaic array installed across five carports, combined with five commercial-grade Powerpack batteries, providing a combined energy storage capacity of 1,160 kWh. Additionally, the setup features six dual-head Level 2 electric vehicle (EV) charging stations, ten industrial truck battery charging units, and an under-canopy lighting system which is installed throughout the footprint of the project.

The energy for the system is created at the solar modules, and the direct current (DC) power is converted to alternating current (AC) power with two Current Sensor Measurement Assembly (CSMA) Sunny TriPower Core1 inverters. The inverters convert the DC power to AC, which is either used to charge the battery system or is exported to the grid. The system includes twelve NovaCharge electric vehicle charging stations.

The Battery Energy Storage System (BESS) is comprised of five Tesla Powerpacks, each storing 290 kilowatts of energy. The Tesla inverter converts the stored energy to a combined 1160-kilowatt hours of AC power.

In the case of lost utility power, the system is capable of operating as a stand-alone power system with battery storage. In that event, the PV system will charge the batteries, as well as power the EV charging stations and Jobsite Energy Management System (JEMS) receptacles. When generation is not present, the battery system will discharge to provide power to the EV charging station and JEMS receptacles.

Tampa Electric collaborated closely with its installer, Solar Source, to develop a thorough logistics plan for the project, ensuring a safe construction site with minimal disruption to operations throughout its duration. A robust safety plan was established prior to construction at the facility. The commissioning process was carefully structured, with specific tasks assigned to each phase to confirm that the design, construction, and operation adhered to Tampa Electric's project requirements.

The solar portion of the project was completed and ready for commissioning on May 28, 2021. However, delays arose with the commissioning of the batteries and the charging station. This was due to communication issues that required on-site assistance from vendor support team. Their expertise was necessary to resolve the communication challenges and conduct joint testing with the EV chargers.

To address these challenges and ensure project success, a team of Tampa Electric engineers, communication experts, and other critical subject matter experts (SMEs) worked collaboratively to troubleshoot and resolve the issues. Their expertise and coordination were instrumental in keeping the project on track.

These efforts culminated in the system being fully commissioned with controls in place by November 4, 2021. The battery scheduler, responsible for managing the charging and discharging of the batteries, was successfully implemented on January 1, 2022.

Pilot Findings:

Tampa Electric company's battery energy storage system (BESS), vehicle charging, and integration with photovoltaic (PV) systems knows as the Integrated Renewable Energy System pilot was studied over a five year period, concluding at the end of 2025. The findings highlight operational challenges, successes, and areas for improvement, which are critical for enhancing future deployments and supporting demand-side management (DSM) programs in Florida.

The system worked as designed and found success in it's ability to work in blue sky conditions where the system will have utility power present, and the solar array will charge the batteries. When the batteries are fully charged the solar will feed to the grid. At scheduled times, the batteries will discharge to operate the EV charging station and JEMS receptacles. We also found the system to work as designed in a stand-alone configuration in the event that utility power is lost due to grid disruption. In stand-alone operation, the solar system will charge the batteries and power the EV charges and JEMS receptacles during the day and at night the batteries will discharge to power the EV charges and JEMS receptacles.

A key finding was that the PV system installed was oversized based upon the battery specifications. This led to throttling of the PV inverters, a safety parameter setting per the battery manufacturer, Tesla. In addition, peak demand shaving was not considered during the design phase of the project. This was unfortunate as the configuration was unable to test the battery system's full capabilities. As a future recommendation, adding an artificial load to simulate the required demand or tying the system into one of the onsite buildings would create a more realistic operational environment. These adjustments would allow for more accurate performance testing and better utilization of the system.

Another key finding is the integration of AI-powered software to enhance the system's performance and efficiency. Tesla has a software program called OPTICASTER which can analyze real-time data to predict energy demand, balance loads, and identify opportunities for better system utilization. It can simulate different demand scenarios to help optimize operations and ensure that the system meets changing requirements. Utilizing this solution could have helped streamline the oversized system and improve decision-making. Unfortunately, this was proprietary software to which Tampa Electric was not provided authorization to utilize during the planning phase.

The Jobsite Energy Management Systems (JEMS) are battery systems that are installed on field equipment to support a zero-emission jobsite by eliminating unnecessary engine idling by providing lithium-ion battery power to jobsite tools. These JEMS appeared to

function as intended and were assigned to the Service Area, where the IRES is constructed. From the perspective of the linemen, they expressed concerns about the weight restrictions (which reduced payload capacity by 800 lbs.) of the chassis. In discussions with team members regarding their experiences, it was learned that field team members were not regularly plugging in the trucks. This meant that the electric vehicle features were not utilized effectively. The lineman also felt the installation site was not located at a centralized service area, making its use inconvenient. In regard to the JEMS outlets, it was noticed that the most frequently used outlets would occasionally trip from exposure to moisture. This was attributed to rough disconnections or prolonged charging of machinery, especially when the outlet covers were left open to the elements for extended periods. The TECO team and the vendor recommended sourcing a heavier-duty outlet, marine grade, to better withstand weather conditions when units are left plugged in charging long-term. Best practices could encourage checking chargers and unplugging, rather than leaving equipment plugged in indefinitely. Another option is to source covers that can be closed around a plugged-in unit so that the paired outlet would remain protected when the receptacle is in use.

Performance & Environmental Impact

The Tampa Electric Integrated Renewable Energy System has been tested for its ability to efficiently manage energy through various real-world scenarios, with a particular focus on the performance of its battery energy storage system. Stress tests were conducted to assess the battery's resilience and capacity to operate independently in different conditions, such as fluctuating solar availability, peak demand times, and extreme weather events like Hurricane Ian, Helene, and Milton. These tests are crucial to ensuring the system's reliability, energy efficiency, and sustainability

The Tampa Electric Integrated Renewable Energy System combines solar generation, advanced battery storage, and electric vehicle (EV) charging capabilities to deliver a comprehensive renewable energy solution. The system is designed to optimize solar energy use, reduce grid dependence, and provide backup power during power outages or high-demand periods.

The following measures were recorded from 1/1/2021 through 12/31/2024.

System Performance

- Total Energy Delivered: 4.1 GWh (861 days)
- Peak Demand Reduction: 583.48 MWh (861 days)
- Average Discharge Duration: 4 hours at 285 kW
- Solar Generation Capacity: 600 kW

EV Charging Statistics

- Charging Sessions: 2,388
- Energy Delivered: 20,002 kWh
- Active Users: 54

Environmental Impact

- **C**O_2 Reduction: 1,820.40 tons
- NOx Reduction: 856.90 lbs
- SOx Reduction: 451.00 lbs
- Equivalent Cars Removed from Road: 393.1
- Equivalent Acres of Forest Preserved: 1,754.2

- Equivalent Trees Planted: 47,677.2

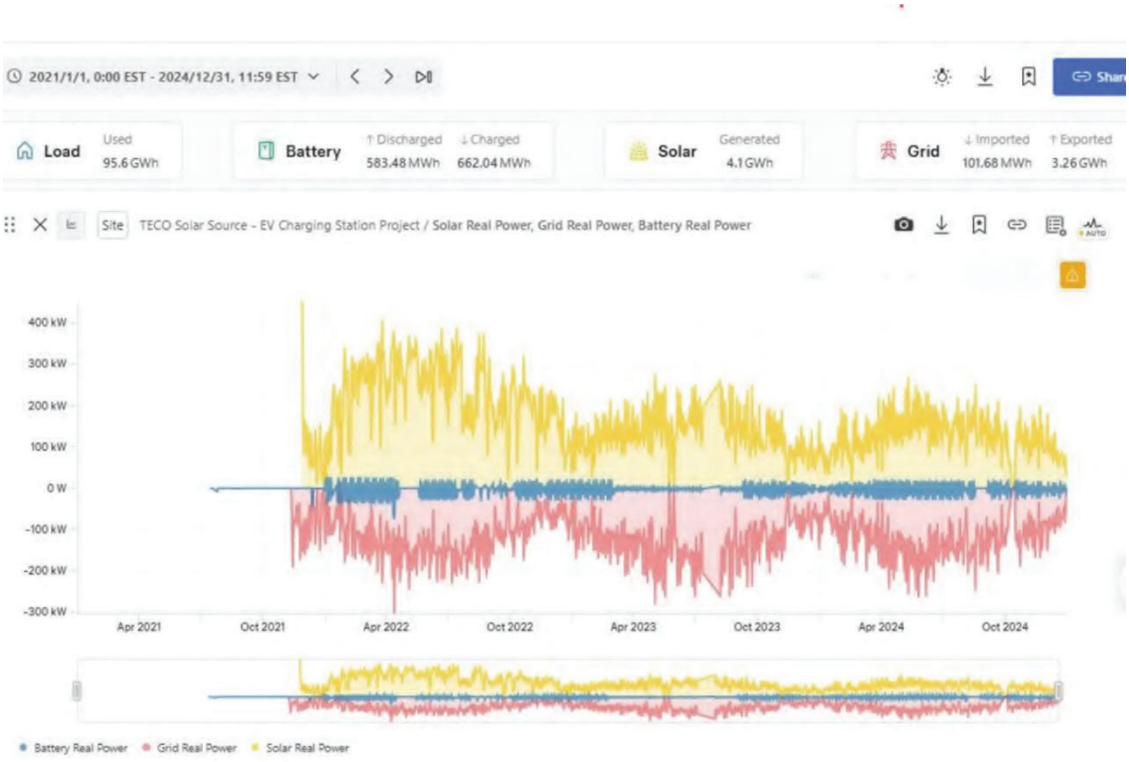


Figure 1 Overall System Performance – 01/01/2021-12/31/2024

Testing Scenarios

Through the duration of the pilot, the IRES system was stress tested in numerous real-world scenarios to test its capabilities. These tests focused on the ability to effectively balance battery charging and discharging with solar production in both blue sky and stand-alone operations. Additionally the system was monitored during major named storms and its performance was evaluated to determine its resiliency.

Scenario 1 - Routine Battery Charging and Discharging

This scenario examines the system's behavior on 11/15/2022, focusing on charging the battery when solar power is available and discharging at 5 PM.

This scenario helped the company explore how effectively the system discharged stored energy during peak demand hours, ensuring reliable power delivery when solar generation is unavailable. It also assessed the system's ability to balance charging and discharging to optimize battery performance and support demand-side management

Figure 2 Battery Charge and Discharge Test 11/15/2022

Scenario 2 - Routine Battery Charging and Discharging

This scenario focused on the battery charging process from 8 AM to 12 PM at a rate of 200 kW and discharging from 6 PM starting at 100 kW down to 30% of battery capacity.

The system's intelligence was evaluated for its ability to detect solar presence and adjust charging and discharging schedules accordingly. The optimizer program proved unsuitable for structured hours of operation and exhibited inconsistent performance. Enhancements to the system's logic and adaptability are necessary to ensure reliability in dynamic operational environments

Figure 3 Battery Charge and Discharge Test 2/11/2022

Scenario 3 - Storm Mode Test

This test evaluated the system's ability to operate independently, simulating standalone operation that would occur during extreme weather such as storms. The system's performance in storm mode was successfully validated, demonstrating its ability to operate continuously for (4-5) hours. This capability is critical for ensuring resilience during extreme weather events.

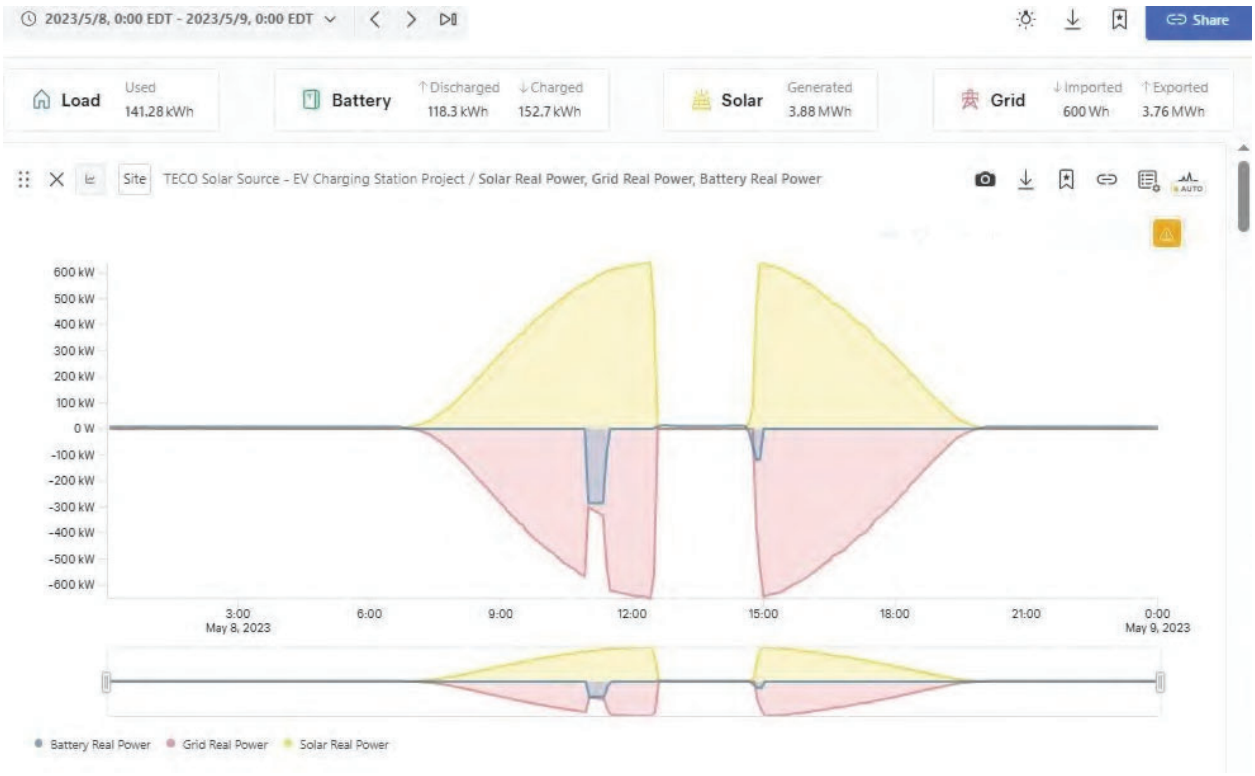


Figure 4 Storm Mode Test 5/8/2023

Scenario 4 – Hurricane Resilience – Operation During Extreme Weather

The system endured three major hurricanes from 2022 - 2024, Ian, Helene, and Milton, with minimal damage due to its sturdy construction. However, a few arrays and wiring required replacement or repair after a major storm. This emphasized the importance of durable system design and readiness for extreme weather conditions. After each occurrence, vendors were on site the next day evaluating damage to quickly assess and fix any damage incurred.

This scenario focused on how the system operated independently from the grid during Hurricane Ian, from 9/27/2022 to 9/29/2022, ensuring power availability despite extreme weather. The system utilized solar generation when possible and relied on battery storage during stormy periods.

Figure 5 Hurricane Ian IRES Performance 9/27/2022

Scenario 5 - Recovery after the Ian

This scenario demonstrated the ability of the system to handle fluctuating solar production throughout the day. The system adapted to changes in solar energy availability while restoration efforts were underway to manage BESS charge and discharge activities, and helped the company understand the capabilities of the solar and battery systems integration working together in the wake of a major system disturbance.

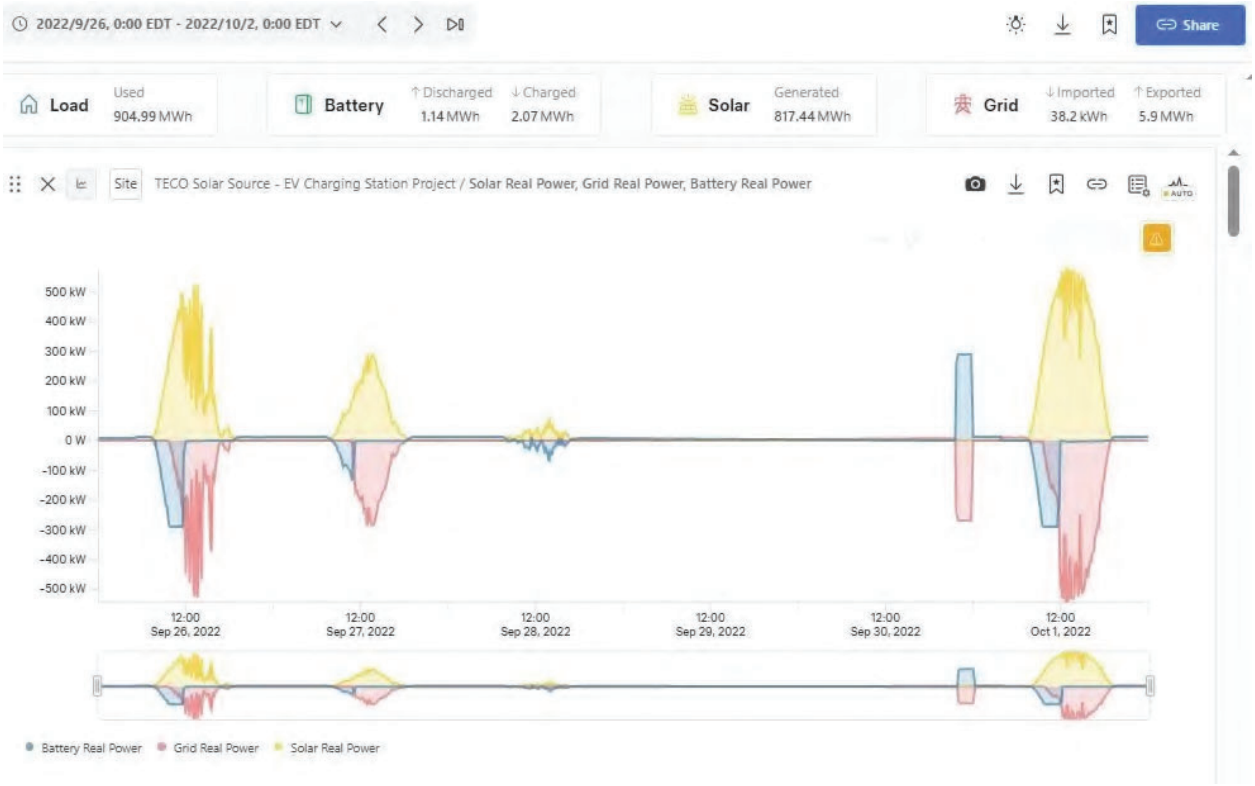


Figure 6 Post Hurricane Ian System Operation

Scenario 6 - Battery Charging from Solar, No Discharge to the Grid

In this scenario, the system only charged the BESS to the measured solar production, not at the full power specified. The system was then set to export only solar power, not battery power.

Figure 7 System Operation with No Battery Discharge to Grid 3/29/2023

Project Challenges and Lessons Learned

As part of the pilot process, there were a number of challenges that were encountered. This was to be expected when integrating cutting edge technologies, and the Tampa Electric team in charge of the IRES worked tireless to both remediate issues as they arose and document their experiences to learn from the process. The following are the challenges and lessons learned that were identified during the pilot:

Battery Vendor Support

After the system commissioning was completed, the battery vendor restructured its internal departments and transitioned from their existing point of contact for support, to a service ticket system with new security protocols. These changes removed immediate access to dedicated support, delaying issue resolution. Additionally, the requirement for non-disclosure agreements further hindered timely testing and modifications.

The restructuring resulted in a loss of institutional knowledge within the battery vendor's team created additional complications, emphasizing the importance of clear contracts that define the scope of goods and services and establish continuity in vendor support.

Issues also arose during the reconfiguration of charging and discharging schedules due to an inadequate understanding of the original battery programming. It is critical to understand all programming aspects, including charging sources (e.g., solar-only, grid-only, or hybrid) and depth of discharge parameters, to optimize system performance. The inadequate support led to the schedule of the system discharging the battery to 0%, which could dangerously impact the life of the battery and lead to the reduction of capacity available to be fed back to the grid.

Manufacturer/Vendor Contract Improvements

To ensure system owners have independent control over charging and discharging schedules, it is important to negotiate contracts that include clauses for continuity of support and detailed service agreements addressing knowledge transfer during vendor transitions. Additionally, it is preferable to choose manufacturers that support open-source software, allowing their systems or devices to integrate, communicate, or be modified using publicly available software.

Vendor-Specific Challenges with Tesla

Tesla's proprietary tools and systems posed integration challenges throughout the pilot duration. Customers should be aware of the limited flexibility in integrating Tesla's tools

with other systems. Customers need to clearly understand the controls and support structure provided by the battery manufacturer before installation to avoid disruptions.

Additionally, during the contractor selection and commitment phase, it is important to note that TESLA committed to work with the installer of record, Solar Source. On several occasions, Tesla insisted on working with the Tampa Electric team directly, requiring them to act as the go between for Tesla and the installer. This reduced the team's ability to troubleshoot and make changes to the system effectively within a timely manner.

Time-Based Charging and Discharging

During the pilot, the company tested various time-based charging and discharging scenarios. A recurring challenge was the dependency on the vendor for reprogramming these schedules, which required at least one day. This delay creates significant limitations for DSM programs in Florida, where demand response or load management often requires immediate action to respond to changing system conditions with minimal notice.

This delay in scheduling may be more suitable for utilities providing day-ahead curtailment notices as part of their short-term planning processes. However, it underscores the importance of negotiating initial contracts with battery manufacturers to grant system owners the flexibility to modify charging and discharging times independently.

Depth of Discharge Testing

Tests to determine the optimal depth of discharge revealed that discharging below 30% of the battery's rated capacity is not recommended. Operating within this range maximizes performance and benefits for load shedding. Battery capacity and discharge limitations need to be well understood during the development process and in the operation of any storage system.

Operational Guidelines

It is necessary to develop comprehensive training for operational teams to understand battery programming and optimize performance parameters.

PV System Maintenance and Component Failures

The PV system experienced a failed inverter, detected during annual maintenance. This reinforced the importance of regular maintenance and robust warranties. The company learned that communication lines were a potential point of failure in the design and worked with the contractor to add surge protection to the communications equipment to prevent damage to the inverters in case of a lightning strike or other surge.

Investing in resilient communication systems is crucial to maintaining connectivity during adverse weather conditions. Additionally, adding surge protection devices throughout the system will help safeguard against electrical surges and ensure the longevity of the system's components.

Lightning Storm Impact

A lightning strike disrupted firewall communications, temporarily disabling connectivity with the system. Despite this, increased site visits confirmed that the system continued to operate effectively. This further reinforced the need for resilient communication systems and proactive monitoring during adverse weather conditions.

Hurricane Preparedness

Consideration is needed during the planning phase to strengthen system components to withstand extreme weather and ensure quick recovery from storm-related damage.

System Intelligence Upgrades

Enhancing the system’s optimization software to improve the detection of solar presence and adapt to structured operation schedules is crucial. By maximizing the impact of solar generation, the system can integrate high-demand electrical loads, such as a facility, into the overall energy management strategy. This approach ensures that solar energy is utilized efficiently, contributing to the system's overall performance and sustainability.

Firmware

The IRES encountered issues related to outdated firmware. The Tampa Electric Team was able to take proactive steps to identify and resolve the firmware related issues. The team conducted a thorough system audit to pinpoint compatibility and performance gaps and worked closely with the manufacturer to access the latest firmware updates and apply them. Post-update, rigorous testing was run to ensure improved reliability and functionality. These efforts restored the IRES’s performance and allowed testing to proceed effectively.

Cost Considerations

The cost to construct the system and its ongoing annual maintenance will be a significant challenge for any facility. These costs should be carefully considered during the planning phase to ensure long-term feasibility. Annual maintenance, while critical for system performance, can involve premium labor rates and require careful budgeting to avoid operational disruptions.

Resilient Design and Maintenance

Conducting annual maintenance on weekends proved effective in minimizing operational impacts. While this scheduling incurs premium labor costs, it ensures uninterrupted system performance.

To ensure the system's reliability and performance, it is essential to continue regular maintenance with a focus on preemptively identifying and addressing potential failures.

Site Consideration

Consider constructing a site with sufficient activity, such as a central operations facility or a transportation hub. The site should have frequent EV usage, regular energy demand, and existing infrastructure to support testing. This would ensure better data collection and more realistic performance evaluation.

The Tampa Electric site where the installation is located underwent significant changes during the pilot of the system. Prior to construction the site included the company’s skills training center, which served as a hub for training activities, generating a lot of daily traffic. Initially it was believed that this dynamic setting was ideal for assessing the capabilities of the IRES, particularly supporting the company’s electric vehicle (EV) fleet and the vehicles of its team members. However, conditions necessitated the removal of several buildings on the site, which lead to reduced traffic and opportunities for real-world testing of the EV chargers in high traffic conditions.

Conclusion

Tampa Electric found that the battery operations functioned exceptionally well once the scheduler had the correct algorithm configured. The company conducted a variety of tests, all of which were successful in scheduling the batteries to charge and discharge at various times of the day, during normal operations and standalone operations. The company stress-tested the batteries' capabilities to discharge below thirty percent and recharge to one hundred percent without any observed unexpected reduction in the capacity of the batteries.

The operational experience gained provides valuable insights for improving integrated renewable energy systems. Addressing vendor-related challenges, optimizing system intelligence, and enhancing resilience will be critical for supporting Demand-Side Management (DSM) programs and ensuring reliable performance in Florida's dynamic energy landscape.

Overall, this project provided a valuable learning experience and showcased the system's capabilities. It demonstrated the importance of adaptability and innovation in overcoming challenges and optimizing performance. The lessons learned will serve as a foundation for improving similar projects and advancing energy solutions in the future.