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UNS Electric, Inc.

88 East Broadway Blvd. | Post Office Box 711 | HQE910 | Tucson, AZ 85702-1702

March 1, 2022

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Re: Notice of Filing – UNS Electric, Inc.'s Annual Demand-Side Management Progress Report, Docket No. E-00000U-18-0055

The Electric Energy Efficiency Standards set forth in the Arizona Administrative Code, Section R14-2-2409.A require UNS Electric, Inc. ("UNS Electric") to submit an annual Demand-Side Management ("DSM") progress report for each of its Commission-approved DSM programs by March 1st. UNS Electric hereby files its DSM Progress Report for 2021. The Measurement, Evaluation and Research Report listed in Appendix 2 of the DSM Progress Report contains confidential information and is being provided directly to Commission Staff.

If you have any questions, please contact me at (520) 918-8359.

Sincerely,

/s/Andrea Jacobo

Andrea Jacobo
Regulatory Services

cc: Compliance Section, ACC

ACC - Docket Control - Received 3/1/2022 12:40 PM
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UniSourceEnergy SERVICES

UNS Electric, Inc.

2021
Annual DSM
Progress Report

Docket No. E-00000U-18-0055

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Appendix 1 – Commission Approved DSM Programs for 2021

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Definitions

"AAC" means the Arizona Administrative Code.

"ADOH" means the Arizona Department of Housing

"APS" means Arizona Public Service.

"ASHRAE/IESNA" means the American Society of Heating, Refrigerating and Air-Conditioning Engineers / the Illuminating Engineering Society of North America

"Baseline" means the level of electricity demand, electricity consumption, and associated expenses estimated to occur in the absence of a specific DSM program, determined as provided in R14-2-2413

"CFL" means Compact Fluorescent Light bulb.

"C&I" means Commercial and Industrial.

"Commission" means the Arizona Corporation Commission.

"Consumer Education and Outreach" means a program to provide general consumer education about energy-efficiency improvements.

"Cost-effective" means that total incremental benefits from a DSM measure or DSM program exceed total incremental costs over the life of the DSM measure, as determined under R14-2-2412.

"DOE" means the United States Department of Energy.

"Demand savings" means the load reduction, measured in kW, occurring during a relevant peak period or periods as a direct result of energy efficiency and demand response programs.

"DSM" means demand-side management, the implementation and maintenance of one or more DSM programs.

"DSM measure" means any material, device, technology, educational program, pricing option, practice, or facility alteration designed to result in reduced peak demand, increased energy efficiency, or shifting of electricity consumption to off-peak periods and includes combined heat and power used to displace space heating, water heating, or another load.

"DSM program" means one or more DSM measures provided as part of a single offering to customers.

"EE" means energy efficiency.

"EPA" means the United States Environmental Protection Agency.

"Guidehouse" means the outside measure, evaluation, and research consulting firm formerly known as Navigant Consulting, Inc.

"HVAC" means Heating, Ventilation and Air Conditioning.

"Incremental costs" means the additional expenses of DSM measures, relative to baseline.

"IC" means an implementation contractor, a contractor hired to implement a program.

"kW" means kilowatt, or 1,000 watts.

"kWh" means kilowatt-hour, or 1,000 watt-hours.

"LED" means Light Emitting Diode light bulb.

"Load management" means actions taken or sponsored by an affected utility to reduce peak demands or improve system operating efficiency, such as direct control of customer demands through affected-utility-initiated interruption or cycling, thermal storage, or educational campaigns to encourage customers to shift loads.

"Low-income customer" means a customer with a below average level of household income, as defined in an affected utility's Commission-approved DSM program description.

"MER" means measurement, evaluation, and research. The process of identifying current baseline efficiency levels and the market potential of DSM measures; performing process and program evaluations including the verification of installed energy efficient measures and reported savings; and identifying additional energy efficiency research opportunities.

"MW" means a Megawatt, 1,000 kilowatts or 1,000,000 watts.

"MWh" means a Megawatt Hour, 1,000 kilowatt hours.

"Net benefits" means the incremental benefits resulting from DSM minus the incremental costs of DSM.

"Program costs" means the expenses incurred by an affected utility as a result of developing, marketing, implementing, administering, and evaluating Commission-approved DSM programs.

"Program Implementation" means the implementation of programs including administration, fiscal management of costs for labor, overhead, implementation contractors, or other direct program delivery.

"Program Marketing" means the marketing of programs and increasing DSM consumer awareness (direct program marketing as opposed to general consumer education).

"Planning and Administration" means planning, developing, and administering programs including management of program budgets, oversight of the RFP process, oversight of ICs, program development, program coordination, customer participation, and general overhead expenses.

"Program Development, Analysis, and Reporting" means the research and development of new DSM program opportunities, analysis of existing and proposed programs and measures, and the tracking and reporting of participation, savings, and benefits. Associated costs are essential to comply with the Commission reporting and rules requirements.

"Rebates & Incentives" means payments made to customers or contractors as rebates or incentives.

"RESNET" means the Residential Energy Services Network.

"RFP" means Request for Proposal, the process through which proposals are solicited from contractors or vendors.

the "Standard" means the reduction in retail energy sales, in percentage of kWh, required to be achieved through UNS Electric's approved DSM programs as prescribed in the State of Arizona Administrative Code Article 24, Section R14-2-2404.

"Therm" means 100,000 Btus (British thermal units).

"Thermal envelope" means the collection of building surfaces, such as walls, windows, doors, floors, ceilings, and roofs, that separate interior conditioned (heated or cooled) spaces from the exterior environment.

"Training and Technical Assistance" means Energy-efficiency training and technical assistance for utility employees, contractors, or building officials.

"TEP" means Tucson Electric Power Company.

"UNS Electric" or "Company" means UNS Electric, Inc.

"UNS Gas" means UNS Gas, Inc.

All other terms and definitions associated with the Energy Efficiency Implementation Plan are contained in A.A.C. R14-2-2401.

DSM PROGRESS REPORT

1. An analysis of the Company's progress toward meeting the annual Energy Efficiency Standard

a. Progress Towards the Standard

In accordance with Decision No. 71819 (August 10, 2010) and Arizona Administrative Code Section R14-2-2409 (effective January 1, 2011), UNS Electric, Inc. submits this annual DSM progress report for the calendar year 2021. This report includes information for all of UNS Electric's residential, non-residential, and low-income customer programs that were in place during this reporting period.

UNS Electric's cumulative annual energy savings through 2021 were 18.71% compared with the EE Standard's target of 22% as indicated in Table 1 of AAC R14-2-2404.B. UNS Electric's DSM savings, expenditures, societal benefits, incentives, and environmental savings are summarized in Table 1 through Table 5 as noted below

A summary list of tables includes:

Table 1	Cumulative Energy Savings As Compared to The Standard
Table 2	Energy Savings By Program
Table 3	Expenses By Program
Table 4	Energy Savings And Societal Benefits
Table 5	Lifetime Environmental Savings By Program

UNS Electric's cumulative energy savings as compared to the Standard are reported in Table 1 below.

Table 1 - Cumulative Energy Savings Compared to the EE Standard

Year	Retail Energy Sales (MWh)	Incremental Annual Energy Savings (MWh)	Cumulative Annual Energy Savings (MWh)	Cumulative Annual Savings as a Percent of previous year Retail Sales	Cumulative EE Standard
2010	1,857,160	-	-	-	-
2011	1,852,904	15,005	15,005	0.81%	1.25%
2012	1,755,541	35,032	50,037	2.70%	3.00%
2013	1,699,307	34,764	84,801	4.83%	5.00%
2014	1,677,445	38,829	123,630	7.28%	7.25%
2015	1,628,035	32,318	155,948	9.30%	9.50%
2016	1,637,808	37,924	193,872	11.91%	12.00%
2017	1,659,423	35,885	229,757	14.03%	14.50%
2018	1,700,252	21,090	250,847	15.12%	17.00%
2019	1,687,400	27,898	278,745	16.39%	18.50%
2020	1,808,946	31,031	309,776	18.36%	22.00%
2021	-	28,654	338,450	18.71%	22.00%

Annual and Lifetime Savings

The DSM portfolio annual and lifetime energy savings are reported in Table 2. Savings are separated into the following categories:

- Capacity Savings (MW)
- Annual MWh Savings
- Annual Therm Savings
- Lifetime MWh Savings
- Lifetime Therm Savings

UNS Electric is including energy savings toward the Standard for changes in energy efficient building codes per AAC R14-2-2404(E). Energy savings from this program are reported in Table 2 below.

Table 2 - Energy Savings By Program[1]

Program	Actual Capacity Savings MW	Actual Annual MWh Savings	Actual Annual Therm Savings	Actual Lifetime MWh Savings	Actual Lifetime Therm Savings
Residential Programs					
Appliance Recycling	-	-	-	-	-
Efficient Products	0.85	8,689.95	270.29	154,345.99	2,973.18
Existing Homes	1.66	2,398.84	-	37,836.92	-
Low-Income Weatherization	0.11	2,205.60	41,083.40	55,622.30	434,701.97
Multi-Family	-	-	-	-	-
Residential New Construction	0.14	226.87	724.03	6,805.99	21,720.96
Shade Tree Program	0.00	4.52	-	180.87	-
Total for Residential Programs					
Commercial Programs					
C&I Demand Response Control Program	5.26	-	-	-	-
C&I Facilities/Schools	1.67	10,389.99	-	156,572.75	-
Total for Commercial Programs					
Behavioral Programs					
Behavioral Comprehensive	0.10	1,259.18	18,693.54	26,785.41	355,177.26
Home Energy Reports	0.38	1,926.91	-	1,943.12	-
Total for Behavioral Programs					
Support Programs					
Consumer Education & Outreach Program	-	-	-	-	-
Energy Codes and Standards	0.21	1,552.30	-	1,552.30	-
Total for Support Programs					
Credits	-	-	-	-	-
Pre-Rule Credit for 2021	-	-	-	-	-
Portfolio Totals	**10.39**	**28,654.16**	**60,771.26**	**441,645.66**	**814,573.37**

[1] This table is provided to comply with AAC R-14-2-2409 and Commission Decision No. 74262. Planned annual and lifetime savings are included in each program description. Capacity savings for C&I Demand Response reflect the capacity available for reduction events. Annual MWh savings for C&I Demand Response reflect the credit available toward the EE Standard per AAC R14-2-2404(C). UNS Electric does not conduct planning for therm savings but does show them when appropriate.

b. DSM Annual Expenses

The annualized expenses for each program are reported in Table 3. Expenses are separated into the following categories:

- Rebates and Incentives
- Training and Technical Assistance
- Consumer Education
- Program Implementation
- Program Marketing
- Planning and Administration
- Measurement, Evaluation, and Research

Table 3 – Expenses By Program

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Residential Programs								
Appliance Recycling	-	-	-	-	-	-	-	-
Efficient Products	$303,535	$1,304	-	$190,294	$2,945	-	$50	$498,127
Existing Homes	$373,850	-	-	$177,725	-	-	$1,593	$553,168
Low-Income Weatherization	$121,520	-	-	$88,263	$1,920	-	$1,467	$213,170
Multi-Family	-	-	-	-	-	-	-	-
Residential New Construction	$45,800	$435	-	$8,500	$6,197	-	$214	$61,146
Shade Tree Program	$1,435	-	-	-	-	-	$2	$1,436
Total for Residential Programs	**$846,140**	**$1,738**	**-**	**$464,782**	**$11,061**	**-**	**$3,326**	**$1,327,046**
Commercial Programs								
Bid For Efficiency	-	-	-	-	-	-	-	-
C&I Demand Response Control Program	-	$636	-	-	-	-	-	$636
C&I Facilities/Schools	$590,026	-	-	$125,040	-	-	$2,664	$717,730
Retro-Commissioning	-	-	-	-	-	-	-	-
Total for Commercial Programs	**$590,026**	**$636**	**-**	**$125,040**	**-**	**-**	**$2,664**	**$718,366**
Behavioral Programs								
Behavioral Comprehensive	$57,068	$3,600	-	$54,425	$7,300	-	$7,344	$129,737
Home Energy Reports	$146	-	-	$101,373	-	-	$572	$102,091
Total for Behavioral Programs	**$57,214**	**$3,600**	**-**	**$155,798**	**$7,300**	**-**	**$7,916**	**$231,827**
Support Programs								
Consumer Education & Outreach Program	-	-	$23,640	$25	-	-	-	$23,665
Energy Codes and Standards	-	$1,750	$200	-	-	-	-	$1,950
Total for Support Programs	**-**	**$1,750**	**$23,840**	**$25**	**-**	**-**	**-**	**$25,615**
Portfolio Totals	**$1,493,379**	**$7,724**	**$23,840**	**$745,644**	**$18,361**	**-**	**$13,906**	**$2,302,854**
							Program Costs	**$2,302,854**
							Program Development, Analysis, & Reporting	**$158,580**
							Portfolio Total	**$2,461,434**

c. Societal Benefits and Performance Incentives

The portfolio societal benefit calculation and performance incentive calculation are reported in Table 4 below. UNS Electric's portfolio Societal Cost Test ratio for 2021 is 3.30, including all program costs and labor.

UNS Electric's performance incentive was established in Decision No. 72747 (January 20, 2012). Societal costs, societal benefits, and net benefits are not calculated on an annual basis for Demand Response Programs. Per Decision No. 74235 (December 31, 2013), UNS Electric's performance incentive is calculated at 8 percent of DSM net economic benefits, capped at $0.0125 per kWh, whichever is less. UNS Electric's 2021 performance incentive for calendar year 2021 caps at $0.0125 per kWh and is $338,773.

Table 4 – Energy Savings and Societal Benefits

DSM Program	Program Cost	Actual Societal Benefit	Actual Societal Costs	Actual Net Benefit
Residential Programs				
Appliance Recycling	-	N/A	N/A	N/A
Efficient Products	$498,127	$5,210,340	$1,505,406	$3,704,934
Existing Homes	$553,168	$3,891,710	$1,028,908	$2,862,802
Low-Income Weatherization	$213,170	$1,809,974	$384,789	$1,425,185
Multi-Family	-	-	-	-
Residential New Construction	$61,146	$434,301	$113,706	$320,594
Shade Tree Program	$1,436	$7,013	$3,155	$3,857
Total for Residential Programs	**$1,327,046**	**$11,353,337**	**$3,035,965**	**$8,317,372**
Commercial Programs				
C&I Demand Response Control Program	$636	N/A	N/A	N/A
C&I Facilities/Schools	$717,730	$5,366,729	$2,071,241	$3,295,488
Total for Commercial Programs	**$718,366**	**$5,366,729**	**$2,071,241**	**$3,295,488**
Behavioral Programs				
Behavioral Comprehensive	$129,737	$978,421	$147,083	$831,338
Home Energy Reports	$102,091	$51,248	$101,945	-$50,697
Total for Behavioral Programs	$231,827	$1,029,669	$249,027	$780,641
Support Programs				
Consumer Education & Outreach Program	$23,665	N/A	$23,665	N/A
Energy Codes and Standards	$1,950	N/A	$1,950	N/A
Total for Support Programs	$25,615	-	$25,615	-
Portfolio Totals	**$2,302,854**	**$17,749,735**	**$5,381,848**	**$12,393,502**
Program Development, Analysis & Reporting	$158,580	N/A	$158,580	N/A
Total	$2,461,434	$17,749,735	$5,540,428	$12,393,502
Performance Incentive Calculation:				
Total kWh Savings	$27,101,855			
Total Net Benefits	$12,393,502			
PI = 8% Net Benefits	$991,480			
PI Cap = Total kWh savings * $0.0125	$338,773			
Performance Incentive for 2021	**$338,773**		Note: Performance Incentive does not include 2021 Pre-Rule Credit, Energy Codes and Standards, and Direct Load Control.	

d. Lifetime Environmental Savings

The annualized environmental savings for each program are reported in Table 5. Savings are separated into the following categories:

- sulfur oxides ("SO_X"),
- nitrogen oxides ("NO_X"),
- carbon dioxide ("CO_2"), and
- water consumption.

Table 5 – Lifetime Environmental Savings By Program

Program	Lifetime SOX Reduction (lbs)	Lifetime NOX Reduction (lbs)	Lifetime CO2 Reduction (lbs)	Lifetime Water Reduction (gallons)
Residential Programs				
Appliance Recycling	-	-	-	-
Efficient Products	849	18,367	183,671,730	39,975,612
Existing Homes	208	4,503	45,025,940	9,799,763
Low-Income Weatherization	306	6,619	66,190,542	14,406,177
Multi-Family	-	-	-	-
Residential New Construction	37	810	8,099,128	1,762,751
Shade Tree Program	1	22	215,239	46,846
Total for Residential Programs	**1,401**	**30,320**	**303,202,579**	**65,991,149**
Non-Residential Programs				
C&I Demand Response Control Program	N/A	N/A	N/A	N/A
C&I Facilities/Schools	861	18,632	186,321,572	40,552,342
Total for Commercial Programs	**861**	**18,632**	**186,321,572**	**40,552,342**
Behavioral Programs				
Behavioral Comprehensive	147	3,187	31,874,633	6,937,420
Home Energy Reports	11	231	2,312,318	503,269
Total for Behavioral Programs	**158**	**3,419**	**34,186,951**	**7,440,689**
Support Programs				
Consumer Education & Outreach Program	-	-	-	-
Energy Codes and Standards	9	185	1,847,237	402,046
Total for Support Programs	**9**	**185**	**1,847,237**	**402,046**
Credits				
Portfolio Totals	**2,429**	**52,556**	**525,558,338**	**114,386,227**

2. A list of the 15 current Commission-approved DSM programs and DSM measures, organized by customer segment

Commission Approved DSM Programs	
Residential Programs	
4.1	Appliance Recycling Program
4.2	Efficient Products
4.3	Existing Homes
4.4	Low-Income Weatherization Program
4.5	Multi-Family Housing Efficiency Program
4.6	Residential New Construction
4.7	Shade Tree Program
Non-Residential Programs	
4.8	C&I Demand Response Program
4.9	C&I Facilities/Schools Program
Behavioral Programs	
4.10	Behavioral Comprehensive Program
4.11	Home Energy Reports Program
Support Programs	
4.12	Education and Outreach
4.13	Energy Codes & Standards Enhancement Program

Commission approved DSM programs and measures, including Commission Staff's benefit/cost calculation per measure, and the actual benefit/cost calculation per measure based upon 2021 results, are attached in **Appendix 1.**

3. A description of the findings from any research projects completed during the previous year
UNS Electric's DSM and Customer Solutions staff review various EE technologies on an ongoing basis during:

- program administration,
- solicitation for bids for services,
- when conducting research on measures for inclusion in future DSM implementation plans,
- and when attending conferences and exchanging best practices with peer utilities.

The following research projects were completed in 2021:

- **Blockchain**: UNS Electric continues to monitor and explore technologies like blockchain for our business.
- **Connected Products Cyber Security**: UNS Electric continues to review the cyber security measures for connected products for future services and offerings that could offer grid management support in a safe and secure manner. This review, in collaboration with our internal enterprise cybersecurity groups has expanded beyond hardware, and will be crucial as we continue to evaluate data transfer for our upcoming load management pilot, targeted to begin by end of 2021. UNS Electric continues to look at connected products through consumer electronics sessions and product vendor meetings.

- **Distributed Energy Resource Management Systems ("DERMS") and Load Management:** UNS Electric (along with Tucson Electric Power) _submitted an RFI for a load management platform, in an effort to expand the learnings obtained from Project RAIN, and prepare our utility for future efforts in load control and management of DERs. Through this effort, the team was able to review various technologies that will enhance both our ability to monitor and control customer sited DERs and provide enhanced customer engagement. An RFP for a solution is expected to release in early Q2 2021, and a strategic alignment of DSM programs to help increase learning capacity is underway.

- **Voice Application**: UNS Electric continues to evaluate the impact of voice applications in customer engagement activities, but have paused development efforts at this time, to better align with potential integrations for billing as well as energy management and equity outreach. TEP continues to research vendor partnerships that will provide a holistic experience, inclusive of voice application where applicable.

- **Electric Vehicle ("EV") Charging**: UNS Electric plans to continue participation in the future EV Workshops and will implement any resulting orders or directions.

- **Energy Storage**: Research into new energy storage technologies, as well as communication protocols for customer-side product options, continue to be reviewed. Current technologies are still not a viable, cost effective option; however the team is exploring opportunities for leasing either residential or utility scale storage solutions. UNS Electric will continue to examine benefits and uses for energy storage such as ancillary services, including VAR-support, and voltage regulation, as well as increased reliability for residential, commercial, and industrial customers serving as a potential product for energy backup to support customer resiliency request. As part of the technology review, the possibility of on-peak load leveling and on-peak management is being considered, while also conversely using storage for load growth opportunities during off-peak times. Battery control is also within scope for the load management platform learnings.

3rd Party Evaluation Activities and Requirements:

- **Residential and Commercial Incremental Cost Updates:** Incremental costs require ongoing updates for a number of measures and measure categories due to rapidly changing market realities. Guidehouse undertook significant incremental cost research during 2019 to address areas for incremental cost updating within commercial and residential program measure categories. Due to the wide variety of measures featured in UNS Electric's EE programs, the Guidehouse team utilized a variety of approaches in updating existing cost information. Some common methodologies include online cost research, webscraping, in-store cost research, interviews with retailers, distributors and contractors, and software modeling. In each case, Guidehouse employed the method with the most appropriate rigor and cost-effectiveness to a given measure-level incremental cost update. As in past years, the Guidehouse team worked with UNS Electric to prioritize measures for which to conduct incremental cost research during 2021, with an emphasis on categories experiencing rapid price shifts.

- **Quarterly Savings Verification:** Navigant's MER report provides a portfolio-level summary of energy (kWh and therms) and coincident demand savings achieved through the end of each quarter (Q1, Q2, Q3 and Q4) of Program Year 2021 for each of the three operating utilities (TEP, UNS Electric and UNS Gas). Measure Analysis Spreadsheets developed and maintained by the Guidehouse team working with UNS Electric's to keep current, include cost and benefit

calculations for each program measure, UNS Electric relies on these parameters for screening program cost-effectiveness.

Residential Sector

4. Information on the DSM Programs

4.1 Appliance Recycling Program

a. Description

The Appliance Recycling Program is designed to remove and recycle inefficient refrigerators and freezers. As national studies indicate, approximately 20 percent of customers have at least one secondary inefficient refrigerator or freezer in their home, which is a significant potential for energy savings for this program. This program removes inefficient appliances that may otherwise either remain in service at the customer's home or be donated or re-sold. In addition to providing the customer with an incentive, the Program removes the usual barriers of taking these appliances offline by eliminating the cost and/or inconvenience associated with disposing of the appliance.

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are to:

- Remove old and inefficient refrigerators and freezers from customer's homes,
- Permanently remove the inefficient refrigerators and freezers from the grid, and
- Recycle the refrigerators and freezers in an environmentally responsible way.
- A spending goal and savings target was not established for 2019 due to program inactivity.

c. Levels of Participation

Due to the unforeseen ceasing of operations by the implementation contractor, JACO Environmental, Inc. on November 20th, 2015, the Appliance Recycling Program was temporarily suspended. In 2016, UNS Electric, in conjunction with TEP, released an RFP to restart the program but did not receive a proposal that met all requirements of the program. In 2017, UNS Electric, in conjunction with TEP, decided not to issue a second RFP due to the market instability of the implementation contractors brought upon by metal prices and an internal solution being cost prohibitive.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Appliance Recycling	-	-	-	-	-	-	-	-

e. Evaluation and Monitoring Activities and Results
There was no third-party MER activity during this reporting period.

f. kW, kWh, and Therm Savings
There were no savings during this reporting period.

g. Environmental Benefits realized
There were no environmental benefits realized during this reporting period.

h. Incremental benefits and net benefit
There were no incremental benefits and net benefits realized during this reporting period.

i. Performance-incentive calculations for the previous year
There is no performance incentive for this program for this reporting period.

j. Problems Encountered and Proposed Solutions
UNS Electric proposed in the 2018 Implementation Plan to discontinue this Program. As previously reported to the Commission, due to the unforeseen shut down of operations by the IC, JACO Environmental, Inc., on November 20th, 2015, the Appliance Recycling program was temporarily suspended. In 2016, UNS Electric, in conjunction with TEP, released an RFP to restart the program but did not receive a proposal that met all requirements of the program. In 2017, the companies planned to release an updated RFP and to restart the program utilizing an in-house administered web portal. Despite these efforts, UNS Electric has been unable to find a viable, cost-effective, and financially sound IC to successfully restart program delivery.

k. Program Modifications
UNS Electric suspended this program in 2021.

l. Programs or Measures Terminated
UNS Electric proposes that the program be immediately discontinued.

4.2 Efficient Products Program

a. Description

The Efficient Products program promotes the purchase of energy efficient retail products through in-store buy-downs and product promotions, and the promotion of EE products in general. This program has been in existence since 2008, and was most recently approved by the Commission in Decision No. 75297.

In the 2021 program year UNS Electric Efficient Products program included Residential LEDs, variable speed pool pumps, and Energy Star appliances. The Efficient Products program promotes the installation of energy efficient products by residential customers in the UNS Electric service territory. UNS Electric provides funds to manufacturers of ENERGY STAR® approved LEDs to reduce the up-front product cost and partners with local retailers to pass these savings on to the consumer. UNS Electric also partners with retailers to further transform the market through training retail staff, customer education, and increased stock and selection of ENERGY STAR® lighting and appliance products. Pool pump incentives are paid to an installing contractor with the customer receiving an instant rebate at the time of purchase.

b. Program Goals, Objectives, and Savings Targets

The program offers customers opportunities to reduce their energy consumption by purchasing energy efficient retail products, and furthers the transformation of the market through retail partnerships, training retail staff, and increased retail stocking and selection of efficient products.

The objectives of this program are to:

- Reduce peak demand and overall energy consumption of homes and small businesses,
- Increase the purchase of ENERGY STAR® Products,
- Increase the availability of ENERGY STAR® Efficient lighting products in the marketplace, and
- Increase the awareness and knowledge of retailers and UNS Electric customers on the benefits of ENERGY STAR® efficient products.

The 2021 energy savings target and spending goals were aligned with the actual collection amount of the DSM surcharge.

c. Levels of Participation

Overall, the program experienced similar participation from the previous year with slight increased participation in lighting, variable speed pool pumps, and appliance programs.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Efficient Products	$303,535	$1,304	-	$190,294	$2,945	-	$50	**$498,127**

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2**.

Many of the program bulbs are sold in multipacks. While some of these bulbs are installed immediately, some are placed into storage to be installed as needed. As bulbs come out of storage, the savings are realized, but they are delayed. The bulbs placed into storage are accounted for with a 4.6% LED and 18% CFL In-Storage Rate (ISR).[2] According to the Uniform Methods Protocol, 97% of these in-storage bulbs are brought out of storage over a period of four years, while the remaining bulbs are never installed. Guidehouse follows current Uniform Methods Protocol in calculating the CFL and LED In-storage Adder.

f. kW, kWh, and Therm Savings

Measure	No. of Measures	kW Savings	kWh Savings
Appliances	1,837	5	36,249
Lighting	191,269	836	8,602,325
Pool Pumps	42	11	51,376
Totals	**193,148**	**852**	**8,689,951**

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

There were no problems encountered during this reporting period.

k. Program Modifications

No program modifications were made during this reporting period.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

[2] The ISR is the proportion of program bulbs each year assumed put into storage rather than installed immediately in sockets.

4.3 Existing Homes Program

a. Description

The UNS Electric Existing Homes Program is designed to encourage homeowners to increase the energy efficiency of their homes. The program provides incentives for high-efficiency HVAC equipment and tune-ups, and for home performance services such as sealing leaky duct work in existing homes. The program provides direct incentives to participating contractors with the requirement that the incentives are passed on to utility customers as a line item credit towards approved program measures. In order for customers to participate, UNS Electric requires customers to utilize specific participating contractors who complete program administrative training, including field mentoring.

The Existing Home Program was originally approved in Decision No. 70377 (June 13, 2008), most recently approved in Decision No. 75297 (October 27, 2015), and is marketed as the "Efficient Home Program."

b. Program Goals, Objectives and Savings Targets

The objectives of the Program are as follows:

- To properly size and provide quality installation of high efficiency HVAC equipment, tune-up existing equipment, and seal leaky ductwork.;
- Cultivate customer demand, and a qualified contractor base for comprehensive energy efficiency retrofits in alignment with the "Home Performance with Energy Star" program.
- Reduce peak demand and overall energy consumption in the multi-family housing market

The 2021 energy savings target and spending goals were aligned with the actual collection amount of the DSM surcharge.

c. Levels of Participation

Overall, the program experienced an increase in participation from the previous year.

d. Costs Incurred

Costs incurred for this Program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Existing Homes	$373,850	-	-	$177,725	-	-	$1,593	**$553,168**

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

Measure	No. of Measures	kW Savings	kWh Savings
HVAC	498	1,659	2,398,838
Tune Up	-	-	-
Totals	**498**	**1,659**	**2,398,838**

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
There were no program modifications during this reporting period.

l. Programs or Measures Terminated
UNS Electric does not plan to terminate this Program or associated measures in 2022. No measures were terminated during this reporting period.

4.4 Low-Income Weatherization Program ("LIW")

a. Description
The LIW Program is designed to improve the energy efficiency of homes for customers whose income falls within the defined federal poverty guidelines. The weatherization measures installed under the LIW Program will reduce electric bills for eligible customers and improve their comfort and quality of life. Energy savings realized from the LIW Program will allow low-income customers to better utilize their limited income for other items such as rent, food, or medical expenses.

b. Program Goals, Objectives, and Savings Targets
The objectives of the program are to:

- Increase the number of homes weatherized each year;
- Reduce participating low-income customer's average household utility bills by utilizing energy conservation measures as defined in the Weatherization Assistance Program Rules; and
- Improve the quality of life for customers by providing them with a safer and healthier home.

The 2021energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

There was a decrease in participation from the previous year due to agency partners being limited to weatherize homes due to the COVID-19 pandemic. Continued partnership with Kingman Area Food Bank in distributing energy conservation kits that included LEDs, high-efficiency showerheads, bathroom and kitchen aerators and LED nightlights.

d. Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Low-Income Weatherization	$121,520	-	-	$88,263	$1,920	-	$1,467	**$213,170**

Includes $1,912.94 for health and safety related repairs and $7,514.76 for Weatherization Agencies' administrative expenses.

e. Evaluation and Monitoring Activities and Results

Navigant, with billing data from TEP, UNS Electric, and UNS Gas, analyzed and tracked energy use in weatherized homes for UNS Electric, TEP, and UNS Gas.

f. kW, kWh, and Therm Savings

Measure Type	No. of Participants/ Measures	kW savings	kWh savings	Therm savings
Weatherization	25	40	63,757	2,984
LED	45,000	62	1,953,519	-
Aerator	5,000	2	30,113	8,523
Showerhead	10,000	11	158,211	29,576
Total	**60,025**	**115**	**2,205,600**	**41,083**

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms). Therms are not included in the portfolio total savings.

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

One of the challenges faced by UNS Electric is that the funding limit per LIW household is relatively low compared to other utilities. In UNS Electric's 2018 Implementation Plan, the Company is requesting an increase to the maximum limit per home to foster participation. The Arizona weatherization network has expressed that the number of houses is limited for weatherization. The limitation is due to the lack of skilled workers in the industry, as these

workers are focused on new construction. The COVID-19 pandemic was another issue that limited operations s of the weatherization program for agency partners. Delays were attributed to agencies not being able to enter households, not being able to obtain proper PPE, and delayed shipment or back ordered of equipment needed to complete closures.

k. Program Modifications

In 2021, UNS Electric continued to utilize the approved measures through the Arizona Department of Housing Weatherization Assistance Program ("WAP") to reach our underserved low-income qualified population by implementing additional delivery methods to include traditional weatherization, multifamily direct install, lighting outreach, and partnering with food banks to distribute energy conservation kits to income qualified customers.

UNS Electric collaborated with Kingman Area Food Bank and the Community Food Bank of Southern Arizona to distribute energy conservation kits that included weatherization measures; LEDs (8), high-efficiency showerheads (1), bathroom and kitchen aerators(1 each), and LED nightlights (1) to income-qualified customers at time of TEFAP intake in Kingman, Lake Havasu and Nogales.

The conservation measures were expensed through the LIW Program, thus allowing UNS Electric to record additional savings for the measures within the LIW Program.

UNS Electric will explore partnerships in 2022 with Implementation Contractors currently contracted within existing programs to assist with smart thermostat installations in the low-income multi-family sector to aid with energy savings. Smart thermostats were offered to our limited-income multi-family complexes but there was no interest from complexes in 2021. With the proposed modifications for 2021, we anticipate smart thermostat utilization.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

4.5 Multi-Family Housing Efficiency Program

a. Description

The Multi-Family program is an existing program approved in Decision No. 72747 (January 20, 2012) with additional measures added in Decision No. 75297 (October 27, 2015). The UNS Electric Multi-Family Housing Efficiency Program is designed to promote energy efficiency in the residential multi-family sector. The program targets multi-family properties with 5 dwelling units or more to install efficient lighting (LEDs), low-flow faucet aerators, low-flow showerheads, HVAC tune-up components including advanced tune-up, Western Cooling Controls, and duct testing and repair. Additionally, multi-family facility managers are encouraged to participate in the C&I Facilities program, which promotes measure installation for the common areas.

b. Program Goals, Objectives, and Savings Targets

The EE potential in the multi-family housing market remains largely underutilized and has a significant potential to increase participation in the Company's program portfolio. Various market barriers, such as split incentives, capital constraints, and lack of awareness, create a gap in addressing EE improvements because such improvements typically place low on a multi-

family housing unit's priority list. Through the direct installation and renovation/rehabilitation implementation framework, this program fills the gap and provides substantial energy savings.

The objectives of the Program are to:

- Reduce peak demand and overall energy consumption in the multi-family housing market;
- Promote EE retrofits of both dwelling units and common areas; and
- Increase overall awareness about the importance and benefits of EE improvements to the landlord and property ownership community.

The 2021 energy savings target and spending goals were aligned with the actual collection amount of the DSM surcharge.

c. Levels of Participation

In 2021, there was no customer participation in either the Direct Install or HVAC/Tune-Up measures. The market has limited apartment complexes and most either have participated or are not interested in participating.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance		Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Multi-Family	-	-		-	-	-	-	-	-

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

Measure	No. of Measures	kW Savings	kWh Savings
HVAC	-	-	-
Faucet Aerators	-	-	-
LED Home Lighting	-	-	-
Showerhead	-	-	-
Tune Up	-	-	-
Totals	**-**	**-**	**-**

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

During implementation of the Advanced Tune-Up measures, opportunities to address customer participation via additional measures such as the Existing Homes Program "Early Retirement" and "HVAC QI Replace On Burn-Out" arose. UNS Electric filed for the additional Multi-Family measures in the 2018 DSM Implementation Plan.

Program participation was hindered by the fact that most apartment complexes have out of town owners, which are not interested in participating even though the local property managers are interested. The additional measures proposed in the 2018 DSM Implementation Plan and mentioned above may increase interest from property owners.

k. Program Modifications

No program modifications were made during this reporting period.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

4.6 Residential New Construction Program

a. Description

The Residential New Construction Program for UNS Electric is marketed as the Energy Smart Homes ("ESH") Program. The ESH Program emphasizes the whole-house approach to improving health, safety, comfort, durability, and energy efficiency. The program promotes homes that meet the Environmental Protection Agency ("EPA")/Department of Energy ("DOE") Energy Star® Home performance requirements. To encourage participation, the Program provides incentives to homebuilders for each qualifying home. On-site inspections and field testing of a random sample of homes are required to ensure that homes meet the Energy Star® Home performance requirements; on-site inspections are conducted by third-party Residential Energy Services Network ("RESNET") certified energy raters selected by each builder. Components of the ESH Program include development of branding, builder training curriculum, and marketing materials.

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are to:

- Educate consumers on the benefits of Energy Star® Homes.; Reduce peak demand and overall energy consumption in new homes.
- Stimulate construction of new homes that are inspected and tested to assure energy performance.
- Stimulate energy efficiency standards that are higher than EPA/DOE Energy Star® performance standards.
- Stimulate the installation of high-efficiency heating and cooling systems, envelope, lighting, and fixed appliances (Energy Star® products).

- Cultivate customer demand, and a qualified contractor base, for comprehensive energy efficiency retrofits in alignment with the "Home Performance with Energy Star" program.
- http://www.energystar.gov/index.cfm?fuseaction=hpwes_profiles.showsplash
- Work with local builders to construct energy-efficient homes.
- Educate consumers on the benefits of Energy Star® Homes.
- Transform the market by improving construction practices in the UNS Electric service territory.
- Assist sales agents with promoting and selling energy-efficient homes.
- Train builder construction staff and subcontractors in advanced building science concepts to increase energy efficiency through improved design and installation practices; Increase homebuyer awareness and understanding of energy-efficient building practices and the benefits of purchasing an energy-efficient home.
- Encourage participation in the ESH Program by providing incentives to homebuilders for each qualifying home.

The 2021 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

The program experienced an increase in participation from the previous year mainly due to an improved housing market and additional participating builders entering the program to aid in builder's commitments to build Energy Star communities.

d. Costs Incurred

Costs incurred during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Residential New Construction	$45,800	$435	-	$8,500	$6,197	-	$214	**$61,146**

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

No. of Homes	kW savings	kWh savings	Therm savings
59	137	226,866	724

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

Reflecting economic barriers, there are still non-participating builders who indicate concerns regarding the higher first-costs of building to meet higher energy efficiency standards. This is due in part to the fact that the different jurisdictions in the UNS Electric service territory have not adopted consistent building codes. The building codes in use vary from the 2003-2012 code cycles. Non-participating builders also market their new models as "energy efficient", which competes with participating builders who are building to Energy Star V.3 standards. UNS Electric continues working with the community including building officials and elected officials to educate on the need to adopt current building codes that have consistency across geographic areas.

UNS Electric started collaborating with Institute for Market Transformation ("IMT") in 2019 on a three-year study that targets increasing adoption of energy codes throughout Arizona. IMT will provide training to state and local jurisdiction. The education and outreach directed to elected officials, code officials, consumers, realtors, appraiser, builders, and trades on building science and advancing our energy codes in the building market.

k. Program Modifications

UNS Electric has proposed in our 2022 Implementation Plan, a marketing stipend of $50 per home be paid to the Home Energy Rater (HER), in order to promote the program and influence the market. UNS Electric believes this proposed stipend is especially important in UNS Electric's service territory due to lack of energy code adoption. UNS Electric is requesting approval for a proposed modification to the Program's eligibility criteria to include low-income multi-family housing.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this Program or any associated measures in 2022. No measures were terminated during this reporting period.

4.7 Shade Tree Program

a. Description

The UNS Electric Shade Tree Program is marketed under the name of "Trees for You" ("TFY") and is primarily targeted to residential customers. Community organizations, commercial customers, and schools may participate if they meet the Program requirements. UNS Electric customers are allowed to purchase two desert adapted, five-gallon trees per year (four trees are allotted for homes built before 1980), which must be planted on the south, west, or east side of the home. Though customers purchase the tree(s) from the nursery of their choice they must complete an application provided by UNS Electric, provide a copy of their paid invoice, and submit all information to the Company to receive a $15.00 (per tree) credit on their electric bill.

b. Program Goals, Objectives, and Savings Targets

The objective of the program is to promote energy conservation and the environmental benefits associated with planting low water usage trees. Along with the energy savings trees provide to the homes, trees also provide habitat for wildlife, absorb air and water pollutants, control storm water runoff and soil erosion, and provide an aesthetic beauty to neighborhoods and the community.

The 2021energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

Customer participation is higher than the previous year. Although not as high as pre pandemic participation. This is due to reduced budgets and the COVID-19 pandemic prevented UNS Electric from conducting outreach events. These type of events have been the main avenue for distributing trees.

d. Costs Incurred

Costs incurred for this Program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Shade Tree Program	$1,435	-	-	-	-	-	$2	**$1,436**

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

No. of Trees	kW savings	kWh savings	Therm savings
70	2	4,522	-

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

No program modifications were made during this reporting period. UNS Electric partnered with Civano Nursery to expand the varieties of desert adaptive trees available for our diverse service territory's differing climate zones.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or any program measures in 2022. No measures were terminated during this reporting period.

Non-Residential Sector

4.8 Commercial & Industrial ("C&I") Demand Response Program

a. Description

The UNS Electric C&I Demand Response Program is designed to manage peak demand and mitigate system emergencies through a commercial and industrial load curtailment program. The program is delivered in-house by engaging the interruptible rate customers. The UNS Electric customers on the interruptible rate had equipment installed that provides the Company control of their entire electric load.

UNS Electric installed metering equipment for participants to enable automated load curtailment and proper tracking of load data to evaluate customer participation levels in an event and provide data for post event analysis. In addition, participants agreed to be placed on UNS Electric's Interruptible Power Service tariff in lieu of any cash incentive for participation.

b. Program Goals, Objectives, and Savings Targets

The primary goal of the program is to provide demand reduction resource of up to 10 MW, available at any time.

c. Levels of Participation

As in prior years, the level of load curtailment received during 2021 did not meet the requirement to claim savings for this program.

d. Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
C&I Demand Response Control Program	-	$636	-	-	-	-	-	**$636**

e. Evaluation and Monitoring Activities and Results

NCI performed analysis on the interval data to verify the demand. The MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

The Standard allows a credit for demand response and load management programs per AAC R14-2-2404 (C). Peak reduction capability may be converted to an annual energy savings equivalent based on an assumed 50 percent load factor. The credit shall not exceed 10 percent of the annual standard. The following table shows the allowable credit for this Program based on the available capacity reduction and the 10 percent cap. See the Program Modifications section below for more information.

Participants	Number of Events	Maximum MW Commitment	MWh savings credit
29	-	6	-

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems encountered in 2021.

k. Program Modifications

No modifications were made in 2021.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

4.9 Commercial & Industrial ("C&I") Facilities/Schools Program

a. Description

The UNS Electric C&I Facilities/Schools Program is designed to minimize barriers to implementing energy-efficiency improvements in the nonresidential market. These barriers typically consist of a lack of capital, information search costs, transaction costs, performance uncertainty, and the so-called "hassle factor." The purpose of the program is to assist nonresidential customers and K-12 educational facilities with analyzing their energy use and improving their building/system energy efficiencies.

The program provides incentives directly to contractors for the installation of selected high-efficiency lighting, HVAC systems, motors, and refrigeration measures. The incentives are set at a higher level for this market in order to encourage contractors to market and deliver the program, thereby offsetting the need for UNS Electric marketing and overhead expenses. The program also employs an internet-based measure analysis and customer project processing system which makes the process easier for both contractors and customers. The program provides contractors and customers with the opportunity to propose innovative energy-efficiency solutions through custom energy-efficient measures.

b. Program Goals, Objectives, and Savings Targets

The objectives of the program are to:

- Encourage non-residential customers to install high-efficiency lighting equipment and controls, HVAC equipment, and energy-efficient refrigeration systems in their facilities;
- Encourage contractors to promote the program and provide turn-key installation services to nonresidential customers;
- Overcome the unique market barriers of the small business market including:
    - First costs and lack of access to capital for energy efficiency improvements;
    - Lack of awareness and knowledge about the benefits and cost of energy efficiency improvements;
    - Hassle and transactions costs; and
    - Performance uncertainty associated with energy efficiency projects;
- Assure that the participation process is clear, easy to understand and simple; and
- Increase the awareness and knowledge of business owners, building owners and managers, and other decision makers on the benefits of high-efficiency equipment and systems.

c. Levels of Participation

Customer participation was higher than the previous year due to the launch of the Midstream Light program. However, we did experience supply issues related to the pandemic.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
C&I Facilities/Schools	$590,026	-	-	$125,040	-	-	$2,664	**$717,730**

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2.**

f. kW, kWh, and Therm Savings

Measure	No. of Measures	kW savings	kWh savings
HVAC	1	2	10,038
Refrigeration	-	-	-
Motor	-	-	-
Lighting	42,856	877	8,250,227
Custom	2	788	2,129,719
Totals	**42,859**	**1,667**	**10,389,985**

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

Supply Chain issues and rising material costs due to the pandemic.

k. Program Modifications

UNS Electric launched the Midstream lighting program (Fast checkout) in three locations within the territory. This subset program allows participation from trade allies and commercial customers with minimal paperwork and allows rebates at the time of purchase.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

Behavioral Sector

4.10 Behavioral Comprehensive Program

a. Description

UNS Electric currently offers educational programs for both residential and commercial customers, including a K-12 Education program for use in scholastic settings.

The Behavioral Comprehensive Program consists of four subprograms. The focus of the Program is to educate residential customer on how changes in behavior, including purchasing decisions, can improve energy efficiency. The subprograms include low-cost measures such as replacing older technology with energy efficient LEDs, faucet aerators, low-flow showerheads, and LED nightlights. in addition to educational components.

The four subprograms consist of:

- Direct Canvassing
  - The Direct Canvassing initiative is a grass-root, door to door, approach to promote energy efficiency and is designed to reach neighborhoods difficult to reach through traditional messaging. Each customer receives four LEDs along with program materials for appropriate UNS Electric DSM programs.
- K-12 Education
  - The K-12 education program is a three-part energy education program for middle school students that include a pre-visit lesson, an on-site classroom presentation, and a post visit activity; all aligned with the Arizona Department of Education middle school science standards. Students are instructed on how to save energy in their homes and are provided with a take home energy efficiency kit which includes items such as LEDs, LED nightlights, faucet aerators, and low flow showerheads. The kit allows the students to gain practical experience by installing the items with their parents, which correlates with the curriculum presented at school.
- Community Education
  - The Community Education program is designed to engage with community groups and work with public entities to offer energy efficiency workshops. Customers who attend the workshop are educated on the benefits of energy efficiency emphasizing behavioral changes that lead to energy savings. Participants are provided with an energy savings kit with a wide variety of sample of materials such as LEDs, LED nightlights, faucet aerators, and low flow showerheads to direct install in their homes.
- Lighting Outreach Promotions
  - The Lighting Outreach Promotions program provides complimentary LEDs through the participation of community events and collaborations with community organizations. The program complements the presence of UNS Electric at community events and its overall education and outreach efforts and energy efficiency messaging.

b. Program Goals, Objectives, and Savings Targets

The program objectives are to influence energy related behaviors including the following:

- Habitual behaviors
  - Adjust thermostat setting
  - Turn off unnecessary lights
- Small purchasing and maintenance behaviors
  - Purchase and install low flow faucet aerators and low flow shower heads
  - Purchase and install LED bulbs
  - HVAC maintenance
- Larger purchasing decisions
  - Purchase an ENERGY STAR® appliance
  - Purchase higher energy efficient heating and cooling equipment

The 2021 energy savings target and spending goals were aligned with the actual collection amount of the DSM surcharge.

c. Levels of Participation

Overall the program experienced a consistent level of participation compared to the previous reporting period.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Behavioral Comprehensive	$57,068	$3,600	-	$54,425	$7,300	-	$7,344	**$129,737**

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for this program to verify coincident demand and energy savings. The MER report is attached in **Appendix 2**.

f. kW, kWh, and Therm Savings

Measure	No. of Measures	kW savings	kWh savings
Lighting	9,747	36	361,645
Academic Education	2,800	61	823,965
Community Education	250	5	73,568
Direct Canvassing	-	-	-
Totals	**12,797**	**102**	**1,259,179**

Savings are adjusted for line losses of 10.69 percent for both demand and energy (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No program modifications were made during this reporting period.

k. Program Modifications

DIRECT CANVASSING

No program modifications were made during this reporting period.

K-12 EDUCATION

Variations in COVID protocol throughout the year have required flexibility in program delivery. Delivery methods in 2021 included pre-recorded video presentations, live virtual presentations, live in-classroom presentations, and the development and distribution of activity books. Modifications continue to be made to the delivery method based on school protocols and teacher needs to ensure programs are as interactive and effective as possible. Energy efficiency kits were safely distributed to participants in the programs, meeting the annual distribution goals.

COMMUNITY EDUCATION

In-person presentations are held when possible, though we continue to see the majority of presentations requested virtually. Virtual presentations are conducted via live zoom sessions or pre-recorded programming. Energy efficiency kits were safely distributed to participants in the programs, meeting the annual distribution goals.

LIGHTING OUTREACH PROMOTIONS

Due to the COVID-19 pandemic there was a modification to the approach of reaching customers. UNS Electric did not participate in public outreach events. UNS Electric depended on community partnerships with local organizations to distribute LED Bulbs to customers on their behalf. This included a focus on reaching low-income customers. UNS Electric proposes discontinuing direct canvasing due to high cost and lack of impact on peak demand, low-income customers, and schools. UNS Electric proposes Lighting Outreach Promotion to be titled Community Outreach to allow approved program measures to be used.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program.

4.11 Home Energy Reports Program ("HER")

a. Description

The Home Energy Reports Program, approved in Decision No. 75297, is designed to promote behaviors that conserve energy, such as turning off lights or appliances, adjusting thermostat set points, and performing regular equipment maintenance. The program encourages behavioral changes through targeted and comparative education and awareness of customers' energy consumption through regular energy consumption and tips on how a customer's behavior and light or appliance use modifies the customer's energy consumption.

b. Program Goals, Objectives, and Savings Targets

The program objectives are to influence energy related behaviors by i) providing customers regular energy consumption reports and tips on how to conserve energy, ii) engaging customers about their behavior and their installed products to enhance the accuracy of the energy reports, and iii) providing participants with a HER starter kit that contains six LED light bulbs. Additionally, the program will encourage customers to take advantage of other DSM related programs, promote efficient home operations, and lower customer's energy bills.

The 2021 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

The program experienced a decrease in new participants into the program. This is due to the implementation of a new implementer. As well as the decision to not solicit new customers during the transition period to the new implementer.

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below.

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Home Energy Reports	$146	-	-	$101,373	-	-	$572	**$102,091**

e. Evaluation and Monitoring Activities and Results

There was no evaluation activity during this reporting period but some minor preliminary research was performed.

f. kW, kWh, and Therm Savings

No. of Participants	kW savings	kWh savings	Therm savings
6,912	383	1,926,915	-

g. Environmental Benefits realized

There were no environmental benefits realized during this reporting period.

h. Incremental benefits and net benefit

There were no incremental benefits and net benefits realized during this reporting period.

i. Performance-incentive calculations for the previous year

There is no performance incentive for this program for this reporting period.

j. Problems Encountered and Proposed Solutions

This program was not cost effective for 2021. This is due to not soliciting new participants into the current program. It allowed us to save costs for our customers as

we transitioned the program to a new implementer. We anticipate the program to be cost effective in the new program year of 2022. This solution will include a new program implementer that will increase our program participation and garner increased savings.

k. Program Modifications

For the 2021 program year, we opened the control group previously kept in the program in order to increase program participation.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

Support Sector

4.12 Consumer Education and Outreach Program

a. Description

The Consumer Education and Outreach Program is responsible for the marketing of the UNS Electric portfolio as a whole, as well as general consumer education. The focus of activities is as follows:

- Develop brochures and communications materials that showcase all available EE programs;
- Develop and maintain communication material related to general energy savings information;
- Provide labor and materials to staff trade shows and community events;
- Develop and maintain web content and use technology to educate consumers on energy use and Time-of-Use ("TOU") rate choices; and
- Provide cross communication of EE Programs and general energy savings information.

The Company continues to educate its employees about the Company's DSM programs and emphasizes the importance of UNS Electric employees helping to ensure the success of the programs.

b. Program Goals, Objectives, and Savings Targets

The program is designed to educate commercial and residential customers on ways to save energy through conservation measures, energy efficiency measures, or utilizing TOU rates.

c. Levels of Participation

Due to the COVID-19 pandemic there was a modification to the approach of reaching customers. UNS Electric participated in a very limited number of public outreach events. UNS Electric depended on community partnerships with local organizations to distribute LED Bulbs and Energy Efficiency tips on behalf of UNS. These organizations include:

Club for Youth, Kingman
Hope City Church Food Pantry, Kingman
Kingman Aid to Abused People
KRMC Senior Health Fair, Kingman
Lake Havasu Cith Home Show
Mohave County Fairgrounds Home Show, Kingman
Seventh Day Adventist Church Food Bank, Kingman
St Vincent De Paul, Kingman
United Way, Lake Havasu City
WACOG, Kingman
Nogales Farmers Market, Nogales

d. Costs Incurred

Costs incurred for this program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Consumer Education & Outreach Program	-	-	$23,640	$25	-	-	-	**$23,665**

e. Evaluation and Monitoring Activities and Results

There were no claimed savings during this reporting period to evaluate and there is no third-party evaluation for this program.

f. kW, kWh, and Therm Savings

There are no claimed energy savings to report for this program.

g. Environmental Benefits realized

There are no realized environmental benefits for this program.

h. Incremental benefits and net benefit

There are no incremental benefits and net benefits for this program.

i. Performance-incentive calculations for the previous year

There are no performance-incentive calculations for this program.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

There were no program modifications during this reporting period.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

4.13 Energy Codes and Standards Enhancement Program

a. Description

The Energy Codes and Standards Enhancement Program is an existing program most recently approved in Decision No. 75297. The Program maximizes energy savings through promoting adherence to local building energy codes, the adoption of current nationally or internationally recognized building codes, and through enhanced energy efficient appliance standards. The program uses a variety of methods to i) improve levels of compliance with existing building energy codes and appliance standards; and ii) support adoption of newer energy codes and appliance standards as warranted by market conditions. Specific program activities target needs of local building officials. The program includes, but is not limited to, the following:

- Educating local code officials, building professionals, and contractors on current standards and development;

- Providing documentation of the specific local benefits of code enforcement and the promotion of newer energy code adoptions over time;
- Ensuring utility incentive programs align with local energy codes and appliance standards; and
- Collaborating with relevant stakeholders to build a more robust community while advancing the adoption and implementation of strong, effective building energy codes and appliance standards across the local jurisdictions within UNS Electric's service territory.

b. Program Goals, Objectives, and Savings Targets

The program is designed to increase energy savings in the residential and commercial sectors by improving levels of building code compliance, supporting periodic energy code updates/adoptions as warranted by market conditions, and advocating for higher efficiency electric appliances.

The 2021 energy savings target and spending goals were reduced to align with the actual collection amount of the DSM surcharge.

c. Levels of Participation

In 2021, UNS Electric staff had limited in-person meetings with building officials from Kingman, Lake Havasu City, Mohave County, and Santa Cruz County to discuss educational opportunities and to encourage them to consider adopting building energy codes where such building codes have not been adopted or to update any remaining older building codes within their jurisdiction. UNS Electric staff also met with a variety of building partners and realtors, educating and discussing the benefits of energy conservation codes and the process to adopt newer codes in UNS Electric's service territories. Participation in associations and conferences related to building code such as Northern Arizona Builders Association, Colorado River Building Industry Association, Residential Energy Services Network and the Energy and Environmental Building Alliance.

As mentioned above in the Residential New Construction program, UNS Electric collaborated with Institute for Market Transformation ("IMT"), who will be conducting a three-year study that targets increasing adopting on energy codes throughout Arizona. IMT will provide training to state and local jurisdiction. The education and outreach directed to elected officials, code officials, consumers, realtors, appraiser, builders, and trades on building science and advancing our energy codes in the building market. UNS Electric also held virtual trainings related to building science in partnership with Learning Edge, LLC.

d. Costs Incurred

Costs incurred for this Program during the reporting period are listed below:

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Energy Codes and Standards	-	$1,750	$200	-	-	-	-	**$1,950**

e. Evaluation and Monitoring Activities and Results

UNS Electric staff attend, support, and participate in meetings and organizations that encourage the understanding, adoption, and enforcement of building codes, receive feedback from participants on staff interaction with the meeting attendees, and then review and evaluate the feedback.

f. kW, kWh, and Therm Savings

An anlysis performed by UNS Electric identified energy savings through improved appliance standards. The following table shows the incremental energy savings credit allowed by Decision No. 72747 for 2021.[3]

Program	kW savings	kWh savings	Therm savings
Energy Codes and Standards	210	1,552,300	-

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

Arizona is one of nine states in the country that allow "home rule" adoption of residential building codes. Counties and municipalities may adopt some or all of the residential building codes available (some minimum code standards are enforced for nonresidential structures such as municipal buildings, schools, and health care facilities). Historically, the jurisdictions within UNS Electric's service territory have not adopted energy conservation building codes. UNS Electric has been actively educating code officials and contractors on the advantages of energy conservation codes, and will continue its efforts to overcome some of the barriers and misconceptions of Code adoption.

k. Program Modifications

No program modifications were made during this reporting period.

l. Programs or Measures Terminated

UNS Electric does not plan to terminate this program or associated measures in 2022. No measures were terminated during this reporting period.

[3]Decision No. 72747, p. 56, lines 17-19 states "…allow the Company to also count toward meeting the Energy Efficiency Standard in A.A.C. R14-2-2404, for 2012 – 2021, up to one third of the energy savings resulting from energy efficiency appliance standards…"

Appendix 1 – Commission Approved DSM Programs for 2021

Commission Approved DSM Programs 2021

DSM Program	Commission Approved 2021 Program Budget	Actual 2021 Program Expenditures	Actual 2021 Program Societal Benefits	2021 Program Societal Costs or Staff Analysis Benefit/Cost Ratio (Decision No. 75297)	Actual 2021 Benefit/Cost Ratio
Residential Programs					
Appliance Recycling	$89,765	N/A[b]	N/A[b]	N/A[b]	N/A[b]
Efficient Products	$888,532	$498,127	$5,210,340	$1,505,406	3.46
Existing Home Program	$2,119,484	$553,168	$3,891,710	$1,028,908	3.78
Low-Income Weatherization	$351,817	$213,170	$1,809,974	$384,789	4.7
Multi-Family Housing	$266,930	-	-	-	-
Residential New Construction	$282,618	$61,146	$434,301	$113,706	3.82
Shade Tree Program	$35,343	$1,436	$7,013	$3,155	2.22
Non-Residential					
Bid For Efficiency	$292,005	N/A[b]	N/A[b]	N/A[b]	N/A[b]
C&I Demand Response[a]	$374,850	$636	N/A[a]	$636	N/A[a]
C&I Facilities/Schools	$911,204	$717,730	$5,366,729	$2,071,241	2.59
Retro-Commissioning	$205,815	N/A[b]	N/A[b]	N/A[b]	N/A[b]
Behavioral Programs					
Behavioral Comprehensive	$261,538	$129,737	$978,421	$147,083	6.65
Home Energy Reports	$250,000	$102,091	$51,248	$101,945	0.5
Support Programs					
Consumer Education & Outreach[a]	$261,538	$23,665	N/A[a]	$23,665	N/A[a]
Energy Codes & Standards Enhancement[a]	$250,000	$1,950	N/A[a]	$1,950	N/A[a]
Program Totals					
Program Totals	$5,882,386	$2,302,854	$17,749,735	$5,382,484	3.3
Program Development, Analysis & Reporting	-	$158,580	N/A[a]	$158,580	N/A[a]

[a]These programs do not provide direct energy savings, but promote participation in other energy efficiency programs, and do not require a stand-alone benefit/cost analysis.

[b]This program or measure did not have participation in this during this reporting period.

Appendix 2: DSM Program

The Guidehouse report is confidential and being provided directly to Commission Staff.