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July 01, 2021

VIA ELECTRONIC FILING

Adam J. Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *Duke Energy Florida, LLC's Petition for Approval of Proposed Demand-Side Management Plan*; Docket No. _____

Dear Mr. Teitzman:

Enclosed for filing is Duke Energy Florida, LLC's (DEF) Petition for Approval of Changes to its Demand-Side Management (DSM) Program Plan and DSM Program Participation Standards along with the following attachments:

1. **Attachment A:** Redline/strikethrough Version of Revised 2020-2024 DSM Program Plan;
2. **Attachment B:** Clean Version of Revised 2020-2024 DSM Program Plan;
3. **Attachment C:** Redline/strikethrough Version of 2020-2024 DSM Program Participation Standards; and
4. **Attachment D:** Clean Version of 2020-2024 DSM Program Participation Standards.

Thank you for your assistance in this matter. Please feel free to call me at (727) 820-4692 should you have any questions concerning this filing.

Sincerely,

/s/ Dianne M. Triplett

Dianne M. Triplett

DMT/cmw
Enclosures

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Duke Energy Florida, LLC's
Petition for Approval of Proposed
Demand-Side Management Plan

Docket No. _____

Filed: July 01, 2021

**DUKE ENERGY FLORIDA, LLC'S PETITION FOR
APPROVAL OF MODIFICATIONS TO DEMAND-SIDE MANAGEMENT PROGRAM
PLAN AND PARTICIPATION STANDARDS**

Duke Energy Florida, LLC ("DEF"), pursuant to Sections 366.82 and 366.06(1), Florida Statutes (2015) ("F.S."), Rule 25-17.0021, Florida Administrative Code ("F.A.C."), Florida Public Service Commission ("Commission") Order No. PSC-2020-0274-PAA-EG, and the Memorandum of Understanding ("MOU") filed in Docket No. 20210016-EI and signed by and between DEF, Southern Alliance for Clean Energy ("SACE"), Vote Solar and the CLEO Institute, petitions the Commission to approve modifications to certain programs included in DEF's Demand-Side Management ("DSM") Program Plan (Attachments A and B) and Participation Standards (Attachments C and D), which are attached hereto, and are being filed with this Petition.

In support of this Petition, DEF states:

1. DEF is a public utility subject to the jurisdiction of the Commission pursuant to Chapter 366 of the Florida Statutes. DEF's general offices are located at:

Duke Energy Florida, LLC
299 First Avenue North
St. Petersburg, Florida 33701

2. Notices, orders, pleadings, and correspondence to be served upon DEF in this proceeding should be directed to:

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3. DEF is an investor-owned electric utility regulated by the Commission pursuant to Chapter 366, Florida Statutes. DEF is subject to Florida Energy Efficiency and Conservation Act (“FEECA”), Sections 366.80-366.85 and 403.519, F.S. Pursuant to FEECA and Commission rules implementing FEECA, DEF is required to file a DSM Plan for Commission approval and is entitled to seek recovery of associated expenditures. DEF currently has a Commission-approved DSM plan, but it is requesting changes to its plan. DEF has a substantial interest in whether the Commission approves the proposed changes to its DSM Plan and authorizes cost recovery for plan implementation expenditures.

DEF’s Existing DSM Plan and Energy-Efficient Programs

4. On August 3, 2020, the Commission issued Order No. PSC-2020-0274-PAA-EG in Docket No. 20200054-EG, approving DEF’s DSM Plan, and Commission administrative authority Staff approved the program standards. DEF filed a letter requesting revisions to its Program Participation Standards on September 17, 2020, which was administratively approved on October 29, 2020.

On May 7, 2021, DEF filed a letter, in Docket No. 20200054-EG, requesting approval of modifications to its Program Standards for the DSM Residential Incentive which was approved by Commission administrative authority Staff on May 17, 2021.

DEF's Proposed Demand-Side Management ("DSM") Energy-Efficient Programs

5. DEF proposes modifications to the DSM Energy-Efficiency Programs, as contemplated by the terms the MOU. These modifications will provide both short-term and longer-term relief to DEF's customers in need.

6. Specifically, the modifications reflect changes to three specific programs. First, DEF requests that the projected participation in its Neighborhood Energy Saver residential low-income program increase by an incremental 250 customers per year, beginning in 2022. Second, with respect to the Home Energy Check program, DEF requests (as reflected on page 4 of Attachment C and D) approval of additional "Assistance Kits" available to low-income customers. Also, DEF requests certain changes to its residential demand response program to provide assistance to low-income customers who may also be in arrears. The changes will impose minimal incremental costs to DEF's overall programs. Even with the incremental costs, the programs remain cost-effective.

7. Redline/strikethrough and clean versions of the modified DSM Program Plan are provided in Attachments A and B, respectively, and Redline/strikethrough and clean versions of the modified Participation Standards are provided in Attachments C and D.

Disputed Issues, Timing, and Conclusion

8. DEF is not aware of any disputed issues of material fact. The statutes and rule which entitle DEF to relief are Sections 366.82(11), 366.06(1), F.S., and Rule 25-17.0021, F.A.C.

9. So that DEF can begin offering these changes to its customers as soon as possible in 2021, DEF requests that the Commission consider its Petition as soon as its schedule allows.

WHEREFORE, DEF respectfully requests the Commission to approve the modifications to the DSM Program Plan and Participation Standards as reflected in this Petition and Attachments A, B, C and D.

Respectfully submitted,

/s/ Dianne M. Triplett
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Attachment A

Redline/strikethrough Version of
Revised 2020-2024 DSM Program Plan



REVISED

2020 – 2024

DEMAND SIDE MANAGEMENT

PROGRAM PLAN

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I. PROGRAM OVERVIEW

In accordance with Rule 25-17.0021(4), Florida Administrative Code, Duke Energy Florida (DEF) is submitting this Demand Side Management (DSM) Plan to the Florida Public Service Commission (FPSC or Commission) for approval. DEF's proposed plan is designed to meet the demand side management goals for 2020-2024 established by the Commission in Order No. PSC-2019-0509-FOF-EG. Through this collection of programs and measures, DEF will continue to offer meaningful energy saving opportunities to customers. The cost-effective programs presented in this plan are responsive to the Commission's directive to promote education and awareness of energy saving measures to all customer groups.

This Plan provides DEF customers with a comprehensive portfolio of cost-effective DSM programs. It includes programs targeted to both the residential and commercial customer segments. This portfolio of programs is the result of thorough analysis of available energy efficiency measures that customers can implement to reduce demand and energy consumption and analysis of the most effective ways to deliver those measures to customers. DEF will continue to promote awareness of energy efficiency opportunities through its Home Energy Check and Business Energy Check programs. DEF's residential and commercial demand response programs will continue to contribute significant savings toward achievement of the annual peak demand goals over this time-period.

Over the five-year period, DEF expects to educate and empower approximately 125,000 residential customers to become more efficient through its Home Energy Check program. This program will inform customers about low-cost and short-payback measures as well as behavioral modifications that can provide energy savings. DEF also plans to provide energy saving information to approximately 2,000 commercial customers over the next five-year period through its Business Energy Check program.

DEF will continue to provide information about energy efficiency techniques and energy efficiency measures to low income customers through the Neighborhood Energy Saver (NES) and the Low Income Weatherization Assistance Program (LIWAP). Along with direct installation of a number of energy conservation measures in customer homes, these programs will also provide one-on-one education about behavioral changes that can assist customers control their energy usage. The Plan includes increased savings opportunities for low income customers through an increase in the number of targeted homes in the NES program, from 4500 to 5000 annually, and the addition of incentives for high efficiency heat pumps coupled with load management for low income new construction projects through the LIWAP.

The measures included in each of these programs reflect the impacts of changes to codes and standards and the projected energy and demand savings for the measures are based on the results of the technical potential study that supported DEF's proposed goals in Docket 20190018-EI.

II. PROGRAM SUMMARY

DEF has developed a comprehensive portfolio of DSM programs designed to achieve the goals established in Order No. PSC-2019-0509-FOF-EG. DEF's proposed plan includes a combination of demand response and energy efficiency programs designed to meet both the residential and commercial goals.

A. Residential Programs

The following table shows the annual and cumulative MW and GWH savings DEF expects to achieve through the proposed portfolio of Residential Programs included in this Plan compared to the Commission approved residential goals.

TABLE 1

Residential Market Sector Demand and Energy Data (at the Generator)									
Year	Projected Summer Demand Savings (MW)		Commission Approved Summer MW Goal (Cumulative)	Projected Winter Demand Savings (MW)		Commission Approved Winter MW Goal (Cumulative)	Projected Annual Energy Savings (GWH)		Commission Approved Annual GMH Goal (Cumulative)
	Incremental	Cumulative		Incremental	Cumulative		Incremental	Cumulative	
2020	22.4	22.4	15.5	34.1	34.1	32.2	56.6	56.6	9.3
2021	21.1	43.5	29.2	32.3	66.4	60.0	55.9	112.5	15.5
2022	21.5	65.0	41.4	32.9	99.4	84.5	59.1	171.5	19.3
2023	21.3	86.3	52.7	32.5	131.9	106.8	58.5	230.0	21.5
2024	21.0	107.3	63.4	32.2	164.1	127.7	57.9	287.9	22.7

Residential Market Sector Demand and Energy Data (at the Generator)									
Year	Projected Summer Demand Savings (MW)		Commission Approved Summer MW Goal (Cumulative)	Projected Winter Demand Savings (MW)		Commission Approved Winter MW Goal (Cumulative)	Projected Annual Energy Savings (GWH)		Commission Approved Annual GMH Goal (Cumulative)
	Incremental	Cumulative		Incremental	Cumulative		Incremental	Cumulative	
2020	22.4	22.4	15.5	34.1	34.1	32.2	56.6	56.6	9.3
2021	20.9	43.3	29.2	31.8	66.0	60.0	53.0	109.6	15.5
2022	20.6	63.9	41.4	31.4	97.4	84.5	52.4	162.0	19.3
2023	20.4	84.2	52.7	31.1	128.5	106.8	51.8	213.8	21.5
2024	20.1	104.3	63.4	30.7	159.2	127.7	51.2	265.0	22.7

The following provides an overview of each Residential Program:

Home Energy Check – This is DEF’s home energy audit program as required by Rule 25-17.003(3) (b). DEF will continue to offer a variety of options to customers for home energy audits including walk-through audits, phone assisted audits, and web enabled on-line audits. DEF may provide kits to customers after the completion of the audit. These kits will provide energy saving measures that may be easily installed by the customer.

Residential Incentive Program – This program will provide incentives on a variety of cost-effective measures designed to provide energy savings. This program will primarily be comprised of measures that target heating and cooling load such as high efficiency heat pumps, duct repair, insulation, energy efficient windows, and home energy management systems.

Neighborhood Energy Saver – This program is designed to provide energy saving education and assistance to low income customers. DEF will utilize U.S. census block data to identify target neighborhoods with average incomes below 200% of the federal poverty guidelines. DEF plans to increase the number of targeted homes from 4,500 to 5,000 annually. In addition to direct installation of energy saving measures, a primary focus of this program will be to provide information and education about energy efficiency including information about savings that can be achieved through behavioral changes and low cost/no cost measures. DEF also plans to continue to provide high impact measures such as ceiling insulation and duct repair through this program. This program is cost-effective under the Rate Impact Measure (RIM) test and is expected to contribute significant savings toward achieving the established goals.

Low Income Weatherization Assistance Program – DEF plans to continue to partner with local weatherization agencies and other types of organizations that provide assistance to low income communities through this program. This program will provide information and education about energy efficiency, as well as funding for installation of weatherization measures and high efficiency appliances. Additions to this program include a new construction high-efficiency heat pump measure coupled with participation in DEF's residential demand response program. This program is also projected to be cost effective under the Rate Impact Measure (RIM) test.

Residential Load Management – DEF will continue to support this residential demand response program. Currently, approximately 440,000 of DEFs residential customers already participate in this program, providing 711 MWs of winter and 396 MWs of summer load control. DEF's Plan assumes the addition of 2500 new participants annually from 2020 through 2024, which is expected to provide an additional 25 winter MWs and an additional 17 summer MWs of load control.

B. Commercial Programs

Table 2 shows the annual and cumulative MW and GWH savings DEF plans to achieve through the proposed portfolio of Commercial Programs included in this Plan compared to the Commission approved commercial goals:

TABLE 2

Year	Projected Summer Demand Savings (MW)		Commission Approved Summer MW Goal (Cumulative)	Projected Winter Demand Savings (MW)		Commission Approved Winter MW Goal (Cumulative)	Projected Annual Energy Savings (GWH)		Commission Approved Annual GMH Goal (Cumulative)
	Incremental	Cumulative		Incremental	Cumulative		Incremental	Cumulative	
2020	68.4	68.4	8.2	68.8	68.8	5.2	9.2	9.2	5.9
2021	9.6	78.0	15.1	9.9	78.7	10.0	8.8	18.0	9.8
2022	8.2	86.2	21.1	7.8	86.5	14.7	8.5	26.5	12.2
2023	8.4	94.5	26.7	7.6	94.0	19.7	8.1	34.6	13.6
2024	10.2	104.7	31.7	9.1	103.1	24.3	7.8	42.4	14.4

The following provides a list of the Commercial programs along with a brief overview of each program:

Business Energy Check – This program is available to all commercial customers and will provide education and information about energy savings opportunities specific to their business and operation. This program will also inform customers about rebates and incentives available through DEF’s commercial energy efficiency and load management programs. DEF currently provides walk-through audits and phone assisted audits for commercial businesses through this program and is planning to add online audits in the future.

Better Business – This program provides incentives to commercial customers on a variety of high efficiency cost-effective measures that provide energy savings in excess of the requirements of codes and standards. The measures included in this program primarily target commercial cooling load through high efficiency chillers and direct expansion air conditioning systems.

Smart Saver Custom Incentive – This program provides customized incentives for specific innovative projects that provide energy savings not otherwise addressed through DEF’s other commercial programs. This program is intended to encourage commercial customers to make capital investments for the installation of energy efficiency measures

that reduce energy and peak demand.

C. Demand Response Programs

Interruptible Service – This program will continue to be available to non-residential customers who are willing to have their power interrupted at times of capacity shortage during peak or emergency conditions. This program provides peak demand savings through direct load control of the customer's service. Customers will be eligible for bill credits through this program based on the specific eligibility requirements and terms of the applicable interruptible tariff. DEF currently has 350 MW's of load control through this program and projects to add approximately 72 MW's over the next five-year period.

Curtable Service - This is an indirect load control program that will continue to be available to commercial customers who agree to reduce demand at times of capacity shortage during peak of emergency conditions. Program participants will receive monthly demand credits per the terms of the specific curtable tariff under which they take service.

Standby Generation - This program is a load control program that provides demand savings through control of customers' back-up generators. The program is a voluntary program available to all commercial and industrial customers who have on-site generation capability and are willing to allow remote activation of their on-site generation during capacity emergencies. The customers receive monthly bill credits per the terms of the specific stand-by tariff under which they take service.

D. Technology Development – This program is used to fund the research and testing of new energy efficiency and demand response equipment and technologies. The results of these studies are used to inform and support the development of new energy efficiency and demand response programs.

E. Qualifying Facilities – This program is used to manage the purchase of as-available energy and firm energy and capacity from qualifying facilities pursuant to standard offer

and negotiated contracts. Under this program DEF develops standard offer contracts, negotiates, enters into, amends and restructures firm energy and capacity contracts entered into with qualifying cogeneration and small power production facilities, and administers all such contracts.

III. SUMMARY OF PORTFOLIO COSTS AND PROJECTED CUSTOMER BILL IMPACTS

The total costs of the portfolio over the five-year period are projected to be approximately \$527 million. All programs are designed to be cost effective based on the Rate Impact Measure (RIM) test. Approximately 70% of the total costs over the five-year period represent incentives to customers. The cost of the low income programs makes up approximately 6% of the total overall costs, while providing approximately 32% of the total energy savings. Table 3 depicts the total projected cost of the commercial and residential portfolio and the projected residential rate impact/1200 kWh's annually for the five-year period. The decreases in annual costs and customer rates beginning in 2022 are driven by assumed decreases in billing credits for the commercial load management programs upon expiration of the term of the 2017 Settlement Agreement.

TABLE 3

	Total	2020	2021	2022	2023	2024
Total Costs - \$ Millions	\$ 526.8	117.3	117.1	96.8	97.4	98.2
Residential Rate - \$/1200 kwh's		\$ 3.93	\$ 3.89	\$ 3.20	\$ 3.19	\$ 3.21

	Total	2020	2021	2022	2023	2024
Total Costs - \$ Millions	\$ 529.6	117.3	117.4	97.6	98.2	99.0
Residential Rate - \$/1200 kwh's		\$ 3.93	\$ 3.90	\$ 3.23	\$ 3.22	\$ 3.23

IV. COST-EFFECTIVENESS TESTS

Programs have been analyzed for cost-effectiveness using the Commission-approved tests described in Rule 25-17.008, Florida Administrative Code. A summary of the cost-effectiveness results for each of the programs included in this Plan are provided below in

Section VIII. These detailed results consist of one page each for the Rate Impact Measure (RIM), Total Resource Cost (TRC), and Participant Tests.

V. COST-RECOVERY

DEF submits the programs herein described for approval and for inclusion as cost recoverable Conservation and Energy Efficiency programs under current Commission-approved procedures pursuant to Rule 25-17.015, Florida Administrative Code.

Additionally, DEF seeks cost recovery for previously closed programs and closed tariffs that are part of existing programs that have ongoing costs associated with grandfathered participants. These include the Commercial Energy Management Program and the Interruptible Service (IS-1) and (IST-1), and Curtailable Service (CS-1) and (CST-1) tariffs.

VI. RESIDENTIAL CONSERVATION PROGRAMS

A. HOME ENERGY CHECK PROGRAM

Program Start Date: 1995

Program Description

The Home Energy Check is a residential energy audit program that provides residential customers with an analysis of their energy consumption as well as educational information on how to reduce energy usage and save money. The audit provides the opportunity to promote and directly install cost-effective measures in customers' homes while also educating and encouraging customers to implement energy-saving practices. The Home Energy Check serves as the foundation for other residential demand side management programs. The Home Energy Check program offers the following types of energy audits:

- Type 1: Free Walk-Through (computer assisted).
- Type 2: Customer Online (Internet Option).
- Type 3: Customer Phone Assisted.
- Type 4: Home Energy Rating (or BERS/HERS) Audit.

Customers will be provided with energy efficiency tips and examples of easily installed energy efficiency measures. The program promotes continued customer involvement by demonstrating sustainable and measurable reductions in energy usage through the implementation of low cost energy efficiency measures and energy saving recommendations. Customers participating in the Home Energy Check Program may receive a residential energy efficiency kit. The kit will contain energy saving measures that can easily be installed and utilized by the customer. The contents of this kit will be evaluated periodically and may change over time.

Policies and Procedures

All eligible residential customers of DEF can receive any of the above energy audits conducted on residentially metered buildings, located in DEF's service territory. There is no charge for Type 1 through Type 3 home energy checks. The Type 4 - Home Energy Rating audit, as outlined in DEF's "Florida BERS/HERS Audit" tariff, is available to all eligible DEF customers upon request.

Program Participation

Annual participation estimates for the Home Energy Check program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	1,647,440	25,000	1.52%	1.52%
2021	1,673,995	1,648,995	25,000	3.03%	1.52%
2022	1,700,215	1,675,215	25,000	4.48%	1.49%
2023	1,726,425	1,701,425	25,000	5.88%	1.47%
2024	1,752,362	1,727,362	25,000	7.24%	1.45%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. The entire residential class is eligible for participation.
3. Number of participants represents the customers that DEF expects to participate through this program annually.
4. Cumulative penetration is the ratio of cumulative measure participating customers to the eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure included in the energy efficiency kit based on each measure's per customer savings and annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables:

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	784	0.30	0.18	19,587,523	7,515	4,571
2021	784	0.30	0.18	19,587,523	7,515	4,571
2022	784	0.30	0.18	19,587,523	7,515	4,571
2023	784	0.30	0.18	19,587,523	7,515	4,571
2024	784	0.30	0.18	19,587,523	7,515	4,571
TOTAL				97,937,613	37,576	22,856

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	784	0.30	0.18	19,587,523	7,515	4,571
2021	891	0.32	0.19	22,286,147	7,951	4,824
2022	999	0.34	0.20	24,984,771	8,388	5,078
2023	999	0.34	0.20	24,984,771	8,388	5,078
2024	999	0.34	0.20	24,984,771	8,388	5,078
TOTAL				116,827,984	40,629	24,629

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	829	0.32	0.19	20,733,805	7,955	4,839
2021	829	0.32	0.19	20,733,805	7,955	4,839
2022	829	0.32	0.19	20,733,805	7,955	4,839
2023	829	0.32	0.19	20,733,805	7,955	4,839
2024	829	0.32	0.19	20,733,805	7,955	4,839
TOTAL				103,669,027	39,775	24,194

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	829	0.32	0.19	20,733,805	7,955	4,839
2021	944	0.34	0.20	23,590,356	8,417	5,107
2022	1058	0.36	0.21	26,446,907	8,878	5,375
2023	1058	0.36	0.21	26,446,907	8,878	5,375
2024	1058	0.36	0.21	26,446,907	8,878	5,375
TOTAL				123,664,883	43,007	26,070

Impact Evaluation Plan

The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

B. RESIDENTIAL INCENTIVE PROGRAM

Program Start Date: 1995

Program modified in 2000, 2006, 2007, 2012, and 2015

Program Description

The Residential Incentive Program is designed to provide incentives to residential customers for energy efficiency improvements for existing homes. The Residential Incentive Program builds on customer awareness through the Home Energy Check program, trade-ally support, and communication and marketing efforts designed to educate customers on cost-effective measures for their residences.

The program seeks to meet the following overall goals:

- Provide a cost-effective portfolio of measures.
- Provide customer energy savings and demand reduction through the installation of energy efficient equipment and building envelope upgrades.
- Educate the residential market regarding best practices, innovative technologies and opportunities for rebates for energy efficiency measures that provide savings above the requirements of codes and standards.

Policies and Procedures

Program participation is influenced through the home energy audits and other educational efforts. The program provides incentives for high efficiency heating and cooling equipment, duct repair, attic insulation upgrades, high performance windows, and home energy management systems for residentially metered customers in DEF's service territory.

DEF inspects the installation of measures and equipment as required by Rule 25-17.003(10) (b), Florida Administrative Code, prior to issuing any incentive payments.

The Residential Incentive Program will include the following measures:

High Efficiency HVAC Systems

The High Efficiency HVAC System measures will provide an incentive to customers who install a high efficiency HVAC system when replacing their existing system. The incentive will be awarded on a per unit basis according to the efficiency rating.

Duct Repair

The Duct Repair measure promotes energy efficiency through incentives to customers for a portion of the costs of duct repairs and duct sealing.

Attic Insulation Upgrade

The Attic Insulation Upgrade measure provides an incentive to encourage customers to upgrade their attic insulation over conditioned space.

Replacement Windows

The Window Replacement measure provides an incentive for installing high performance windows.

Home Energy Management System

DEF will offer an incentive for the installation and configuration of home energy management technologies.

Program Participation

Annual participation estimates for the Residential Incentive Program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	1,647,440	17,350	1.05%	1.05%
2021	1,673,995	1,673,995	15,933	1.99%	0.95%
2022	1,700,215	1,700,215	15,136	2.85%	0.89%
2023	1,726,425	1,726,425	14,379	3.64%	0.83%
2024	1,752,362	1,752,362	13,660	4.36%	0.78%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. The entire residential class is eligible for participation in this program.
3. Number of program participants represents the number of individual measure participants.
4. Cumulative penetration is the ratio of cumulative measure participants to the eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the savings for each individual measure. The KW and KWH savings for each individual measure were based on the results of the market potential study that supported the 2019 goals filing. The KW and KWH savings were multiplied by the estimated participation for each measure to calculate the annual savings by measure. The annual program savings are based on the sum of the annual savings for each individual measure.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	762	0.48	0.31	13,222,563	8,341	5,450
2021	677	0.42	0.28	10,781,635	6,771	4,397
2022	677	0.42	0.28	10,242,553	6,432	4,177
2023	677	0.42	0.28	9,730,425	6,111	3,968
2024	677	0.42	0.28	9,243,904	5,805	3,770
TOTAL				53,221,080	33,461	21,761

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	807	0.51	0.33	13,996,361	8,829	5,769
2021	716	0.45	0.29	11,412,588	7,167	4,654
2022	716	0.45	0.29	10,841,958	6,809	4,421
2023	716	0.45	0.29	10,299,860	6,468	4,200
2024	716	0.45	0.29	9,784,867	6,145	3,990
TOTAL				56,335,635	35,419	23,034

Impact Evaluation Plan

The Residential Incentive Program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$103,003	\$102,837	\$166	1.00
Participant	\$94,337	\$35,954	\$58,383	2.62
Total Resource Cost	\$103,003	\$44,454	\$58,549	2.32

C. NEIGHBORHOOD ENERGY SAVER PROGRAM

Program Start Date: 2007 and 2015

Program Description

DEF's Neighborhood Energy Saver (NES) program is a custom energy conservation program designed to assist selected neighborhoods where approximately 50% of the households have incomes equal to or less than 200% of the poverty level as established by the U.S. Government. Duke Energy or a third-party contractor will directly install energy conservation measures identified through an energy assessment of the customer's home to increase their energy efficiency. Additionally, customers will receive a comprehensive package of energy education materials which will educate them on ways to better manage their energy usage. The energy conservation measures installed and energy efficiency education materials will be provided at no cost to the participants.

The Neighborhood Energy Saver program seeks to achieve the following goals:

- Conduct a home energy assessment to identify energy efficiency opportunities within the customer's home.
- Implement a comprehensive package of electric conservation measures to increase the efficiency in the resident's home.
- Provide one-on-one customer education on energy efficiency techniques and energy conservation measures.
- Encourage customers to make behavioral changes that will allow them to become more efficient and take control of their energy usage.

Policies and Procedures:

DEF's Neighborhood Energy Saver program targets neighborhoods where approximately 50% of the households have incomes equal to or less than 200% of the poverty level established by the U.S. Government.

Incentive levels and specific eligibility requirements for each measure promoted in this program

will be presented in the Program Participation Standards.

DEF is proposing to include the following measures in this program:

- Energy Efficient Lighting
- Air Sealing-Infiltration Control
- Water Heater Insulation Wrap and Hot Water Pipe Insulation
- Water Conservation Shower Heads and Faucet Aerators
- HVAC filters
- Indoor Wall Thermometer
- Ceiling Insulation Upgrade
- HVAC Maintenance/ Tune up
- Duct Repair
- Smart Power Strips
- High Efficiency Heat Pumps
- High Efficiency Room Air Conditioners
- High Efficiency Central Air Conditioning

Program Participation

Annual participation estimates for the Neighborhood Energy Saver program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	443,161	5,000	1.13%	1.13%
2021	1,673,995	450,305	5,000	2.22%	1.11%
2022	1,700,215	457,358	5,250	3.33%	1.15%
2023	1,726,425	464,408	5,250	4.41%	1.13%
2024	1,752,362	471,385	5,250	5.46%	1.11%

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	443,161	5,000	1.13%	1.13%
2021	1,673,995	450,305	5,000	2.22%	1.11%
2022	1,700,215	457,358	5,000	3.28%	1.09%
2023	1,726,425	464,408	5,000	4.31%	1.08%
2024	1,752,362	471,385	5,000	5.30%	1.06%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. Eligible customers represent the estimated homes in DEF's service territory that are at or below program qualifying income levels based on the 2010 US Census block data with a 2% growth rate per year.
3. Number of participants represents the customers that DEF expects to reach through direct offerings in each year.
4. Cumulative penetration is the ratio of cumulative participants to the remaining eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on the estimated KW and KWH savings and annual projected participation for each measure. The KW and KWH impacts for each measure are based on the results of the most recent market potential study that supported the 2019 goals filing. The total projected program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	3,540	1.91	1.31	17,700,669	9,542	6,536
2021	3,540	1.91	1.31	17,700,669	9,542	6,536
2022	3,540	1.91	1.31	18,585,703	10,019	6,863
2023	3,540	1.91	1.31	18,585,703	10,019	6,863
2024	3,540	1.91	1.31	18,585,703	10,019	6,863
TOTAL				91,158,446	49,143	33,662

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	3,540	1.91	1.31	17,700,669	9,542	6,536
2021	3,540	1.91	1.31	17,700,669	9,542	6,536
2022	3,540	1.91	1.31	17,700,669	9,542	6,536
2023	3,540	1.91	1.31	17,700,669	9,542	6,536
2024	3,540	1.91	1.31	17,700,669	9,542	6,536
TOTAL				88,503,346	47,711	32,682

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	3,747	2.02	1.38	18,736,531	10,101	6,919
2021	3,747	2.02	1.38	18,736,531	10,101	6,919
2022	3,747	2.02	1.38	19,673,358	10,606	7,265
2023	3,747	2.02	1.38	19,673,358	10,606	7,265
2024	3,747	2.02	1.38	19,673,358	10,606	7,265
TOTAL				96,493,137	52,019	35,632

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	3,747	2.02	1.38	18,736,531	10,101	6,919
2021	3,747	2.02	1.38	18,736,531	10,101	6,919
2022	3,747	2.02	1.38	18,736,531	10,101	6,919
2023	3,747	2.02	1.38	18,736,531	10,101	6,919
2024	3,747	2.02	1.38	18,736,531	10,101	6,919
TOTAL				93,682,657	50,504	34,595

Impact Evaluation Plan

The Neighborhood Energy Saver Program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

Cost Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$142,218	\$141,785	\$432	1.00
Participant	\$139,000	\$33,487	\$105,513	4.15
Total Resource Cost	\$142,218	\$36,272	\$105,945	3.92

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$138,063	\$137,801	\$262	1.00
Participant	\$135,091	\$32,578	\$102,514	4.15
Total Resource Cost	\$138,063	\$35,287	\$102,776	3.91

D. LOW INCOME WEATHERIZATION ASSISTANCE PROGRAM

Program Start Date: 2000

Program modified in 2006, 2015, 2017 and 2018

Program Description

The Low Income Weatherization Assistance program is designed to leverage working relationships with weatherization providers and local agencies to provide demand-side management and energy efficiency measures to low income customers. The Low Income Weatherization Assistance program combines weatherization provider partnerships with energy education and energy efficiency improvements to benefit low-income families.

The program seeks to meet the following goals:

- Partner with the Department of Economic Opportunity and local home improvement providers to deliver energy-efficiency measures to low-income families.
- Identify and educate contractors and low-income customers regarding energy saving opportunities.
- Promote low-income participation in DEF's Demand Side Management programs.
- Educate low-income families on achievable, sustainable strategies to reduce individual energy bills.

Policies and Procedures

Incentive levels and specific eligibility requirements for each measure promoted in this program will be presented in the Program Participation Standards.

The following measures will be included in this program:

- Energy Efficient Lighting
- Air Sealing-Infiltration Control
- Water Heater Insulation Wrap and Hot Water Pipe Insulation

- Water Conservation Shower Heads and Faucet Aerators
- HVAC filters
- Indoor Wall Thermometer
- Ceiling Insulation Upgrade
- HVAC Maintenance/ Tune up
- Duct Repair
- Smart Power Strips
- High Efficiency Heat Pumps
- High Efficiency Room Air Conditioners
- High Efficiency Central Air Conditioning
- High Efficiency Refrigerators
- High Efficiency Heat Pumps–New Construction coupled with residential load management

Program Participation

Annual participation estimates for the Low Income Weatherization Assistance program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	443,161	244	0.06%	0.06%
2021	1,673,995	450,305	244	0.11%	0.05%
2022	1,700,215	457,358	244	0.16%	0.05%
2023	1,726,425	464,408	244	0.21%	0.05%
2024	1,752,362	471,385	244	0.26%	0.05%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. Eligible customers represent the count of homes in DEF service territory that are at or below program qualifying income levels based on the 2010 US Census block data with a 2% growth rate per year.
3. Number of participants represents the eligible customers that DEF expects to reach via partnership local agencies
4. Cumulative penetration is the ratio of cumulative participants to the accumulated eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual

measure based on the estimated KW and KWH savings measure and annual projected participation for each measure. The KW and KWH impacts for each measure are based on the results of the most recent market potential study that supported the 2019 goals filing. The total projected program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	7,447	4.59	3.06	1,818,148	1,121	747
2021	3,802	2.23	1.46	928,248	544	357
2022	3,802	2.23	1.46	928,248	544	357
2023	3,802	2.23	1.46	928,248	544	357
2024	3,802	2.23	1.46	928,248	544	357

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	7,883	4.86	3.24	1,924,548	1,186	791
2021	4,025	2.36	1.55	982,570	576	377
2022	4,025	2.36	1.55	982,570	576	377
2023	4,025	2.36	1.55	982,570	576	377
2024	4,025	2.36	1.55	982,570	576	377

Impact Evaluation Plan

This program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations and statistical billing analysis and include the consideration of the interactive effects of multiple measures. The program measures and measure impacts will be modified consistent with future changes to codes and standards.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$9,705	\$9,668	\$37	1.00
Participant	\$9,273	\$2,228	\$7,045	4.16
Total Resource Cost	\$9,705	\$2,623	\$7,082	3.70

E. RESIDENTIAL LOAD MANAGEMENT PROGRAM

Program Start Date: 1981

Program Modified in 1995, 2000, 2007 and 2015

Program Description

The Residential Load Management program is a voluntary customer program that allows DEF to reduce demand and defer generation construction. Demand is reduced by controlling service to selected electrical equipment through various devices and communication options installed on the customers' premises.

Policies and Procedures: DEF will continue to offer this program to residential customers. Customers will have to the opportunity to participate in this program through either the Residential Year-Round Energy Management (RSL-1) or the Winter Only (RSL-2) Rate Schedules. The addition of new customers to this program will increase the summer and winter load control capabilities.

This program has grown to be one of the largest direct load control programs in the nation today. DEF will continue to incorporate improvements in technologies and the associated communication networks designed to decrease program costs, increase load shed capabilities, manage sustainability, and improve resource operability.

Program Participation

Annual program new participation estimates for 2020 through 2024 are shown in the table below:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	1,208,538	2,500	0.21%	0.21%
2021	1,673,995	1,232,593	2,500	0.41%	0.20%
2022	1,700,215	1,256,313	2,500	0.60%	0.20%
2023	1,726,425	1,280,023	2,500	0.78%	0.20%
2024	1,752,362	1,303,460	2,500	0.96%	0.19%

1. The total number of customers is based on DEF's 2019 Ten Year Site Plan projections.
2. Estimate of the eligible customers are based on customers that are not presently on Energy Management and have electric heat.
3. New participants of winter only or year-round Energy Management Schedule.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

The total program savings shown in the following tables reflect the expected average demand savings associated with new program participants. The per participant savings are based on the data and analysis that supported the 2019 goals filing.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	1.92	1.35	0	4,800	3,370
2021	0	1.92	1.35	0	4,800	3,370
2022	0	1.92	1.35	0	4,800	3,370
2023	0	1.92	1.35	0	4,800	3,370
2024	0	1.92	1.35	0	4,800	3,370
TOTAL				0	24,000	16,850

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	2.03	1.43	0	5,081	3,567
2021	0	2.03	1.43	0	5,081	3,567
2022	0	2.03	1.43	0	5,081	3,567
2023	0	2.03	1.43	0	5,081	3,567
2024	0	2.03	1.43	0	5,081	3,567
TOTAL				0	25,405	17,836

Impact Evaluation Plan

Appliance level and duty-cycle impacts of the residential load control program may be evaluated in a number of ways including analysis of metering data, engineering analysis, analysis of the impacts of load control events, and end use studies.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$38,752	\$19,183	\$19,569	2.02
Participant	\$9,030	\$0	\$9,030	9999
Total Resource Cost	\$38,752	\$10,153	\$28,599	3.82

**VII. COMMERCIAL/INDUSTRIAL AND DEMAND RESPONSE
CONSERVATION PROGRAMS**

A. BUSINESS ENERGY CHECK PROGRAM

Program Start Date: 1995

Program Description

The Business Energy Check Program is an energy audit/education program offered to commercial customers to assist customers in understanding their energy use and provide information and recommendations on how they can better manage their energy usage make their operations more energy efficient. The audit focuses on educating and encouraging customers to implement energy-saving practices and measures. The audit also provides the opportunity to promote cost-effective measures in customers' facilities and serves as the foundation for other commercial energy efficiency and demand side management programs.

The Business Energy Check provides education brochures to commercial customers while also providing free walk-through and phone-assisted audits. DEF is also working to develop an online audit tool for commercial customers.

Policies and Procedures

All commercial, industrial, and governmental customers are eligible to receive any of the above-mentioned audits on commercially metered buildings located in DEF's service territory. DEF may engage external agencies and/or companies as an extension of internal resources. The specific details and procedures for each type of audit or educational information provided through this program will be presented in the Program Participation Standards.

Customers participating in these audits will be provided with examples of energy saving measures that can be easily installed and behavioral changes that may reduce energy consumption. The program promotes continued customer involvement by demonstrating sustainable and measurable reduction in energy consumption through the implementation of low-cost energy conservation measures.

The customer may receive a Commercial Energy Efficiency Kit after the completion of the

Business Energy Check. The Commercial Energy Efficiency Kit will contain energy saving measures that can be easily installed and utilized by the customer. The contents the kit will be evaluated periodically and may change over time.

Program Participation

Annual participation estimates for the Business Energy Check program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	178,557	178,557	400	0.22%	0.22%
2021	181,015	180,615	400	0.44%	0.22%
2022	183,346	183,346	400	0.65%	0.22%
2023	185,608	185,608	400	0.86%	0.22%
2024	187,771	187,771	400	1.07%	0.21%

1. The total number of customers is the forecast of commercial/industrial (C/I) customers in DEF's 2019 Ten Year Site Plan.
2. The measure eligible customers are the total C/I customers less customers who have participated in the two prior years.
3. Number of program participants represents the participants projected.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

Program savings are based on measures included in the energy efficiency kits provided to program participants. Program savings were computed as the sum of the individual measure savings, and are shown in the following tables:

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	690	0.06	0.12	276,159	23	50
2021	690	0.06	0.12	276,159	23	50
2022	690	0.06	0.12	276,159	23	50
2023	690	0.06	0.12	276,159	23	50
2024	690	0.06	0.12	276,159	23	50
TOTAL				1,380,794	117	248

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	731	0.06	0.13	292,320	25	52
2021	731	0.06	0.13	292,320	25	52
2022	731	0.06	0.13	292,320	25	52
2023	731	0.06	0.13	292,320	25	52
2024	731	0.06	0.13	292,320	25	52
TOTAL				1,461,600	124	262

Impact Evaluation Plan

The demand and energy savings for the measures included in the commercial energy kits were based on the results of the most recent market potential study. These impacts included in this study were estimated based on engineering analysis and analysis of billing data and considered the interactive effects of measures. Savings will also result from the implementation of both technological and behavioral recommendations provided as part of the commercial audit and educational information provided to program participants.

B. BETTER BUSINESS PROGRAM

Program Start Date: 1995

Program modified 2000, 2005, 2006, 2007, 2015, 2016 and 2018

Program Description

The Better Business program is designed to promote high efficiency measures and equipment to Commercial, Industrial, and Governmental customers. All business customers are eligible for this program. The Better Business program builds on customer awareness generated through the commercial audit program, educational materials provided to customers, and trade allies.

The program seeks to meet the following overall goals:

- Provide customers with a cost-effective portfolio of measures across various building types.
- Improve customer energy savings and demand reduction through the installation of energy efficient equipment and thermal envelope upgrades.
- Educate customers regarding best practices, innovative technologies, and opportunities to manage energy consumption.

Policies and Procedures

The general eligibility requirements are as follows:

- The facility must be a commercially metered customer in DEF's service territory, including commercially metered multi-family residential facilities.
- DEF inspects the installation of measures and equipment as required by Rule 25-17.003(10) (b), Florida Administrative Code.
- Incentive levels and specific eligibility requirements for each measure promoted in this program will be provided in the Program Participation Standards.

DEF is proposing to include the following measures with this program:

HVAC Equipment

This program will promote HVAC load reduction measures. DEF will provide information to customers about high efficiency HVAC measures and will provide incentives for the purchase of cost effective high efficiency equipment including unitary heat pumps and air conditioners, package terminal heat pumps, package terminal air conditioners, water-cooled chillers and air-cooled chillers, and energy recovery ventilation units.

Duct Leakage Test and Repair/Duct Seal

This portion of the program is designed to promote energy efficiency through improved duct system sealing.

Ceiling Insulation Upgrade

This portion of the program encourages customers to add insulation to the conditioned ceiling area by paying for a portion of the installed cost.

Wall Insulation

This portion of the program encourages customers to add insulation to wall structures of conditioned area by paying for a portion of the installed cost.

Program Participation

Annual participation estimates for the Better Business program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	178,557	178,557	2,589	1.45%	1.45%
2021	181,015	181,015	2,459	2.79%	1.36%
2022	183,346	183,346	2,336	4.03%	1.27%
2023	185,608	185,608	2,219	5.17%	1.20%
2024	187,771	187,771	2,109	6.24%	1.12%

- 1) The total of customers in the forecast of Commercial/Industrial customers in DEF's 2019 Ten Year Site Plan.
- 2) All Commercial, Industrial and Governmental rate classes are eligible to participate.
- 3) Number of Program Measure Participants represents the participants projected.
- 4) Cumulative penetration is the ratio of cumulative measure participants to the eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's savings and annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	2787	1.11	0.61	7,213,765	2,885	1,569
2021	2787	1.11	0.61	6,853,076	2,740	1,491
2022	2787	1.24	0.73	6,510,423	2,903	1,716
2023	2787	1.11	0.61	6,184,901	2,473	1,346
2024	2787	1.26	0.75	5,875,656	2,650	1,578
TOTAL				32,637,822	13,651	7,700

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	2950	1.18	0.64	7,635,922	3,053	1,661
2021	2950	1.18	0.64	7,254,126	2,901	1,578
2022	2950	1.32	0.78	6,891,420	3,073	1,817
2023	2950	1.18	0.64	6,546,849	2,618	1,424
2024	2950	1.33	0.79	6,219,506	2,805	1,671
TOTAL				34,547,822	14,450	8,151

Impact Evaluation Plan

The Better Business Program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

Cost-effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$40,886	\$40,775	\$111	1.00
Participant	\$35,902	\$14,529	\$21,373	2.47
Total Resource Cost	\$40,886	\$19,402	\$21,484	2.11

C. SMART SAVER CUSTOM INCENTIVE PROGRAM

Program Start Date: 1992

Program modified in 1995 and 2016

Program Description

The objective of the Smart Saver Custom Incentive Program (f/k/a Florida Custom Incentive Program) is to encourage customers to make capital investments for installation of high efficiency technologies not covered by DEF's other commercial programs. Projects may include, but are not limited to, high efficiency equipment and machinery, whole-building construction or renovation projects, and other technologies specific to a particular industry or business process.

Policies and Procedures

The timeline for a project in this program varies depending on the project. The program process steps include application, data collection, analysis of data, monitoring, inspection, and incentives to the customer.

Program eligibility requirements to qualify for participation are as follows:

- Participants must be located in the DEF service territory and be a commercially metered account.
- Participants must be willing to allow DEF to inspect the installations of all measures and equipment.

Specific eligibility requirements for this program will be presented in the Program Participation Standards.

DEF will perform a cost-effectiveness analysis for each project being considered under the program, using the Commission-approved cost-effectiveness tests described in Rule 25-17.008, Florida Administrative Code. Only projects that pass both the Participant Cost Test (PCT) and the Rate Impact Measure (RIM) test will be considered for incentives. Incentives will not exceed 50% of the total project cost or reduce the payback to less than two years. The maximum incentive

for a single project is \$500,000. Incentives may be paid in stages based on comparative performance metrics when there is uncertainty around the demand and energy reductions that will be achieved. Fifty percent (50%) of the approved incentive will be paid upon initial installation. The remaining incentive will be paid post-installation upon confirmation of the achieved impacts.

Program Participation

Annual participation estimates for the Smart Saver Custom Incentive program are shown in the following table.

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	178,557	200	0.11%	0.11%
2021	181,015	181,015	190	0.22%	0.10%
2022	183,346	183,346	181	0.31%	0.10%
2023	185,608	185,608	172	0.40%	0.09%
2024	187,771	187,771	163	0.48%	0.09%

1. The total number of customers is the forecast of Commercial/Industrial customers in DEF's 2019 Ten Year Site Plan.
2. All commercial, industrial and governmental rate classes are eligible to participate.
3. The number of program participants represents the participants projected.
4. Cumulative penetration is the ratio of cumulative measure participating customers to the eligible customer pool.

Savings Estimates

Program savings will be calculated based on evaluation of the demand and energy savings for each individual project. DEF will inspect installations to verify operability of the technology and/or to obtain information needed to calculate the approved custom incentive amount. Annual saving estimates for the Smart Saver Custom Incentive program are shown in the following tables:

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	6,032	0.00	2.50	1,206,309	0	500
2021	6,349	0.00	2.63	1,206,309	0	500
2022	6,665	0.00	2.76	1,206,309	0	500
2023	7,013	0.00	2.91	1,206,309	0	500
2024	7,401	0.00	3.07	1,206,309	0	500
TOTAL				6,031,547	0	2,500

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	6,385	0.00	2.65	1,276,904	0	529
2021	6,721	0.00	2.79	1,276,904	0	529
2022	7,055	0.00	2.92	1,276,904	0	529
2023	7,424	0.00	3.08	1,276,904	0	529
2024	7,834	0.00	3.25	1,276,904	0	529
TOTAL				6,384,520	0	2,646

Impact Evaluation Plan

DEF will inspect installations to verify operability of the technology and to obtain information needed to determine the achieved project savings. Project savings will be verified through engineering and billing analysis based on customer-specific site performance and usage data.

Cost-effectiveness

Each individual project will be analyzed for cost-effectiveness at the time of project submittal to DEF, using the Commission-approved tests. Total program cost effectiveness will be determined based on the combined demand and energy savings of the individual projects.

D. STANDBY GENERATION PROGRAM

Program Start Date: 1993

Program modified in 1995 and 2007

Program Description

The Stand-by Generation program is a demand control program that utilizes customer sited equipment to reduce DEF's system demand. The program is a voluntary program available to all commercial and industrial customers who have on-site generation capability and are willing to utilize their equipment to reduce DEF system demand when deemed necessary. The program is offered through DEF's Stand-By Generation tariffs.

DEF may have direct control of the customer equipment or may rely upon the customer to initiate the on-site generation upon being notified by DEF. The customer is expected to continue running the generation until DEF notifies the customer that the generation is no longer needed. DEF does not restrict other use of the equipment by the customer.

The Stand-by Generation program participants receive a monthly bill credit based on the terms of the applicable tariff and the demonstrated capacity and kwh's produced by the customer's equipment. Bill credits are determined based on the provisions of the applicable Stand-By Generation tariffs.

Policies and Procedures

The general program eligibility requirements to qualify for participation are as follows:

- Customer must be eligible for service under DEF's commercial rate schedules.
- Customer must have standby generation that will reduce utility system demand at the request of DEF.
- Customer's Standby Generation Capacity calculation must be at least 50 KW.
- Customer must be within the range of DEF's load management system.

Program Participation

Annual participation estimates for the Standby Generation program are shown in the following table.

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	178,557	10	0.01%	0.01%
2021	181,015	181,005	10	0.01%	0.01%
2022	183,346	183,326	15	0.02%	0.01%
2023	185,608	185,573	15	0.03%	0.01%
2024	187,771	187,721	15	0.03%	0.01%

1. Total Number of Customers is based on DEF's 2019 Ten Year Site Plan projections.
2. Eligible Customers is based upon tariff GSLM-2 Rate Schedule.
3. Annual number of program participants represents the projected number of customers.
4. Cumulative penetration is the ratio of cumulative measure participants to the eligible customer pool.

Savings Estimates

The KW and KWh savings estimates for this program were determined from historical data and are presented below.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	160.00	200.00	0	1,600	2,000
2021	0	160.00	200.00	0	1,600	2,000
2022	0	160.00	200.00	0	2,400	3,000
2023	0	160.00	200.00	0	2,400	3,000
2024	0	160.00	200.00	0	2,400	3,000
TOTAL				0	10,400	13,000

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	169.36	211.70	0	1,694	2,117
2021	0	169.36	211.70	0	1,694	2,117
2022	0	169.36	211.70	0	2,540	3,176
2023	0	169.36	211.70	0	2,540	3,176
2024	0	169.36	211.70	0	2,540	3,176
TOTAL				0	11,009	13,761

Impact Evaluation Plan

DEF uses on-site metering to measure the generation capability of each Standby Generation program participant to reduce load at the time they join the program. The customer and a DEF representative will observe the metering tests to determine the load that the standby generator carries. This system testing will also determine the initial readings that will be recorded to determine the incentive that the customer will receive on their bill each month.

Cost-effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$22,067	\$4,634	\$17,433	4.76
Participant	\$4,000	\$0	\$4,000	9999.00
Total Resource Cost	\$22,067	\$634	\$21,433	34.81

E. INTERRUPTIBLE SERVICE PROGRAM

Program Start Date: 1996 for the IS-2 and IST-2 rate schedules.

Program Description

The Interruptible Service program is a direct load control program designed to reduce DEF's demand at times of capacity shortage during peak or emergency conditions.

Policies and Procedures

The program is available to non-residential customers throughout the DEF's entire service territory who are willing to have their service interrupted. The program is currently provided to customers through various tariffs. The specific eligibility requirements, bill credits amounts, and operational provisions are as defined in the specific tariffs. These tariffs are designed to support system operations and reliability. The provisions of these tariffs may be modified as appropriate to ensure that the program remains cost effective and provides system benefits. The IS-1 and IST-1 rate schedules were closed to new customers in 1996, but remain active for those customers that were grand-fathered onto those rates.

Under this program, DEF will have the ability to interrupt service to the customer. Customers participating in the Interruptible Service program will receive a monthly interruptible demand credit per the provisions of the applicable tariff.

Program Participation

Annual participation estimates for the Interruptible Service program are shown in the following table:

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	697	16	2.30%	2.30%
2021	181,015	681	10	3.82%	1.47%
2022	183,346	671	4	4.47%	0.60%
2023	185,608	667	6	5.40%	0.90%
2024	187,771	661	8	6.66%	1.21%

1. Total Number of Customers is based on DEF's 2019 ten Year Site Plan projections.
2. Eligible Customers is based upon tariff IS-2 and IST-2 Rate Schedule.
3. Annual number of program participants represents the projected number of customers.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

Savings estimates for the Interruptible Service program are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	3750.00	3750.00	0	60,000	60,000
2021	0	500.00	500.00	0	5,000	5,000
2022	0	375.00	500.00	0	1,500	2,000
2023	0	375.00	500.00	0	2,250	3,000
2024	0	375.00	500.00	0	3,000	4,000
TOTAL				0	71,750	74,000

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	3969.45	3969.45	0	63,511	63,511
2021	0	529.26	529.26	0	5,293	5,293
2022	0	396.95	529.26	0	1,588	2,117
2023	0	396.95	529.26	0	2,382	3,176
2024	0	396.95	529.26	0	3,176	4,234
TOTAL				0	75,949	78,331

Impact Evaluation Plan

Program impacts are evaluated through on-site interval metering data of all Interruptible Service customers.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$119,016	\$45,547	\$73,469	2.61
Participant	\$40,187	\$0	\$40,187	9999
Total Resource Cost	\$119,016	\$5,360	\$113,656	22.20

F. CURTAILABLE SERVICE PROGRAM

Program Start Date: 1996 for the CS-2 and CST-2 rate schedules
2004 for the CS-3 and CST-3 rate schedules.

Program Description

The Curtailable Service program is an indirect load control program designed to reduce DEF's demand at times of capacity shortage during peak or emergency conditions.

Policies and Procedures

The program is available throughout DEF's entire service territory to non-residential customers who agree to curtail demand. The program is currently provided to customers through various tariffs. The specific customer eligibility and curtailment requirements, bill credits amounts, and operational provisions are as defined in the applicable tariffs. These tariffs are designed to support system operations and reliability. The provisions of these tariffs may be modified as appropriate to ensure that the program remains cost effective and provides system benefits. The CS-1 and CST-1 rate schedules were closed to new customers in 1996, but remain active for those customers that were grand-fathered onto the rate.

Program Participation

Annual participation estimates for the Curtailable Service program are shown in the following table:

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	697	1.0	0.14%	0.14%
2021	181,015	696	0.0	0.14%	0.00%
2022	183,346	696	1.0	0.29%	0.14%
2023	185,608	695	0.0	0.29%	0.00%
2024	187,771	695	1.0	0.43%	0.14%

1. Total Number of Customers is based on DEF's 2019 Ten Year Site Plan projections.
2. Eligible Customers is based upon tariff CS-2, CST-2, CS-3 and CST-3 Rate Schedules.
3. Annual number of program participants represents the projected number of customers.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

Savings estimate for the Curtailable Service program are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	500	500	0	500	500
2021	0	-	-	0	0	0
2022	0	500	500	0	500	500
2023	0	-	-	0	0	0
2024	0	500	500	0	500	500
TOTAL				0	1,500	1,500

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	529.26	529.26	0	529	529
2021	0	0.00	0.00	0	0	0
2022	0	529.26	529.26	0	529	529
2023	0	0.00	0.00	0	0	0
2024	0	529.26	529.26	0	529	529
TOTAL				0	1,588	1,588

Impact Evaluation Plan

Program impacts are evaluated through on-site interval metering data of all Curtailable Service customers.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$2,528	\$580	\$1,948	4.36
Participant	\$514	\$0	\$514	9999
Total Resource Cost	\$2,528	\$67	\$2,461	37.93

VIII. TECHNOLOGY DEVELOPMENT PROGRAM

Program Start Date: 1995

Program Description

Technical and operational knowledge for the advances in the energy field may come from field demonstration projects, research partnerships, webinars, general education, etc. The Technology Development Program is designed to allow DEF to investigate technologies that may support the development of new demand response and energy efficiency programs. Projects undertaken in this program may include, but are not limited to, technological research, field demonstration projects, research on load behavior and demand-side management measures, and other market related research.

DEF will undertake certain development and demonstration projects which have the potential to become cost-effective demand and energy efficiency programs. In general, each research and development project that is proposed and investigated will proceed as follows:

1. Concept or idea development.
2. Research and design, including estimated costs and benefits.
3. Conduct field test or pilot program.
4. Evaluate field test or pilot program results, including cost-effectiveness.
5. Acceptance or rejection of project for continuation as a program.
6. If accepted in Item #5 above, application to the FPSC for approval to implement as a separate program or as measure within an existing program.

Eligible customers will be determined during the project research and design phase and will be dependent on the type of project proposed. Each project that is proposed and investigated is expected to meet one or more of the goals identified in Section 366.82(2), Florida Statutes, and Chapter 25-17, Florida Administrative Code.

Program Participation

In most cases, each demand reduction and energy efficiency project that is proposed and investigated under this program will require field testing with actual customers. These projects will offer services or products to eligible customers, after being defined in the project research and design phase, on a voluntary basis.

Examples of potential projects that may be funded under this program include demand response and energy efficiency technologies, market transformation initiatives and other innovative technologies that will influence customer energy usage. All costs, including incentives and rebates, will be included as part of the pre-approved project expenditures under this program.

At the discretion of the Company, expenditures up to \$800,000 annually may be made and recovered through the conservation cost recovery clause for all energy efficiency and conservation projects that are proposed and investigated. If any single project's annual expenditures exceed \$100,000, a status report will be filed as a component of the Conservation Cost Recovery True-Up filing. The status report will identify each project under this program with annual costs in excess of \$100,000, the scope and purpose of the project, the project development schedule identifying both achieved and projected accomplishments, and the project's actual and proposed expenditures for FPSC staff review. If any project (or combination of projects) expenditures are projected to exceed the \$800,000 annual limit available under this program and are sufficiently worthy of special consideration, the Company will apply to the FPSC staff for approval to proceed.

Finally, the Company will account for and maintain records of all expenses for each project in accordance with Chapter 25-17.015, Florida Administrative Code.

Savings Estimates

The savings impacts will be derived from actual data obtained from field tests which will calibrate engineering analysis, model results and estimates. This data will provide estimates of the benefits and costs associated with these projects. The actual experience and knowledge gained on a small scale may be leveraged to facilitate the development of new measures.

Consequently, program savings have not been estimated and have not been included in this DSM Plan. Any impacts obtained by this program will be calculated for each individual project and will be reported to the FPSC to be counted toward achieving DEF's conservation goals.

Impact Evaluation Plan

This program will normally include a field test or pilot where the impacts will be based on actual results. In the event a project does not involve a field test or pilot, the estimated or modeled savings will be fully documented with the methodology used.

Cost-Effectiveness

The cost-effectiveness of each project submitted to the FPSC for approval to be implemented as a program shall be analyzed and reported using the Commission-approved cost-effectiveness tests.

IX. QUALIFYING FACILITIES PROGRAM

Program Description

The purpose of this program is to meet the objectives and obligations established by the federal Public Utility Regulatory Policies Act, Section 366.051 of Florida Statutes, and the Commission's rules contained within Chapter 25-17, Florida Administrative Code. These policies pertain to the purchase of as-available energy and firm energy and capacity from qualifying facilities (QFs), including those that utilize renewable sources under Section 366.91, Florida Statutes, pursuant to DEF's agreement for purchase per the as-available energy tariff, standard offer contract tariff, or a negotiated QF purchased power contract on behalf of DEF customers.

Under the Qualifying Facilities program, DEF analyzes, forecasts, facilitates, and administers the potential and actual power purchases from qualifying facilities and the state jurisdictional QF or distributed generator interconnections. This Program develops standard offer QF contracts, negotiates, enters into, amends and restructures non-firm energy, and firm energy and capacity contracts entered into with qualifying cogeneration, small power producers, which include renewable facilities.

X. BENEFITS & COST ANALYSIS – ALL PROGRAMS

A. RESIDENTIAL CONSERVATION PROGRAMS**PROGRAM: Residential Incentive Program SSHEI****Rate Impact Measure (RIM) Test**

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	382	1,029	0	1,411	2,361	4,558	1,591	8,510	-7,099
2021	678	1,900	0	2,578	1,950	3,890	2,905	8,745	-6,168
2022	964	2,762	0	3,726	1,853	3,696	4,277	9,826	-6,100
2023	1,259	3,624	0	4,883	1,760	3,511	5,652	10,923	-6,040
2024	1,685	4,487	0	6,173	1,672	3,335	7,046	12,054	-5,881
2025	2,028	4,588	0	6,616	0	0	7,456	7,456	-840
2026	2,225	4,694	0	6,919	0	0	7,893	7,893	-974
2027	2,518	4,808	5,929	13,255	0	0	8,297	8,297	4,958
2028	2,656	4,925	5,962	13,543	0	0	8,640	8,640	4,903
2029	2,805	5,044	7,998	15,847	0	0	9,008	9,008	6,839
2030	3,085	5,164	8,067	16,316	0	0	9,474	9,474	6,842
2031	3,097	5,009	7,716	15,823	0	0	9,365	9,365	6,458
2032	3,105	4,855	5,888	13,848	0	0	9,230	9,230	4,618
2033	3,142	4,704	6,066	13,912	0	0	9,100	9,100	4,812
2034	3,085	4,556	5,865	13,505	0	0	8,945	8,945	4,560
2035	2,561	4,036	6,291	12,888	0	0	7,813	7,813	5,075
2036	2,372	3,758	5,780	11,910	0	0	7,298	7,298	4,612
2037	2,305	3,484	4,461	10,250	0	0	6,894	6,894	3,356
2038	2,224	3,214	4,110	9,548	0	0	6,525	6,525	3,023
2039	2,149	2,949	3,712	8,810	0	0	6,125	6,125	2,685
2040	1,596	2,171	2,767	6,533	0	0	4,558	4,558	1,975
2041	1,205	1,620	2,062	4,887	0	0	3,434	3,434	1,453
2042	811	1,075	1,347	3,232	0	0	2,302	2,302	930
2043	409	535	679	1,623	0	0	1,158	1,158	465
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	48,346	84,989	84,698	218,033	9,595	18,990	154,988	183,573	34,460
NPV	23,132	44,037	35,833	103,003	8,500	16,805	77,532	102,837	166

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.002

PROGRAM: Residential Incentive Program SSHEI

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	382	1,029	0	1,411	2,361	9,449	11,810	-10,399
2021	678	1,900	0	2,578	1,950	8,419	10,369	-7,791
2022	964	2,762	0	3,726	1,853	7,998	9,851	-6,125
2023	1,259	3,624	0	4,883	1,760	7,598	9,358	-4,475
2024	1,685	4,487	0	6,173	1,672	7,218	8,890	-2,718
2025	2,028	4,588	0	6,616	0	0	0	6,616
2026	2,225	4,694	0	6,919	0	0	0	6,919
2027	2,518	4,808	5,929	13,255	0	0	0	13,255
2028	2,656	4,925	5,962	13,543	0	0	0	13,543
2029	2,805	5,044	7,998	15,847	0	0	0	15,847
2030	3,085	5,164	8,067	16,316	0	0	0	16,316
2031	3,097	5,009	7,716	15,823	0	0	0	15,823
2032	3,105	4,855	5,888	13,848	0	0	0	13,848
2033	3,142	4,704	6,066	13,912	0	0	0	13,912
2034	3,085	4,556	5,865	13,505	0	0	0	13,505
2035	2,561	4,036	6,291	12,888	0	0	0	12,888
2036	2,372	3,758	5,780	11,910	0	0	0	11,910
2037	2,305	3,484	4,461	10,250	0	0	0	10,250
2038	2,224	3,214	4,110	9,548	0	0	0	9,548
2039	2,149	2,949	3,712	8,810	0	0	0	8,810
2040	1,596	2,171	2,767	6,533	0	0	0	6,533
2041	1,205	1,620	2,062	4,887	0	0	0	4,887
2042	811	1,075	1,347	3,232	0	0	0	3,232
2043	409	535	679	1,623	0	0	0	1,623
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	48,346	84,989	84,698	218,033	9,595	40,683	50,278	167,755
NPV	23,132	44,037	35,833	103,003	8,500	35,954	44,454	58,549

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.317

PROGRAM: Residential Incentive Program

SSHEI

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	1,591	4,558	0	6,149	9,449	9,449	-3,300
2021	2,905	3,890	0	6,795	8,419	8,419	-1,624
2022	4,277	3,696	0	7,973	7,998	7,998	-25
2023	5,652	3,511	0	9,163	7,598	7,598	1,565
2024	7,046	3,335	0	10,382	7,218	7,218	3,163
2025	7,456	0	0	7,456	0	0	7,456
2026	7,893	0	0	7,893	0	0	7,893
2027	8,297	0	0	8,297	0	0	8,297
2028	8,640	0	0	8,640	0	0	8,640
2029	9,008	0	0	9,008	0	0	9,008
2030	9,474	0	0	9,474	0	0	9,474
2031	9,365	0	0	9,365	0	0	9,365
2032	9,230	0	0	9,230	0	0	9,230
2033	9,100	0	0	9,100	0	0	9,100
2034	8,945	0	0	8,945	0	0	8,945
2035	7,813	0	0	7,813	0	0	7,813
2036	7,298	0	0	7,298	0	0	7,298
2037	6,894	0	0	6,894	0	0	6,894
2038	6,525	0	0	6,525	0	0	6,525
2039	6,125	0	0	6,125	0	0	6,125
2040	4,558	0	0	4,558	0	0	4,558
2041	3,434	0	0	3,434	0	0	3,434
2042	2,302	0	0	2,302	0	0	2,302
2043	1,158	0	0	1,158	0	0	1,158
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	154,988	18,990	0	173,977	40,683	40,683	133,295
NPV	77,532	16,805	0	94,337	35,954	35,954	58,383

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.624

PROGRAM: Neighborhood Energy Saver HWLI

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	516	1,182	0	1,697	619	4,985	2,130	7,734	-6,037
2021	1,008	2,405	0	3,413	619	4,985	4,285	9,888	-6,475
2022	1,470	3,581	0	5,051	619	4,985	6,471	12,074	-7,023
2023	1,967	4,815	0	6,783	619	4,985	8,767	14,370	-7,588
2024	2,699	6,110	0	8,808	619	4,985	11,203	16,807	-7,998
2025	3,195	6,145	0	9,340	0	0	11,666	11,666	-2,326
2026	3,448	6,182	0	9,629	0	0	12,149	12,149	-2,520
2027	3,897	6,330	7,809	18,036	0	0	12,758	12,758	5,278
2028	4,107	6,483	7,850	18,440	0	0	13,273	13,273	5,167
2029	4,254	6,596	10,455	21,305	0	0	13,575	13,575	7,730
2030	4,520	6,676	10,426	21,622	0	0	13,794	13,794	7,828
2031	4,337	6,296	9,695	20,328	0	0	13,025	13,025	7,303
2032	4,112	5,892	7,147	17,150	0	0	12,137	12,137	5,013
2033	3,838	5,444	7,022	16,304	0	0	11,034	11,034	5,271
2034	3,510	5,020	6,464	14,994	0	0	10,100	10,100	4,894
2035	2,986	4,591	7,153	14,731	0	0	9,046	9,046	5,684
2036	2,974	4,648	7,147	14,769	0	0	9,098	9,098	5,671
2037	3,118	4,704	6,025	13,848	0	0	9,288	9,288	4,560
2038	3,313	4,784	6,117	14,214	0	0	9,699	9,699	4,515
2039	3,544	4,864	6,123	14,532	0	0	10,103	10,103	4,429
2040	2,923	3,976	5,069	11,969	0	0	8,351	8,351	3,618
2041	2,266	3,047	3,878	9,192	0	0	6,459	6,459	2,733
2042	1,565	2,076	2,600	6,241	0	0	4,445	4,445	1,796
2043	810	1,060	1,346	3,216	0	0	2,294	2,294	922
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	70,377	112,908	112,325	295,611	3,093	24,925	225,150	253,168	42,442
NPV	33,808	57,632	46,624	138,063	2,709	21,832	113,259	137,801	262

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.002

PROGRAM: Neighborhood Energy Saver HWLI

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	516	1,182	0	1,697	619	7,439	8,057	-6,360
2021	1,008	2,405	0	3,413	619	7,439	8,057	-4,644
2022	1,470	3,581	0	5,051	619	7,439	8,057	-3,006
2023	1,967	4,815	0	6,783	619	7,439	8,057	-1,275
2024	2,699	6,110	0	8,808	619	7,439	8,057	751
2025	3,195	6,145	0	9,340	0	0	0	9,340
2026	3,448	6,182	0	9,629	0	0	0	9,629
2027	3,897	6,330	7,809	18,036	0	0	0	18,036
2028	4,107	6,483	7,850	18,440	0	0	0	18,440
2029	4,254	6,596	10,455	21,305	0	0	0	21,305
2030	4,520	6,676	10,426	21,622	0	0	0	21,622
2031	4,337	6,296	9,695	20,328	0	0	0	20,328
2032	4,112	5,892	7,147	17,150	0	0	0	17,150
2033	3,838	5,444	7,022	16,304	0	0	0	16,304
2034	3,510	5,020	6,464	14,994	0	0	0	14,994
2035	2,986	4,591	7,153	14,731	0	0	0	14,731
2036	2,974	4,648	7,147	14,769	0	0	0	14,769
2037	3,118	4,704	6,025	13,848	0	0	0	13,848
2038	3,313	4,784	6,117	14,214	0	0	0	14,214
2039	3,544	4,864	6,123	14,532	0	0	0	14,532
2040	2,923	3,976	5,069	11,969	0	0	0	11,969
2041	2,266	3,047	3,878	9,192	0	0	0	9,192
2042	1,565	2,076	2,600	6,241	0	0	0	6,241
2043	810	1,060	1,346	3,216	0	0	0	3,216
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	70,377	112,908	112,325	295,611	3,093	37,193	40,286	255,325
NPV	33,808	57,632	46,624	138,063	2,709	32,578	35,287	102,776

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 3.913

PROGRAM: Neighborhood Energy Saver

HWLI

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	2,130	4,985	0	7,116	7,439	7,439	-323
2021	4,285	4,985	0	9,270	7,439	7,439	1,831
2022	6,471	4,985	0	11,456	7,439	7,439	4,017
2023	8,767	4,985	0	13,752	7,439	7,439	6,313
2024	11,203	4,985	0	16,188	7,439	7,439	8,750
2025	11,666	0	0	11,666	0	0	11,666
2026	12,149	0	0	12,149	0	0	12,149
2027	12,758	0	0	12,758	0	0	12,758
2028	13,273	0	0	13,273	0	0	13,273
2029	13,575	0	0	13,575	0	0	13,575
2030	13,794	0	0	13,794	0	0	13,794
2031	13,025	0	0	13,025	0	0	13,025
2032	12,137	0	0	12,137	0	0	12,137
2033	11,034	0	0	11,034	0	0	11,034
2034	10,100	0	0	10,100	0	0	10,100
2035	9,046	0	0	9,046	0	0	9,046
2036	9,098	0	0	9,098	0	0	9,098
2037	9,288	0	0	9,288	0	0	9,288
2038	9,699	0	0	9,699	0	0	9,699
2039	10,103	0	0	10,103	0	0	10,103
2040	8,351	0	0	8,351	0	0	8,351
2041	6,459	0	0	6,459	0	0	6,459
2042	4,445	0	0	4,445	0	0	4,445
2043	2,294	0	0	2,294	0	0	2,294
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	225,150	24,925	0	250,075	37,193	37,193	212,882
NPV	113,259	21,832	0	135,091	32,578	32,578	102,514

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 4.147

PROGRAM: Low Income Weatherization Assistance

WZELEC

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	53	135	0	188	145	604	219	968	-779
2021	78	205	0	283	74	325	332	732	-448
2022	102	273	0	375	74	325	451	850	-475
2023	129	344	0	473	74	325	575	974	-502
2024	170	418	0	589	74	325	707	1,106	-518
2025	202	423	0	625	0	0	739	739	-114
2026	219	427	0	647	0	0	773	773	-126
2027	248	438	540	1,225	0	0	812	812	414
2028	261	448	543	1,252	0	0	844	844	408
2029	272	457	724	1,453	0	0	868	868	586
2030	291	464	725	1,480	0	0	889	889	591
2031	287	449	691	1,426	0	0	860	860	566
2032	280	432	524	1,236	0	0	826	826	410
2033	272	413	533	1,218	0	0	781	781	437
2034	259	396	510	1,164	0	0	744	744	420
2035	225	367	571	1,163	0	0	681	681	482
2036	221	361	555	1,137	0	0	677	677	461
2037	229	355	454	1,038	0	0	681	681	356
2038	238	349	446	1,034	0	0	698	698	336
2039	250	343	432	1,025	0	0	712	712	312
2040	143	194	247	584	0	0	408	408	177
2041	111	149	189	449	0	0	315	315	133
2042	76	101	127	305	0	0	217	217	88
2043	40	52	66	157	0	0	112	112	45
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	4,656	7,992	7,878	20,527	441	1,904	14,922	17,268	3,259
NPV	2,255	4,151	3,299	9,705	395	1,703	7,570	9,668	37

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 1.004

PROGRAM: Low Income Weatherization Assistance

WZELEC

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	53	135	0	188	145	724	869	-680
2021	78	205	0	283	74	445	519	-236
2022	102	273	0	375	74	445	519	-144
2023	129	344	0	473	74	445	519	-46
2024	170	418	0	589	74	445	519	70
2025	202	423	0	625	0	0	0	625
2026	219	427	0	647	0	0	0	647
2027	248	438	540	1,225	0	0	0	1,225
2028	261	448	543	1,252	0	0	0	1,252
2029	272	457	724	1,453	0	0	0	1,453
2030	291	464	725	1,480	0	0	0	1,480
2031	287	449	691	1,426	0	0	0	1,426
2032	280	432	524	1,236	0	0	0	1,236
2033	272	413	533	1,218	0	0	0	1,218
2034	259	396	510	1,164	0	0	0	1,164
2035	225	367	571	1,163	0	0	0	1,163
2036	221	361	555	1,137	0	0	0	1,137
2037	229	355	454	1,038	0	0	0	1,038
2038	238	349	446	1,034	0	0	0	1,034
2039	250	343	432	1,025	0	0	0	1,025
2040	143	194	247	584	0	0	0	584
2041	111	149	189	449	0	0	0	449
2042	76	101	127	305	0	0	0	305
2043	40	52	66	157	0	0	0	157
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	4,656	7,992	7,878	20,527	441	2,504	2,945	17,582
NPV	2,255	4,151	3,299	9,705	395	2,228	2,623	7,082

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 3.700

PROGRAM: Low Income Weatherization Assistance

WZELEC

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	
	SAVINGS IN PARTICIPANT'S BILL \$(000)	INCENTIVE PAYMENTS \$(000)	OTHER PARTICIPANT'S BENEFITS \$(000)	TOTAL BENEFITS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	219	604	0	823	724	724	99
2021	332	325	0	658	445	445	213
2022	451	325	0	776	445	445	331
2023	575	325	0	900	445	445	455
2024	707	325	0	1,032	445	445	587
2025	739	0	0	739	0	0	739
2026	773	0	0	773	0	0	773
2027	812	0	0	812	0	0	812
2028	844	0	0	844	0	0	844
2029	868	0	0	868	0	0	868
2030	889	0	0	889	0	0	889
2031	860	0	0	860	0	0	860
2032	826	0	0	826	0	0	826
2033	781	0	0	781	0	0	781
2034	744	0	0	744	0	0	744
2035	681	0	0	681	0	0	681
2036	677	0	0	677	0	0	677
2037	681	0	0	681	0	0	681
2038	698	0	0	698	0	0	698
2039	712	0	0	712	0	0	712
2040	408	0	0	408	0	0	408
2041	315	0	0	315	0	0	315
2042	217	0	0	217	0	0	217
2043	112	0	0	112	0	0	112
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	14,922	1,904	0	16,827	2,504	2,504	14,323
NPV	7,570	1,703	0	9,273	2,228	2,228	7,045

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 4.162

PROGRAM: Residential Load Management

PWRMGR

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	750	162	0	913	-913
2021	0	0	0	0	876	325	0	1,201	-1,201
2022	0	0	0	0	1,001	487	0	1,489	-1,489
2023	0	0	0	0	1,127	650	0	1,776	-1,776
2024	0	0	0	0	1,252	812	0	2,064	-2,064
2025	0	0	0	0	1,252	812	0	2,064	-2,064
2026	0	0	0	0	627	812	0	1,439	-1,439
2027	0	0	4,284	4,284	627	812	0	1,439	2,844
2028	0	0	4,307	4,307	627	812	0	1,439	2,868
2029	0	0	5,782	5,782	627	812	0	1,439	4,343
2030	0	0	5,832	5,832	627	812	0	1,439	4,393
2031	0	0	5,883	5,883	627	812	0	1,439	4,444
2032	0	0	4,731	4,731	627	812	0	1,439	3,292
2033	0	0	5,142	5,142	627	812	0	1,439	3,703
2034	0	0	5,245	5,245	627	812	0	1,439	3,805
2035	0	0	6,494	6,494	627	812	0	1,439	5,055
2036	0	0	6,549	6,549	627	812	0	1,439	5,110
2037	0	0	5,566	5,566	627	812	0	1,439	4,126
2038	0	0	5,678	5,678	627	812	0	1,439	4,238
2039	0	0	5,710	5,710	627	812	0	1,439	4,271
2040	0	0	5,909	5,909	627	812	0	1,439	4,469
2041	0	0	6,028	6,028	627	812	0	1,439	4,589
2042	0	0	6,062	6,062	627	812	0	1,439	4,623
2043	0	0	6,274	6,274	627	812	0	1,439	4,835
2044	0	0	6,494	6,494	627	812	0	1,439	5,055
2045	0	0	5,377	5,377	615	796	0	1,411	3,967
2046	0	0	4,174	4,174	602	780	0	1,382	2,793
2047	0	0	2,880	2,880	589	764	0	1,353	1,527
2048	0	0	1,491	1,491	577	747	0	1,324	166
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	115,895	115,895	20,557	21,768	0	42,325	73,570
NPV	0	0	38,752	38,752	10,153	9,030	0	19,183	19,569

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 2.020

PROGRAM: Residential Load Management

PWRMGR

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	750	0	750	-750
2021	0	0	0	0	876	0	876	-876
2022	0	0	0	0	1,001	0	1,001	-1,001
2023	0	0	0	0	1,127	0	1,127	-1,127
2024	0	0	0	0	1,252	0	1,252	-1,252
2025	0	0	0	0	1,252	0	1,252	-1,252
2026	0	0	0	0	627	0	627	-627
2027	0	0	4,284	4,284	627	0	627	3,657
2028	0	0	4,307	4,307	627	0	627	3,680
2029	0	0	5,782	5,782	627	0	627	5,155
2030	0	0	5,832	5,832	627	0	627	5,205
2031	0	0	5,883	5,883	627	0	627	5,256
2032	0	0	4,731	4,731	627	0	627	4,104
2033	0	0	5,142	5,142	627	0	627	4,515
2034	0	0	5,245	5,245	627	0	627	4,617
2035	0	0	6,494	6,494	627	0	627	5,867
2036	0	0	6,549	6,549	627	0	627	5,922
2037	0	0	5,566	5,566	627	0	627	4,939
2038	0	0	5,678	5,678	627	0	627	5,050
2039	0	0	5,710	5,710	627	0	627	5,083
2040	0	0	5,909	5,909	627	0	627	5,281
2041	0	0	6,028	6,028	627	0	627	5,401
2042	0	0	6,062	6,062	627	0	627	5,435
2043	0	0	6,274	6,274	627	0	627	5,647
2044	0	0	6,494	6,494	627	0	627	5,867
2045	0	0	5,377	5,377	615	0	615	4,763
2046	0	0	4,174	4,174	602	0	602	3,572
2047	0	0	2,880	2,880	589	0	589	2,291
2048	0	0	1,491	1,491	577	0	577	914
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	115,895	115,895	20,557	0	20,557	95,338
NPV	0	0	38,752	38,752	10,153	0	10,153	28,599

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 3.817

PROGRAM: Residential Load Management

PWRMGR

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	
	SAVINGS IN PARTICIPANT'S BILL \$(000)	INCENTIVE PAYMENTS \$(000)	OTHER PARTICIPANT'S BENEFITS \$(000)	TOTAL BENEFITS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	0	162	0	162	0	0	162
2021	0	325	0	325	0	0	325
2022	0	487	0	487	0	0	487
2023	0	650	0	650	0	0	650
2024	0	812	0	812	0	0	812
2025	0	812	0	812	0	0	812
2026	0	812	0	812	0	0	812
2027	0	812	0	812	0	0	812
2028	0	812	0	812	0	0	812
2029	0	812	0	812	0	0	812
2030	0	812	0	812	0	0	812
2031	0	812	0	812	0	0	812
2032	0	812	0	812	0	0	812
2033	0	812	0	812	0	0	812
2034	0	812	0	812	0	0	812
2035	0	812	0	812	0	0	812
2036	0	812	0	812	0	0	812
2037	0	812	0	812	0	0	812
2038	0	812	0	812	0	0	812
2039	0	812	0	812	0	0	812
2040	0	812	0	812	0	0	812
2041	0	812	0	812	0	0	812
2042	0	812	0	812	0	0	812
2043	0	812	0	812	0	0	812
2044	0	812	0	812	0	0	812
2045	0	796	0	796	0	0	796
2046	0	780	0	780	0	0	780
2047	0	764	0	764	0	0	764
2048	0	747	0	747	0	0	747
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	21,768	0	21,768	0	0	21,768
NPV	0	9,030	0	9,030	0	0	9,030

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 9999

B. COMMERCIAL/INDUSTRIAL CONSERVATION PROGRAMS

PROGRAM: Better Business

NRBBUS

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	178	396	0	573	1,221	707	677	2,605	-2,031
2021	339	786	0	1,124	1,160	671	1,321	3,153	-2,029
2022	494	1,211	0	1,705	1,102	728	1,984	3,813	-2,108
2023	653	1,598	0	2,251	1,047	606	2,639	4,292	-2,041
2024	881	2,027	0	2,908	994	666	3,298	4,958	-2,050
2025	1,060	2,072	0	3,132	0	0	3,496	3,496	-364
2026	1,163	2,120	0	3,283	0	0	3,710	3,710	-426
2027	1,316	2,171	2,673	6,161	0	0	3,901	3,901	2,261
2028	1,388	2,224	2,688	6,301	0	0	4,053	4,053	2,248
2029	1,466	2,278	3,621	7,365	0	0	4,218	4,218	3,147
2030	1,451	2,044	3,202	6,698	0	0	3,995	3,995	2,703
2031	1,374	1,811	2,799	5,984	0	0	3,716	3,716	2,268
2032	1,290	1,579	1,910	4,779	0	0	3,419	3,419	1,360
2033	1,211	1,350	1,735	4,296	0	0	3,120	3,120	1,176
2034	1,092	1,123	1,439	3,654	0	0	2,806	2,806	848
2035	984	1,060	1,661	3,705	0	0	2,633	2,633	1,072
2036	941	997	1,542	3,480	0	0	2,526	2,526	954
2037	947	936	1,195	3,079	0	0	2,472	2,472	607
2038	950	876	1,118	2,944	0	0	2,440	2,440	504
2039	960	817	1,027	2,803	0	0	2,399	2,399	404
2040	771	677	861	2,309	0	0	1,923	1,923	386
2041	582	539	684	1,805	0	0	1,441	1,441	363
2042	391	339	423	1,153	0	0	962	962	191
2043	197	202	255	654	0	0	482	482	172
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	22,081	31,234	28,834	82,148	5,524	3,377	63,632	72,533	9,615
NPV	10,872	17,213	12,801	40,886	4,872	2,967	32,935	40,775	111

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.003

PROGRAM: Better Business

NRBBUS

Total Resource Cost (TRC) Test

YEAR	BENEFITS			COSTS			NET BENEFITS \$(000)	
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)		(7) TOTAL COSTS \$(000)
2020	178	396	0	573	1,221	3,027	4,248	-3,675
2021	339	786	0	1,124	1,160	2,876	4,036	-2,912
2022	494	1,211	0	1,705	1,102	4,232	5,334	-3,629
2023	653	1,598	0	2,251	1,047	2,596	3,642	-1,392
2024	881	2,027	0	2,908	994	3,966	4,960	-2,053
2025	1,060	2,072	0	3,132	0	0	0	3,132
2026	1,163	2,120	0	3,283	0	0	0	3,283
2027	1,316	2,171	2,673	6,161	0	0	0	6,161
2028	1,388	2,224	2,688	6,301	0	0	0	6,301
2029	1,466	2,278	3,621	7,365	0	0	0	7,365
2030	1,451	2,044	3,202	6,698	0	0	0	6,698
2031	1,374	1,811	2,799	5,984	0	0	0	5,984
2032	1,290	1,579	1,910	4,779	0	0	0	4,779
2033	1,211	1,350	1,735	4,296	0	0	0	4,296
2034	1,092	1,123	1,439	3,654	0	0	0	3,654
2035	984	1,060	1,661	3,705	0	0	0	3,705
2036	941	997	1,542	3,480	0	0	0	3,480
2037	947	936	1,195	3,079	0	0	0	3,079
2038	950	876	1,118	2,944	0	0	0	2,944
2039	960	817	1,027	2,803	0	0	0	2,803
2040	771	677	861	2,309	0	0	0	2,309
2041	582	539	684	1,805	0	0	0	1,805
2042	391	339	423	1,153	0	0	0	1,153
2043	197	202	255	654	0	0	0	654
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	22,081	31,234	28,834	82,148	5,524	16,697	22,220	59,928
NPV	10,872	17,213	12,801	40,886	4,872	14,529	19,402	21,484

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.107

PROGRAM: Better Business

NRBBUS

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	677	707	0	1,384	3,027	3,027	-1,643
2021	1,321	671	0	1,993	2,876	2,876	-883
2022	1,984	728	0	2,711	4,232	4,232	-1,521
2023	2,639	606	0	3,245	2,596	2,596	650
2024	3,298	666	0	3,963	3,966	3,966	-3
2025	3,496	0	0	3,496	0	0	3,496
2026	3,710	0	0	3,710	0	0	3,710
2027	3,901	0	0	3,901	0	0	3,901
2028	4,053	0	0	4,053	0	0	4,053
2029	4,218	0	0	4,218	0	0	4,218
2030	3,995	0	0	3,995	0	0	3,995
2031	3,716	0	0	3,716	0	0	3,716
2032	3,419	0	0	3,419	0	0	3,419
2033	3,120	0	0	3,120	0	0	3,120
2034	2,806	0	0	2,806	0	0	2,806
2035	2,633	0	0	2,633	0	0	2,633
2036	2,526	0	0	2,526	0	0	2,526
2037	2,472	0	0	2,472	0	0	2,472
2038	2,440	0	0	2,440	0	0	2,440
2039	2,399	0	0	2,399	0	0	2,399
2040	1,923	0	0	1,923	0	0	1,923
2041	1,441	0	0	1,441	0	0	1,441
2042	962	0	0	962	0	0	962
2043	482	0	0	482	0	0	482
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	63,632	3,377	0	67,009	16,697	16,697	50,313
NPV	32,935	2,967	0	35,902	14,529	14,529	21,373

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.471

PROGRAM: Standby Generation DR

STBGEN

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	32	116	0	148	-148
2021	0	0	0	0	39	232	0	272	-272
2022	0	0	0	0	62	193	0	256	-256
2023	0	0	0	0	73	276	0	349	-349
2024	0	0	0	0	84	359	0	443	-443
2025	0	0	0	0	46	359	0	405	-405
2026	0	0	0	0	46	359	0	405	-405
2027	0	0	2,399	2,399	46	359	0	405	1,994
2028	0	0	2,412	2,412	46	359	0	405	2,007
2029	0	0	3,333	3,333	46	359	0	405	2,928
2030	0	0	3,361	3,361	46	359	0	405	2,956
2031	0	0	3,391	3,391	46	359	0	405	2,986
2032	0	0	2,649	2,649	46	359	0	405	2,244
2033	0	0	2,879	2,879	46	359	0	405	2,474
2034	0	0	2,937	2,937	46	359	0	405	2,532
2035	0	0	3,743	3,743	46	359	0	405	3,338
2036	0	0	3,774	3,774	46	359	0	405	3,369
2037	0	0	3,117	3,117	46	359	0	405	2,711
2038	0	0	3,179	3,179	46	359	0	405	2,774
2039	0	0	3,198	3,198	46	359	0	405	2,792
2040	0	0	3,309	3,309	46	359	0	405	2,903
2041	0	0	3,375	3,375	46	359	0	405	2,970
2042	0	0	3,395	3,395	46	359	0	405	2,989
2043	0	0	3,513	3,513	46	359	0	405	3,108
2044	0	0	3,637	3,637	46	359	0	405	3,231
2045	0	0	3,185	3,185	39	304	0	343	2,842
2046	0	0	2,697	2,697	32	248	0	280	2,417
2047	0	0	1,861	1,861	21	166	0	187	1,674
2048	0	0	963	963	11	83	0	93	870
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	66,306	66,306	1,321	9,153	0	10,474	55,832
NPV	0	0	22,067	22,067	634	4,000	0	4,634	17,433

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 4.762

PROGRAM: Standby Generation DR

STBGEN

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	0	0	0	0	32	0	32	-32
2021	0	0	0	0	39	0	39	-39
2022	0	0	0	0	62	0	62	-62
2023	0	0	0	0	73	0	73	-73
2024	0	0	0	0	84	0	84	-84
2025	0	0	0	0	46	0	46	-46
2026	0	0	0	0	46	0	46	-46
2027	0	0	2,399	2,399	46	0	46	2,352
2028	0	0	2,412	2,412	46	0	46	2,366
2029	0	0	3,333	3,333	46	0	46	3,286
2030	0	0	3,361	3,361	46	0	46	3,315
2031	0	0	3,391	3,391	46	0	46	3,344
2032	0	0	2,649	2,649	46	0	46	2,603
2033	0	0	2,879	2,879	46	0	46	2,833
2034	0	0	2,937	2,937	46	0	46	2,890
2035	0	0	3,743	3,743	46	0	46	3,696
2036	0	0	3,774	3,774	46	0	46	3,728
2037	0	0	3,117	3,117	46	0	46	3,070
2038	0	0	3,179	3,179	46	0	46	3,133
2039	0	0	3,198	3,198	46	0	46	3,151
2040	0	0	3,309	3,309	46	0	46	3,262
2041	0	0	3,375	3,375	46	0	46	3,329
2042	0	0	3,395	3,395	46	0	46	3,348
2043	0	0	3,513	3,513	46	0	46	3,467
2044	0	0	3,637	3,637	46	0	46	3,590
2045	0	0	3,185	3,185	39	0	39	3,146
2046	0	0	2,697	2,697	32	0	32	2,665
2047	0	0	1,861	1,861	21	0	21	1,840
2048	0	0	963	963	11	0	11	952
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	66,306	66,306	1,321	0	1,321	64,985
NPV	0	0	22,067	22,067	634	0	634	21,433

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 34.808

PROGRAM: Standby Generation DR

STBGEN

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	116	0	116	0	0	116
2021	0	232	0	232	0	0	232
2022	0	193	0	193	0	0	193
2023	0	276	0	276	0	0	276
2024	0	359	0	359	0	0	359
2025	0	359	0	359	0	0	359
2026	0	359	0	359	0	0	359
2027	0	359	0	359	0	0	359
2028	0	359	0	359	0	0	359
2029	0	359	0	359	0	0	359
2030	0	359	0	359	0	0	359
2031	0	359	0	359	0	0	359
2032	0	359	0	359	0	0	359
2033	0	359	0	359	0	0	359
2034	0	359	0	359	0	0	359
2035	0	359	0	359	0	0	359
2036	0	359	0	359	0	0	359
2037	0	359	0	359	0	0	359
2038	0	359	0	359	0	0	359
2039	0	359	0	359	0	0	359
2040	0	359	0	359	0	0	359
2041	0	359	0	359	0	0	359
2042	0	359	0	359	0	0	359
2043	0	359	0	359	0	0	359
2044	0	359	0	359	0	0	359
2045	0	304	0	304	0	0	304
2046	0	248	0	248	0	0	248
2047	0	166	0	166	0	0	166
2048	0	83	0	83	0	0	83
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	9,153	0	9,153	0	0	9,153
NPV	0	4,000	0	4,000	0	0	4,000

Utility Discount Rate = 7.10%

Benefit Cost Ratio: 9999

PROGRAM: Interruptible DR

IRRSVC

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	0	0	0	0	589	4,802	0	5,391	-5,391
2021	0	0	0	0	489	5,202	0	5,691	-5,691
2022	0	0	0	0	371	2,661	0	3,032	-3,032
2023	0	0	0	0	440	2,780	0	3,221	-3,221
2024	0	0	0	0	517	2,939	0	3,457	-3,457
2025	0	0	0	0	331	2,939	0	3,270	-3,270
2026	0	0	0	0	339	2,939	0	3,279	-3,279
2027	0	0	13,654	13,654	348	2,939	0	3,287	10,367
2028	0	0	13,729	13,729	357	2,939	0	3,296	10,434
2029	0	0	18,970	18,970	365	2,939	0	3,305	15,666
2030	0	0	19,135	19,135	375	2,939	0	3,314	15,821
2031	0	0	19,301	19,301	384	2,939	0	3,323	15,978
2032	0	0	15,081	15,081	394	2,939	0	3,333	11,748
2033	0	0	16,390	16,390	403	2,939	0	3,343	13,047
2034	0	0	16,717	16,717	413	2,939	0	3,353	13,364
2035	0	0	21,305	21,305	424	2,939	0	3,363	17,942
2036	0	0	21,485	21,485	434	2,939	0	3,374	18,112
2037	0	0	17,741	17,741	445	2,939	0	3,385	14,356
2038	0	0	18,097	18,097	456	2,939	0	3,396	14,701
2039	0	0	18,201	18,201	468	2,939	0	3,407	14,794
2040	0	0	18,833	18,833	479	2,939	0	3,419	15,415
2041	0	0	19,214	19,214	491	2,939	0	3,431	15,783
2042	0	0	19,323	19,323	504	2,939	0	3,443	15,880
2043	0	0	20,000	20,000	516	2,939	0	3,456	16,544
2044	0	0	20,700	20,700	529	2,939	0	3,469	17,232
2045	0	0	4,053	4,053	103	556	0	659	3,395
2046	0	0	2,697	2,697	68	357	0	425	2,272
2047	0	0	2,171	2,171	54	278	0	332	1,839
2048	0	0	1,284	1,284	32	159	0	190	1,094
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	338,082	338,082	11,119	78,521	0	89,639	248,443
NPV	0	0	119,016	119,016	5,360	40,187	0	45,547	73,469

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.613

PROGRAM: Interruptible DR

IRRSVC

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	0	0	0	0	589	0	589	-589
2021	0	0	0	0	489	0	489	-489
2022	0	0	0	0	371	0	371	-371
2023	0	0	0	0	440	0	440	-440
2024	0	0	0	0	517	0	517	-517
2025	0	0	0	0	331	0	331	-331
2026	0	0	0	0	339	0	339	-339
2027	0	0	13,654	13,654	348	0	348	13,306
2028	0	0	13,729	13,729	357	0	357	13,373
2029	0	0	18,970	18,970	365	0	365	18,605
2030	0	0	19,135	19,135	375	0	375	18,760
2031	0	0	19,301	19,301	384	0	384	18,918
2032	0	0	15,081	15,081	394	0	394	14,688
2033	0	0	16,390	16,390	403	0	403	15,986
2034	0	0	16,717	16,717	413	0	413	16,303
2035	0	0	21,305	21,305	424	0	424	20,881
2036	0	0	21,485	21,485	434	0	434	21,051
2037	0	0	17,741	17,741	445	0	445	17,295
2038	0	0	18,097	18,097	456	0	456	17,641
2039	0	0	18,201	18,201	468	0	468	17,734
2040	0	0	18,833	18,833	479	0	479	18,354
2041	0	0	19,214	19,214	491	0	491	18,722
2042	0	0	19,323	19,323	504	0	504	18,819
2043	0	0	20,000	20,000	516	0	516	19,483
2044	0	0	20,700	20,700	529	0	529	20,171
2045	0	0	4,053	4,053	103	0	103	3,951
2046	0	0	2,697	2,697	68	0	68	2,629
2047	0	0	2,171	2,171	54	0	54	2,117
2048	0	0	1,284	1,284	32	0	32	1,253
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	338,082	338,082	11,119	0	11,119	326,964
NPV	0	0	119,016	119,016	5,360	0	5,360	113,656

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 22.205

PROGRAM: Interruptible DR

IRRSVC

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	4,802	0	4,802	0	0	4,802
2021	0	5,202	0	5,202	0	0	5,202
2022	0	2,661	0	2,661	0	0	2,661
2023	0	2,780	0	2,780	0	0	2,780
2024	0	2,939	0	2,939	0	0	2,939
2025	0	2,939	0	2,939	0	0	2,939
2026	0	2,939	0	2,939	0	0	2,939
2027	0	2,939	0	2,939	0	0	2,939
2028	0	2,939	0	2,939	0	0	2,939
2029	0	2,939	0	2,939	0	0	2,939
2030	0	2,939	0	2,939	0	0	2,939
2031	0	2,939	0	2,939	0	0	2,939
2032	0	2,939	0	2,939	0	0	2,939
2033	0	2,939	0	2,939	0	0	2,939
2034	0	2,939	0	2,939	0	0	2,939
2035	0	2,939	0	2,939	0	0	2,939
2036	0	2,939	0	2,939	0	0	2,939
2037	0	2,939	0	2,939	0	0	2,939
2038	0	2,939	0	2,939	0	0	2,939
2039	0	2,939	0	2,939	0	0	2,939
2040	0	2,939	0	2,939	0	0	2,939
2041	0	2,939	0	2,939	0	0	2,939
2042	0	2,939	0	2,939	0	0	2,939
2043	0	2,939	0	2,939	0	0	2,939
2044	0	2,939	0	2,939	0	0	2,939
2045	0	556	0	556	0	0	556
2046	0	357	0	357	0	0	357
2047	0	278	0	278	0	0	278
2048	0	159	0	159	0	0	159
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	78,521	0	78,521	0	0	78,521
NPV	0	40,187	0	40,187	0	0	40,187

Utility Discount Rate = 7.10%
Benefit Cost Ratio: 9999

PROGRAM: Curtailable DR

PWRSHR

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	2	30	0	32	-32
2021	0	0	0	0	2	30	0	32	-32
2022	0	0	0	0	4	30	0	34	-34
2023	0	0	0	0	4	30	0	34	-34
2024	0	0	0	0	6	45	0	51	-51
2025	0	0	0	0	6	45	0	51	-51
2026	0	0	0	0	6	45	0	51	-51
2027	0	0	277	277	6	45	0	51	226
2028	0	0	278	278	6	45	0	51	228
2029	0	0	385	385	6	45	0	51	334
2030	0	0	388	388	6	45	0	51	337
2031	0	0	391	391	6	45	0	51	340
2032	0	0	306	306	6	45	0	51	255
2033	0	0	332	332	6	45	0	51	281
2034	0	0	339	339	6	45	0	51	288
2035	0	0	432	432	6	45	0	51	381
2036	0	0	436	436	6	45	0	51	385
2037	0	0	360	360	6	45	0	51	309
2038	0	0	367	367	6	45	0	51	316
2039	0	0	369	369	6	45	0	51	318
2040	0	0	382	382	6	45	0	51	331
2041	0	0	389	389	6	45	0	51	339
2042	0	0	392	392	6	45	0	51	341
2043	0	0	405	405	6	45	0	51	355
2044	0	0	420	420	6	45	0	51	369
2045	0	0	290	290	4	30	0	34	256
2046	0	0	300	300	4	30	0	34	266
2047	0	0	155	155	2	15	0	17	138
2048	0	0	161	161	2	15	0	17	144
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	7,551	7,551	154	1,146	0	1,300	6,251
NPV	0	0	2,528	2,528	67	514	0	580	1,948

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 4.357

PROGRAM: Curtailable DR

PWRSHR

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	0	0	0	0	2	0	2	-2
2021	0	0	0	0	2	0	2	-2
2022	0	0	0	0	4	0	4	-4
2023	0	0	0	0	4	0	4	-4
2024	0	0	0	0	6	0	6	-6
2025	0	0	0	0	6	0	6	-6
2026	0	0	0	0	6	0	6	-6
2027	0	0	277	277	6	0	6	271
2028	0	0	278	278	6	0	6	272
2029	0	0	385	385	6	0	6	378
2030	0	0	388	388	6	0	6	382
2031	0	0	391	391	6	0	6	385
2032	0	0	306	306	6	0	6	300
2033	0	0	332	332	6	0	6	326
2034	0	0	339	339	6	0	6	333
2035	0	0	432	432	6	0	6	426
2036	0	0	436	436	6	0	6	429
2037	0	0	360	360	6	0	6	353
2038	0	0	367	367	6	0	6	361
2039	0	0	369	369	6	0	6	363
2040	0	0	382	382	6	0	6	376
2041	0	0	389	389	6	0	6	383
2042	0	0	392	392	6	0	6	386
2043	0	0	405	405	6	0	6	399
2044	0	0	420	420	6	0	6	413
2045	0	0	290	290	4	0	4	285
2046	0	0	300	300	4	0	4	296
2047	0	0	155	155	2	0	2	153
2048	0	0	161	161	2	0	2	158
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	7,551	7,551	154	0	154	7,397
NPV	0	0	2,528	2,528	67	0	67	2,461

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 37.928

PROGRAM: Curtailable DR

PWRSHR

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	30	0	30	0	0	30
2021	0	30	0	30	0	0	30
2022	0	30	0	30	0	0	30
2023	0	30	0	30	0	0	30
2024	0	45	0	45	0	0	45
2025	0	45	0	45	0	0	45
2026	0	45	0	45	0	0	45
2027	0	45	0	45	0	0	45
2028	0	45	0	45	0	0	45
2029	0	45	0	45	0	0	45
2030	0	45	0	45	0	0	45
2031	0	45	0	45	0	0	45
2032	0	45	0	45	0	0	45
2033	0	45	0	45	0	0	45
2034	0	45	0	45	0	0	45
2035	0	45	0	45	0	0	45
2036	0	45	0	45	0	0	45
2037	0	45	0	45	0	0	45
2038	0	45	0	45	0	0	45
2039	0	45	0	45	0	0	45
2040	0	45	0	45	0	0	45
2041	0	45	0	45	0	0	45
2042	0	45	0	45	0	0	45
2043	0	45	0	45	0	0	45
2044	0	45	0	45	0	0	45
2045	0	30	0	30	0	0	30
2046	0	30	0	30	0	0	30
2047	0	15	0	15	0	0	15
2048	0	15	0	15	0	0	15
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	1,146	0	1,146	0	0	1,146
NPV	0	514	0	514	0	0	514

Utility Discount Rate = 7.10%

Benefit Cost Ratio: 9999

Attachment B

Clean Version of

Revised 2020-2024 DSM Program Plan



REVISED

2020 – 2024

DEMAND SIDE MANAGEMENT

PROGRAM PLAN

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I. PROGRAM OVERVIEW

In accordance with Rule 25-17.0021(4), Florida Administrative Code, Duke Energy Florida (DEF) is submitting this Demand Side Management (DSM) Plan to the Florida Public Service Commission (FPSC or Commission) for approval. DEF's proposed plan is designed to meet the demand side management goals for 2020-2024 established by the Commission in Order No. PSC-2019-0509-FOF-EG. Through this collection of programs and measures, DEF will continue to offer meaningful energy saving opportunities to customers. The cost-effective programs presented in this plan are responsive to the Commission's directive to promote education and awareness of energy saving measures to all customer groups.

This Plan provides DEF customers with a comprehensive portfolio of cost-effective DSM programs. It includes programs targeted to both the residential and commercial customer segments. This portfolio of programs is the result of thorough analysis of available energy efficiency measures that customers can implement to reduce demand and energy consumption and analysis of the most effective ways to deliver those measures to customers. DEF will continue to promote awareness of energy efficiency opportunities through its Home Energy Check and Business Energy Check programs. DEF's residential and commercial demand response programs will continue to contribute significant savings toward achievement of the annual peak demand goals over this time-period.

Over the five-year period, DEF expects to educate and empower approximately 125,000 residential customers to become more efficient through its Home Energy Check program. This program will inform customers about low-cost and short-payback measures as well as behavioral modifications that can provide energy savings. DEF also plans to provide energy saving information to approximately 2,000 commercial customers over the next five-year period through its Business Energy Check program.

DEF will continue to provide information about energy efficiency techniques and energy efficiency measures to low income customers through the Neighborhood Energy Saver (NES) and the Low Income Weatherization Assistance Program (LIWAP). Along with direct installation of a number of energy conservation measures in customer homes, these programs will also provide one-on-one education about behavioral changes that can assist customers control their energy usage. The Plan includes increased savings opportunities for low income customers through an increase in the number of targeted homes in the NES program, from 4500 to 5000 annually, and the addition of incentives for high efficiency heat pumps coupled with load management for low income new construction projects through the LIWAP.

The measures included in each of these programs reflect the impacts of changes to codes and standards and the projected energy and demand savings for the measures are based on the results of the technical potential study that supported DEF's proposed goals in Docket 20190018-EI.

II. PROGRAM SUMMARY

DEF has developed a comprehensive portfolio of DSM programs designed to achieve the goals established in Order No. PSC-2019-0509-FOF-EG. DEF's proposed plan includes a combination of demand response and energy efficiency programs designed to meet both the residential and commercial goals.

A. Residential Programs

The following table shows the annual and cumulative MW and GWH savings DEF expects to achieve through the proposed portfolio of Residential Programs included in this Plan compared to the Commission approved residential goals.

TABLE 1

Residential Market Sector Demand and Energy Data (at the Generator)									
Year	Projected Summer Demand Savings (MW)		Commission Approved Summer MW Goal (Cumulative)	Projected Winter Demand Savings (MW)		Commission Approved Winter MW Goal (Cumulative)	Projected Annual Energy Savings (GWH)		Commission Approved Annual GMH Goal (Cumulative)
	Incremental	Cumulative		Incremental	Cumulative		Incremental	Cumulative	
2020	22.4	22.4	15.5	34.1	34.1	32.2	56.6	56.6	9.3
2021	21.1	43.5	29.2	32.3	66.4	60.0	55.9	112.5	15.5
2022	21.5	65.0	41.4	32.9	99.4	84.5	59.1	171.5	19.3
2023	21.3	86.3	52.7	32.5	131.9	106.8	58.5	230.0	21.5
2024	21.0	107.3	63.4	32.2	164.1	127.7	57.9	287.9	22.7

The following provides an overview of each Residential Program:

Home Energy Check – This is DEF’s home energy audit program as required by Rule 25-17.003(3) (b). DEF will continue to offer a variety of options to customers for home energy audits including walk-through audits, phone assisted audits, and web enabled on-line audits. DEF may provide kits to customers after the completion of the audit. These kits will provide energy saving measures that may be easily installed by the customer.

Residential Incentive Program – This program will provide incentives on a variety of cost-effective measures designed to provide energy savings. This program will primarily be comprised of measures that target heating and cooling load such as high efficiency heat pumps, duct repair, insulation, energy efficient windows, and home energy management systems.

Neighborhood Energy Saver – This program is designed to provide energy saving education and assistance to low income customers. DEF will utilize U.S. census block data to identify target neighborhoods with average incomes below 200% of the federal poverty guidelines. DEF plans to increase the number of targeted homes from 4,500 to 5,000 annually. In addition to direct installation of energy saving measures, a primary focus of this program will be to provide information and education about energy efficiency

including information about savings that can be achieved through behavioral changes and low cost/no cost measures. DEF also plans to continue to provide high impact measures such as ceiling insulation and duct repair through this program. This program is cost-effective under the Rate Impact Measure (RIM) test and is expected to contribute significant savings toward achieving the established goals.

Low Income Weatherization Assistance Program – DEF plans to continue to partner with local weatherization agencies and other types of organizations that provide assistance to low income communities through this program. This program will provide information and education about energy efficiency, as well as funding for installation of weatherization measures and high efficiency appliances. Additions to this program include a new construction high-efficiency heat pump measure coupled with participation in DEF's residential demand response program. This program is also projected to be cost effective under the Rate Impact Measure (RIM) test.

Residential Load Management – DEF will continue to support this residential demand response program. Currently, approximately 440,000 of DEFs residential customers already participate in this program, providing 711 MWs of winter and 396 MWs of summer load control. DEF's Plan assumes the addition of 2500 new participants annually from 2020 through 2024, which is expected to provide an additional 25 winter MWs and an additional 17 summer MWs of load control.

B. Commercial Programs

Table 2 shows the annual and cumulative MW and GWH savings DEF plans to achieve through the proposed portfolio of Commercial Programs included in this Plan compared to the Commission approved commercial goals:

TABLE 2

Year	Projected Summer Demand Savings (MW)		Commission Approved Summer MW Goal (Cumulative)	Projected Winter Demand Savings (MW)		Commission Approved Winter MW Goal (Cumulative)	Projected Annual Energy Savings (GWH)		Commission Approved Annual GMH Goal (Cumulative)
	Incremental	Cumulative		Incremental	Cumulative		Incremental	Cumulative	
2020	68.4	68.4	8.2	68.8	68.8	5.2	9.2	9.2	5.9
2021	9.6	78.0	15.1	9.9	78.7	10.0	8.8	18.0	9.8
2022	8.2	86.2	21.1	7.8	86.5	14.7	8.5	26.5	12.2
2023	8.4	94.5	26.7	7.6	94.0	19.7	8.1	34.6	13.6
2024	10.2	104.7	31.7	9.1	103.1	24.3	7.8	42.4	14.4

The following provides a list of the Commercial programs along with a brief overview of each program:

Business Energy Check – This program is available to all commercial customers and will provide education and information about energy savings opportunities specific to their business and operation. This program will also inform customers about rebates and incentives available through DEF’s commercial energy efficiency and load management programs. DEF currently provides walk-through audits and phone assisted audits for commercial businesses through this program and is planning to add online audits in the future.

Better Business – This program provides incentives to commercial customers on a variety of high efficiency cost-effective measures that provide energy savings in excess of the requirements of codes and standards. The measures included in this program primarily target commercial cooling load through high efficiency chillers and direct expansion air conditioning systems.

Smart Saver Custom Incentive – This program provides customized incentives for specific innovative projects that provide energy savings not otherwise addressed through DEF’s other commercial programs. This program is intended to encourage commercial customers to make capital investments for the installation of energy efficiency measures

that reduce energy and peak demand.

C. Demand Response Programs

Interruptible Service – This program will continue to be available to non-residential customers who are willing to have their power interrupted at times of capacity shortage during peak or emergency conditions. This program provides peak demand savings through direct load control of the customer's service. Customers will be eligible for bill credits through this program based on the specific eligibility requirements and terms of the applicable interruptible tariff. DEF currently has 350 MW's of load control through this program and projects to add approximately 72 MW's over the next five-year period.

Curtable Service - This is an indirect load control program that will continue to be available to commercial customers who agree to reduce demand at times of capacity shortage during peak of emergency conditions. Program participants will receive monthly demand credits per the terms of the specific curtable tariff under which they take service.

Standby Generation - This program is a load control program that provides demand savings through control of customers' back-up generators. The program is a voluntary program available to all commercial and industrial customers who have on-site generation capability and are willing to allow remote activation of their on-site generation during capacity emergencies. The customers receive monthly bill credits per the terms of the specific stand-by tariff under which they take service.

D. Technology Development – This program is used to fund the research and testing of new energy efficiency and demand response equipment and technologies. The results of these studies are used to inform and support the development of new energy efficiency and demand response programs.

E. Qualifying Facilities – This program is used to manage the purchase of as-available energy and firm energy and capacity from qualifying facilities pursuant to standard offer

and negotiated contracts. Under this program DEF develops standard offer contracts, negotiates, enters into, amends and restructures firm energy and capacity contracts entered into with qualifying cogeneration and small power production facilities, and administers all such contracts.

III. SUMMARY OF PORTFOLIO COSTS AND PROJECTED CUSTOMER BILL IMPACTS

The total costs of the portfolio over the five-year period are projected to be approximately \$527 million. All programs are designed to be cost effective based on the Rate Impact Measure (RIM) test. Approximately 70% of the total costs over the five-year period represent incentives to customers. The cost of the low income programs makes up approximately 6% of the total overall costs, while providing approximately 32% of the total energy savings. Table 3 depicts the total projected cost of the commercial and residential portfolio and the projected residential rate impact/1200 kWh's annually for the five-year period. The decreases in annual costs and customer rates beginning in 2022 are driven by assumed decreases in billing credits for the commercial load management programs upon expiration of the term of the 2017 Settlement Agreement.

TABLE 3

	Total	2020	2021	2022	2023	2024
Total Costs - \$ Millions	\$ 529.6	117.3	117.4	97.6	98.2	99.0
Residential Rate - \$/1200 kwh's		\$ 3.93	\$ 3.90	\$ 3.23	\$ 3.22	\$ 3.23

IV. COST-EFFECTIVENESS TESTS

Programs have been analyzed for cost-effectiveness using the Commission-approved tests described in Rule 25-17.008, Florida Administrative Code. A summary of the cost-effectiveness results for each of the programs included in this Plan are provided below in Section VIII. These detailed results consist of one page each for the Rate Impact Measure (RIM), Total Resource Cost (TRC), and Participant Tests.

V. COST-RECOVERY

DEF submits the programs herein described for approval and for inclusion as cost recoverable Conservation and Energy Efficiency programs under current Commission-approved procedures pursuant to Rule 25-17.015, Florida Administrative Code.

Additionally, DEF seeks cost recovery for previously closed programs and closed tariffs that are part of existing programs that have ongoing costs associated with grandfathered participants. These include the Commercial Energy Management Program and the Interruptible Service (IS-1) and (IST-1), and Curtailable Service (CS-1) and (CST-1) tariffs.

VI. RESIDENTIAL CONSERVATION PROGRAMS

A. HOME ENERGY CHECK PROGRAM

Program Start Date: 1995

Program Description

The Home Energy Check is a residential energy audit program that provides residential customers with an analysis of their energy consumption as well as educational information on how to reduce energy usage and save money. The audit provides the opportunity to promote and directly install cost-effective measures in customers' homes while also educating and encouraging customers to implement energy-saving practices. The Home Energy Check serves as the foundation for other residential demand side management programs. The Home Energy Check program offers the following types of energy audits:

- Type 1: Free Walk-Through (computer assisted).
- Type 2: Customer Online (Internet Option).
- Type 3: Customer Phone Assisted.
- Type 4: Home Energy Rating (or BERS/HERS) Audit.

Customers will be provided with energy efficiency tips and examples of easily installed energy efficiency measures. The program promotes continued customer involvement by demonstrating sustainable and measurable reductions in energy usage through the implementation of low cost energy efficiency measures and energy saving recommendations. Customers participating in the Home Energy Check Program may receive a residential energy efficiency kit. The kit will contain energy saving measures that can easily be installed and utilized by the customer. The contents of this kit will be evaluated periodically and may change over time.

Policies and Procedures

All eligible residential customers of DEF can receive any of the above energy audits conducted on residentially metered buildings, located in DEF's service territory. There is no charge for Type 1 through Type 3 home energy checks. The Type 4 - Home Energy Rating audit, as outlined in DEF's "Florida BERS/HERS Audit" tariff, is available to all eligible DEF customers upon request.

Program Participation

Annual participation estimates for the Home Energy Check program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	1,647,440	25,000	1.52%	1.52%
2021	1,673,995	1,648,995	25,000	3.03%	1.52%
2022	1,700,215	1,675,215	25,000	4.48%	1.49%
2023	1,726,425	1,701,425	25,000	5.88%	1.47%
2024	1,752,362	1,727,362	25,000	7.24%	1.45%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. The entire residential class is eligible for participation.
3. Number of participants represents the customers that DEF expects to participate through this program annually.
4. Cumulative penetration is the ratio of cumulative measure participating customers to the eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure included in the energy efficiency kit based on each measure's per customer savings and annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables:

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	784	0.30	0.18	19,587,523	7,515	4,571
2021	891	0.32	0.19	22,286,147	7,951	4,824
2022	999	0.34	0.20	24,984,771	8,388	5,078
2023	999	0.34	0.20	24,984,771	8,388	5,078
2024	999	0.34	0.20	24,984,771	8,388	5,078
TOTAL				116,827,984	40,629	24,629

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	829	0.32	0.19	20,733,805	7,955	4,839
2021	944	0.34	0.20	23,590,356	8,417	5,107
2022	1058	0.36	0.21	26,446,907	8,878	5,375
2023	1058	0.36	0.21	26,446,907	8,878	5,375
2024	1058	0.36	0.21	26,446,907	8,878	5,375
TOTAL				123,664,883	43,007	26,070

Impact Evaluation Plan

The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

B. RESIDENTIAL INCENTIVE PROGRAM

Program Start Date: 1995

Program modified in 2000, 2006, 2007, 2012, and 2015

Program Description

The Residential Incentive Program is designed to provide incentives to residential customers for energy efficiency improvements for existing homes. The Residential Incentive Program builds on customer awareness through the Home Energy Check program, trade-ally support, and communication and marketing efforts designed to educate customers on cost-effective measures for their residences.

The program seeks to meet the following overall goals:

- Provide a cost-effective portfolio of measures.
- Provide customer energy savings and demand reduction through the installation of energy efficient equipment and building envelope upgrades.
- Educate the residential market regarding best practices, innovative technologies and opportunities for rebates for energy efficiency measures that provide savings above the requirements of codes and standards.

Policies and Procedures

Program participation is influenced through the home energy audits and other educational efforts. The program provides incentives for high efficiency heating and cooling equipment, duct repair, attic insulation upgrades, high performance windows, and home energy management systems for residentially metered customers in DEF's service territory.

DEF inspects the installation of measures and equipment as required by Rule 25-17.003(10) (b), Florida Administrative Code, prior to issuing any incentive payments.

The Residential Incentive Program will include the following measures:

High Efficiency HVAC Systems

The High Efficiency HVAC System measures will provide an incentive to customers who install a high efficiency HVAC system when replacing their existing system. The incentive will be awarded on a per unit basis according to the efficiency rating.

Duct Repair

The Duct Repair measure promotes energy efficiency through incentives to customers for a portion of the costs of duct repairs and duct sealing.

Attic Insulation Upgrade

The Attic Insulation Upgrade measure provides an incentive to encourage customers to upgrade their attic insulation over conditioned space.

Replacement Windows

The Window Replacement measure provides an incentive for installing high performance windows.

Home Energy Management System

DEF will offer an incentive for the installation and configuration of home energy management technologies.

Program Participation

Annual participation estimates for the Residential Incentive Program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	1,647,440	17,350	1.05%	1.05%
2021	1,673,995	1,673,995	15,933	1.99%	0.95%
2022	1,700,215	1,700,215	15,136	2.85%	0.89%
2023	1,726,425	1,726,425	14,379	3.64%	0.83%
2024	1,752,362	1,752,362	13,660	4.36%	0.78%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. The entire residential class is eligible for participation in this program.
3. Number of program participants represents the number of individual measure participants.
4. Cumulative penetration is the ratio of cumulative measure participants to the eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the savings for each individual measure. The KW and KWH savings for each individual measure were based on the results of the market potential study that supported the 2019 goals filing. The KW and KWH savings were multiplied by the estimated participation for each measure to calculate the annual savings by measure. The annual program savings are based on the sum of the annual savings for each individual measure.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	762	0.48	0.31	13,222,563	8,341	5,450
2021	677	0.42	0.28	10,781,635	6,771	4,397
2022	677	0.42	0.28	10,242,553	6,432	4,177
2023	677	0.42	0.28	9,730,425	6,111	3,968
2024	677	0.42	0.28	9,243,904	5,805	3,770
TOTAL				53,221,080	33,461	21,761

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	807	0.51	0.33	13,996,361	8,829	5,769
2021	716	0.45	0.29	11,412,588	7,167	4,654
2022	716	0.45	0.29	10,841,958	6,809	4,421
2023	716	0.45	0.29	10,299,860	6,468	4,200
2024	716	0.45	0.29	9,784,867	6,145	3,990
TOTAL				56,335,635	35,419	23,034

Impact Evaluation Plan

The Residential Incentive Program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$(000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$103,003	\$102,837	\$166	1.00
Participant	\$94,337	\$35,954	\$58,383	2.62
Total Resource Cost	\$103,003	\$44,454	\$58,549	2.32

C. NEIGHBORHOOD ENERGY SAVER PROGRAM

Program Start Date: 2007 and 2015

Program Description

DEF's Neighborhood Energy Saver (NES) program is a custom energy conservation program designed to assist selected neighborhoods where approximately 50% of the households have incomes equal to or less than 200% of the poverty level as established by the U.S. Government. Duke Energy or a third-party contractor will directly install energy conservation measures identified through an energy assessment of the customer's home to increase their energy efficiency. Additionally, customers will receive a comprehensive package of energy education materials which will educate them on ways to better manage their energy usage. The energy conservation measures installed and energy efficiency education materials will be provided at no cost to the participants.

The Neighborhood Energy Saver program seeks to achieve the following goals:

- Conduct a home energy assessment to identify energy efficiency opportunities within the customer's home.
- Implement a comprehensive package of electric conservation measures to increase the efficiency in the resident's home.
- Provide one-on-one customer education on energy efficiency techniques and energy conservation measures.
- Encourage customers to make behavioral changes that will allow them to become more efficient and take control of their energy usage.

Policies and Procedures:

DEF's Neighborhood Energy Saver program targets neighborhoods where approximately 50% of the households have incomes equal to or less than 200% of the poverty level established by the U.S. Government.

Incentive levels and specific eligibility requirements for each measure promoted in this program

will be presented in the Program Participation Standards.

DEF is proposing to include the following measures in this program:

- Energy Efficient Lighting
- Air Sealing-Infiltration Control
- Water Heater Insulation Wrap and Hot Water Pipe Insulation
- Water Conservation Shower Heads and Faucet Aerators
- HVAC filters
- Indoor Wall Thermometer
- Ceiling Insulation Upgrade
- HVAC Maintenance/ Tune up
- Duct Repair
- Smart Power Strips
- High Efficiency Heat Pumps
- High Efficiency Room Air Conditioners
- High Efficiency Central Air Conditioning

Program Participation

Annual participation estimates for the Neighborhood Energy Saver program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	443,161	5,000	1.13%	1.13%
2021	1,673,995	450,305	5,000	2.22%	1.11%
2022	1,700,215	457,358	5,250	3.33%	1.15%
2023	1,726,425	464,408	5,250	4.41%	1.13%
2024	1,752,362	471,385	5,250	5.46%	1.11%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. Eligible customers represent the estimated homes in DEF's service territory that are at or below program qualifying income levels based on the 2010 US Census block data with a 2% growth rate per year.
3. Number of participants represents the customers that DEF expects to reach through direct offerings in each year.
4. Cumulative penetration is the ratio of cumulative participants to the remaining eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on the estimated KW and KWH savings and annual projected participation for each measure. The KW and KWH impacts for each measure are based on the results of the most recent market potential study that supported the 2019 goals filing. The total projected program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	3,540	1.91	1.31	17,700,669	9,542	6,536
2021	3,540	1.91	1.31	17,700,669	9,542	6,536
2022	3,540	1.91	1.31	18,585,703	10,019	6,863
2023	3,540	1.91	1.31	18,585,703	10,019	6,863
2024	3,540	1.91	1.31	18,585,703	10,019	6,863
TOTAL				91,158,446	49,143	33,662

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	3,747	2.02	1.38	18,736,531	10,101	6,919
2021	3,747	2.02	1.38	18,736,531	10,101	6,919
2022	3,747	2.02	1.38	19,673,358	10,606	7,265
2023	3,747	2.02	1.38	19,673,358	10,606	7,265
2024	3,747	2.02	1.38	19,673,358	10,606	7,265
TOTAL				96,493,137	52,019	35,632

Impact Evaluation Plan

The Neighborhood Energy Saver Program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

Cost Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$142,218	\$141,785	\$432	1.00
Participant	\$139,000	\$33,487	\$105,513	4.15
Total Resource Cost	\$142,218	\$36,272	\$105,945	3.92

D. LOW INCOME WEATHERIZATION ASSISTANCE PROGRAM

Program Start Date: 2000

Program modified in 2006, 2015, 2017 and 2018

Program Description

The Low Income Weatherization Assistance program is designed to leverage working relationships with weatherization providers and local agencies to provide demand-side management and energy efficiency measures to low income customers. The Low Income Weatherization Assistance program combines weatherization provider partnerships with energy education and energy efficiency improvements to benefit low-income families.

The program seeks to meet the following goals:

- Partner with the Department of Economic Opportunity and local home improvement providers to deliver energy-efficiency measures to low-income families.
- Identify and educate contractors and low-income customers regarding energy saving opportunities.
- Promote low-income participation in DEF's Demand Side Management programs.
- Educate low-income families on achievable, sustainable strategies to reduce individual energy bills.

Policies and Procedures

Incentive levels and specific eligibility requirements for each measure promoted in this program will be presented in the Program Participation Standards.

The following measures will be included in this program:

- Energy Efficient Lighting
- Air Sealing-Infiltration Control
- Water Heater Insulation Wrap and Hot Water Pipe Insulation

- Water Conservation Shower Heads and Faucet Aerators
- HVAC filters
- Indoor Wall Thermometer
- Ceiling Insulation Upgrade
- HVAC Maintenance/ Tune up
- Duct Repair
- Smart Power Strips
- High Efficiency Heat Pumps
- High Efficiency Room Air Conditioners
- High Efficiency Central Air Conditioning
- High Efficiency Refrigerators
- High Efficiency Heat Pumps–New Construction coupled with residential load management

Program Participation

Annual participation estimates for the Low Income Weatherization Assistance program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	443,161	244	0.06%	0.06%
2021	1,673,995	450,305	244	0.11%	0.05%
2022	1,700,215	457,358	244	0.16%	0.05%
2023	1,726,425	464,408	244	0.21%	0.05%
2024	1,752,362	471,385	244	0.26%	0.05%

1. The total number of customers is the forecast of residential customers in DEF's 2019 Ten Year Site Plan.
2. Eligible customers represent the count of homes in DEF service territory that are at or below program qualifying income levels based on the 2010 US Census block data with a 2% growth rate per year.
3. Number of participants represents the eligible customers that DEF expects to reach via partnership local agencies
4. Cumulative penetration is the ratio of cumulative participants to the accumulated eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual

measure based on the estimated KW and KWH savings measure and annual projected participation for each measure. The KW and KWH impacts for each measure are based on the results of the most recent market potential study that supported the 2019 goals filing. The total projected program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	7,447	4.59	3.06	1,818,148	1,121	747
2021	3,802	2.23	1.46	928,248	544	357
2022	3,802	2.23	1.46	928,248	544	357
2023	3,802	2.23	1.46	928,248	544	357
2024	3,802	2.23	1.46	928,248	544	357

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	7,883	4.86	3.24	1,924,548	1,186	791
2021	4,025	2.36	1.55	982,570	576	377
2022	4,025	2.36	1.55	982,570	576	377
2023	4,025	2.36	1.55	982,570	576	377
2024	4,025	2.36	1.55	982,570	576	377

Impact Evaluation Plan

This program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations and statistical billing analysis and include the consideration of the interactive effects of multiple measures. The program measures and measure impacts will be modified consistent with future changes to codes and standards.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$9,705	\$9,668	\$37	1.00
Participant	\$9,273	\$2,228	\$7,045	4.16
Total Resource Cost	\$9,705	\$2,623	\$7,082	3.70

E. RESIDENTIAL LOAD MANAGEMENT PROGRAM

Program Start Date: 1981

Program Modified in 1995, 2000, 2007 and 2015

Program Description

The Residential Load Management program is a voluntary customer program that allows DEF to reduce demand and defer generation construction. Demand is reduced by controlling service to selected electrical equipment through various devices and communication options installed on the customers' premises.

Policies and Procedures: DEF will continue to offer this program to residential customers. Customers will have to the opportunity to participate in this program through either the Residential Year-Round Energy Management (RSL-1) or the Winter Only (RSL-2) Rate Schedules. The addition of new customers to this program will increase the summer and winter load control capabilities.

This program has grown to be one of the largest direct load control programs in the nation today. DEF will continue to incorporate improvements in technologies and the associated communication networks designed to decrease program costs, increase load shed capabilities, manage sustainability, and improve resource operability.

Program Participation

Annual program new participation estimates for 2020 through 2024 are shown in the table below:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	1,647,440	1,208,538	2,500	0.21%	0.21%
2021	1,673,995	1,232,593	2,500	0.41%	0.20%
2022	1,700,215	1,256,313	2,500	0.60%	0.20%
2023	1,726,425	1,280,023	2,500	0.78%	0.20%
2024	1,752,362	1,303,460	2,500	0.96%	0.19%

1. The total number of customers is based on DEF's 2019 Ten Year Site Plan projections.
2. Estimate of the eligible customers are based on customers that are not presently on Energy Management and have electric heat.
3. New participants of winter only or year-round Energy Management Schedule.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

The total program savings shown in the following tables reflect the expected average demand savings associated with new program participants. The per participant savings are based on the data and analysis that supported the 2019 goals filing.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	1.92	1.35	0	4,800	3,370
2021	0	1.92	1.35	0	4,800	3,370
2022	0	1.92	1.35	0	4,800	3,370
2023	0	1.92	1.35	0	4,800	3,370
2024	0	1.92	1.35	0	4,800	3,370
TOTAL				0	24,000	16,850

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	2.03	1.43	0	5,081	3,567
2021	0	2.03	1.43	0	5,081	3,567
2022	0	2.03	1.43	0	5,081	3,567
2023	0	2.03	1.43	0	5,081	3,567
2024	0	2.03	1.43	0	5,081	3,567
TOTAL				0	25,405	17,836

Impact Evaluation Plan

Appliance level and duty-cycle impacts of the residential load control program may be evaluated in a number of ways including analysis of metering data, engineering analysis, analysis of the impacts of load control events, and end use studies.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$38,752	\$19,183	\$19,569	2.02
Participant	\$9,030	\$0	\$9,030	9999
Total Resource Cost	\$38,752	\$10,153	\$28,599	3.82

**VII. COMMERCIAL/INDUSTRIAL AND DEMAND RESPONSE
CONSERVATION PROGRAMS**

A. BUSINESS ENERGY CHECK PROGRAM

Program Start Date: 1995

Program Description

The Business Energy Check Program is an energy audit/education program offered to commercial customers to assist customers in understanding their energy use and provide information and recommendations on how they can better manage their energy usage make their operations more energy efficient. The audit focuses on educating and encouraging customers to implement energy-saving practices and measures. The audit also provides the opportunity to promote cost-effective measures in customers' facilities and serves as the foundation for other commercial energy efficiency and demand side management programs.

The Business Energy Check provides education brochures to commercial customers while also providing free walk-through and phone-assisted audits. DEF is also working to develop an online audit tool for commercial customers.

Policies and Procedures

All commercial, industrial, and governmental customers are eligible to receive any of the above-mentioned audits on commercially metered buildings located in DEF's service territory. DEF may engage external agencies and/or companies as an extension of internal resources. The specific details and procedures for each type of audit or educational information provided through this program will be presented in the Program Participation Standards.

Customers participating in these audits will be provided with examples of energy saving measures that can be easily installed and behavioral changes that may reduce energy consumption. The program promotes continued customer involvement by demonstrating sustainable and measurable reduction in energy consumption through the implementation of low-cost energy conservation measures.

The customer may receive a Commercial Energy Efficiency Kit after the completion of the

Business Energy Check. The Commercial Energy Efficiency Kit will contain energy saving measures that can be easily installed and utilized by the customer. The contents the kit will be evaluated periodically and may change over time.

Program Participation

Annual participation estimates for the Business Energy Check program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	178,557	178,557	400	0.22%	0.22%
2021	181,015	180,615	400	0.44%	0.22%
2022	183,346	183,346	400	0.65%	0.22%
2023	185,608	185,608	400	0.86%	0.22%
2024	187,771	187,771	400	1.07%	0.21%

1. The total number of customers is the forecast of commercial/industrial (C/I) customers in DEF's 2019 Ten Year Site Plan.
2. The measure eligible customers are the total C/I customers less customers who have participated in the two prior years.
3. Number of program participants represents the participants projected.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

Program savings are based on measures included in the energy efficiency kits provided to program participants. Program savings were computed as the sum of the individual measure savings, and are shown in the following tables:

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	690	0.06	0.12	276,159	23	50
2021	690	0.06	0.12	276,159	23	50
2022	690	0.06	0.12	276,159	23	50
2023	690	0.06	0.12	276,159	23	50
2024	690	0.06	0.12	276,159	23	50
TOTAL				1,380,794	117	248

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	731	0.06	0.13	292,320	25	52
2021	731	0.06	0.13	292,320	25	52
2022	731	0.06	0.13	292,320	25	52
2023	731	0.06	0.13	292,320	25	52
2024	731	0.06	0.13	292,320	25	52
TOTAL				1,461,600	124	262

Impact Evaluation Plan

The demand and energy savings for the measures included in the commercial energy kits were based on the results of the most recent market potential study. These impacts included in this study were estimated based on engineering analysis and analysis of billing data and considered the interactive effects of measures. Savings will also result from the implementation of both technological and behavioral recommendations provided as part of the commercial audit and educational information provided to program participants.

B. BETTER BUSINESS PROGRAM

Program Start Date: 1995

Program modified 2000, 2005, 2006, 2007, 2015, 2016 and 2018

Program Description

The Better Business program is designed to promote high efficiency measures and equipment to Commercial, Industrial, and Governmental customers. All business customers are eligible for this program. The Better Business program builds on customer awareness generated through the commercial audit program, educational materials provided to customers, and trade allies.

The program seeks to meet the following overall goals:

- Provide customers with a cost-effective portfolio of measures across various building types.
- Improve customer energy savings and demand reduction through the installation of energy efficient equipment and thermal envelope upgrades.
- Educate customers regarding best practices, innovative technologies, and opportunities to manage energy consumption.

Policies and Procedures

The general eligibility requirements are as follows:

- The facility must be a commercially metered customer in DEF's service territory, including commercially metered multi-family residential facilities.
- DEF inspects the installation of measures and equipment as required by Rule 25-17.003(10) (b), Florida Administrative Code.
- Incentive levels and specific eligibility requirements for each measure promoted in this program will be provided in the Program Participation Standards.

DEF is proposing to include the following measures with this program:

HVAC Equipment

This program will promote HVAC load reduction measures. DEF will provide information to customers about high efficiency HVAC measures and will provide incentives for the purchase of cost effective high efficiency equipment including unitary heat pumps and air conditioners, package terminal heat pumps, package terminal air conditioners, water-cooled chillers and air-cooled chillers, and energy recovery ventilation units.

Duct Leakage Test and Repair/Duct Seal

This portion of the program is designed to promote energy efficiency through improved duct system sealing.

Ceiling Insulation Upgrade

This portion of the program encourages customers to add insulation to the conditioned ceiling area by paying for a portion of the installed cost.

Wall Insulation

This portion of the program encourages customers to add insulation to wall structures of conditioned area by paying for a portion of the installed cost.

Program Participation

Annual participation estimates for the Better Business program are shown in the following table:

Year	Total Number of Customers ⁽¹⁾	Total Number of Measure Eligible Customers ⁽²⁾	Annual Number of Program Measure Participants ⁽³⁾	Cumulative Penetration Level (%) ⁽⁴⁾	Annual Participation Level (%)
2020	178,557	178,557	2,589	1.45%	1.45%
2021	181,015	181,015	2,459	2.79%	1.36%
2022	183,346	183,346	2,336	4.03%	1.27%
2023	185,608	185,608	2,219	5.17%	1.20%
2024	187,771	187,771	2,109	6.24%	1.12%

- 1) The total of customers in the forecast of Commercial/Industrial customers in DEF's 2019 Ten Year Site Plan.
- 2) All Commercial, Industrial and Governmental rate classes are eligible to participate.
- 3) Number of Program Measure Participants represents the participants projected.
- 4) Cumulative penetration is the ratio of cumulative measure participants to the eligible customer pool.

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's savings and annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	2787	1.11	0.61	7,213,765	2,885	1,569
2021	2787	1.11	0.61	6,853,076	2,740	1,491
2022	2787	1.24	0.73	6,510,423	2,903	1,716
2023	2787	1.11	0.61	6,184,901	2,473	1,346
2024	2787	1.26	0.75	5,875,656	2,650	1,578
TOTAL				32,637,822	13,651	7,700

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	2950	1.18	0.64	7,635,922	3,053	1,661
2021	2950	1.18	0.64	7,254,126	2,901	1,578
2022	2950	1.32	0.78	6,891,420	3,073	1,817
2023	2950	1.18	0.64	6,546,849	2,618	1,424
2024	2950	1.33	0.79	6,219,506	2,805	1,671
TOTAL				34,547,822	14,450	8,151

Impact Evaluation Plan

The Better Business Program provides incentives for the installation of various types of measures. The individual measure impacts are based on the most recent market potential study that supported the 2019 goals filing. These estimates are based on analysis of engineering simulations, statistical billing analysis, and end use studies, and include the consideration of the interactive effects of multiple measures. DEF will monitor how future changes to building codes and appliance standards impact the cost effectiveness of measures included in this program.

Cost-effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$40,886	\$40,775	\$111	1.00
Participant	\$35,902	\$14,529	\$21,373	2.47
Total Resource Cost	\$40,886	\$19,402	\$21,484	2.11

C. SMART SAVER CUSTOM INCENTIVE PROGRAM

Program Start Date: 1992

Program modified in 1995 and 2016

Program Description

The objective of the Smart Saver Custom Incentive Program (f/k/a Florida Custom Incentive Program) is to encourage customers to make capital investments for installation of high efficiency technologies not covered by DEF's other commercial programs. Projects may include, but are not limited to, high efficiency equipment and machinery, whole-building construction or renovation projects, and other technologies specific to a particular industry or business process.

Policies and Procedures

The timeline for a project in this program varies depending on the project. The program process steps include application, data collection, analysis of data, monitoring, inspection, and incentives to the customer.

Program eligibility requirements to qualify for participation are as follows:

- Participants must be located in the DEF service territory and be a commercially metered account.
- Participants must be willing to allow DEF to inspect the installations of all measures and equipment.

Specific eligibility requirements for this program will be presented in the Program Participation Standards.

DEF will perform a cost-effectiveness analysis for each project being considered under the program, using the Commission-approved cost-effectiveness tests described in Rule 25-17.008, Florida Administrative Code. Only projects that pass both the Participant Cost Test (PCT) and the Rate Impact Measure (RIM) test will be considered for incentives. Incentives will not exceed 50% of the total project cost or reduce the payback to less than two years. The maximum incentive

for a single project is \$500,000. Incentives may be paid in stages based on comparative performance metrics when there is uncertainty around the demand and energy reductions that will be achieved. Fifty percent (50%) of the approved incentive will be paid upon initial installation. The remaining incentive will be paid post-installation upon confirmation of the achieved impacts.

Program Participation

Annual participation estimates for the Smart Saver Custom Incentive program are shown in the following table.

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	178,557	200	0.11%	0.11%
2021	181,015	181,015	190	0.22%	0.10%
2022	183,346	183,346	181	0.31%	0.10%
2023	185,608	185,608	172	0.40%	0.09%
2024	187,771	187,771	163	0.48%	0.09%

1. The total number of customers is the forecast of Commercial/Industrial customers in DEF's 2019 Ten Year Site Plan.
2. All commercial, industrial and governmental rate classes are eligible to participate.
3. The number of program participants represents the participants projected.
4. Cumulative penetration is the ratio of cumulative measure participating customers to the eligible customer pool.

Savings Estimates

Program savings will be calculated based on evaluation of the demand and energy savings for each individual project. DEF will inspect installations to verify operability of the technology and/or to obtain information needed to calculate the approved custom incentive amount. Annual saving estimates for the Smart Saver Custom Incentive program are shown in the following tables:

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	6,032	0.00	2.50	1,206,309	0	500
2021	6,349	0.00	2.63	1,206,309	0	500
2022	6,665	0.00	2.76	1,206,309	0	500
2023	7,013	0.00	2.91	1,206,309	0	500
2024	7,401	0.00	3.07	1,206,309	0	500
TOTAL				6,031,547	0	2,500

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	6,385	0.00	2.65	1,276,904	0	529
2021	6,721	0.00	2.79	1,276,904	0	529
2022	7,055	0.00	2.92	1,276,904	0	529
2023	7,424	0.00	3.08	1,276,904	0	529
2024	7,834	0.00	3.25	1,276,904	0	529
TOTAL				6,384,520	0	2,646

Impact Evaluation Plan

DEF will inspect installations to verify operability of the technology and to obtain information needed to determine the achieved project savings. Project savings will be verified through engineering and billing analysis based on customer-specific site performance and usage data.

Cost-effectiveness

Each individual project will be analyzed for cost-effectiveness at the time of project submittal to DEF, using the Commission-approved tests. Total program cost effectiveness will be determined based on the combined demand and energy savings of the individual projects.

D. STANDBY GENERATION PROGRAM

Program Start Date: 1993

Program modified in 1995 and 2007

Program Description

The Stand-by Generation program is a demand control program that utilizes customer sited equipment to reduce DEF's system demand. The program is a voluntary program available to all commercial and industrial customers who have on-site generation capability and are willing to utilize their equipment to reduce DEF system demand when deemed necessary. The program is offered through DEF's Stand-By Generation tariffs.

DEF may have direct control of the customer equipment or may rely upon the customer to initiate the on-site generation upon being notified by DEF. The customer is expected to continue running the generation until DEF notifies the customer that the generation is no longer needed. DEF does not restrict other use of the equipment by the customer.

The Stand-by Generation program participants receive a monthly bill credit based on the terms of the applicable tariff and the demonstrated capacity and kwh's produced by the customer's equipment. Bill credits are determined based on the provisions of the applicable Stand-By Generation tariffs.

Policies and Procedures

The general program eligibility requirements to qualify for participation are as follows:

- Customer must be eligible for service under DEF's commercial rate schedules.
- Customer must have standby generation that will reduce utility system demand at the request of DEF.
- Customer's Standby Generation Capacity calculation must be at least 50 KW.
- Customer must be within the range of DEF's load management system.

Program Participation

Annual participation estimates for the Standby Generation program are shown in the following table.

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	178,557	10	0.01%	0.01%
2021	181,015	181,005	10	0.01%	0.01%
2022	183,346	183,326	15	0.02%	0.01%
2023	185,608	185,573	15	0.03%	0.01%
2024	187,771	187,721	15	0.03%	0.01%

1. Total Number of Customers is based on DEF's 2019 Ten Year Site Plan projections.
2. Eligible Customers is based upon tariff GSLM-2 Rate Schedule.
3. Annual number of program participants represents the projected number of customers.
4. Cumulative penetration is the ratio of cumulative measure participants to the eligible customer pool.

Savings Estimates

The KW and KWh savings estimates for this program were determined from historical data and are presented below.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	160.00	200.00	0	1,600	2,000
2021	0	160.00	200.00	0	1,600	2,000
2022	0	160.00	200.00	0	2,400	3,000
2023	0	160.00	200.00	0	2,400	3,000
2024	0	160.00	200.00	0	2,400	3,000
TOTAL				0	10,400	13,000

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	169.36	211.70	0	1,694	2,117
2021	0	169.36	211.70	0	1,694	2,117
2022	0	169.36	211.70	0	2,540	3,176
2023	0	169.36	211.70	0	2,540	3,176
2024	0	169.36	211.70	0	2,540	3,176
TOTAL				0	11,009	13,761

Impact Evaluation Plan

DEF uses on-site metering to measure the generation capability of each Standby Generation program participant to reduce load at the time they join the program. The customer and a DEF representative will observe the metering tests to determine the load that the standby generator carries. This system testing will also determine the initial readings that will be recorded to determine the incentive that the customer will receive on their bill each month.

Cost-effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$22,067	\$4,634	\$17,433	4.76
Participant	\$4,000	\$0	\$4,000	9999.00
Total Resource Cost	\$22,067	\$634	\$21,433	34.81

E. INTERRUPTIBLE SERVICE PROGRAM

Program Start Date: 1996 for the IS-2 and IST-2 rate schedules.

Program Description

The Interruptible Service program is a direct load control program designed to reduce DEF's demand at times of capacity shortage during peak or emergency conditions.

Policies and Procedures

The program is available to non-residential customers throughout the DEF's entire service territory who are willing to have their service interrupted. The program is currently provided to customers through various tariffs. The specific eligibility requirements, bill credits amounts, and operational provisions are as defined in the specific tariffs. These tariffs are designed to support system operations and reliability. The provisions of these tariffs may be modified as appropriate to ensure that the program remains cost effective and provides system benefits. The IS-1 and IST-1 rate schedules were closed to new customers in 1996, but remain active for those customers that were grand-fathered onto those rates.

Under this program, DEF will have the ability to interrupt service to the customer. Customers participating in the Interruptible Service program will receive a monthly interruptible demand credit per the provisions of the applicable tariff.

Program Participation

Annual participation estimates for the Interruptible Service program are shown in the following table:

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	697	16	2.30%	2.30%
2021	181,015	681	10	3.82%	1.47%
2022	183,346	671	4	4.47%	0.60%
2023	185,608	667	6	5.40%	0.90%
2024	187,771	661	8	6.66%	1.21%

1. Total Number of Customers is based on DEF's 2019 ten Year Site Plan projections.
2. Eligible Customers is based upon tariff IS-2 and IST-2 Rate Schedule.
3. Annual number of program participants represents the projected number of customers.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

Savings estimates for the Interruptible Service program are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	3750.00	3750.00	0	60,000	60,000
2021	0	500.00	500.00	0	5,000	5,000
2022	0	375.00	500.00	0	1,500	2,000
2023	0	375.00	500.00	0	2,250	3,000
2024	0	375.00	500.00	0	3,000	4,000
TOTAL				0	71,750	74,000

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	3969.45	3969.45	0	63,511	63,511
2021	0	529.26	529.26	0	5,293	5,293
2022	0	396.95	529.26	0	1,588	2,117
2023	0	396.95	529.26	0	2,382	3,176
2024	0	396.95	529.26	0	3,176	4,234
TOTAL				0	75,949	78,331

Impact Evaluation Plan

Program impacts are evaluated through on-site interval metering data of all Interruptible Service customers.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$119,016	\$45,547	\$73,469	2.61
Participant	\$40,187	\$0	\$40,187	9999
Total Resource Cost	\$119,016	\$5,360	\$113,656	22.20

F. CURTAILABLE SERVICE PROGRAM

Program Start Date: 1996 for the CS-2 and CST-2 rate schedules
2004 for the CS-3 and CST-3 rate schedules.

Program Description

The Curtailable Service program is an indirect load control program designed to reduce DEF's demand at times of capacity shortage during peak or emergency conditions.

Policies and Procedures

The program is available throughout DEF's entire service territory to non-residential customers who agree to curtail demand. The program is currently provided to customers through various tariffs. The specific customer eligibility and curtailment requirements, bill credits amounts, and operational provisions are as defined in the applicable tariffs. These tariffs are designed to support system operations and reliability. The provisions of these tariffs may be modified as appropriate to ensure that the program remains cost effective and provides system benefits. The CS-1 and CST-1 rate schedules were closed to new customers in 1996, but remain active for those customers that were grand-fathered onto the rate.

Program Participation

Annual participation estimates for the Curtailable Service program are shown in the following table:

Year	Total Number of Customers (1)	Total Number of Measure Eligible Customers (2)	Annual Number of Program Measure Participants (3)	Cumulative Penetration Level (%) (4)	Annual Participation Level (%)
2020	178,557	697	1.0	0.14%	0.14%
2021	181,015	696	0.0	0.14%	0.00%
2022	183,346	696	1.0	0.29%	0.14%
2023	185,608	695	0.0	0.29%	0.00%
2024	187,771	695	1.0	0.43%	0.14%

1. Total Number of Customers is based on DEF's 2019 Ten Year Site Plan projections.
2. Eligible Customers is based upon tariff CS-2, CST-2, CS-3 and CST-3 Rate Schedules.
3. Annual number of program participants represents the projected number of customers.
4. Cumulative penetration is the ratio of cumulative participants to the eligible customer pool.

Savings Estimates

Savings estimate for the Curtailable Service program are shown in the following tables.

At the Meter:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	500	500	0	500	500
2021	0	-	-	0	0	0
2022	0	500	500	0	500	500
2023	0	-	-	0	0	0
2024	0	500	500	0	500	500
TOTAL				0	1,500	1,500

At the Generator:

Year	Per Customer KWh Reduction	Per Customer Winter KW Reduction	Per Customer Summer KW Reduction	Total Annual KWh Reduction	Total Annual Winter KW Reduction	Total Annual Summer KW Reduction
2020	0	529.26	529.26	0	529	529
2021	0	0.00	0.00	0	0	0
2022	0	529.26	529.26	0	529	529
2023	0	0.00	0.00	0	0	0
2024	0	529.26	529.26	0	529	529
TOTAL				0	1,588	1,588

Impact Evaluation Plan

Program impacts are evaluated through on-site interval metering data of all Curtailable Service customers.

Cost-Effectiveness

All cost-effectiveness tests are net of free ridership. The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits \$(000)	NPV Costs \$ (000)	NPV Net Benefits \$(000)	B/C Ratio
Rate Impact Measure	\$2,528	\$580	\$1,948	4.36
Participant	\$514	\$0	\$514	9999
Total Resource Cost	\$2,528	\$67	\$2,461	37.93

VIII. TECHNOLOGY DEVELOPMENT PROGRAM

Program Start Date: 1995

Program Description

Technical and operational knowledge for the advances in the energy field may come from field demonstration projects, research partnerships, webinars, general education, etc. The Technology Development Program is designed to allow DEF to investigate technologies that may support the development of new demand response and energy efficiency programs. Projects undertaken in this program may include, but are not limited to, technological research, field demonstration projects, research on load behavior and demand-side management measures, and other market related research.

DEF will undertake certain development and demonstration projects which have the potential to become cost-effective demand and energy efficiency programs. In general, each research and development project that is proposed and investigated will proceed as follows:

1. Concept or idea development.
2. Research and design, including estimated costs and benefits.
3. Conduct field test or pilot program.
4. Evaluate field test or pilot program results, including cost-effectiveness.
5. Acceptance or rejection of project for continuation as a program.
6. If accepted in Item #5 above, application to the FPSC for approval to implement as a separate program or as measure within an existing program.

Eligible customers will be determined during the project research and design phase and will be dependent on the type of project proposed. Each project that is proposed and investigated is expected to meet one or more of the goals identified in Section 366.82(2), Florida Statutes, and Chapter 25-17, Florida Administrative Code.

Program Participation

In most cases, each demand reduction and energy efficiency project that is proposed and investigated under this program will require field testing with actual customers. These projects will offer services or products to eligible customers, after being defined in the project research and design phase, on a voluntary basis.

Examples of potential projects that may be funded under this program include demand response and energy efficiency technologies, market transformation initiatives and other innovative technologies that will influence customer energy usage. All costs, including incentives and rebates, will be included as part of the pre-approved project expenditures under this program.

At the discretion of the Company, expenditures up to \$800,000 annually may be made and recovered through the conservation cost recovery clause for all energy efficiency and conservation projects that are proposed and investigated. If any single project's annual expenditures exceed \$100,000, a status report will be filed as a component of the Conservation Cost Recovery True-Up filing. The status report will identify each project under this program with annual costs in excess of \$100,000, the scope and purpose of the project, the project development schedule identifying both achieved and projected accomplishments, and the project's actual and proposed expenditures for FPSC staff review. If any project (or combination of projects) expenditures are projected to exceed the \$800,000 annual limit available under this program and are sufficiently worthy of special consideration, the Company will apply to the FPSC staff for approval to proceed.

Finally, the Company will account for and maintain records of all expenses for each project in accordance with Chapter 25-17.015, Florida Administrative Code.

Savings Estimates

The savings impacts will be derived from actual data obtained from field tests which will calibrate engineering analysis, model results and estimates. This data will provide estimates of the benefits and costs associated with these projects. The actual experience and knowledge gained on a small scale may be leveraged to facilitate the development of new measures.

Consequently, program savings have not been estimated and have not been included in this DSM Plan. Any impacts obtained by this program will be calculated for each individual project and will be reported to the FPSC to be counted toward achieving DEF's conservation goals.

Impact Evaluation Plan

This program will normally include a field test or pilot where the impacts will be based on actual results. In the event a project does not involve a field test or pilot, the estimated or modeled savings will be fully documented with the methodology used.

Cost-Effectiveness

The cost-effectiveness of each project submitted to the FPSC for approval to be implemented as a program shall be analyzed and reported using the Commission-approved cost-effectiveness tests.

IX. QUALIFYING FACILITIES PROGRAM

Program Description

The purpose of this program is to meet the objectives and obligations established by the federal Public Utility Regulatory Policies Act, Section 366.051 of Florida Statutes, and the Commission's rules contained within Chapter 25-17, Florida Administrative Code. These policies pertain to the purchase of as-available energy and firm energy and capacity from qualifying facilities (QFs), including those that utilize renewable sources under Section 366.91, Florida Statutes, pursuant to DEF's agreement for purchase per the as-available energy tariff, standard offer contract tariff, or a negotiated QF purchased power contract on behalf of DEF customers.

Under the Qualifying Facilities program, DEF analyzes, forecasts, facilitates, and administers the potential and actual power purchases from qualifying facilities and the state jurisdictional QF or distributed generator interconnections. This Program develops standard offer QF contracts, negotiates, enters into, amends and restructures non-firm energy, and firm energy and capacity contracts entered into with qualifying cogeneration, small power producers, which include renewable facilities.

X. BENEFITS & COST ANALYSIS – ALL PROGRAMS

A. RESIDENTIAL CONSERVATION PROGRAMS

PROGRAM: Residential Incentive Program SSHEI

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	382	1,029	0	1,411	2,361	4,558	1,591	8,510	-7,099
2021	678	1,900	0	2,578	1,950	3,890	2,905	8,745	-6,168
2022	964	2,762	0	3,726	1,853	3,696	4,277	9,826	-6,100
2023	1,259	3,624	0	4,883	1,760	3,511	5,652	10,923	-6,040
2024	1,685	4,487	0	6,173	1,672	3,335	7,046	12,054	-5,881
2025	2,028	4,588	0	6,616	0	0	7,456	7,456	-840
2026	2,225	4,694	0	6,919	0	0	7,893	7,893	-974
2027	2,518	4,808	5,929	13,255	0	0	8,297	8,297	4,958
2028	2,656	4,925	5,962	13,543	0	0	8,640	8,640	4,903
2029	2,805	5,044	7,998	15,847	0	0	9,008	9,008	6,839
2030	3,085	5,164	8,067	16,316	0	0	9,474	9,474	6,842
2031	3,097	5,009	7,716	15,823	0	0	9,365	9,365	6,458
2032	3,105	4,855	5,888	13,848	0	0	9,230	9,230	4,618
2033	3,142	4,704	6,066	13,912	0	0	9,100	9,100	4,812
2034	3,085	4,556	5,865	13,505	0	0	8,945	8,945	4,560
2035	2,561	4,036	6,291	12,888	0	0	7,813	7,813	5,075
2036	2,372	3,758	5,780	11,910	0	0	7,298	7,298	4,612
2037	2,305	3,484	4,461	10,250	0	0	6,894	6,894	3,356
2038	2,224	3,214	4,110	9,548	0	0	6,525	6,525	3,023
2039	2,149	2,949	3,712	8,810	0	0	6,125	6,125	2,685
2040	1,596	2,171	2,767	6,533	0	0	4,558	4,558	1,975
2041	1,205	1,620	2,062	4,887	0	0	3,434	3,434	1,453
2042	811	1,075	1,347	3,232	0	0	2,302	2,302	930
2043	409	535	679	1,623	0	0	1,158	1,158	465
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	48,346	84,989	84,698	218,033	9,595	18,990	154,988	183,573	34,460
NPV	23,132	44,037	35,833	103,003	8,500	16,805	77,532	102,837	166

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.002

PROGRAM: Residential Incentive Program SSHEI

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	382	1,029	0	1,411	2,361	9,449	11,810	-10,399
2021	678	1,900	0	2,578	1,950	8,419	10,369	-7,791
2022	964	2,762	0	3,726	1,853	7,998	9,851	-6,125
2023	1,259	3,624	0	4,883	1,760	7,598	9,358	-4,475
2024	1,685	4,487	0	6,173	1,672	7,218	8,890	-2,718
2025	2,028	4,588	0	6,616	0	0	0	6,616
2026	2,225	4,694	0	6,919	0	0	0	6,919
2027	2,518	4,808	5,929	13,255	0	0	0	13,255
2028	2,656	4,925	5,962	13,543	0	0	0	13,543
2029	2,805	5,044	7,998	15,847	0	0	0	15,847
2030	3,085	5,164	8,067	16,316	0	0	0	16,316
2031	3,097	5,009	7,716	15,823	0	0	0	15,823
2032	3,105	4,855	5,888	13,848	0	0	0	13,848
2033	3,142	4,704	6,066	13,912	0	0	0	13,912
2034	3,085	4,556	5,865	13,505	0	0	0	13,505
2035	2,561	4,036	6,291	12,888	0	0	0	12,888
2036	2,372	3,758	5,780	11,910	0	0	0	11,910
2037	2,305	3,484	4,461	10,250	0	0	0	10,250
2038	2,224	3,214	4,110	9,548	0	0	0	9,548
2039	2,149	2,949	3,712	8,810	0	0	0	8,810
2040	1,596	2,171	2,767	6,533	0	0	0	6,533
2041	1,205	1,620	2,062	4,887	0	0	0	4,887
2042	811	1,075	1,347	3,232	0	0	0	3,232
2043	409	535	679	1,623	0	0	0	1,623
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	48,346	84,989	84,698	218,033	9,595	40,683	50,278	167,755
NPV	23,132	44,037	35,833	103,003	8,500	35,954	44,454	58,549

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.317

PROGRAM: Residential Incentive Program

SSHEI

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	1,591	4,558	0	6,149	9,449	9,449	-3,300
2021	2,905	3,890	0	6,795	8,419	8,419	-1,624
2022	4,277	3,696	0	7,973	7,998	7,998	-25
2023	5,652	3,511	0	9,163	7,598	7,598	1,565
2024	7,046	3,335	0	10,382	7,218	7,218	3,163
2025	7,456	0	0	7,456	0	0	7,456
2026	7,893	0	0	7,893	0	0	7,893
2027	8,297	0	0	8,297	0	0	8,297
2028	8,640	0	0	8,640	0	0	8,640
2029	9,008	0	0	9,008	0	0	9,008
2030	9,474	0	0	9,474	0	0	9,474
2031	9,365	0	0	9,365	0	0	9,365
2032	9,230	0	0	9,230	0	0	9,230
2033	9,100	0	0	9,100	0	0	9,100
2034	8,945	0	0	8,945	0	0	8,945
2035	7,813	0	0	7,813	0	0	7,813
2036	7,298	0	0	7,298	0	0	7,298
2037	6,894	0	0	6,894	0	0	6,894
2038	6,525	0	0	6,525	0	0	6,525
2039	6,125	0	0	6,125	0	0	6,125
2040	4,558	0	0	4,558	0	0	4,558
2041	3,434	0	0	3,434	0	0	3,434
2042	2,302	0	0	2,302	0	0	2,302
2043	1,158	0	0	1,158	0	0	1,158
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	154,988	18,990	0	173,977	40,683	40,683	133,295
NPV	77,532	16,805	0	94,337	35,954	35,954	58,383

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.624

PROGRAM: Neighborhood Energy Saver HWLI

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	516	1,182	0	1,697	619	4,985	2,130	7,734	-6,037
2021	1,008	2,405	0	3,413	619	4,985	4,285	9,888	-6,475
2022	1,470	3,581	0	5,051	619	4,985	6,471	12,074	-7,023
2023	1,967	4,815	0	6,783	619	4,985	8,767	14,370	-7,588
2024	2,699	6,110	0	8,808	619	4,985	11,203	16,807	-7,998
2025	3,195	6,145	0	9,340	0	0	11,666	11,666	-2,326
2026	3,448	6,182	0	9,629	0	0	12,149	12,149	-2,520
2027	3,897	6,330	7,809	18,036	0	0	12,758	12,758	5,278
2028	4,107	6,483	7,850	18,440	0	0	13,273	13,273	5,167
2029	4,254	6,596	10,455	21,305	0	0	13,575	13,575	7,730
2030	4,520	6,676	10,426	21,622	0	0	13,794	13,794	7,828
2031	4,337	6,296	9,695	20,328	0	0	13,025	13,025	7,303
2032	4,112	5,892	7,147	17,150	0	0	12,137	12,137	5,013
2033	3,838	5,444	7,022	16,304	0	0	11,034	11,034	5,271
2034	3,510	5,020	6,464	14,994	0	0	10,100	10,100	4,894
2035	2,986	4,591	7,153	14,731	0	0	9,046	9,046	5,684
2036	2,974	4,648	7,147	14,769	0	0	9,098	9,098	5,671
2037	3,118	4,704	6,025	13,848	0	0	9,288	9,288	4,560
2038	3,313	4,784	6,117	14,214	0	0	9,699	9,699	4,515
2039	3,544	4,864	6,123	14,532	0	0	10,103	10,103	4,429
2040	2,923	3,976	5,069	11,969	0	0	8,351	8,351	3,618
2041	2,266	3,047	3,878	9,192	0	0	6,459	6,459	2,733
2042	1,565	2,076	2,600	6,241	0	0	4,445	4,445	1,796
2043	810	1,060	1,346	3,216	0	0	2,294	2,294	922
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	70,377	112,908	112,325	295,611	3,093	24,925	225,150	253,168	42,442
NPV	33,808	57,632	46,624	138,063	2,709	21,832	113,259	137,801	262

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.002

PROGRAM: Neighborhood Energy Saver HWLI

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	516	1,182	0	1,697	619	7,439	8,057	-6,360
2021	1,008	2,405	0	3,413	619	7,439	8,057	-4,644
2022	1,470	3,581	0	5,051	619	7,439	8,057	-3,006
2023	1,967	4,815	0	6,783	619	7,439	8,057	-1,275
2024	2,699	6,110	0	8,808	619	7,439	8,057	751
2025	3,195	6,145	0	9,340	0	0	0	9,340
2026	3,448	6,182	0	9,629	0	0	0	9,629
2027	3,897	6,330	7,809	18,036	0	0	0	18,036
2028	4,107	6,483	7,850	18,440	0	0	0	18,440
2029	4,254	6,596	10,455	21,305	0	0	0	21,305
2030	4,520	6,676	10,426	21,622	0	0	0	21,622
2031	4,337	6,296	9,695	20,328	0	0	0	20,328
2032	4,112	5,892	7,147	17,150	0	0	0	17,150
2033	3,838	5,444	7,022	16,304	0	0	0	16,304
2034	3,510	5,020	6,464	14,994	0	0	0	14,994
2035	2,986	4,591	7,153	14,731	0	0	0	14,731
2036	2,974	4,648	7,147	14,769	0	0	0	14,769
2037	3,118	4,704	6,025	13,848	0	0	0	13,848
2038	3,313	4,784	6,117	14,214	0	0	0	14,214
2039	3,544	4,864	6,123	14,532	0	0	0	14,532
2040	2,923	3,976	5,069	11,969	0	0	0	11,969
2041	2,266	3,047	3,878	9,192	0	0	0	9,192
2042	1,565	2,076	2,600	6,241	0	0	0	6,241
2043	810	1,060	1,346	3,216	0	0	0	3,216
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	70,377	112,908	112,325	295,611	3,093	37,193	40,286	255,325
NPV	33,808	57,632	46,624	138,063	2,709	32,578	35,287	102,776

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 3.913

PROGRAM: Neighborhood Energy Saver

HWLI

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	2,130	4,985	0	7,116	7,439	7,439	-323
2021	4,285	4,985	0	9,270	7,439	7,439	1,831
2022	6,471	4,985	0	11,456	7,439	7,439	4,017
2023	8,767	4,985	0	13,752	7,439	7,439	6,313
2024	11,203	4,985	0	16,188	7,439	7,439	8,750
2025	11,666	0	0	11,666	0	0	11,666
2026	12,149	0	0	12,149	0	0	12,149
2027	12,758	0	0	12,758	0	0	12,758
2028	13,273	0	0	13,273	0	0	13,273
2029	13,575	0	0	13,575	0	0	13,575
2030	13,794	0	0	13,794	0	0	13,794
2031	13,025	0	0	13,025	0	0	13,025
2032	12,137	0	0	12,137	0	0	12,137
2033	11,034	0	0	11,034	0	0	11,034
2034	10,100	0	0	10,100	0	0	10,100
2035	9,046	0	0	9,046	0	0	9,046
2036	9,098	0	0	9,098	0	0	9,098
2037	9,288	0	0	9,288	0	0	9,288
2038	9,699	0	0	9,699	0	0	9,699
2039	10,103	0	0	10,103	0	0	10,103
2040	8,351	0	0	8,351	0	0	8,351
2041	6,459	0	0	6,459	0	0	6,459
2042	4,445	0	0	4,445	0	0	4,445
2043	2,294	0	0	2,294	0	0	2,294
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	225,150	24,925	0	250,075	37,193	37,193	212,882
NPV	113,259	21,832	0	135,091	32,578	32,578	102,514

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 4.147

PROGRAM: Low Income Weatherization Assistance

WZELEC

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				(9)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	53	135	0	188	145	604	219	968	-779
2021	78	205	0	283	74	325	332	732	-448
2022	102	273	0	375	74	325	451	850	-475
2023	129	344	0	473	74	325	575	974	-502
2024	170	418	0	589	74	325	707	1,106	-518
2025	202	423	0	625	0	0	739	739	-114
2026	219	427	0	647	0	0	773	773	-126
2027	248	438	540	1,225	0	0	812	812	414
2028	261	448	543	1,252	0	0	844	844	408
2029	272	457	724	1,453	0	0	868	868	586
2030	291	464	725	1,480	0	0	889	889	591
2031	287	449	691	1,426	0	0	860	860	566
2032	280	432	524	1,236	0	0	826	826	410
2033	272	413	533	1,218	0	0	781	781	437
2034	259	396	510	1,164	0	0	744	744	420
2035	225	367	571	1,163	0	0	681	681	482
2036	221	361	555	1,137	0	0	677	677	461
2037	229	355	454	1,038	0	0	681	681	356
2038	238	349	446	1,034	0	0	698	698	336
2039	250	343	432	1,025	0	0	712	712	312
2040	143	194	247	584	0	0	408	408	177
2041	111	149	189	449	0	0	315	315	133
2042	76	101	127	305	0	0	217	217	88
2043	40	52	66	157	0	0	112	112	45
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	4,656	7,992	7,878	20,527	441	1,904	14,922	17,268	3,259
NPV	2,255	4,151	3,299	9,705	395	1,703	7,570	9,668	37

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.004

PROGRAM: Low Income Weatherization Assistance

WZELEC

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	53	135	0	188	145	724	869	-680
2021	78	205	0	283	74	445	519	-236
2022	102	273	0	375	74	445	519	-144
2023	129	344	0	473	74	445	519	-46
2024	170	418	0	589	74	445	519	70
2025	202	423	0	625	0	0	0	625
2026	219	427	0	647	0	0	0	647
2027	248	438	540	1,225	0	0	0	1,225
2028	261	448	543	1,252	0	0	0	1,252
2029	272	457	724	1,453	0	0	0	1,453
2030	291	464	725	1,480	0	0	0	1,480
2031	287	449	691	1,426	0	0	0	1,426
2032	280	432	524	1,236	0	0	0	1,236
2033	272	413	533	1,218	0	0	0	1,218
2034	259	396	510	1,164	0	0	0	1,164
2035	225	367	571	1,163	0	0	0	1,163
2036	221	361	555	1,137	0	0	0	1,137
2037	229	355	454	1,038	0	0	0	1,038
2038	238	349	446	1,034	0	0	0	1,034
2039	250	343	432	1,025	0	0	0	1,025
2040	143	194	247	584	0	0	0	584
2041	111	149	189	449	0	0	0	449
2042	76	101	127	305	0	0	0	305
2043	40	52	66	157	0	0	0	157
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	4,656	7,992	7,878	20,527	441	2,504	2,945	17,582
NPV	2,255	4,151	3,299	9,705	395	2,228	2,623	7,082

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 3.700

PROGRAM: Low Income Weatherization Assistance

WZELEC

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	
	SAVINGS IN PARTICIPANT'S BILL \$(000)	INCENTIVE PAYMENTS \$(000)	OTHER PARTICIPANT'S BENEFITS \$(000)	TOTAL BENEFITS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	219	604	0	823	724	724	99
2021	332	325	0	658	445	445	213
2022	451	325	0	776	445	445	331
2023	575	325	0	900	445	445	455
2024	707	325	0	1,032	445	445	587
2025	739	0	0	739	0	0	739
2026	773	0	0	773	0	0	773
2027	812	0	0	812	0	0	812
2028	844	0	0	844	0	0	844
2029	868	0	0	868	0	0	868
2030	889	0	0	889	0	0	889
2031	860	0	0	860	0	0	860
2032	826	0	0	826	0	0	826
2033	781	0	0	781	0	0	781
2034	744	0	0	744	0	0	744
2035	681	0	0	681	0	0	681
2036	677	0	0	677	0	0	677
2037	681	0	0	681	0	0	681
2038	698	0	0	698	0	0	698
2039	712	0	0	712	0	0	712
2040	408	0	0	408	0	0	408
2041	315	0	0	315	0	0	315
2042	217	0	0	217	0	0	217
2043	112	0	0	112	0	0	112
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	14,922	1,904	0	16,827	2,504	2,504	14,323
NPV	7,570	1,703	0	9,273	2,228	2,228	7,045

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 4.162

PROGRAM: Residential Load Management

PWRMGR

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	0	0	0	0	750	162	0	913	-913
2021	0	0	0	0	876	325	0	1,201	-1,201
2022	0	0	0	0	1,001	487	0	1,489	-1,489
2023	0	0	0	0	1,127	650	0	1,776	-1,776
2024	0	0	0	0	1,252	812	0	2,064	-2,064
2025	0	0	0	0	1,252	812	0	2,064	-2,064
2026	0	0	0	0	627	812	0	1,439	-1,439
2027	0	0	4,284	4,284	627	812	0	1,439	2,844
2028	0	0	4,307	4,307	627	812	0	1,439	2,868
2029	0	0	5,782	5,782	627	812	0	1,439	4,343
2030	0	0	5,832	5,832	627	812	0	1,439	4,393
2031	0	0	5,883	5,883	627	812	0	1,439	4,444
2032	0	0	4,731	4,731	627	812	0	1,439	3,292
2033	0	0	5,142	5,142	627	812	0	1,439	3,703
2034	0	0	5,245	5,245	627	812	0	1,439	3,805
2035	0	0	6,494	6,494	627	812	0	1,439	5,055
2036	0	0	6,549	6,549	627	812	0	1,439	5,110
2037	0	0	5,566	5,566	627	812	0	1,439	4,126
2038	0	0	5,678	5,678	627	812	0	1,439	4,238
2039	0	0	5,710	5,710	627	812	0	1,439	4,271
2040	0	0	5,909	5,909	627	812	0	1,439	4,469
2041	0	0	6,028	6,028	627	812	0	1,439	4,589
2042	0	0	6,062	6,062	627	812	0	1,439	4,623
2043	0	0	6,274	6,274	627	812	0	1,439	4,835
2044	0	0	6,494	6,494	627	812	0	1,439	5,055
2045	0	0	5,377	5,377	615	796	0	1,411	3,967
2046	0	0	4,174	4,174	602	780	0	1,382	2,793
2047	0	0	2,880	2,880	589	764	0	1,353	1,527
2048	0	0	1,491	1,491	577	747	0	1,324	166
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	115,895	115,895	20,557	21,768	0	42,325	73,570
NPV	0	0	38,752	38,752	10,153	9,030	0	19,183	19,569

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 2.020

PROGRAM: Residential Load Management

PWRMGR

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	750	0	750	-750
2021	0	0	0	0	876	0	876	-876
2022	0	0	0	0	1,001	0	1,001	-1,001
2023	0	0	0	0	1,127	0	1,127	-1,127
2024	0	0	0	0	1,252	0	1,252	-1,252
2025	0	0	0	0	1,252	0	1,252	-1,252
2026	0	0	0	0	627	0	627	-627
2027	0	0	4,284	4,284	627	0	627	3,657
2028	0	0	4,307	4,307	627	0	627	3,680
2029	0	0	5,782	5,782	627	0	627	5,155
2030	0	0	5,832	5,832	627	0	627	5,205
2031	0	0	5,883	5,883	627	0	627	5,256
2032	0	0	4,731	4,731	627	0	627	4,104
2033	0	0	5,142	5,142	627	0	627	4,515
2034	0	0	5,245	5,245	627	0	627	4,617
2035	0	0	6,494	6,494	627	0	627	5,867
2036	0	0	6,549	6,549	627	0	627	5,922
2037	0	0	5,566	5,566	627	0	627	4,939
2038	0	0	5,678	5,678	627	0	627	5,050
2039	0	0	5,710	5,710	627	0	627	5,083
2040	0	0	5,909	5,909	627	0	627	5,281
2041	0	0	6,028	6,028	627	0	627	5,401
2042	0	0	6,062	6,062	627	0	627	5,435
2043	0	0	6,274	6,274	627	0	627	5,647
2044	0	0	6,494	6,494	627	0	627	5,867
2045	0	0	5,377	5,377	615	0	615	4,763
2046	0	0	4,174	4,174	602	0	602	3,572
2047	0	0	2,880	2,880	589	0	589	2,291
2048	0	0	1,491	1,491	577	0	577	914
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	115,895	115,895	20,557	0	20,557	95,338
NPV	0	0	38,752	38,752	10,153	0	10,153	28,599

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 3.817

PROGRAM: Residential Load Management

PWRMGR

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	162	0	162	0	0	162
2021	0	325	0	325	0	0	325
2022	0	487	0	487	0	0	487
2023	0	650	0	650	0	0	650
2024	0	812	0	812	0	0	812
2025	0	812	0	812	0	0	812
2026	0	812	0	812	0	0	812
2027	0	812	0	812	0	0	812
2028	0	812	0	812	0	0	812
2029	0	812	0	812	0	0	812
2030	0	812	0	812	0	0	812
2031	0	812	0	812	0	0	812
2032	0	812	0	812	0	0	812
2033	0	812	0	812	0	0	812
2034	0	812	0	812	0	0	812
2035	0	812	0	812	0	0	812
2036	0	812	0	812	0	0	812
2037	0	812	0	812	0	0	812
2038	0	812	0	812	0	0	812
2039	0	812	0	812	0	0	812
2040	0	812	0	812	0	0	812
2041	0	812	0	812	0	0	812
2042	0	812	0	812	0	0	812
2043	0	812	0	812	0	0	812
2044	0	812	0	812	0	0	812
2045	0	796	0	796	0	0	796
2046	0	780	0	780	0	0	780
2047	0	764	0	764	0	0	764
2048	0	747	0	747	0	0	747
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	21,768	0	21,768	0	0	21,768
NPV	0	9,030	0	9,030	0	0	9,030

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 9999

B. COMMERCIAL/INDUSTRIAL CONSERVATION PROGRAMS

PROGRAM: Better Business

NRBBUS

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	178	396	0	573	1,221	707	677	2,605	-2,031
2021	339	786	0	1,124	1,160	671	1,321	3,153	-2,029
2022	494	1,211	0	1,705	1,102	728	1,984	3,813	-2,108
2023	653	1,598	0	2,251	1,047	606	2,639	4,292	-2,041
2024	881	2,027	0	2,908	994	666	3,298	4,958	-2,050
2025	1,060	2,072	0	3,132	0	0	3,496	3,496	-364
2026	1,163	2,120	0	3,283	0	0	3,710	3,710	-426
2027	1,316	2,171	2,673	6,161	0	0	3,901	3,901	2,261
2028	1,388	2,224	2,688	6,301	0	0	4,053	4,053	2,248
2029	1,466	2,278	3,621	7,365	0	0	4,218	4,218	3,147
2030	1,451	2,044	3,202	6,698	0	0	3,995	3,995	2,703
2031	1,374	1,811	2,799	5,984	0	0	3,716	3,716	2,268
2032	1,290	1,579	1,910	4,779	0	0	3,419	3,419	1,360
2033	1,211	1,350	1,735	4,296	0	0	3,120	3,120	1,176
2034	1,092	1,123	1,439	3,654	0	0	2,806	2,806	848
2035	984	1,060	1,661	3,705	0	0	2,633	2,633	1,072
2036	941	997	1,542	3,480	0	0	2,526	2,526	954
2037	947	936	1,195	3,079	0	0	2,472	2,472	607
2038	950	876	1,118	2,944	0	0	2,440	2,440	504
2039	960	817	1,027	2,803	0	0	2,399	2,399	404
2040	771	677	861	2,309	0	0	1,923	1,923	386
2041	582	539	684	1,805	0	0	1,441	1,441	363
2042	391	339	423	1,153	0	0	962	962	191
2043	197	202	255	654	0	0	482	482	172
2044	0	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	22,081	31,234	28,834	82,148	5,524	3,377	63,632	72,533	9,615
NPV	10,872	17,213	12,801	40,886	4,872	2,967	32,935	40,775	111

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 1.003

PROGRAM: Better Business

NRBBUS

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	178	396	0	573	1,221	3,027	4,248	-3,675
2021	339	786	0	1,124	1,160	2,876	4,036	-2,912
2022	494	1,211	0	1,705	1,102	4,232	5,334	-3,629
2023	653	1,598	0	2,251	1,047	2,596	3,642	-1,392
2024	881	2,027	0	2,908	994	3,966	4,960	-2,053
2025	1,060	2,072	0	3,132	0	0	0	3,132
2026	1,163	2,120	0	3,283	0	0	0	3,283
2027	1,316	2,171	2,673	6,161	0	0	0	6,161
2028	1,388	2,224	2,688	6,301	0	0	0	6,301
2029	1,466	2,278	3,621	7,365	0	0	0	7,365
2030	1,451	2,044	3,202	6,698	0	0	0	6,698
2031	1,374	1,811	2,799	5,984	0	0	0	5,984
2032	1,290	1,579	1,910	4,779	0	0	0	4,779
2033	1,211	1,350	1,735	4,296	0	0	0	4,296
2034	1,092	1,123	1,439	3,654	0	0	0	3,654
2035	984	1,060	1,661	3,705	0	0	0	3,705
2036	941	997	1,542	3,480	0	0	0	3,480
2037	947	936	1,195	3,079	0	0	0	3,079
2038	950	876	1,118	2,944	0	0	0	2,944
2039	960	817	1,027	2,803	0	0	0	2,803
2040	771	677	861	2,309	0	0	0	2,309
2041	582	539	684	1,805	0	0	0	1,805
2042	391	339	423	1,153	0	0	0	1,153
2043	197	202	255	654	0	0	0	654
2044	0	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	22,081	31,234	28,834	82,148	5,524	16,697	22,220	59,928
NPV	10,872	17,213	12,801	40,886	4,872	14,529	19,402	21,484

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.107

PROGRAM: Better Business

NRBBUS

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	677	707	0	1,384	3,027	3,027	-1,643
2021	1,321	671	0	1,993	2,876	2,876	-883
2022	1,984	728	0	2,711	4,232	4,232	-1,521
2023	2,639	606	0	3,245	2,596	2,596	650
2024	3,298	666	0	3,963	3,966	3,966	-3
2025	3,496	0	0	3,496	0	0	3,496
2026	3,710	0	0	3,710	0	0	3,710
2027	3,901	0	0	3,901	0	0	3,901
2028	4,053	0	0	4,053	0	0	4,053
2029	4,218	0	0	4,218	0	0	4,218
2030	3,995	0	0	3,995	0	0	3,995
2031	3,716	0	0	3,716	0	0	3,716
2032	3,419	0	0	3,419	0	0	3,419
2033	3,120	0	0	3,120	0	0	3,120
2034	2,806	0	0	2,806	0	0	2,806
2035	2,633	0	0	2,633	0	0	2,633
2036	2,526	0	0	2,526	0	0	2,526
2037	2,472	0	0	2,472	0	0	2,472
2038	2,440	0	0	2,440	0	0	2,440
2039	2,399	0	0	2,399	0	0	2,399
2040	1,923	0	0	1,923	0	0	1,923
2041	1,441	0	0	1,441	0	0	1,441
2042	962	0	0	962	0	0	962
2043	482	0	0	482	0	0	482
2044	0	0	0	0	0	0	0
2045	0	0	0	0	0	0	0
2046	0	0	0	0	0	0	0
2047	0	0	0	0	0	0	0
2048	0	0	0	0	0	0	0
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	63,632	3,377	0	67,009	16,697	16,697	50,313
NPV	32,935	2,967	0	35,902	14,529	14,529	21,373

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.471

PROGRAM: Standby Generation DR

STBGEN

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	32	116	0	148	-148
2021	0	0	0	0	39	232	0	272	-272
2022	0	0	0	0	62	193	0	256	-256
2023	0	0	0	0	73	276	0	349	-349
2024	0	0	0	0	84	359	0	443	-443
2025	0	0	0	0	46	359	0	405	-405
2026	0	0	0	0	46	359	0	405	-405
2027	0	0	2,399	2,399	46	359	0	405	1,994
2028	0	0	2,412	2,412	46	359	0	405	2,007
2029	0	0	3,333	3,333	46	359	0	405	2,928
2030	0	0	3,361	3,361	46	359	0	405	2,956
2031	0	0	3,391	3,391	46	359	0	405	2,986
2032	0	0	2,649	2,649	46	359	0	405	2,244
2033	0	0	2,879	2,879	46	359	0	405	2,474
2034	0	0	2,937	2,937	46	359	0	405	2,532
2035	0	0	3,743	3,743	46	359	0	405	3,338
2036	0	0	3,774	3,774	46	359	0	405	3,369
2037	0	0	3,117	3,117	46	359	0	405	2,711
2038	0	0	3,179	3,179	46	359	0	405	2,774
2039	0	0	3,198	3,198	46	359	0	405	2,792
2040	0	0	3,309	3,309	46	359	0	405	2,903
2041	0	0	3,375	3,375	46	359	0	405	2,970
2042	0	0	3,395	3,395	46	359	0	405	2,989
2043	0	0	3,513	3,513	46	359	0	405	3,108
2044	0	0	3,637	3,637	46	359	0	405	3,231
2045	0	0	3,185	3,185	39	304	0	343	2,842
2046	0	0	2,697	2,697	32	248	0	280	2,417
2047	0	0	1,861	1,861	21	166	0	187	1,674
2048	0	0	963	963	11	83	0	93	870
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	66,306	66,306	1,321	9,153	0	10,474	55,832
NPV	0	0	22,067	22,067	634	4,000	0	4,634	17,433

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 4.762

PROGRAM: Standby Generation DR

STBGEN

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	PARTICIPANT'S COST \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	32	0	32	-32
2021	0	0	0	0	39	0	39	-39
2022	0	0	0	0	62	0	62	-62
2023	0	0	0	0	73	0	73	-73
2024	0	0	0	0	84	0	84	-84
2025	0	0	0	0	46	0	46	-46
2026	0	0	0	0	46	0	46	-46
2027	0	0	2,399	2,399	46	0	46	2,352
2028	0	0	2,412	2,412	46	0	46	2,366
2029	0	0	3,333	3,333	46	0	46	3,286
2030	0	0	3,361	3,361	46	0	46	3,315
2031	0	0	3,391	3,391	46	0	46	3,344
2032	0	0	2,649	2,649	46	0	46	2,603
2033	0	0	2,879	2,879	46	0	46	2,833
2034	0	0	2,937	2,937	46	0	46	2,890
2035	0	0	3,743	3,743	46	0	46	3,696
2036	0	0	3,774	3,774	46	0	46	3,728
2037	0	0	3,117	3,117	46	0	46	3,070
2038	0	0	3,179	3,179	46	0	46	3,133
2039	0	0	3,198	3,198	46	0	46	3,151
2040	0	0	3,309	3,309	46	0	46	3,262
2041	0	0	3,375	3,375	46	0	46	3,329
2042	0	0	3,395	3,395	46	0	46	3,348
2043	0	0	3,513	3,513	46	0	46	3,467
2044	0	0	3,637	3,637	46	0	46	3,590
2045	0	0	3,185	3,185	39	0	39	3,146
2046	0	0	2,697	2,697	32	0	32	2,665
2047	0	0	1,861	1,861	21	0	21	1,840
2048	0	0	963	963	11	0	11	952
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	66,306	66,306	1,321	0	1,321	64,985
NPV	0	0	22,067	22,067	634	0	634	21,433

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 34.808

PROGRAM: Standby Generation DR

STBGEN

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	116	0	116	0	0	116
2021	0	232	0	232	0	0	232
2022	0	193	0	193	0	0	193
2023	0	276	0	276	0	0	276
2024	0	359	0	359	0	0	359
2025	0	359	0	359	0	0	359
2026	0	359	0	359	0	0	359
2027	0	359	0	359	0	0	359
2028	0	359	0	359	0	0	359
2029	0	359	0	359	0	0	359
2030	0	359	0	359	0	0	359
2031	0	359	0	359	0	0	359
2032	0	359	0	359	0	0	359
2033	0	359	0	359	0	0	359
2034	0	359	0	359	0	0	359
2035	0	359	0	359	0	0	359
2036	0	359	0	359	0	0	359
2037	0	359	0	359	0	0	359
2038	0	359	0	359	0	0	359
2039	0	359	0	359	0	0	359
2040	0	359	0	359	0	0	359
2041	0	359	0	359	0	0	359
2042	0	359	0	359	0	0	359
2043	0	359	0	359	0	0	359
2044	0	359	0	359	0	0	359
2045	0	304	0	304	0	0	304
2046	0	248	0	248	0	0	248
2047	0	166	0	166	0	0	166
2048	0	83	0	83	0	0	83
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	9,153	0	9,153	0	0	9,153
NPV	0	4,000	0	4,000	0	0	4,000

Utility Discount Rate = 7.10%

Benefit Cost Ratio: 9999

PROGRAM: Interruptible DR

IRRSVC

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				(9) NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) INCENTIVE PAYMENTS \$(000)	(7) REVENUE LOSSES \$(000)	(8) TOTAL COSTS \$(000)	
2020	0	0	0	0	589	4,802	0	5,391	-5,391
2021	0	0	0	0	489	5,202	0	5,691	-5,691
2022	0	0	0	0	371	2,661	0	3,032	-3,032
2023	0	0	0	0	440	2,780	0	3,221	-3,221
2024	0	0	0	0	517	2,939	0	3,457	-3,457
2025	0	0	0	0	331	2,939	0	3,270	-3,270
2026	0	0	0	0	339	2,939	0	3,279	-3,279
2027	0	0	13,654	13,654	348	2,939	0	3,287	10,367
2028	0	0	13,729	13,729	357	2,939	0	3,296	10,434
2029	0	0	18,970	18,970	365	2,939	0	3,305	15,666
2030	0	0	19,135	19,135	375	2,939	0	3,314	15,821
2031	0	0	19,301	19,301	384	2,939	0	3,323	15,978
2032	0	0	15,081	15,081	394	2,939	0	3,333	11,748
2033	0	0	16,390	16,390	403	2,939	0	3,343	13,047
2034	0	0	16,717	16,717	413	2,939	0	3,353	13,364
2035	0	0	21,305	21,305	424	2,939	0	3,363	17,942
2036	0	0	21,485	21,485	434	2,939	0	3,374	18,112
2037	0	0	17,741	17,741	445	2,939	0	3,385	14,356
2038	0	0	18,097	18,097	456	2,939	0	3,396	14,701
2039	0	0	18,201	18,201	468	2,939	0	3,407	14,794
2040	0	0	18,833	18,833	479	2,939	0	3,419	15,415
2041	0	0	19,214	19,214	491	2,939	0	3,431	15,783
2042	0	0	19,323	19,323	504	2,939	0	3,443	15,880
2043	0	0	20,000	20,000	516	2,939	0	3,456	16,544
2044	0	0	20,700	20,700	529	2,939	0	3,469	17,232
2045	0	0	4,053	4,053	103	556	0	659	3,395
2046	0	0	2,697	2,697	68	357	0	425	2,272
2047	0	0	2,171	2,171	54	278	0	332	1,839
2048	0	0	1,284	1,284	32	159	0	190	1,094
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	338,082	338,082	11,119	78,521	0	89,639	248,443
NPV	0	0	119,016	119,016	5,360	40,187	0	45,547	73,469

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 2.613

PROGRAM: Interruptible DR

IRRSVC

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	0	0	0	0	589	0	589	-589
2021	0	0	0	0	489	0	489	-489
2022	0	0	0	0	371	0	371	-371
2023	0	0	0	0	440	0	440	-440
2024	0	0	0	0	517	0	517	-517
2025	0	0	0	0	331	0	331	-331
2026	0	0	0	0	339	0	339	-339
2027	0	0	13,654	13,654	348	0	348	13,306
2028	0	0	13,729	13,729	357	0	357	13,373
2029	0	0	18,970	18,970	365	0	365	18,605
2030	0	0	19,135	19,135	375	0	375	18,760
2031	0	0	19,301	19,301	384	0	384	18,918
2032	0	0	15,081	15,081	394	0	394	14,688
2033	0	0	16,390	16,390	403	0	403	15,986
2034	0	0	16,717	16,717	413	0	413	16,303
2035	0	0	21,305	21,305	424	0	424	20,881
2036	0	0	21,485	21,485	434	0	434	21,051
2037	0	0	17,741	17,741	445	0	445	17,295
2038	0	0	18,097	18,097	456	0	456	17,641
2039	0	0	18,201	18,201	468	0	468	17,734
2040	0	0	18,833	18,833	479	0	479	18,354
2041	0	0	19,214	19,214	491	0	491	18,722
2042	0	0	19,323	19,323	504	0	504	18,819
2043	0	0	20,000	20,000	516	0	516	19,483
2044	0	0	20,700	20,700	529	0	529	20,171
2045	0	0	4,053	4,053	103	0	103	3,951
2046	0	0	2,697	2,697	68	0	68	2,629
2047	0	0	2,171	2,171	54	0	54	2,117
2048	0	0	1,284	1,284	32	0	32	1,253
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	338,082	338,082	11,119	0	11,119	326,964
NPV	0	0	119,016	119,016	5,360	0	5,360	113,656

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 22.205

PROGRAM: Interruptible DR

IRRSVC

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	4,802	0	4,802	0	0	4,802
2021	0	5,202	0	5,202	0	0	5,202
2022	0	2,661	0	2,661	0	0	2,661
2023	0	2,780	0	2,780	0	0	2,780
2024	0	2,939	0	2,939	0	0	2,939
2025	0	2,939	0	2,939	0	0	2,939
2026	0	2,939	0	2,939	0	0	2,939
2027	0	2,939	0	2,939	0	0	2,939
2028	0	2,939	0	2,939	0	0	2,939
2029	0	2,939	0	2,939	0	0	2,939
2030	0	2,939	0	2,939	0	0	2,939
2031	0	2,939	0	2,939	0	0	2,939
2032	0	2,939	0	2,939	0	0	2,939
2033	0	2,939	0	2,939	0	0	2,939
2034	0	2,939	0	2,939	0	0	2,939
2035	0	2,939	0	2,939	0	0	2,939
2036	0	2,939	0	2,939	0	0	2,939
2037	0	2,939	0	2,939	0	0	2,939
2038	0	2,939	0	2,939	0	0	2,939
2039	0	2,939	0	2,939	0	0	2,939
2040	0	2,939	0	2,939	0	0	2,939
2041	0	2,939	0	2,939	0	0	2,939
2042	0	2,939	0	2,939	0	0	2,939
2043	0	2,939	0	2,939	0	0	2,939
2044	0	2,939	0	2,939	0	0	2,939
2045	0	556	0	556	0	0	556
2046	0	357	0	357	0	0	357
2047	0	278	0	278	0	0	278
2048	0	159	0	159	0	0	159
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	78,521	0	78,521	0	0	78,521
NPV	0	40,187	0	40,187	0	0	40,187

Utility Discount Rate = 7.10%

Benefit Cost Ratio: 9999

PROGRAM: Curtailable DR

PWRSHR

Rate Impact Measure (RIM) Test

YEAR	BENEFITS				COSTS				NET BENEFITS \$(000)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	TOTAL FUEL & O&M SAVINGS \$(000)	AVOIDED T&D CAP. COSTS \$(000)	AVOIDED GEN. CAP. COSTS \$(000)	TOTAL BENEFITS \$(000)	UTILITY PROGRAM COSTS \$(000)	INCENTIVE PAYMENTS \$(000)	REVENUE LOSSES \$(000)	TOTAL COSTS \$(000)	
2020	0	0	0	0	2	30	0	32	-32
2021	0	0	0	0	2	30	0	32	-32
2022	0	0	0	0	4	30	0	34	-34
2023	0	0	0	0	4	30	0	34	-34
2024	0	0	0	0	6	45	0	51	-51
2025	0	0	0	0	6	45	0	51	-51
2026	0	0	0	0	6	45	0	51	-51
2027	0	0	277	277	6	45	0	51	226
2028	0	0	278	278	6	45	0	51	228
2029	0	0	385	385	6	45	0	51	334
2030	0	0	388	388	6	45	0	51	337
2031	0	0	391	391	6	45	0	51	340
2032	0	0	306	306	6	45	0	51	255
2033	0	0	332	332	6	45	0	51	281
2034	0	0	339	339	6	45	0	51	288
2035	0	0	432	432	6	45	0	51	381
2036	0	0	436	436	6	45	0	51	385
2037	0	0	360	360	6	45	0	51	309
2038	0	0	367	367	6	45	0	51	316
2039	0	0	369	369	6	45	0	51	318
2040	0	0	382	382	6	45	0	51	331
2041	0	0	389	389	6	45	0	51	339
2042	0	0	392	392	6	45	0	51	341
2043	0	0	405	405	6	45	0	51	355
2044	0	0	420	420	6	45	0	51	369
2045	0	0	290	290	4	30	0	34	256
2046	0	0	300	300	4	30	0	34	266
2047	0	0	155	155	2	15	0	17	138
2048	0	0	161	161	2	15	0	17	144
2049	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0	0
NOMINAL	0	0	7,551	7,551	154	1,146	0	1,300	6,251
NPV	0	0	2,528	2,528	67	514	0	580	1,948

Utility Discount Rate = 7.10%
Benefit Cost Ratio = 4.357

PROGRAM: Curtailable DR

PWRSHR

Total Resource Cost (TRC) Test

YEAR	BENEFITS				COSTS			NET BENEFITS \$(000)
	(1) TOTAL FUEL & O&M SAVINGS \$(000)	(2) AVOIDED T&D CAP. COSTS \$(000)	(3) AVOIDED GEN. CAP. COSTS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) UTILITY PROGRAM COSTS \$(000)	(6) PARTICIPANT'S COST \$(000)	(7) TOTAL COSTS \$(000)	
2020	0	0	0	0	2	0	2	-2
2021	0	0	0	0	2	0	2	-2
2022	0	0	0	0	4	0	4	-4
2023	0	0	0	0	4	0	4	-4
2024	0	0	0	0	6	0	6	-6
2025	0	0	0	0	6	0	6	-6
2026	0	0	0	0	6	0	6	-6
2027	0	0	277	277	6	0	6	271
2028	0	0	278	278	6	0	6	272
2029	0	0	385	385	6	0	6	378
2030	0	0	388	388	6	0	6	382
2031	0	0	391	391	6	0	6	385
2032	0	0	306	306	6	0	6	300
2033	0	0	332	332	6	0	6	326
2034	0	0	339	339	6	0	6	333
2035	0	0	432	432	6	0	6	426
2036	0	0	436	436	6	0	6	429
2037	0	0	360	360	6	0	6	353
2038	0	0	367	367	6	0	6	361
2039	0	0	369	369	6	0	6	363
2040	0	0	382	382	6	0	6	376
2041	0	0	389	389	6	0	6	383
2042	0	0	392	392	6	0	6	386
2043	0	0	405	405	6	0	6	399
2044	0	0	420	420	6	0	6	413
2045	0	0	290	290	4	0	4	285
2046	0	0	300	300	4	0	4	296
2047	0	0	155	155	2	0	2	153
2048	0	0	161	161	2	0	2	158
2049	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0	0
NOMINAL	0	0	7,551	7,551	154	0	154	7,397
NPV	0	0	2,528	2,528	67	0	67	2,461

Utility Discount Rate = 7.10%

Benefit Cost Ratio = 37.928

PROGRAM: Curtailable DR

PWRSHR

Participant Test

YEAR	BENEFITS				COSTS		NET BENEFITS \$(000)
	(1) SAVINGS IN PARTICIPANT'S BILL \$(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT'S BENEFITS \$(000)	(4) TOTAL BENEFITS \$(000)	(5) PARTICIPANT'S COST \$(000)	(6) TOTAL COSTS \$(000)	
2020	0	30	0	30	0	0	30
2021	0	30	0	30	0	0	30
2022	0	30	0	30	0	0	30
2023	0	30	0	30	0	0	30
2024	0	45	0	45	0	0	45
2025	0	45	0	45	0	0	45
2026	0	45	0	45	0	0	45
2027	0	45	0	45	0	0	45
2028	0	45	0	45	0	0	45
2029	0	45	0	45	0	0	45
2030	0	45	0	45	0	0	45
2031	0	45	0	45	0	0	45
2032	0	45	0	45	0	0	45
2033	0	45	0	45	0	0	45
2034	0	45	0	45	0	0	45
2035	0	45	0	45	0	0	45
2036	0	45	0	45	0	0	45
2037	0	45	0	45	0	0	45
2038	0	45	0	45	0	0	45
2039	0	45	0	45	0	0	45
2040	0	45	0	45	0	0	45
2041	0	45	0	45	0	0	45
2042	0	45	0	45	0	0	45
2043	0	45	0	45	0	0	45
2044	0	45	0	45	0	0	45
2045	0	30	0	30	0	0	30
2046	0	30	0	30	0	0	30
2047	0	15	0	15	0	0	15
2048	0	15	0	15	0	0	15
2049	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0
2051	0	0	0	0	0	0	0
2052	0	0	0	0	0	0	0
2053	0	0	0	0	0	0	0
2054	0	0	0	0	0	0	0
2055	0	0	0	0	0	0	0
2056	0	0	0	0	0	0	0
2057	0	0	0	0	0	0	0
2058	0	0	0	0	0	0	0
2059	0	0	0	0	0	0	0
NOMINAL	0	1,146	0	1,146	0	0	1,146
NPV	0	514	0	514	0	0	514

Utility Discount Rate = 7.10%

Benefit Cost Ratio: 9999

Attachment C

Redline/strikethrough Version of
2020-2024 DSM Program Participation Standards



2020 – 2024

DEMAND SIDE MANAGEMENT

PROGRAM PARTICIPATION STANDARDS

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I. RESIDENTIAL CONSERVATION PROGRAMS

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
HOME ENERGY CHECK

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
HOME ENERGY CHECK PROGRAM**

1. PROGRAM OVERVIEW

The Home Energy Check program of Duke Energy Florida, LLC (DEF) is a residential energy audit program that provides residential customers with an analysis of their energy consumption as well as educational information on how to save money by reducing their energy usage. The audit provides the opportunity to promote and directly install cost-effective measures in customers' homes while also educating and encouraging customers to implement energy-saving practices. The Home Energy Check program serves as the foundation for other residential energy efficiency and demand side management programs. The Home Energy Check program offers the following types of energy audits:

- Type 1: Free Walk-Through (computer assisted)
- Type 2: Customer Online (Internet Option)
- Type 3: Customer Phone Assisted
- Type 4: Home Energy Rating (or BERS/HERS) Audit

All audit types, except Type 4 - Home Energy Rating, are provided to the customer at no charge. The charge for the Home Energy Rating can be found in DEF's tariffs Section II, Fifth Revised Sheet No. 2.6 - Florida BERS/HERS Audit.

Customers will be provided with energy-efficiency tips and examples of easily installed, energy-efficiency measures. The program promotes continued customer involvement by demonstrating sustainable and measurable reductions in energy usage through the implementation of low-cost energy-efficiency measures and energy-saving recommendations. Customers participating in the Home Energy Check program may receive a residential Energy Efficiency Kit. The kit will contain energy saving measures that can easily be installed and utilized by the customer. The contents of this kit will be evaluated periodically and may change over time.

Additionally, beginning in 2021, a participant classified as low-income, with income equal to or less than 200% of federal poverty level guideline, will be eligible to receive measures included in an “Assistance Kit.” These measures will be provided in addition to the measures included in the normal HEC Kits to customers who complete either an online or walk-through audit. The “Assistance Kit” will include measures that can provide meaningful energy efficiency savings to customers in need. The “Assistance Kits” will be available for up to 20,000 qualifying low-income customers each year, beginning in 2021 through 2024.

2. ELIGIBILITY REQUIREMENTS

The residence must be in DEF's service area and must be a residential, metered customer of DEF.

3. PARTICIPATION REQUIREMENTS

No more than one audit may be conducted for the same customer at the same premise within a two-year period. DEF reserves the right to update audits and schedule field visits on a per need basis.

4. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
RESIDENTIAL INCENTIVE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
RESIDENTIAL INCENTIVE PROGRAM**

1. PROGRAM OVERVIEW

The Residential Incentive Program (RI PROGRAM) of Duke Energy Florida, LLC (DEF) is an "umbrella" program designed to improve the energy efficiency of existing and new residential homes. The program seeks to meet the following overall goals:

- Provide a cost-effective portfolio of measures across different housing types.
- Provide customer energy savings and demand reduction through the installation of energy-efficient equipment and thermal envelope upgrades.
- Educate the residential market regarding best practices, innovative technologies and opportunities to participate in all applicable incentives for managing energy consumption.

2. ELIGIBILITY REQUIREMENTS

1. All measures must have been recommended during a DEF energy audit completed within the past two (2) years. (**Exception:** *in emergency cases, the customer may have HVAC equipment installed prior to the audit.*)
2. The residence must be in DEF's service area and be a residential, metered customer of DEF.
3. All HVAC and window installations must be permitted by the appropriate local agency.
4. A DEF-approved Trade Ally must be used for Duct Test, Duct Leakage Repair and

Ceiling Insulation measures.

All installations must be accessible for verification by a DEF representative to ensure compliance with the Residential Incentive Program standards.

3. TRADE ALLY REQUIREMENTS

1. All Trade Allies must comply with DEF Trade Ally training, procedures and manufacturers' specifications specific to the portion of the RI PROGRAM for which they are participating. Failure to do so may result in termination of participation in any or all DEF programs.
2. The Trade Ally is responsible for the work to be performed, the supervision of their employees and the use of Trade Ally's own equipment to meet the work specifications and completion date.
3. The Trade Ally must correct any deficiency found in the installation or product when advised by a DEF representative, and notify the DEF representative of compliance within thirty (30) days.
4. The Trade Ally shall notify DEF of any incident occurring during installation of an RI Program measure or any follow-up procedure within twenty-four (24) hours of the incident.
5. The Trade Ally shall indemnify and hold DEF harmless against any and all injuries, damages, claims, or costs caused by items furnished or services rendered by the Trade Ally and/or its employees.
6. The Trade Ally must comply with all Federal, State and local codes and regulations and have the appropriate permits and license(s) for the work to be performed.

7. The Trade Ally must provide documentation of and maintain in force the following types of insurance coverage. The Trade Ally must maintain coverage that meets the greater of the minimum coverage required by the State for license retention or the minimum coverage requirements specified in the Trade Ally agreement. This applies to all Program measures:

- Workman’s Compensation
- General Contractual and Automobile Bodily Injury Liability
- General and Automobile Property Damage Liability
- General and Vehicle Liability

4. INCENTIVES

The incentive payment structure is as follows:

Program Component	Incentive
Duct Test for Single-Family Homes	50% of test cost up to \$40 for the first unit tested for single-family homes with ducted electric air and heat
	50% of test cost up to \$30 for each additional unit at same address for single-family homes with ducted electric air and heat
Duct Leakage Repair for Single-Family Homes	Will pay the cost of duct repairs up to \$200 per system for single-family homes with ducted electric air and heat.
Attic Insulation (Ceiling Insulation Upgrade) for Single-Family Homes	Will pay for insulation upgrades for single-family homes. Will pay \$0.19 per square foot up to \$200 to bring insulation from R-19 or less to a minimum of R-38; up to \$400 to bring insulation from R-12 or less to a minimum of R-38; and up to \$800 to bring insulation from R-2 or less to a minimum of R38.

High Efficiency Heat Pump Replacing Resistance Heat for Multi- Family and Manufactured Homes	Will pay \$150 for High Efficiency Heat Pump system with a minimum cooling efficiency of 14.0 SEER and minimum heating efficiency of 8.2 HSPF replacing less efficient resistance heat/strip heat HVAC systems for Multi-Family and Manufactured Homes.
High Efficiency Heat Pump for Single-Family Homes	Will pay \$300 for a High Efficiency Heat Pump system with a minimum cooling efficiency of 14 SEER and minimum heating efficiency of 8.2 HSPF replacing less efficient resistance heat/strip heat HVAC systems for Single-Family Homes.
	Will pay \$150 for a High Efficiency Heat Pump system with a minimum cooling efficiency of 15 SEER and minimum heating efficiency of 8.2 HSPF replacing less efficient Heat Pump HVAC systems for Single- Family Homes.
High Efficiency Central Air Conditioner for Single-Family Homes	Will pay \$100 for a High Efficiency Central Air Conditioning system with a minimum cooling efficiency of 16 SEER replacing less efficient Central Air Conditioning system for Single-Family Homes.
Replacement Windows for Single-Family Homes	Will pay \$2.00 per square foot of east, west and south-facing window area up to a maximum incentive of \$400 for high performance windows that have a minimum Solar Heat Gain Coefficient (SHGC) of less than or equal to 0.25 and a U-Value of equal to or less than 0.35 for Single- Family Homes

Notes: 1. If SEER is not available, an EER conversion using industry standard practices may be used to determine qualification.

4.1 INCENTIVE PROCESSING

1. A copy of the incentive form and all supporting documentation must accompany the application for all measures completed.
2. The customer or Trade Ally shall have twelve (12) months from date of installation to

- submit all required forms for the measure after which they will become ineligible for incentive.
3. Inspections will be performed on at least 10% of all program measures.
 4. A copy of the certificate of completion and pre and post duct leakage data will be required for single-family, aerosol, duct-sealing measures.
 5. If the measure is assigned for inspection, an inspection form will be completed by a DEF representative.
 6. Incentives will be processed for payment after inspection requirements are met.
 7. Duct test repair and insulation upgrade, incentive payments are made to the Trade Allies.
 8. HVAC and window incentive payments are paid or credited to the customer or designated recipient.

5. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), F.A.C.

6. DUCT TEST AND LEAKAGE REPAIR SINGLE-FAMILY HOMES

6.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. Repair recommendations must have been the result of a DEF-approved duct test or DEF audit. (**Exception:** If during an energy audit or prior to duct test, the DEF representative validates the need for duct repair or complete duct system replacement, a duct test is not required).
3. The customer's duct system must be in adequate condition to accommodate the duct test and must be accessible and in adequate condition for duct repair. (**Exception:** aerosol sealing method).
4. Homes must have centrally ducted electric cooling and electric heat. If non-space heating combustion appliances exist (i.e., water heater, stove, etc.), then the house must pass an industry-approved safety test prior to any duct sealing.
5. A minimum of 60 CFM at 25 Pa's of leakage per ton of HVAC equipment capacity and a minimum of 60% of the leakage sealed is the baseline for participation in aerosol duct sealing.

6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications and must meet all state, county and local codes.
2. For conventional duct repair, only mastic and fiber cloth or mastic with embedded fiber (mixed) may be used to seal the duct system. Tape may be used to hold the duct

in place while the mastic is drying. If tape is used, the mastic must cover the tape completely and extend a minimum of 2” past the width of the tape. Mastic must meet Underwriters Laboratories (UL) 181 specifications for the material that the mastic is being applied to.

3. Duct test procedures must be followed as specified in manufacturers’ instructions, unless otherwise directed by DEF when performing the duct test.
4. Aerosol procedures must be followed as specified in training or manufacturers’ instructions and will include:
 - Complete pre-seal and post-seal leakage test using approved aerosol software
 - Aerosol sealants shall meet the requirements of Underwriters Laboratories (UL) 723.
 - Seal all boot-to-ceiling and/or floor connections
 - All areas of the duct system will be evaluated, and cost-effective leaks will be sealed by conventional or aerosol method.

6.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. All participating Trade Allies must attend and successfully complete DEF-approved duct repair training.

6.4 INSPECTION REQUIREMENTS

Duke Energy Florida, LLC

2020 Program Participation Standards

All on-site inspectors must attend and successfully complete a DEF-approved Duct Diagnostics training.

At a minimum, the training will consist of:

- Training session on Building Science
- Duct test applications (classroom, field and laboratory)
- Codes and standards as they relate to duct sealing

7. CEILING INSULATION UPGRADE

7.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. Insulation recommendations must have been the result of a DEF audit.
3. Eligible residences must have whole-house cooling and/or electric heating.
4. The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be less than or equal to R-2.
(**Exception:** May exclude conditioned area for a recent addition.)
5. Any structure that has participated in DEF's attic insulation upgrade program is not eligible to participate again. However, if the structure, through an act of God loses the insulation **and** the loss is **not** covered by insurance, the structure is eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from his/her insurance company stating that the insulation was not covered.
6. Any home with "Knob and Tube Wiring" must be documented or certified as not energized by a state-licensed electrician.

7.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers' recommendations, specifications and must meet all state, county and local codes.
2. All installations must result in an insulation value equal to or greater than R-38.
3. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
4. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
5. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by state, county and local codes.
6. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area including knee walls.
7. All attic access panels that are located in conditioned space must be insulated in the same minimum R-value as throughout the entire area and permanently attached.

7.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. The Trade Ally will attach an R-value Certification Card signed by the insulation Trade Ally or his/her representative to the attic joist visible from the attic access and provide a copy of the R-value Certification Card to the customer. The card shall contain, at a minimum, the following information:

- Manufacturer's name
- Insulation type
- R-Value of insulation installed
- Thickness of insulation installed
- Location of insulation installed
- Name and address of the Trade Ally installing the insulation
- Date of installation

3. All participating Trade Allies in the Ceiling Insulation Program must follow DEF Code of Ethics. DEF reserves the right to request background check results on all participating employees.

8. HIGH-EFFICIENCY, ELECTRIC HEAT PUMPS MULTI-FAMILY AND MANUFACTURED HOMES

8.1 PARTICIPATION REQUIREMENTS

1. Single-family homes are not eligible to participate.
2. The customer must have had an audit within the past 2 years. (An exception would be made for emergency heat pump equipment installations and change-outs as a result of non-operating systems).
3. Customer must have electric resistance/strip heat.

8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications and must meet all state, county and local codes.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with Underwriters Laboratories (UL) standards as appropriate.
3. Both air handler and condensing unit must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the cooling and heating minimum efficiency requirements.
5. All equipment shall be new and not refurbished, previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-2008).
7. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
8. Heat pump must be all electric.

8.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.

2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. Trade Allies must be able to demonstrate their ability to properly calculate heating and cooling loads by using industry-approved sizing software in the jurisdiction having authority.
4. The Trade Ally shall have twelve (12) months from date of installation to submit all “High Efficiency Equipment Forms” after which they will become ineligible for incentive.

9. HIGH-EFFICIENCY, ELECTRIC HEAT PUMPS - SINGLE-FAMILY HOMES

9.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. The customer must have had an audit within the past two (2) years. (An exception would be made for emergency heat pump equipment installations and change-outs as a result of a non-operating system).
3. The customer must have electric resistance/strip heat or less-efficient heat pump.

9.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers’ instructions and specifications and must meet all state, county and local codes.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with

Underwriters Laboratories (UL) standards as appropriate.

3. Both air handler and condensing unit must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the heating and cooling minimum-efficiency requirements.
5. All equipment shall be new and not refurbished, previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-2008).
7. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
8. Heat pump must be all electric.

9.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. The Trade Ally must be able to demonstrate their ability to properly calculate heating and cooling loads by using industry-approved sizing software in the jurisdiction having authority.

4. The Trade Ally shall have twelve (12) months from date of installation to submit all “High Efficiency Equipment Forms” after which they will become ineligible for incentive.

10. HIGH-EFFICIENCY CENTRAL AIR CONDITIONER FOR SINGLE-FAMILY HOMES

10.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. The customer must have had an audit within the past two (2) years. (An exception would be made for emergency heat pump equipment installations and change-outs as a result of a non-operating system).
3. The customer must not be replacing an existing heat pump.

10.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers’ instructions and specifications and must meet all state, county and local codes.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with Underwriters Laboratories (UL) standards, as appropriate.
3. Both air handler and condensing unit must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the

heating and cooling minimum-efficiency requirements.

5. All equipment shall be new and not refurbished, previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-2008).
7. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
8. System must be all electric.

10.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. The Trade Ally must be able to demonstrate their ability to properly calculate heating and cooling loads by using industry approved sizing software in the jurisdiction having authority.
4. The Trade Ally shall have twelve (12) months from date of installation to submit all "High Efficiency Equipment Forms" after which they will become ineligible for incentive.

11. REPLACEMENT WINDOWS

11.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. Eligible residences must have whole-house electric air conditioning and whole-house electric heating.
3. Any structure that has maximized DEF's window incentive program is not eligible to participate again. However, if the structure, through an act of God, loses windows **and** the loss is **not** covered by insurance, the structure is eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from his/her insurance company stating that the windows were not covered.

11.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The replacement window and installation must meet manufacturers' instructions and specifications and must meet all state, county and local codes.
2. Incentive will be provided for south, east and west facing windows.
3. All materials shall be new and not refurbished, previously installed or used.
4. The windows must be labeled by the National Fenestration Rating Council (NFRC) as achieving a Solar Heat Gain Coefficient (SHGC) of less than or equal to 0.25 and a U- value of less than or equal to 0.35.
5. Windows with overhangs extending three (3) feet or greater are exempt from the SHGC requirement but not the U-value requirement.

11.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. The Trade Ally will leave a copy of the manufacturers' product specification sheet with the customer.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

NEIGHBORHOOD ENERGY SAVER PROGRAM

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
NEIGHBORHOOD ENERGY SAVER PROGRAM

1.0 PROGRAM OVERVIEW

Duke Energy Florida, LLC's (DEF) Neighborhood Energy Saver (NES) program is a custom energy conservation program for low-income customers. The NES program is designed to assist selected neighborhoods where 50% of the households have incomes equal to or less than 200% of the poverty level as established by the U.S. Government. NES allows DEF to individually reach a larger audience of income-eligible customers than through traditional government agency flow-through methods. DEF or a third-party contractor will directly install energy conservation measures (ECM) identified through an energy assessment of the customer's home to increase their energy efficiency. Additionally, customers will receive a comprehensive package of energy education materials which will educate them on ways to better manage their energy usage. The energy conservation measures installed, and energy efficiency education provided, will be at no cost to the participants. The Neighborhood Energy Saver program seeks to achieve the following goals:

1. Complete a home energy assessment to identify energy-efficiency opportunities within the customer's home.
2. Implement a comprehensive package of electric conservation measures to increase the home's energy efficiency.
3. Provide one-on-one customer education on energy-efficiency techniques and energy conservation measures.
4. Promote behavioral changes that will help customers control their energy usage.

2.0 ELIGIBILITY REQUIREMENTS

DEF's NES program is a direct install program based upon identifying income-eligible neighborhoods where at least 50% of the households have incomes equal to or less than 200% of the poverty level established by the U.S. Government. Additional requirements

are as follows:

- The resident must be a residential, metered customer in DEF's service area.
- Customer must reside in a selected DEF qualifying Census Block that meets the definition of an income-eligible neighborhood as stated above.
- Multi-family dwellings that meet the above definition, that are located within the same city, but may not be within the same Census Block, may also be eligible to participate in the program if they meet guidelines as presented in the program participation standards.
- All installations must be accessible for verification by a DEF representative.

3.0 EQUIPMENT/MATERIALS AND INSTALLATION SPECIFICATIONS

All materials and installation specifications shall meet or exceed the following guidelines:

- All equipment and the associated installations must meet manufacturers' instructions and specifications and DEF procedures. Any contractor who fails to meet these requirements may be terminated from participation in any or all DEF programs.
- All work shall be performed to constitute a finished product.
- Materials shall be free of defects and covered under warranty for at least one year.
- Installation procedures must comply with all federal, state and local codes.

4.0 CONTRACTOR REQUIREMENTS

The contractor may work with subcontractors to install certain measures as mutually agreed upon with DEF. Contractors and subcontractors must have an active Florida General Contractor's license, meet all associated requirements of the Florida Department of Business and Professional Regulation and must comply with all local, state and federal rules and codes. The selected contractor(s) is/are responsible for all work performed and must meet and/or comply with the following requirements:

1. Contractors must have appropriate license(s) and comply with all appropriate federal, state, and local building and safety codes for all work performed.
2. DEF reserves the right to request background checks of contractors participating in the NES program. The contractor shall be responsible for all associated costs.
3. The contractor is responsible for the associated work to be performed, the supervision of their employees and/or subcontractors and the use of contractor's own equipment (or rental equipment) to meet the work specifications.
4. All contractors must comply with DEF contractor procedures and manufacturers' specifications specific to the NES Program. Failure to do so may result in termination of participation in any or all DEF programs.
5. The contractor shall notify DEF of any incident occurring as a result of the NES program or any follow-up procedure within one (1) working day of the incident.
6. The contractor must correct any deficiency found in the installation or product(s) associated with the NES comprehensive package of electric conservation measures, when advised by a DEF representative, and notify the DEF representative of compliance within thirty (30) days.
7. Contractors shall indemnify and hold DEF harmless from any and all losses, liabilities, injuries, damages, claims or costs, whatsoever caused, by items furnished or services rendered, as a result of the NES program.
8. The contractor must notify their insurance companies to provide DEF with documentation, and maintain in force, the state required minimum insurance policies for license retention or the following minimum insurance policies, whichever is greater:
 - Workman's Compensation as required by law
 - General Contractual and Automobile Bodily Injury Liability: \$100,000 per person and \$300,000 per occurrence
 - General and Automobile Property Damage Liability: \$100,000 per occurrence
 - General and Vehicle Liability policies endorsed: \$100,000 per occurrence to provide blanket coverage
 - All sub-contract labor must comply with insurance requirements.
9. All participating duct sealing contractors must attend and successfully complete a

DEF-approved duct repair course. At a minimum, the training will consist of:

- Training session on building science
- Duct test applications (classroom, field and laboratory)
- Codes and standards as they relate to duct sealing

10. Sub-contractors participating in the measures must follow DEF's Code of Ethics. DEF reserves the right to request background check results on all participating contractors and employees.

5.0 ELIGIBLE MEASURES

5.1 ENERGY-EFFICIENT LIGHTING

This measure will provide for the installation of a maximum of 8 energy-efficient light bulbs, for lights which are in use for an average of at least 4 hours per day:

The contractor shall replace up to 8 less efficient bulbs with LED bulbs with similar lumen output. LED bulbs will be installed in accordance with the manufacturer's specifications.

5.2 WATER HEATER MEASURES

5.2.1 WATER HEATER INSULATION WRAP

Contractor will furnish and install water heater insulation on electric water heaters as needed in accordance with the following requirements:

- Insulation shall have an insulating value of R-6 or greater.
- Insulation shall be Underwriters Laboratories (UL) approved.
- Insulation shall be installed in accordance with manufacturer guidelines.
- Tape is allowed to be placed on top of the wrap to secure the insulation. (Tape used to secure the insulation must be vinyl and have good adhesive qualities.)
- Water heating units, which have manufacturers' warnings against insulating, shall not be wrapped.
- Gas water heaters do not qualify.
- Any violation of the National Electrical Code will make a unit ineligible for the water heater wrap.

Recommended Materials

- Blanket Materials conformance to ASTM C592-80
- High Temperature conformance to ASTM 892-78
- Facing Material must have foil or vinyl facing.
- R-Value must be a minimum of R-6.

5.2.2 WATER HEATER PIPE INSULATION

Contractor will furnish and install pipe insulation, as needed, in accordance with the following requirements:

- Insulation shall have an insulating value of R-3 or greater.
- Insulation shall be installed on at least the first five (5) feet of the hot-and-cold water pipes, when accessible.
- Gas water heater systems do not qualify.
- Any violation of the National Electrical Code will make a unit ineligible for the water heater pipe insulation.

Recommended Materials

- Must be flexible.
- Wall thickness of 1 inch.
- Temperature range must be 160 degrees to 200 degrees Fahrenheit.
- Must comply with requirements of ASTM E 84-05 and Underwriters Laboratories (UL) 181 sections 11.0 a 16.0, and retards heat loss.

5.2.3 WATER HEATER TEMPERATURE CHECK AND ADJUSTMENT

- The contractor will check the temperature of the hot water and inform the customer of the possibility for turndown adjustment.
- Contractor will discuss appropriateness of this conservation measure.
- If customer agrees and the water heater equipment is in proper working condition, contractor should reduce temperature setting to 120° F.

5.2.4 WATER-SAVING FAUCET AERATORS

Contractor will furnish and install a maximum of three (3) water-saving faucet aerators on the customer's faucets.

- Install a maximum of one kitchen aerator per home that shall provide a maximum-flow

- rate of 2.2 gallons per minute (GPM) over normal line pressures and have shut-off capability.
- Install a maximum of two (2) bathroom aerators per home that shall provide a maximum flow rate of 1.5 GM over normal line pressures.
 - Homes using gas water heaters will not qualify for water saving faucet aerators measures.

Recommended Materials

- Must be dual thread to fit male and female threaded faucets.
- Must meet the performance requirements of ANSI specification A112.18.
- Screen must be stainless steel.

5.2.5 WATER SAVING SHOWERHEADS

Contractor will furnish and install a maximum of two (2) showerheads per home, including adapters. The showerhead:

- Shall have fittings constructed of chrome plated solid brass with 1/2-inch thread.
- Shall have a flow rate not to exceed 2.5 GPM at normal line pressures.
- Hand-held type fixtures may be provided. If the existing fixture is not handheld, the contractor must obtain the customer's approval to install the handheld showerhead.

Recommended Materials

- Must meet ANSI/ASME specification A112.18.1M 2.5 GPM max.
- Adjustable spray selections offer regular, massage and combo setting.
- Must meet Federal, State, and Local plumbing standards.
- Must have pause feature for user to slow the flow for additional savings.
- Anti-sediment screen to prevent line debris from clogging the screen.

5.3 REFRIGERATION THERMOMETERS

Contractor will furnish, install and demonstrate the proper temperature setting for the refrigeration equipment:

- Locate all refrigerators/freezers in the home.
- Place one thermometer in refrigeration compartment area that will have uniform temperature and place one thermometer in the freezer compartment.
- Educate resident on proper refrigeration settings and how to adjust their refrigerator/freezer thermostat.

- Install a maximum of six (6) refrigeration thermometers per home.

5.4 HVAC MEASURES

5.4.1 WALL PLATE THERMOMETER

Contractor will furnish, install and recommend the winter/summer temperature settings for the HVAC equipment:

- For central HVAC equipment, the wall plate thermometer should be mounted in the main conditioned space as close to any central HVAC air returns and away from any supply vents.
- For window units, locate the wall plate thermometer on the opposite wall in the largest room that is cooled by the unit.
- The wall plate thermometer should not be installed on exterior walls.
- Replace the existing wall switch plate with the wall plate thermometer.
- Educate resident on recommended winter/summer settings and how to adjust the HVAC system thermostat.
- Install a maximum of one (1) wall plate thermometer per home.

Recommended Materials

- Must be Underwriters Laboratories (UL) listed
- Must be fire resistant and precut to fit
- Must be minimum 1/8" thick
- Must be wireless and battery included

5.4.2 WINTERIZATION KIT FOR WALL/WINDOW AC UNITS

Contractor will furnish and demonstrate the proper installation and use of the winterization kit for wall/window AC units:

- Locate all wall/window AC units in the home.
- Install the winterization kit on all wall/window AC units, if seasonably applicable and the system is not in operation. If the wall/window AC units are in operational mode, continue with educational component and leave the AC winterization kit with the residents.
- Educate the resident on proper installation techniques for the AC winterization kit on all wall/window units.
- Install or leave behind a maximum of three (3) winterization kits per home.

Recommended Materials

- A quilted AC cover designed to insulate and stop draft penetration.
- Must include installation instructions, weather stripping and removable tape.

5.5 HVAC MAINTENANCE

During the assessment, the contractor will perform a visual assessment of the HVAC system and make a recommendation for a basic system check. Home must be electrically heated and/or cooled to qualify for this measure.

The following represents the minimum requirement that must be performed by an approved HVAC Technician:

System Controls and Operation:

- Check thermostatic operation.
- Cycle all controls.
- Inspect for dirt and loose connections; clean and tighten as necessary.
- Visually check all connections for refrigerant leaks.
- Check refrigerant pressure and add as needed.
- Check and record supply and return temperature.

Evaporator:

- Inspect coil assembly and drip pan.
- Clean coil and pan and flush as necessary.
- Check drain line and blow out if necessary.
- Apply algae treatment as required.

Blower and Blower Drive:

- Oil blower motor if applicable.
- Check motor bearings.
- Check belt condition and tension; replace if necessary.
- Check blower cleanliness; clean if necessary.
- Check and record amp draw.
- Check drive and pulley alignment.
- Check for vibrations.

Condenser:

- Lubricate condenser fan motor, if applicable.

- Check motor bearings.
- Check coil condition for dirt build-up and clean as necessary.
- Clean condenser as needed.

Compressor:

- Check electrical wire connections; clean and tighten where possible.
- Check operation and condition.
- Check and record operating amperage.

Heating System:

- Check electric heat strips.

5.5.1 CONTRACTOR REQUIREMENTS

Contractor must meet specifications as outlined in section 4.0.

5.6 DUCT LEAKAGE REPAIR

5.6.1 PARTICIPATION REQUIREMENTS

Contractor will determine if the home qualifies for an HVAC Duct Leakage Repair. Home must have a centrally ducted system to qualify for this measure.

Contractor will perform a visual inspection of the duct work. If not currently insulated or sealed, the contractor will arrange for a qualified HVAC Technician to install this measure.

1. The customer's duct system must be in adequate condition to accommodate the duct leakage repair.
2. The duct must be accessible for repair.
3. Homes must have centrally ducted electric cooling and electric heat.
4. Home must not contain any combustion appliances (including wood burning or gas fireplaces).
5. The Contractor will seal every joint and connection.

5.6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications.
2. For conventional duct repair only mastic and fiber cloth or mastic with embedded fiber (mixed) may be used to seal the duct system. Tape may be used to hold the duct in place while the mastic is drying. If tape is used, the mastic must cover the tape completely and extend a minimum of 2" past the width of the tape. Mastic must meet Underwriters Laboratories (UL) 181 specifications for the material to which the mastic is being applied.

5.6.3 CONTRACTOR REQUIREMENTS

Contractor must meet specifications as outlined in section 4.0.

5.7 AIR-SEALING/INFILTRATION CONTROL MEASURES

5.7.1 WEATHER STRIPPING

Installed on exterior doors shall be aluminum and/or vinyl and/or metal with rubber gasket.

Recommended Materials

- Professional-grade weather stripping

5.7.2 DOOR SWEEPS

Installed on external doors must be triple flange

Recommended Materials

- The height must be 2-3/8 inches.
- Extruded Aluminum with slotted holes for adjustment.
- Pliable vinyl triple seal with appropriate screws.

5.7.3 CAULKING

- Used on surfaces designated by the manufacturer.
- Must have a minimum life of twenty-five years.
- Must be acrylic latex or equivalent.

Recommended Materials

- Must be clear silicon acrylic caulk.
- Must stick to damp and dry surfaces with soap/water cleanup.
- Must dry clear, odor free and be paintable.
- Must not be oil or resin-based caulks.

5.7.4 FOAM INSULATION

Use on surfaces as designated by the manufacturer.

Recommended Materials

- One component, expanding, polyurethane, foam sealant.
- Must have strong adhesion quality-sticks to most surfaces.
- Must be Underwriters Laboratories (UL) classified.
- Must be environmentally safe and contain no CFCs or HCFCs.

5.7.5 HVAC FILTERS

Contractor will furnish and deliver twelve (12) filters for each central HVAC system.

- Locate all HVAC return grills with filters and note the size and location.
- Install a new filter in the main return grill.
- Leave customer with additional eleven (11) filters of the same size.
- If filter is of the permanent, washable type, clean filter.
- Educate the resident on the importance of replacing or cleaning these filters regularly.

Recommended Materials

- May be fiber glass or natural fiber.
- Must be Underwriters Laboratories (UL) classified.
- Must be a high-efficiency furnace/AC filter.
- Must have a minimum-efficiency rating value of four.

5.8 CEILING INSULATION

5.8.1 PARTICIPATION REQUIREMENTS

1. Insulation recommendations must be the recommendation of the contractor.

2. Eligible residences must have whole-house electric air conditioning and/or whole-house electric heating.
3. The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be R-2 or less. (**Exception:** May exclude conditioned area for a recent addition.)
4. Any home with “Knob and Tube Wiring” that is energized is not eligible.¹

5.8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers’ recommendations and specifications.
2. All installations must result in an insulation value equal to or greater than R-38.
3. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
4. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
5. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by state, county and local codes.
6. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area including knee walls.²
7. All attic access panels that are located in conditioned space must be insulated to a minimum R-value of 38 or as practical, and the insulation must be permanently attached.
8. Ceilings with a rise greater than 5 and a run of 12 (5 over 12 pitch) shall not be insulated with blown-in (loose-fill) insulation. Blown-in insulation shall not be used in attics where the distance from the top of the bottom chord of the truss or ceiling joist to the underside of the top chord of the trusses at the ridge is less than 30 inches and where

¹ National Electrical Code, Article 394

² Current Florida Building Code Section - Walls Considered Ceiling Area

obstructions to blown insulation exist (such as air conditioning ducts).³

5.8.3 CONTRACTOR REQUIREMENTS

1. The contractor must meet requirements as outlined in section 4.0.
2. The contractor will supply to the customer, in writing, the number of bags that will be installed and leave the customer an empty bag or manufacturers' literature in order to determine the required density of the insulation.
3. The contractor will sign and attach an R-value Certification Card to the attic joist visible from the attic access. The card shall contain, at a minimum, the following information:
 - Manufacturer's name
 - Insulation type
 - R-Value of insulation installed, thickness of insulation installed and location of insulation installed
 - Name and address of the Trade Ally installing the insulation
 - Date of installation

6.0 INSTALLATION PROCESS

The energy assessment will begin with the Energy Specialist(s)' explanation of the process/program to the resident. Emphasis on educating the resident on each of the conservation measures is vital to making the improvements sustainable.

1. Identify the location and wattage of up to eight (8) high-use non-LED lights within the home to be replaced with energy-efficient bulbs of equivalent lumen output and note the locations installed. The energy savings potential of these bulbs will be communicated to the resident.
2. Measure the hot water temperature at the closest water faucet to the water heater and document the temperature. If the water temperature is above 120° F, they will recommend having the water heater thermostat set to a lower temperature and note the recommendation. Gas water heaters will not qualify for this measure. Additionally, any violation of the National Electrical Code will make a unit ineligible.

³ Current Florida Building Code Section - Ceilings With Blown-In Insulation

3. The water heater location and type will be identified as to its eligibility for the installation of a water heater wrap. Gas water heaters do not qualify for this measure. Additionally, any violation of the National Electrical Code will make a unit ineligible. If a water heater wrap is applicable, this wrap will be installed per the manufacturer's instructions. Verify that the water heater is electric, not leaking and meets code requirements.
4. Insulation will be installed on the hot and cold-water pipes to and from the electric water heater (5' on each side of the tank) as practicable. Gas water heaters do not qualify for this measure. Additionally, any violation of the National Electrical Code will make a unit ineligible.
5. The general location of each shower head (maximum 2 per home), will be noted and replaced with an upgraded water-saving showerhead. The Energy Specialist(s) will also list any adapters required for this replacement.
6. The general location of each applicable faucet (maximum per home is 1 in the kitchen and 2 in the bathrooms) will be noted and a water-saving aerator will be installed.
7. Locate all central HVAC filter locations and note the size and location. Replace (1) HVAC filter as required. Leave customer with additional (11) filters of the same size. Educate the resident on the importance of replacing or cleaning these filters regularly. Up to 3 window air-conditioner filters are also eligible for replacement.
8. Inform the resident that a wall plate thermometer will be installed in the house. A location for the wall plate thermometer should be considered carefully. A location in the main conditioned space as close to any central HVAC air returns and away from any supply vents is best. For window units, locate the wall plate thermometer on the opposite wall in the largest room that is cooled by the unit. The wall plate thermometer should not be installed on exterior walls. Replace the existing wall switch plate with the wall plate thermometer. Explain to the resident that proper setting of the HVAC thermostat can result in significant savings on the power bill.
9. Install refrigerator thermometers in up to three (3) refrigerators/freezers in the house. Discuss the savings from the use of a refrigerator thermometer to keep food at the proper temperature with the resident.
10. Each penetration into the building envelope (HVAC chase, pipes, etc.) will be inspected

- for adequate seal. If needed, foam insulation will be added. Additionally, any broken windows will be noted and repaired with clear tape as practicable. The Energy Specialist(s) will discuss the impact of air infiltration on the customer's power bill.
11. Weather stripping, caulking and door sweeps will be specified for all exterior doors and window AC units as needed. The Energy Specialist(s) will install measures and discuss the impact of air infiltration around doors and window AC units on the customer's power bill.
 12. Install the winter kit for wall/window AC units, if applicable. This kit will prevent operation of the HVAC unit until it is removed. Explain the proper operation of the kit to the resident. Leave the kit with the customer if it is not the proper season to install on the unit.
 13. Review the condition of the insulation in the attic and make recommendation to install enough to meet R-38 requirements. The Energy Specialist(s) will note if insulation is required and will make arrangements for the Insulation Contractor to make an appointment to install the insulation.
 14. Review the condition of the whole house HVAC system and recommend an HVAC tune-up if required. This measure is available for central electric heat and/or central AC units. The Energy Specialist(s) will note the need for a tune up and will make arrangements with an HVAC Technician to get this service completed.
 15. Review the condition of the duct work. If applicable, will make arrangements with an HVAC Technician to have the ducts sealed.
 16. Document for the resident each of the measures that were installed in the home and reiterate the importance of each measure in saving energy and money. An explanation includes the benefits and instruction on the proper use and care of the NES measures.
 1. Educational materials outlining the installed measures and their benefits will be provided.
 2. Other materials will also be provided by DEF that provide participants with specific energy saving tips.
 17. The Energy Specialist(s) will also inform the resident that their home may be selected for inspection after all energy efficiency measures are installed.

7.0 INCENTIVES

7.1 CUSTOMER INCENTIVES

The program provides an array of benefits that are distributed directly to those homes within the qualifying NES program. The customer will begin to benefit immediately from those measures which were specifically recommended from the Home Energy Assessment and installed as part of the comprehensive package of electric conservation measures during the NES program. The comprehensive package of electric conservation measures consists of the following which are provided at no cost to the resident:

- Light bulbs
- Water heater insulation wrap and insulation for water pipes
- Water conservation shower head and faucet aerators
- Water heater temperature check
- 12 HVAC filters
- Indoor wall thermometer
- Window AC unit cover
- HVAC maintenance
- Attic insulation
- Duct sealing
- Air Infiltration measures to include caulking, weather stripping, door sweeps

Additionally, the customer receives education on energy efficiency techniques and the promotion of behavioral changes to help reduce their energy usage and make these measures sustainable.

7.2 CONTRACTOR INCENTIVES

The contractor will submit the following information with all invoices (not to exceed forty-five (45) days from the date of installation):

- A completed copy of the installed measures with date as well as customer and installer's information for each DEF account
- Itemized invoice listing each of the completed DEF accounts, measures and cost based upon the agreed cost per measure installed

8.0 REPORTING REQUIREMENTS

DEF will follow the reporting requirements consistent with Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

LOW-INCOME WEATHERIZATION ASSISTANCE PROGRAM

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
LOW-INCOME WEATHERIZATION ASSISTANCE PROGRAM

1.0 PROGRAM OVERVIEW

Duke Energy Florida, LLC's (DEF) Low-income Weatherization Assistance Program (LIWAP) is a custom energy conservation program. Through its partnerships with local weatherization providers, DEF provides education about energy saving opportunities and installs energy efficiency measures in homes of qualifying low-income customers. The LIWAP seeks to achieve the following goals:

1. Integrate DEF's LIWAP procedures with the Department of Economic Opportunity (DEO) and local weatherization providers (collectively referred to as "Agencies") to deliver energy efficiency measures to low-income families.
2. Identify and educate Agencies and low-income customers about energy saving opportunities to upgrade their home's energy efficiency.
3. Increase low-income families' participation in DEF's DSM programs.
4. Minimize "lost opportunities" in the existing marketplace.

2.0 ELIGIBILITY REQUIREMENTS

The eligibility requirements for LIWAP will align with the participating Agency's criteria or requirements for participation in their low-income services. Additional requirements are as follows:

1. The residence must be in DEF's service area and be a residential, metered customer with an active account.
2. All installations must be accessible for verification by a DEF representative.
3. Homes that have participated within the past ten years for the listed measures are not eligible for the same measure.

2.1 CONTRACTOR REQUIREMENTS

The Agencies are responsible for all work performed. Agencies may also use DEF participating contractors for attic insulation and duct testing/repair.

1. Agencies and their agents must have appropriate license(s) and comply with all appropriate federal, state, and local building and safety codes for all work performed.
2. All work performed must follow manufacturers' and DEF's specifications where applicable.
3. Agencies and their agents must correct any deficiencies found in the installation or materials identified by DEF.
4. Agencies shall indemnify and hold DEF harmless from any and all losses, liabilities, injuries, damage claims or costs whatsoever caused by items furnished or services rendered.
5. All DEF contractors shall indemnify and hold harmless DEF from any and all losses, liabilities, injuries, damages, claims or costs whatsoever caused by items furnished or services rendered.
6. DEF requires a minimum of the following insurance policies be in force by all participating contractors:
 - Workman's Compensation as required by law
 - General Contractual and Automobile Bodily Injury Liability: \$100,000 per person and \$300,000 per occurrence
 - General and Automobile Property Damage Liability: \$100,000 per occurrence
 - General and Vehicle Liability policies endorsed: \$100,000 per occurrence to provide blanket coverage

2.2 EQUIPMENT/MATERIALS AND INSTALLATION SPECIFICATIONS

All materials and installation specifications shall meet or exceed the following guidelines:

- Equipment must meet manufacturers' specification and installation procedures.

- All work shall be performed to constitute a finished product.
- Materials shall be free of defects and covered under warranty for at least one year.
- Installation procedures must comply with all federal, state and local codes.
 - All equipment installations must meet manufacturer's instructions and specifications. Any contractor failing to meet manufacturer's specifications and DEF procedures may result in termination of participation in any or all DEF programs.

2.3 AGENCY RESPONSIBILITY

Agencies will be responsible for the following:

1. Qualify all participants using federal and state guidelines outlined in Section 2.
2. Follow the recommendations of the National Energy Audit Tool (NEAT), Agency assessment protocol or any DEF approved energy audit to determine eligible measures to be installed. Qualify and install measures by DEF's standards and procedures. All installations shall comply with DEF specifications (see Sections 4.2 through 10.2).
3. Provide DEF random access to the weatherized homes for program evaluation and inspection.
4. Deliver energy education to weatherization clients.
5. Invoice DEF for program approved installed measures on a monthly basis.

3.0 INCENTIVES AND ELIGIBLE MEASURES

Duke Energy will provide incentives for the following measures with the stipulation that all requirements and minimum levels are achieved where applicable:

Weatherization Measure	Minimum Measure Requirement	Maximum Incentive Amount	Additional Requirements
Attic Insulation	<p>Insulate single-family homes with R2 or less up to R38 on residences with whole-house electric air conditioning and/or electric heating</p> <p>Insulate single-family homes with R19 or less up to R38 on residences with whole-house electric air conditioning and/or electric heating.</p>	<p>\$.50 per square foot up to a maximum of \$1000 per home</p> <p>\$.50 per square foot up to a maximum of \$725 per home.</p>	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
Duct Leakage Test/ Repair	Repair Centrally Ducted Electric Heated and Cooled Systems in Single-family Homes	\$175	Completed Duct Test and Repair
Reduce Air Infiltration	Must demonstrate a minimum reduction of 25% at 50 Pas in electrically heated homes. Not to exceed a minimum of 0.35 ACH in Single-family Homes.	\$125	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
Electric Hot Water Reduction	Wrap electric water heater, insulate water pipes, lower temperature setting if needed, repair water leaks	\$48	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol

HVAC Maintenance	Tune up on Centrally Ducted Electric Heated and Cooled Systems for Single-family Homes	\$175	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
High Efficiency Heat Pump Replacing a Heat Pump	New HP for Single-family home must be a minimum 15 SEER and 8.2 HSPF	\$475	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol. Incentive applicable on each new HP installed
High Efficiency Heat Pump Replacing Electric Resistance Heat	New HP for Single-family home must be a minimum 14 SEER and 8.2 HSPF	\$475	
High Efficiency Central Air Conditioning	New High Efficiency Central Air Conditioner replacing less efficient Central Air Conditioner for Single-family home. New Air Conditioner must have a minimum cooling rating of 16 SEER.	\$725	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
Water Saving Showerheads	Maximum of 2.5 gallon per minute flow on homes with Electric Water Heaters	\$7 per showerhead	Maximum of 2 per home
Energy-efficient Light Bulbs	Replace less efficient bulbs with 9W LED's with similar lumen output	\$4.00 per bulb	Maximum of 6 light bulbs per household
	Replace less efficient specialty chandelier bulbs with 5W LED's	\$2.00 per bulb	
Faucet Aerators	Water Flow Reduction on homes with Electric Water Heaters	\$3 per Aerator	Maximum of 2 per household

Smart Power Strip	Smart Power Strip	\$10 per Power Strip	Maximum of 1 per household
Refrigerator	Must be Energy Star rated	\$125	1 per household
High Efficiency Heat Pump coupled with participation in Residential Load Management	Heat Pump must have a minimum cooling rating of 17 SEER and customer must enroll in the residential load management program (Energy Wise).	\$2,500 for new single-family homes \$1,525 for new multi-family homes	Maximum of one 3 ton unit per home Maximum of one 2 ton unit per home

Notes:

1. Incentive amounts will be reviewed and compared to market prices annually and adjusted accordingly.

4. CEILING INSULATION**4.1 PARTICIPATION REQUIREMENTS**

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.
3. The home must be a single-family home and be at least two years old.
4. Eligible residences must have whole-house electric air conditioning and/or whole-house electric heating.
5. The total ceiling area to be insulated must be greater than 100 square feet.
6. Any home with “Knob and Tube Wiring” that is energized is not eligible. (Refer to: National Electrical Code, Article 324, Section 324-4).

4.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturer’s recommendations and specifications.

2. All installations must result in an insulation value equal to or greater than R38.
3. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
4. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
5. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by State, County and local codes.
6. The insulation must be installed uniformly, resulting in a minimum R-38 value throughout the entire area including knee walls. (Refer to: Florida Building Code Chapter 13, sub section 6 Section 604.1.A.1 Walls Considered Ceiling Area).
7. All attic access panels that are located in conditioned space must be insulated with a minimum R-38 batt permanently attached.
8. Radiant barriers will not be allowed as a substitute in the LIWAP.
9. Ceilings with a rise greater than 5 and a run of 12 (5 over 12 pitch) shall not be insulated with blown-in (loose fill) insulation. Blown-in insulation shall not be used in attics where the distance from the top of the bottom chord of the truss or ceiling joist to the underside of the top chord of the trusses at the ridge is less than 30 inches and where obstructions to blown insulation exist (such as air conditioning ducts). (Refer to: Florida Building Code Chapter 13, sub section 6 Section 604.1ABC.1.1 Ceilings With Blown-In Insulation).

4.3 CONTRACTOR REQUIREMENTS

1. Must meet the Contractor Requirements outlined in Section 2.1.
2. The contractor will supply to the customer, in writing, the number of bags installed and leave with the customer an empty bag or manufacturer's literature in order to determine the required density of the insulation.
3. The contractor will attach an R-value Certification Card signed by the insulation contractor or his representative to the attic joist visible from the attic access. The card shall contain, at a minimum, the following information:
 - Manufacturer's name
 - Insulation type
 - R-Value of insulation installed
 - Thickness of insulation installed

- Location of insulation installed
- Name and address of the contractor installing the insulation
- Date of installation

5. DUCT LEAKAGE REPAIR

LIWAP duct repair is designed encourage weatherization providers to identify and repair duct leakage. Blower door or duct blaster equipment will be used as a diagnostic tool to locate duct leakage and provide quality control. This LIWAP component is available to all residential customers with single-family homes having a centrally ducted system with electric heating and cooling, provided the duct system is easily accessible.

5.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Repair recommendations must have been the result of a DEF-approved duct test, or follow the Agency approved protocol.
3. The customer's duct system and HVAC systems must be in adequate condition to accommodate the duct test, and not have been previously tested for the present occupant within a 5-year period.
4. The duct must be accessible for repair.
5. Homes must have centrally ducted electric cooling and electric heat. If non-space heating combustion appliances exist (i.e., water heater, stove, etc.), then the house must pass a safety test prior to any duct sealing.

5.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications.
2. Only mastic and fiber cloth or mastic with imbed fiber (mixed) may be used to seal the duct system. Duct tape may be used to hold the duct in place while the mastic is drying. If duct tape is used the mastic must cover the duct tape completely and extend a minimum of 2" past the width of the duct tape. Mastic must meet UL181 specifications for the material that the mastic is being applied to.

3. Blower door or duct blaster procedures must be followed as specified in training or manufacturer's instructions, unless otherwise directed by DEF when performing the duct test.

5.3 CONTRACTOR REQUIREMENTS

1. Must meet the Contractor Requirements outlined in Section 2.1.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
3. All participating contractors must have attended and successfully completed a DEF-approved duct repair course. At a minimum, the training will consist of:
 - Training session on Building Science
 - Duct test applications (classroom and laboratory)
 - Duct test field applications
 - Codes and standards as they relate to duct sealing
4. Before any duct repairs can be made on homes with non-space heating combustion appliances, the contractor shall follow the procedures as written in Chapter 4 of the "Duct Doctoring" instruction manual provided by the Florida Solar Energy Center Duct Diagnostics Training Course. The only exception is line 36, which deals with drilling a hole in the customer's vent pipe. This is not required. Instead of this procedure, DEF has adopted the National Fuel Gas Code's "Appendix H: Recommended Procedure for Safety Inspection of an Existing Appliance Installation."
5. A list of DEF contractors will be furnished to local weatherization providers for duct testing and repair. Providers will contract directly with DEF duct repair contractors for repair work.

5.4 INSPECTION REQUIREMENTS

All inspectors must be trained in the area for which they are inspecting. If inspecting for the Duct Test and Leakage portion of this program, all inspectors must have attended and successfully completed the training offered by the Florida Solar Energy Center or similar course. At a minimum, the training will consist of:

- Training session on Building Science
- Duct test applications (classroom and laboratory)
- Duct test field applications

- Codes and standards as they relate to duct sealing

6. HIGH EFFICIENCY ELECTRIC HEAT PUMPS AND AIR CONDITIONERS

Promote the proper sizing and installation of high efficiency Heat Pump and Air Conditioning systems.

6.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.

6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with UL standards, as appropriate.
3. Both air handler and condensing units must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the cooling and heating minimum efficiency requirements.
5. All equipment shall be new and not refurbished or have been previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning and Refrigeration Institute (ARI) rating procedure (standard 210/240-94). All cooling-mode efficiency ratings eligibility will be based on EER if available. (Note: If EER ratings are not available then SEER will be used to determine cooling-mode eligibility. All heating-mode efficiency ratings eligibility will be based on HSPF, except for water source units.)

7. If the unit is sized larger than one ton (12,000 BTU) per 500 square feet of conditioned space, a manual J or ASHRAE approved sizing calculation must be submitted. The contractor must certify that the unit was sized according to manufacturer specifications. Exception: Manufactured homes are exempted from this requirement.
8. The contractor will certify that the unit was sized according to manufacturer specifications.
9. Refrigerant charge and type shall be according to manufacturer's specifications and recommendations for the unit installed. The contractor will certify that the proper charge is installed, that the unit is tested and is leak free.
10. Contractors shall certify that the airflow meets the manufacturer's recommendations and specifications for the system installed.
11. Contractors shall certify that if the equipment installed has a scroll compressor (36,001 Btu or larger), that a hard start kit was installed either by the contractor or at the factory.
12. Return air filters shall be installed to meet manufacturer's specifications with no obstructions. Filters must be easily accessible, and the location shown to the customer.
13. The contractor shall check that the controlling thermostat is properly leveled, that the anticipator is properly set and the thermometer is correct to within two degrees Fahrenheit.
14. The contractor will be encouraged to use mastic on all new connections.
15. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
16. Heat pump must be all electric.

6.3 CONTRACTOR REQUIREMENTS

1. Must meet Contractor Requirements outlined in Section 2.1.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor in the jurisdiction having authority.
3. Contractors must demonstrate their capability to properly calculate heating and cooling loads by the Manual J method and to properly size and specify HVAC equipment.

4. The contractor must notify DEF within thirty (30) days if there was an emergency replacement due to equipment failure.
5. The Agency shall have six (6) months from date of installation to submit all “High Efficiency Equipment Forms” after which they will become ineligible for incentive.

7. HEATING AND AIR CONDITIONING MAINTENANCE (HVAC)

Heating and air conditioning maintenance is designed to increase energy efficiency through proper operation of mechanical equipment. Agencies are encouraged to identify HVAC systems that could benefit from service maintenance to avoid future breakdowns.

7.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.
2. Must have centrally ducted electric heating and cooling.
3. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.

7.2 EQUIPMENT/SERVICE AND INSTALLATION SPECIFICATIONS

The following represents the minimum requirement that must be performed by an approved contractor:

Filter:

- Inspect and clean filters
- Replace up to one throw-away filter
- Replace specialty filters if provided by customer

System Controls and Operation:

- Check thermostatic operation
- Cycle all controls
- Inspect for dirt and loose connections; clean and tighten as necessary
- Visually check all connections for refrigerant leaks
- Check refrigerant pressure and add as needed

- Check and record supply and return temperature

Evaporator:

- Inspect coil assembly and drip pan
- Clean coil and pan and flush as necessary
- Check drain line and blow out if necessary
- Apply algae treatment as required

Blower and Blower Drive:

- Oil blower motor if applicable
- Check motor bearings
- Check belt condition and tension; replace if necessary
- Check blower cleanliness; clean if necessary
- Check and record amp draw
- Check drive and pulley alignment
- Check for vibrations

Condenser:

- Lubricate condenser fan motor, if applicable
- Check motor bearings
- Check coil condition for dirt build-up and clean as necessary
- Clean condenser as needed

Compressor:

- Check electrical wire connections; clean and tighten where possible
- Check operation and condition
- Check and record operating amperage

Heating System:

- Check electric heat strips

7.3 CONTRACTOR REQUIREMENTS

Must meet Contractor Requirements in Sections 2.1 and 6.3.

8.0 WATER HEATER

It is the intent of this portion of the program to save energy through adding additional insulation to older water heaters, set back temperatures, insulate pipes and replace older less efficient water heaters and help defray the cost of a new high-efficient water heater.

8.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation of a NEAT or DEF approved audit, or Agency assessment protocol.
3. Must have an electric water heater.

8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Sides must be wrapped with a minimum Insulation level equal to R-6 or greater.
2. Top must be insulated to an R-8 or greater.
3. Pipes shall be insulated up to 3-foot minimum.

8.3 CONTRACTOR REQUIREMENTS

Must meet Contractor Requirements outlined in Section 2.1.

9.0 AIR INFILTRATION REDUCTION

It is the intent of this portion of the program to save energy through reduction of unintended air infiltration into conditioned spaces of older homes.

9.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.

2. Must be a recommendation from a NEAT or DEF-approved audit, or Agency assessment protocol.
3. Must be able to achieve an infiltration reduction of at least 25% at 50 Pa's.
4. Home must meet ASHRA Standard 90.2 as a minimum air infiltration level once infiltration sealing is completed.

9.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

Contractor must use a blower door and a manometer for precise pressure measurements.

9.3 CONTRACTOR REQUIREMENTS

Must meet Contractor Requirements outlined in Section 2.1 and 6.3.

10.0 LED BULBS, WATER SAVING SHOWERHEADS AND FAUCET AERATORS

10.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation from a NEAT or DEF-approved audit, or Agency assessment protocol.

Measure	Participation Requirements	Equipment and Installation Specifications
Water Saving Showerhead	<ul style="list-style-type: none"> • Electric Water Heater • Current showerhead flow of 3.5 gallon per minute or greater 	<ul style="list-style-type: none"> • Must meet manufacturer's specifications

Light Bulbs	<ul style="list-style-type: none"> • Operation of less efficient bulbs a minimum of 3 hours per day. 	<ul style="list-style-type: none"> • LED bulbs with similar lumen output installed in accordance with manufacturer's specifications.
Faucet aerators	<ul style="list-style-type: none"> • No aerators currently installed 	<ul style="list-style-type: none"> • Must meet manufacturer's specifications • Threads must be compatible with existing faucet threads

10.2 CONTRACTOR REQUIREMENTS

Must meet the Contractor Requirements outlined in Section 2.1.

11.0 REFRIGERATOR REPLACEMENTS

11.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation from a NEAT or DEF-approved audit, or Agency assessment protocol.

11.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. New refrigerator must be Energy Star rated.
2. Old refrigerator must be decommissioned and recycled appropriately.
3. Old refrigerator must be metered for 2 hours w/o defrost cycle or metered for 24 hours to make sure that usage is over 900 kWh per year.
4. Replacement refrigerator must be top freezer, no through the door ice maker, no water dispenser, white or black, 18 to 21 cubic feet.

11.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements outlined in section 2.1.
2. Contractor is responsible for removing old refrigerator from home and will put a hole through old unit and/or cut the cord so it cannot be reused.

12.0 INCENTIVE PROCESSING

Incentives will be paid directly to the Agencies. Agencies are required to submit the following information along with all invoices by the tenth workday of each month (not to exceed forty-five (45) days from the date of installation):

- Customer information - including name, address, and DEF account number
- A list of installed measures and, where appropriate, pre-existing conditions
- Itemized invoice with a brief description of installed measures (incentive measures only) and program incentive for each weatherized home, or the DEF/LIWAP data information form

If the home is not selected for inspection, or after it has passed inspection, invoices will be processed for payment. DEF will input installed measures and paid incentives to a data base system. Submitted reports and invoices will be maintained on file.

13.0 REPORTING REQUIREMENTS

DEF will follow the reporting requirements consistent with Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

RESIDENTIAL ENERGY MANAGEMENT PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
RESIDENTIAL ENERGY MANAGEMENT PROGRAM**

1. PROGRAM OVERVIEW

The Residential Energy Management Program is a direct load control program of Duke Energy Florida, LLC (DEF). This program is designed to reduce DEF's demand during peak or emergency conditions by temporarily interrupting service to selected customer electrical equipment, for example, central heating and cooling systems, water heaters, and swimming pool pumps.

2. ELIGIBILITY REQUIREMENTS

1. The program is available to residential customers in DEF's service area. DEF must have the ability to control the customer's load per the terms of the applicable Residential Load Management rate schedule.
2. The customer must be eligible for Residential Service under Rate Schedule RS-1 or RSS-1.
3. Various types of devices may be used to control the customer's load, including both customer-owned and company-owned devices. The Company must be allowed reasonable access to the customer's premises to install, maintain, inspect, test and remove any company-owned devices.

3. PARTICIPATION REQUIREMENTS

The program participation requirements and participation options are as specified in the applicable Residential Load Management rate schedules.

4. EQUIPMENT AND INSTALLATION REQUIREMENTS

All installations must comply with all provisions of the National Electric Code (NEC) and any code or requirement of other authorities having jurisdiction.

When required, a DEF-approved, licensed contractor must complete all work. The contractor shall comply with all Residential Energy Management Program Participation Standards as specified by DEF in the most current copy of the Energy Management

Operations Manual.

The company or assigned representative may require an inspection of the company-owned load management devices installed at the premise to ensure the equipment is connected and operating properly prior to instating or reinstating bill credits on the account. If access cannot be obtained, the account will remain or be placed in suspended status.

5. CONTRACTOR REQUIREMENTS

1. Contractors must meet the financial criteria set forth in the DEF Purchasing Standards for contractors doing business with DEF.
2. DEF reserves the right to request background checks of contractors participating in the Residential Energy Management Program.
3. Contractors must be insured per minimum specifications detailed within the Demand Side Management Contractor Participation Agreement.
4. Contractor is responsible for providing supervision of its employees and the necessary tools and equipment to meet program specifications by required completion date.

6. INCENTIVES

- a. Customer incentives will be provided per the terms of the applicable Residential Load Management rate schedule. Additionally, beginning in 2021, a participant who is classified as low-income, with income equal to or less than 200% of the poverty level as established by the U.S. Government, and whose account is more than 60 days in arrears, will qualify for a \$30 "Assistance" incentive. This incentive will be provided in the form of a gift card which the customer can use to help pay their energy bill. The "Assistance" incentive will be available to eligible customers in 2021 and 2022, for a total additional incentive of up to \$60, to help customers recover from the economic impacts of COVID-19 and maintain the demand response resource associated with the customer.

7. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5) of the Florida Administrative Code.

**II. COMMERCIAL/INDUSTRIAL
CONSERVATION PROGRAMS**

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
BUSINESS ENERGY CHECK PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
BUSINESS ENERGY CHECK PROGRAM**

1. PROGRAM OVERVIEW

The Business Energy Check Program of Duke Energy Florida, LLC (DEF) provides energy audits and assessments for commercial customers. This program is designed to provide information to customers about their energy usage and identify opportunities for savings. The program serves as the foundation for participation in other commercial and industrial DSM programs.

The program provides energy evaluations to commercial customers at no charge to the customer. These evaluations may include a billing analysis, information and educational material about energy saving practices and measures, recommendations for energy savings which may include operational changes or equipment modifications, and information about incentives and savings that may be available through other DEF programs.

The program offers multiple types of energy evaluations to commercial customers including walk-through audits, phone-assisted audits along with educational information, and an online customer assessment tool.

2. ELIGIBILITY REQUIREMENTS

The customer must be a commercial customer located in DEF's service territory and served by a metered DEF account.

3. INCENTIVES

DEF may periodically offer an incentive to customers who participate in the program, such as a Commercial Energy Efficiency Kit.

4. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
SMART SAVER PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
SMART \$AVER PROGRAM
(f/k/a BETTER BUSINESS PROGRAM)**

1. PROGRAM OVERVIEW

The Smart Saver Program is an “umbrella” program designed to improve the energy efficiency of commercial facilities. The program seeks to meet the following overall goals:

- Provide customers with a cost-effective portfolio of measures across all building types.
- Improve customer-energy savings and demand reduction through the installation of energy-efficient equipment and thermal envelope upgrades.
- Educate customers regarding best practices, innovative technologies and opportunities to manage energy consumption.

2. ELIGIBILITY REQUIREMENTS

1. Equipment and measures must be installed in facilities that are located in the DEF service territory and served by a commercially metered DEF.
2. Commercial multi-family is defined as commercially metered accounts of multi-family residential apartments or condominiums, or commercially metered accounts of assisted living residential apartment units (with a minimum of 500 square feet of conditioned space). Any multi-family residential dwellings that are master metered (referred to as “Domestic/Commercial”) shall be eligible to participate in this program.
3. DEF must be permitted to inspect the installation of all measures and equipment prior to issuing any incentive payments.

3. CONTRACTOR REQUIREMENTS

3.1. PARTICIPATING DEF CONTRACTOR REQUIREMENTS (those under contract)

1. All participating contractors, those under contract with DEF, must comply with DEF contractor procedures specific to the program component in which they are

- participating. Failure to do so may result in termination of participation in any or all DEF Programs.
2. The contractor is responsible for the work to be performed, the supervision of their employees, and the use of contractor's own equipment to meet the work specifications and completion date.
 3. The contractor must correct any deficiency found in the installation or product when advised by a DEF representative and notify DEF of compliance within thirty (30) days.
 4. The contractor shall indemnify and hold DEF harmless against any and all injuries, damages, claims or costs, whatsoever, caused by items furnished or services rendered.
 5. The contractor must comply with all federal, state, and local codes and regulations and have the appropriate license(s) for the work to be performed.
 6. The contractor must follow manufacturers' specifications and procedures; failure to do so may result in termination of participation in any or all DEF programs.
 7. The contractor shall notify DEF of any incident occurring during installation of a conservation measure or any follow-up procedure within five (5) working days of incident.
 8. The contractor must notify their insurance companies to provide DEF with documentation and maintain in force the state required minimum insurance policies for license retention or the following minimum insurance policies, whichever is greater:
 - Workers' Compensation as required by law
 - General Contractual and Automobile Bodily Injury Liability: \$100,000 per person and \$300,000 per occurrence
 - General and Automobile Property Damage Liability: \$100,000 per occurrence
 - General and Vehicle Liability policies endorsed: \$100,000 per occurrence to provide blanket coverage

9. DEF reserves the right to request background checks of contractors participating in the Smart Saver Program.

3.2 CUSTOMER CHOSEN CONTRACTOR REQUIREMENTS

If the customer selects their own contractor, it is their responsibility to make sure the contractor complies with all federal, state and local codes and regulations and have the appropriate license(s) for the work to be performed if required.

4. INCENTIVE

The incentive payment structure is as follows:

Program Component	Incentive
Building Envelope Improvements	
Ceiling Insulation Upgrade	17¢ per square foot to bring insulation level up to a minimum of R-38
Wall Insulation	.10 per square foot to bring the level to R20 (Retrofit only)
HVAC Equipment Replacement	
Air-Cooled and Water-Cooled Electric Chillers	\$20 per ton for qualifying equipment as referenced in Section 8.2
Heat Pumps =< 65,000 Btu/h replacing resistance heat or heat pumps	\$50 per ton for minimum cooling efficiency of 15 SEER and minimum heating efficiency of 8.2 HSPF
Package Terminal Heat Pumps and Air Conditioners (PTHPs/PTACs)	\$67 per ton per specifications referenced in Section 10.2
Single Package Vertical Heat Pump (SPVHP)	\$50 per ton per specifications referenced in the Table in Section 11.2
Unitary A/C and Heat Pumps > 65,000 Btu/h	\$50 per ton per specifications referenced in Section 11.2 *(Includes Variable Refrigerant Multi-Split A/C and HP units

	of all sizes as referenced in Section 11.2)
HVAC System Related Improvements	
Demand Control Ventilation	\$50 per ton with properly designed and installed DCV controls and programming. Note: Incentives for DCV are not to exceed 50% of total project or service cost
Duct Test	50% of test cost up to \$50 for first unit tested
	50% of test cost up to \$20 for each additional unit tested at same address
Duct Repair	25% of the repair cost up to a maximum of \$50 per unit for facilities with non-ducted electric heat
	50% of the repair cost up to a maximum of \$200 per unit for facilities with ducted electric heat. Commercial multi-family units count on a per unit basis, receive \$50 and no duct test is required - applies to top floors only on multi-story buildings.
Energy Recovery Ventilation	0.75 cents per CFM, minimum 450 CFM unit >65% total heating effectiveness per AHRI Standards

4.1 INCENTIVE PROCESSING

1. On-site inspections will be performed on at least 10% of the completed projects for each program measure.
2. Project supporting documents will be collected and reviewed for program compliance.
3. Incentives will not be paid until the review (and inspection when required) is completed.
4. A copy of the customer's invoice, purchase order, or equivalent (determined by DEF) must accompany the incentive application for all measures and must be received within six (6) months of the completion of that measure. For a new construction measure, the supporting documentation must be received within six (6) months of the Certificate of Occupancy or permanent meter set.

5. The customer will receive the incentive in the form of a rebate check. The DEF personnel will need to obtain the customer's Tax ID#. Any customer receiving over \$600 total during a year will receive an IRS 1099 form from DEF reporting to the customer and the IRS the total amount of the rebates received from DEF for that year.

5. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

6. CEILING INSULATION

6.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Building must be at least two (2) years old in order to qualify for an incentive.
3. The weighted average R-value of the existing insulation over the total ceiling square footage (above conditioned space) must be less than or equal to R-12. (**Exception:** May exclude conditioned area for a recent addition.)
4. Eligible facilities must have both electric (non-portable) air conditioning and electric (non-portable) heating.
5. A Business Energy Check or other pre-qualification methods (as determined by DEF) is required prior to installation to establish existing insulation levels.
6. Any structure that has in the past utilized this portion of the program (attic insulation) is not eligible to participate again. However, if that structure, through an act of God, loses the insulation and this loss is not covered by insurance, then the structure would be eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from their insurance company stating that the insulation loss was not covered by insurance.
7. Any building with "Knob and Tube Wiring" must be documented or certified as not energized by a state-licensed electrician. (*National Electrical Code 1990, Article 324, Section 324-4*).

8. Commercial multi-family units will be qualified as individual units for incentive purposes. For multi-family units greater than one story in height, the top floor only will be eligible for incentives.

6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers' recommendations and specifications and must meet all state, county and local codes.
2. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
3. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
4. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by state, county and local codes.
5. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area.
6. All attic access panels that are located in conditioned space must be insulated in the same minimum R-value as throughout the entire area and permanently attached.

6.3 CONTRACTOR REQUIREMENTS

1. DEF participating contractors must meet the contractor requirements outlined in Section 3.1. Customer chosen contractors must meet the contractor requirements as outlined in Section 3.2.
2. The contractor will attach an R-Value Certification Card signed by the insulation contractor or his representative to the attic joist visible from the attic access. The card shall contain, at a minimum, the following information:
 - Manufacturer's name
 - Insulation type
 - R-Value, the thickness, and the location of the insulation installed
 - Name and address of the contractor installing the insulation
 - Date of installation

3. All participating Trade Allies in the Ceiling Insulation Program must follow DEF Code of Ethics.

7. WALL INSULATION

7.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Building must be at least two (2) years old in order to qualify for an incentive.
3. The weighted average R-value of the existing insulation must be less than or equal to R-16. (**Exception:** May exclude conditioned area for a recent addition.)
4. Eligible facilities must have both electric (non-portable) air conditioning and electric (non-portable) heating. This is retrofit measure only; new construction projects are not eligible.
5. A Business Energy Check or other pre-qualification methods (as determined by DEF) is required prior to installation to establish existing insulation levels.
6. Any structure that has in the past utilized this portion of the program (Wall insulation) is not eligible to participate again. However, if that structure, through an act of God, loses the insulation and this loss is not covered by insurance, then the structure would be eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from their insurance company stating that the insulation loss was not covered by insurance.
7. Any building with "Knob and Tube Wiring" must be documented or certified as not energized by a state-licensed electrician. (*National Electrical Code 1990, Article 324, Section 324-4*).

7.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers' recommendations and specifications and must meet all state, county and local codes.

2. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area.
3. All attic access panels that are located in conditioned space must be insulated in the same minimum R-value as throughout the entire area and permanently attached.
4. Improvements to wall insulation in existing commercial buildings, after retrofit, needs to meet or exceed the ASHRAE Standard 90.1-2010 R-value

7.3 CONTRACTOR REQUIREMENTS

1. DEF participating contractors must meet the contractor requirements outlined in Section 3.1. Customer chosen contractors must meet the contractor requirements as outlined in Section 3.2.
2. The contractor will provide all required documentation by the insulation contractor or his representative to the customer
 - Manufacturer's name
 - Insulation type
 - R-Value, the thickness, and the location of the insulation installed
 - Name and address of the contractor installing the insulation
 - Date of installation
3. All participating Trade Allies in the Wall Insulation Program must follow DEF Code of Ethics.

HVAC EQUIPMENT

8. AIR-COOLED AND WATER-COOLED ELECTRIC CHILLERS

8.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This requirement is typically met by submitting copies of invoices or purchase orders.

3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data at Standard Rating Conditions must be attached to the incentive form. If AHRI sheet cannot be obtained, documentation must be provided indicating that the equipment was tested to the AHRI 550/590 Test Standard. DEF will default to AHRI ratings for tonnage of the equipment being approve.

8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturers' rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning, Heating and Refrigeration Institute (AHRI) rating procedure. Full Load (FL), Integral Partial Load Value (IPLV) and Nominal Partial Load Value (NPLV) are all acceptable ratings.
2. All equipment for which an incentive is paid shall be new and not refurbished, previously installed, or used.
3. All equipment installations shall exceed the minimum efficiency requirements set by federal, state, and local code by 10%.
4. HVAC equipment must be all electric.

8.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

9. SMALL HEAT PUMPS ($\leq 65,000$ Btu/h)

9.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This requirement is typically met by submitting copies of invoices or purchase orders.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data at Standard Rating Conditions must be attached to the incentive form.
4. Duke recommends that a cooling and heating load calculations must be performed if the capacity of the new high-efficiency unit differs from that of the original unit or if the new high-efficiency unit is adding cooling or heating to previously unconditioned space.

9.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Installed equipment must be complete systems (i.e. both air handler and outdoor condensing units must be replaced in order to qualify for an incentive), including any supplemental devices, and shall be listed by Underwriters Laboratories (UL) or other nationally recognized testing laboratories in accordance with UL standards as appropriate. (Includes Geothermal units)
2. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
3. All equipment shall be new and not refurbished, previously installed, or used.

4. Data/Server Rooms will be evaluated under the Custom Program on a per case basis.
5. The installed air handler/outdoor condensing unit combination must satisfy both the cooling and the heating minimum efficiency requirements described in Section 9.4
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning, Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-94). All cooling-mode efficiency ratings eligibility will be based on EER if available. If EER ratings are not available, then SEER will be used to determine cooling-mode eligibility. All heating-mode efficiency ratings eligibility will be based on HSPF.
7. The contractor will be encouraged to use mastic on all new connections.
8. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
9. Heat pumps must be all electric.

9.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

9.4 TECHNICAL SPECIFICATIONS

A small heat pump with a minimum efficiency of 15 SEER and an HSPF of 8.2 replacing a less efficient heat pump or replacing a system with resistance heat qualifies for a \$50 per ton incentive.

10. PACKAGE TERMINAL HEAT PUMPS (PTHPs) REPLACING PTAC's and PTAC's REPLACING LESS EFFICIENT PTAC's

10.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This qualification is typically met by submitting copies of invoices or purchase orders.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data at Standard Rating Conditions must accompany the incentive form.

10.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations shall exceed the minimum efficiency requirements set by federal, state, and local code by 25%.
2. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved DOE or AHRI rating procedure.
3. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
4. All equipment shall be new and not refurbished, previously installed, or used.
5. Package Terminal Heat pump and PTAC must be all electric.

10.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

11. UNITARY A/C and HEAT PUMPS (> 65,000 Btu/h)

***also includes variable refrigerant flow multi split AC and heat pumps of all sizes**

11.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This qualification is typically met by submitting copies of invoices or purchase orders.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data, or equivalent (determined by DEF representative), at Standard Rating Conditions must be attached to the incentive form.

11.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations shall exceed the minimum efficiency requirements set by federal, state and local code by 10%. Installed equipment must be complete systems including any supplemental devices and shall be listed by Underwriters Laboratories (UL), or other nationally recognized testing laboratories in accordance with Underwriters Laboratories (UL) standards, as appropriate.
2. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved DOE or AHRI rating procedure (AHRI 210/240-94 for less than 135,000 Btu/h and AHRI 340/360 for units greater than 135,000 Btu/h).
3. All equipment installations shall meet manufacturers' instructions and specifications and meet all state, county, and local codes.

4. All equipment shall be new and not refurbished, previously installed, or used.
5. The contractor will be encouraged to use mastic on all new connections.
6. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
7. HVAC equipment must be all electric.

11.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

HVAC SYSTEM RELATED IMPROVEMENTS

12. DEMAND CONTROL VENTILATION (DCV)

12.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Customer must provide documentation of the DCV system and what HVAC load reduction is projected.

12.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. DCV must include sensors that measure CO₂ levels (or other approved methods) and adjusts ventilation rate in spaces with varying occupancy through integrating sensor readings to control the outside air dampers.
2. Installation of DCV system and sensors shall be in accordance with the manufacturers' recommendations and specifications and meet all state, county, and local codes.

3. Commissioning the DCV system is recommended to ensure the ventilation system is working properly with the HVAC computer and sensors.

12.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer-chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

13. DUCT TEST AND LEAKAGE REPAIR

13.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Repair recommendations must have been the result of a DEF-approved duct test. (**Exception:** If during an energy audit or prior to duct test, the DEF representative validates the need for complete duct system replacement, a duct test is not required).
3. The customer's duct system must be in adequate condition to accommodate the duct test to be performed and not have been previously tested for the present occupant within a 5-year period. (**Exception:** Duct systems altered as a result of remodeled or added conditioned area.)
4. The duct must be easily accessible for repair. (Exception: aerosol sealing method.)
5. Commercial, multi-family units will be qualified as individual units for incentive purposes. Multi-family units greater than one story in height may only have the top floor duct system(s) repaired.
6. All facilities must have centrally ducted electric cooling and electric heat. If non-space heating combustion appliances exist, then the facility must pass a safety test prior to any duct sealing.

7. Duct and HVAC systems must be in adequate condition to accommodate duct leakage repair.
8. A minimum of 60 CFM @ 25 Pa's of leakage per ton of HVAC equipment capacity and a minimum of 60% of the leakage sealed is the baseline for participation in aerosol duct sealing.

13.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
2. For conventional duct repair only, mastic and fiber cloth or mastic with embedded fiber (mixed) may be used to seal the duct system. Tape may be used to hold the duct in place while the mastic is drying. If tape is used, the mastic must cover the tape completely and extend a minimum of 2" past the width of the tape. Mastic must meet Underwriters Laboratories (UL) 181 specifications for the material that the mastic being applied to.
3. Blower door or duct blaster procedures must be followed as specified in training, or manufacturers' instructions, unless otherwise directed by DEF when performing the duct test.
4. Aerosol procedures must be followed as specified in training or manufacturers' instructions and will include:
 - Complete pre-seal and post-seal leakage test using approved aerosol software
 - Aerosol sealants shall meet the requirements of Underwriters Laboratories (UL) 723.
 - Seal all boot-to-ceiling and/or floor connections
 - All areas of the duct system will be evaluated, and cost-effective leaks will be sealed by conventional (6.2.2) or aerosol method.
 - Complete post-seal leakage test using approved aerosol software

13.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer-chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.

2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air-Conditioning contractor in the jurisdiction having authority.
3. All participating contractors must have attended and successfully completed a DEF-approved duct repair course.
4. In Commercial, multi-family units, the contractor shall seal all joints and connections of the duct work, and no duct test is required. Multi-family units greater than one story in height may only have the top floor duct system(s) repaired. No combustion appliances (fireplaces, water heating, etc.) are allowed for multi-family due to safety concerns.

13.4 INSPECTION REQUIRMENTS

If inspecting for the Duct Test and Leakage portion of this program, all inspectors must have attended and successfully completed a DEF-approved Duct Diagnostic course.

14. ENERGY RECOVERY VENTILATION

14.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of energy recovery ventilation project cost, project completion date and an itemized inventory of equipment installed. This requirement is typically met by submitting copies of invoices.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) 1060 certified efficiency data must be attached to the incentive form.
4. All ratings must be done with an approved model rating tool by AHRI with a current version number listed on the AHRI site.

14.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Installed equipment must be complete systems including any supplemental devices and shall be listed by Underwriters Laboratories or other nationally recognized testing

- laboratories in accordance with Underwriters Laboratories (UL) standards as appropriate.
2. Equipment efficiency ratings shall be obtained from an approved modeling tool by Air Conditioning, Heating and Refrigeration Institute (AHRI) rating procedure standard and have an active version number on the AHRI site.
 3. To be eligible for an incentive, the energy recovery ventilation unit AHRI rating must be equal to or greater than 450 CFM with a rating equal to or greater than 65% total heating effectiveness per AHRI Standards.
 4. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
 5. All equipment shall be new and not refurbished, previously installed, or used.
 6. The contractor will be encouraged to use mastic on all new connections.

14.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer-chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

SMART \$AVER CUSTOM INCENTIVE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
SMART SAVER CUSTOM INCENTIVE PROGRAM
(f/k/a Florida Custom Incentive Program)**

1. PROGRAM OVERVIEW

The objective of the Smart Saver Custom Incentive Program of Duke Energy Florida, LLC (DEF) is to encourage customers to make capital investments for the installation of high-efficiency technologies not covered by DEF's other DSM programs. Projects may include, but are not limited to, thermal energy storage projects, high-efficiency machinery, whole-building construction projects and other technologies specific to a particular industry or business process. Incentives will be determined on a project-specific basis.

2. ELIGIBILITY REQUIREMENTS

1. The participant must be located in the DEF service territory and be a commercial, metered account.
2. Owners who do not occupy the facilities or renters of these types of facilities are eligible to participate in this program. If renters of a facility wish to participate in this program, they must submit written approval from the owner to do so.
3. Projects must pass the Participants cost effectiveness test and the RIM cost effectiveness test to qualify for incentives.
4. Projects must have a payback period of no less than two (2) years.
5. Projects must not include fuel switching.
6. A Smart Saver Custom Incentive Program Pre-Application Questionnaire or specific DEF Calculator evaluation, must be completed and submitted for approval. DEF will evaluate the information provided to determine if the project may be eligible for incentives through this Program. Approval must be granted prior to completion of any project.

3. PARTICIPATION REQUIREMENTS

1. The customer will be required to submit an application for projects that are determined to be eligible. The application will include additional project specific details including efficiency ratings of equipment, details of project costs, demand and energy savings, as well as the savings load shape and measure life.
2. The application must be approved and signed by an authorized representative of DEF.
3. DEF will evaluate projects to determine cost effectiveness and appropriate incentive levels.
4. DEF will be allowed access to all measure installations for inspection purposes if requested.

4. EQUIPMENT AND INSTALLATION REQUIREMENTS

1. Completed projects must meet all federal, state and local codes and regulations.
2. Projects may be inspected to verify the demand and energy savings.
3. All equipment for which an incentive is paid shall be new and not refurbished or previously installed or used. Incentives will not apply to equipment installed to provide back-up or redundancy.
4. All equipment installations shall meet manufacturers' instructions and specifications.
5. All projects must exceed local, state, and federal minimum efficiency standards.
6. Equipment must be all electric.
7. Other material and equipment specification requirements may be identified on an individual project basis.
8. The installed energy-efficiency equipment may require instrumentation, such as a DEF load profiler online or a chiller EMS to provide data on energy consumption to ensure the peak load shift has occurred.

5. INCENTIVES

1. Incentives are limited to fifty percent (50%) of the customer's actual total project cost for the energy efficiency measure(s).
2. The maximum incentive for a single project is \$500,000.
3. Incentives may be paid in stages based on comparative performance metrics when there is uncertainty around the demand and energy reductions that will be achieved. Fifty percent (50%) of the approved incentive will be paid upon initial installation. The remaining incentive will be paid post-installation upon confirmation of the achieved impacts.

6. INCENTIVE PROCESSING

1. A Payment Request Form along with documentation of project costs and completion date must be submitted to DEF within ninety (90) days of completion of the project. This documentation must include an itemized inventory of the equipment installed along with equipment efficiency ratings from a nationally recognized certification program directory or a manufacturer's rating. For new construction projects, the supporting documentation must be received within ninety (90) days of the Certificate of Occupancy, permanent meter set or final payment authorization form.
2. DEF may inspect installations to verify operability of the technology and/or to obtain information needed to calculate the approved custom incentive amount.
3. Project-supporting documents will be reviewed to ensure program compliance.
4. Incentive payments will be based on the final, approved incentive amount for each project. Incentive amounts may be adjusted if the project cost or achieved impacts vary from the preliminary estimates.
5. Incentives will be paid after review and/or savings verification has occurred.
6. If the vendor is the payee, the vendor must issue credit in the amount of the Smart Saver Custom Incentive to the customer on the invoices provided with the payment request submission.

7. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
STANDBY GENERATION PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
STANDBY GENERATION PROGRAM**

1. PROGRAM OVERVIEW

The Standby Generation (SBG) Program of Duke Energy Florida, LLC (DEF) is a load-control program designed to reduce DEF's demand based upon control of customer equipment. The program is voluntary and is available to business customers who have on-site generation capability and are willing to reduce their facility demand at the request of the company.

2. ELIGIBILITY REQUIREMENTS

1. Customer must be a commercial customer taking service under a General Service rate schedule.
2. The SBG meter must be accessible by DEF for the purposes of reading, inspecting and maintaining the standby-generation metering equipment.

3. PARTICIPATION REQUIREMENTS

1. Customer must have standby generation that will reduce utility system demand at the request of DEF.
2. Customer standby-generation capacity must be at least 50 KW and must be compliant with all state and federal emissions requirements.
3. Customer must be within the range of the Company's switch communications capability.

4. EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All installations must comply with all provisions of the National Electric Code (NEC) and any code or requirement of other authorities having jurisdiction.
2. Where necessary, the engineering for the metering and monitoring module installation will be done by a registered Florida engineer. The physical installation will be done by

a licensed Florida electrical contractor selected by DEF. Appropriate permits will be secured for each installation by the contractor.

5. CONTRACTOR REQUIREMENTS

1. The contractor shall comply with all Load Management Standards as specified by the DEF Energy Management Department and stated in the most current copy of the Energy Management Operations Manual.
2. Contractors participating in the installation of metering and communications modules on the customer's equipment must meet the financial criteria set forth in the DEF Materials and Contracts Department policies and procedures.
3. The contractor must comply with all Federal, State and local codes and regulations.
4. Contractors are responsible for the work to be performed, the use of the contractor's own equipment and the supervision of employees in order to meet the work specifications and the required completion date.
5. Contractor shall indemnify and hold DEF harmless against any and all injuries, damages, claims or costs whatsoever caused by items furnished or services rendered.
6. Contractors will be insured as specified in the terms and conditions of their contract with DEF.
7. DEF reserves the right to request background checks of contractors working with the Standby Generation Program.

6. INCENTIVES

Incentives will be provided in accordance with the provisions of the applicable Stand-by rate schedule.

7. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
INTERRUPTIBLE SERVICE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
INTERRUPTIBLE SERVICE PROGRAM**

1. PROGRAM OVERVIEW

The Interruptible Service (IS) Program of Duke Energy Florida, LLC (DEF) is a direct load-control program that is used to reduce system demand during peak or emergency conditions through interruption of service to program participants. The program allows DEF to interrupt service to program participants per the provisions of the applicable Interruptible Service rate schedule.

2. ELIGIBILITY REQUIREMENTS

1. Customer must be eligible for service under an approved Interruptible Service Rate Schedule.
2. The facility must be in the DEF service territory and served by a metered, DEF account.
3. The customer must be a DEF non-residential customer.

3. PARTICIPATION REQUIREMENTS

1. Participant must sign an agreement with DEF as to the terms and conditions of this service.
2. Participant must allow DEF to install the required load control equipment.
3. Participant will be billed in accordance with the applicable Interruptible Service rate schedule.

4. INCENTIVES

Incentives will be provided in accordance with the terms of the applicable Interruptible Service Rate Schedule.

5. REPORTING REQUIREMENTS

The reporting requirements for this program are as specified in FPSC Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

CURTAILABLE SERVICE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
CURTAILABLE SERVICE PROGRAM**

1. PROGRAM OVERVIEW

The Curtailable Service (“CS”) Program of Duke Energy Florida, LLC (DEF) is an indirect load-control program that is used to reduce DEF’s demand during peak or emergency conditions. This program is made available to commercial customers through the Curtailable Service rate schedules. Customers who choose to participate in this program are required to curtail their load when requested by the utility per terms of the applicable rate schedule or to a level at or below the contractual agreed upon non-curtailable demand. The eligibility criteria, participation requirements, curtailment requirements and customer incentives, along with potential penalties for failure to curtail, are as specified in the terms of the applicable curtailable service rate schedule.

2. ELIGIBILITY REQUIREMENTS

1. Customer must be eligible for service under an approved Curtailable Service Rate Schedule.
2. The facility must be in the DEF service territory and served by a metered, DEF account through one point of delivery.
3. The customer must be a DEF non-residential customer.

3. PARTICIPATION REQUIREMENTS

1. Participants must sign an agreement with DEF as to the terms and conditions of this service.
2. Participants will be billed in accordance with the terms of the applicable Curtailable Service rate schedule.
3. Participants must remain on a curtailable service rate for the minimum term and provide notice to terminate their participation as specified in the applicable Curtailable Service rate schedule.

4. Participants are required to curtail their load during periods of requested curtailable per the terms of the applicable rate schedule or to a level at or below the contractual agreed upon non-curtailable load.
5. Participants who fail to comply with their curtailment responsibilities will be billed additional charges as specified in the applicable curtailable service rate schedule.
6. Participants are required to provide notice to transfer to a firm, rate schedule as specified in the applicable curtailable service rate schedule.

4. INCENTIVES

Incentives will be provided per the terms of the applicable Curtailable Service rate schedule.

5. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

III. TECHNOLOGY DEVELOPMENT PROGRAM

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

TECHNOLOGY DEVELOPMENT PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
TECHNOLOGY DEVELOPMENT PROGRAM**

1. PROGRAM OVERVIEW

The purpose of the Technology Development Program of Duke Energy Florida, LLC (DEF) is to enable DEF to investigate technologies and pursue research, development and demonstration projects that may lead to the development of new cost-effective demand side management programs. The program is designed to allow DEF to investigate technologies and develop new programs from initial concept through submittal to the Florida Public Service Commission (FPSC) for consideration and approval. In general, each proposed technology development project will proceed according to the following schedule. Each milestone will represent a decision point to continue or discontinue the project based upon knowledge available at the time.

1. Project concept or idea development
2. Project research and design, including estimated costs and benefits
3. Field demonstration program
4. Evaluation of field demonstration program, including cost-effectiveness
5. If accepted for continuation as a program, application to the FPSC for approval to implement the program

Expenditures of up to \$800,000 annually may be made and recovered through the energy conservation cost recovery clause for all energy efficiency and conservation projects that are proposed and investigated. All costs, including incentives and rebates that are offered, will be as part of the pre-approved project expenditures under this program. To ensure that all expenses are properly accounted for, a “job order” will be created for each project which will be the repository for all investigation expenses. A record of program expenses will be maintained in accordance with Rule 25-17.015, Florida Administrative Code.

2. ELIGIBILITY REQUIREMENTS

Customers eligible to participate in field demonstration projects will be determined during the project research and design phase. Eligibility will be dependent on the type of project being proposed and investigated. Field demonstrations will involve only a limited number of customers. Participants in field demonstration projects must allow DEF and its contractor's access to the facility for maintaining and monitoring the evaluation equipment. DEF will be solely responsible for determining the technologies to be evaluated under this program.

3. INCENTIVES

As part of this program, DEF may provide an incentive to participants in field demonstration projects for their willingness to work with DEF on the technology evaluation.

4. REPORTING REQUIREMENTS

If any single project's annual expenditures exceed \$100,000, a status report will be filed as a component of the Energy Conservation Cost Recovery Projection and True-Up filings. If any project (or combination of projects) expenditures are projected to exceed the \$800,000 annual limit, DEF will apply to the FPSC staff for approval to proceed with the particular project which would cause DEF to exceed the limit.

Attachment D

Clean Version of

2020-2024 DSM Program Participation Standards



2020 – 2024

DEMAND SIDE MANAGEMENT

PROGRAM PARTICIPATION STANDARDS

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I. RESIDENTIAL CONSERVATION PROGRAMS

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
HOME ENERGY CHECK

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
HOME ENERGY CHECK PROGRAM**

1. PROGRAM OVERVIEW

The Home Energy Check program of Duke Energy Florida, LLC (DEF) is a residential energy audit program that provides residential customers with an analysis of their energy consumption as well as educational information on how to save money by reducing their energy usage. The audit provides the opportunity to promote and directly install cost-effective measures in customers' homes while also educating and encouraging customers to implement energy-saving practices. The Home Energy Check program serves as the foundation for other residential energy efficiency and demand side management programs. The Home Energy Check program offers the following types of energy audits:

- Type 1: Free Walk-Through (computer assisted)
- Type 2: Customer Online (Internet Option)
- Type 3: Customer Phone Assisted
- Type 4: Home Energy Rating (or BERS/HERS) Audit

All audit types, except Type 4 - Home Energy Rating, are provided to the customer at no charge. The charge for the Home Energy Rating can be found in DEF's tariffs Section II, Fifth Revised Sheet No. 2.6 - Florida BERS/HERS Audit.

Customers will be provided with energy-efficiency tips and examples of easily installed, energy-efficiency measures. The program promotes continued customer involvement by demonstrating sustainable and measurable reductions in energy usage through the implementation of low-cost energy-efficiency measures and energy-saving recommendations. Customers participating in the Home Energy Check program may receive a residential Energy Efficiency Kit. The kit will contain energy saving measures that can easily be installed and utilized by the customer. The contents of this kit will be evaluated periodically and may change over time.

Additionally, beginning in 2021, a participant classified as low-income, with income equal to or less than 200% of federal poverty level guideline, will be eligible to receive measures included in an “Assistance Kit.” These measures will be provided in addition to the measures included in the normal HEC Kits to customers who complete either an online or walk-through audit. The “Assistance Kit” will include measures that can provide meaningful energy efficiency savings to customers in need. The “Assistance Kits” will be available for up to 20,000 qualifying low-income customers each year, beginning in 2021 through 2024.

2. ELIGIBILITY REQUIREMENTS

The residence must be in DEF's service area and must be a residential, metered customer of DEF.

3. PARTICIPATION REQUIREMENTS

No more than one audit may be conducted for the same customer at the same premise within a two-year period. DEF reserves the right to update audits and schedule field visits on a per need basis.

4. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
RESIDENTIAL INCENTIVE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
RESIDENTIAL INCENTIVE PROGRAM**

1. PROGRAM OVERVIEW

The Residential Incentive Program (RI PROGRAM) of Duke Energy Florida, LLC (DEF) is an "umbrella" program designed to improve the energy efficiency of existing and new residential homes. The program seeks to meet the following overall goals:

- Provide a cost-effective portfolio of measures across different housing types.
- Provide customer energy savings and demand reduction through the installation of energy-efficient equipment and thermal envelope upgrades.
- Educate the residential market regarding best practices, innovative technologies and opportunities to participate in all applicable incentives for managing energy consumption.

2. ELIGIBILITY REQUIREMENTS

1. All measures must have been recommended during a DEF energy audit completed within the past two (2) years. (**Exception:** *in emergency cases, the customer may have HVAC equipment installed prior to the audit.*)
2. The residence must be in DEF's service area and be a residential, metered customer of DEF.
3. All HVAC and window installations must be permitted by the appropriate local agency.
4. A DEF-approved Trade Ally must be used for Duct Test, Duct Leakage Repair and

Ceiling Insulation measures.

All installations must be accessible for verification by a DEF representative to ensure compliance with the Residential Incentive Program standards.

3. TRADE ALLY REQUIREMENTS

1. All Trade Allies must comply with DEF Trade Ally training, procedures and manufacturers' specifications specific to the portion of the RI PROGRAM for which they are participating. Failure to do so may result in termination of participation in any or all DEF programs.
2. The Trade Ally is responsible for the work to be performed, the supervision of their employees and the use of Trade Ally's own equipment to meet the work specifications and completion date.
3. The Trade Ally must correct any deficiency found in the installation or product when advised by a DEF representative, and notify the DEF representative of compliance within thirty (30) days.
4. The Trade Ally shall notify DEF of any incident occurring during installation of an RI Program measure or any follow-up procedure within twenty-four (24) hours of the incident.
5. The Trade Ally shall indemnify and hold DEF harmless against any and all injuries, damages, claims, or costs caused by items furnished or services rendered by the Trade Ally and/or its employees.
6. The Trade Ally must comply with all Federal, State and local codes and regulations and have the appropriate permits and license(s) for the work to be performed.

7. The Trade Ally must provide documentation of and maintain in force the following types of insurance coverage. The Trade Ally must maintain coverage that meets the greater of the minimum coverage required by the State for license retention or the minimum coverage requirements specified in the Trade Ally agreement. This applies to all Program measures:

- Workman’s Compensation
- General Contractual and Automobile Bodily Injury Liability
- General and Automobile Property Damage Liability
- General and Vehicle Liability

4. INCENTIVES

The incentive payment structure is as follows:

Program Component	Incentive
Duct Test for Single-Family Homes	50% of test cost up to \$40 for the first unit tested for single-family homes with ducted electric air and heat
	50% of test cost up to \$30 for each additional unit at same address for single-family homes with ducted electric air and heat
Duct Leakage Repair for Single-Family Homes	Will pay the cost of duct repairs up to \$200 per system for single-family homes with ducted electric air and heat.
Attic Insulation (Ceiling Insulation Upgrade) for Single-Family Homes	Will pay for insulation upgrades for single-family homes. Will pay \$0.19 per square foot up to \$200 to bring insulation from R-19 or less to a minimum of R-38; up to \$400 to bring insulation from R-12 or less to a minimum of R-38; and up to \$800 to bring insulation from R-2 or less to a minimum of R38.

High Efficiency Heat Pump Replacing Resistance Heat for Multi- Family and Manufactured Homes	Will pay \$150 for High Efficiency Heat Pump system with a minimum cooling efficiency of 14.0 SEER and minimum heating efficiency of 8.2 HSPF replacing less efficient resistance heat/strip heat HVAC systems for Multi-Family and Manufactured Homes.
High Efficiency Heat Pump for Single-Family Homes	Will pay \$300 for a High Efficiency Heat Pump system with a minimum cooling efficiency of 14 SEER and minimum heating efficiency of 8.2 HSPF replacing less efficient resistance heat/strip heat HVAC systems for Single-Family Homes.
	Will pay \$150 for a High Efficiency Heat Pump system with a minimum cooling efficiency of 15 SEER and minimum heating efficiency of 8.2 HSPF replacing less efficient Heat Pump HVAC systems for Single- Family Homes.
High Efficiency Central Air Conditioner for Single-Family Homes	Will pay \$100 for a High Efficiency Central Air Conditioning system with a minimum cooling efficiency of 16 SEER replacing less efficient Central Air Conditioning system for Single-Family Homes.
Replacement Windows for Single-Family Homes	Will pay \$2.00 per square foot of east, west and south-facing window area up to a maximum incentive of \$400 for high performance windows that have a minimum Solar Heat Gain Coefficient (SHGC) of less than or equal to 0.25 and a U-Value of equal to or less than 0.35 for Single- Family Homes

Notes: 1. If SEER is not available, an EER conversion using industry standard practices may be used to determine qualification.

4.1 INCENTIVE PROCESSING

1. A copy of the incentive form and all supporting documentation must accompany the application for all measures completed.
2. The customer or Trade Ally shall have twelve (12) months from date of installation to

- submit all required forms for the measure after which they will become ineligible for incentive.
3. Inspections will be performed on at least 10% of all program measures.
 4. A copy of the certificate of completion and pre and post duct leakage data will be required for single-family, aerosol, duct-sealing measures.
 5. If the measure is assigned for inspection, an inspection form will be completed by a DEF representative.
 6. Incentives will be processed for payment after inspection requirements are met.
 7. Duct test repair and insulation upgrade, incentive payments are made to the Trade Allies.
 8. HVAC and window incentive payments are paid or credited to the customer or designated recipient.

5. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), F.A.C.

6. DUCT TEST AND LEAKAGE REPAIR SINGLE-FAMILY HOMES

6.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. Repair recommendations must have been the result of a DEF-approved duct test or DEF audit. (**Exception:** If during an energy audit or prior to duct test, the DEF representative validates the need for duct repair or complete duct system replacement, a duct test is not required).
3. The customer's duct system must be in adequate condition to accommodate the duct test and must be accessible and in adequate condition for duct repair. (**Exception:** aerosol sealing method).
4. Homes must have centrally ducted electric cooling and electric heat. If non-space heating combustion appliances exist (i.e., water heater, stove, etc.), then the house must pass an industry-approved safety test prior to any duct sealing.
5. A minimum of 60 CFM at 25 Pa's of leakage per ton of HVAC equipment capacity and a minimum of 60% of the leakage sealed is the baseline for participation in aerosol duct sealing.

6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications and must meet all state, county and local codes.
2. For conventional duct repair, only mastic and fiber cloth or mastic with embedded fiber (mixed) may be used to seal the duct system. Tape may be used to hold the duct

in place while the mastic is drying. If tape is used, the mastic must cover the tape completely and extend a minimum of 2” past the width of the tape. Mastic must meet Underwriters Laboratories (UL) 181 specifications for the material that the mastic is being applied to.

3. Duct test procedures must be followed as specified in manufacturers’ instructions, unless otherwise directed by DEF when performing the duct test.
4. Aerosol procedures must be followed as specified in training or manufacturers’ instructions and will include:
 - Complete pre-seal and post-seal leakage test using approved aerosol software
 - Aerosol sealants shall meet the requirements of Underwriters Laboratories (UL) 723.
 - Seal all boot-to-ceiling and/or floor connections
 - All areas of the duct system will be evaluated, and cost-effective leaks will be sealed by conventional or aerosol method.

6.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. All participating Trade Allies must attend and successfully complete DEF-approved duct repair training.

6.4 INSPECTION REQUIREMENTS

Duke Energy Florida, LLC

2020 Program Participation Standards

All on-site inspectors must attend and successfully complete a DEF-approved Duct Diagnostics training.

At a minimum, the training will consist of:

- Training session on Building Science
- Duct test applications (classroom, field and laboratory)
- Codes and standards as they relate to duct sealing

7. CEILING INSULATION UPGRADE

7.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. Insulation recommendations must have been the result of a DEF audit.
3. Eligible residences must have whole-house cooling and/or electric heating.
4. The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be less than or equal to R-2.
(**Exception:** May exclude conditioned area for a recent addition.)
5. Any structure that has participated in DEF's attic insulation upgrade program is not eligible to participate again. However, if the structure, through an act of God loses the insulation **and** the loss is **not** covered by insurance, the structure is eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from his/her insurance company stating that the insulation was not covered.
6. Any home with "Knob and Tube Wiring" must be documented or certified as not energized by a state-licensed electrician.

7.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers' recommendations, specifications and must meet all state, county and local codes.
2. All installations must result in an insulation value equal to or greater than R-38.
3. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
4. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
5. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by state, county and local codes.
6. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area including knee walls.
7. All attic access panels that are located in conditioned space must be insulated in the same minimum R-value as throughout the entire area and permanently attached.

7.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. The Trade Ally will attach an R-value Certification Card signed by the insulation Trade Ally or his/her representative to the attic joist visible from the attic access and provide a copy of the R-value Certification Card to the customer. The card shall contain, at a minimum, the following information:

- Manufacturer's name
- Insulation type
- R-Value of insulation installed
- Thickness of insulation installed
- Location of insulation installed
- Name and address of the Trade Ally installing the insulation
- Date of installation

3. All participating Trade Allies in the Ceiling Insulation Program must follow DEF Code of Ethics. DEF reserves the right to request background check results on all participating employees.

8. HIGH-EFFICIENCY, ELECTRIC HEAT PUMPS MULTI-FAMILY AND MANUFACTURED HOMES

8.1 PARTICIPATION REQUIREMENTS

1. Single-family homes are not eligible to participate.
2. The customer must have had an audit within the past 2 years. (An exception would be made for emergency heat pump equipment installations and change-outs as a result of non-operating systems).
3. Customer must have electric resistance/strip heat.

8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications and must meet all state, county and local codes.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with Underwriters Laboratories (UL) standards as appropriate.
3. Both air handler and condensing unit must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the cooling and heating minimum efficiency requirements.
5. All equipment shall be new and not refurbished, previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-2008).
7. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
8. Heat pump must be all electric.

8.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.

2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. Trade Allies must be able to demonstrate their ability to properly calculate heating and cooling loads by using industry-approved sizing software in the jurisdiction having authority.
4. The Trade Ally shall have twelve (12) months from date of installation to submit all “High Efficiency Equipment Forms” after which they will become ineligible for incentive.

9. HIGH-EFFICIENCY, ELECTRIC HEAT PUMPS - SINGLE-FAMILY HOMES

9.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. The customer must have had an audit within the past two (2) years. (An exception would be made for emergency heat pump equipment installations and change-outs as a result of a non-operating system).
3. The customer must have electric resistance/strip heat or less-efficient heat pump.

9.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers’ instructions and specifications and must meet all state, county and local codes.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with

Underwriters Laboratories (UL) standards as appropriate.

3. Both air handler and condensing unit must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the heating and cooling minimum-efficiency requirements.
5. All equipment shall be new and not refurbished, previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-2008).
7. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
8. Heat pump must be all electric.

9.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. The Trade Ally must be able to demonstrate their ability to properly calculate heating and cooling loads by using industry-approved sizing software in the jurisdiction having authority.

4. The Trade Ally shall have twelve (12) months from date of installation to submit all “High Efficiency Equipment Forms” after which they will become ineligible for incentive.

10. HIGH-EFFICIENCY CENTRAL AIR CONDITIONER FOR SINGLE-FAMILY HOMES

10.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. The customer must have had an audit within the past two (2) years. (An exception would be made for emergency heat pump equipment installations and change-outs as a result of a non-operating system).
3. The customer must not be replacing an existing heat pump.

10.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers’ instructions and specifications and must meet all state, county and local codes.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with Underwriters Laboratories (UL) standards, as appropriate.
3. Both air handler and condensing unit must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the

heating and cooling minimum-efficiency requirements.

5. All equipment shall be new and not refurbished, previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-2008).
7. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
8. System must be all electric.

10.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air Conditioning Contractor.
3. The Trade Ally must be able to demonstrate their ability to properly calculate heating and cooling loads by using industry approved sizing software in the jurisdiction having authority.
4. The Trade Ally shall have twelve (12) months from date of installation to submit all "High Efficiency Equipment Forms" after which they will become ineligible for incentive.

11. REPLACEMENT WINDOWS

11.1 PARTICIPATION REQUIREMENTS

1. Multi-family and manufactured homes are not eligible to participate.
2. Eligible residences must have whole-house electric air conditioning and whole-house electric heating.
3. Any structure that has maximized DEF's window incentive program is not eligible to participate again. However, if the structure, through an act of God, loses windows **and** the loss is **not** covered by insurance, the structure is eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from his/her insurance company stating that the windows were not covered.

11.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The replacement window and installation must meet manufacturers' instructions and specifications and must meet all state, county and local codes.
2. Incentive will be provided for south, east and west facing windows.
3. All materials shall be new and not refurbished, previously installed or used.
4. The windows must be labeled by the National Fenestration Rating Council (NFRC) as achieving a Solar Heat Gain Coefficient (SHGC) of less than or equal to 0.25 and a U- value of less than or equal to 0.35.
5. Windows with overhangs extending three (3) feet or greater are exempt from the SHGC requirement but not the U-value requirement.

11.3 TRADE ALLY REQUIREMENTS

1. Must meet the Trade Ally requirements as outlined in Section 3.
2. The Trade Ally will leave a copy of the manufacturers' product specification sheet with the customer.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

NEIGHBORHOOD ENERGY SAVER PROGRAM

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
NEIGHBORHOOD ENERGY SAVER PROGRAM

1.0 PROGRAM OVERVIEW

Duke Energy Florida, LLC's (DEF) Neighborhood Energy Saver (NES) program is a custom energy conservation program for low-income customers. The NES program is designed to assist selected neighborhoods where 50% of the households have incomes equal to or less than 200% of the poverty level as established by the U.S. Government. NES allows DEF to individually reach a larger audience of income-eligible customers than through traditional government agency flow-through methods. DEF or a third-party contractor will directly install energy conservation measures (ECM) identified through an energy assessment of the customer's home to increase their energy efficiency. Additionally, customers will receive a comprehensive package of energy education materials which will educate them on ways to better manage their energy usage. The energy conservation measures installed, and energy efficiency education provided, will be at no cost to the participants. The Neighborhood Energy Saver program seeks to achieve the following goals:

1. Complete a home energy assessment to identify energy-efficiency opportunities within the customer's home.
2. Implement a comprehensive package of electric conservation measures to increase the home's energy efficiency.
3. Provide one-on-one customer education on energy-efficiency techniques and energy conservation measures.
4. Promote behavioral changes that will help customers control their energy usage.

2.0 ELIGIBILITY REQUIREMENTS

DEF's NES program is a direct install program based upon identifying income-eligible neighborhoods where at least 50% of the households have incomes equal to or less than 200% of the poverty level established by the U.S. Government. Additional requirements

are as follows:

- The resident must be a residential, metered customer in DEF's service area.
- Customer must reside in a selected DEF qualifying Census Block that meets the definition of an income-eligible neighborhood as stated above.
- Multi-family dwellings that meet the above definition, that are located within the same city, but may not be within the same Census Block, may also be eligible to participate in the program if they meet guidelines as presented in the program participation standards.
- All installations must be accessible for verification by a DEF representative.

3.0 EQUIPMENT/MATERIALS AND INSTALLATION SPECIFICATIONS

All materials and installation specifications shall meet or exceed the following guidelines:

- All equipment and the associated installations must meet manufacturers' instructions and specifications and DEF procedures. Any contractor who fails to meet these requirements may be terminated from participation in any or all DEF programs.
- All work shall be performed to constitute a finished product.
- Materials shall be free of defects and covered under warranty for at least one year.
- Installation procedures must comply with all federal, state and local codes.

4.0 CONTRACTOR REQUIREMENTS

The contractor may work with subcontractors to install certain measures as mutually agreed upon with DEF. Contractors and subcontractors must have an active Florida General Contractor's license, meet all associated requirements of the Florida Department of Business and Professional Regulation and must comply with all local, state and federal rules and codes. The selected contractor(s) is/are responsible for all work performed and must meet and/or comply with the following requirements:

1. Contractors must have appropriate license(s) and comply with all appropriate federal, state, and local building and safety codes for all work performed.
2. DEF reserves the right to request background checks of contractors participating in the NES program. The contractor shall be responsible for all associated costs.
3. The contractor is responsible for the associated work to be performed, the supervision of their employees and/or subcontractors and the use of contractor's own equipment (or rental equipment) to meet the work specifications.
4. All contractors must comply with DEF contractor procedures and manufacturers' specifications specific to the NES Program. Failure to do so may result in termination of participation in any or all DEF programs.
5. The contractor shall notify DEF of any incident occurring as a result of the NES program or any follow-up procedure within one (1) working day of the incident.
6. The contractor must correct any deficiency found in the installation or product(s) associated with the NES comprehensive package of electric conservation measures, when advised by a DEF representative, and notify the DEF representative of compliance within thirty (30) days.
7. Contractors shall indemnify and hold DEF harmless from any and all losses, liabilities, injuries, damages, claims or costs, whatsoever caused, by items furnished or services rendered, as a result of the NES program.
8. The contractor must notify their insurance companies to provide DEF with documentation, and maintain in force, the state required minimum insurance policies for license retention or the following minimum insurance policies, whichever is greater:
 - Workman's Compensation as required by law
 - General Contractual and Automobile Bodily Injury Liability: \$100,000 per person and \$300,000 per occurrence
 - General and Automobile Property Damage Liability: \$100,000 per occurrence
 - General and Vehicle Liability policies endorsed: \$100,000 per occurrence to provide blanket coverage
 - All sub-contract labor must comply with insurance requirements.
9. All participating duct sealing contractors must attend and successfully complete a

DEF-approved duct repair course. At a minimum, the training will consist of:

- Training session on building science
- Duct test applications (classroom, field and laboratory)
- Codes and standards as they relate to duct sealing

10. Sub-contractors participating in the measures must follow DEF's Code of Ethics. DEF reserves the right to request background check results on all participating contractors and employees.

5.0 ELIGIBLE MEASURES

5.1 ENERGY-EFFICIENT LIGHTING

This measure will provide for the installation of a maximum of 8 energy-efficient light bulbs, for lights which are in use for an average of at least 4 hours per day:

The contractor shall replace up to 8 less efficient bulbs with LED bulbs with similar lumen output. LED bulbs will be installed in accordance with the manufacturer's specifications.

5.2 WATER HEATER MEASURES

5.2.1 WATER HEATER INSULATION WRAP

Contractor will furnish and install water heater insulation on electric water heaters as needed in accordance with the following requirements:

- Insulation shall have an insulating value of R-6 or greater.
- Insulation shall be Underwriters Laboratories (UL) approved.
- Insulation shall be installed in accordance with manufacturer guidelines.
- Tape is allowed to be placed on top of the wrap to secure the insulation. (Tape used to secure the insulation must be vinyl and have good adhesive qualities.)
- Water heating units, which have manufacturers' warnings against insulating, shall not be wrapped.
- Gas water heaters do not qualify.
- Any violation of the National Electrical Code will make a unit ineligible for the water heater wrap.

Recommended Materials

- Blanket Materials conformance to ASTM C592-80
- High Temperature conformance to ASTM 892-78
- Facing Material must have foil or vinyl facing.
- R-Value must be a minimum of R-6.

5.2.2 WATER HEATER PIPE INSULATION

Contractor will furnish and install pipe insulation, as needed, in accordance with the following requirements:

- Insulation shall have an insulating value of R-3 or greater.
- Insulation shall be installed on at least the first five (5) feet of the hot-and-cold water pipes, when accessible.
- Gas water heater systems do not qualify.
- Any violation of the National Electrical Code will make a unit ineligible for the water heater pipe insulation.

Recommended Materials

- Must be flexible.
- Wall thickness of 1 inch.
- Temperature range must be 160 degrees to 200 degrees Fahrenheit.
- Must comply with requirements of ASTM E 84-05 and Underwriters Laboratories (UL) 181 sections 11.0 a 16.0, and retards heat loss.

5.2.3 WATER HEATER TEMPERATURE CHECK AND ADJUSTMENT

- The contractor will check the temperature of the hot water and inform the customer of the possibility for turndown adjustment.
- Contractor will discuss appropriateness of this conservation measure.
- If customer agrees and the water heater equipment is in proper working condition, contractor should reduce temperature setting to 120° F.

5.2.4 WATER-SAVING FAUCET AERATORS

Contractor will furnish and install a maximum of three (3) water-saving faucet aerators on the customer's faucets.

- Install a maximum of one kitchen aerator per home that shall provide a maximum-flow

- rate of 2.2 gallons per minute (GPM) over normal line pressures and have shut-off capability.
- Install a maximum of two (2) bathroom aerators per home that shall provide a maximum flow rate of 1.5 GM over normal line pressures.
 - Homes using gas water heaters will not qualify for water saving faucet aerators measures.

Recommended Materials

- Must be dual thread to fit male and female threaded faucets.
- Must meet the performance requirements of ANSI specification A112.18.
- Screen must be stainless steel.

5.2.5 WATER SAVING SHOWERHEADS

Contractor will furnish and install a maximum of two (2) showerheads per home, including adapters. The showerhead:

- Shall have fittings constructed of chrome plated solid brass with 1/2-inch thread.
- Shall have a flow rate not to exceed 2.5 GPM at normal line pressures.
- Hand-held type fixtures may be provided. If the existing fixture is not handheld, the contractor must obtain the customer's approval to install the handheld showerhead.

Recommended Materials

- Must meet ANSI/ASME specification A112.18.1M 2.5 GPM max.
- Adjustable spray selections offer regular, massage and combo setting.
- Must meet Federal, State, and Local plumbing standards.
- Must have pause feature for user to slow the flow for additional savings.
- Anti-sediment screen to prevent line debris from clogging the screen.

5.3 REFRIGERATION THERMOMETERS

Contractor will furnish, install and demonstrate the proper temperature setting for the refrigeration equipment:

- Locate all refrigerators/freezers in the home.
- Place one thermometer in refrigeration compartment area that will have uniform temperature and place one thermometer in the freezer compartment.
- Educate resident on proper refrigeration settings and how to adjust their refrigerator/freezer thermostat.

- Install a maximum of six (6) refrigeration thermometers per home.

5.4 HVAC MEASURES

5.4.1 WALL PLATE THERMOMETER

Contractor will furnish, install and recommend the winter/summer temperature settings for the HVAC equipment:

- For central HVAC equipment, the wall plate thermometer should be mounted in the main conditioned space as close to any central HVAC air returns and away from any supply vents.
- For window units, locate the wall plate thermometer on the opposite wall in the largest room that is cooled by the unit.
- The wall plate thermometer should not be installed on exterior walls.
- Replace the existing wall switch plate with the wall plate thermometer.
- Educate resident on recommended winter/summer settings and how to adjust the HVAC system thermostat.
- Install a maximum of one (1) wall plate thermometer per home.

Recommended Materials

- Must be Underwriters Laboratories (UL) listed
- Must be fire resistant and precut to fit
- Must be minimum 1/8" thick
- Must be wireless and battery included

5.4.2 WINTERIZATION KIT FOR WALL/WINDOW AC UNITS

Contractor will furnish and demonstrate the proper installation and use of the winterization kit for wall/window AC units:

- Locate all wall/window AC units in the home.
- Install the winterization kit on all wall/window AC units, if seasonably applicable and the system is not in operation. If the wall/window AC units are in operational mode, continue with educational component and leave the AC winterization kit with the residents.
- Educate the resident on proper installation techniques for the AC winterization kit on all wall/window units.
- Install or leave behind a maximum of three (3) winterization kits per home.

Recommended Materials

- A quilted AC cover designed to insulate and stop draft penetration.
- Must include installation instructions, weather stripping and removable tape.

5.5 HVAC MAINTENANCE

During the assessment, the contractor will perform a visual assessment of the HVAC system and make a recommendation for a basic system check. Home must be electrically heated and/or cooled to qualify for this measure.

The following represents the minimum requirement that must be performed by an approved HVAC Technician:

System Controls and Operation:

- Check thermostatic operation.
- Cycle all controls.
- Inspect for dirt and loose connections; clean and tighten as necessary.
- Visually check all connections for refrigerant leaks.
- Check refrigerant pressure and add as needed.
- Check and record supply and return temperature.

Evaporator:

- Inspect coil assembly and drip pan.
- Clean coil and pan and flush as necessary.
- Check drain line and blow out if necessary.
- Apply algae treatment as required.

Blower and Blower Drive:

- Oil blower motor if applicable.
- Check motor bearings.
- Check belt condition and tension; replace if necessary.
- Check blower cleanliness; clean if necessary.
- Check and record amp draw.
- Check drive and pulley alignment.
- Check for vibrations.

Condenser:

- Lubricate condenser fan motor, if applicable.

- Check motor bearings.
- Check coil condition for dirt build-up and clean as necessary.
- Clean condenser as needed.

Compressor:

- Check electrical wire connections; clean and tighten where possible.
- Check operation and condition.
- Check and record operating amperage.

Heating System:

- Check electric heat strips.

5.5.1 CONTRACTOR REQUIREMENTS

Contractor must meet specifications as outlined in section 4.0.

5.6 DUCT LEAKAGE REPAIR

5.6.1 PARTICIPATION REQUIREMENTS

Contractor will determine if the home qualifies for an HVAC Duct Leakage Repair. Home must have a centrally ducted system to qualify for this measure.

Contractor will perform a visual inspection of the duct work. If not currently insulated or sealed, the contractor will arrange for a qualified HVAC Technician to install this measure.

1. The customer's duct system must be in adequate condition to accommodate the duct leakage repair.
2. The duct must be accessible for repair.
3. Homes must have centrally ducted electric cooling and electric heat.
4. Home must not contain any combustion appliances (including wood burning or gas fireplaces).
5. The Contractor will seal every joint and connection.

5.6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications.
2. For conventional duct repair only mastic and fiber cloth or mastic with embedded fiber (mixed) may be used to seal the duct system. Tape may be used to hold the duct in place while the mastic is drying. If tape is used, the mastic must cover the tape completely and extend a minimum of 2" past the width of the tape. Mastic must meet Underwriters Laboratories (UL) 181 specifications for the material to which the mastic is being applied.

5.6.3 CONTRACTOR REQUIREMENTS

Contractor must meet specifications as outlined in section 4.0.

5.7 AIR-SEALING/INFILTRATION CONTROL MEASURES

5.7.1 WEATHER STRIPPING

Installed on exterior doors shall be aluminum and/or vinyl and/or metal with rubber gasket.

Recommended Materials

- Professional-grade weather stripping

5.7.2 DOOR SWEEPS

Installed on external doors must be triple flange

Recommended Materials

- The height must be 2-3/8 inches.
- Extruded Aluminum with slotted holes for adjustment.
- Pliable vinyl triple seal with appropriate screws.

5.7.3 CAULKING

- Used on surfaces designated by the manufacturer.
- Must have a minimum life of twenty-five years.
- Must be acrylic latex or equivalent.

Recommended Materials

- Must be clear silicon acrylic caulk.
- Must stick to damp and dry surfaces with soap/water cleanup.
- Must dry clear, odor free and be paintable.
- Must not be oil or resin-based caulks.

5.7.4 FOAM INSULATION

Use on surfaces as designated by the manufacturer.

Recommended Materials

- One component, expanding, polyurethane, foam sealant.
- Must have strong adhesion quality-sticks to most surfaces.
- Must be Underwriters Laboratories (UL) classified.
- Must be environmentally safe and contain no CFCs or HCFCs.

5.7.5 HVAC FILTERS

Contractor will furnish and deliver twelve (12) filters for each central HVAC system.

- Locate all HVAC return grills with filters and note the size and location.
- Install a new filter in the main return grill.
- Leave customer with additional eleven (11) filters of the same size.
- If filter is of the permanent, washable type, clean filter.
- Educate the resident on the importance of replacing or cleaning these filters regularly.

Recommended Materials

- May be fiber glass or natural fiber.
- Must be Underwriters Laboratories (UL) classified.
- Must be a high-efficiency furnace/AC filter.
- Must have a minimum-efficiency rating value of four.

5.8 CEILING INSULATION**5.8.1 PARTICIPATION REQUIREMENTS**

1. Insulation recommendations must be the recommendation of the contractor.

2. Eligible residences must have whole-house electric air conditioning and/or whole-house electric heating.
3. The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be R-2 or less. (**Exception:** May exclude conditioned area for a recent addition.)
4. Any home with “Knob and Tube Wiring” that is energized is not eligible.¹

5.8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers’ recommendations and specifications.
2. All installations must result in an insulation value equal to or greater than R-38.
3. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
4. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
5. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by state, county and local codes.
6. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area including knee walls.²
7. All attic access panels that are located in conditioned space must be insulated to a minimum R-value of 38 or as practical, and the insulation must be permanently attached.
8. Ceilings with a rise greater than 5 and a run of 12 (5 over 12 pitch) shall not be insulated with blown-in (loose-fill) insulation. Blown-in insulation shall not be used in attics where the distance from the top of the bottom chord of the truss or ceiling joist to the underside of the top chord of the trusses at the ridge is less than 30 inches and where

¹ National Electrical Code, Article 394

² Current Florida Building Code Section - Walls Considered Ceiling Area

obstructions to blown insulation exist (such as air conditioning ducts).³

5.8.3 CONTRACTOR REQUIREMENTS

1. The contractor must meet requirements as outlined in section 4.0.
2. The contractor will supply to the customer, in writing, the number of bags that will be installed and leave the customer an empty bag or manufacturers' literature in order to determine the required density of the insulation.
3. The contractor will sign and attach an R-value Certification Card to the attic joist visible from the attic access. The card shall contain, at a minimum, the following information:
 - Manufacturer's name
 - Insulation type
 - R-Value of insulation installed, thickness of insulation installed and location of insulation installed
 - Name and address of the Trade Ally installing the insulation
 - Date of installation

6.0 INSTALLATION PROCESS

The energy assessment will begin with the Energy Specialist(s)' explanation of the process/program to the resident. Emphasis on educating the resident on each of the conservation measures is vital to making the improvements sustainable.

1. Identify the location and wattage of up to eight (8) high-use non-LED lights within the home to be replaced with energy-efficient bulbs of equivalent lumen output and note the locations installed. The energy savings potential of these bulbs will be communicated to the resident.
2. Measure the hot water temperature at the closest water faucet to the water heater and document the temperature. If the water temperature is above 120° F, they will recommend having the water heater thermostat set to a lower temperature and note the recommendation. Gas water heaters will not qualify for this measure. Additionally, any violation of the National Electrical Code will make a unit ineligible.

³ Current Florida Building Code Section - Ceilings With Blown-In Insulation

3. The water heater location and type will be identified as to its eligibility for the installation of a water heater wrap. Gas water heaters do not qualify for this measure. Additionally, any violation of the National Electrical Code will make a unit ineligible. If a water heater wrap is applicable, this wrap will be installed per the manufacturer's instructions. Verify that the water heater is electric, not leaking and meets code requirements.
4. Insulation will be installed on the hot and cold-water pipes to and from the electric water heater (5' on each side of the tank) as practicable. Gas water heaters do not qualify for this measure. Additionally, any violation of the National Electrical Code will make a unit ineligible.
5. The general location of each shower head (maximum 2 per home), will be noted and replaced with an upgraded water-saving showerhead. The Energy Specialist(s) will also list any adapters required for this replacement.
6. The general location of each applicable faucet (maximum per home is 1 in the kitchen and 2 in the bathrooms) will be noted and a water-saving aerator will be installed.
7. Locate all central HVAC filter locations and note the size and location. Replace (1) HVAC filter as required. Leave customer with additional (11) filters of the same size. Educate the resident on the importance of replacing or cleaning these filters regularly. Up to 3 window air-conditioner filters are also eligible for replacement.
8. Inform the resident that a wall plate thermometer will be installed in the house. A location for the wall plate thermometer should be considered carefully. A location in the main conditioned space as close to any central HVAC air returns and away from any supply vents is best. For window units, locate the wall plate thermometer on the opposite wall in the largest room that is cooled by the unit. The wall plate thermometer should not be installed on exterior walls. Replace the existing wall switch plate with the wall plate thermometer. Explain to the resident that proper setting of the HVAC thermostat can result in significant savings on the power bill.
9. Install refrigerator thermometers in up to three (3) refrigerators/freezers in the house. Discuss the savings from the use of a refrigerator thermometer to keep food at the proper temperature with the resident.
10. Each penetration into the building envelope (HVAC chase, pipes, etc.) will be inspected

- for adequate seal. If needed, foam insulation will be added. Additionally, any broken windows will be noted and repaired with clear tape as practicable. The Energy Specialist(s) will discuss the impact of air infiltration on the customer's power bill.
11. Weather stripping, caulking and door sweeps will be specified for all exterior doors and window AC units as needed. The Energy Specialist(s) will install measures and discuss the impact of air infiltration around doors and window AC units on the customer's power bill.
 12. Install the winter kit for wall/window AC units, if applicable. This kit will prevent operation of the HVAC unit until it is removed. Explain the proper operation of the kit to the resident. Leave the kit with the customer if it is not the proper season to install on the unit.
 13. Review the condition of the insulation in the attic and make recommendation to install enough to meet R-38 requirements. The Energy Specialist(s) will note if insulation is required and will make arrangements for the Insulation Contractor to make an appointment to install the insulation.
 14. Review the condition of the whole house HVAC system and recommend an HVAC tune-up if required. This measure is available for central electric heat and/or central AC units. The Energy Specialist(s) will note the need for a tune up and will make arrangements with an HVAC Technician to get this service completed.
 15. Review the condition of the duct work. If applicable, will make arrangements with an HVAC Technician to have the ducts sealed.
 16. Document for the resident each of the measures that were installed in the home and reiterate the importance of each measure in saving energy and money. An explanation includes the benefits and instruction on the proper use and care of the NES measures.
 1. Educational materials outlining the installed measures and their benefits will be provided.
 2. Other materials will also be provided by DEF that provide participants with specific energy saving tips.
 17. The Energy Specialist(s) will also inform the resident that their home may be selected for inspection after all energy efficiency measures are installed.

7.0 INCENTIVES

7.1 CUSTOMER INCENTIVES

The program provides an array of benefits that are distributed directly to those homes within the qualifying NES program. The customer will begin to benefit immediately from those measures which were specifically recommended from the Home Energy Assessment and installed as part of the comprehensive package of electric conservation measures during the NES program. The comprehensive package of electric conservation measures consists of the following which are provided at no cost to the resident:

- Light bulbs
- Water heater insulation wrap and insulation for water pipes
- Water conservation shower head and faucet aerators
- Water heater temperature check
- 12 HVAC filters
- Indoor wall thermometer
- Window AC unit cover
- HVAC maintenance
- Attic insulation
- Duct sealing
- Air Infiltration measures to include caulking, weather stripping, door sweeps

Additionally, the customer receives education on energy efficiency techniques and the promotion of behavioral changes to help reduce their energy usage and make these measures sustainable.

7.2 CONTRACTOR INCENTIVES

The contractor will submit the following information with all invoices (not to exceed forty-five (45) days from the date of installation):

- A completed copy of the installed measures with date as well as customer and installer's information for each DEF account
- Itemized invoice listing each of the completed DEF accounts, measures and cost based upon the agreed cost per measure installed

8.0 REPORTING REQUIREMENTS

DEF will follow the reporting requirements consistent with Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

LOW-INCOME WEATHERIZATION ASSISTANCE PROGRAM

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
LOW-INCOME WEATHERIZATION ASSISTANCE PROGRAM

1.0 PROGRAM OVERVIEW

Duke Energy Florida, LLC's (DEF) Low-income Weatherization Assistance Program (LIWAP) is a custom energy conservation program. Through its partnerships with local weatherization providers, DEF provides education about energy saving opportunities and installs energy efficiency measures in homes of qualifying low-income customers. The LIWAP seeks to achieve the following goals:

1. Integrate DEF's LIWAP procedures with the Department of Economic Opportunity (DEO) and local weatherization providers (collectively referred to as "Agencies") to deliver energy efficiency measures to low-income families.
2. Identify and educate Agencies and low-income customers about energy saving opportunities to upgrade their home's energy efficiency.
3. Increase low-income families' participation in DEF's DSM programs.
4. Minimize "lost opportunities" in the existing marketplace.

2.0 ELIGIBILITY REQUIREMENTS

The eligibility requirements for LIWAP will align with the participating Agency's criteria or requirements for participation in their low-income services. Additional requirements are as follows:

1. The residence must be in DEF's service area and be a residential, metered customer with an active account.
2. All installations must be accessible for verification by a DEF representative.
3. Homes that have participated within the past ten years for the listed measures are not eligible for the same measure.

2.1 CONTRACTOR REQUIREMENTS

The Agencies are responsible for all work performed. Agencies may also use DEF participating contractors for attic insulation and duct testing/repair.

1. Agencies and their agents must have appropriate license(s) and comply with all appropriate federal, state, and local building and safety codes for all work performed.
2. All work performed must follow manufacturers' and DEF's specifications where applicable.
3. Agencies and their agents must correct any deficiencies found in the installation or materials identified by DEF.
4. Agencies shall indemnify and hold DEF harmless from any and all losses, liabilities, injuries, damage claims or costs whatsoever caused by items furnished or services rendered.
5. All DEF contractors shall indemnify and hold harmless DEF from any and all losses, liabilities, injuries, damages, claims or costs whatsoever caused by items furnished or services rendered.
6. DEF requires a minimum of the following insurance policies be in force by all participating contractors:
 - Workman's Compensation as required by law
 - General Contractual and Automobile Bodily Injury Liability: \$100,000 per person and \$300,000 per occurrence
 - General and Automobile Property Damage Liability: \$100,000 per occurrence
 - General and Vehicle Liability policies endorsed: \$100,000 per occurrence to provide blanket coverage

2.2 EQUIPMENT/MATERIALS AND INSTALLATION SPECIFICATIONS

All materials and installation specifications shall meet or exceed the following guidelines:

- Equipment must meet manufacturers' specification and installation procedures.

- All work shall be performed to constitute a finished product.
- Materials shall be free of defects and covered under warranty for at least one year.
- Installation procedures must comply with all federal, state and local codes.
 - All equipment installations must meet manufacturer's instructions and specifications. Any contractor failing to meet manufacturer's specifications and DEF procedures may result in termination of participation in any or all DEF programs.

2.3 AGENCY RESPONSIBILITY

Agencies will be responsible for the following:

1. Qualify all participants using federal and state guidelines outlined in Section 2.
2. Follow the recommendations of the National Energy Audit Tool (NEAT), Agency assessment protocol or any DEF approved energy audit to determine eligible measures to be installed. Qualify and install measures by DEF's standards and procedures. All installations shall comply with DEF specifications (see Sections 4.2 through 10.2).
3. Provide DEF random access to the weatherized homes for program evaluation and inspection.
4. Deliver energy education to weatherization clients.
5. Invoice DEF for program approved installed measures on a monthly basis.

3.0 INCENTIVES AND ELIGIBLE MEASURES

Duke Energy will provide incentives for the following measures with the stipulation that all requirements and minimum levels are achieved where applicable:

Weatherization Measure	Minimum Measure Requirement	Maximum Incentive Amount	Additional Requirements
Attic Insulation	<p>Insulate single-family homes with R2 or less up to R38 on residences with whole-house electric air conditioning and/or electric heating</p> <p>Insulate single-family homes with R19 or less up to R38 on residences with whole-house electric air conditioning and/or electric heating.</p>	<p>\$.50 per square foot up to a maximum of \$1000 per home</p> <p>\$.50 per square foot up to a maximum of \$725 per home.</p>	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
Duct Leakage Test/ Repair	Repair Centrally Ducted Electric Heated and Cooled Systems in Single-family Homes	\$175	Completed Duct Test and Repair
Reduce Air Infiltration	Must demonstrate a minimum reduction of 25% at 50 Pas in electrically heated homes. Not to exceed a minimum of 0.35 ACH in Single-family Homes.	\$125	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
Electric Hot Water Reduction	Wrap electric water heater, insulate water pipes, lower temperature setting if needed, repair water leaks	\$48	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol

HVAC Maintenance	Tune up on Centrally Ducted Electric Heated and Cooled Systems for Single-family Homes	\$175	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
High Efficiency Heat Pump Replacing a Heat Pump	New HP for Single-family home must be a minimum 15 SEER and 8.2 HSPF	\$475	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol. Incentive applicable on each new HP installed
High Efficiency Heat Pump Replacing Electric Resistance Heat	New HP for Single-family home must be a minimum 14 SEER and 8.2 HSPF	\$475	
High Efficiency Central Air Conditioning	New High Efficiency Central Air Conditioner replacing less efficient Central Air Conditioner for Single-family home. New Air Conditioner must have a minimum cooling rating of 16 SEER.	\$725	Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol
Water Saving Showerheads	Maximum of 2.5 gallon per minute flow on homes with Electric Water Heaters	\$7 per showerhead	Maximum of 2 per home
Energy-efficient Light Bulbs	Replace less efficient bulbs with 9W LED's with similar lumen output	\$4.00 per bulb	Maximum of 6 light bulbs per household
	Replace less efficient specialty chandelier bulbs with 5W LED's	\$2.00 per bulb	
Faucet Aerators	Water Flow Reduction on homes with Electric Water Heaters	\$3 per Aerator	Maximum of 2 per household

Smart Power Strip	Smart Power Strip	\$10 per Power Strip	Maximum of 1 per household
Refrigerator	Must be Energy Star rated	\$125	1 per household
High Efficiency Heat Pump coupled with participation in Residential Load Management	Heat Pump must have a minimum cooling rating of 17 SEER and customer must enroll in the residential load management program (Energy Wise).	\$2,500 for new single-family homes \$1,525 for new multi-family homes	Maximum of one 3 ton unit per home Maximum of one 2 ton unit per home

Notes:

1. Incentive amounts will be reviewed and compared to market prices annually and adjusted accordingly.

4. CEILING INSULATION**4.1 PARTICIPATION REQUIREMENTS**

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.
3. The home must be a single-family home and be at least two years old.
4. Eligible residences must have whole-house electric air conditioning and/or whole-house electric heating.
5. The total ceiling area to be insulated must be greater than 100 square feet.
6. Any home with “Knob and Tube Wiring” that is energized is not eligible. (Refer to: National Electrical Code, Article 324, Section 324-4).

4.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturer’s recommendations and specifications.

2. All installations must result in an insulation value equal to or greater than R38.
3. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
4. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
5. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by State, County and local codes.
6. The insulation must be installed uniformly, resulting in a minimum R-38 value throughout the entire area including knee walls. (Refer to: Florida Building Code Chapter 13, sub section 6 Section 604.1.A.1 Walls Considered Ceiling Area).
7. All attic access panels that are located in conditioned space must be insulated with a minimum R-38 batt permanently attached.
8. Radiant barriers will not be allowed as a substitute in the LIWAP.
9. Ceilings with a rise greater than 5 and a run of 12 (5 over 12 pitch) shall not be insulated with blown-in (loose fill) insulation. Blown-in insulation shall not be used in attics where the distance from the top of the bottom chord of the truss or ceiling joist to the underside of the top chord of the trusses at the ridge is less than 30 inches and where obstructions to blown insulation exist (such as air conditioning ducts). (Refer to: Florida Building Code Chapter 13, sub section 6 Section 604.1ABC.1.1 Ceilings With Blown-In Insulation).

4.3 CONTRACTOR REQUIREMENTS

1. Must meet the Contractor Requirements outlined in Section 2.1.
2. The contractor will supply to the customer, in writing, the number of bags installed and leave with the customer an empty bag or manufacturer's literature in order to determine the required density of the insulation.
3. The contractor will attach an R-value Certification Card signed by the insulation contractor or his representative to the attic joist visible from the attic access. The card shall contain, at a minimum, the following information:
 - Manufacturer's name
 - Insulation type
 - R-Value of insulation installed
 - Thickness of insulation installed

- Location of insulation installed
- Name and address of the contractor installing the insulation
- Date of installation

5. DUCT LEAKAGE REPAIR

LIWAP duct repair is designed encourage weatherization providers to identify and repair duct leakage. Blower door or duct blaster equipment will be used as a diagnostic tool to locate duct leakage and provide quality control. This LIWAP component is available to all residential customers with single-family homes having a centrally ducted system with electric heating and cooling, provided the duct system is easily accessible.

5.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Repair recommendations must have been the result of a DEF-approved duct test, or follow the Agency approved protocol.
3. The customer's duct system and HVAC systems must be in adequate condition to accommodate the duct test, and not have been previously tested for the present occupant within a 5-year period.
4. The duct must be accessible for repair.
5. Homes must have centrally ducted electric cooling and electric heat. If non-space heating combustion appliances exist (i.e., water heater, stove, etc.), then the house must pass a safety test prior to any duct sealing.

5.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications.
2. Only mastic and fiber cloth or mastic with imbed fiber (mixed) may be used to seal the duct system. Duct tape may be used to hold the duct in place while the mastic is drying. If duct tape is used the mastic must cover the duct tape completely and extend a minimum of 2" past the width of the duct tape. Mastic must meet UL181 specifications for the material that the mastic is being applied to.

3. Blower door or duct blaster procedures must be followed as specified in training or manufacturer's instructions, unless otherwise directed by DEF when performing the duct test.

5.3 CONTRACTOR REQUIREMENTS

1. Must meet the Contractor Requirements outlined in Section 2.1.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
3. All participating contractors must have attended and successfully completed a DEF-approved duct repair course. At a minimum, the training will consist of:
 - Training session on Building Science
 - Duct test applications (classroom and laboratory)
 - Duct test field applications
 - Codes and standards as they relate to duct sealing
4. Before any duct repairs can be made on homes with non-space heating combustion appliances, the contractor shall follow the procedures as written in Chapter 4 of the "Duct Doctoring" instruction manual provided by the Florida Solar Energy Center Duct Diagnostics Training Course. The only exception is line 36, which deals with drilling a hole in the customer's vent pipe. This is not required. Instead of this procedure, DEF has adopted the National Fuel Gas Code's "Appendix H: Recommended Procedure for Safety Inspection of an Existing Appliance Installation."
5. A list of DEF contractors will be furnished to local weatherization providers for duct testing and repair. Providers will contract directly with DEF duct repair contractors for repair work.

5.4 INSPECTION REQUIREMENTS

All inspectors must be trained in the area for which they are inspecting. If inspecting for the Duct Test and Leakage portion of this program, all inspectors must have attended and successfully completed the training offered by the Florida Solar Energy Center or similar course. At a minimum, the training will consist of:

- Training session on Building Science
- Duct test applications (classroom and laboratory)
- Duct test field applications

- Codes and standards as they relate to duct sealing

6. HIGH EFFICIENCY ELECTRIC HEAT PUMPS AND AIR CONDITIONERS

Promote the proper sizing and installation of high efficiency Heat Pump and Air Conditioning systems.

6.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.

6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications.
2. Installed equipment must be complete systems and shall be listed by Underwriters Laboratories or other nationally recognized testing laboratories in accordance with UL standards, as appropriate.
3. Both air handler and condensing units must be replaced.
4. The installed air handler/outdoor condensing unit combination must satisfy both the cooling and heating minimum efficiency requirements.
5. All equipment shall be new and not refurbished or have been previously installed or used.
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning and Refrigeration Institute (ARI) rating procedure (standard 210/240-94). All cooling-mode efficiency ratings eligibility will be based on EER if available. (Note: If EER ratings are not available then SEER will be used to determine cooling-mode eligibility. All heating-mode efficiency ratings eligibility will be based on HSPF, except for water source units.)

7. If the unit is sized larger than one ton (12,000 BTU) per 500 square feet of conditioned space, a manual J or ASHRAE approved sizing calculation must be submitted. The contractor must certify that the unit was sized according to manufacturer specifications. Exception: Manufactured homes are exempted from this requirement.
8. The contractor will certify that the unit was sized according to manufacturer specifications.
9. Refrigerant charge and type shall be according to manufacturer's specifications and recommendations for the unit installed. The contractor will certify that the proper charge is installed, that the unit is tested and is leak free.
10. Contractors shall certify that the airflow meets the manufacturer's recommendations and specifications for the system installed.
11. Contractors shall certify that if the equipment installed has a scroll compressor (36,001 Btu or larger), that a hard start kit was installed either by the contractor or at the factory.
12. Return air filters shall be installed to meet manufacturer's specifications with no obstructions. Filters must be easily accessible, and the location shown to the customer.
13. The contractor shall check that the controlling thermostat is properly leveled, that the anticipator is properly set and the thermometer is correct to within two degrees Fahrenheit.
14. The contractor will be encouraged to use mastic on all new connections.
15. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
16. Heat pump must be all electric.

6.3 CONTRACTOR REQUIREMENTS

1. Must meet Contractor Requirements outlined in Section 2.1.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor in the jurisdiction having authority.
3. Contractors must demonstrate their capability to properly calculate heating and cooling loads by the Manual J method and to properly size and specify HVAC equipment.

4. The contractor must notify DEF within thirty (30) days if there was an emergency replacement due to equipment failure.
5. The Agency shall have six (6) months from date of installation to submit all “High Efficiency Equipment Forms” after which they will become ineligible for incentive.

7. HEATING AND AIR CONDITIONING MAINTENANCE (HVAC)

Heating and air conditioning maintenance is designed to increase energy efficiency through proper operation of mechanical equipment. Agencies are encouraged to identify HVAC systems that could benefit from service maintenance to avoid future breakdowns.

7.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.
2. Must have centrally ducted electric heating and cooling.
3. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.

7.2 EQUIPMENT/SERVICE AND INSTALLATION SPECIFICATIONS

The following represents the minimum requirement that must be performed by an approved contractor:

Filter:

- Inspect and clean filters
- Replace up to one throw-away filter
- Replace specialty filters if provided by customer

System Controls and Operation:

- Check thermostatic operation
- Cycle all controls
- Inspect for dirt and loose connections; clean and tighten as necessary
- Visually check all connections for refrigerant leaks
- Check refrigerant pressure and add as needed

- Check and record supply and return temperature

Evaporator:

- Inspect coil assembly and drip pan
- Clean coil and pan and flush as necessary
- Check drain line and blow out if necessary
- Apply algae treatment as required

Blower and Blower Drive:

- Oil blower motor if applicable
- Check motor bearings
- Check belt condition and tension; replace if necessary
- Check blower cleanliness; clean if necessary
- Check and record amp draw
- Check drive and pulley alignment
- Check for vibrations

Condenser:

- Lubricate condenser fan motor, if applicable
- Check motor bearings
- Check coil condition for dirt build-up and clean as necessary
- Clean condenser as needed

Compressor:

- Check electrical wire connections; clean and tighten where possible
- Check operation and condition
- Check and record operating amperage

Heating System:

- Check electric heat strips

7.3 CONTRACTOR REQUIREMENTS

Must meet Contractor Requirements in Sections 2.1 and 6.3.

8.0 WATER HEATER

It is the intent of this portion of the program to save energy through adding additional insulation to older water heaters, set back temperatures, insulate pipes and replace older less efficient water heaters and help defray the cost of a new high-efficient water heater.

8.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation of a NEAT or DEF approved audit, or Agency assessment protocol.
3. Must have an electric water heater.

8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Sides must be wrapped with a minimum Insulation level equal to R-6 or greater.
2. Top must be insulated to an R-8 or greater.
3. Pipes shall be insulated up to 3-foot minimum.

8.3 CONTRACTOR REQUIREMENTS

Must meet Contractor Requirements outlined in Section 2.1.

9.0 AIR INFILTRATION REDUCTION

It is the intent of this portion of the program to save energy through reduction of unintended air infiltration into conditioned spaces of older homes.

9.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.

2. Must be a recommendation from a NEAT or DEF-approved audit, or Agency assessment protocol.
3. Must be able to achieve an infiltration reduction of at least 25% at 50 Pa's.
4. Home must meet ASHRA Standard 90.2 as a minimum air infiltration level once infiltration sealing is completed.

9.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

Contractor must use a blower door and a manometer for precise pressure measurements.

9.3 CONTRACTOR REQUIREMENTS

Must meet Contractor Requirements outlined in Section 2.1 and 6.3.

10.0 LED BULBS, WATER SAVING SHOWERHEADS AND FAUCET AERATORS

10.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation from a NEAT or DEF-approved audit, or Agency assessment protocol.

Measure	Participation Requirements	Equipment and Installation Specifications
Water Saving Showerhead	<ul style="list-style-type: none"> • Electric Water Heater • Current showerhead flow of 3.5 gallon per minute or greater 	<ul style="list-style-type: none"> • Must meet manufacturer's specifications

Light Bulbs	<ul style="list-style-type: none"> • Operation of less efficient bulbs a minimum of 3 hours per day. 	<ul style="list-style-type: none"> • LED bulbs with similar lumen output installed in accordance with manufacturer's specifications.
Faucet aerators	<ul style="list-style-type: none"> • No aerators currently installed 	<ul style="list-style-type: none"> • Must meet manufacturer's specifications • Threads must be compatible with existing faucet threads

10.2 CONTRACTOR REQUIREMENTS

Must meet the Contractor Requirements outlined in Section 2.1.

11.0 REFRIGERATOR REPLACEMENTS

11.1 PARTICIPATION REQUIREMENTS

1. Must meet Eligibility Requirements outlined in Section 2.0.
2. Must be a recommendation from a NEAT or DEF-approved audit, or Agency assessment protocol.

11.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. New refrigerator must be Energy Star rated.
2. Old refrigerator must be decommissioned and recycled appropriately.
3. Old refrigerator must be metered for 2 hours w/o defrost cycle or metered for 24 hours to make sure that usage is over 900 kWh per year.
4. Replacement refrigerator must be top freezer, no through the door ice maker, no water dispenser, white or black, 18 to 21 cubic feet.

11.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements outlined in section 2.1.
2. Contractor is responsible for removing old refrigerator from home and will put a hole through old unit and/or cut the cord so it cannot be reused.

12.0 INCENTIVE PROCESSING

Incentives will be paid directly to the Agencies. Agencies are required to submit the following information along with all invoices by the tenth workday of each month (not to exceed forty-five (45) days from the date of installation):

- Customer information - including name, address, and DEF account number
- A list of installed measures and, where appropriate, pre-existing conditions
- Itemized invoice with a brief description of installed measures (incentive measures only) and program incentive for each weatherized home, or the DEF/LIWAP data information form

If the home is not selected for inspection, or after it has passed inspection, invoices will be processed for payment. DEF will input installed measures and paid incentives to a data base system. Submitted reports and invoices will be maintained on file.

13.0 REPORTING REQUIREMENTS

DEF will follow the reporting requirements consistent with Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

RESIDENTIAL ENERGY MANAGEMENT PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
RESIDENTIAL ENERGY MANAGEMENT PROGRAM**

1. PROGRAM OVERVIEW

The Residential Energy Management Program is a direct load control program of Duke Energy Florida, LLC (DEF). This program is designed to reduce DEF's demand during peak or emergency conditions by temporarily interrupting service to selected customer electrical equipment, for example, central heating and cooling systems, water heaters, and swimming pool pumps.

2. ELIGIBILITY REQUIREMENTS

1. The program is available to residential customers in DEF's service area. DEF must have the ability to control the customer's load per the terms of the applicable Residential Load Management rate schedule.
2. The customer must be eligible for Residential Service under Rate Schedule RS-1 or RSS-1.
3. Various types of devices may be used to control the customer's load, including both customer-owned and company-owned devices. The Company must be allowed reasonable access to the customer's premises to install, maintain, inspect, test and remove any company-owned devices.

3. PARTICIPATION REQUIREMENTS

The program participation requirements and participation options are as specified in the applicable Residential Load Management rate schedules.

4. EQUIPMENT AND INSTALLATION REQUIREMENTS

All installations must comply with all provisions of the National Electric Code (NEC) and any code or requirement of other authorities having jurisdiction.

When required, a DEF-approved, licensed contractor must complete all work. The contractor shall comply with all Residential Energy Management Program Participation Standards as specified by DEF in the most current copy of the Energy Management

Operations Manual.

The company or assigned representative may require an inspection of the company-owned load management devices installed at the premise to ensure the equipment is connected and operating properly prior to instating or reinstating bill credits on the account. If access cannot be obtained, the account will remain or be placed in suspended status.

5. **CONTRACTOR REQUIREMENTS**

1. Contractors must meet the financial criteria set forth in the DEF Purchasing Standards for contractors doing business with DEF.
2. DEF reserves the right to request background checks of contractors participating in the Residential Energy Management Program.
3. Contractors must be insured per minimum specifications detailed within the Demand Side Management Contractor Participation Agreement.
4. Contractor is responsible for providing supervision of its employees and the necessary tools and equipment to meet program specifications by required completion date.

6. **INCENTIVES**

- a. Customer incentives will be provided per the terms of the applicable Residential Load Management rate schedule. Additionally, beginning in 2021, a participant who is classified as low-income, with income equal to or less than 200% of the poverty level as established by the U.S. Government, and whose account is more than 60 days in arrears, will qualify for a \$30 “Assistance” incentive. This incentive will be provided in the form of a gift card which the customer can use to help pay their energy bill. The “Assistance” incentive will be available to eligible customers in 2021 and 2022, for a total additional incentive of up to \$60, to help customers recover from the economic impacts of COVID-19 and maintain the demand response resource associated with the customer.

7. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5) of the Florida Administrative Code.

**II. COMMERCIAL/INDUSTRIAL
CONSERVATION PROGRAMS**

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
BUSINESS ENERGY CHECK PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
BUSINESS ENERGY CHECK PROGRAM**

1. PROGRAM OVERVIEW

The Business Energy Check Program of Duke Energy Florida, LLC (DEF) provides energy audits and assessments for commercial customers. This program is designed to provide information to customers about their energy usage and identify opportunities for savings. The program serves as the foundation for participation in other commercial and industrial DSM programs.

The program provides energy evaluations to commercial customers at no charge to the customer. These evaluations may include a billing analysis, information and educational material about energy saving practices and measures, recommendations for energy savings which may include operational changes or equipment modifications, and information about incentives and savings that may be available through other DEF programs.

The program offers multiple types of energy evaluations to commercial customers including walk-through audits, phone-assisted audits along with educational information, and an online customer assessment tool.

2. ELIGIBILITY REQUIREMENTS

The customer must be a commercial customer located in DEF's service territory and served by a metered DEF account.

3. INCENTIVES

DEF may periodically offer an incentive to customers who participate in the program, such as a Commercial Energy Efficiency Kit.

4. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
SMART SAVER PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
SMART \$AVER PROGRAM
(f/k/a BETTER BUSINESS PROGRAM)**

1. PROGRAM OVERVIEW

The Smart Saver Program is an “umbrella” program designed to improve the energy efficiency of commercial facilities. The program seeks to meet the following overall goals:

- Provide customers with a cost-effective portfolio of measures across all building types.
- Improve customer-energy savings and demand reduction through the installation of energy-efficient equipment and thermal envelope upgrades.
- Educate customers regarding best practices, innovative technologies and opportunities to manage energy consumption.

2. ELIGIBILITY REQUIREMENTS

1. Equipment and measures must be installed in facilities that are located in the DEF service territory and served by a commercially metered DEF.
2. Commercial multi-family is defined as commercially metered accounts of multi-family residential apartments or condominiums, or commercially metered accounts of assisted living residential apartment units (with a minimum of 500 square feet of conditioned space). Any multi-family residential dwellings that are master metered (referred to as “Domestic/Commercial”) shall be eligible to participate in this program.
3. DEF must be permitted to inspect the installation of all measures and equipment prior to issuing any incentive payments.

3. CONTRACTOR REQUIREMENTS

3.1. PARTICIPATING DEF CONTRACTOR REQUIREMENTS (those under contract)

1. All participating contractors, those under contract with DEF, must comply with DEF contractor procedures specific to the program component in which they are

- participating. Failure to do so may result in termination of participation in any or all DEF Programs.
2. The contractor is responsible for the work to be performed, the supervision of their employees, and the use of contractor's own equipment to meet the work specifications and completion date.
 3. The contractor must correct any deficiency found in the installation or product when advised by a DEF representative and notify DEF of compliance within thirty (30) days.
 4. The contractor shall indemnify and hold DEF harmless against any and all injuries, damages, claims or costs, whatsoever, caused by items furnished or services rendered.
 5. The contractor must comply with all federal, state, and local codes and regulations and have the appropriate license(s) for the work to be performed.
 6. The contractor must follow manufacturers' specifications and procedures; failure to do so may result in termination of participation in any or all DEF programs.
 7. The contractor shall notify DEF of any incident occurring during installation of a conservation measure or any follow-up procedure within five (5) working days of incident.
 8. The contractor must notify their insurance companies to provide DEF with documentation and maintain in force the state required minimum insurance policies for license retention or the following minimum insurance policies, whichever is greater:
 - Workers' Compensation as required by law
 - General Contractual and Automobile Bodily Injury Liability: \$100,000 per person and \$300,000 per occurrence
 - General and Automobile Property Damage Liability: \$100,000 per occurrence
 - General and Vehicle Liability policies endorsed: \$100,000 per occurrence to provide blanket coverage

9. DEF reserves the right to request background checks of contractors participating in the Smart Saver Program.

3.2 CUSTOMER CHOSEN CONTRACTOR REQUIREMENTS

If the customer selects their own contractor, it is their responsibility to make sure the contractor complies with all federal, state and local codes and regulations and have the appropriate license(s) for the work to be performed if required.

4. INCENTIVE

The incentive payment structure is as follows:

Program Component	Incentive
Building Envelope Improvements	
Ceiling Insulation Upgrade	17¢ per square foot to bring insulation level up to a minimum of R-38
Wall Insulation	.10 per square foot to bring the level to R20 (Retrofit only)
HVAC Equipment Replacement	
Air-Cooled and Water-Cooled Electric Chillers	\$20 per ton for qualifying equipment as referenced in Section 8.2
Heat Pumps =< 65,000 Btu/h replacing resistance heat or heat pumps	\$50 per ton for minimum cooling efficiency of 15 SEER and minimum heating efficiency of 8.2 HSPF
Package Terminal Heat Pumps and Air Conditioners (PTHPs/PTACs)	\$67 per ton per specifications referenced in Section 10.2
Single Package Vertical Heat Pump (SPVHP)	\$50 per ton per specifications referenced in the Table in Section 11.2
Unitary A/C and Heat Pumps > 65,000 Btu/h	\$50 per ton per specifications referenced in Section 11.2 *(Includes Variable Refrigerant Multi-Split A/C and HP units

	of all sizes as referenced in Section 11.2)
HVAC System Related Improvements	
Demand Control Ventilation	\$50 per ton with properly designed and installed DCV controls and programming. Note: Incentives for DCV are not to exceed 50% of total project or service cost
Duct Test	50% of test cost up to \$50 for first unit tested
	50% of test cost up to \$20 for each additional unit tested at same address
Duct Repair	25% of the repair cost up to a maximum of \$50 per unit for facilities with non-ducted electric heat
	50% of the repair cost up to a maximum of \$200 per unit for facilities with ducted electric heat. Commercial multi-family units count on a per unit basis, receive \$50 and no duct test is required - applies to top floors only on multi-story buildings.
Energy Recovery Ventilation	0.75 cents per CFM, minimum 450 CFM unit >65% total heating effectiveness per AHRI Standards

4.1 INCENTIVE PROCESSING

1. On-site inspections will be performed on at least 10% of the completed projects for each program measure.
2. Project supporting documents will be collected and reviewed for program compliance.
3. Incentives will not be paid until the review (and inspection when required) is completed.
4. A copy of the customer's invoice, purchase order, or equivalent (determined by DEF) must accompany the incentive application for all measures and must be received within six (6) months of the completion of that measure. For a new construction measure, the supporting documentation must be received within six (6) months of the Certificate of Occupancy or permanent meter set.

5. The customer will receive the incentive in the form of a rebate check. The DEF personnel will need to obtain the customer's Tax ID#. Any customer receiving over \$600 total during a year will receive an IRS 1099 form from DEF reporting to the customer and the IRS the total amount of the rebates received from DEF for that year.

5. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

6. CEILING INSULATION

6.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Building must be at least two (2) years old in order to qualify for an incentive.
3. The weighted average R-value of the existing insulation over the total ceiling square footage (above conditioned space) must be less than or equal to R-12. (**Exception:** May exclude conditioned area for a recent addition.)
4. Eligible facilities must have both electric (non-portable) air conditioning and electric (non-portable) heating.
5. A Business Energy Check or other pre-qualification methods (as determined by DEF) is required prior to installation to establish existing insulation levels.
6. Any structure that has in the past utilized this portion of the program (attic insulation) is not eligible to participate again. However, if that structure, through an act of God, loses the insulation and this loss is not covered by insurance, then the structure would be eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from their insurance company stating that the insulation loss was not covered by insurance.
7. Any building with "Knob and Tube Wiring" must be documented or certified as not energized by a state-licensed electrician. (*National Electrical Code 1990, Article 324, Section 324-4*).

8. Commercial multi-family units will be qualified as individual units for incentive purposes. For multi-family units greater than one story in height, the top floor only will be eligible for incentives.

6.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers' recommendations and specifications and must meet all state, county and local codes.
2. Flat roofs must have enough space to allow a minimum of 3 inches of air space above the insulation after insulation has been installed to the recommended R-value.
3. The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.
4. The insulation must have a minimum clearance around all recessed lighting and gas-fired appliances as required by state, county and local codes.
5. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area.
6. All attic access panels that are located in conditioned space must be insulated in the same minimum R-value as throughout the entire area and permanently attached.

6.3 CONTRACTOR REQUIREMENTS

1. DEF participating contractors must meet the contractor requirements outlined in Section 3.1. Customer chosen contractors must meet the contractor requirements as outlined in Section 3.2.
2. The contractor will attach an R-Value Certification Card signed by the insulation contractor or his representative to the attic joist visible from the attic access. The card shall contain, at a minimum, the following information:
 - Manufacturer's name
 - Insulation type
 - R-Value, the thickness, and the location of the insulation installed
 - Name and address of the contractor installing the insulation
 - Date of installation

3. All participating Trade Allies in the Ceiling Insulation Program must follow DEF Code of Ethics.

7. WALL INSULATION

7.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Building must be at least two (2) years old in order to qualify for an incentive.
3. The weighted average R-value of the existing insulation must be less than or equal to R-16. (**Exception:** May exclude conditioned area for a recent addition.)
4. Eligible facilities must have both electric (non-portable) air conditioning and electric (non-portable) heating. This is retrofit measure only; new construction projects are not eligible.
5. A Business Energy Check or other pre-qualification methods (as determined by DEF) is required prior to installation to establish existing insulation levels.
6. Any structure that has in the past utilized this portion of the program (Wall insulation) is not eligible to participate again. However, if that structure, through an act of God, loses the insulation and this loss is not covered by insurance, then the structure would be eligible to participate a second time. It is the customer's responsibility to provide DEF with a letter from their insurance company stating that the insulation loss was not covered by insurance.
7. Any building with "Knob and Tube Wiring" must be documented or certified as not energized by a state-licensed electrician. (*National Electrical Code 1990, Article 324, Section 324-4*).

7.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. The insulation must be installed in accordance with the manufacturers' recommendations and specifications and must meet all state, county and local codes.

2. The insulation must be installed uniformly, resulting in the same R-value throughout the entire area.
3. All attic access panels that are located in conditioned space must be insulated in the same minimum R-value as throughout the entire area and permanently attached.
4. Improvements to wall insulation in existing commercial buildings, after retrofit, needs to meet or exceed the ASHRAE Standard 90.1-2010 R-value

7.3 CONTRACTOR REQUIREMENTS

1. DEF participating contractors must meet the contractor requirements outlined in Section 3.1. Customer chosen contractors must meet the contractor requirements as outlined in Section 3.2.
2. The contractor will provide all required documentation by the insulation contractor or his representative to the customer
 - Manufacturer's name
 - Insulation type
 - R-Value, the thickness, and the location of the insulation installed
 - Name and address of the contractor installing the insulation
 - Date of installation
3. All participating Trade Allies in the Wall Insulation Program must follow DEF Code of Ethics.

HVAC EQUIPMENT

8. AIR-COOLED AND WATER-COOLED ELECTRIC CHILLERS

8.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This requirement is typically met by submitting copies of invoices or purchase orders.

3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data at Standard Rating Conditions must be attached to the incentive form. If AHRI sheet cannot be obtained, documentation must be provided indicating that the equipment was tested to the AHRI 550/590 Test Standard. DEF will default to AHRI ratings for tonnage of the equipment being approve.

8.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturers' rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning, Heating and Refrigeration Institute (AHRI) rating procedure. Full Load (FL), Integral Partial Load Value (IPLV) and Nominal Partial Load Value (NPLV) are all acceptable ratings.
2. All equipment for which an incentive is paid shall be new and not refurbished, previously installed, or used.
3. All equipment installations shall exceed the minimum efficiency requirements set by federal, state, and local code by 10%.
4. HVAC equipment must be all electric.

8.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

9. SMALL HEAT PUMPS ($\leq 65,000$ Btu/h)

9.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This requirement is typically met by submitting copies of invoices or purchase orders.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data at Standard Rating Conditions must be attached to the incentive form.
4. Duke recommends that a cooling and heating load calculations must be performed if the capacity of the new high-efficiency unit differs from that of the original unit or if the new high-efficiency unit is adding cooling or heating to previously unconditioned space.

9.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Installed equipment must be complete systems (i.e. both air handler and outdoor condensing units must be replaced in order to qualify for an incentive), including any supplemental devices, and shall be listed by Underwriters Laboratories (UL) or other nationally recognized testing laboratories in accordance with UL standards as appropriate. (Includes Geothermal units)
2. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
3. All equipment shall be new and not refurbished, previously installed, or used.

4. Data/Server Rooms will be evaluated under the Custom Program on a per case basis.
5. The installed air handler/outdoor condensing unit combination must satisfy both the cooling and the heating minimum efficiency requirements described in Section 9.4
6. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved Department of Energy (DOE) or Air Conditioning, Heating and Refrigeration Institute (AHRI) rating procedure (standard 210/240-94). All cooling-mode efficiency ratings eligibility will be based on EER if available. If EER ratings are not available, then SEER will be used to determine cooling-mode eligibility. All heating-mode efficiency ratings eligibility will be based on HSPF.
7. The contractor will be encouraged to use mastic on all new connections.
8. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
9. Heat pumps must be all electric.

9.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

9.4 TECHNICAL SPECIFICATIONS

A small heat pump with a minimum efficiency of 15 SEER and an HSPF of 8.2 replacing a less efficient heat pump or replacing a system with resistance heat qualifies for a \$50 per ton incentive.

10. PACKAGE TERMINAL HEAT PUMPS (PTHPs) REPLACING PTAC's and PTAC's REPLACING LESS EFFICIENT PTAC's

10.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This qualification is typically met by submitting copies of invoices or purchase orders.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data at Standard Rating Conditions must accompany the incentive form.

10.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations shall exceed the minimum efficiency requirements set by federal, state, and local code by 25%.
2. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved DOE or AHRI rating procedure.
3. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
4. All equipment shall be new and not refurbished, previously installed, or used.
5. Package Terminal Heat pump and PTAC must be all electric.

10.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

11. UNITARY A/C and HEAT PUMPS (> 65,000 Btu/h)

***also includes variable refrigerant flow multi split AC and heat pumps of all sizes**

11.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility requirements as outlined in Section 2.
2. The customer must provide proof of HVAC project cost, project completion date and an itemized inventory of equipment installed. This qualification is typically met by submitting copies of invoices or purchase orders.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) certified efficiency data, or equivalent (determined by DEF representative), at Standard Rating Conditions must be attached to the incentive form.

11.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations shall exceed the minimum efficiency requirements set by federal, state and local code by 10%. Installed equipment must be complete systems including any supplemental devices and shall be listed by Underwriters Laboratories (UL), or other nationally recognized testing laboratories in accordance with Underwriters Laboratories (UL) standards, as appropriate.
2. Equipment efficiency ratings shall be obtained from a nationally recognized certification program directory or a manufacturer's rating certified to be in compliance with an approved DOE or AHRI rating procedure (AHRI 210/240-94 for less than 135,000 Btu/h and AHRI 340/360 for units greater than 135,000 Btu/h).
3. All equipment installations shall meet manufacturers' instructions and specifications and meet all state, county, and local codes.

4. All equipment shall be new and not refurbished, previously installed, or used.
5. The contractor will be encouraged to use mastic on all new connections.
6. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
7. HVAC equipment must be all electric.

11.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

HVAC SYSTEM RELATED IMPROVEMENTS

12. DEMAND CONTROL VENTILATION (DCV)

12.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Customer must provide documentation of the DCV system and what HVAC load reduction is projected.

12.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. DCV must include sensors that measure CO₂ levels (or other approved methods) and adjusts ventilation rate in spaces with varying occupancy through integrating sensor readings to control the outside air dampers.
2. Installation of DCV system and sensors shall be in accordance with the manufacturers' recommendations and specifications and meet all state, county, and local codes.

3. Commissioning the DCV system is recommended to ensure the ventilation system is working properly with the HVAC computer and sensors.

12.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer-chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

13. DUCT TEST AND LEAKAGE REPAIR

13.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. Repair recommendations must have been the result of a DEF-approved duct test. (**Exception:** If during an energy audit or prior to duct test, the DEF representative validates the need for complete duct system replacement, a duct test is not required).
3. The customer's duct system must be in adequate condition to accommodate the duct test to be performed and not have been previously tested for the present occupant within a 5-year period. (**Exception:** Duct systems altered as a result of remodeled or added conditioned area.)
4. The duct must be easily accessible for repair. (Exception: aerosol sealing method.)
5. Commercial, multi-family units will be qualified as individual units for incentive purposes. Multi-family units greater than one story in height may only have the top floor duct system(s) repaired.
6. All facilities must have centrally ducted electric cooling and electric heat. If non-space heating combustion appliances exist, then the facility must pass a safety test prior to any duct sealing.

7. Duct and HVAC systems must be in adequate condition to accommodate duct leakage repair.
8. A minimum of 60 CFM @ 25 Pa's of leakage per ton of HVAC equipment capacity and a minimum of 60% of the leakage sealed is the baseline for participation in aerosol duct sealing.

13.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
2. For conventional duct repair only, mastic and fiber cloth or mastic with embedded fiber (mixed) may be used to seal the duct system. Tape may be used to hold the duct in place while the mastic is drying. If tape is used, the mastic must cover the tape completely and extend a minimum of 2" past the width of the tape. Mastic must meet Underwriters Laboratories (UL) 181 specifications for the material that the mastic being applied to.
3. Blower door or duct blaster procedures must be followed as specified in training, or manufacturers' instructions, unless otherwise directed by DEF when performing the duct test.
4. Aerosol procedures must be followed as specified in training or manufacturers' instructions and will include:
 - Complete pre-seal and post-seal leakage test using approved aerosol software
 - Aerosol sealants shall meet the requirements of Underwriters Laboratories (UL) 723.
 - Seal all boot-to-ceiling and/or floor connections
 - All areas of the duct system will be evaluated, and cost-effective leaks will be sealed by conventional (6.2.2) or aerosol method.
 - Complete post-seal leakage test using approved aerosol software

13.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer-chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.

2. Must be a licensed Mechanical Contractor, or a Class A, B, or C Air-Conditioning contractor in the jurisdiction having authority.
3. All participating contractors must have attended and successfully completed a DEF-approved duct repair course.
4. In Commercial, multi-family units, the contractor shall seal all joints and connections of the duct work, and no duct test is required. Multi-family units greater than one story in height may only have the top floor duct system(s) repaired. No combustion appliances (fireplaces, water heating, etc.) are allowed for multi-family due to safety concerns.

13.4 INSPECTION REQUIRMENTS

If inspecting for the Duct Test and Leakage portion of this program, all inspectors must have attended and successfully completed a DEF-approved Duct Diagnostic course.

14. ENERGY RECOVERY VENTILATION

14.1 PARTICIPATION REQUIREMENTS

1. Must meet the Eligibility Requirements as outlined in Section 2.
2. The customer must provide proof of energy recovery ventilation project cost, project completion date and an itemized inventory of equipment installed. This requirement is typically met by submitting copies of invoices.
3. Air Conditioning, Heating and Refrigeration Institute (AHRI) 1060 certified efficiency data must be attached to the incentive form.
4. All ratings must be done with an approved model rating tool by AHRI with a current version number listed on the AHRI site.

14.2 EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. Installed equipment must be complete systems including any supplemental devices and shall be listed by Underwriters Laboratories or other nationally recognized testing

- laboratories in accordance with Underwriters Laboratories (UL) standards as appropriate.
2. Equipment efficiency ratings shall be obtained from an approved modeling tool by Air Conditioning, Heating and Refrigeration Institute (AHRI) rating procedure standard and have an active version number on the AHRI site.
 3. To be eligible for an incentive, the energy recovery ventilation unit AHRI rating must be equal to or greater than 450 CFM with a rating equal to or greater than 65% total heating effectiveness per AHRI Standards.
 4. All equipment installations must meet manufacturers' instructions and specifications and meet all state, county and local codes.
 5. All equipment shall be new and not refurbished, previously installed, or used.
 6. The contractor will be encouraged to use mastic on all new connections.

14.3 CONTRACTOR REQUIREMENTS

1. Must meet the contractor requirements as outlined in Section 3.1. If a customer-chosen contractor, the contractor must meet the contractor requirements as outlined in Section 3.2.
2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning Contractor in the jurisdiction having authority.

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

SMART \$AVER CUSTOM INCENTIVE PROGRAM

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
SMART SAVER CUSTOM INCENTIVE PROGRAM
(f/k/a Florida Custom Incentive Program)

1. PROGRAM OVERVIEW

The objective of the Smart Saver Custom Incentive Program of Duke Energy Florida, LLC (DEF) is to encourage customers to make capital investments for the installation of high-efficiency technologies not covered by DEF's other DSM programs. Projects may include, but are not limited to, thermal energy storage projects, high-efficiency machinery, whole-building construction projects and other technologies specific to a particular industry or business process. Incentives will be determined on a project-specific basis.

2. ELIGIBILITY REQUIREMENTS

1. The participant must be located in the DEF service territory and be a commercial, metered account.
2. Owners who do not occupy the facilities or renters of these types of facilities are eligible to participate in this program. If renters of a facility wish to participate in this program, they must submit written approval from the owner to do so.
3. Projects must pass the Participants cost effectiveness test and the RIM cost effectiveness test to qualify for incentives.
4. Projects must have a payback period of no less than two (2) years.
5. Projects must not include fuel switching.
6. A Smart Saver Custom Incentive Program Pre-Application Questionnaire or specific DEF Calculator evaluation, must be completed and submitted for approval. DEF will evaluate the information provided to determine if the project may be eligible for incentives through this Program. Approval must be granted prior to completion of any project.

3. PARTICIPATION REQUIREMENTS

1. The customer will be required to submit an application for projects that are determined to be eligible. The application will include additional project specific details including efficiency ratings of equipment, details of project costs, demand and energy savings, as well as the savings load shape and measure life.
2. The application must be approved and signed by an authorized representative of DEF.
3. DEF will evaluate projects to determine cost effectiveness and appropriate incentive levels.
4. DEF will be allowed access to all measure installations for inspection purposes if requested.

4. EQUIPMENT AND INSTALLATION REQUIREMENTS

1. Completed projects must meet all federal, state and local codes and regulations.
2. Projects may be inspected to verify the demand and energy savings.
3. All equipment for which an incentive is paid shall be new and not refurbished or previously installed or used. Incentives will not apply to equipment installed to provide back-up or redundancy.
4. All equipment installations shall meet manufacturers' instructions and specifications.
5. All projects must exceed local, state, and federal minimum efficiency standards.
6. Equipment must be all electric.
7. Other material and equipment specification requirements may be identified on an individual project basis.
8. The installed energy-efficiency equipment may require instrumentation, such as a DEF load profiler online or a chiller EMS to provide data on energy consumption to ensure the peak load shift has occurred.

5. INCENTIVES

1. Incentives are limited to fifty percent (50%) of the customer's actual total project cost for the energy efficiency measure(s).
2. The maximum incentive for a single project is \$500,000.
3. Incentives may be paid in stages based on comparative performance metrics when there is uncertainty around the demand and energy reductions that will be achieved. Fifty percent (50%) of the approved incentive will be paid upon initial installation. The remaining incentive will be paid post-installation upon confirmation of the achieved impacts.

6. INCENTIVE PROCESSING

1. A Payment Request Form along with documentation of project costs and completion date must be submitted to DEF within ninety (90) days of completion of the project. This documentation must include an itemized inventory of the equipment installed along with equipment efficiency ratings from a nationally recognized certification program directory or a manufacturer's rating. For new construction projects, the supporting documentation must be received within ninety (90) days of the Certificate of Occupancy, permanent meter set or final payment authorization form.
2. DEF may inspect installations to verify operability of the technology and/or to obtain information needed to calculate the approved custom incentive amount.
3. Project-supporting documents will be reviewed to ensure program compliance.
4. Incentive payments will be based on the final, approved incentive amount for each project. Incentive amounts may be adjusted if the project cost or achieved impacts vary from the preliminary estimates.
5. Incentives will be paid after review and/or savings verification has occurred.
6. If the vendor is the payee, the vendor must issue credit in the amount of the Smart Saver Custom Incentive to the customer on the invoices provided with the payment request submission.

7. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
STANDBY GENERATION PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
STANDBY GENERATION PROGRAM**

1. PROGRAM OVERVIEW

The Standby Generation (SBG) Program of Duke Energy Florida, LLC (DEF) is a load-control program designed to reduce DEF's demand based upon control of customer equipment. The program is voluntary and is available to business customers who have on-site generation capability and are willing to reduce their facility demand at the request of the company.

2. ELIGIBILITY REQUIREMENTS

1. Customer must be a commercial customer taking service under a General Service rate schedule.
2. The SBG meter must be accessible by DEF for the purposes of reading, inspecting and maintaining the standby-generation metering equipment.

3. PARTICIPATION REQUIREMENTS

1. Customer must have standby generation that will reduce utility system demand at the request of DEF.
2. Customer standby-generation capacity must be at least 50 KW and must be compliant with all state and federal emissions requirements.
3. Customer must be within the range of the Company's switch communications capability.

4. EQUIPMENT AND INSTALLATION SPECIFICATIONS

1. All installations must comply with all provisions of the National Electric Code (NEC) and any code or requirement of other authorities having jurisdiction.
2. Where necessary, the engineering for the metering and monitoring module installation will be done by a registered Florida engineer. The physical installation will be done by

a licensed Florida electrical contractor selected by DEF. Appropriate permits will be secured for each installation by the contractor.

5. CONTRACTOR REQUIREMENTS

1. The contractor shall comply with all Load Management Standards as specified by the DEF Energy Management Department and stated in the most current copy of the Energy Management Operations Manual.
2. Contractors participating in the installation of metering and communications modules on the customer's equipment must meet the financial criteria set forth in the DEF Materials and Contracts Department policies and procedures.
3. The contractor must comply with all Federal, State and local codes and regulations.
4. Contractors are responsible for the work to be performed, the use of the contractor's own equipment and the supervision of employees in order to meet the work specifications and the required completion date.
5. Contractor shall indemnify and hold DEF harmless against any and all injuries, damages, claims or costs whatsoever caused by items furnished or services rendered.
6. Contractors will be insured as specified in the terms and conditions of their contract with DEF.
7. DEF reserves the right to request background checks of contractors working with the Standby Generation Program.

6. INCENTIVES

Incentives will be provided in accordance with the provisions of the applicable Stand-by rate schedule.

7. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
INTERRUPTIBLE SERVICE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
INTERRUPTIBLE SERVICE PROGRAM**

1. PROGRAM OVERVIEW

The Interruptible Service (IS) Program of Duke Energy Florida, LLC (DEF) is a direct load-control program that is used to reduce system demand during peak or emergency conditions through interruption of service to program participants. The program allows DEF to interrupt service to program participants per the provisions of the applicable Interruptible Service rate schedule.

2. ELIGIBILITY REQUIREMENTS

1. Customer must be eligible for service under an approved Interruptible Service Rate Schedule.
2. The facility must be in the DEF service territory and served by a metered, DEF account.
3. The customer must be a DEF non-residential customer.

3. PARTICIPATION REQUIREMENTS

1. Participant must sign an agreement with DEF as to the terms and conditions of this service.
2. Participant must allow DEF to install the required load control equipment.
3. Participant will be billed in accordance with the applicable Interruptible Service rate schedule.

4. INCENTIVES

Incentives will be provided in accordance with the terms of the applicable Interruptible Service Rate Schedule.

5. REPORTING REQUIREMENTS

The reporting requirements for this program are as specified in FPSC Rule 25-17.0021(5), Florida Administrative Code.

DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
CURTAILABLE SERVICE PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
CURTAILABLE SERVICE PROGRAM**

1. PROGRAM OVERVIEW

The Curtailable Service (“CS”) Program of Duke Energy Florida, LLC (DEF) is an indirect load-control program that is used to reduce DEF’s demand during peak or emergency conditions. This program is made available to commercial customers through the Curtailable Service rate schedules. Customers who choose to participate in this program are required to curtail their load when requested by the utility per terms of the applicable rate schedule or to a level at or below the contractual agreed upon non-curtailable demand. The eligibility criteria, participation requirements, curtailment requirements and customer incentives, along with potential penalties for failure to curtail, are as specified in the terms of the applicable curtailable service rate schedule.

2. ELIGIBILITY REQUIREMENTS

1. Customer must be eligible for service under an approved Curtailable Service Rate Schedule.
2. The facility must be in the DEF service territory and served by a metered, DEF account through one point of delivery.
3. The customer must be a DEF non-residential customer.

3. PARTICIPATION REQUIREMENTS

1. Participants must sign an agreement with DEF as to the terms and conditions of this service.
2. Participants will be billed in accordance with the terms of the applicable Curtailable Service rate schedule.
3. Participants must remain on a curtailable service rate for the minimum term and provide notice to terminate their participation as specified in the applicable Curtailable Service rate schedule.

4. Participants are required to curtail their load during periods of requested curtailable per the terms of the applicable rate schedule or to a level at or below the contractual agreed upon non-curtailable load.
5. Participants who fail to comply with their curtailment responsibilities will be billed additional charges as specified in the applicable curtailable service rate schedule.
6. Participants are required to provide notice to transfer to a firm, rate schedule as specified in the applicable curtailable service rate schedule.

4. INCENTIVES

Incentives will be provided per the terms of the applicable Curtailable Service rate schedule.

5. REPORTING REQUIREMENTS

The reporting requirements for this program will follow Rule 25-17.0021(5), Florida Administrative Code.

III. TECHNOLOGY DEVELOPMENT PROGRAM

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

TECHNOLOGY DEVELOPMENT PROGRAM

**DUKE ENERGY FLORIDA, LLC
PROGRAM PARTICIPATION STANDARDS
TECHNOLOGY DEVELOPMENT PROGRAM**

1. PROGRAM OVERVIEW

The purpose of the Technology Development Program of Duke Energy Florida, LLC (DEF) is to enable DEF to investigate technologies and pursue research, development and demonstration projects that may lead to the development of new cost-effective demand side management programs. The program is designed to allow DEF to investigate technologies and develop new programs from initial concept through submittal to the Florida Public Service Commission (FPSC) for consideration and approval. In general, each proposed technology development project will proceed according to the following schedule. Each milestone will represent a decision point to continue or discontinue the project based upon knowledge available at the time.

1. Project concept or idea development
2. Project research and design, including estimated costs and benefits
3. Field demonstration program
4. Evaluation of field demonstration program, including cost-effectiveness
5. If accepted for continuation as a program, application to the FPSC for approval to implement the program

Expenditures of up to \$800,000 annually may be made and recovered through the energy conservation cost recovery clause for all energy efficiency and conservation projects that are proposed and investigated. All costs, including incentives and rebates that are offered, will be as part of the pre-approved project expenditures under this program. To ensure that all expenses are properly accounted for, a “job order” will be created for each project which will be the repository for all investigation expenses. A record of program expenses will be maintained in accordance with Rule 25-17.015, Florida Administrative Code.

2. ELIGIBILITY REQUIREMENTS

Customers eligible to participate in field demonstration projects will be determined during the project research and design phase. Eligibility will be dependent on the type of project being proposed and investigated. Field demonstrations will involve only a limited number of customers. Participants in field demonstration projects must allow DEF and its contractor's access to the facility for maintaining and monitoring the evaluation equipment. DEF will be solely responsible for determining the technologies to be evaluated under this program.

3. INCENTIVES

As part of this program, DEF may provide an incentive to participants in field demonstration projects for their willingness to work with DEF on the technology evaluation.

4. REPORTING REQUIREMENTS

If any single project's annual expenditures exceed \$100,000, a status report will be filed as a component of the Energy Conservation Cost Recovery Projection and True-Up filings. If any project (or combination of projects) expenditures are projected to exceed the \$800,000 annual limit, DEF will apply to the FPSC staff for approval to proceed with the particular project which would cause DEF to exceed the limit.