



Matthew R. Bernier
Associate General Counsel

December 7, 2017

Carlotta Stauffer, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Revisions to Program Standards - Low Income Weatherization Assistance Program and Neighborhood Energy Saver Program

Dear Ms. Stauffer:

Duke Energy Florida, LLC (DEF), respectfully requests administrative approval of modifications to DEF's Low Income Weatherization Assistance Program (LIWAP) and Neighborhood Energy Saver (NES) Program Standards.

On October 16, 2015, DEF submitted its DSM Program Standards for administrative approval in Docket No. 20150083-EG, which were administratively approved on October 29, 2015. DEF requested certain revisions to the approved standards for the LIWAP program on February 7, 2017 and provided a revised version of those previously requested changes on March 29, 2017. The Commission Staff sent a letter on April 3, 2017 finding that the March 29, 2017 revisions were consistent with the DSM Plan approved by the Commission in Order No. PSC-2015-0332-PAA-EG. Staff requested DEF to notify the Commission prior to any additional changes being made to the program standards as approved.

The proposed revisions to the LIWAP and NES program standards will allow DEF to transition from providing both CFL and LED light bulbs to customers to the exclusive use of LED light bulbs. DEF has provided both a clean and redline strikeout version of the proposed changes to the LIWAP Standards in Attachment A and both a clean and redline strikeout version of the proposed changes to the NES Program Standards in Attachment B.

Analyses supporting the cost and energy saving impacts of these changes for both the LIWAP and the NES Program are provided in Attachments C and D, respectively. As a result of the

significant decrease in the cost of light bulbs, these changes are expected to reduce overall program costs while providing greater energy savings to program participants.

DEF appreciates Staff's attention to this matter. Please do not hesitate to contact us if you have any questions or require any additional information.

Sincerely,

/s/ Matthew R. Bernier

Matthew R. Bernier
Associate General Counsel

MRB/ck
Attachments

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:

- The residence must be in DEF's service area and be a residentially metered customer with an active account.
- All installations must be accessible for verification by a DEF representative.
- Homes must be greater than two years old.
- Homes having previously received DEF incentives for 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, damages 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.

2.2.1 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	Insulate homes with R5 or less to at least R-19 on residences with whole house electric air conditioning and/or electric heating	\$.50 per square foot up to a maximum of \$300 per home	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	\$150	Completed Duct Test
Reduce Air Infiltration	Must demonstrate a minimum reduction of 1500 cfm at 50 pascals in electrically heated homes Not to exceed a minimum of 0.35 ACH	\$37.50	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	\$20	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	\$150	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 must be a minimum 15 SEER and 8.2 HSPF	\$1,000	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 must be a minimum 15 SEER and 8.2 HSPF	\$1,500	
Water Saving Showerheads	Maximum of 2.5 gallon per minute flow on homes with Electric Water Heaters	\$10 per showerhead	Maximum of 2 per home
Energy-efficient Light Bulbs	Replace incandescent bulbs with LED's with similar lumen output	\$ 2.50 per lamp	Maximum of 6 light bulbs per household

Faucet Aerators	Water Flow Reduction on homes with Electric Water Heaters	\$5 per Aerator	Maximum of 2 per household
Refrigerator	Must be Energy Star rated	\$400	1 per household

Notes:

1. *In multi-family structures, DEF reserves the right to request bids from contractors to hold costs to a minimum.*
2. *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 at least two years old.
4. Eligible residences must have whole house electric air conditioning and/or whole house electric heating.
5. The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be less than R-11.
6. Any structure that has utilized any of DEF's ceiling insulation programs 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.
7. The total ceiling area to be insulated must be greater than 100 square feet.
8. Mobile homes built after January 1, 1977 will be assumed to have an insulation value in excess of R-11 and will not be eligible to participate in this part of the LIWAP program unless documentation is provided to DEF stating that the actual existing insulation value is less than R-12.
9. 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 R-19.
3. Flat roofs must have sufficient 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-19 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-19 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 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

Promote the proper sizing and installation of high efficiency Heat Pump 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 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 inch 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 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 1,500 cfm at 50 pascals.
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 in Section 2.1 and 6.3.

10.0 COMPACT FLUORESCENT BULBS/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"> • Replace incandescent bulbs with energy-efficient bulbs with similar lumen output operating a minimum of 3 hours per day 	<ul style="list-style-type: none"> • Light bulbs will be 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
- Pre and post CFM 50 readings
- 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.

Redline/strikeout version

DUKE ENERGY FLORIDA, LLC

PROGRAM PARTICIPATION STANDARDS

LOW-INCOME WEATHERIZATION ASSISTANCE PROGRAM

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- All installations must be accessible for verification by a DEF representative.
- Homes must be greater than two years old.
- Homes having previously received DEF incentives for listed measures are not eligible for the same measure.

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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, damages 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.

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- All work shall be performed to constitute a finished product.
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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.

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Energy-efficient Light Bulbs	15 or 18 watt Compact Fluorescent replacing incandescent lamp greater than or equal to 60 watts 9 watt LED replacing incandescent lamp greater than or equal to 60 watts <u>Replace incandescent bulbs with CFL's or LED's with similar lumen output</u>	\$3.00 per lamp \$4.50 <u>2.50</u> per lamp	Maximum of 6 light bulbs per household
Faucet Aerators	Water Flow Reduction on homes with Electric Water Heaters	\$5 per Aerator	Maximum of 2 per household
Refrigerator	Must be Energy Star rated	\$400	1 per household

Notes:

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

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2. Must be a recommendation of a NEAT or DEF-approved audit, or Agency assessment protocol.
3. The home must be at least two years old.
4. Eligible residences must have whole house electric air conditioning and/or whole house electric heating.
5. The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be less than R-11.
6. Any structure that has utilized any of DEF's ceiling insulation programs 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.
7. The total ceiling area to be insulated must be greater than 100 square feet.
 8. Mobile homes built after January 1, 1977 will be assumed to have an insulation value in excess of R-11 and will not be eligible to participate in this part of the LIWAP program unless documentation is provided to DEF stating that the actual existing insulation value is less than R-12.
 9. 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 R-19.
3. Flat roofs must have sufficient 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-19 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-19 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 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

Promote the proper sizing and installation of high efficiency Heat Pump 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 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 inch 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 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 1,500 cfm at 50 pascals.
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 in Section 2.1 and 6.3.

10.0 COMPACT FLUORESCENT BULBS/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

<p style="text-align: center;">Compact Fluorescent Light Bulb</p> <p style="text-align: center;"><u>LED Light Bulbs</u></p>	<ul style="list-style-type: none"> • 15 or 18 watt compact fluorescent replacing incandescent lamp greater than or equal to 60 watts operating a minimum of 3 hours per day • 9 watt LED replacing incandescent lamp greater than or equal to 60 watts operating a minimum of 3 hours per day <p><u>Replace incandescent bulbs with energy-efficient bulbs with similar lumen output operating a minimum of 3 hours per day</u></p>	<ul style="list-style-type: none"> • Must meet manufacturer's specifications • Must not be installed on a dimming circuit • Must not be installed in an enclosed fixture • <u>Must be interior use only</u> <u>Light bulbs will be installed in accordance with manufacturer's specifications.</u>
<p style="text-align: center;">Faucet aerators</p>	<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
- Pre and post CFM 50 readings
- 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

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 homes' 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 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 in the Neighborhood Energy Saver city, but not within the 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. Any contractor failing to meet manufacturers' specifications and DEF procedures may result in termination of 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 shall 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 and meet all associated requirements of the Florida Department of Business and Professional Regulation Division of Professions 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 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 harmless DEF 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.
1. 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
 2. Sub-contractors participating in the measures must follow DEF Code of Ethics. DEF reserves the right to request background check results on all participating 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 incandescent bulbs with LED’s with similar lumen output. LEDs 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. Heater Insulation:

- Shall have an insulating value of R- 6 or greater.
- Shall be Underwriters Laboratories (UL) approved.
- 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 R-6, minimum

5.2.2 WATER HEATER PIPE INSULATION

Contractor will furnish and install pipe insulation, as needed. Pipe Insulation:

- Shall have an insulating value of R-3 or greater.
- 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 bathroom aerators per home that shall provide a maximum flow rate of 1.5 GPM 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 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 on 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.

5.4.3 HVAC FILTERS

Contractor will furnish and deliver four (4) filters for each central HVAC system.

- Locate all HVAC return grills with filter sizes
- Install a new filter in the main return grill.
- Leave customer with additional three (3) 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

- Maybe 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.

5.5 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 fire places).
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 that the mastic is being applied to.

5.6.3 CONTRACTOR REQUIREMENTS

Contractor must meet specifications as outlined in section 4.0.

5.7 HOME ENERGY REPORT (MYHER)

5.7.1 ELIGIBILITY

The purpose of this program is to provide comparative usage data for similar residences in the same geographic area to motivate customers to better manage and reduce energy usage. The program will assist a maximum of 15,000 single-family residential customers who have previously participated in the Neighborhood Energy Saver (NES) Program or

who have been identified as an income-qualified customer to both reinforce their existing efficient actions and continue to educate them on ways to save energy, as well as provide seasonal reminders and actionable tips that will help them better manage their energy usage.

5.7.2 SPECIFICATIONS

This program is available at the Company's option to participating NES customers or other income-qualified residential customers as identified by DEF and served on Duke Energy's residential rate schedule.

- Customers will receive periodic comparative usage data reports via direct mail.
- Reports will provide targeted educational information to customers on seasonal actionable energy saving tips, as well as reminders for upkeep of their heating/cooling system.
- The Company will require a minimum number of months of historical usage data before allowing participation.

5.8 INFILTRATION MEASURES

5.8.1 WEATHER STRIPPING

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

Recommended Materials

- Professional grade weather-stripping.

5.8.2 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.

5.8.3 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.

5.8.4 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.

5.9 CEILING INSULATION

5.9.1 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-11 or less. (**Exception:** May exclude conditioned area for a recent addition.)

4. 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, has lost 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.
5. Any home with "Knob and Tube Wiring" that is energized is not eligible.¹

5.9.2 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-19.
3. Flat roofs must have sufficient 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 19 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

¹ National Electrical Code, Article 394

² 2010 Florida Building Code Section 402.2.13 Walls Considered Ceiling Area

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).³

5.9.3 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 incandescent 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

³ 2010 Florida Building Code Section 402.2.1 Ceilings With Blown-In Insulation

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. 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 manufacturers' 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 bathroom) 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 (3) filters of the same size. Education of the resident on the importance of replacing or cleaning these filters regularly will be done. 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-19 requirements. The Energy Specialist(s) will note if insulation is required and 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 make arrangements with an HVAC Technician to get this service completed.

15. Review the condition of the duct work. If applicable, make arrangements with an HVAC Technician to have the ducts sealed.
16. Document for the resident all 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. An NES educational booklet outlining the installed measures and their benefits will be left with each customer.
 2. Education brochure(s) or other materials will also be provided by DEF that provide participants with specific energy saving recommendations.
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.
18. Once all measures have been installed and explained to the customer, the Energy Specialist(s) will move on to the next home.

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

- 4 HVAC filters
- Caulking for doors
- Weather-stripping and door sweeps
- Indoor wall thermometer
- Window AC unit cover
- HVAC maintenance
- Attic insulation
- Duct sealing
- Infiltration repairs
- My Home Energy Reports (MyHER)

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, 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.

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 database system. Submitted reports and invoices will be maintained on file.

8.0 REPORTING REQUIREMENTS

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

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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. ~~Duke Energy~~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 homes' 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 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 in the Neighborhood Energy Saver city, but not within the 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. Any contractor failing to meet manufacturers' specifications and DEF procedures may result in termination of 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 shall 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 and meet all associated requirements of the Florida Department of Business and Professional Regulation Division of Professions 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 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 harmless DEF 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.
1. 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
 2. Sub-contractors participating in the measures must follow DEF Code of Ethics. DEF reserves the right to request background check results on all participating 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 incandescent bulbs with ~~the appropriate corresponding wattage for CFL’s and or~~ LED’s ~~in accordance with the chart below with similar lumen output.~~ CFLs or LEDs will not be installed in dimmable fixtures, outdoor fixtures or enclosed fixtures. be installed in accordance with the manufacturer’s specifications.

Existing Incandescent Wattage	Replacement Wattage (Range)
40 Watts	11 Watts—13 Watts CFL
60 Watts	14 Watts—16 Watts CFL 9 Watt LED
75 Watts	19 Watts—21 Watts CFL
100 Watts	23 Watts—25 Watts CFL

~~CFLs or LEDs will not be installed in dimmable fixtures, outdoor fixtures or enclosed fixtures.~~

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. Heater Insulation:

- Shall have an insulating value of R- 6 or greater.
- Shall be Underwriters Laboratories (UL) approved.
- 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 R-6, minimum

5.2.2 WATER HEATER PIPE INSULATION

Contractor will furnish and install pipe insulation, as needed. Pipe Insulation:

- Shall have an insulating value of R-3 or greater.
- 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 bathroom aerators per home that shall provide a maximum flow rate of 1.5 GPM 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 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 on 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.

5.4.3 HVAC FILTERS

Contractor will furnish and deliver four (4) filters for each central HVAC system.

- Locate all HVAC return grills with filter sizes
- Install a new filter in the main return grill.
- Leave customer with additional three (3) 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

- Maybe 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.

5.5 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 fire places).
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 that the mastic is being applied to.

5.6.3 CONTRACTOR REQUIREMENTS

Contractor must meet specifications as outlined in section 4.0.

5.7 HOME ENERGY REPORT (MYHER)

5.7.1 ELIGIBILITY

The purpose of this program is to provide comparative usage data for similar residences in the same geographic area to motivate customers to better manage and reduce energy usage. The program will assist a maximum of 15,000 single-family residential customers who have previously participated in the Neighborhood Energy Saver (NES) Program or who have been identified as an income-qualified customer to both reinforce their existing efficient actions and continue to educate them on ways to save energy, as well as provide seasonal reminders and actionable tips that will help them better manage their energy usage.

5.7.2 SPECIFICATIONS

This program is available at the Company's option to participating NES customers or other income-qualified residential customers as identified by DEF and served on Duke Energy's residential rate schedule.

- Customers will receive periodic comparative usage data reports via direct mail.
- Reports will provide targeted educational information to customers on seasonal actionable energy saving tips, as well as reminders for upkeep of their heating/cooling system.
- The Company will require a minimum number of months of historical usage data before allowing participation.

5.8 INFILTRATION MEASURES

5.8.1 WEATHER STRIPPING

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

Recommended Materials

- Professional grade weather-stripping.

5.8.2 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.

5.8.3 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.

5.8.4 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.

5.9 CEILING INSULATION

5.9.1 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-11 or less. (**Exception:** May exclude conditioned area for a recent addition.)
4. 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, has lost 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.
5. Any home with "Knob and Tube Wiring" that is energized is not eligible.¹

5.9.2 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-19.
3. Flat roofs must have sufficient 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

¹ National Electrical Code, Article 394

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

5.9.3 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

² 2010 Florida Building Code Section 402.2.13 Walls Considered Ceiling Area

³ 2010 Florida Building Code Section 402.2.1 Ceilings With Blown-In 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 incandescent 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. 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 manufacturers' 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 bathroom) 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 (3) filters of the same size. Education of the resident on the importance of replacing or cleaning these filters regularly will be done. 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-19 requirements. The Energy Specialist(s) will note if insulation is required and 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 make arrangements with an HVAC Technician to get this service completed.
 15. Review the condition of the duct work. If applicable, make arrangements with an HVAC Technician to have the ducts sealed.
 16. Document for the resident all 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. An NES educational booklet outlining the installed measures and their benefits will be left with each customer.
 2. Education brochure(s) or other materials will also be provided by DEF that provide participants with specific energy saving recommendations.
 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.
 18. Once all measures have been installed and explained to the customer, the Energy Specialist(s) will move on to the next home.

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:

- ~~Compact fluorescent/LED lighting~~ [Light bulbs](#)
- Water heater insulation wrap and insulation for water pipes
- Water conservation shower head and faucet aerators
- Water heater temperature check
- 4 HVAC filters
- Caulking for doors
- Weather-stripping and door sweeps
- Indoor wall thermometer
- Window AC unit cover
- HVAC maintenance
- Attic insulation
- Duct sealing
- Infiltration repairs
- My Home Energy Reports (MyHER)

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, 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.

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 database system. Submitted reports and invoices will be maintained on file.

8.0 REPORTING REQUIREMENTS

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

SUMMARY OF PROPOSED CHANGES TO LOW INCOME WEATHERIZATION ASSISTANCE PROGRAM LIGHTING MEASURES												
Measure Name	Watts	Homes Annually	Annual Quantity	Bulbs per Home	sW	wW	kWh	Total sKW	Total wKW	Total mWh's	Incentive per Bulb	Annual Cost
LIWAP as Filed (2015 Program Plan)												
LED 9	9	500	300	0.60	21.20	13.54	49.64	6.4	4.1	14.9	\$ 4.50	\$ 1,350
CFLS	13	500	2,500	5.00	15.59	9.96	36.50	39.0	24.9	91.3	\$ 3.00	\$ 7,500
Total			2,800	5.60				45.3	29.0	106.1	\$ 3.16	\$ 8,850
LIWAP Proposed												
LED 10 -60 Watt	10	500	1,400	2.80	20.57	13.15	48.18	28.8	18.4	67.5	\$ 2.25	\$ 3,150
LED 12 - 75 Watt	12	500	1,400	2.80	25.56	16.33	59.86	35.8	22.9	83.8	\$ 2.75	\$ 3,850
Total			2,800	5.60				64.6	41.3	151.3	\$ 2.50	\$ 7,000
Summary of Impacts of Proposed Changes			-	-				19.25	12.31	45.11		\$ (1,850)

SUMMARY OF PROPOSED CHANGES TO NES LIGHTING MEASURES

Measure Name	Watts	Homes Annually	Annual Quantity	Average Bulbs per Home	sW	wW	kWh	Total sKW	Total wKW	Total mWh's	Measure Cost per Bulb	Annual Cost
NES as Filed (2015 Program Plan)												
LED 9	9	4500	6750	1.50	21.20	13.54	49.64	143.1	91.4	335.1	\$ 9.00	\$ 60,750
CFL 13	13	4500	9000	2.00	18.70	11.95	43.80	168.3	107.6	394.2	\$ 4.00	\$ 36,000
CFL 20	20	4500	6660	1.48	21.20	13.54	49.64	141.2	90.2	330.6	\$ 4.00	\$ 26,640
CFL 23	23	4500	3870	0.86	30.55	19.52	71.54	118.2	75.5	276.9	\$ 4.00	\$ 15,480
Total			26,280	5.84				570.8	364.7	1,336.7		\$ 138,870
NES Proposed												
LED 10	10	4500	15,750	3.50	20.57	13.15	48.18	324.0	207.1	758.8	\$ 4.29	\$ 67,568
LED 12	12	4500	10,530	2.34	25.56	16.33	59.86	269.1	172.0	630.3	\$ 4.70	\$ 49,491
Total			26,280	5.84				593.2	379.0	1,389.2		\$ 117,059
Summary of Impacts of Proposed Changes				-				22.39	14.31	52.43		\$ (21,812)