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JAMES A. MCGEE SENIOR COUNSEL

gacosB-EL

January 9, 1997

Ms. Blanca S. Bayó, Director Division of Records and Reporting Florida Public Service Commission 2540 Shumard Oak Blvd. Tallahassee, Florida 32399-0850

> Re: Petition for approval of revised Program Participation Standards for the Residential Energy Improvement and Home Residential New Construction Programs by Florida Power Corporation

Dear Ms. Bayó:

Enclosed for filing in the subject docket are fifteen copies of Florida Power Corporation's Petition for approval of revised Program Participation Standards for the Residential Home Energy Improvement and Residential New Construction Programs.

Please acknowledge your receipt of the above filing on the enclosed copy of this letter and return to the undersigned. Also enclosed is a 3.5 inch diskette containing the above-referenced document in WordPerfect format. Thank you for CAF _____ your assistance in this matter.

ē5 Very truly your 3 James A. McGee

OPC _____ JAM/kp

Enclosure RCH

SEC _____

ACK _

AFA _

APP _

CMU _____

CTR _____

EAG _____ LEG _____

LIN _____

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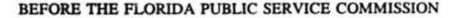
DOCUMENT NUMBER - DATE

OTH _3201 Thirty-fourth Street South + Poet Office Box 14042 + St. Petereburg, Florida 33733-4042 + A Florida Progress Company

GENERAL OFFICE

FPSC-RECORDS/REPORTING

9. AN 10 5 31 866 4931



In re: Petition for approval of revised Program Participation Standards for the Residential Home Energy Improvement and Residential New Construction Programs by Florida Power Corporation.

Docket No. mass - El

THE COP

Submitted for filing: January 10, 1997

PETITION

Florida Power Corporation ("Florida Power") hereby petitions the Florida Public Service Commission ("the Commission") for approval of certain revisions to the program participation standards for Florida Power's Residential Home Energy Improvement Program and its Residential New Construction Program. In support hereof, Florida Power states as follows:

Background

Program participation standards and revisions thereto are normally approved by Staff upon a determination that the standards conform with the program initially approved by the Commission. However, after discussions with Staff regarding the two program participation standards subject to this petition, Florida Power agreed that, because the proposed revisions include changes to incentive payment structure and efficiency standards which could effect the programs' costeffectiveness, Commission approval of the revisions would be appropriate.

FLORIDA POWER CORPORATION

Discussion

The revised program participation standards for the Residential Home Energy Improvement Program and the Residential New Construction Program are contained in Attachments A and B, respectively. Attachments C and D show the revisions in legislative format. A detailed explanation of each of the proposed revisions to the two program participation standards are contained in Attachments E and F. Attachments G and H contain RIM, Participant and TRC costeffectiveness tests for the Residential Home Energy Improvement and Residential New Construction Programs with the revised participation standards, which demonstrated that both programs are not materially affected by the revisions and remain cost effective.

WHEREFORE, Florida Power Corporation respectfully requests that the Commission approve the revised program participation standards for the Residential Home Energy Improvement Program and the Residential New Construction Program contained in Attachments A and B hereto.

Respectfully submitted,

OFFICE OF THE GENERAL COUNSEL FLORIDA POWER CORPORATION

James A. McGee Post Office Box 14042 St. Petersburg, FL 33733-4042 Telephone: (813) 866-5184 Facsimile: (813) 866-4931

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FLORIDA POWER CORPORATION

Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT A

REVISED RESIDENTIAL HOME ENERGY IMPROVEMENT PROGRAM PARTICIPATION STANDARDS

PROGRAM PARTICIPATION STANDARDS HOME ENERGY IMPROVEMENT PROGRAM

1. PROGRAM OVERVIEW

The Home Energy Improvement (HEI) Program is an "umbrella" program designed to improve the energy efficiency of existing residential homes. The program seeks to meet the following overall goals:

- Improve customer comfort levels through energy efficient equipment and home thermal integrity.
- 2. Obtain energy and demand reductions that are significant, permanent and measurable.
- 3. Enhance contractor awareness of the capabilities of energy efficient technologies.
- Educate customers about additional opportunities to upgrade home energy efficiency.
- Obtain cost-effective resources from the marketplace.
- Minimize "lost opportunities" in the existing home market.

2. ELIGIBILITY REQUIREMENTS

- All measures must have been recommended during an FPC energy audit. Exception: In emergency cases the customer may have a heat pump and/or alternate water heating installed prior to an audit being conducted.
- The residence must be in FPC's service area and be a residential metered customer of FPC.
- 3. Do-it-yourself installations are not eligible for program participation. FPC participating contractors will be utilized to implement the incentive-based components of the HEI program. All work must be done by a participating licensed contractor who is on FPC's participating contractor list for the specific measure. Exception: The Heating, Ventilation and Air Conditioning (HVAC) portion of this program will not have a participating contractor list.
- All installations must be accessible for verification of HEI program standards by an FPC representative.
- 5. New construction homes do not qualify under the HEI program.

2.1 Contractor Requirements

- All contractors must comply with FPC contractor procedures and manufacturers' specifications specific to the portion of the HEI Program for which they are participating. Failure to do so may result in termination of participation in any or all FPC programs.
- The contractor is responsible for the work to be performed, the supervision of their employees and the use of contractor's own equipment to meet the work specifications and completion date.
- The contractor must correct any deficiency found in the installation or product when advised by an FPC representative.
- The contractor shall indemnify and hold FPC harmless against any and all injuries, damages, claims or costs, whatsoever, caused by items furnished or services rendered.
- The contractor must comply with all Federal, State, and local codes and regulations and have the appropriate license(s) for the work to be performed.
- 6. The Duct Test and Repair contractors and the Insulation contractors must notify their insurance companies to provide FPC with documentation and maintain in force the following insurance policies: (Exception: Section 8 and Section 9 dealing with HVAC contractors is exempt from this provision.)
 - 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.





3. INCENTIVES

The incentiv's payment structure is as follows:

Program Component	Incentive			
Duct	50% of test cost up to \$25 for the first unit tested			
Test	50% of test cost up to \$15 for each additional unit at same address			
Duct Leakage	25% of the repair cost up to a maximum of \$50 per unit for homes with non-ducted electric heat			
Repair	50% of the repair cost up to a maximum of \$100 per unit for homes with ducted electric heat			
Attic	\$75 to bring insulation level up to a minimum of R-19			
Insulation	\$100 to bring insulation level up to a minimum of R-30			
High Efficiency Heat Pump	\$250 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.0 HSPF			
Replacing Resistance Heat	\$350 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 7.5 HSPF			
High Efficiency Heat Pump	\$100 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.0 HSPF			
Replacing Heat Pump	\$150 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 7.5 HSPF			
Heat Recovery Unit	\$100			
Dedicated Heat Pump Water \$200 Heater				
	\$25 for high efficiency electric heat pump and			
22 A 1997	either ceiling insulation or			
Supplemental	duct leakage repair			
Incentive Bonus	\$50 for high efficiency electric heat pump and			
	ceiling insulation and			
	duct leakage repair			

Note:

1. A home is eligible to receive an incentive for each heat pump installed based on the efficiency level.

- 2. To qualify for the supplemental bonus, additional measures must be implemented within 90 days from the installation of the heat pump.
- In multi-family structures, FPC reserves the right to request bids from contractors to hold customer costs to a minimum.

4. INCENTIVE PROCESSING

- The FPC representative will complete an HEI Program form which will record as a minimum the following information: customer's name, address, account number, measure installed, equipment information (manufacturer, model numbers, EER or SEER, HSPF or COP).
- 2. The customer will sign and date the form, and retain a copy.
- If the home is assigned for inspection, the original HEI Program form is given to the inspector. After the inspection has been successfully completed, the inspector returns the original form to FPC for payment processing.
- 4. A copy of the customer invoice must accompany the incentive application.
- If the home is not assigned for inspection, or after it has passed inspection, contractors' invoices will be processed for payment.
- FPC will then input "work completed" and "amount paid" to the computer system, and file a copy of the HEI Program form by customer name.
- 7. Incentive payments for duct test/repair and attic insulation are paid to the contractor with the exception of the supplemental bonus which is posted on the customer's electric bill. HVAC incentives (high efficiency heat pump, heat recovery, and heat pump water heater) will be paid as a credit on the customers bill or a check to the customer.





5. REPORTING REQUIREMENTS

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

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6. CEILING INSULATION UPGRADE

6.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. The home must be at least two years old.
- Eligible residences must have whole house electric air conditioning and/or whole house electric heating.
- The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be less than R-12.
- 5. Any structure that has utilized any of FPC'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 FPC with a letter from his/her insurance company stating that the insulation was not covered.
- 6. The total ceiling area to be insulated must be greater than 500 square feet.
- 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 HEI Program unless documentation is provided to FPC stating that the actual existing insulation value is less than R-12.
- 8 Any home with "Knob and Tube Wiring" that is energized is not eligible 1

6.2 Equipment and Installation Specifications

- The insulation must be installed in accordance with the manufacturer's recommendations and specifications.
- All installations must result in an insulation value equal to or greater than R-19 or R-30. Insulation shall be added in increments of either R-11, R-19, R-22, or R-30.
- 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
- The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.

¹ National Electrical Code 1990, Article 324, Section 324-4





- 5. The insulation must have a minimum clearance around all recessed lighting and gasfired 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.²
- 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 HEI Program.
- 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).³

6.3 Contractor Requirements

- Must meet the Contractor Requirements outlined in Section 2.1.
- 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.
- 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 c. d 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

¹ Florida "1993 Energy Efficiency Code for Building Construction" Section 604.1.A.1 Walls Considered Ceiling Area

³ Florida "1993 Energy Efficiency Code for Building Construction" Section 604.1ABC 1.1 Ceilings With Blown-In Insulation

7. DUCT TEST AND LEAKAGE REPAIR

7.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. Repair recommendations must have been the result of an FPC-approved duct test.
- The customer's duct system 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.
- Multi-family units where one unit is on top of another unit may not be tested or repaired due to health and safety concerns.
- Homes must have centrally-ducted electric cooling and electric heat. If non-space heating combustion appliances exist, then the house must pass a safety test prior to any duct sealing.
- Duct and HVAC systems must be in adequate condition to accommodate duct leakage repair

7.2 Equipment and Installation Specifications

- 1. All equipment installations must meet manufacturers' instructions and specifications.
- Only mastic and mastic-plus-embedded fabric systems that are approved by FPC may be used for sealing duct systems. Mastic must be FPC-approved for the type of duct to which the mastic is applied.
- Blower door or duct blaster procedures must be followed as specified in training or manufacturer's instructions, unless otherwise directed by FPC when performing the duct test.

7.3 Contractor Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1.
- Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
- All participating contractors must have attended and successfully completed an FPCapproved 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 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, FPC has adopted the National Fuel Gas Code's "Appendix H: Recommended Procedure for Safety Inspection of an Existing Appliance Installation."

7.4 INSPECTION REQUIREMENTS

- 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

8. HIGH EFFICIENCY ELECTRIC HEAT PUMPS

8.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. The customer must have had an audit within the past two years.

8.2 Equipment and Installation Specifications

- 1. All equipment installations must meet manufacturers' instructions and specifications.
- 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.
- The installed air handler/outdoor condensing unit combination must satisfy both the cooling and heating minimum efficiency requirements.
- 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. All cooling-mode efficiency ratings eligibility will be based on EER if available.⁴
- The contractor will certify that the unit was sized according to manufacturers specifications.
- 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.
- Contractors shall certify that the air flow meets the manufacturer's recommendations and specifications for the system installed.
- Contractors shall certify that if the equipment installed has a scroll compressor (36,001 BTUh or larger), that a hard start kit was installed either by the contractor or at the factory.

Program Participation Standards

⁴ 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 which will use the COP value listed.





- 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.
- 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.
- 13. The contractor will be encouraged to use mastic on all new connections.
- Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
- 15. Heat pump must be all electric.
- Each contractor will be paid a maximum of \$25 per customer account for completing necessary paperwork on eligible installations

8.3 Contractor Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1
- Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
- 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.
- The contractor must notify FPC within 30 days if there was an emergency replacement due to equipment failure.

9. HIGH EFFICIENCY ALTERNATE ELECTRIC WATER HEATING

9.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. The customer must have had an audit within the past two years.

9.2 Equipment and Installation Specifications

- All heat recovery units must be installed in accordance with manufacturer's specifications.
- 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.
- Heat recovery water heaters must be equipped with a circulating pump and must be Association of Refrigerant Desuperheater Manufacturers (ARDM) certified.
- Heat recovery or dedicated heat pump water heaters must be installed on an electric water heater.
- 5. All equipment shall be new and not refurbished, previously installed, or used.
- Each contractor will be paid a maximum of \$25 per customer account for completing necessary paperwork on eligible installations.

9.3 Contractor Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1.
- Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
- A copy of the customer invoice itemizing equipment costs, non-equipment costs, and the FPC incentive amount must accompany the incentive application.
- The contractor must notify FPC within 30 days if there was an emergency replacement due to equipment failure.

10. HIGH EFFICIENCY ELECTRIC CENTRAL AIR CONDITIONERS

10.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. Must meet the Participation Requirements outlined in Section 8.1.

10.2 Equipment and Installation Specifications

1. Must meet the Equipment and Installation Specifications outlined in Section 8.2.

10.3 Contractor Qualification Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1.
- 2. Must meet the Contractor Requirements outlined in Section 8.3.

11. INSTALLMENT BILLING

- As an alternative to receiving an incentive payment, customers may opt to finance up to a maximum of \$500 through installment billing. For each measure, a customer can use installment billing to finance up to 90% of the total installed cost or repair cost.
- Installment billing allows the customer to spread the cost over 12 months interest free. The installment billing payments will appear as a separate line item on the customer's monthly electricity bill from FPC.
- Installment billing can be used for any combination of the following qualified measures: ceiling insulation upgrade, duct leakage repair, high efficiency electric heat pump, heat recovery unit, and dedicated heat pump water heater.
- If the customer installs additional qualified measures, a new installment billing arrangement can be set up only after the initial or current "loan" is paid off.
- The customer must own the home in which the improvements are being made. The customer shall not have been cut for non-payment, received a credit extension or have any returned checks within the past two years.

12. FINANCING ASSISTANCE

- Financing Assistance is another alternative to the direct incentive payment. FPC will
 work with finance companies and attempt to offer eligible program participants a
 financing option at below market rates. Eligible customers may apply appropriate
 program incentives to reduce the principle amount or to lower interest rates on
 installment loans.
- The finance company will qualify the borrower and arrange for the loan using their normal procedures.
- FPC will coordinate with HVAC contractors and various finance companies to offer reduced interest loans on mechanical installations.
- HVAC contractors will be responsible for presenting incentive options to the customer and arranging financing with participating finance companies, as needed





Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT B

REVISED RESIDENTIAL NEW CONSTRUCTION PROGRAM PARTICIPATION STANDARDS

PROGRAM PARTICIPATION STANDARDS RESIDENTIAL NEW CONSTRUCTION PROGRAM

1. PROGRAM OVERVIEW

The Residential New Construction (RNC) Program promotes energy efficient new home construction in order to provide residential customers with more efficient cooling and heating consumption combined with improved environmental comfort. The objectives of the RNC Program include the following:

- Educate home builders and manufacturers about energy efficient new construction building design to create a supply of efficient homes.
- Educate customers and real estate agents about the benefits of energy efficient home design to create the demand for energy efficient homes.
- 3. Obtain energy and demand impacts that are significant, permanent, and measurable.
- 4. Obtain cost-effective resources from the marketplace.
- 5. Minimize "lost opportunities" in the new construction market.

The program will provide education and information to the design community on energy efficient building design and construction, pay for the cost of duct testing to educate builders, provide financial incentives for energy efficient equipment, issue a certificate which identifies the home as energy efficient, and offer cooperative advertising to the more energy efficient developers and builders to promote the RNC Program.

2. ELIGIBILITY REQUIREMENTS

- 1. The home must be either single family detached or single family attached (e.g. townhouses).
- 2. The home must be new -- additions do not qualify for this RNC program.
- The home must be built by an RNC Program-certified builder or manufacturer meeting FPC standards. The builder must be a licensed building contractor and must comply with all Federal, State, and local codes. Manufacturer must comply with all HUD requirements.
- The house must be accessible for verification of RNC Program standards by an FPC representative.
- 5. The home must be located in FPC's service area and must be metered by FPC.
- The heating source must be a high efficiency electric heat pump(s). No resistance heat is allowed except as back-up supplemental heat.

Residential New Construction Program





2.1 Equipment and Installation Specifications

- All equipment installations must meet manufacturer's instructions and specifications. Any contractor failing to meet manufacturer's specifications and FPC procedures may result in termination of participation in any or all FPC programs.
- Equipment specification shall be according to Air Conditioning and Refrigeration Institute and Department of Energy test standards or by an FPC-recognized engineering standard using sound engineering estimates.
- 3. Minimum wall insulation is R-4 for masonry and R-11 for frame.
- 4 Equipment information such as model numbers, manufacturers, and Btuh capacity shall be made accessible to the FPC representative.
- 5. All materials used to seal duct systems must be approved by FPC.
- Heat recovery water heaters must be equipped with a circulating pump and must be Association of Refrigerant Desuperheater Manufacturers (ARDM) certified, and be installed on an electric water heater.
- If the equipment installed uses a scroll compressor 36,001 Btuh or larger, the air conditioning contractor or builder shall certify that a hard start kit was installed by the air conditioning contractor or the factory.
- 8. Heat pump must be all electric.

2.2 Contractor¹ Requirements

- Contractors shall certify that the air flow meets manufacturer's specifications and recommendations for the system installed.
- Refrigerant charge and type shall follow manufacturer's recommendations for the unit installed The contractor will certify that the unit has been tested and is leak free.
- All participating contractors must comply with FPC contractor procedures specific to the level for which they are participating.
- 4. All builders or manufacturers currently on the "Trade Efficiency Program" are to be grandfathered into the RNC Program at Level One. It is the responsibility of the FPC representative to encourage each builder to move up to either Level Two or Level Three.
- The contractor must correct any deficiency found in the installation or product when advised by an FPC representative.

¹ Contractor and manufacturer are synonymous.





- The contractor shall indemnify and hold FPC harmless against any and all injuries, damages, claims or costs whatsoever caused by items furnished or services rendered.
- 7. Must meet the RNC technical specifications of either Level One, Level Two, or Level Three.
- 8. If the builder has a model center, FPC will pay to test the duct system for one home per model center to educate the builder as to why duct leakage is undesirable. If the builder does not have a model center, the builder's residence or the home the builder is currently constructing may be used for demonstration purposes.
- 9. The builder or his representative and the builder's air conditioning contractor must be present at the time the educational duct test is conducted. If the builder agrees to participate in Level One prior to the educational test, and the air conditioning contractor is familiar with the RNC Program requirements, then no test is required. If an educational duct test is required, an FPC representative must be present.
- The builder must correct any problems discovered during the duct test before that builder may become certified in the RNC Program.

3. TECHNICAL SPECIFICATIONS ON EQUIPMENT ELIGIBILITY

The RNC Program defines three levels of eligibility and various options within each level with which a home builder may comply in order to receive home certification.

3.1 Level One

Must incorporate any changes to the duct system that are indicated by the educational duct test, and construct duct systems which meet FPC standards.

3.2 Level Two

Meet Level One requirements, and install a high efficiency heat pump with a minimum cooling efficiency of 10.2 EER² (Energy Efficiency Rating), or 11. 5 SEER (Seasonal Energy Efficiency Rating), with a minimum heating efficiency of 7.0 HSPF (Heating Season Performance Factor), or install a higher efficiency heat pump with a minimum cooling efficiency of 11.0 EER² or 12.5 SEER, with a minimum heating efficiency of 7.5 HSPF. Ground source heat pumps must achieve a 2.9 COP (Coefficient of Performance) or higher. *Plus one of the following:*

- 1. Construct duct system in accordance with Manual D (a duct layout diagram must be provided).
- 2. Install a minimum of R-30 attic insulation.
- 3. Install a heat recovery unit.

² NOTE: If the EER value for the unit is available from the manufacturer, then the unit must satisfy the minimum EER criteria. Only if the cooling EER value is not available from the manufacturer may the unit comply with minimum cooling efficiency requirements using the SEER value. All HVAC equipment must be sized in accordance with Manual J.





4. Install a dedicated heat pump water heater.

3.3 Level Three

Homes built under this level shall be at least 30 percent more efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC) as defined by the US Environmental Protection Agency's (EPA) Energy Star Program.

3.4 Cooperative Advertising

The following specifications must be met to be eligible for cooperative advertising:

- 1. Homes must be built to Level Three specifications.
- Advertising may be applied to billboards, Parade of Homes, realtor magazines, or other long-life publications approved by FPC.
- 3. FPC must approve the advertising prior to placing the ad.
- FPC reserves the right to withhold payment for advertising which is untruthful or offensive, FPC shall be the final judge.

4. INCENTIVES

The incentive payment structure builds on thermal and mechanical efficiencies as follows

Level	Incentive One Free Educational Duct Test		Requirements Home must have centrally ducted system	Minimum Cooling Efficiency		Minimum Heating Efficiency	
				EER	SEER	HSPF	COP
Level One							
Level Two	Incentive from Level One Plus	\$100	Level One and electric heat pump, plus Manual D duct design or R-30 attic insulation	10.2	11.5	7.0	2.9
		\$200	Level One and electric heat pump, plus Heat Recovery Unit				
		\$300	Level One and electric heat pump, plus a Dedicated Heat Pump Water Heater				
		\$300	Level One and electric heat pump, plus Manual D duct design or R-30 attic insulation	11.0	12.5	7.5	3.0
		\$400	Level One and electric heat pump, plus a Heat Recovery Unit				
		\$500	Level One and electric heat pump, plus a Dedicated Heat Pump Water Heater				
Level Three	Level Two ince apply for mech equipmen Plus FPC will match 50/50 basis up for Co-Op Adve	anical t h on a to \$50	Home must be at least 30 percent more energy efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC)				





5. INCENTIVE PROCESSING

- The FPC representative will complete an RNC Program form which will record as a minimum the following information: builder's name, subdivision, address or lot and block of certified home, Level number, equipment information (manufacturer, model numbers, EER or SEER, HSPF or COP).
- The builder will sign and date the form, and retain a copy.
- If the home is assigned for inspection, the original RNC Program form is given to the inspector. After the inspection has been successfully completed, the inspector returns the original form to FPC for payment processing.
- If the home is not assigned for inspection, or after it has passed inspection, builders invoices will be processed for payment.
- FPC will then input "work completed" and "amount paid" to the computer system, and file a copy of the program form by builder.

6. **REPORTING REQUIREMENTS**

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

Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT C

REVISED RESIDENTIAL HOME ENERGY IMPROVEMENT PROGRAM PARTICIPATION STANDARDS (Legislative Format)

PROGRAM PARTICIPATION STANDARDS HOME ENERGY IMPROVEMENT PROGRAM (LEGISLATIVE FORMAT)

1. PROGRAM OVERVIEW

The Home Energy Improvement (HEI) Program is an "umbrella" program designed to improve the energy efficiency of existing residential homes. The program seeks to meet the following overall goals:

- Improve customer comfort levels through energy efficient equipment and home thermal integrity.
- 2. Obtain energy and demand reductions that are significant, permanent and measurable.
- 3. Enhance contractor awareness of the capabilities of energy efficient technologies.
- 4. Educate customers about additional opportunities to upgrade home energy efficiency.
- 5. Obtain cost-effective resources from the marketplace.
- 6. Minimize "lost opportunities" in the existing home market

2. ELIGIBILITY REQUIREMENTS

- All measures must have been recommended during an FPC energy audit. Exception: In emergency cases the customer may have a heat pump and/or alternate water heating installed prior to an audit being conducted.
- The residence must be in FPC's service area and be a residential metered customer of FPC.
- 3. Do-it-yourself installations are not eligible for program participation. FPC participating contractors will be utilized to implement the incentive-based components of the HEI program. All work must be done by a participating licensed contractor who is on FPC's participating contractor list for the specific measure. Exception: The Heating, Ventilation and Air Conditioning (HVAC) portion of this program will not have a participating contractor list.
- All installations must be accessible for verification of HEI program standards by an FPC representative.
- 5. New construction homes do not qualify under the HEI program.

Home Energy Improvement Program



- All contractors must comply with FPC contractor procedures and manufacturers' specifications specific to the portion of the HEI Program for which they are participating. Failure to do so may result in termination of participation in any or all FPC programs.
- The contractor is responsible for the work to be performed, the supervision of their employees and the use of contractor's own equipment to meet the work specifications and completion date.
- The contractor must correct any deficiency found in the installation or product when advised by an FPC representative.
- The contractor shall indemnify and hold FPC harmless against any and all injuries, damages, claims or costs, whatsoever, caused by items furnished or services rendered
- 5. The contractor must comply with all Federal, State, and local codes and regulations and have the appropriate license(s) for the work to be performed.
- 6. The Duct Test and Repair contractors and the Insulation contractors must notify their insurance companies to provide FPC with documentation and maintain in force the following insurance policies: (Exception: Section 8 and Section 9 dealing with HVAC contractors is exempt from this provision.)
 - 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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3. INCENTIVES

The incentives payment structure is as follows:

Program Component	Incentive 50% of test cost up to \$25 for the first unit tested 50% of test cost up to \$15 for each additional unit at same address			
Duct				
Test				
Duct Leakage	25% of the repair cost up to a maximum of \$50 per unit for homes with non-ducted electric heat			
Repair	50% of the repair cost up to a maximum of \$100 per unit for homes with ducted electric heat			
Attic	\$75 to bring insulation level up to a minimum of R-19			
Insulation	\$100 to bring insulation level up to a minimum of R-30			
High-Efficiency	\$100 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.5 HSPF/3.1-COP			
Electric Heat Pump	\$300 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 8.0 HSPF/3.3 COP			
High Efficiency Heat Pump	\$250 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.0 HSPF			
Replacing Resistance Heat	\$350 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 7.5 HSPF			
High Efficiency Heat Pump	\$100 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.0 HSPF			
Replacing Heat Pump	\$150 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 7.5 HSPF			
Heat Recovery Unit	\$100			
Dedicated Heat Pump Water Heater	\$200			
0.30005.02	\$25 for high efficiency electric heat pump and			
	either ceiling insulation or			
Supplemental	duct leakage repair			
Incentive Bonus	\$50 for high efficiency electric heat pump and ceiling insulation and			
	duct leakage repair			

Note:

1. A home is eligible to receive an incentive for each heat pump installed based on the efficiency level.

- To qualify for the supplemental bonus, additional measures must be implemented within 90 days from the installation of the heat pump.
- In multi-family structures, FPC reserves the right to request bids from contractors to hold customer costs to a minimum.

4. INCENTIVE PROCESSING

- The FPC representative will complete an HEI Program form which will record as a minimum the following information: customer's name, address, account number, measure installed, equipment information (manufacturer, model numbers, EER or SEER, HSPF or COP).
- 2. The customer will sign and date the form, and retain a copy.
- If the home is assigned for inspection, the original HEI Program form is given to the inspector. After the inspection has been successfully completed, the inspector returns the original form to FPC for payment processing.
- A copy of the customer invoice (itemizing equipment costs, non-equipment costs and the FPC incentive amount); along with the heating/cooling sizing documentation; must accompany the incentive application.
- If the home is not assigned for inspection, or after it has passed inspection, contractors' invoices will be processed for payment.
- FPC will then input "work completed" and "amount paid" to the computer system, and file a copy of the HEI Program form by customer name.
- All Incentive payments for duct test/repair and attic insulation are paid to the contractor with the exception of the supplemental bonus which is posted on the customer's electric bill. <u>HVAC incentives (high efficiency heat pump, heat recovery,</u> and heat pump water heater) will be paid as a credit on the customers bill or a check to the customer.





5. REPORTING REQUIREMENTS

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

6. CEILING INSULATION UPGRADE

6.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. The home must be at least two years old.
- Eligible residences must have whole house electric air conditioning and/or whole house electric heating.
- The weighted average R-value of the existing insulation over the total attic square footage (above conditioned space) must be less than R-12.
- 5. Any structure that has utilized any of FPC'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 FPC with a letter from his/her insurance company stating that the insulation was not covered.
- 6. The total ceiling area to be insulated must be greater than 500 square feet.
- 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 HEI Program unless documentation is provided to FPC stating that the actual existing insulation value is less than R-12.
- 8 Any home with "Knob and Tube Wiring" that is energized is not eligible.1

6.2 Equipment and Installation Specifications

- The insulation must be installed in accordance with the manufacturer's recommendations and specifications.
- All installations must result in an insulation value equal to or greater than R-19 or R-30. Insulation shall be added in increments of either R-11, R-19, R-22, or R-30.
- 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.
- The insulation must be installed in the unconditioned space as a direct application to the attic area over the conditioned space.

¹ National Electrical Code 1990, Article 324, Section 324-4





- The insulation must have a minimum clearance around all recessed lighting and gasfired appliances as required by State, County and local codes.
- The insulation must be installed uniformly, resulting in a minimum R-19 value throughout the entire area including knee walls.²
- 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 HEI Program.
- 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).³

6.3 Contractor Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1.
- 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
- 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 acces^e 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

¹ Florida "1993 Energy Efficiency Code for Building Construction" Section 604.1.A.1 Walls Considered Ceiling Area

³ Florida "1993 Energy Efficiency Code for Building Construction" Section 604.1ABC.1.1 Ceilings With Blown-In Insulation

7. DUCT TEST AND LEAKAGE REPAIR

7.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. Repair recommendations must have been the result of an FPC-approved duct test.
- The customer's duct system must be in adequate condition to accommodate the duct test, and not have been previously usted for the present occupant within a 5 year period.
- 4. The duct must be accessible for repair.
- Multi-family units where one unit is on top of another unit may not be tested or repaired due to health and safety concerns.
- Homes must have centrally-ducted electric cooling and electric heat. If non-space heating combustion appliances exist, then the house must pass a safety test prior to any duct sealing.
- Duct and HVAC systems must be in adequate condition to accommodate duct leakage repair

7.2 Equipment and Installation Specifications

- 1. All equipment installations must meet manufacturers' instructions and specifications
- Only mastic and mastic-plus-embedded fabric systems that are approved by FPC may be used for sealing duct systems. Mastic must be FPC-approved for the type of duct to which the mastic is applied.
- Blower door or duct blaster procedures must be followed as specified in training or manufacturer's instructions, unless otherwise directed by FPC when performing the duct test.

7.3 Contractor Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1.
- Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
- All participating contractors must have attended and successfully completed an FPCapproved 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 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, FPC has adopted the National Fuel Gas Code's "Appendix H: Recommended Procedure for Safety Inspection of an Existing Appliance Installation."

7.4 INSPECTION REQUIREMENTS

- 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

8. HIGH EFFICIENCY ELECTRIC HEAT PUMPS

8.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- The customer must have had an audit within the past two years.

8.2 Equipment and Installation Specifications

- 1. All equipment installations must meet manufacturers' instructions and specifications.
- 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.
- Both air handler and condensing units must be replaced.
- The installed air handler/outdoor condensing unit combination must satisfy both the cooling and heating minimum efficiency requirements.
- 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. All cooling-mode efficiency ratings eligibility will be based on EER if available.⁴
- 7. An HVAC sizing calculation shall be performed by the contractor and shall be attached to the recommendation form when submitted for incentive payment. Cooling and heating design loads shall be determined using Air Conditioning Contractors of America (ACCA) Manual J, or FPC short form Manual J, or American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE). Copies must be provided to the customer. Design conditions shall be those applicable to the FPC service area in which the home is located.

⁴ 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 which will use the COP value listed.





- 8.7. Cooling unit sizing may not exceed the calculated whole house load by 15% or 6,000 BTUh, whichever is larger⁵ The contractor will certify that the unit was sized according to manufacturers specifications.
- 9.8. 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.
- 10.9. Contractors shall certify that the air flow meets the manufacturer's recommendations and specifications for the system installed.
- 11.10. Contractors shall certify that if the equipment installed has a scroll compressor (36,001 BTUh or larger), that a hard start kit was installed either by the contractor or at the factory.
- 12.11. 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.
- 13.12. 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.
- 14.13. All duet connections to equipment being installed will be sealed using mastic and mastic-plus embedded fabric systems that are approved by FPC. If local codes prohibit the use of mastic, pressure sensitive tape meeting UL 181A, Part 1 may be used on fibrous glass duetboard. Pressure sensitive tape applied to non-metal flexible duet shall meet UL 181B, Part 1 specifications. Heat activated tapes applied to fibrous glass duetboard shall meet UL 181A, Part 2. The contractor will be encouraged to use mastic on all new connections.
- 15.14. Air handling units, mechanical closets and enclosed support platforms shall be sealed from unconditioned air.
- 16.15. Heat pump must be all electric.
- Each contractor will be paid a maximum of \$25 per customer account for completing necessary paperwork on eligible installations

8.3 Contractor Requirements

1. Must meet the Contractor Requirements outlined in Section 2.1.

Program Participation Standards

⁶ Florida "1993 Energy Efficiency Code for Building Construction" Section 607.1 ABC 1.1 Allows for oversizing by 20percent. FPC's program is 5 percent more stringent than the State Energy Code.





- 2. Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
- 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.
- The contractor must notify FPC within 30 days if there was an emergency replacement due to equipment failure.

9. HIGH EFFICIENCY ALTERNATE ELECTRIC WATER HEATING

9.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2
- 2. The customer must have had an audit within the past two years.

9.2 Equipment and Installation Specifications

- All heat recovery units must be installed in accordance with manufacturer's specifications.
- 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.
- Heat recovery water heaters must be equipped with a circulating pump and must be Association of Refrigerant Desuperheater Manufacturers (ARDM) certified.
- Heat recovery or dedicated heat pump water heaters must be installed on an electric water heater.
- 5. All equipment shall be new and not refurbished, previously installed, or used
- Each contractor will be paid a maximum of \$25 per customer account for completing necessary paperwork on eligible installations.

9.3 Contractor Requirements

- Must meet the Contractor Requirements outlined in Section 2.1.
- Must be a licensed Mechanical Contractor, Class A, B, or C Air Conditioning contractor.
- A copy of the customer invoice itemizing equipment costs, non-equipment costs, and the FPC incentive amount must accompany the incentive application.
- The contractor must notify FPC within 30 days if there was an emergency replacement due to equipment failure.

10. HIGH EFFICIENCY ELECTRIC CENTRAL AIR CONDITIONERS

10.1 Participation Requirements

- 1. Must meet the Eligibility Requirements outlined in Section 2.
- 2. Must meet the Participation Requirements outlined in Section 8.1.

10.2 Equipment and Installation Specifications

1. Must meet the Equipment and Installation Specifications outlined in Section 8.2.

10.3 Contractor Qualification Requirements

- 1. Must meet the Contractor Requirements outlined in Section 2.1.
- 2. Must meet the Contractor Requirements outlined in Section 8.3.

11. INSTALLMENT BILLING

- As an alternative to receiving an incentive payment, customers may opt to finance up to a maximum of \$500 through installment billing. For each measure, a customer can use installment billing to finance up to 90% of the total installed cost or repair cost.
- Installment billing allows the customer to spread the cost over 12 months interest free. The installment billing payments will appear as a separate line item on the customer's monthly electricity bill from FPC.
- Installment billing can be used for any combination of the following qualified measures: ceiling insulation upgrade, duct leakage repair, high efficiency electric heat pump, heat recovery unit, and dedicated heat pump water heater.
- If the customer installs additional qualified measures, a new installment billing arrangement can be set up only after the initial or current "loan" is paid off.
- The customer must own the home in which the improvements are being made. The customer shall not have been cut for non-payment, received a credit extension or have any returned checks within the past two years.

12. FINANCING ASSISTANCE

- Financing Assistance is another alternative to the direct incentive payment. FPC will work with finance companies and attempt to offer eligible program participants a financing option at below market rates. Eligible customers may apply appropriate program incentives to reduce the principle amount or to lower interest rates on installment loans.
- The finance company will qualify the borrower and arrange for the loan using their normal procedures.
- FPC will coordinate with HVAC contractors and various finance companies to offer reduced interest loans on mechanical installations.
- HVAC contractors will be responsible for presenting incentive options to the customer and arranging financing with participating finance companies, as needed.
- Contractors are required to submit to FPC an invoice for the incentive amount and a copy of the customer invoice itemizing all costs.
- The finance company will pay the contractor the total amount to be financed minus the incentive amount.





Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT D

REVISED RESIDENTIAL NEW CONSTRUCTION PROGRAM PARTICIPATION STANDARDS (Legislative Format)

PROGRAM PARTICIPATION STANDARDS RESIDENTIAL NEW CONSTRUCTION PROGRAM (Legislative Format)

1. PROGRAM OVERVIEW

The Residential New Construction (RNC) Program promotes energy efficient new home construction in order to provide residential customers with more efficient cooling and heating consumption combined with improved environmental comfort. The objectives of the RNC Program include the following:

- Educate home builders and manufacturers about energy efficient new construction building design to create a supply of efficient homes.
- Educate customers and real estate agents about the benefits of energy efficient home design to create the demand for energy efficient homes.
- 3. Obtain energy and demand impacts that are significant, permanent, and measurable.
- 4. Obtain cost-effective resources from the marketplace.
- 5. Minimize "lost opportunities" in the new construction market.

2. ELIGIBILITY REQUIREMENTS

- 1. The home must be either single family detached or single family attached (e.g. townhouses).
- 2. The home must be new -- additions do not qualify for this RNC program.
- The home must be built by an RNC Program-certified builder or manufacturer meeting FPC standards. The builder must be a licensed building contractor and must comply with all Federal, State, and local codes. Manufacturer must comply with all HUD requirements.
- The house must be accessible for verification of RNC Program standards by an FPC representative.
- 5. The home must be located in FPC's service area and must be metered by FPC.
- The heating source must be a high efficiency electric heat pump(s). No resistance heat is allowed except as back-up supplemental heat.

Residential New Construction Program





2.1 Equipment and Installation Specifications

- All equipment installations must meet manufacturer's instructions and specifications. Any contractor failing to meet manufacturer's specifications and FPC procedures may result in termination of participation in any or all FPC programs.
- Cooling unit sizing may not exceed the calculated whole house load by 15% or 6,000 Btuh, whichever is larger.
- 3-2. Equipment specification shall be according to Air Conditioning and Refrigeration Institute and Department of Energy test standards or by an FPC-recognized engineering standard using sound engineering estimates.
- 4.3. Minimum wall insulation is R-4 for masonry and R-11 for frame.
- 5.4. Equipment information such as model numbers, manufacturers, and Btuh capacity shall be made accessible to the FPC representative.
- 6.5. All materials used to seal duct systems must be approved by FPC.
- 7.6. Heat recovery water heaters must be equipped with a circulating pump and must be Association of Refrigerant Desuperheater Manufacturers (ARDM) certified, and be installed on an electric water heater.
- 8.7. If the equipment installed uses a scroll compressor 36,001 Btuh or larger, the air conditioning contractor or builder shall certify that a hard start kit was installed by the air conditioning contractor or the factory.
- 9.8. Heat pump must be all electric.

2.2 Contractor¹ Requirements

- Contractors shall certify that the air flow meets manufacturer's specifications and recommendations for the system installed.
- Refrigerant charge and type shall follow manufacturer's recommendations for the unit installed. The contractor will certify that the unit has been tested and is leak free.
- All participating contractors must comply with FPC contractor procedures specific to the level for which they are participating.
- 4. All builders or manufacturers currently on the "Trade Efficiency Program" are to be grandfathered into the RNC Program at Level One. It is the responsibility of the FPC representative to encourage each builder to move up to either Level Two or Level Three.

Contractor and manufacturer are synonymous.





- The contractor must correct any deficiency found in the installation or product when advised by an FPC representative.
- The contractor shall indemnify and hold FPC harmless against any and all injuries, damages, claims or costs whatsoever caused by items furnished or services rendered.
- Must meet the RNC technical specifications of either Level One, Level Two, or Level Three.
- 8. If the builder has a model center, FPC will pay to test the duct system for one home per model center to educate the builder as to why duct leakage is undesirable. If the builder does not have a model center, the builder's residence or the home the builder is currently constructing may be used for demonstration purposes.
- 9. The builder or his representative and the builder's air conditioning contractor must be present at the time the educational duct test is conducted. If the builder agrees to participate in Level One prior to the educational test, and the air conditioning contractor is familiar with the RNC Program requirements, then no test is required. If an educational duct test is required, an FPC representative must be present.
- The builder must correct any problems discovered during the duct test before that builder may become certified in the RNC Program.
- 11. Completed Manual J (or equivalent) forms, along with actual installed equipment nameplate data, must be submitted to FPC for each certified home. If any modifications are made to the model, such as adding square footage to conditioned area or glass, the model will be considered new, and a Manual J form will be required for that new model. Design conditions shall be those applicable to the FPC service area in which the house is located.

3. TECHNICAL SPECIFICATIONS ON EQUIPMENT ELIGIBILITY

The RNC Program defines three levels of eligibility and various options within each level with which a home builder may comply in order to receive home certification.

3.1 Level One

Must incorporate any changes to the duct system that are indicated by the educational duct test, and construct duct systems which meet FPC standards.

3.2 Level Two

Meet Level One requirements, and install a high efficiency heat pump with a minimum cooling efficiency of 10.2 EER² (Energy Efficiency Rating), or 11. 5 SEER (Seasonal Energy Efficiency Rating), with a minimum heating efficiency of 7.5 7.0 HSPF (Heating Season Performance Factor), or install a higher

² NOTE: If the EER value for the unit is available from the manufacturer, then the unit must satisfy the minimum EER criteria. Only if the cooling EER value is not available from the manufacturer may the unit comply with minimum cooling efficiency requirements using the SEER value. All HVAC equipment must be sized in accordance with Manual J.





efficiency heat pump with a minimum cooling efficiency of 11.0 EER² or 12.5 SEER, with a minimum heating efficiency of 7.5 HSPF. Ground source heat pumps must achieve a-3.4 2.9 COP (Coefficient of Performance) or higher. Plus one of the following:

- 1. Construct duct system in accordance with Manual D (a duct layout diagram must be provided).
- 2. Install a minimum of R-30 attic insulation.
- Install a heat recovery unit.
- Install a dedicated heat pump water heater.

3.3 Level Three

Most Lovel One and Two requirements, and one of the following:

- Install a higher efficiency heat pump with a minimum cooling efficiency of 11.0 EER¹ or 12.5 SEER, with a minimum heating efficiency of 8.0 HSPF. Ground source heat pumps must achieve a 3.3 COP or higher.
- 2. Install a heat-recovery unit-
- 3. Install a dedicated heat pump water heater-

Homes built under this level shall be at least 30 percent more efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC) as defined by the US Environmental Protection Agency's (EPA) Energy Star Program.

3.4 Cooperative Advertising

The following specifications must be met to be eligible for cooperative advertising

- 1. Homes must be built to Level Three specifications
- Advertising may be applied to billboards, Parade of Homes, realtor magazines, or other long-life publications approved by FPC.
- 3. FPC must approve the advertising prior to placing the ad.
- FPC reserves the right to withhold payment for advertising which is untruthful or offensive; FPC shall be the final judge.





4. INCENTIVES

The incentive payment structure builds on thermal and mechanical efficiencies as follows

Level	Incentive		Requirements		m Cooling ciency		n Heating
				EER	SEER	HSPF	COP
Level One	One Free Educa Duct Test		Home must have centrally ducted system				
Level Two	Incentive from Level One Plus	\$100	Level One and electric heat pump, plus Manual D duct design or R-30 attic insulation	10-2	44- 5	7.5	34
		\$200	Level One and electric heat pump, plus Heat Recovery Unit	10.2	11.5	7.9	2.9
		\$300	Level One and electric heat pump, plus a Dedicated Heat Pump Water Heater				
		<u>\$300</u>	Level One and electric heat pump. plus Manual D duct design or R-30 attic insulation				
		<u>\$400</u>	Level One and electric heat pump, plus a Heat Recovery Unit	11.0	12.5	7.5	3.0
		<u>\$500</u>	Level One and electric heat pump, plus a Dedicated Heat Pump Water Heater				
	Incentives from Level-One	\$100	Level One and Level Two: plus-heat-recovery-unit				
	and Level Two Plus	\$200	Level One and Level Two; plus dedicated heat pump water heater				
Level		\$300	Level One and Level Two; plus electric heat-pump	11.0	42-5	8.0	3.3
Three	Incentive from Level-One	\$400	Level One and Level Two; plus electric heat pump and heat-recovery unit	+1-0	12.5	8-0	3.3
	Plus	\$500	Level One and Level Two. plus electric heat pump and dedicated heat pump water heater	11-0	+2 5	8.0	3-3
	Up 40 \$50		FPC will match on a 50/50 basis for Co-Op Advertising				
Level Three	Level Two ince apply for mech equipmen Plus FPC will match 50/50 basis up 1 for Co-Op Adve	anical 1 1 on a 10 \$50	Home must be at least 30 percent more energy efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC)				

Noter

1. All centrally ducted HVAC equipment in each home must meet minimum efficiency requirements for the level of participation for which the home is certified. Example: A home has two heat pumps. One heat pump has a SEER of 11.5, the other has a SEER of 12.5. The home will be certified as a Level Two home. The incentive paid will be \$100 for the SEER of 11.5 and \$300 for the SEER of 12.5.



- The FPC representative will complete an RNC Program form which will record as a minimum the following information: builder's name, subdivision, address or lot and block of certified home, Level number, equipment information (manufacturer, model numbers, EER or SEER, HSPF or COP).
- 2. The builder will sign and date the form, and retain a copy.
- If the home is assigned for inspection, the original RNC Program form is given to the inspector. After the inspection has been successfully completed, the inspector returns the original form to FPC for payment processing.
- If the home is not assigned for inspection, or after it has passed inspection, builders invoices will be processed for payment.
- FPC will then input "work completed" and "amount paid" to the computer system, and file a copy of the program form by builder.

6. **REPORTING REQUIREMENTS**

The reporting requirements for this program will follow Rule 25-17.0021 (5) of the Florida Administrative Code. Fetition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT E

DETAILED EXPLANATION OF REVISIONS TO THE RESIDENTIAL HOME ENERGY IMPROVEMENT PROGRAM PARTICIPATION STANDARDS





Florida Power Corporation Residential Home Energy Improvement Program Proposed Revisions to the Program Participation Standards

- 1. On page 2, "Contractor Requirements," Item number 6 is being revised as follows:
 - 6. The Duct Test and Repair contractors and the Insulation contractors must notify their insurance companies to provide FPC with documentation and maintain in force the following insurance policies: <u>(Exception: Section 8 and Section 9</u> <u>dealing with HVAC contractors is exempt from this provision.)</u>
 - 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.

Insurance is required by the Department of Business and Professional Regulation for HVAC contractor licensing in the state of Florida. Duplication of this requirement is unnecessary and burdensome to implement

2. The proposed changes to page 3 deal with equipment efficiency levels and incentives. Regarding equipment efficiencies, FPC is requesting that the HSPF be changed from 7.5 to 7.0 and from 8.0 to 7.5, to match a greater potential of eligible units currently manufactured in this range. There are too few units with 12.0 or higher SEER's that meet the HSPF eligibility requirements. For example, there is only one package unit that meets the 12.0 SEER and 7.5 HSPF combination, and none that meet the higher SEER requirement.

FPC also requests a change to the incentive amounts noted in the table on page 3. When the incentive is based on the actual equipment being replaced, (heat pump replacing electric resistance heat) a higher incentive can then be offered to influence the customers purchasing decision. This is our objective in making this request. We believe more customers will request a high efficiency heat pump based on the higher incentive. Recent contractor and customer surveys have indicated that these changes are consistent with their concerns and will help us meet our objective.





Incorporating these changes would alter the table on page 3 as follows:

Program Component	Incentive
High Efficiency	\$100 for minimum cooling officiency of 10.2 EER/12.0 SEER and minimum heating officiency of 7.5 HSPF/3.1 COP
Electric Heat Pump	\$300 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 8.0 HSPF/3.3 COP
High Efficiency Electric Heat Pump	\$250 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.0 HSPF
Replacement for Resistance Heat	\$350 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 7.5 HSPF
High Efficiency Electric Heat Pump	\$100 for minimum cooling efficiency of 10.2 EER/12.0 SEER and minimum heating efficiency of 7.0 HSPF
Replacement for Heat Pump	\$150 for minimum cooling efficiency of 11.0 EER/13.0 SEER and minimum heating efficiency of 7.5 HSPF

- 3. On page 4, "Incentive Processing," Item 5, the proposed changes are as follows:
 - A copy of the customer invoice (itemizing equipment costs, non-equipment costs and the FPC incentive amount), along with the heating/cooling sizing documentation; must accompany the incentive application.

The requirement to itemize equipment costs from non-equipment cost is proprietary information, and should remain so. The strikeout dealing with sizing documentation is discussed in Section 8, Item 7 on page 10.

- 4. Contractor and customer surveys indicate that the rebate will be more effective if paid directly to the customer, as opposed to the contractor. The current structure eliminates smaller contractors from participating because of cash flow concerns. They simply can not afford to carry this incentive and wait for Florida Power Corporation to refund this amount. As a result FPC is proposing the following change in Section 4, Item 7, page 4.
 - 7. All Incentive payments for duct test/repair and attic insulation are paid to the contractor with the exception of the supplemental bonus which is posted on the customer's electric bill. <u>HVAC incentives (high efficiency heat pump, heat recovery, and heat pump water heater) will be paid as a credit on the customers bill or a check to the customer.</u>

- Section 6.1, Item 3, page 6, of the Ceiling Insulating Upgrade portion of this program, the proposed change is as follows:
 - Eligible residences must have whole house electric air conditioning and/or whole house electric heating.

This item was also to have been in the original filing and was omitted in error. This allows Florida Power Corporation to not pay for installing insulation without seeing a reduction in energy usage.

 FPC requests approval to include the following as a new section labeled "7.4 Inspector Requirements" on page 9. It should have been included in the original filing, but was inadvertently omitted.

7.4 Inspector Requirements

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
- In the High Efficiency Electric Heat Pump portion of this program, FPC proposes to delete Item 7 in Section 8.2 on page 10. The remaining items in Section 8.2 will also be renumbered to reflect this proposed deletion.
 - 7. An HVAC sizing calculation shall be performed by the contractor and shall be attached to the recommendation form when submitted for incentive payment. Cooling and heating design loads shall be determined using Air Conditioning Contractors of America (ACCA) Manual J, or FPC short form Manual J, or American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE). Copies must be provided to the customer. Design conditions shall be those applicable to the FPC service area in which the home is located.

Contractors are responsible for certifying that unit sizing is according to manufacturers' specifications.

- In the High Efficiency Electric Heat Pump portion of this program, Section 8.2, Item 8, page 11, FPC proposes the following change:
 - 8.7. Cooling unit sizing may not exceed the calculated whole house load by 15% or 6,000 BTUh, whichever is larger.⁵ The contractor will certify that the unit was sized according to manufacturers specifications.

This has the same meaning as the change above regarding sizing calculations.

- Also under the High Efficiency Electric Heat Pump portion of this program, Section 8.2, Item 14, page 11, FPC proposes the following change:
 - 1413. All duct connections to equipment being installed will be sealed using mastic and mastic plus embedded fabric systems that are approved by FPC. If local codes prohibit the use of mastic, pressure sensitive tape meeting UL 181A, Part 1 may be used on fibrous glass ductboard. Pressure sensitive tape applied to non-metal flexible duct shall meet UL 181B, Part 1 specifications. Heat activated tapes applied to fibrous glass ductboard shall meet UL 181A, Part 2. The contractor will be encouraged to use mastic on all new connections.

It has been discovered during inspections that most contractors do not know how to use mastic properly. If there is any moisture on the duct connection the mastic will run off after the contractor has applied the mastic. The customer must be told not to run the A/C unit for several hours to one day, depending on the humidity, to allow the mastic to harden. It will take a few years to educate the A/C contractors and win their support for using mastic. For these reasons, Florida Power Corporation wishes to alter the above item in Section "8.2 Equipment and Installation Specifications" of the High Efficiency Electric Heat Pump program component.

- In the High Efficiency Electric Heat Pumps portion of this program, on page 11, FPC proposes adding the following item to Section "8.2 Equipment and Installation Specifications":
 - Each contractor will be paid a maximum of \$25 per customer account for completing necessary paperwork on eligible installations.

A \$25 incentive for completing the paperwork and selling higher efficiency equipment will increase A/C contractor participation resulting in the sale of more energy efficient units.

 In the High Efficiency Alternate Electric Water Heating portion of this program, FPC requests adding the following new provision on page 13, Section 9.2, under "Equipment and Installation Specifications":





 Each contractor will be paid a maximum of \$25 per customer account for completing necessary paperwork on eligible installations.

Again, FPC believes a \$25 incentive for completing the paperwork and selling higher efficiency equipment will increase A/C contractor participation resulting in the sale of more energy efficient water heating units.

- 12. On page 15 Section 12, Items 5 and 6, will be deleted as follows:
 - Contractors are required to submit to FPC an invoice for the incentive amount and a copy of the customer invoice itemizing all costs.
 - The finance company will pay the contractor the total amount to be financed minus the incentive amount.

These two items deal with the contractor receiving the invoice. FPC is requesting this procedure to be changed to allow FPC to pay the customer. If approved, Items 5 and 6 would no longer be relevant.

 A cost-effectiveness evaluation of the Home Energy Improvement Program containing the proposed revisions to the Participation Standards shows that the program passes all three of the Commission-approved tests of cost-effectiveness.





Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT F

DETAILED EXPLANATION OF REVISIONS TO THE RESIDENTIAL NEW CONSTRUCTION PROGRAM PARTICIPATION STANDARDS





Florida Power Corporation Residential New Construction Program Proposed Revisions to the Program Participation Standards

- On page 2 in the "Equipment and Installation Specifications" section, FPC proposes to delete Item 2, and renumber the remaining items.
 - Cooling unit sizing may not exceed the calculated whole house load by 15% or 6,000 BTUh, whichever is larger.

This requirement is not needed. The Florida State Energy Code for New Construction deals with sizing of equipment and it is by law the responsibility of local building officials.

- On page 2 in the "Equipment and Installation Specifications," Item 7, the following addition is requested:
 - 7.6. Heat recovery water heaters must be equipped with a circulating pump and must be Association of Refrigerant Desuperheater Manufacturers (ARDM) certified, and be installed on an electric water heater.

This requirement is being added to assure that FPC is reducing electric energy usage when paying an incentive.

- On page 3, Section "2.2 Contractor Requirements," the following section is requested to be deleted:
 - 11. Completed Manual J (or equivalent) forms, along with actual installed equipment nameplate data, must be submitted to FPC for each certified home. If any modifications are made to the model, such as adding square footage to conditioned area or glass, the model will be considered new, and a Manual J form will be required for that new model. Design conditions shall be those applicable to the FPC service area in which the house is located.

Proper sizing is required by the Florida State Energy Code.

4. On page 4, Section "3. Technical Specifications on Equipment Eligibility," FPC is requesting that the current equipment eligibility requirements under "Level Three" be incorporated under "Level Two." Also, FPC proposes lowering the HSPF from 7.5 to 7.0 and from 8.0 to 7.5, to match what is actually being manufactured. There are too few units with a SEER of 11.5 and 12.5 that have as high an HSPF as we are currently





requiring. For example, there is only one package unit that meets the 11.5 SEER and 7.5 HSPF requirement, and none which meet the higher SEER requirement.

In addition, FPC desires to participate in a National program called Energy Star. This program is offered by the United States Environmental Protection Agency (EPA), and allows FPC to use the EPA logo for identification purposes. FPC proposes a new Level Three that would incorporate the requirements of the Energy Star Program. Homes built under this level shall be at least 30 percent more efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC).

To accomplish these changes, FPC proposes the following changes to Section "3. Technical Specifications on Equipment Eligibility" on page 4:

3.2 Level Two

Meet Level One requirements, and install a high efficiency heat pump with a minimum cooling efficiency of 10.2 EER¹ (Energy Efficiency Rating), or 11.5 SEER (Seasonal Energy Efficiency Rating), with a minimum heating efficiency of 7.5 7.0 HSPF (Heating Season Performance Factor), or install a higher efficiency heat pump with a minimum cooling efficiency of 11.0 EER¹ or 12.5 SEER, with a minimum heating efficiency of 7.5 HSPF. Ground source heat pumps must achieve a 3.1 2.9 COP (Coefficient of Performance) or higher. Plus one of the following:

- Construct duct system in accordance with Manual D (a duct layout diagram must be provided).
- Install a minimum of R-30 attic insulation.
- Install a heat recovery unit.
- Install a dedicated heat pump water heater.
- 3.3 Level Three

Meet Level One and Two requirements, and one of the following:

- Install a higher officiency heat pump with a minimum cooling efficiency of 11.0 EER¹ or 12.5 SEER, with a minimum heating efficiency of 8.0 HSPF. Ground source heat pumps must achieve a 3.3 COP or higher.
- 2. Install a heat recovery unit.
- 3. Install a dedicated heat pump water heater.





Homes built under this level shall be at least 30 percent more efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC) as defined by the US Environmental Protection Agency's (EPA) Energy Star Program.

5. Many of the same changes listed above also need to be incorporated into the table on page 6, Section "4. Incentives." That table will be revised as follows:

Level	Incentive		Requirements	Minimum Effici	Cooling	Minimum Effici	Heating
	NIT COL 19			EER	SEER	HSPF	COP
Level One	One Free Educe Duct Test		Home must have centrally ducted system				
Level Two	Incentive from Level One Plus	\$100	Level One and electric heat pump, plus Manual D duct design or R-30 attic insulation	10.2	++.5	7.5	3.4
	7	\$200	Level One and electric heat pump, plus Heat Recovery Unit	10.2	11.5	7.0	2.9
		<u>\$300</u>	Level One and electric heat pump, plus a Dedicated Heat Pump Water Heater				
		<u>\$300</u>	Level One and electric heat pump, plus Manual D duct design or R-30 attic insulation				
		<u>\$400</u>	Level One and electric heat pump. plus a Heat Recovery Unit	1170	12.5	7.5	3.0
		<u>\$500</u>	Level One and electric heat pump. plus a Dedicated Heat Pump Water Heater				
	Incentives from Level One	\$100	Level One and Level Two, plus heat recovery unit				
	and Lovel Two Plus	\$200	Lovel One and Lovel Two, plus dedicated heat pump water heater	1			
Lovel		\$300	Level One and Level Two, plus electric heat pump	+++-0	12.5	8.0	3.3
Three	Incentive from Lovel One Plus	\$400	Level One and Level Two, plus electric heat pump and heat-recovery unit	++.0	+2.5	8.0	3.3
		\$500	Level One and Level Two, plus-electric heat-pump and dedicated heat pump water heater	+1.0	12.5	8.0	3.3
	Up-to \$50		FPC will match on a 50/50 basis for Co-Op-Advertising				
Level Three	Level Two ince apply for mech equipmen Plus FPC will match 50/50 basis up for Co-Op Adve	anical I I on a to \$50	Home must be at least 30 percent more energy efficient than the Council of American Building Officials (CABO) 1993 Model Energy Code (MEC)				

Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT G

COST-EFFECTIVENESS TESTS FOR THE RESIDENTIAL HOME ENERGY IMPROVEMENT PROGRAM WITH REVISED PARTICIPATION STANDARDS

HOME ENERGY IMPROVEMENT PROGRAM: RATE IMPACT MEASURE TEST

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PARTICIPANT TEST

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		79811	12914	0	92725	45419	0	45419	47306
UT<Y DISCOUNT RATE: 8.67%					UTHUT	Y DISCOUNT RATE			

0.5

PROGRAM: HOME ENERGY IMPROVEMENT

TOTAL RESOURCE COST TEST

BENEFIT/COST RATIO (COL. 5/COL. 11)





Petition of Florida Power Corporation For Approval of Revised Program Participation Standards

ATTACHMENT H

COST-EFFECTIVENESS TESTS FOR THE RESIDENTIAL NEW CONSTRUCTION PROGRAM WITH REVISED PARTICIPATION STANDARDS

PROGRAM: RESIDENTIAL NEW CONSTRUCTION

RATE IMPACT MEASURE TEST

PROGRAM: RESIDENTIAL NEW CONSTRUCTION

TOTAL RESOURCE COST TEST

11) TOTAL A FUEL & CAM TA SAVINGS C 540001 10 100 100 100 100 100 100 100 100	AP. PANTICPANT S. BEVEFITS BEVEFITS BEVEFITS 100001 1000001 1000000	(5) TOTAL BENEFITS (1000) 10 10 10 10 10 10 11 15 10 15 11 15 10 15 10 10 10 10 10 10 10 10 10 10 10 10 10	(6) PANTICIPANT COSTS COSTS 5(000) 1406 1969 1969 1969 1969 1969 1969 1969 11	(7) TOTAL FUEL & OAM INCREASE 410001 0 0 0 84 84 242	(B) INCREASED TAD CAP. COSTS 910001	(9) INCREASED GEN CAP COSTS F(000)	1101 UTILITY PROGRAM COSTS	(11) TOTAL COSTS	121
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	•	1267	12	108	0	0	0	118	4853
232 2820	0	5024	2	0	0	0	0	1	5011
725 2939	•	4852	428	0	0	0	•	428	1424
917 3062	•	4972	1219	0	0	0	0	1219	3753
79 3191	•	6573	2396	0	0	0	0	2396	1716
	•	5809	4077	0	0	0	0	4077	1792
0 3464 2	•	6017	4115	49	0	•	•	4164	1853
	•	5034	4170	0	0	0	•	4170	1764
2018 26 3761 2726	•	6513	4251	0	0	0	•	4251	2262
2019 119 3919 2730	0	6768	4350	0	0	0	•	4350	2418
2020 0 4084 2994	•	7078	4433	88	0	0	•	4595	2483
2021 202 4256 2900	0	7358	18	0	0	0	•	18	7340
2022 103 4434 2693	•	7230	19	0	0	0	0	18	7211
2023 54 4621 3155	0	7830	8	0	0	0	•	8	7810
2024 0 4815 3209	0	8024	12	12	0	0	0	52	7972
2025 69 5017 3255	0	1418	5	•	0	0	0	ñ	8320
NOMINAL 4423 78093 52879	0 0	135395	54220	168	48	0	3308	58407	76963
1170 16985 11882	2 0	75005	18775	611	38	0	2058	21210	8827
			UTUTY DISCOUNT RATE:	UTILITY DISCOUNT RATE:	8.07%				

PROGRAM: RESIDENTIAL NEW CONSTRUCTION

		BENE	FITS	_		COSTS		
YEAR	(1) SAVINGS IN PARTICIPANT'S BELL 6(000)	(2) INCENTIVE PAYMENTS \$(000)	(3) OTHER PARTICIPANT BENEFITS 610001	(4) TOTAL BENEFITS \$(000)	ISI PARTICIPANT' COSTS \$10001	i6) PARTICIPANT'S BEL NCREASE 6(000)	(7) TOTAL COSTS \$(000)	(B) NET BENEFITS TO PARTICIPANTS \$1000)
1995	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0
1997	25	64	0	89	348	0	345	-257
1998	98	186	0	284	1008	0	1006	722
1999	421	368	0	789	1989	0	1989	1200
2000	818	628	0	1446	3393	0	3393	-1947
2001	1282	634	0	1916	3425	0	3425	1509
2002	1728	642	ō	2370	3472	0	3472	-1102
2003	2189	655	0	2844	3541	0	3541	-697
2004	2663	670	0	3333	3623	ō	3623	-290
2005	3143	693	0	3836	3750	0	3750	88
2006	3259	0	0	3259	11	0	11	3248
2007	3349	õ	o	3349	11	0	11	3338
2008	3442	ō	0	3442	12	0	12	3430
2009	3538	0	0	3538	12	0	12	3526
2010	3636	ō	0	3636	12	0	12	3624
2011	3737	0	0	3737	13	0	13	3724
2012	3823	0	0	3823	428	0	428	3395
2013	3929	0	ō	3929	1219	o	1219	2710
2014	4057	0	0	4057	2396	0	2396	1661
2015	4169	ō	ō	4109	4077	0	4077	92
2016	4285	0	0	4285	4115	0	4115	170
2017	4361	0	0	4361	4170	0	4170	191
2018	4526	0	0	4526	4251	0	4251	275
2019	4650	0	0	4650	4350	0	4350	300
2020	4765	0	0	4765	4499	0	4499	266
2021	4912	0	o	4912	18	0	18	4894
2022	5036	0	0	5038	19	0	19	5017
2023	5188	0	o	5188	20	0	20	5168
2024	5333	0	0	5333	21	0	21	5312
2025	5441	0	0	5441	21	0	21	5420
OMINAL	97803	4540	0	102343	54220	0	54220	48123
IPV	22595	2577	0	25173	18775	0	18775	6398

PARTICIPANT TEST

UTLITY DISCOUNT RATE: 8.67%

BENEFIT/COST RATIO (COL. 4/COL. 7): 1.34