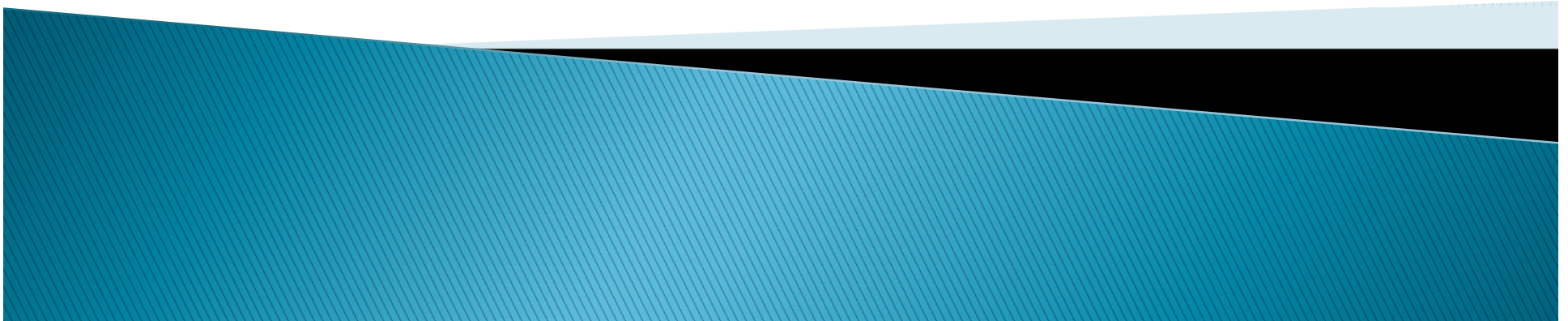


Actual Savings behind the Whole-House Systems Approach to Energy Efficiency

Nick Taylor
UF-PREC
IFAS In-Service Training
September 29, 2011

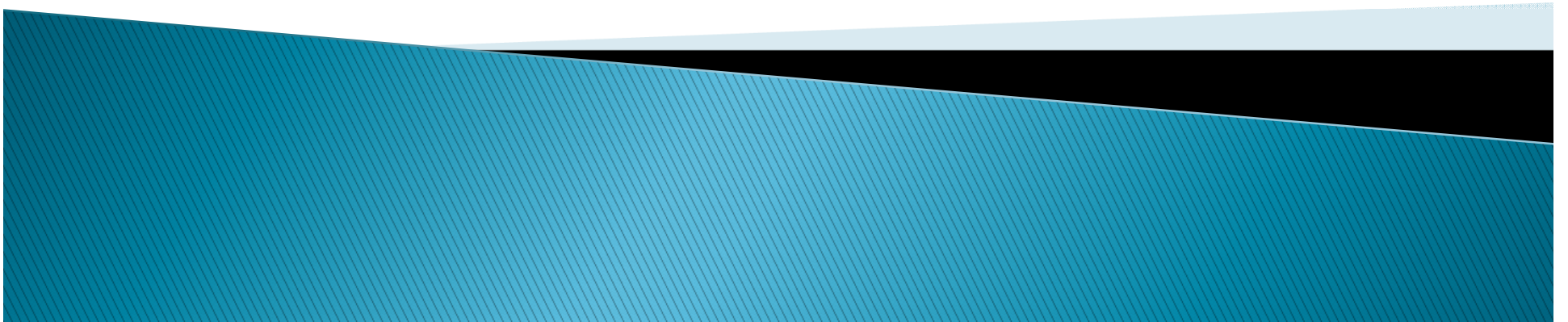


PREC Energy Research

- ▶ Utility Demand Side Management
- ▶ National Certification Programs
- ▶ State Weatherization Programs
- ▶ Data Visualization

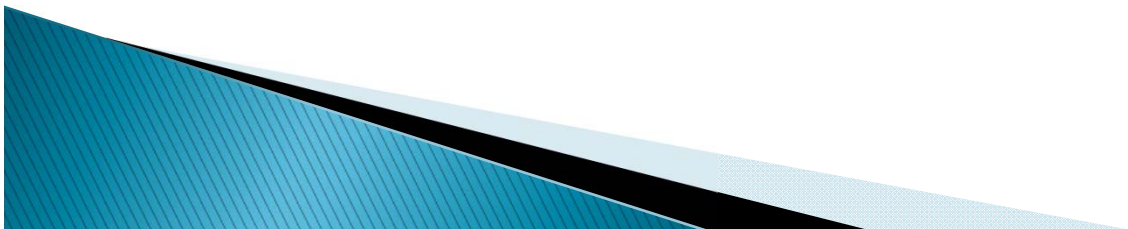


Individual Upgrades



Step 1: Air Sealing

- ▶ Average Cost: ?
- ▶ First Year Energy Savings: ?
- ▶ First Year Cost Savings: ?
- ▶ Simple ROI: ?



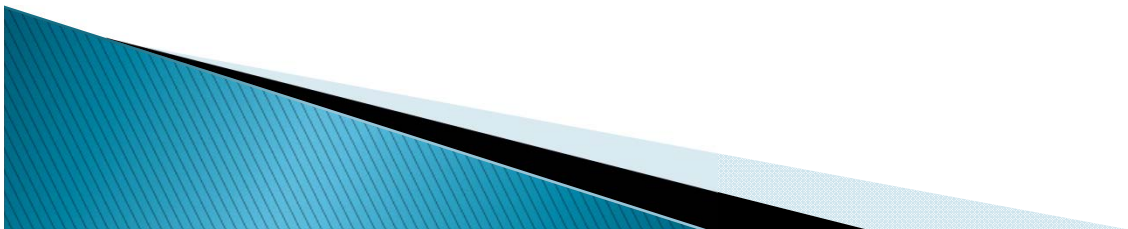
Step 2: Duct Sealing

- ▶ Average Cost: \$605
- ▶ First Year Energy Savings: 654 kWh
- ▶ First Year Cost Savings: \$98
- ▶ Simple ROI: 6.17 years



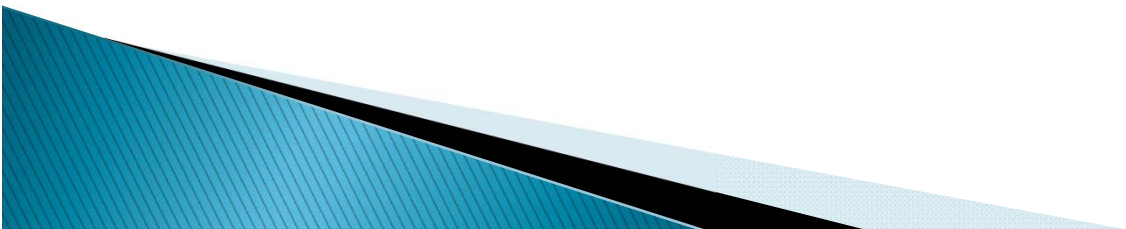
Step 3: Insulation

- ▶ Average Cost: \$823
- ▶ First Year Energy Savings: 998 kWh
- ▶ First Year Cost Savings: \$150
- ▶ Simple ROI: 5.5 years



Step 4: Windows

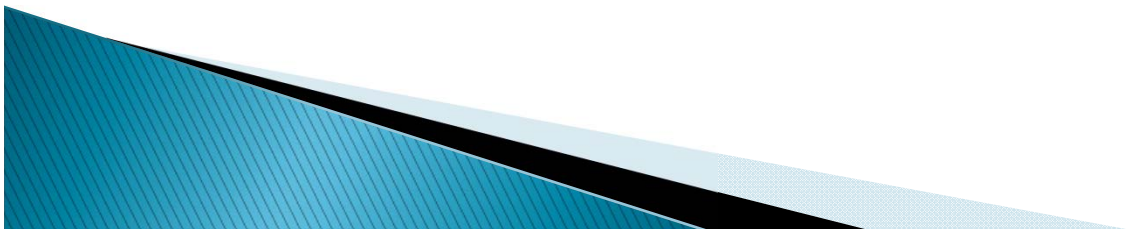
- ▶ Average Cost: ?
- ▶ First Year Energy Savings: ?
- ▶ First Year Cost Savings: ?
- ▶ Simple ROI: ?



Step 5: HVAC

- ▶ Average Cost: \$3,312
- ▶ First Year Energy Savings: 1,610 kWh
- ▶ First Year Cost Savings: \$242
- ▶ Simple ROI: 13.7 years

- ❖ Calculations above based on \$3,500 base model replacement for HVAC and \$0.15 per kWh.
- ❖ Total Cost for these upgrades was \$6,813 and ROI was 28 years.

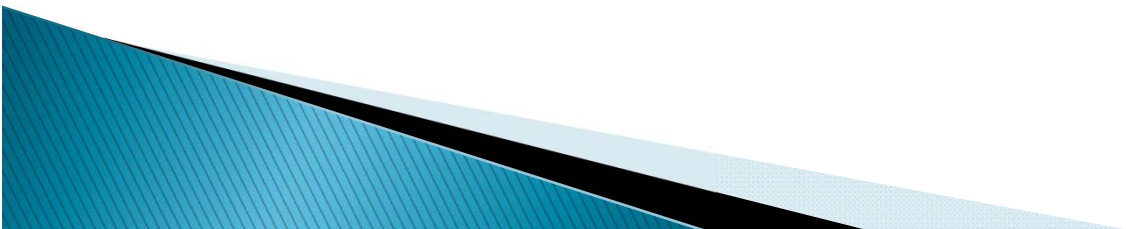


Step 6: Lighting and Appliances

Removing Second Refrigerator

- ▶ Average Cost: \$0
- ▶ First Year Energy Savings: 555 kWh*
- ▶ First Year Cost Savings: 83
- ▶ Simple ROI: Immediate

❖ Data from New Smyrna Beach Utility



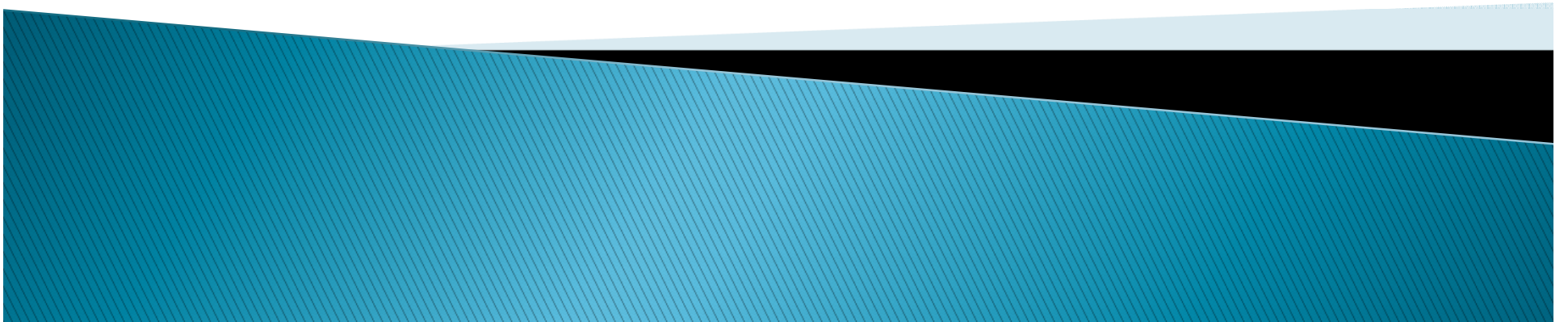
Step 6: Lighting and Appliances

Pool Pump Replacement

- ▶ Average Cost: \$1,530
- ▶ First Year Energy Savings: 1,252 kWh
- ▶ First Year Cost Savings: \$188
- ▶ Simple ROI: 8.1 years



Whole-House Programs



Home Performance with Energy Star

- ▶ Average Cost: \$4,742
 - ▶ First Year Energy Savings: 1,434 kWh
 - ▶ First Year Cost Savings: \$215
 - ▶ Simple ROI: 22 years
-
- ❖ Calculations above based on \$3,500 base model replacement for HVAC and \$0.15 per kWh.
 - ❖ Total Cost for these upgrades was \$8,241.60.

Home Performance with Energy Star

- ▶ **Rebate Offer**
- ▶ Up to \$1,435 is available. Customers must choose at least two bundled items and at least one customer choice item per package in order to receive the rebate.
- ▶ **Bundled Items (at least 2 required):**
- ▶ Central A/C replacement with 15-SEER or greater **OR** ductless mini split less than 18,000 BTU (for a \$300 bonus, [see Super-SEER A/C Requirements](#))
- ▶ Duct repair and sealing (ducts must pass leakage-rate test)
- ▶ Added insulation (must install a minimum of R-19 for attic and R-11 for floor)
- ▶ **Customer Choice Items (at least 1 required)**
- ▶ ENERGY STAR® programmable thermostat, including installation
- ▶ Door and window weather stripping
- ▶ Solar window-shading devices (solar screens)
- ▶ ENERGY STAR® ceiling fans
- ▶ ENERGY STAR® water heater repair or replacement
- ▶ ENERGY STAR® refrigerator
 - Valid for replacing refrigerators, freezers or combination units that are 10 cubic feet or larger, in use and in working order. Not valid for dorm-sized refrigerators
 - Old unit must be removed from the home and proof of removal or destruction is required.
[Approved refrigerator recycling options](#)



Home Performance with Energy Star

- ▶ Average Cost: \$4,742
 - ▶ First Year Energy Savings: 1,434 kWh
 - ▶ First Year Cost Savings: \$215
 - ▶ Simple ROI: 22 years
-
- ❖ Calculations above based on \$3,500 base model replacement for HVAC and \$0.15 per kWh.
 - ❖ Total Cost for these upgrades was \$8,241.60.

Low-Income Energy Efficiency Program

- ▶ Low-income Energy Efficiency Program (LEEP)
- ▶ Free home improvements available
- ▶ GRU's Low-income Energy Efficiency Program assists low-income customers with home improvements that can lower their electric bill, improve comfort and reduce energy use. Eligible participants will work with GRU to determine the improvements that best suit their home, which may include
 - ▶ Replacing central air conditioning and heating systems
 - ▶ Servicing central air conditioning systems
 - ▶ Replacing room air conditioners with high-efficiency units
 - ▶ Repairing leaky ducts
 - ▶ Installing additional insulation
 - ▶ Replacing water heater
 - ▶ Installing a programmable thermostat
 - ▶ Weather stripping and caulking of doors and windows
 - ▶ Providing up to 10 compact fluorescent light bulbs (CFLs)
- ▶ **Program Offer**
- ▶ Program provides, on average, \$3,000 of approved upgrades to the home. Rebate will be provided directly to the [GRU LEEP Contractor](#) rather than the customer.



Low-Income Energy Efficiency Program

- ▶ Average Cost: \$2,310
- ▶ First Year Energy Savings: 1,084 kWh
- ▶ First Year Cost Savings: \$162.60
- ▶ Simple ROI: 14.2 years

Low-Interest Energy Efficiency Loan

- ▶ Lower your bill while increasing the comfort of your home with GRU's Low-Interest Energy Efficiency Loan. Residential electric customers can install energy-saving technologies that might otherwise be outside of their budget range.
- ▶ **Loan Offer**
- ▶ 5-year, 3% fixed APR loan of up to \$10,000 for [pre-approved energy saving measures](#).
- ▶ [1st Credit Union of Gainesville](#) is responsible for loan approval and administration
- ▶ Interest rates are subject to change on new loans without prior written notice based on market conditions
- ▶ **Eligibility**
- ▶ GRU residential electric customers
- ▶ Owner-occupied residential homes, including single-family homes, mobile homes, duplexes, triplexes, quadraplexes and condominiums
- ▶ Loan may not be used in conjunction with GRU rebates
- ▶ Maximum loan amount is \$10,000 per customer within a five-year period



Low-Interest Energy Efficiency Loan

Pre-Approved Upgrades

▶ GRU'S ENERGY EFFICIENT PRODUCT LIST

- ▶ • **Additional insulation** (min R-19 attic, min R-11 wall, min R-11 under raised floors)
- ▶ • **Attic radiant barrier** reflective material
- ▶ • **Central air conditioning systems** (15 SEER or higher; copy of ARI and Manual J summary)
- ▶ • **Central heating** (high efficiency ENERGY STAR® electric heat pumps 15 SEER / 8.2 HSPF or higher, or natural gas furnace; copy of ARI and Manual J summary)
- ▶ • **Duct leak repair** (Contractor must complete Duct Leak Repair form)
- ▶ • **Ductless mini-split system** (15 SEER or greater; copy of ARI and Manual J summary)
- ▶ • **ENERGY STAR® front loading clothes washers** is \$8,241.60
- ▶ • **ENERGY STAR® programmable thermostats**
- ▶ • **ENERGY STAR® refrigerators**
- ▶ • **ENERGY STAR® water heater replacement** (electric/natural gas/tankless natural gas)
- ▶ • **ENERGY STAR® windows & glass door replacements** (must be multiple glazed, Low-E)
- ▶ • **High efficiency pool pump** (variable speed)
- ▶ • **Replace shingle roof with metal roofing**
- ▶ • **Solar electric PV** (photovoltaic) systems (only applicable to Net Metered installations not Feed In Tariff)
- ▶ • **Solar shading** for windows including Low-E film and/or solar screens
- ▶ • **Solar water heaters**
- ▶ • **Weatherization** (caulking/weather stripping)

▶ RESTRICTIONS:

- ▶ • Improvements only available for existing owner occupied residential dwellings with GRU electric service.
- ▶ • All loans are subject to approval by 1st Credit Union.
- ▶ • Interest rates are subject to change on new loans based on market conditions, without prior written notice.

Low-Interest Energy Efficiency Loan

- ▶ Average Cost: \$2,852
 - ▶ First Year Energy Savings: 2,597 kWh
 - ▶ First Year Cost Savings: \$389
 - ▶ Simple ROI: 7.3 years
-
- ❖ Calculations above based on \$3,500 base model replacement for HVAC and \$0.15 per kWh.
 - ❖ Total Cost for these upgrades was \$6,352 and ROI was 16 years.

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