



NYSERDA

April 1st, 2017



Presented by Hugo Jule
RUPCO Bilingual
Outreach Coordinator



RUPCO & NYSERDA Partnership



*Strengthening Homes,
Communities
and Lives*

- Independent contractor to NYSERDA
- Outreach to homeowners on behalf of NYSERDA
- Serve 10-County, Mid-Hudson Valley
- Nonprofit Constituency Based Organization (CBO) since 1981



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NYSERDA

Advance innovative energy solutions that improve New York's economy and environment.

- NYSERDA: New York State Energy Research and Development Authority, since 1975
- Manages NYS residential energy efficiency programs



About Hugo Jule

- Born in El Salvador
- Engineering background: automotive, mechanical, electrical, solar PV & ST
- Hispanic outreach
- Loves the outdoors



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NEW YORK
STATE OF
OPPORTUNITY.

NYSERDA

Do-it-yourself Energy Upgrades



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Lighting efficiency



CHANGE YOUR LIGHT BULBS!!!!!!!!!!

Lighting accounts for more than 10% of your Electric bill.



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Electrical Savings

- Lighting & Appliances
 - Use LED light bulbs! – Save up to 80% per year!
- Smart Power Strips cuts vampire loss
- Timer Switches, Movement Sensors
- Clothes Drying:
 - Extra Spin Cycle in Washing Machine
- Kill-A-Watt monitor



Programmable Thermostat



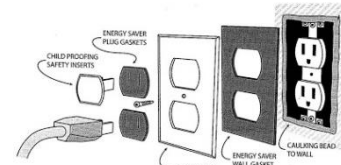
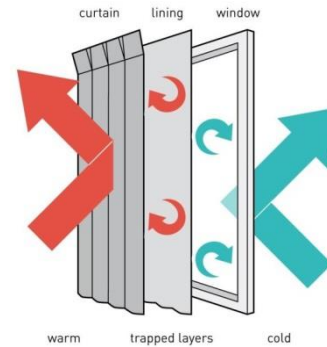
- A programmable thermostat with four temp settings can save up to \$150 a year.
- Example savings from setbacks:
 - 64°F Night: 6.5%
 - 64°F Night & Day: 10.4%
 - 61°F Night & Day: 13.4%



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Air Sealing/Insulation

- Caulk & weather strip
- Plastic or sealing curtains
- Outlets/door sweeps
- Sealing chases and attic hatches
- Foam seal penetrations – attic, basement
- Outlet Covers



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Weather Stripping



A gap of just $\frac{1}{8}$ of an inch under a 36-inch door lets in as much air as having a 2.4 inch wide hole in the wall.

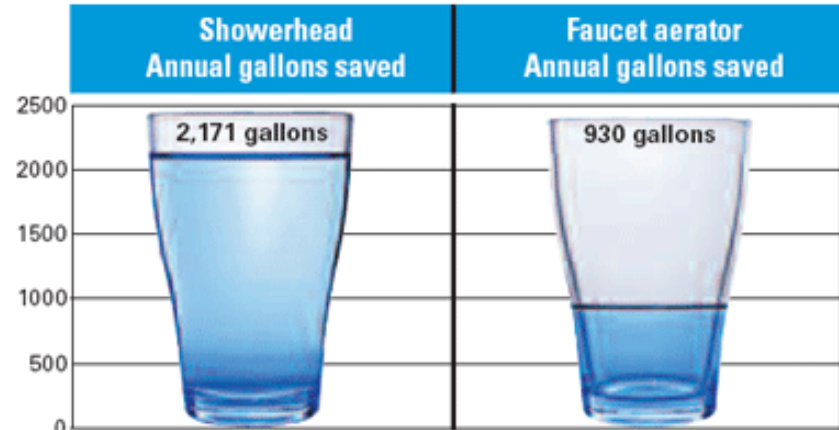
Heating/ Hot Water Reduction

- Wash with Cold Water
- Hot water heaters:
 - Wrap with insulation
 - Pipe insulation



Heating/ Hot Water Reduction

- Low Flow Devices:
Showers & sinks



Savings based on installation of 1.5 GPM showerhead and 1.5 GPM faucet aerator.



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Keeping Warm/Cool

- Furnace filters and sealing heat ducts
- Unused Rooms/unblock heat radiators/ duct valves
- Adding humidity holds the heat and saves
- Fireplace Use and non-use: drafts
- Fans: cheap distribution of hot/cold air
- Annual check ups can be worth it



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NYSERDA Residential Energy Efficiency Programs and Home Energy Assessment



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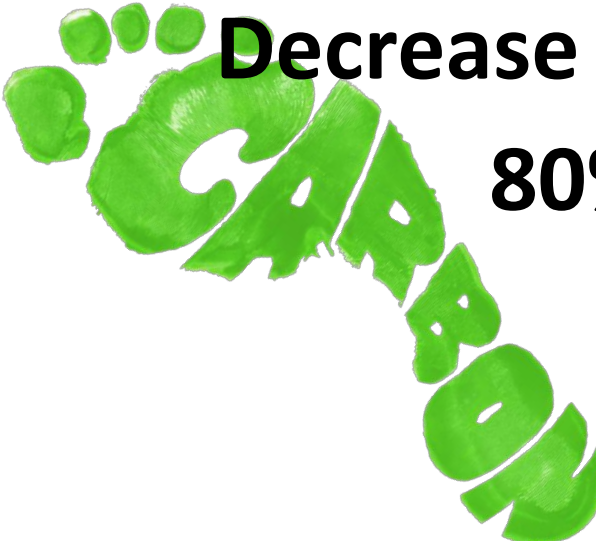


New York State's Energy Plan



Reforming the
Energy Vision

**Decrease carbon emissions
80% by 2050.**

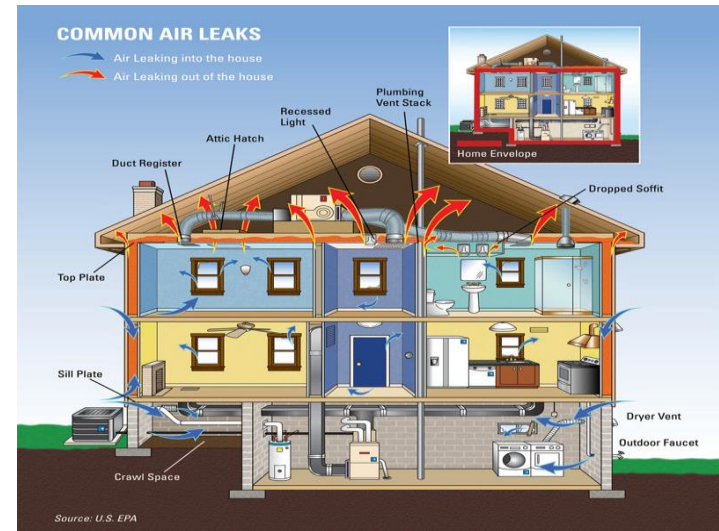


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Home Performance with ENERGY STAR[®]

- Comprehensive Home Energy Assessment
- Technical Assistance
- Incentives and Discounts
- Low-interest Financing



92% of New York Homeowners Qualify for a **FREE** ENERGY ASSESSMENT

- If your total, gross Columbia County household Income is less than \$148,000 a year the Assessment is FREE.
- For higher Incomes in single family homes A sliding scale fee from \$50 to \$200

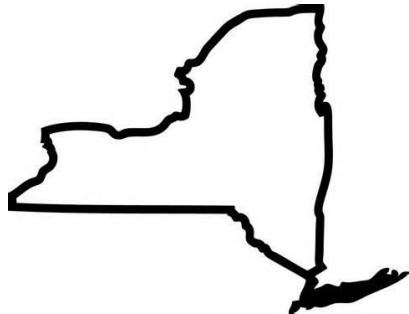


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Property Eligibility

- 1-4 units - primary residence, second homes, and rental property
- All heating fuels – electric, gas, oil, propane, wood, renewable, etc.
- Must be in New York State



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Is An Energy Upgrade Worth It?

- Durability and Long-Term Value of your home
- Ensure Health and Safety
- Increase Comfort
- Address Climate Change
- Families save up to **\$700 a year**
- Energy Report as a planning tool

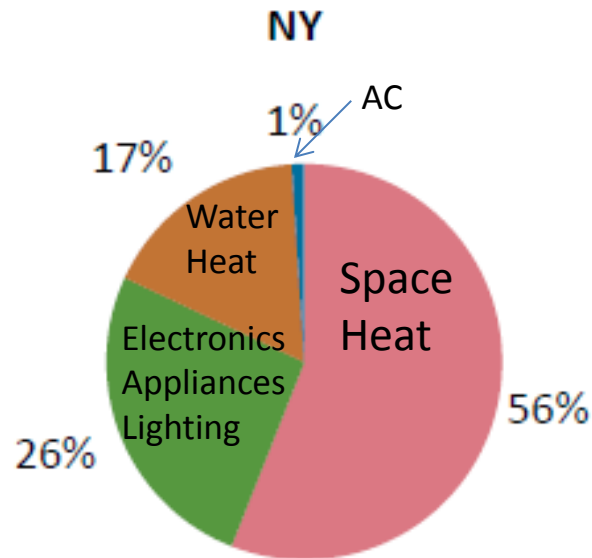


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Home Energy Assessment Process

- Homeowner applies to the program
- Homeowner arranges to have a Home Performance contractor visit their home and identify energy efficiency opportunities
- Assessments typically take 2-3 hours
- Contractor provides free energy report

NYS Single Family Home Typical Energy Use



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What is a Home Performance Contractor?

- Certified by Building Performance Institute
- Trained in building science
- Quality Assurance by NYSERDA
- NYSERDA Contractor webpage for local listings & descriptions
- See RUPCO's Contractor Selection Guide to choose the right one for you



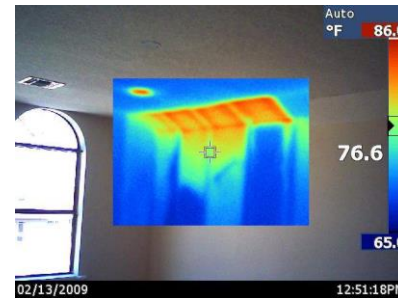
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Energy Assessment: Air Sealing & Insulation

- Checking Insulation Levels: attic, rim joists, walls, crawl spaces
- Finding Air Leaks: windows, doors, chases, outlets
- Proper Ventilation: fans, air exchanges



Physical Inspection



Infrared Camera Tests

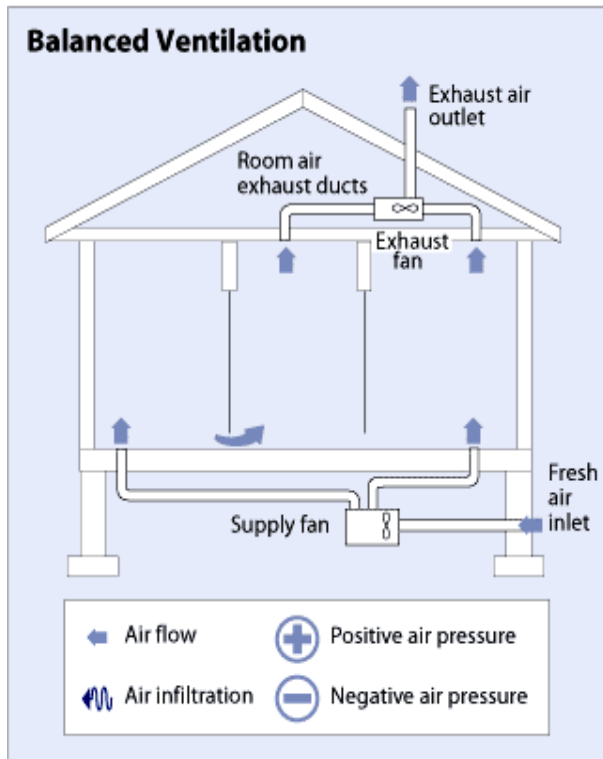


Blower Door Test



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Energy Assessment: Ventilation



Energy Assessment: Heating & Cooling

- **Combustion Safety:**
furnace, boiler, hot water, dryer, kitchen range, gas lines
- Efficiency of systems



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Energy Assessment: Appliances and Lighting



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NYSERDA

Your Assessment Energy Report

- Planning guide/road map
- List of Recommendations
- Projection of energy savings
- Evaluate payback periods
- No obligation
- You determine work scope

BPI
CERTIFIED PROFESSIONAL

ENERGY STAR

New York Energy Smart
Public Service Company of New York
NYSEERDA

YOUR HOME ASSESSMENT

Prepared by: Malcarne Contracting

New Yorkers are spending more money than ever to heat and cool their homes. Many homeowners are not getting the comfort they are paying for. Many homes suffer from cold spots, rooms that are too hot or too cool, ice dams, drafts, building rot, and mold and mildew problems. They may all be common signs that the house is not properly insulated or that the heating system is improperly balanced, or that motor air in the house is not being effectively controlled. Many homes are simply heating the outdoors.

Now there's something you can do about it. The Home Performance with ENERGY STAR initiative is sponsored by the New York State Energy Research and Development Authority (NYSEERDA) as part of the New York Energy Smart (S.M.) Program. Contractors participating in this initiative have successfully completed a comprehensive skills evaluation in home performance diagnostics. Each participating contractor has earned certification through the Building Performance Institute (BPI), a nationally recognized organization for building science technology that sets the standard for assessing and improving the energy performance of

About Your Home's Assessment
Your Home Assessment is customized to identify the particular needs of your home based on our analysis. The information that your Contractor gathered has been entered into a computer software package that helps your Contractor determine the most cost-effective measures you can take to make your home more efficient and comfortable. This report outlines that analysis, prioritizes recommended home repairs and helps you determine the best improvements for your home.

PREPARED FOR
Name: Muresh Dumarco
Phone: 845-876-3126
Email: Modumarco@aol.com
Date: 8/13/2014

BUILDING INFORMATION
Address: 18 Pond Dr. East
Ramaebeck NY 12572
Total Floor Area: 2,325 Sq.Ft.
Heated Floor Area: 1,475 Sq.Ft.
Year built: 1985

PREPARED BY
Name: Mike Bennett
Address: 22 East Market
Ramaebeck NY 12572
Phone: 845-876-6889
Fax: 845-230-8757
E-mail: Mike@Malcarne.com

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HPwES Program Incentives



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Energy Efficiency Measure Incentives

Incentive calculation based on county Area Median Income or State Median Income.

Incentive:	Income Qualification:	Benefit*:	Separate Application?
Assisted Home Performance Program	Under 80 % Area Median Income <i>-Columbia County Family of 3 earning \$58,005/year</i>	50% Discount up to \$4,000 or \$8,000 for 2-4 Unit Homes	YES
EmPower New York	Under 60 % State Median Income <i>-Family of 3 earning \$43,504/year</i>	FREE Installation of measures	YES

- Income guideline based on county and number of people in the household

Contact Empower New York Directly: 1-800-263-0960



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Incentive Application

- Guidelines based on gross income generated by adults in household
- Application with income and utility information
- Application reflects property configurations
 - Single family home with homeowner in residence
 - 1-4 unit building with homeowner in residence
 - 1-4 unit building with homeowner not in residence
- Low to moderate income tenants can help property owner qualify for incentives and lower interest rates



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HPwES Low Interest Financing



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Low Interest Financing

Homeowner selects one of two financing options!

- On-Bill Recovery Loan Program or ...
- GJGNY \$mart Energy Loan



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Low Interest Financing

- Set up loan to be cash flow positive
 - ❖ Interest rates vary: 3.49%-6.99%; Processing fee: \$150
 - ❖ Amount: \$3,000 - \$25,000; Term: 5 year, 10 year, 15 year



➤ On-Bill Recovery Loan Program

- ❖ Monthly payment not to exceed 1/12th of estimated annual energy savings
- ❖ Payment through utility bill
- ❖ Loan transferrable to new owner



➤ Smart Energy Loan

- ❖ Unsecured loan
- ❖ 0.49% subtracted from the interest rate for automatic deduction



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Interest Rate Overview

- Interest rates based on gross household income, number of household residents, and county of residence.
- Interest Rates:
 - 3.49%: households with income up to 80% of AMI
 - 4.99%: households with income from 80% to 120%
 - 5.99% - 6.99%: households above 120% AMI, rate varies with type of credit qualifications/type of loan
- In 1-4 unit properties: if 50% or more of tenants are under 80% AMI, property owners gets 3.49% rate and subsidy
- Online Interest Rate calculator url: www.nyserda.ny.gov/interst-rate-estimator



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Air Source Heat Pumps



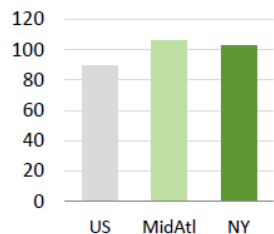
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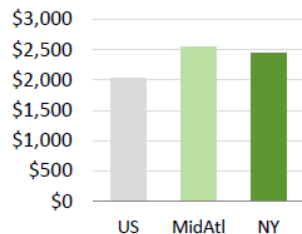
Energy Consumption in NY. Data by Energy Information Administration

ALL ENERGY average per household (excl. transportation)

Site Consumption
million Btu

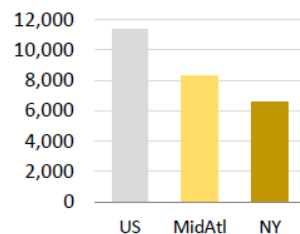


Expenditures
dollars

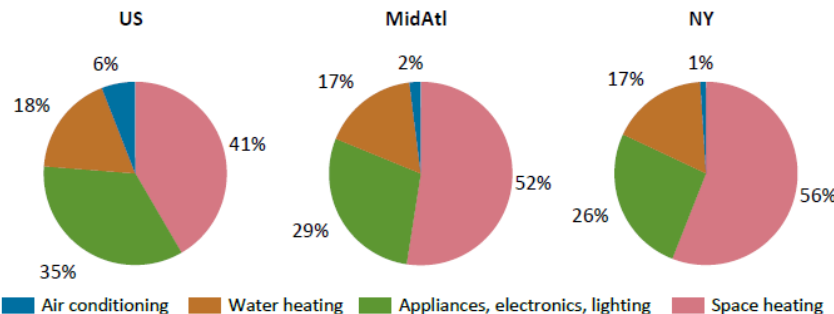
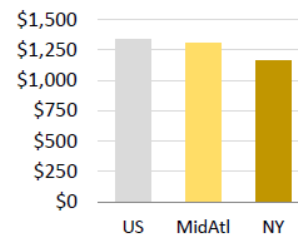


ELECTRICITY ONLY average per household

Site Consumption
kilowatthours



Expenditures
dollars



CONSUMPTION BY END USE

Since the weather in New York is cooler than most other areas of the United States, space heating (56%) makes up a greater portion of energy use in homes compared to the U.S. average, and air conditioning makes up only 1% of energy use.



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Heating Systems in the 1400s???



Air sealing and insulation??????

Heating systems 101

The size and type of system depends on the envelope of the building.

Air Source Heat Pumps Overview

Electric Appliance that can provide efficient heating and cooling for your home. Basically a two mode refrigerator!

When properly installed, it can deliver up to three times more heat energy to a home than the electrical energy it consumes.

This is possible because a heat pump moves heat rather than converting it from a fuel like combustion heating systems do.

<https://energy.gov/energysaver/air-source-heat-pumps>



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Air Source Heat Pump Overview



Efficiency = Savings \$\$

Annual savings when using an air-source heat pump are around 3,000 kWh (or \$459) when compared to electric resistance heaters, and 6,200 kWh (or \$948) when compared to oil systems.

When displacing oil (i.e., the oil system remains, but operates less frequently), the average annual savings are near 3,000 kWh (or about \$300).

<http://www.neep.org/blog/looking-winter-proof-heat-pumps>

<https://energy.gov/energysaver/air-source-heat-pumps>



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Types of Air-Source Heat Pumps

DUCTLESS VS. DUCTED

- Ductless applications require minimal construction as only a three-inch hole through the wall is required to connect the outdoor condenser and the indoor heads. Ductless systems are often installed in additions.
- <https://energy.gov/energysaver/air-source-heat-pumps>



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Types of Air-Source Heat Pumps

SPLIT VS. PACKAGED

- Most heat pumps are split-systems—that is, they have one coil inside and one outside. Packaged systems usually have both coils and the fan outdoors.

<https://energy.gov/energysaver/air-source-heat-pumps>



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Types of Air-Source Heat Pumps

MULTI-ZONE VS. SINGLE-ZONE

- Single-zone systems are designed for a single room with one outdoor condenser matched to one indoor head.
- Multi-zone installations can have two or more indoor heads connected to one outdoor condenser.



<https://energy.gov/energysaver/air-source-heat-pumps>



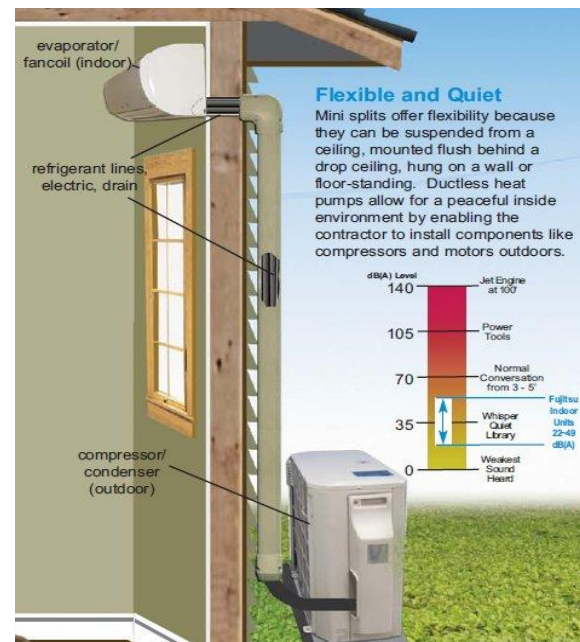
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Air Source Heat Pumps-Lots of options



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Air Source Heat Pumps-Lots of options



Air Source Heat Pumps-Lots of options



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HPwES: Three Considerations to Review



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Review: Your Three Key Considerations...

1. Evaluate your Assessment Audit Report
2. Consider the amount of your incentives
3. Determine if you want to finance

...then determine a scope of work with your contractor



Please Become an Energy Advocate

An Energy Advocate talks to neighbors, friends, and community leaders, and is a resource for energy information.



Take the opportunity to educate your neighbors on programs they might not know about!



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Thank You!

Hugo Jule
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