



Pat and Steve Miller
Sept-Oct 2023

**ELECTRIFY EVERYTHING WITH INFLATION
REDUCTION ACT (IRA)**

As written, the IRA allocates
\$369 billion
to energy security and
climate solutions.

**In tandem with existing policies,
the IRA could cut US emissions
40% below 2005 levels by 2030.**

What can WE do?

Lead by doing! Take advantage of the tax credits and incentives available to us.

Educate our communities on the IRA and how to access clean technology incentives – for households, businesses, and organizations.

Advocate for local laws that boost building electrification tax credits.

Top 3 Greenhouse Gas (GHG) Emissions Sources in NJ: 87% of All Emissions

- Electricity generation (19%)
- Transportation (42%)
- Residential and commercial buildings (26%)

REDUCE ALL 3

We can reduce building emissions ourselves.

- **Replacing gas appliances with efficient electric models.**
- **Replacing older electric appliances with new and efficient models.**
- **Switching to LED lighting.**
- **Replacing traditional heating and cooling systems and water heaters with heat pump alternatives.**

We can reduce building emissions ourselves.

- **Upgrading or replacing inefficient insulation, windows, siding, and weatherstripping.**
- **Installing rooftop solar systems and onsite battery storage.**
- **Supporting community solar initiatives.**

What are the benefits of building decarbonization?

Cost Benefits

Electric appliances are cheaper to own over their lifetime than fossil fuel alternatives.

Energy efficiency measures can save the average household about 25% on energy costs.

Distributed energy sources like rooftop solar can bring significant savings over the system's lifetime.

Rebates and tax credits make upgrades more affordable.

What are the benefits of building decarbonization?

Justice Benefits

IRA incentives can help reduce pollution inside the home and alleviate health impacts disproportionately experienced by low-income communities.

Rebates and tax credits greatly cut costs for heating and cooling systems, helping low and moderate-income families safely weather dangerous heat or cold outside.

About one-in-eight cases of childhood asthma in the U.S. are caused by gas stove pollution.

Induction cooktops heat using a magnetic current. The result is evenly heated pots and pans with much less energy lost during cooking.



Soup Water Fry Hot Pot Stir-Fry

Temp.



Power



Timer/Pre.



Child Lock



Elec./Volt.



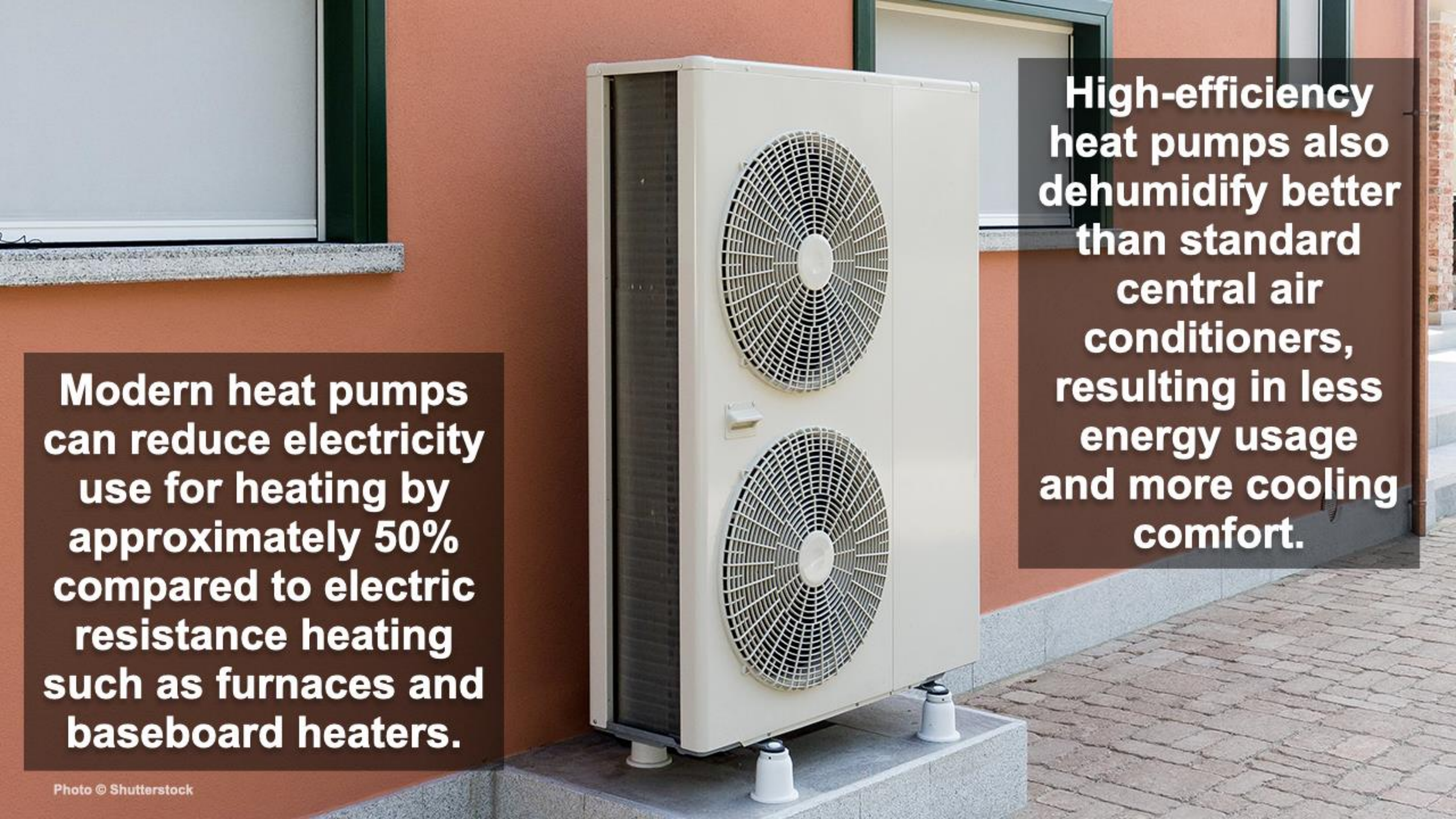
Function



ON/OFF

Photo © Shutterstock






Modern heat pumps can reduce electricity use for heating by approximately 50% compared to electric resistance heating such as furnaces and baseboard heaters.

High-efficiency heat pumps also dehumidify better than standard central air conditioners, resulting in less energy usage and more cooling comfort.

Take the first step with a home energy audit.

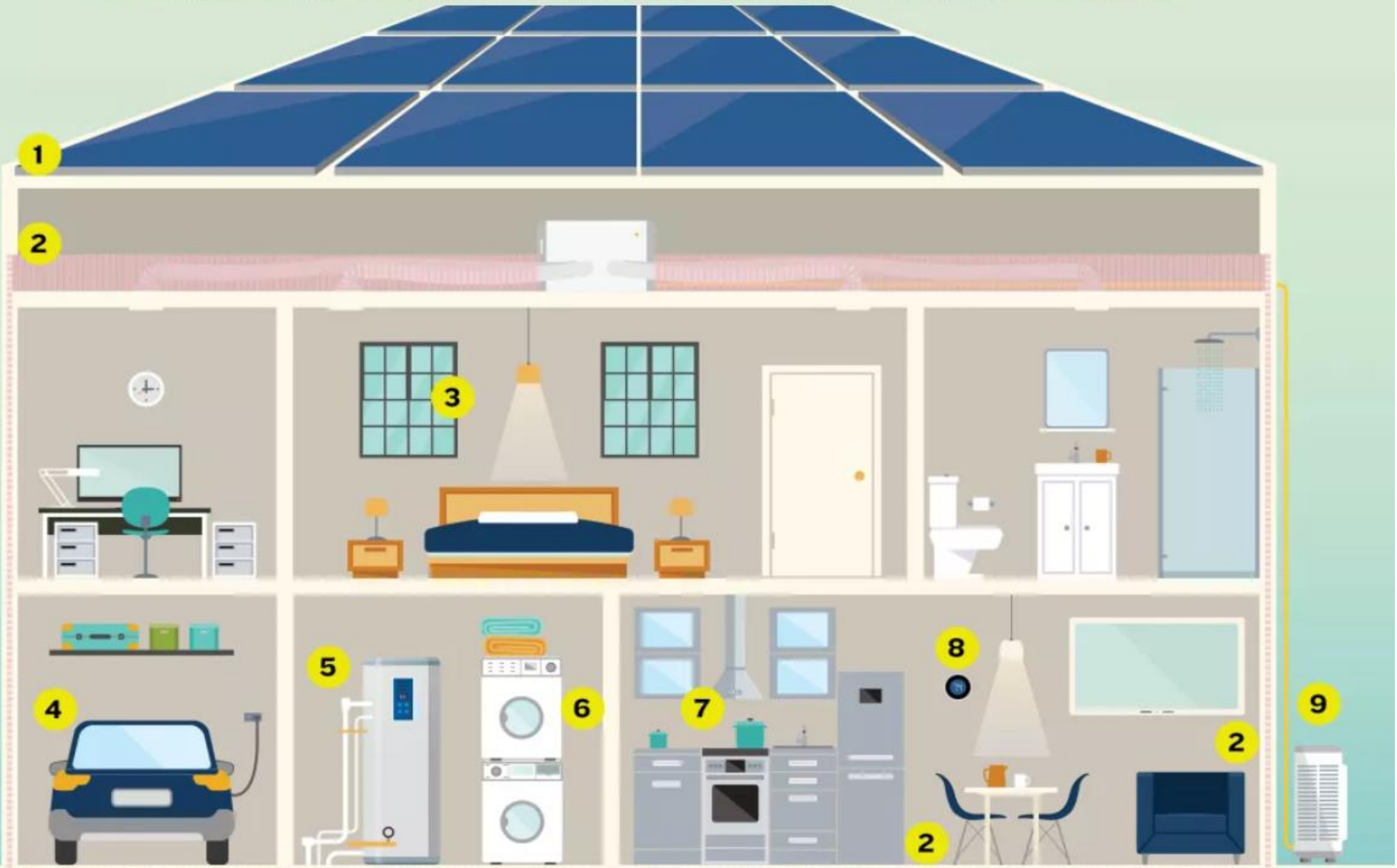
- **Likely available at low cost from your local utility.**
- **The IRA offers a tax credit to cover some of the cost.**
- **Can help you decide where to begin and what credits for appliances and upgrades are right for you.**



On average, the maintenance cost for a battery-electric vehicle is 40% less than for internal combustion cars and light trucks.

ZEROING OUT HOME CARBON EMISSIONS

1. Solar Panels
2. Insulated Walls, Floors and Attic
3. Energy Efficient Windows & Doors
4. Electric Car
5. Heat Pump Water Heater
6. Heat Pump Dryer
7. Induction Stove
8. Smart Thermostat
9. Heat Pump Heating and Cooling



CREDIT: NRDC

IRA incentives

NAVIGATING INDIVIDUAL INCENTIVES, BY DR. LEAH STOKES

[HTTPS://WWW.CLIMATEREALITYPROJECT.ORG/ELECTRIFICATION-JOURNEY](https://www.climateRealityProject.org/electrification-journey)

Name	Technical Name	Type of Program	Technologies	Target Population	Maximum \$ Amount per Household	Total Budget
Electrification Rebates	HEEHRA	Rebates	Heat pumps, heat pump water heaters, electric stoves, heat pump clothes dryers, panels, wiring, weatherization	Low- and moderate-income households	\$14,000	\$4.5B
Efficiency Rebates	HOMES	Rebates	Whole-home improvements (including heat pumps)		\$8,000 (LMI) \$4,000 (non-LMI)	\$4.3B
Electrification + efficiency tax credits	25C	Tax Credits	Heat pumps, heat pump water heaters, weatherization, panels, energy audits	Anyone with tax liability	30%, up to \$3,200 per year	Uncapped
Solar + storage tax credits	25D	Tax Credits	Solar, storage, geothermal	Anyone with tax liability	30%, uncapped	Uncapped
EV tax credits	30D/25E	Tax Credits	New EVs (30D) and used EVs (25E)	Non-high income households	\$7,500 (new) \$4,000 (used)	Uncapped

Starting in late 2023, the IRA will offer electrification rebates of up to:

- **\$8,000** for heat pump air conditioners/heaters
- **\$8,000** for certain home efficiency upgrades
- **\$4,000** for electrical panels
- **\$2,500** for electric wiring
- **\$1,750** for heat pump water heaters
- **\$1,600** for weatherization
- **\$840** for electric stoves
- **\$840** for heat pump clothes dryers

The law also allocates tax credits of up to:

- **\$7,500** for new electric vehicles (EVs)
- **\$4,000** for used EVs
- **\$1,000** for EV chargers
- **\$2,000** for heat pump HVAC systems
- **\$2,000** for heat pump water heaters
- **\$1,200** for weatherization
- **\$600** for electrical panels
- **30%** for battery storage
- **30%** geothermal heating
- **30%** for rooftop solar installation

Rewiring America Savings Calculator

<https://www.rewiringamerica.org/app/ira-calculator>

Rebates available up to \$14,000 per household, plus tax credits

- 100% cost coverage for low-income households
 - Up to \$83,000 per year
- 50% cost coverage for mid-income households
 - \$83,000 to \$155,000

Zip Code [?]
95652

Homeowner Status [?]
Homeowner

Household Income [?]
\$100,000

Tax Filing [?]
Joint

Household Size [?]
4 people

Calculate! We do not store this data.

Your Personalized Incentives
Use these any time in the next 10 years.

UPFRONT DISCOUNTS	AVAILABLE TAX CREDITS
\$14,000	\$7,536
ESTIMATED TOTAL INCENTIVES	
\$21,536	

Household Electrification Incentives These are available to American homeowners and renters over the next 10 years.			
ITEM	DISCOUNT TYPE	DISCOUNT	TIMELINE
Rooftop Solar Installation	Tax Credit	30%	Now!
Geothermal Heating Installation	Tax Credit	30%	Now!
Battery Storage Installation	Tax Credit	30%	Now!
Community Solar Subscription	Tax Credit	30%	Now!
New Electric Vehicle	Tax Credit	\$7,500	2023
Used Electric Vehicle	Tax Credit	\$4,000	2023
Heat Pump Air Conditioner/Heater	Tax Credit	\$2,000	2023
Electric Panel	Tax Credit	\$600	2023
Basic Weatherization	Tax Credit	\$1,200	2023
Heat Pump Water Heater	Upfront Discount	\$1,750	2023
Heat Pump Air Conditioner/Heater	Upfront Discount	\$8,000	2023

**MILLER HOME
MIDDLETOWN, NJ**

**STAGED EFFICIENCY
AND ELECTRIFICATION**

by Steve Miller

Top 3 Greenhouse Gas (GHG) Emissions Sources in NJ: 87% of All Emissions

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REDUCE ALL 3

COMMUNITY SOLAR



Clean Energy

**Lower Energy
Costs**

**No Panels on
Your Property**



BPU/Sustainable Jersey Community Solar

www.sustainablejersey.com/communitysolar

OUR EV – PRIUS PRIME PLUG-IN



Energy Efficiency – Use Less Energy



A SIMPLE DO-IT-YOURSELF PROJECT

DUCT SEALING

**CAULKING
CORD**

**PRESSURIZED
FOAM
FOR LARGE GAPS**

**ALUMINUM
FOIL TAPE
TO SEAL JOINTS
IN INSULATION**

**DUCT SEALANT
WATER BASE**



**REFLECTIVE
BUBBLE WRAP**

**WRAP
AIR DUCTS IN
UNHEATED AREAS**

SPACE HEATING & COOLING WITH ELECTRIC HEAT PUMP

Gas Furnace Backup on Right



Spare Circuits for Future Electric Appliances



**New Box on Left
for New/Future**

- **2nd Heat
Pump Space
Heater/AC**
- **Heat Pump
Water Heater**
- **Stove**
- **Dryer**
- **2nd EV**

Electric Heat Costs Less, Pollutes Less

2022 ENERGY COSTS

	ACTUAL with heat pump	CALCULATED (no heat pump)	% CHANGE with heat pump	With Heat Pump
TOTAL Gas + Electric*	\$2441	\$3153	(23%)	Savings
GAS Cost	\$394	\$1681	(77%)	Reduction
ELECTRIC Cost	\$2047	\$1472	39%	Increase
THERMS Gas Burned	201	1163	(83%)	Savings
TONS CO₂ Emitted**	1.2	6.8	(83%)	Savings

* Gas and electric costs include ALL uses for Miller household during year 2022

**2023 electricity is 100% clean AND 21% lower cost, supplied by the Community Solar

ELECTRIC HEAT PUMP WATER HEATER



<p>NJ HOME CREDITS & REBATES</p>	<p>NEW JERSEY (stackable with IRS Credit. Likely available until June 30, 2024 end of 3 year utility commitment, or when NJ utility rebate money runs out) HVAC-related rebates for JCP&L, PSEG, Rockland Electric & Atlantic City Electric are indexed in https://energyefficiencyalliance.org/wp-content/uploads/2023/08/NJ-HP-Incentives.pdf</p>				<p>IRA TAX CREDIT CAPS: 30% and \$3200 max/calendar-year; IRA credits have a three-year carryback and a twenty-two year carry forward. Credits transferable (limits such as passive activity rules).</p>	<p>IRA REBATE (\$14K cap for total); STATES MAY VARY (effective- <u>late2023</u> - 2024); stackable with tax credits; funding may quickly run out; All are "HEEHRA" unless labeled "HOMES". Appliances must be rated "Energy Star"</p>	
	<p>JCP&L REBATES</p>		<p>PSEG REBATES</p>			<p>< 80% Area Median Income AMI</p>	<p>80% to 150% Area Median Income AMI</p>
<p>AIR SOURCE HEAT PUMP (cold climate)</p>	<p>Cold Climate</p>	<p>1K</p>	<p>Cold Climate</p>	<p>\$600</p>	<p>30% (capped at \$2K/year for heat pump + heat pump water heater)</p>	<p>100%, up to \$8K</p>	<p>50%, up to \$8K;</p>
<p>AIR SOURCE HEAT PUMP</p>	<p>highest efficiency (energy star)</p>	<p>1K</p>		<p>\$600</p>	<p>30% (capped at \$2K/year for heat pump + heat pump water heater)</p>	<p>100%, up to \$8K</p>	<p>50%, up to \$8K;</p>
<p>GEOHERMAL HEAT PUMP</p>	<p>REPLACE AIR OR <u>GND</u> SOURCE HEAT PUMP</p>	<p>500</p>			<p>30% for geothermal; no caps and no limits</p>	<p>100% up to \$8K</p>	<p>50% up to \$8K</p>
<p>GEOHERMAL HEAT PUMP</p>	<p>REPLACE ELECTRIC FORCED AIR FURNACE/AC</p>	<p>1500</p>			<p>30% for geothermal; no caps and no limits</p>	<p>100% up to \$8K</p>	<p>50% up to \$8K</p>
<p>HEAT PUMP WATER HEATER</p>		<p>\$750</p>		<p>\$600</p>	<p>30% for heat pump water heater capped at \$2K/year for heat pump + heat pump water heater)</p>	<p>100% up to \$1750;</p>	<p>50%, up to \$1750;</p>
<p>ELECTRIC OR INDUCTION STOVE</p>						<p>100% up to \$840</p>	<p>50% up to \$840</p>
<p>WEATHERIZATION</p>	<p>NJ utilities typically provide: free or low cost energy audits; list of authorized weatherization companies; low or no interest "on bill" 7 to 10 year loans; "Home Performance with Energy Star" (see below)</p>				<p>30% cap/year: max \$1200 /yr (including elec. panel);insulation; \$250/door, \$600 windows; \$150 energy audit;</p>	<p>100% up to \$1600</p>	<p>50% up to \$1600</p>



ELECTRIC PANEL						\$30%; \$600 cap/year	100% up to \$4K	50% up to \$4K
ELECTRIC WIRING							100% up to \$2500	50% up to \$2500
HEAT PUMP CLOTHES DRYER							100% up to \$840	50% up to \$840
Modeled and Measured Energy Efficiency of Whole House	Home Performance with Energy Star (HPwES) \$5K max rebate for 25% improvement in energy efficiency. Less rebate for less improvement (To be superceded in 2024)						*HOMES Energy Efficiency (modeled): 80% up to \$8K	*HOMES Energy Efficiency "modeled": is 50% up to \$4K ; "measured" program is 50% (no cap)
GOOD SOURCE:	https://www.rewiringamerica.org/app/ira-calculator							
						THIS IS BEST SITE: determine rebate and tax credits for YOUR location and family income		
JCP&L https://residential.energysavenj.com/jersey-central/hvac/ Appliances must be "Energy Star"						Highest efficiency "energy star" products required		
PSEG https://residential.energysavenj.com/jersey-central/sites/jersey-central/files/2022-04/PSEG_HVAC_Incentive_Claim_Form_2022.pdf Appliances must be "Energy Star"						Area Median Income: LOOKUP BY ADDRESS: https://ami-lookup-tool.fanniemae.com/amilookuptool/		
*HOMES: Proposed project reqmts: >20% energy savings (modeled), or >15% energy savings (measured). "measured" has NO cap; stackable with tax credits; fuel neutral; up to \$200 contractor incentive								
"HEEHRA" (High Efficiency Electric Home Rebate Act) REBATES are "point of sale"; includes multifamily buildings where >50% of building is occupied by LMI households; provides up to \$500 contractor incentives; rebates flow thru contractors & big-box stores								



NEXT STEPS TO PLAN YOUR FUTURE

ARRANGE ENERGY AUDIT WITH YOUR ELECTRIC UTILITY

- JCP&L “[Quick Home Energy Check-ups](#)” OR FOLLOW THE JCPL “SELF-CHECK”
- PSEG “[QUICK HOME ENERGY CHECKUP](#)” OR ONLINE “MYENERGY PROGRAM”

START YOUR ELECTRIFICATION JOURNEY TODAY

<https://www.climaterealityproject.org/electrification-journey>

- WATCH DR. LEAH STOKES REVIEW THE IRA, 41 MINUTES (EXCELLENT!)
<https://youtu.be/j2Fio5kbMvs>
- DETERMINE YOUR HOUSEHOLD benefits FROM THE IRA
<https://www.rewiringamerica.org/app/ira-calculator>

LOOKUP YOUR AREA MEDIAN INCOME (LOOKUP BY ADDRESS)

<https://ami-lookup-tool.fanniemae.com/amilookuptool/>

USE EXISTING REFERENCES TO BUILDING ELECTRIFICATION TOPICS

<https://climate.smiller.org/REF/> (find best heat pumps, water heaters, locate HVAC vendors...)

<https://climate.smiller.org/50x30/building-electrification/All-heat-pump-webinars.html> (2 years of webinars)

IRA SUMMARY (2 PAGES)

<https://docs.google.com/document/d/10vSXEtbjYZ3fBYhZbBahOLVxXrn82QKHkJGHGTRnvyg/edit>



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SEPT 30 IRA PRESENTATION**