

Realizing the Promises of the IRA

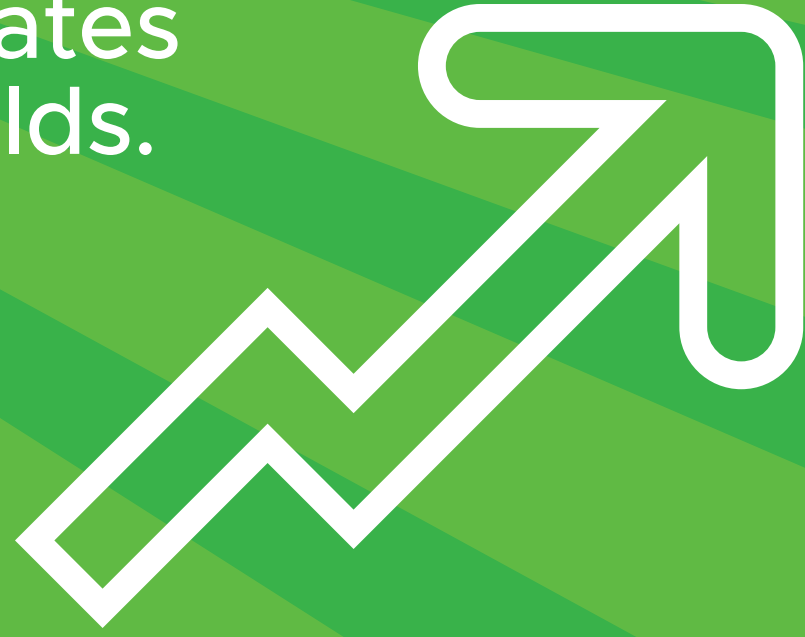
RESIDENTIAL HVAC COMMISSIONING

THE GOOD

Heat pumps are trending up!

Inflation Reduction Act

- \$8.8 Billion in Home Energy Rebates
- Access to \$8,000 in rebates for low-income households.
- Program specifics are determined at the state level



THE BAD

Improper installations are common

- 70-90% of homes with central air conditioners (CAC) and heat pumps (ASHP) have at least one performance compromising fault¹
- NREL estimates CAC/ASHP waste 9% energy due to installation faults²
- Cost homeowners \$2.5 billion in utility bills annually²

Commissioning Requirements

IRA Home Energy Rebates Program Requirements | Consumer Protection through Quality Assurance³

- Must identify and establish minimum quality installation standards
 - Establish process to enforce standards
 - Promote QA process that allow verification/documentation
 - Documented onsite inspection protocol that verify diagnostic test results are accurate
- Program implementers must retain:
- Post installation photos of major upgrades
 - Proof of combustion safety testing
 - Proof of commissioning testing

THE SOLUTIONS

Smart Tool-Assisted Commissioning

ACCA Quality Install Certificates

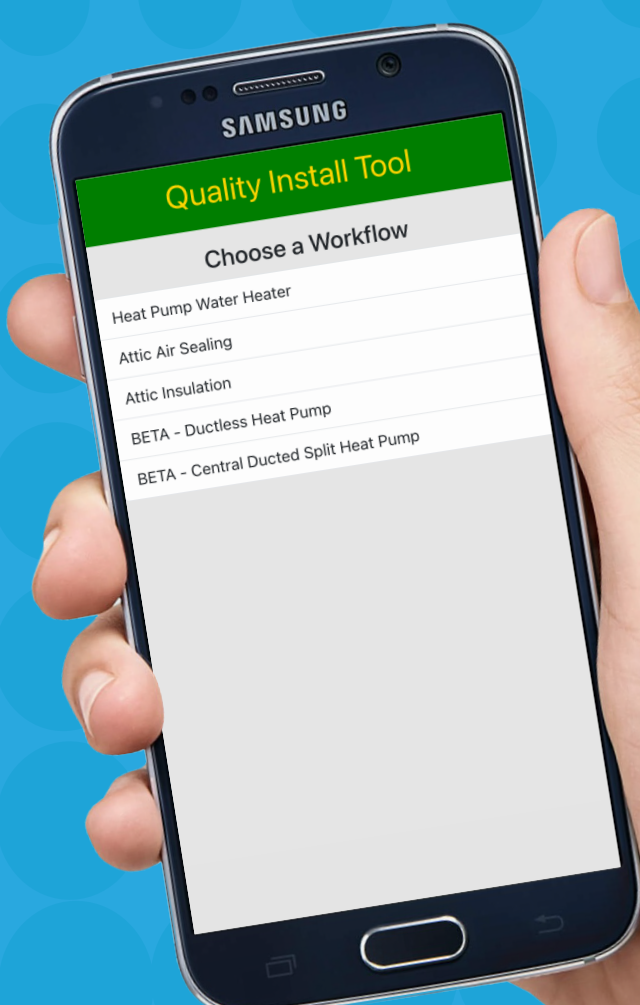


PNNL Quality Install Tool

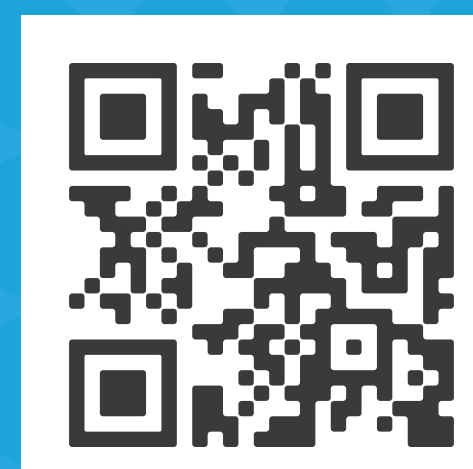
Vacuum Decay Test Results – Photo

Take a photo of the vacuum decay test results. Use a digital micron gauge. The system must be isolated from the vacuum pump. The vacuum must not rise above 500 microns in 15 minutes.

Add Photo



PNNL QI TOOL

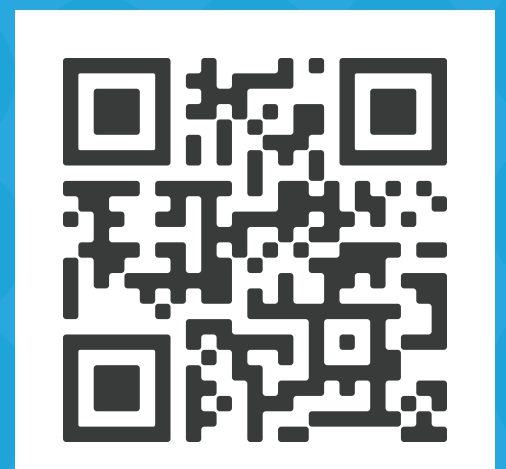


GOAL: increase adoption of smart tools that streamline HVAC system commissioning and troubleshooting and improve residential HVAC installation quality

Campaign Functions:

- Raise awareness
- Develop resources
- Provide technical assistance
- Recognize partner achievements

STEP Campaign



¹EERE, 2019. Residential HVAC Installation Practices: A Review of Research Findings

²Winkler et al. 2020. Impact of installation faults in air conditioners and heat pumps in single-family homes on U.S. energy usage. Applied Energy, Volume 278.

³DOE SCEP. 2023. Inflation Reduction Act Home Energy Rebates, Program Requirements & Application Instructions V1.1.