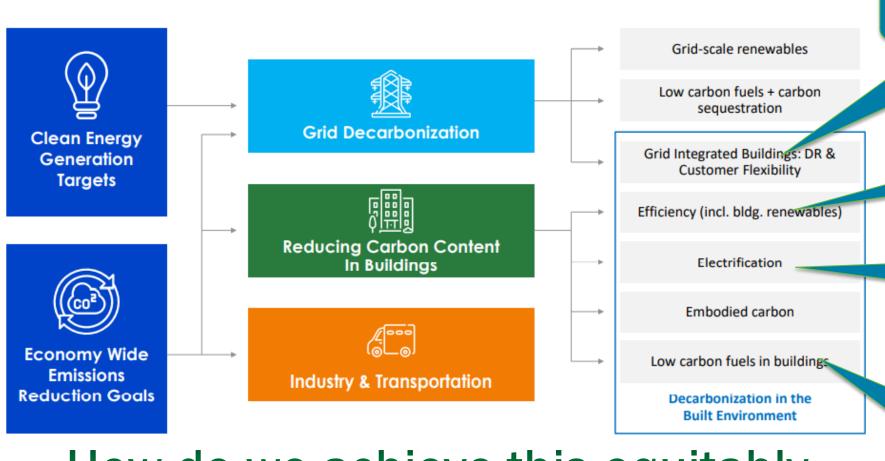
## **Decarbonization of Heat**

Ram Narayanamurthy, Dept. of Energy

Ram.Narayanamurthy@ee.doe.gov

9.22.2022

### **Pillars of Building Decarbonization**



Demand Flexibility critical to achieving 24x7 carbon free grid

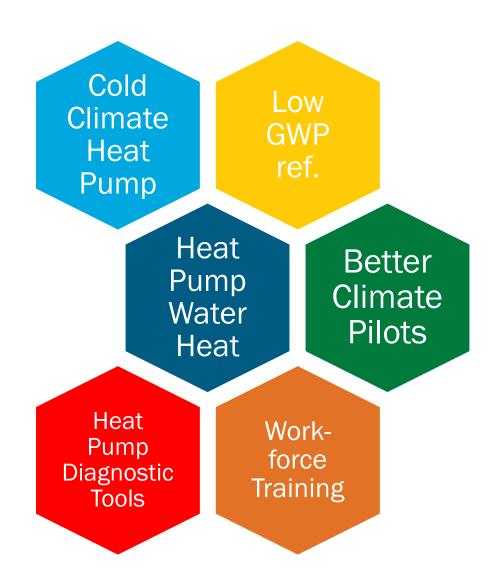
Energy Efficiency reduces customer and grid costs

Elimination of onsite emissions necessary for bldg. decarb

Reducing impact of building materials has outsized impact in 20 yr timeframe

How do we achieve this equitably and affordably?

#### The Energy, Emissions and Equity (E3) initiative



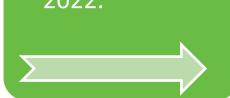
The E3 initiative is focused on developing, demonstrating and deploying heat pumps at scale

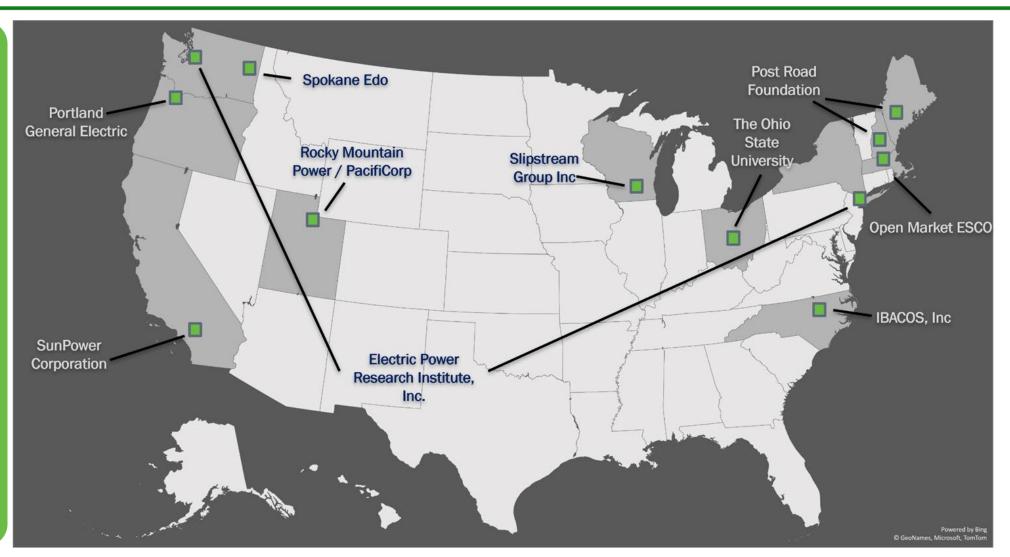
#### **Connected Communities** Project Awards



## 10 Selected Projects

- \$61 Million Total funding
- Final Awards expected May 2022.





www.energy.gov/eere/buildings/articles/meet-does-newest-connected-communities-grid-interactive-efficient-buildings

#### **Technologies that can potentially reduce cost of electrification**



High Efficiency 120V heat pumps (140 units deployed)



Smart panels for demand control



Low power HPWH (120V potential) with storage

Example technologies within a portfolio to help in reducing the demand for electric infrastructure upgrades

# **Innovation and Policy** Measures to Solve the **Heat Challenge**

Global Clean Energy Action Forum September 22, 2022 Pittsburgh, PA, USA







Monica Axell RISE

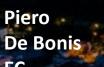


Narayanamurthy **US DOE** 



Araceli P **Fernandez** Saltmarsh **UK BEIS** 









Martin **Forsen EHPA**