



Empowering you to make  
smart energy choices

# “E-Houses” Serve as Energy Efficiency Learning Laboratories for CT Technical High School Students

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Rebecca Meyer, Northeast Utilities

# E-House is on-site energy laboratory

- High-efficiency & renewable technologies
- 16' x 20' structure
- Funded by Energy Efficiency Fund & CEFIA



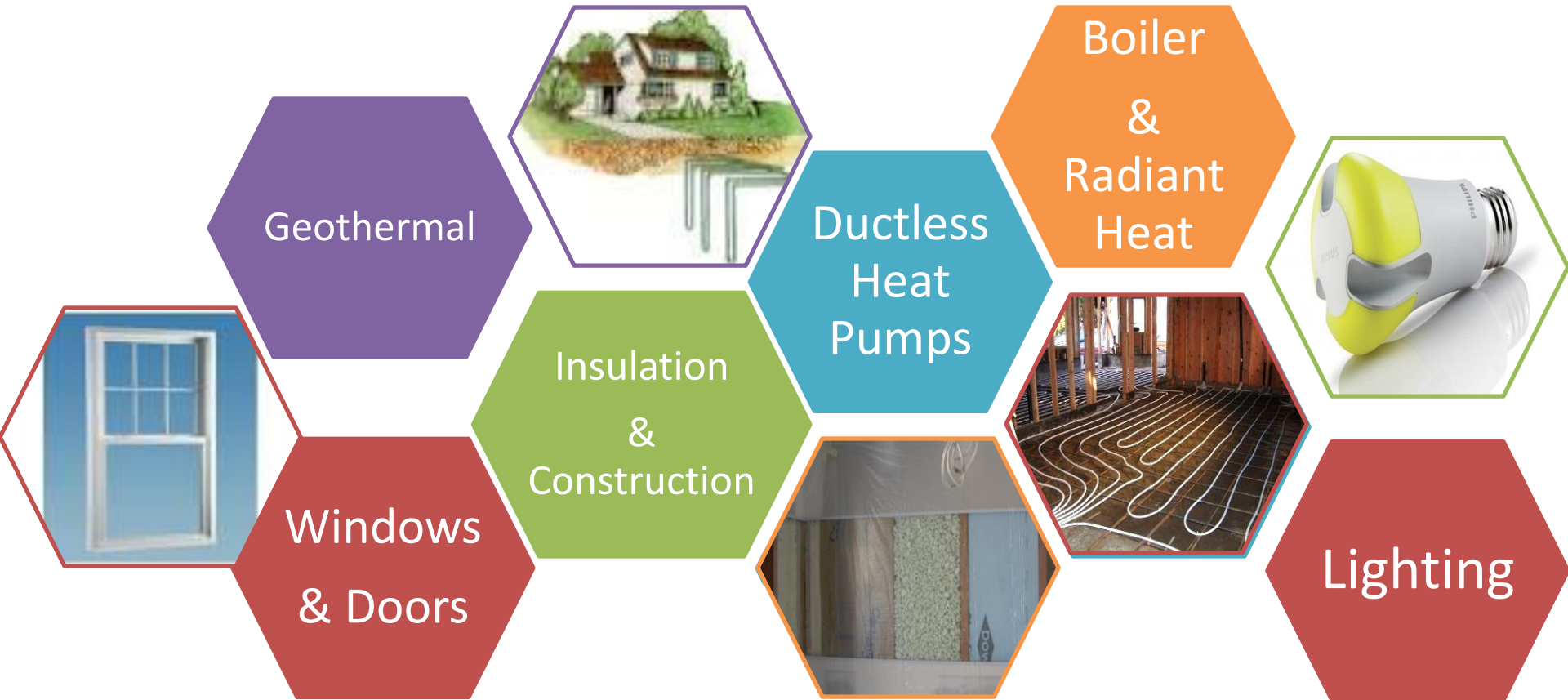
**Ella T. Grasso,  
Groton, CT**

# E-House goals

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1. Increase knowledge of efficient/clean energy technologies
2. Offer “green” coursework & related hands-on equipment
3. Build blower-door testing, weatherization, energy-efficient building design and construction into training
4. Provide training on solar photovoltaic/thermal technologies
5. Equip each school with high-efficiency ductless heat pumps, geothermal and/or energy recovery ventilators
6. Prepare students for emerging employment opportunities in energy efficiency, weatherization and clean energy fields

# Energy efficiency nuts & bolts



# Energy efficiency time capsule

- **Insulation**: Students analyze efficiency of insulation via blower door & Fluke-infrared testing technologies
- **Lighting**: Students observe & contrast efficiency, quality of light and lumens
- **Construction**: Students study non-insulated recessed lighting, attic scuttle access insulation methods & proper attic ventilating procedures



**E.C. Goodwin,  
New Britain, CT**



# Creating an energy efficiency lab

E.C. Goodwin, New Britain, CT



- **Windows**: carpentry students installed windows with varying SHGC/U-Factor ratings
- **Weatherization**: students practice variety of sealing methods, insulating measures & framing techniques
- **Geothermal**: Six E-Houses will be 20' x 30' facilities to allow for Combustion Area Zone testing
  - Two rooms (mechanical and main) for “real world” experiments with energy recovery ventilators

# Renewable energy nuts & bolts



Solar  
Photovoltaics

Solar  
Thermal



# Training the educators

- Level I Thermography
- Building Performance Institute certification
- Weatherization “Train-the-Trainer” certification
- Red Link, energy recovery ventilator and heat recovery ventilators (Honeywell)
- Geothermal heating systems (Florida Heat Pump)
- Warm air systems (York)
- Ductless heat pumps (Daiken)
- Solar PV I course (residential application)
- Solar Thermal I course (residential application)
- Solar Thermal Installer certification





# Partnership with Project Learning Tree & CBIA Education Foundation

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- In 2013-2014, PLT's ***GreenSchools! Investigations*** will be piloted at EC Goodwin (New Britain), Henry Abbott Tech (Danbury), Norwich Tech & Platt Tech (Milford)
- Curriculum focuses on creating sustainable schools—students will conduct Energy, Water and Waste/Recycling Investigations
- Service learning projects in community buildings in 2014-2015 school year
- Students will receive sales training
- CBIA Education Foundation to connect students with employers/networking



# E-House Initiative—National Educational & Workforce Development Model

- 2011 National Renewable Energy Conference, Albany, NY
- 2012 ACEEE Summer Study Paper & Presentation, Monterey, CA
- 2013 Project Learning Tree International Educator's Conference, Point Clear, AL
- 2011 National Renewable Energy Conference
- Other state's technical high schools visiting E-Houses to emulate curriculum & design
- Students graduating with technical and sales skills and joining green workforce
- Positive media coverage



