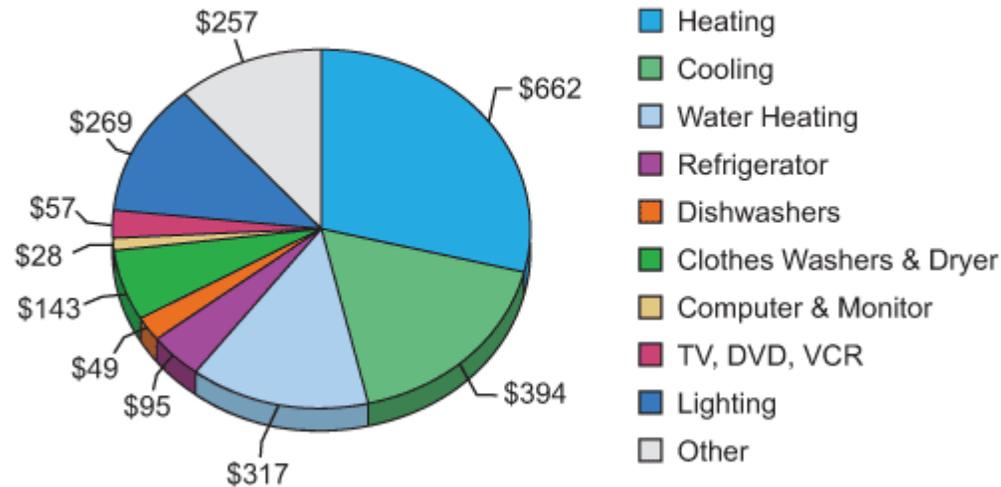


Residential Energy Use



- 114 million households¹
 - 69% built before 1980¹
 - 68% or 76 million owner occupied¹
 - 59% single-family owner occupied¹

Typical House's Annual Utility Bill



- Average energy cost \$2200/year

- Heating and Cooling almost 50%
 - 56% heat with natural gas²
 - 26% heat with electricity²
 - 64% cool with central AC²

¹2007 Building energy Data Book, DOE

²2005 RECS, Single-Family Homes Table US14, HC2.4 and HC2.6 EIA/DOE

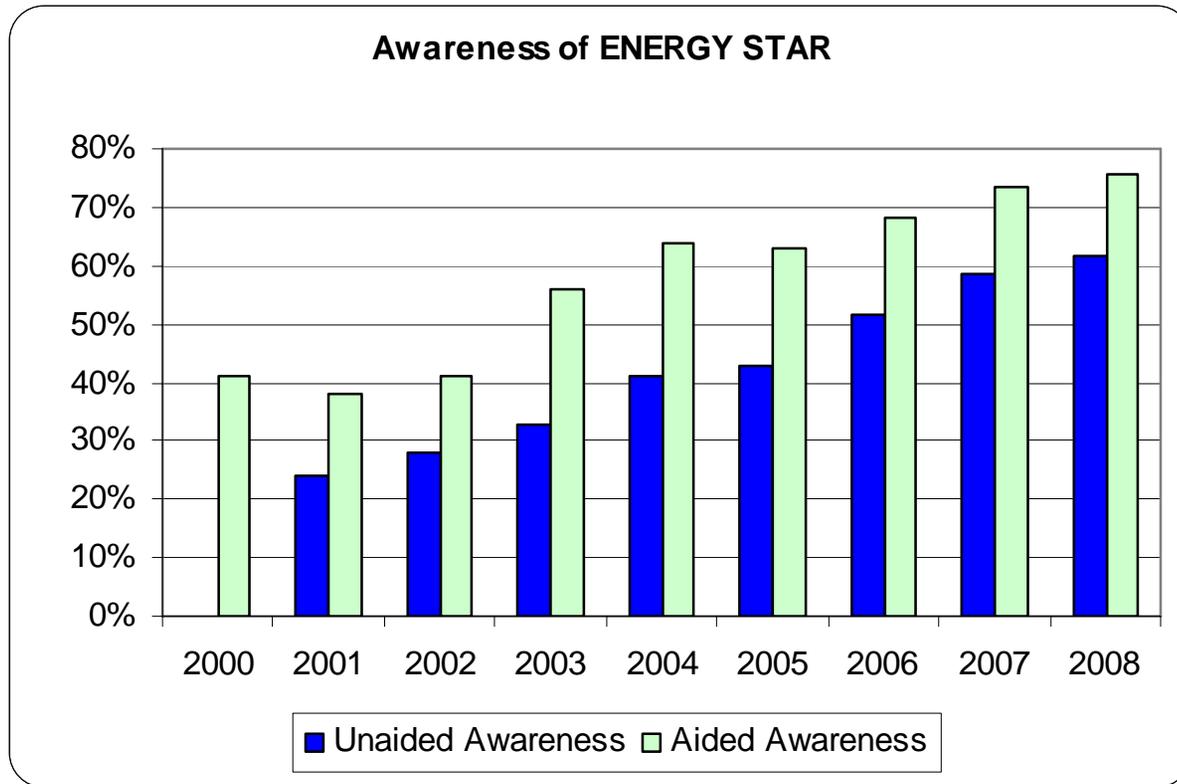
Pie Chart Source: Typical House memo, Lawrence Berkeley National Laboratory, 2009 and Typical house_2009_Reference.xls spreadsheet.

ENERGY STAR Overview



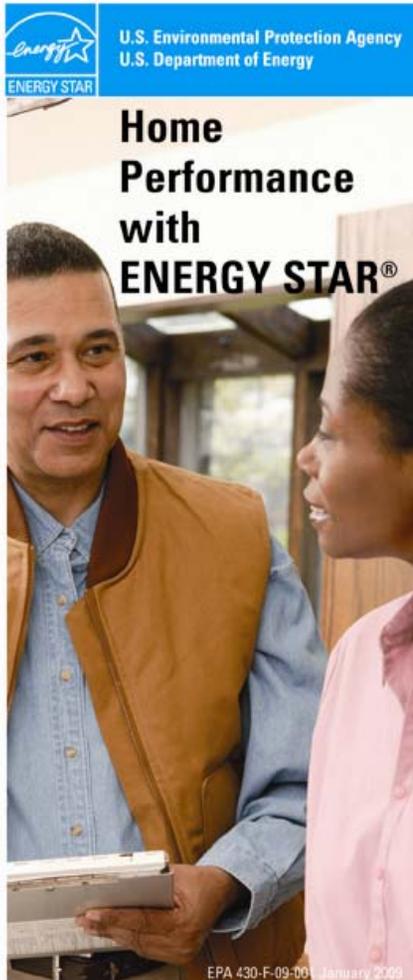
- Voluntary, public-private partnership
- Recognized, trusted symbol
- Third-party credibility of EPA and DOE
- Program Goals:
 - Reduce energy use
 - Reduce greenhouse gas emissions
- Vast network of Partners (more than 12,000)
- Large energy savings (as of 2007):
 - 180 billion kWh (or almost 5% of total electricity use)
 - 38 GW of peak power (capacity of ~ 65 power plants)

Brand Awareness



- Awareness greater than 70%
- Strong understanding

Home Performance with ENERGY STAR



- Sponsored by a utility, state or local gov.
- A network of specially-trained contractors
 - ✓ Comprehensive energy audit using state-of-the-art equipment
 - ✓ Recommend a package of improvements that typically will reduce total energy use by 20%
 - ✓ Ready to complete the work or refer to someone who can
 - ✓ Post-work performance tests
- Quality assurance program checks work of participating contractors to verify program standards are met
- Homeowner chooses and pays for improvements based on credible information

Learn more at energystar.gov

Comprehensive Energy Audit



- Whole-house energy inspection
 - Energy specialist trained in building science
- Diagnose why performance is poor
 - Completed before work
- Summary report
 - Findings
 - Recommendations
 - Estimated costs and savings



Why is my house sick?



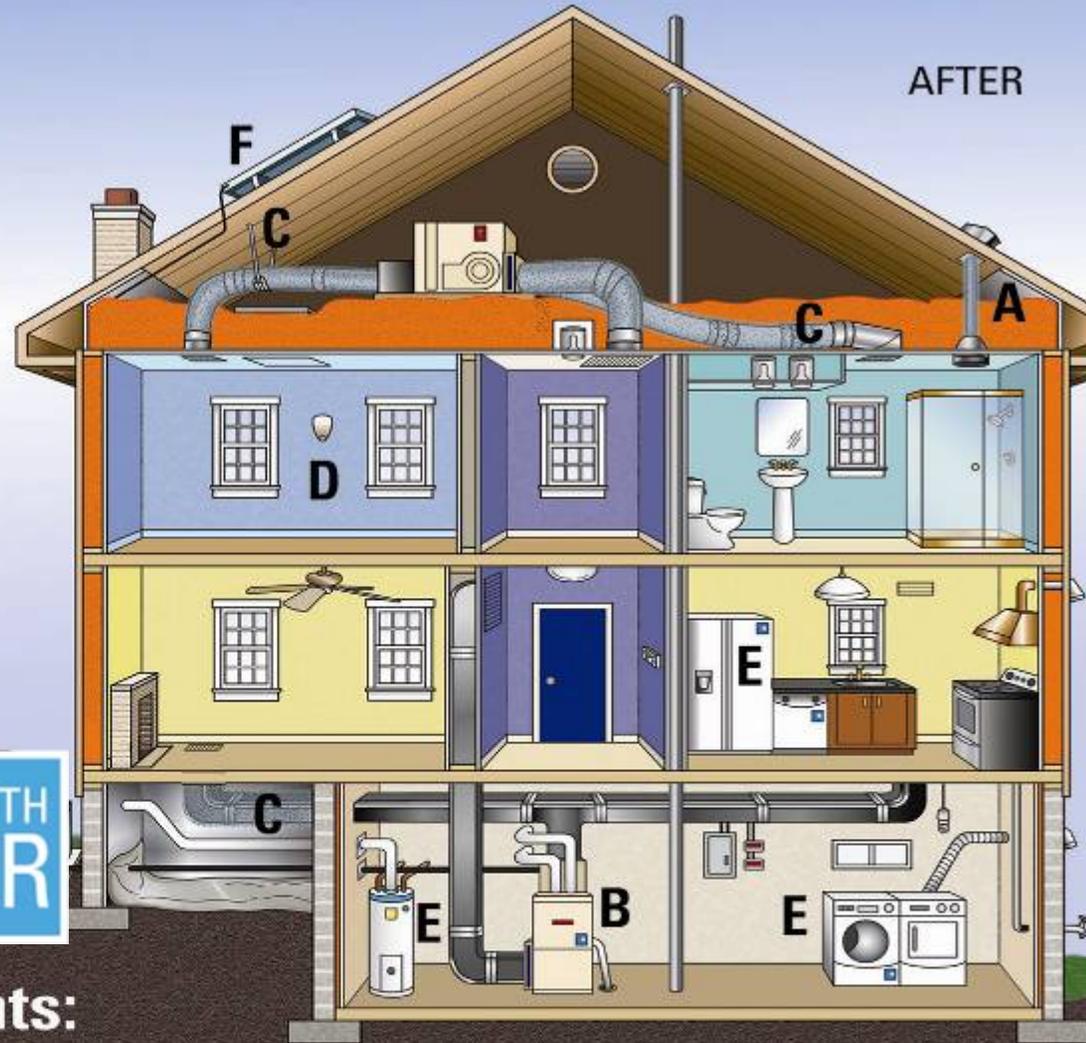
Present Results and Proposal



BEFORE



AFTER



Typical Home Improvements:

- A** Sealing Air Leaks and Adding Insulation
- B** Improving Heating and Cooling Systems
- C** Sealing Ductwork

- D** Replacing Windows
- E** Upgrading Lighting, Appliances, and Water Heating Equipment
- F** Installing Renewable Energy Systems

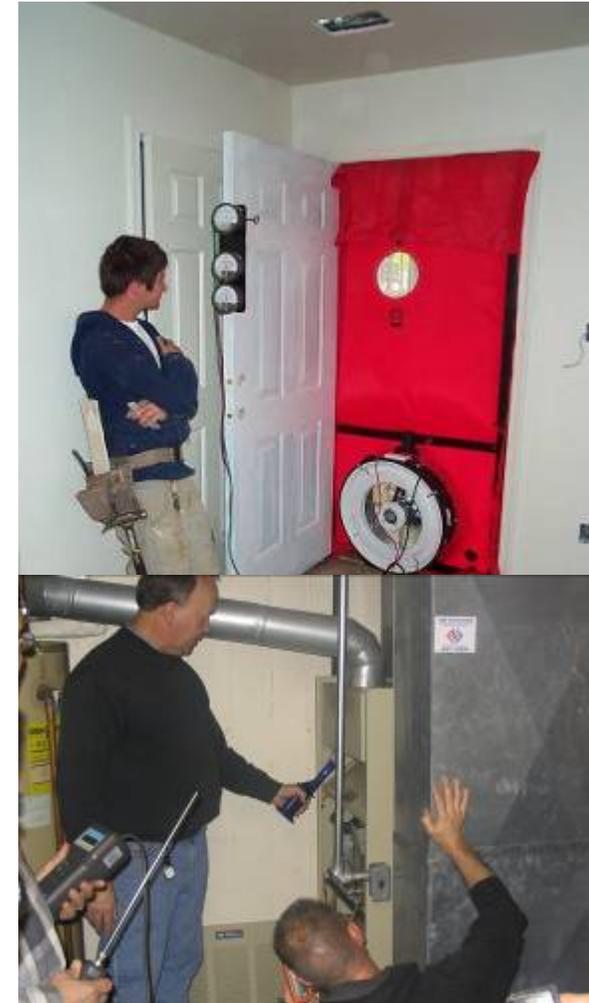
Install Improvements



Post-work Performance Tests



- Test if ventilation meets standards
- Test that gas and oil burning appliances vent properly
- Test how much performance has improved
- Protects the consumer and contractor





Starting a Program



- Program sponsor
 - utility, state or local government
 - non-profit chartered by state to administer EE
- Long-term planning and funding
- Build a network of specially-trained contractors
- Incentives and financing
- Marketing plan to raise consumer awareness

Quality Assurance



- **Essential to achieve program success**
 - Energy savings
 - Credibility/reputation
- **Requirements**
 - Contractor participation agreement
 - 100% job reporting (can be electronic)
 - 100% job report review
 - 5% onsite inspection (1 in every 20 jobs)
 - Tier 1 – 3 – 5 of first jobs will be inspected or mentored
 - Tier 2 – 20% of next 20 jobs inspected
 - Tier 3 – 5% of all jobs inspected
 - Customer satisfaction survey

Program Delivery Strategies



- Market Transformation Models
 - Home Performance Contractor - One-stop Shop
 - Hybrid - General Contractor / Consultant / Single Measure
 - Consultant 3rd Party (with trade allies)
- Resource Acquisition Model
 - Select handful of contractors to implement services

Market Transformation Models



- Build Market Infrastructure of Home Performance Companies
- Contractor Recruiting, Training, Mentoring
 - 80/20 Rule Applies
 - Heating, Cooling, Shell, and Home Assessment
 - First five jobs to receive incentives
- Contractor Partnership Agreement
 - Minimum # of jobs
 - Standards and policies
 - Reporting requirements
 - Incentives to report
- QA is important to maintain program integrity
 - May have issues with heavily selling one improvement

Different Approaches to “Getting the Job Done”



Independent
“Home Performance
Consultant”

Comprehensive,
One-Stop Shopping
“Home Performance
Contractor”



General Contractor or hybrid approach
using different mixes of in-house crews and
subcontracting.

House Audit

Air Sealing and
Duct Sealing

HVAC Improvements

Windows

Solar and more

ment
-Out

Market Transformation Models: Consultant and Contractor



• Consultant

- Relies on multiple trades
- Homeowner driven improvements
- Divert some training efforts for contractors performing work to consultants
- Existing HERS Rater Infrastructure can provide earlier program returns
- Business relationships w/ trade contractors
- Incentives directed towards front end energy audit and backend test-out are necessary
- Homeowners generally view 3rd party evaluation positively

• Contractor

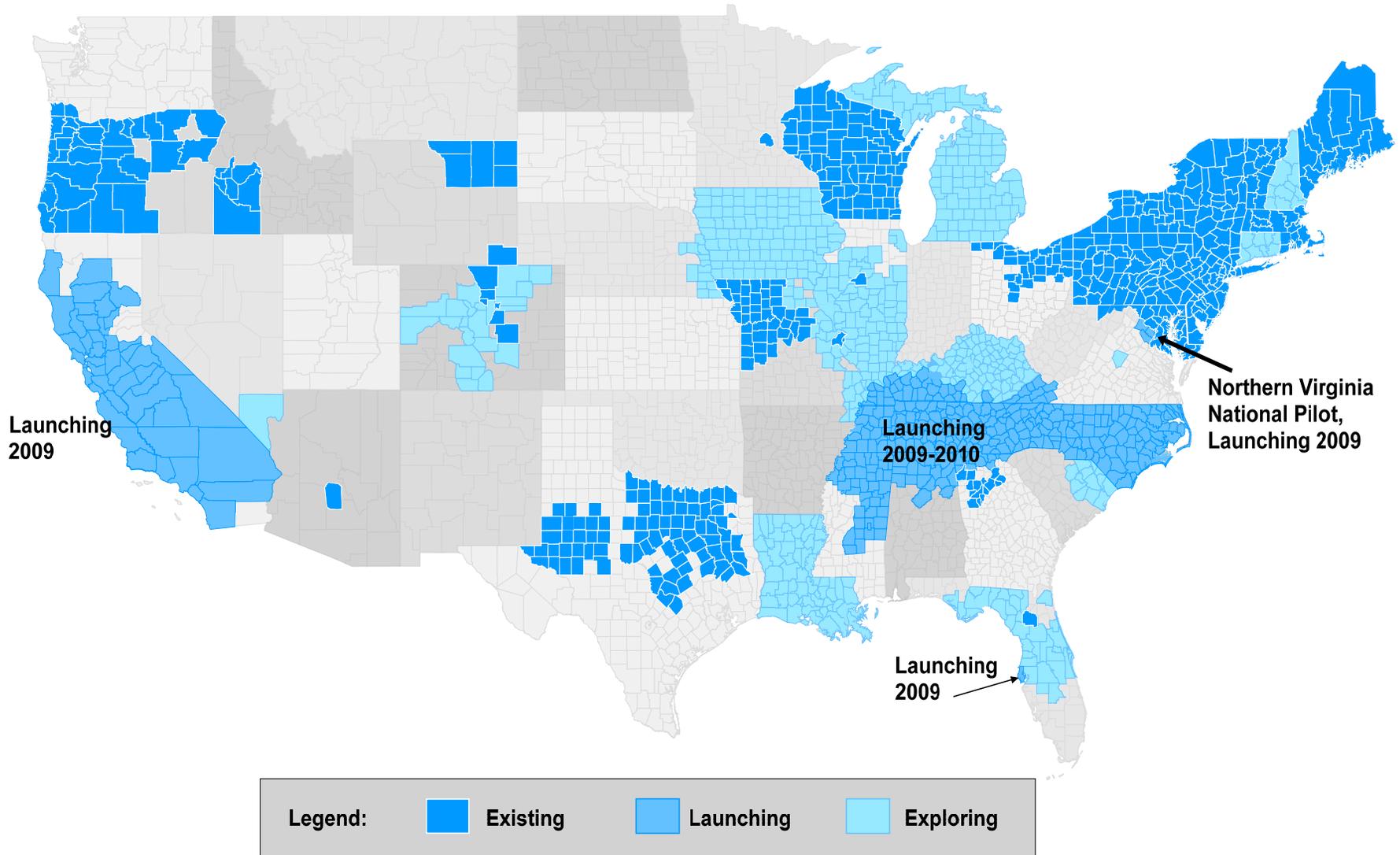
- One-stop shop
- Profit motivation to make sale of improvements
- More training
- Many don't get it and drop out
- Remodelers seem to do well
- HVAC contractors typically don't embrace program
- Energy audit delivery can be a "loss leader"
- Diagnostic process of energy audit builds trust and homeowner wants the same company to perform work

Resource Acquisition Model



- Competitive solicitation to select companies qualified to deliver home performance services
- Structure similar to Weatherization implementation
- Utility may pay for audit and direct install of some measures
- Responsive to Utilities need for quick energy savings return and cost-effectiveness
- Customer screening / education part of the services being provided
- Audit and installation can still be disconnected if not managed well

Home Performance with ENERGY STAR Program Activity April 2009



Lessons Learned



- Start small then expand
- Don't spend too much on infrastructure
- Incentives for right action
- Simple guidance for contractors
- Plan marketing strategy early
- Take the lead on marketing; contractors will follow
- Follow-through on QA



Benefits of HPwES

- HPwES also results in peak load reductions, and delivers improvements with long-term persistent energy savings that are verified.
- Typical whole-house savings with HPwES are 20-30% (varies by climate and investment).

Potential per Home Energy Savings by Climate Zone

	Northeast	Midwest	South	West
Electricity (kWh)	1400	1700	4600	1400
Natural Gas (Therms)	400	400	200	200

Source: EPA/DOE paper, *Home Performance with ENERGY STAR- A cost-effective strategy for improving efficiency in existing homes*

- Creates jobs that stay in the community, helping the local economy.
- HPwES provides the means for remodelers, HVAC installers, insulation installers, and home energy raters to diversify their businesses, providing the flexibility to adapt to market changes.

Benefits of Partnering with ENERGY STAR



- For Program Sponsors
 - Program Development Guidance
 - Sponsor Guide
 - Financing Guide
 - Online Marketing Toolkit
 - Consumer Brochure
 - Promotional Banner Stands
 - Promotional Video
 - Web site Templates
 - Energy Benchmarking Tool for web site
- For Participating Contractors
 - Contractor Business Development Guide
 - Profiting from Home Performance
 - Contractor Recruitment Workshops
 - Home Performance Sales Workshop
 - Consumer Brochure
 - Bill Analysis Tool
 - Online Marketing Toolkit

A promotional banner stand for Home Performance with ENERGY STAR. It features the ENERGY STAR logo, a cutaway diagram of a house, and text describing the benefits of energy efficiency. The banner includes a list of results and typical home improvements, along with the website www.energystar.gov.

HOME PERFORMANCE with ENERGY STAR

Home Performance with ENERGY STAR® Gets Results

A whole-house approach to energy efficiency:

- Utility bill savings of 20% or more
- Fewer drafts and more comfortable rooms
- Work performed by specially trained contractors

Third-party quality assurance to make sure work gets done right

- Reduced greenhouse gas emissions protect the environment

Typical home improvements:

- Sealing air leaks
- Adding insulation
- Upgrading heating and cooling systems
- Replacing lighting and appliances
- Installing high-performance windows

www.energystar.gov

For More Information



www.energystar.gov/HPwESsponsors

HomePerformance@EnergyStar.gov