

Large Builders and Energy Efficiency

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Meritage Homes

- 9th Largest Homebuilder in the US
- 1st Large Builder to make ENERGY STAR in every home it builds
- Meritage Green program which combines contemporary design, energy efficiency, water management, and new technologies to produce homes that provide better comfort, superior components, healthier air, and are cheaper to own and operate.

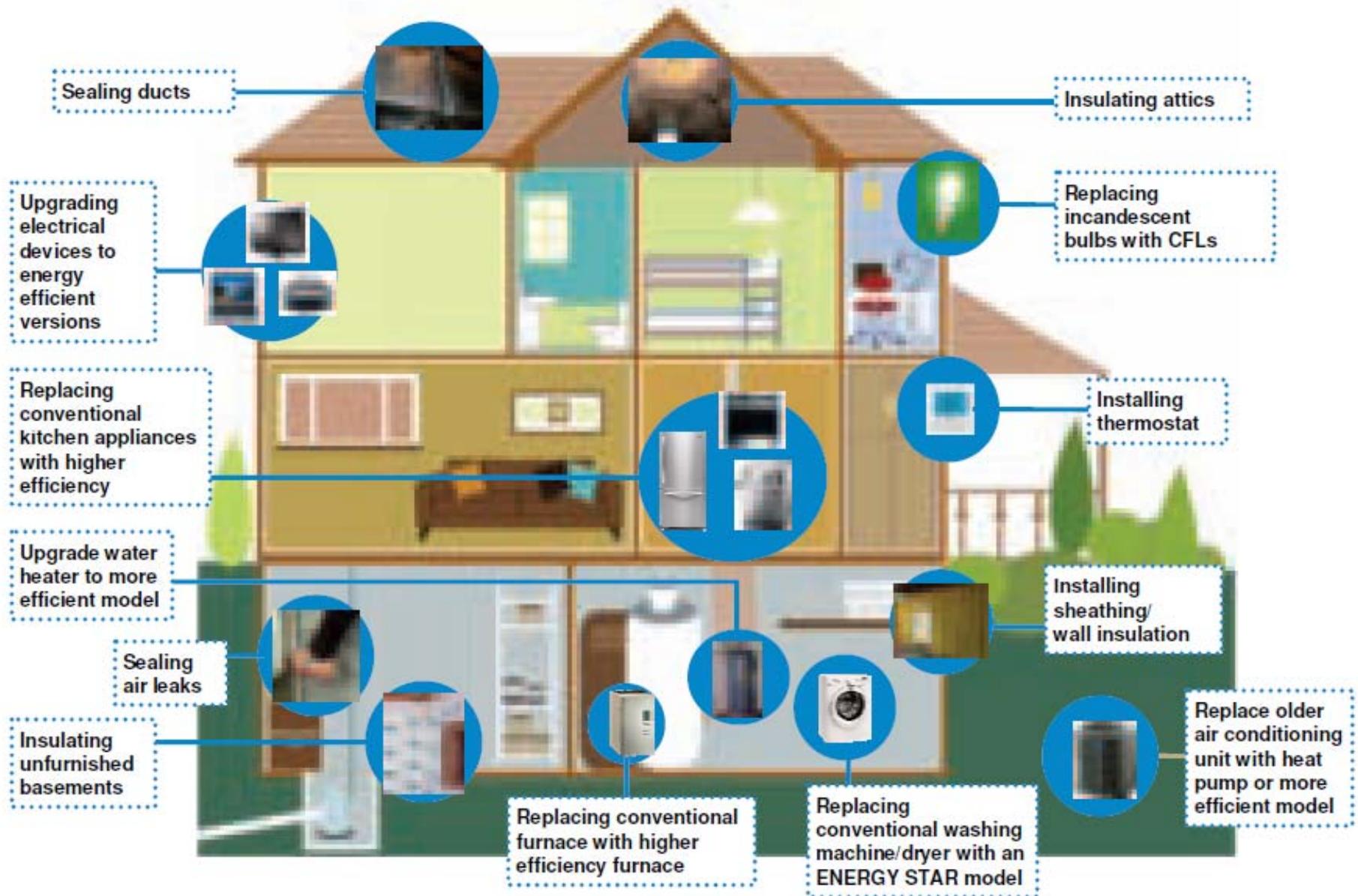


Wildfire Resilience

- 50% Water conservation allowed in current code
- Cost of increased energy (Impact on Purchase Price)
- Reduced Energy Costs (ROI)
- Energy Efficiency should make homes more affordable, not less
- McKinsey Report

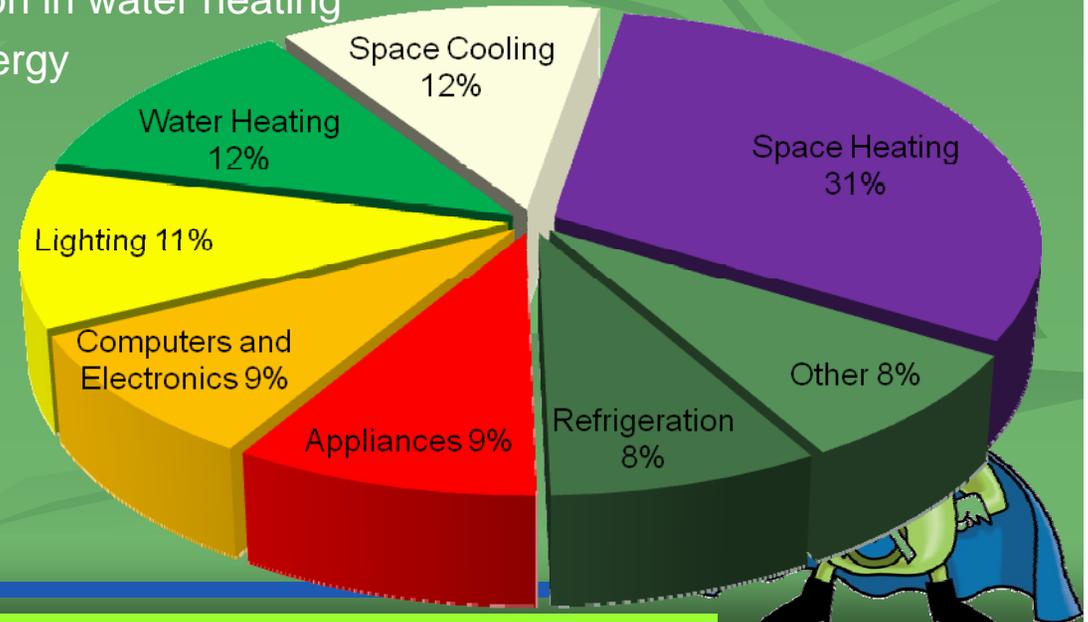


Current Code Practices create 50% Waste

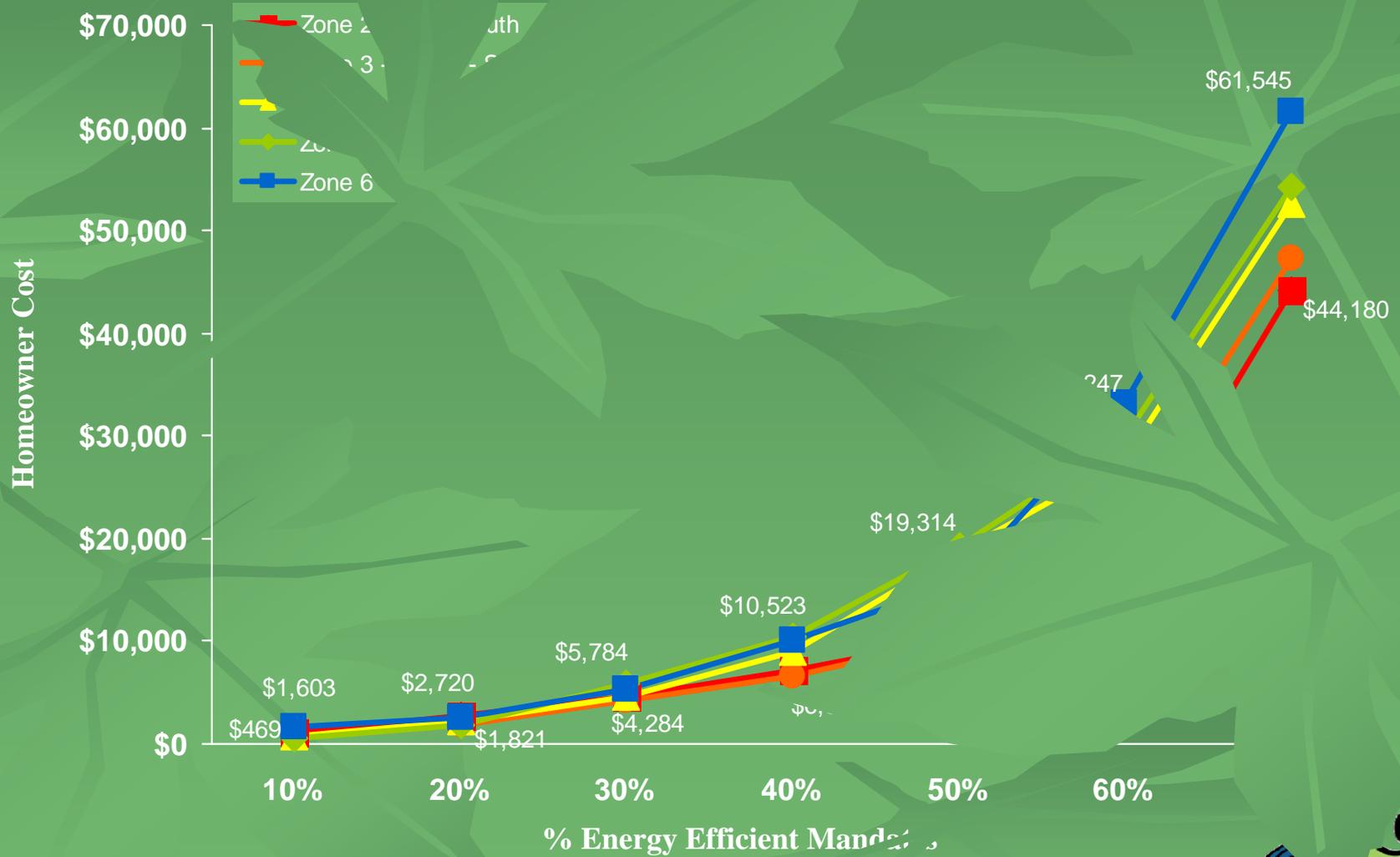


Energy Efficiency

- ENERGY STAR Appliances: 10% reduction in Energy
- Sealing buildings: 5% to 10% reduction in Energy
- Low E Windows: 5% to 10% reduction in Energy
- Programmable Thermostats: 5% to 10% reduction in H.v.
- Duct Sealing: up to 5% reduction in Energy
- SEER 14: 20% to 40% less energy used by air conditioning units
- Conditioned Attic: 10% reduction in HVAC
- Radiant Barriers: 5% to 10% reduction in HVAC
- Low Flow Faucets: up to 50% reduction in water heating
- Water Heaters: 5% to 25% reduction in water heating
- Lighting: up to 90% reduction in Energy

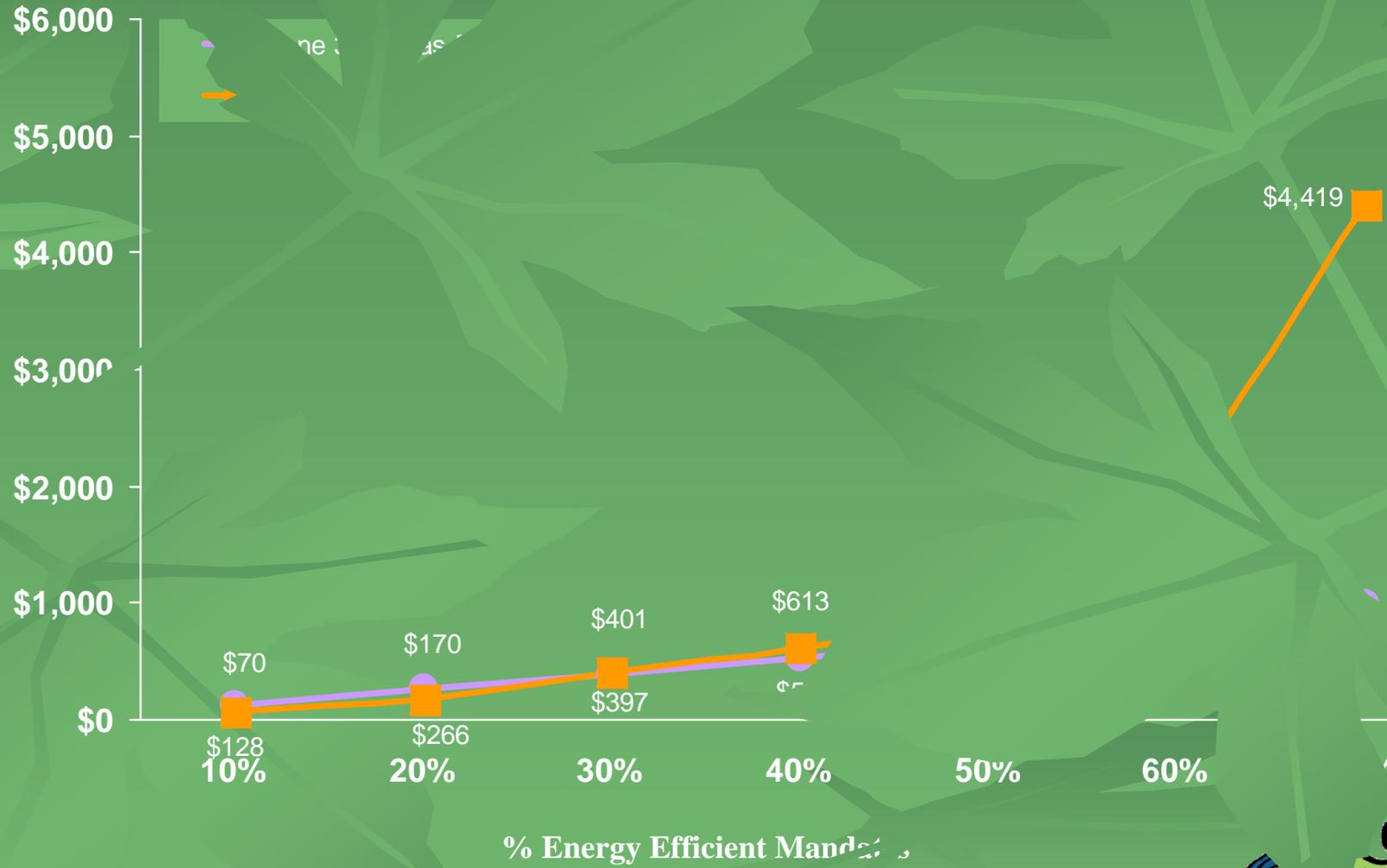


Cost to Meet Energy Efficiency by Climate Zone



Cost-Benefit Analysis

Climate Change (Dallas, TX)



McKinsey Energy Efficiency Report

SIGNIFICANT POTENTIAL AVAILABLE IN THE NEAR TERM

The opportunity for greater efficiency in stationary energy use is substantial. It is less sensitive to discount factors, participant costs of capital, and carbon prices – and could be pursued more quickly – than is typically acknowledged, but only if the United States can find ways to address the associated barriers and unlock the potential.

Business-as-usual (BAU) projections for 2020 suggest U.S. end-use energy consumption addressed in this report⁶ will grow by 0.7 percent per year from 2008, reaching 39.9 quadrillion BTUs in 2020. If the nation can overcome the barriers and capture the full NPV-positive efficiency potential in 2020, the U.S. could consume some 23 percent less energy per year, saving more than 9 quadrillion BTUs of end-use energy (including 1.09 billion kWh of electricity) and realizing an upfront investment savings of roughly

Impact on poverty alleviation. While energy efficiency can result in substantial savings for the average household, these savings can have an even larger impact on the quality of life of low-income households. While the average household spends approximately 5 percent of its income on energy bills, the average low-income household spends about 15 percent, and some households on fixed incomes spend as much as 35 percent. After home weatherization, the average spending for energy drops to 10 percent among low-income households and 21 percent for fixed-income households. These savings materially increase the household standard of living and can be put to other uses, including setting the thermostat to more a comfortable temperature, as well as for food, clothing, or education.

Various 'Opportunities'

- ENERGY STAR
- Building America
- LEED
- Environments for Living
- Municipal Green Programs
- Independent Utility Energy Efficient Programs



Obstacles and Opportunities

- Build a business (e.g. like oil sales)
- Fluff and Fat (e.g. like oil sales)
- Bureaucracy
- Customer Awareness
 - Expectations
 - Perceived Value
 - Wallet (options vs standard)
 - Actual Value (Cost of Ownership)
- 3rd Party Validation



Marketing

- What is the value of energy efficiency?
 - Appliances and lighting are responsible for about 20% of a U.S. home's energy use. Energy Star use 10 to 50 percent less energy with no sacrifice in features, style or comfort.
 - Meritage homes are tested throughout the design and build process for a Home Energy Rating System (HERS) score, confirming design, framing, insulation, sealing, ductwork, energy efficient HVAC, and high performance windows. Meritage homes to the high efficiency standards established by the U.S. Green Building Council (USGBC) Energy Star qualified homes are at least 15 percent, and Meritage homes are 20 to 30 percent, more energy efficient than the minimum requirements of the International Residential Code.
 - Energy Star qualified homes will save the average homeowner \$270 million in 2010 alone on their utility bills. They also have average greenhouse gas emissions equivalent to those from 37 vehicles (at 20%)



Consumers are the Decision

MS

- Legislators
 - Regulators
 - Builders
 - Utilities
-
- Awareness, Affordability, Ability



How ENERGY STAR Adds Value

Typical
 Price
 Location
 Facade
 Floor Plan
 Amenities

+

ENERGY STAR
 Adv. Construction
 Tight Construction Details
 Efficient Equipment
 Lighting and Appliances
 Third-party Verified

=

Additional Benefits
 Quieter
 More Comfortable
 No Drafts
 Fewer Bugs/Pests
 Higher Quality
 Lower Maintenance
 Lower Costs
 Better Investment



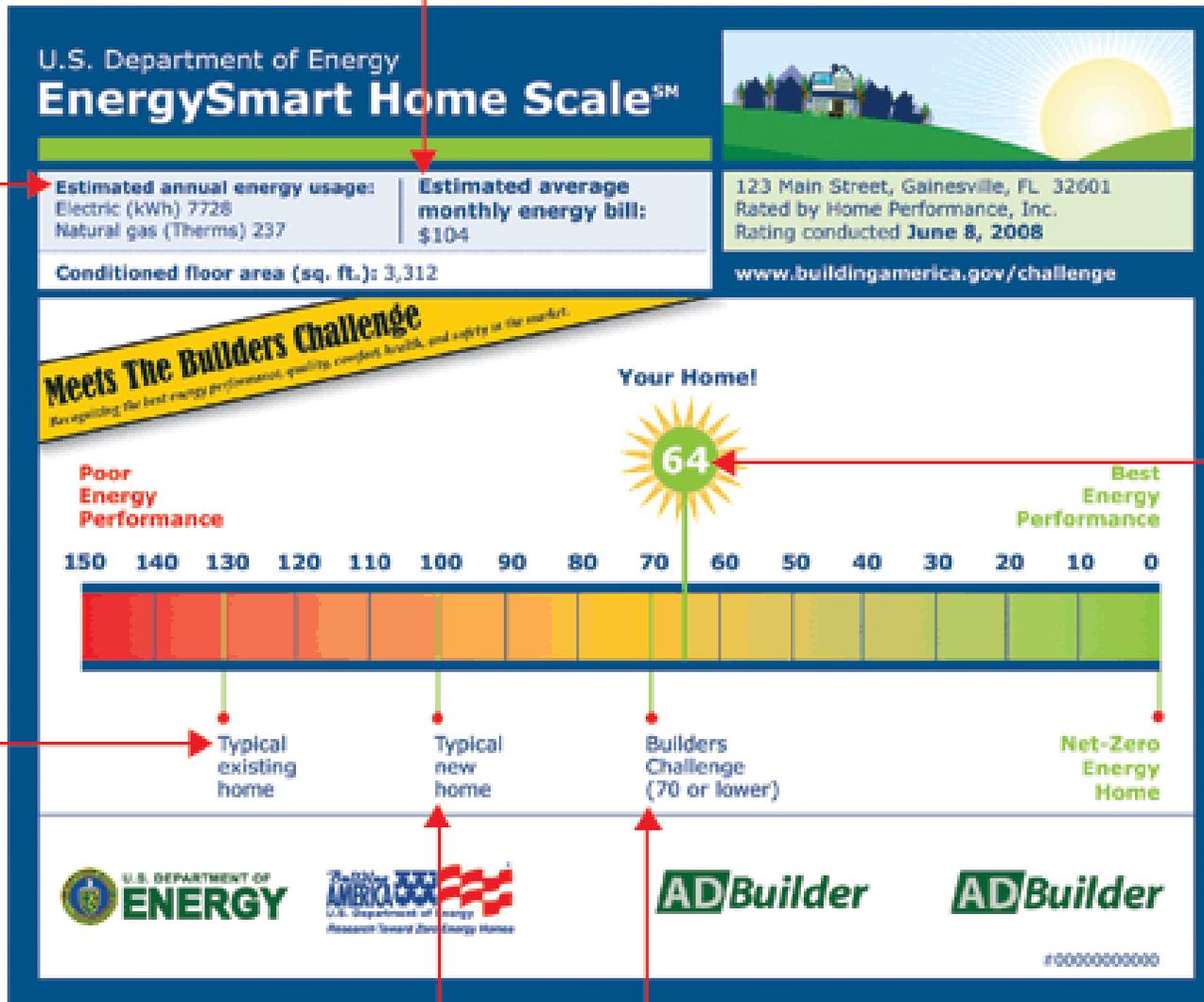
Obstacles and Opportunities

- **Awareness**
 - Customer Awareness
 - Energy Labeling (Energy Star, EnergyGuide, Disclosure Measure)
- **Affordability**
 - Appraisers
 - Lenders
- **Ability**
 - Energy Modeling (What gets measured, gets valued)
 - Builder Training (Awareness, process, and cost control)
 - Learning Curve (Efficiency of Scale)



Estimated monthly energy bill

Estimated annual energy use (gas and electric)



Verified performance estimate for home. A 64 rating on the E-Scale saves about 36% in energy use on utility bills.

Average energy performance of existing housing stock

Average energy performance of a home built to code (2004 IECC)

Threshold for a home to meet the Builders Challenge

Things to watch

- Renewables
- Infiltration
- Lighting
- Occupancy Controls
- Water
- Sourcing (endemic energy)



Thank You

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