

Historical Perspective on Energy Codes and Appliance Standards

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Discussion Outline

- History of Energy Codes
- History of Appliance Standards
- Energy Savings due to Codes & Standards – So far...
- Energy Savings – The Household Example

Energy Codes Contain Minimum Energy Efficiency Thresholds for all New and Existing Buildings

- Energy Codes

- Lower Energy Bills



Public Benefit Aspect

- Reduce Need for New Utility Capacity, and have
- Environmental Benefits

- Energy Codes include

- Lighting
- Insulation
- Glazing
- Heating and Cooling Equipment
- Other Energy Efficiency Measures

Energy Codes Today

- Energy codes (Like building codes in general) vary from State to State.
- Some are State-developed to account for State-specific concerns such as the climate and the economy.
- Some states adopt State-specific amendments to national model codes.

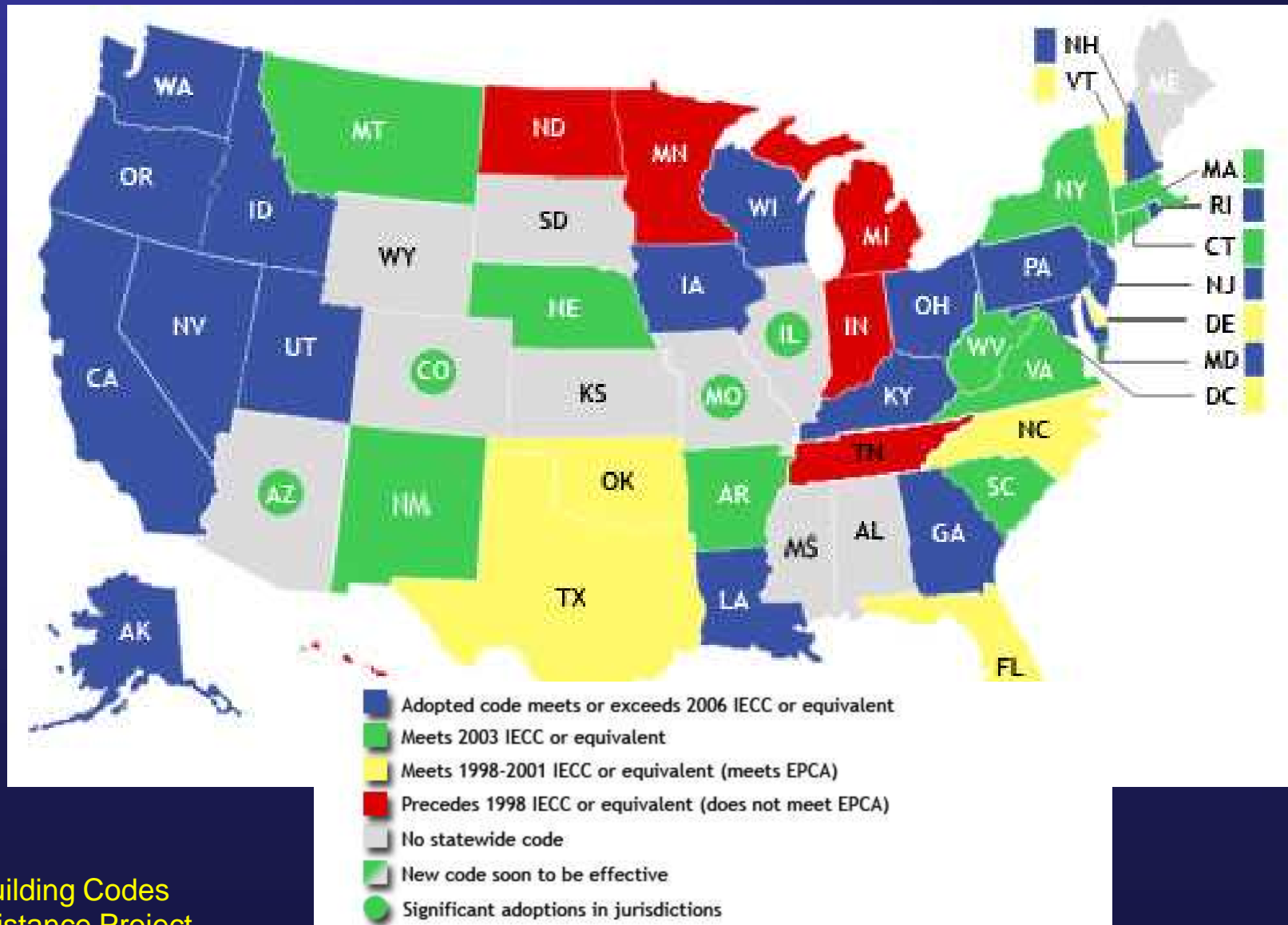
Energy Codes and Federal Legislation

- Energy Policy Act of 1992
 - “All States must review and consider adopting the national model energy standard.”
- Energy Policy Act of 2005
 - Specified the most current model energy codes (IECC 2004, ASRAE 90.1 2004).

Note: IECC-The International Energy Conservation Code is a building code developed by the International Code Council. ASRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers



Status: Residential State Energy Codes



Appliance Standards – States are Early Adopters

- California
 - (1974) – Refrigerators, freezers, **room** and central **air conditioners**.
 - (1983) – Expanded scope to other appliances such as space heaters and water heaters.
- Florida, Kansas, and New York
 - Early and mid 1980s – central and room air conditioners.
- Massachusetts.
 - (1986) – Refrigerators, room air conditioners, water heaters, and fluorescent ballasts.

Manufacturers Supported Federal Standards

Early Federal Appliance Legislation

- 1975 Energy Policy and Conservation Act (EPCA)
 - Directed National Institute of Standards and Technology to develop test procedures for measuring the energy efficiency of appliances.
- 1978 National Energy Conservation Policy Act (NECPA)
 - Gave DOE the authority to set minimum energy performance standards (MEPS) to replace those set in EPCA in 1975.
 - Changed the energy standards from voluntary to mandatory.
 - Federal standards took precedent over the State standards.

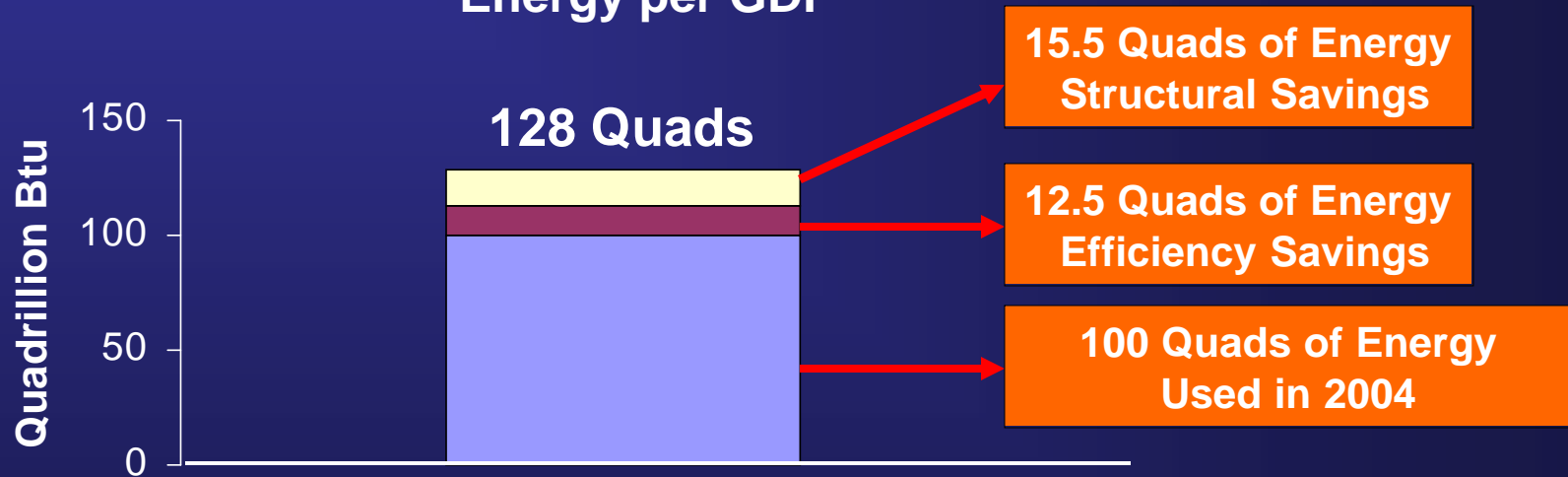
Products Under Standards Expand with New Legislation

- National Appliance Energy Conservation Act of 1987 (NAECA)
 - Household Appliances
- Energy Policy Act of 1992 (EPAct)
 - Commercial Appliances, Motors, and Lighting
- Energy Policy Act of 2005 (EPAct)
 - Commercial Appliances, Lighting, Exit Signs, Traffic and Pedestrian Signals
- Energy Security and Independence Act of 2007 (ESIA)
 - Updates for Household Appliances, Lighting, Motors, Walk In Coolers



10 Percent less Energy Due to Energy Efficiency Savings

Energy Consumption in 2004, based on 1990 Energy per GDP

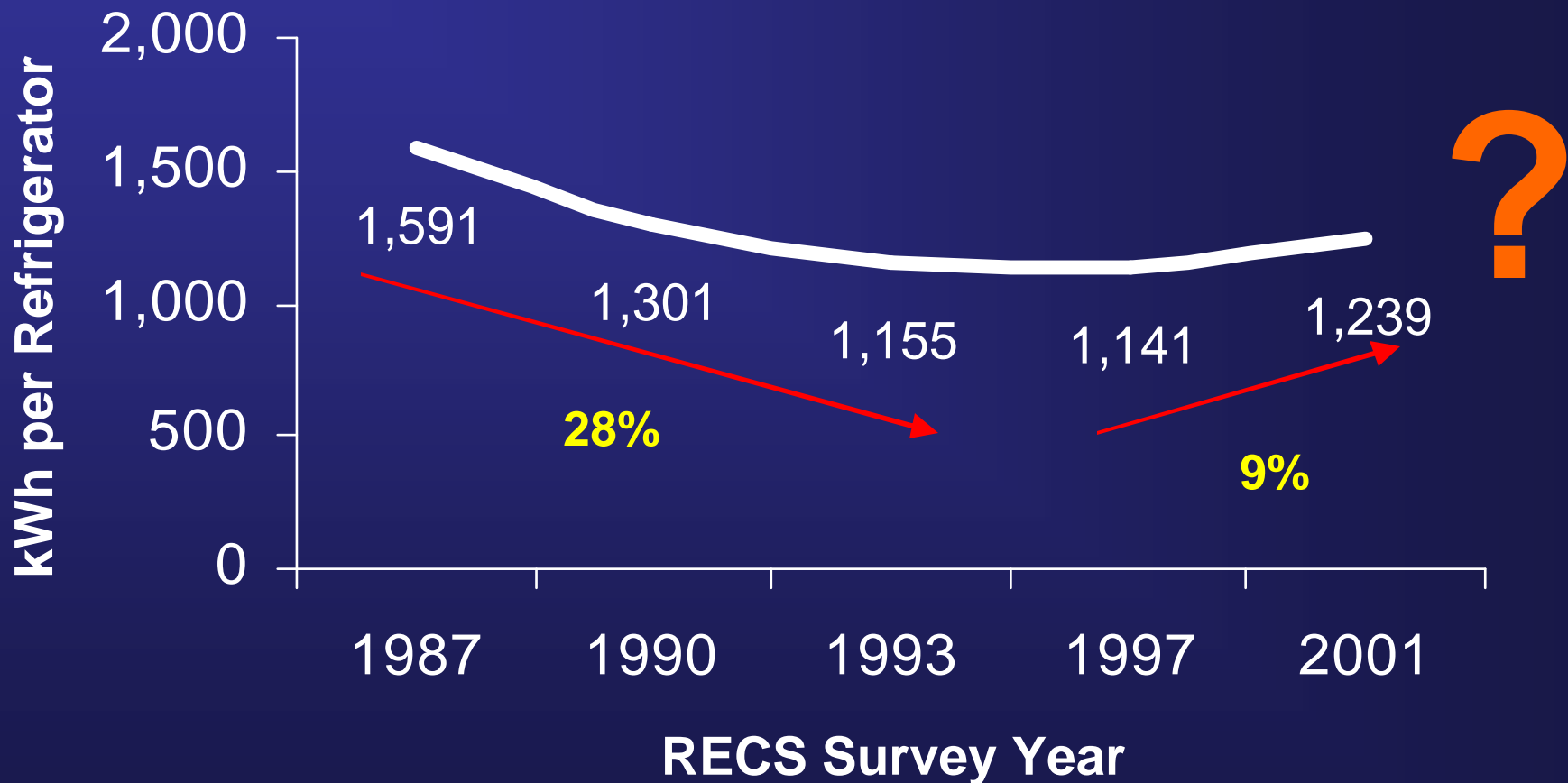


- Actual 2004 Consumption
- Energy Efficiency Savings
- Other Savings

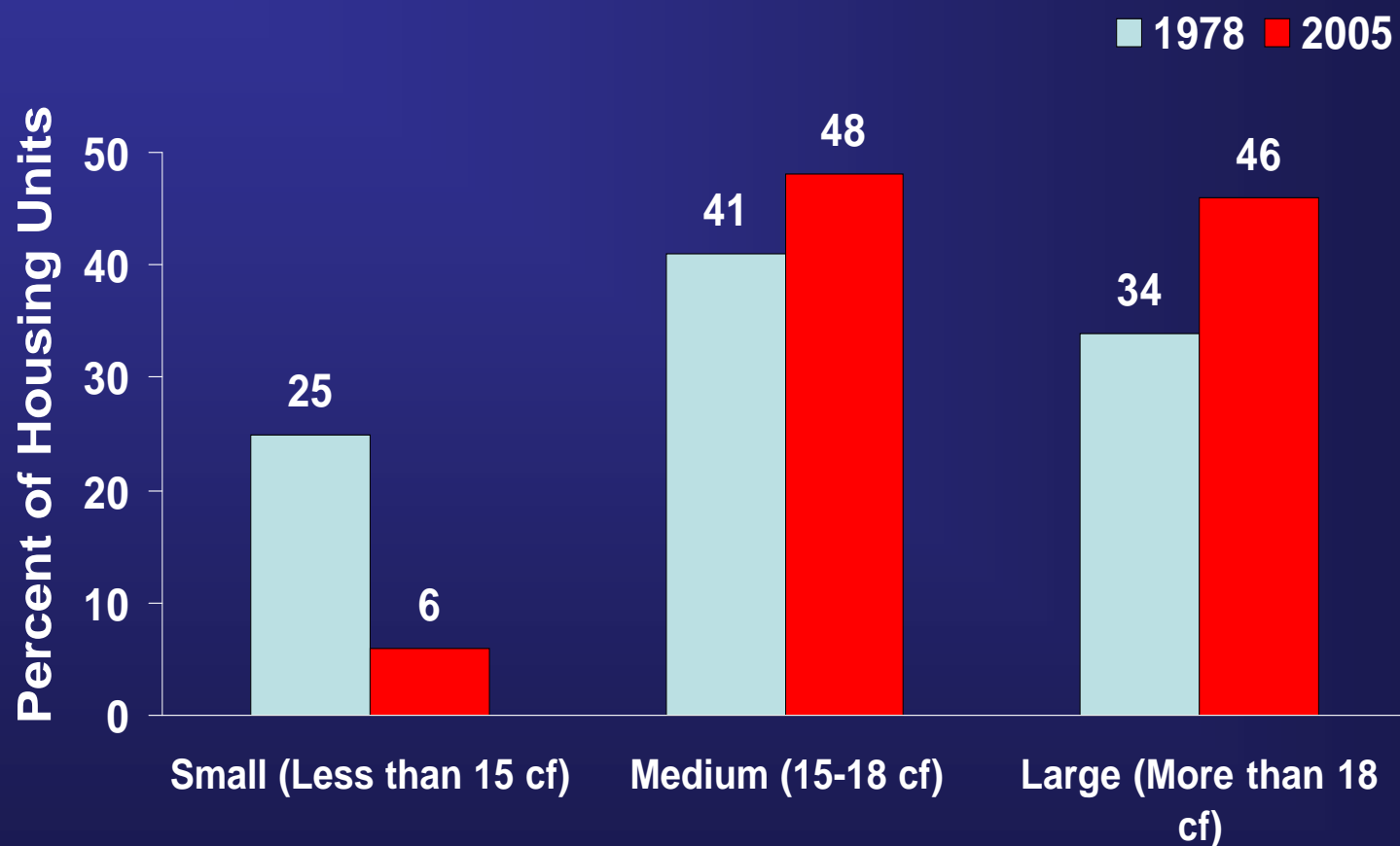
Hojjati, Behjat, Energy Information Administration, Consumption Brief: "How Have Energy Improvements Affected Energy Consumption", 2008 (Forthcoming).



Electricity Use Falls as New Efficient Refrigerators Replace Old Refrigerators



U.S. Householders are Buying Large Refrigerators



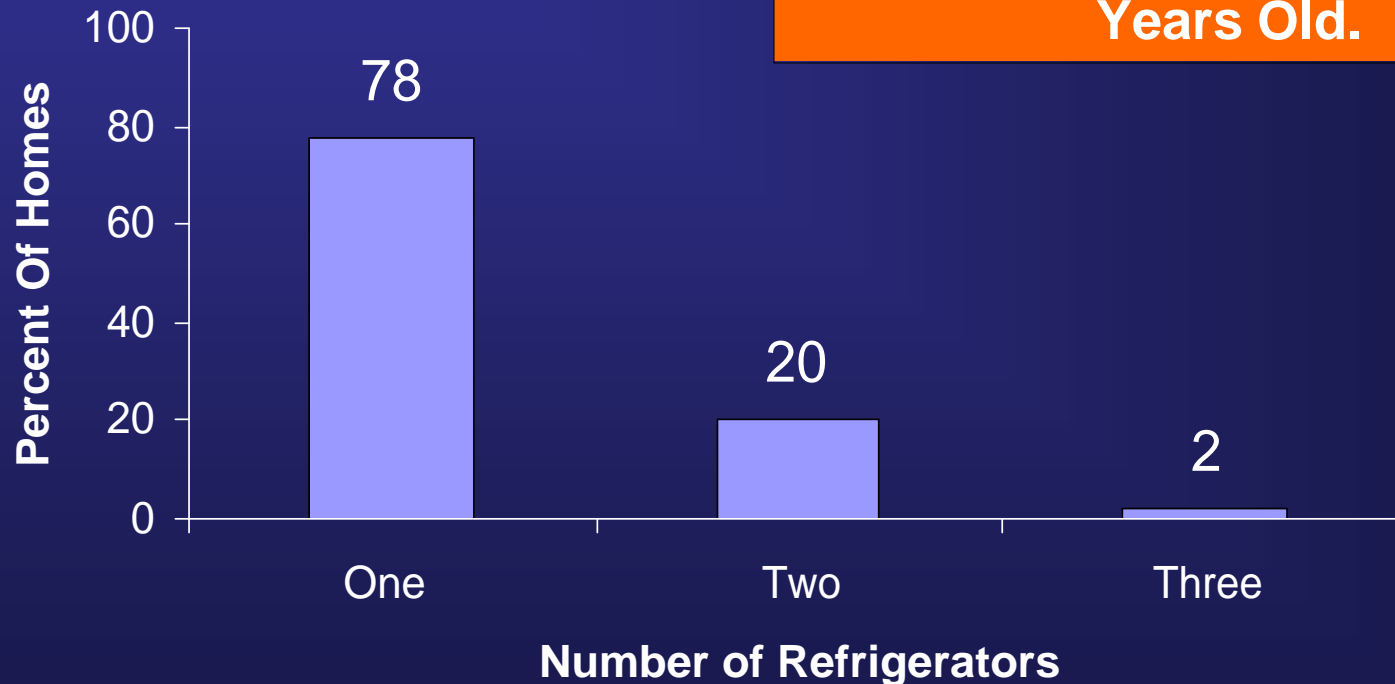
cf = cubic feet.

Energy Information Administration: 1978 and 2005 Residential Energy Consumption Survey.

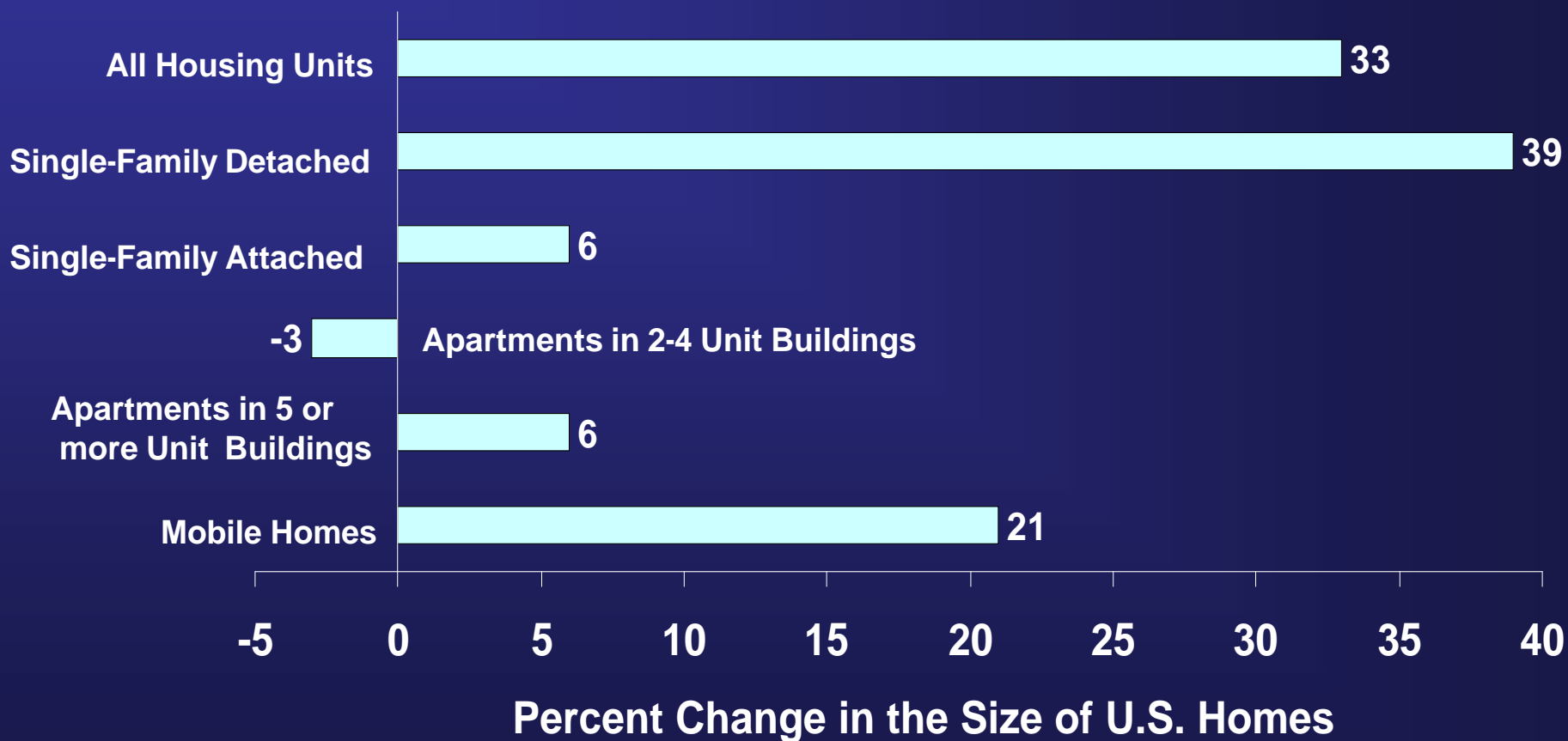


22 Percent of Homes Have More than One Refrigerator in 2005

At Least 50% of the Second or Third Refrigerators are at Least 10 Years Old.



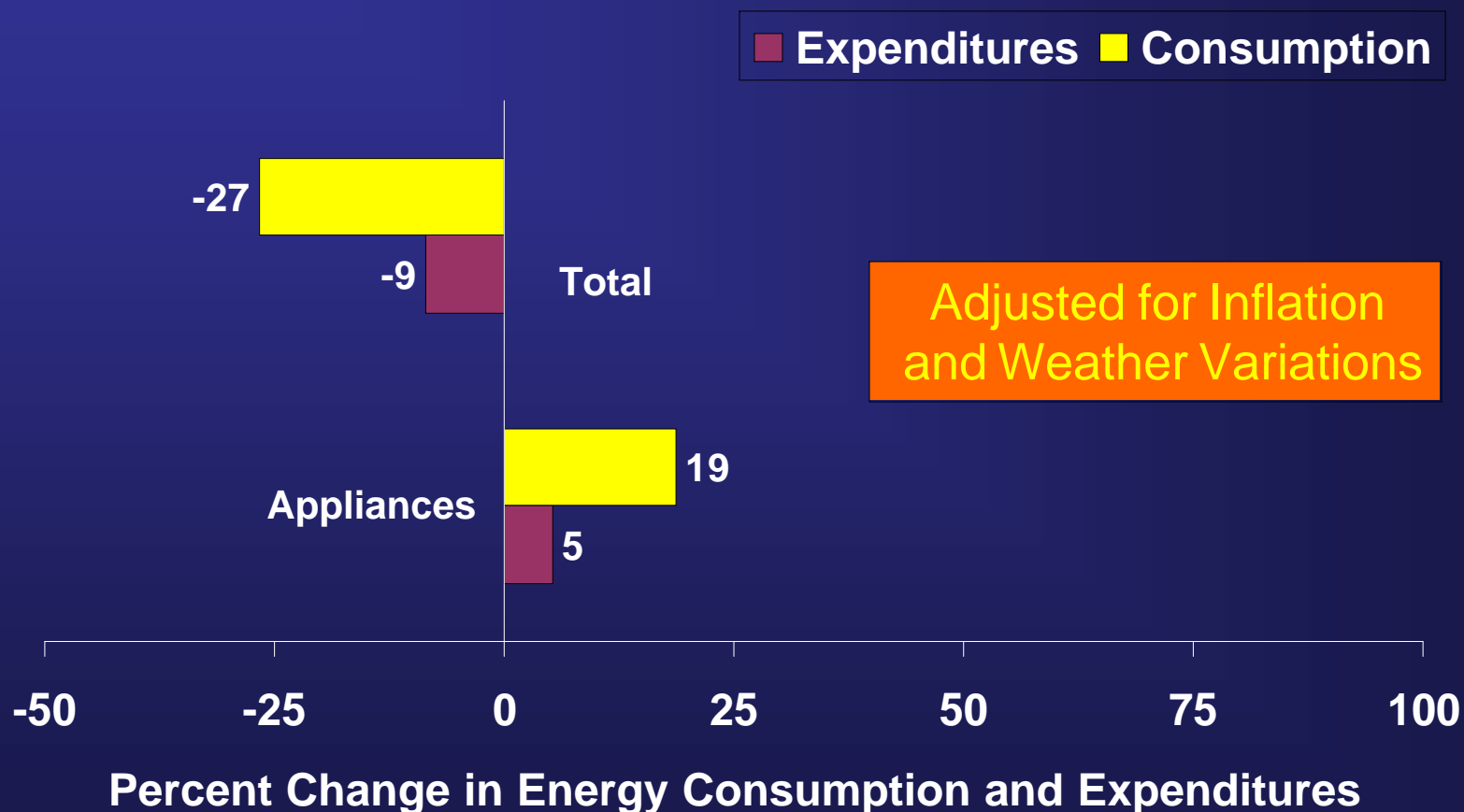
Homes in 2005 were 33 Percent Larger than 25 Years Ago



: U.S. Energy Information Administration; 1981 and 2005 Residential Energy Consumption Surveys.



Energy Used for Appliances Continue to Grow 1978-2001



U.S. Homes are Turning into Small Offices

