

ADDING AFFORDABILITY TO THE EQUATION

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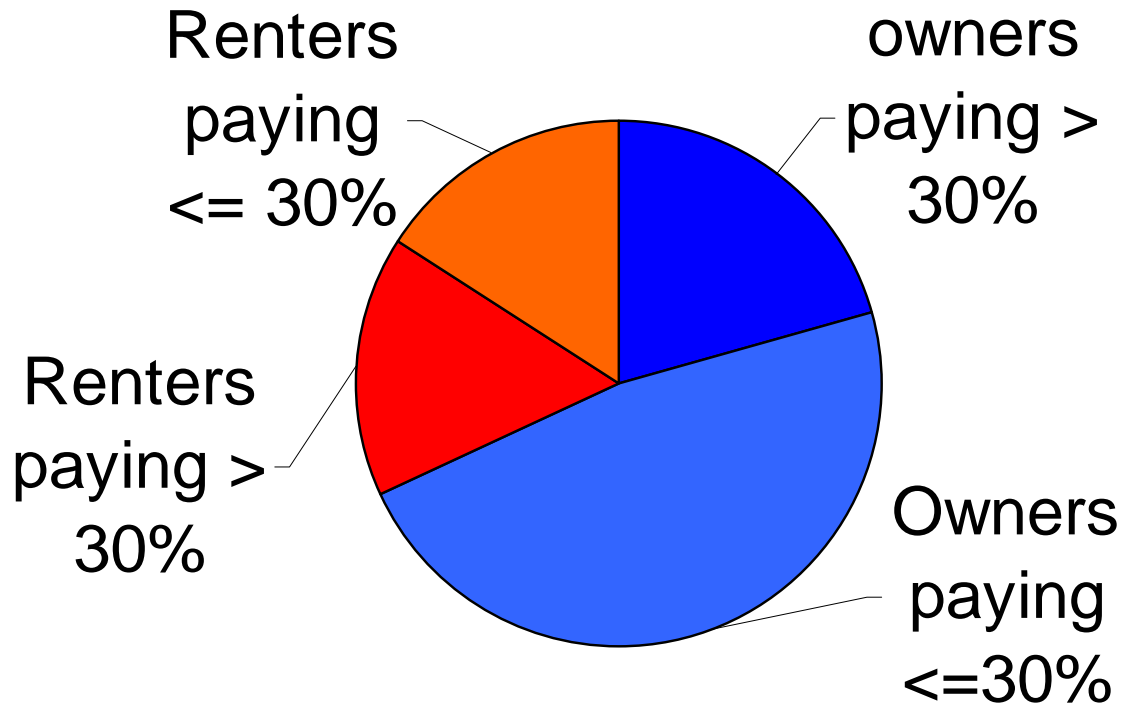
NAHB

NATIONAL ASSOCIATION
OF HOME BUILDERS

OUTLINE

- Current affordability magnitudes
- Residential sector share of energy and emissions
- Variation in energy consumption by year built
- Occupants usage impact
- Expected costs

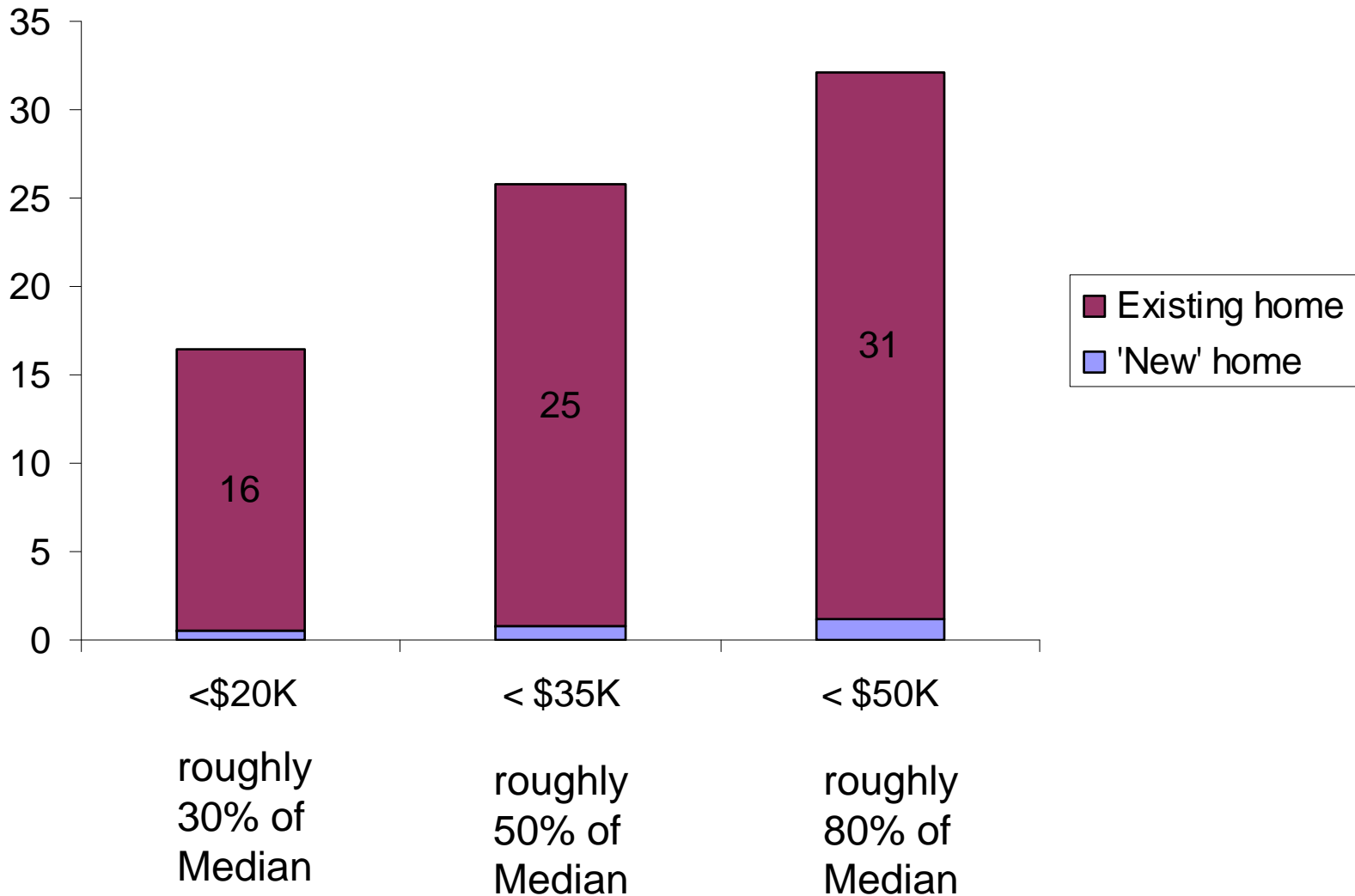
HOUSEHOLDS WITH PAYMENT BURDEN



40 million households paying > 30% of income for housing

HOUSING COSTS > 30%

millions



Residential Shares

Sector	Energy Consumption		CO ₂ Emissions	
	(Trillion BTUs)		(Million Metric Tons)	
Industrial	31,982	32.0%	1,804	30.0%
Transportation	28,065	28.1%	1,877	31.2%
Residential	21,874	21.9%	1,266	21.1%
Commercial	17,968	18.0%	1,061	17.7%

Residential Share Across Types and Year Built

Total	96,498	100.00%
Residential Sector	20,228	20.96%
Manufactured Housing	1,301	1.35%
Fossil Fuel Used to Generate Electricity	815	0.84%
Consumed by Residence	486	0.50%
Single Family and Multifamily Built before 1991	16,498	17.10%
Fossil Fuel Used to Generate Electricity	8,743	9.06%
Consumed by Residence	7,755	8.04%
Single Family and Multifamily Built 1991-2001	2,429	2.52%
Fossil Fuel Used to Generate Electricity	1,386	1.44%
Consumed by Residence	1,043	1.08%

Sources: Annual Energy Review by the Energy Information Administration; the 2001

Residential Energy Consumption Survey, Energy Information Administration.

HVAC Energy Consumption

By Year Built

	Before 1940	1950-1959	1970-1979	1990-2001
<i>I. Energy consumption per unit in 1000 Btu</i>				
Electricity consumed at the residence	5,647	7,861	14,906	13,355
Energy used to generate the electricity	16,882	23,503	44,563	39,928
Other energy used for HVAC	77,482	51,328	32,901	35,249
Total energy used for HVAC	100,011	82,693	92,370	88,531
<i>II. 1000 Btu per square foot of heated area</i>				
Electricity consumed at the residence	3.98	6.23	9.05	6.65
Energy used to generate the electricity	11.89	18.63	27.05	19.87
Other energy used for HVAC	47.39	31.80	19.18	16.48
Total energy used for HVAC	63.26	56.67	55.28	43.00
Average square feet of heated area	1,974	1,876	2,024	2,578
No. single family detached homes (1000s)	11,210	10,597	9,384	9,563

Other energy includes natural gas, fuel oil, liquefied petroleum gas, kerosene, wood, and solar power

Occupant Impact on Energy Consumption

- 1 additional refrigerator +33.9%
- 1 additional TV + 8.6%
- Separate freezer +22.0%
- Leave coffee warmer on +10.6%
- Use PC 16-40 hrs/week +11.5%
- 1 light on over 12 hrs/day +15.4%
- Outdoor lights on all night +19.2%

Preliminary Comparison of Additional Construction Costs for Green Building Compliance

Rating System	Bronze/ Certified	Silver	Gold	Emerald/ Platinum
NAHB Green Building Guidelines	\$1,900 - \$2,700	\$4,000 - \$6,000	\$8,200 - \$11,000	NA
National Green Building Standard	\$2,000 - \$3,000	\$4,700 - \$6,000	\$11,500 - \$13,600	\$25,600 - \$31,200
LEED for Homes	\$6,400 - \$11,000	\$8,800 - \$13,800	\$19,300 - \$22,500	\$29,800 - \$38,000

Percent Change in Rent

50% of Median Income

Rating System	Bronze/ Certified	Silver	Gold	Emerald/ Platinum
NAHB Green Building Guidelines	2.5%	5.2%	10.7%	NA
National Green Building Standard	2.6%	6.1%	15.0%	33.3%
LEED for Homes	8.3%	11.4%	25.1%	38.8%

* based on 50% of MI paying 30% of income