



Representing America's Natural Gas Utilities

## FINANCIAL AND OPERATIONAL INFORMATION SERIES

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### BILL PAYING INSECURITY AND SPACE HEATING

Within the Energy Information Administration's 2015 Residential Energy Consumption Survey, respondents were able to report any financial trouble or insecurity paying their space heating bills. Respondent answers ranged from never, once to twice a year, to as often as every bill. In 2015, 21% of all households reported some insecurity paying for their heating bills. Energy insecurity can be found in all types of households using different energy sources. Lower-income households and households with inefficient electric equipment experience the highest levels of energy insecurity.

Natural gas customers with either a central air furnace or a boiler unit had a low rate of 16% to 17% of all households. Homes with heat pumps showed the same insecurity rate of 16%. Electrical resistance heating was the second most popular appliance option and one of the most insecure when paying bills, with an insecurity rate of 27%. Despite the similarities for gas and heat pumps, the survey question does not factor in price; only that households had trouble paying bills. Since there are 5 times as many gas homes, any significant impact on cost could increase insecurity.

#### Findings

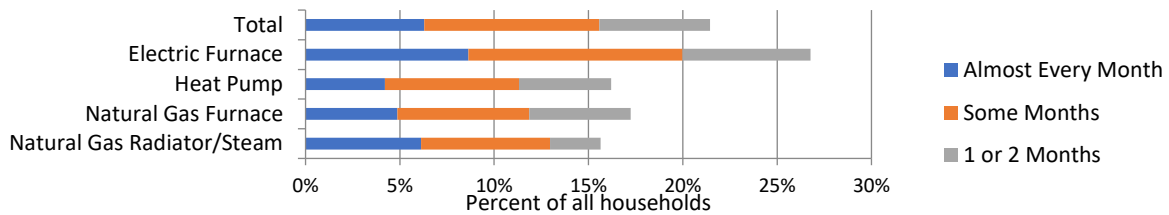
- Low-income households, defined as reporting an income of less than \$40,000 in 2015, accounted for 42% of all homes and had an energy bill insecurity rate of 34%. Middle-income households that report up to \$100,000 accounted for 37% of all households and had a lower insecurity rate of 17%.
- There are 16 million low-income natural gas homes with an bill insecurity rate average of 32%. Heat pumps and electric furnace units make up a smaller share of low-income customers, serving 3.4 and 8 million households in 2015. Heat pumps had an insecurity rate of 28%, while electric furnaces were over 36%.
- There are 15 million middle-income households gas that use natural gas for space heating. Energy bill insecurity was much lower in these middle-income gas homes, with only 12% reporting some trouble paying for space heating. Heat pumps are used in 4.5 million middle-income households with an average reported bill insecurity rate of 14%. Electrical resistance space heating is also common in middle-income households at over 5 million units and a reported bill insecurity rate of 18% compared to the national average of 17%.
- Detached single-family homes account for 62% of households, more than 27 million of which use natural gas furnaces as the only source of space heating. The rate of insecurity amongst these households was 14%. Heat pump customers had a similar 13% rate of insecurity but with only 7 million customers or approximately one-fourth of the total market using just natural gas furnaces.
- Multifamily units account for 26% of total households. Two-thirds of multifamily structures have five or more units. Based on the survey, heat pumps and electrical resistance units had lower insecurity rates (23% and 24%) than gas furnaces or radiators in smaller two to four-unit buildings (30% and 36% for gas). However, in larger multifamily structures, gas had the opposite impact, with rates between 14% and 18% for gas furnaces and radiators compared to 25% and 22% for heat pumps and electrical resistance units.
- More electric heating is found in areas where heating loads are lower but cooling loads are higher, which can influence energy insecurity rates. In the case of New England, no respondents reported having a heat pump if natural gas service was available.

**Source: Energy Information Administration, Residential Energy Consumption Survey 2015**

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# SUPPLEMENTAL MATERIALS FROM THE RESIDENTIAL ENERGY CONSUMPTION SURVEY 2015

## Frequency of Monthly Heating Bill Insecurity by Primary Fuel and Appliance (RECS 2015)



### Number of Customers with Some Bill Paying Insecurity

Primary Fuel & Technology Type	Never	Almost Every Month	Some Months	1 or 2 Months	Total	Percent Bill Insecurity
Natural Gas Furnace & Steam	35,287,087	2,140,180	2,959,734	2,150,312	42,537,313	17%
Natural Gas Other	1,829,406	187,393	339,229	301,861	2,657,889	31%
Heat Pump	8,505,694	427,880	720,756	496,338	10,150,667	16%
Electric Furnace	11,118,507	1,310,467	1,723,305	1,030,396	15,182,675	27%
Electric Other	9,210,417	1,211,374	1,904,318	975,987	13,302,096	31%
All Other Equipment Combos	26,913,550	2,160,645	3,322,415	1,981,000	34,377,609	22%
Total	92,864,661	7,437,939	10,969,757	6,935,894	118,208,250	21%

### Total % Percent With Bill Paying Insecurity by Building Type

Primary Fuel & Technology Type	Mobile Home	Detached Single Family	Attached Single Family	2 - 4 Unit Multi-Family	5 or More Multi-Family	Total
Natural Gas Furnace & Steam	46%	14%	22%	35%	16%	17%
Natural Gas Other	20%	20%	37%	44%	27%	26%
Heat Pump	31%	13%	24%	23%	25%	16%
Electric Furnace	40%	29%	19%	24%	22%	27%
Electric Other	54%	32%	29%	26%	26%	31%
All Other Equipment Combos	37%	19%	21%	39%	22%	22%
Total	41%	18%	23%	33%	21%	21%

### Total Number of Customers for Each Building Type

Primary Fuel & Technology Type	Mobile Home	Detached Single Family	Attached Single Family	2 - 4 Unit Multi-Family	5 or More Multi-Family	Total
Natural Gas Furnace & Steam	1,028,715	29,197,138	3,158,912	3,332,077	5,928,641	42,645,483
Natural Gas Other	92,731	2,291,071	277,201	438,320	565,581	3,664,904
Heat Pump	612,692	7,362,437	673,259	470,530	1,031,750	10,150,667
Electric Furnace	1,695,267	6,678,997	903,985	1,182,045	4,722,381	15,182,675
Electric Other	1,195,511	5,048,824	609,254	1,890,428	4,558,080	13,302,096
All Other Equipment Combos	2,162,128	23,292,574	1,387,521	2,078,843	4,341,358	33,262,424
Total	6,787,043	73,871,041	7,010,132	9,392,242	21,147,792	118,208,250

Percent of Total Market	6%	62%	6%	8%	18%	100%
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### Total Number of Customers for by Income

Primary Fuel & Technology Type	Under \$20,000	\$20,000 - \$39,999	\$40,000 - \$59,999	\$60,000 - \$79,999	\$80,000 - \$99,999	\$100,000 - \$119,999	\$120,000 - \$139,999	over \$140,000	Total
Natural Gas Furnace & Steam	6,989,042	9,120,059	6,103,948	5,346,633	3,902,380	3,047,917	2,404,574	5,730,931	42,645,483
Natural Gas Other	631,390	709,522	2,187,440	379,542	147,162	133,599	71,399	126,156	2,526,210
Heat Pump	1,469,771	1,948,363	2,187,876	1,225,484	1,057,899	748,743	559,456	953,075	10,150,667
Electric Furnace	4,078,835	4,148,743	2,485,186	1,784,518	897,231	815,274	314,926	657,963	15,182,675
Electric Other	4,319,692	3,675,176	1,834,656	1,590,274	706,631	542,899	201,660	431,109	13,302,096
All Other Equipment Combos	5,370,477	7,704,635	5,468,092	4,904,306	2,967,697	2,822,457	1,872,746	3,290,708	34,401,117
Total	22,859,206	27,306,498	18,407,198	15,230,757	9,678,999	8,110,889	5,424,760	11,189,943	118,208,250

### Percent of Customers with Bill Paying Insecurities by Income

Primary Fuel & Technology Type	Under \$20,000	\$20,000 - \$39,999	\$40,000 - \$59,999	\$60,000 - \$79,999	\$80,000 - \$99,999	\$100,000 - \$119,999	\$120,000 - \$139,999	over \$140,000	Total
Natural Gas Furnace & Steam	36%	28%	19%	9%	7%	4%	6%	1%	17%
Natural Gas Other	33%	40%	43%	36%	21%	18%	0%	0%	33%
Heat Pump	36%	23%	14%	21%	4%	5%	4%	0%	16%
Electric Furnace	41%	31%	17%	18%	18%	9%	21%	11%	27%
Electric Other	42%	31%	34%	23%	8%	15%	0%	3%	31%
All Other Equipment Combos	39%	29%	29%	14%	8%	7%	8%	4%	21%
Total	39%	29%	23%	15%	8%	7%	7%	3%	21%

Note: Each primary fuel and technology type reflects households that only used that form of space heating. Customers who use a combination of fuels were summarized in the "all other equipment combos" category. This separation was made to help identify any energy insecurity concerning a specific fuel and appliance type.

Source: Energy Information Administration, Residential Energy Consumption Survey 2015

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