

Statement of Eugene M. Trisko
Before the Committee on Science, Space and Technology
Subcommittee on Energy and Environment
June 6, 2012

Good afternoon, Chairman Harris, Ranking Member Miller, and members of the Subcommittee,

I am here today to summarize the findings of a study of the impacts of rising energy costs on American families. I have conducted this study periodically since 2000 for the American Coalition for Clean Coal Electricity and its predecessor organizations. The latest version, "Energy Cost Impacts on American Families, 2001-2012," is attached to my testimony.

The report analyzes consumer energy cost increases since 2001 for all U.S. households and examines the pattern of energy expenditures among four income levels and for senior and minority families. It relies on historical energy consumption survey data and current energy price forecasts from the U.S. Department of Energy's Energy Information Administration (EIA). Energy costs are summarized in nominal dollars by household income category for U.S. households in 2001, 2005, and 2012, using data from EIA and the U.S. Bureau of the Census. Energy price projections for 2012 are based on the DOE/EIA Short-Term Energy Outlook released in January 2012. At that time, EIA projected an average gasoline price of \$3.54 per gallon in 2012.

Energy expenditures as a percentage of nominal after-tax income are estimated after the effects of federal and state income taxes and federal social insurance payments. The 2012 projections in this report are based on U.S. Bureau of the Census household income data for 2010 (the most recent available) and projected energy prices for 2012.

Key findings of this report are:

- In 2010, the median household income of U.S. families was \$49,445. Slightly more than one-half of U.S. households have average pre-tax annual incomes below \$50,000. In 2001, families with gross annual incomes below \$50,000 spent an average of 12% of their average after-tax income of \$21,834 on residential and transportation energy. In 2012, these households are projected to spend 21% of their average after-tax income of \$22,390 on energy.
- Family incomes have not kept pace with the rising costs of energy. Since 2007, the U.S. Census Bureau reports that real (inflation-adjusted) median household income has declined by 6% (from \$52,823) and is 7% below the median household income peak (\$53,252) that occurred in 1999.
- Poverty rates have increased to historic highs along with the declining long-term trend in family incomes. The number of people in poverty in 2010 was the largest number in the 52 years since the Census Bureau began to publish poverty statistics.

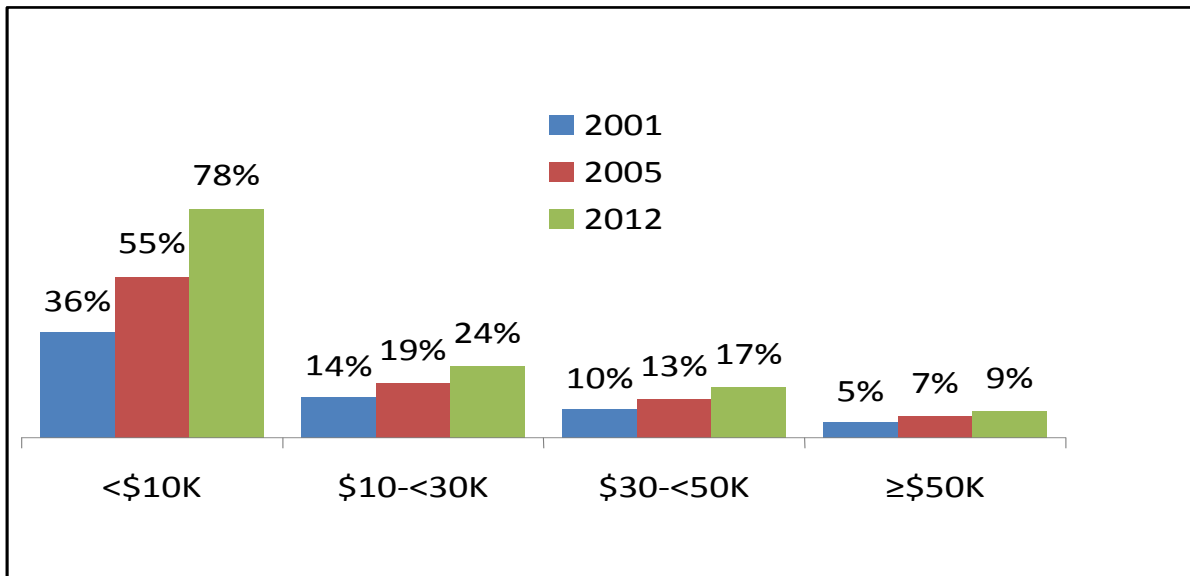
- Higher gasoline prices account for nearly four-fifths of the increased cost of energy for consumers since 2001. In nominal dollars, average U.S. household expenditures for gasoline will grow by 136% from 2001 to 2012, based on EIA gasoline price projections for 2012. In comparison, residential energy costs for heating, cooling, and other household energy services will increase on average by 43%, from \$1,493 in 2001 to a projected \$2,131 per household in 2012.
- Among consumer energy goods and services, electricity has maintained relatively lower annual average price increases compared to residential natural gas and gasoline. Electricity prices have increased by 51% in nominal dollars since 1990, well below the 72% rate of inflation in the Consumer Price Index. The nominal prices of residential natural gas and gasoline have nearly doubled and tripled, respectively, over this period.
- Virtually all of the residential electricity price increases over the past two decades have occurred since 2000. These increases are due in part to additional capital, operating and maintenance costs associated with meeting clean air and other environmental standards.
- Lower-income families are more vulnerable to energy costs than higher-income families because energy represents a larger portion of their household budgets. Energy is consuming one-fifth or more of the household incomes of lower- and middle-income families, reducing the amount of income that can be spent on food, housing, health care, and other necessities.

- Fixed-income seniors are a growing proportion of the U.S. population, and are among the most vulnerable to energy cost increases due to their relatively low average incomes. In 2010, the median gross income of 25.4 million households with a principal householder aged 65 or older was \$31,408, 36% below the national median household income.

These summary findings are discussed in more detail in the principal report. I am happy to answer any questions that the Subcommittee may have.

Thank you.

Energy Cost Impacts on American Families, 2001-2012



Energy Costs as Percentage of Annual Household After-Tax Income

February 2012

www.americaspower.org

Summary of Findings

This report analyzes consumer energy cost increases since 2001 for all U.S. households and examines the pattern of energy expenditures among four income levels and for senior and minority families in 2012. It relies on historical energy consumption survey data and current energy price forecasts from the U.S. Department of Energy's Energy Information Administration (EIA).¹ Energy costs are summarized in nominal (then-current) dollars by household income category for U.S. households in 2001, 2005, and 2012, using data from EIA and the U.S. Bureau of the Census.² Energy price projections for 2012 are based on the DOE/EIA Short-Term Energy Outlook released in January 2012.

Energy expenditures as a percentage of nominal after-tax income are estimated after the effects of federal and state income taxes and federal social insurance payments. The 2012 projections in this report are based on U.S. Bureau of the Census household income data for 2010 (the most recent available) and projected energy prices for 2012.

Key findings of this report are:

- In 2010, the median household income of U.S. families was \$49,445. Slightly more than one-half of U.S. households have average pre-tax annual incomes below \$50,000. In 2001, families with gross annual incomes below \$50,000 spent an average of 12% of their average after-tax income of \$21,834 on residential and transportation energy. By 2005, energy costs rose to 16% of their average after-tax income of \$22,682. In 2012, these households are projected to spend 21% of their average after-tax income of \$22,390 on energy.
- Family incomes have not kept pace with the rising costs of energy. Since 2007, the U.S. Census Bureau reports that real (inflation-adjusted) median household income has declined by 6% (from \$52,823) and is 7% below the median household income peak (\$53,252) that occurred in 1999.
- Poverty rates have increased to historic highs along with the declining long-term trend in family incomes. The number of people in poverty in 2010 was the largest number in the 52 years since the Census Bureau began to publish poverty statistics. Poverty is more prevalent among some minority groups. Some 27% of Blacks and 26% of Hispanics lived in poverty in 2010, compared with 15% for the overall population.

- Higher gasoline prices account for nearly four-fifths of the increased cost of energy for consumers since 2001. In nominal dollars, average U.S. household expenditures for gasoline will grow by 136% from 2001 to 2012, based on EIA gasoline price projections for 2012. In comparison, residential energy costs for heating, cooling, and other household energy services will increase on average by 43%, from \$1,493 in 2001 to a projected \$2,131 per household in 2012.
- Electricity is the bargain among all consumer energy products. Among consumer energy goods and services, electricity has maintained relatively lower annual average price increases compared to residential natural gas and gasoline. Electricity prices have increased by 51% in nominal dollars since 1990, well below the 72% rate of inflation in the Consumer Price Index. The nominal prices of residential natural gas and gasoline have nearly doubled and tripled, respectively, over this period.
- Virtually all of the residential electricity price increases over the past two decades have occurred since 2000. These increases are due in part to additional capital, operating and maintenance costs associated with meeting clean air and other environmental standards.
- Lower-income families are more vulnerable to energy costs than higher-income families because energy represents a larger portion of their household budgets. Energy is consuming one-fifth or more of the household incomes of lower- and middle-income families, reducing the amount of income that can be spent on food, housing, health care, and other necessities.
- In 2010, 62% of Hispanic households and 68% of Black households had average annual incomes below \$50,000, compared with 46% of white households and 39% of Asian households. Due to these income inequalities, the burdens of energy price increases are imposed disproportionately on Black and Hispanic households.
- Fixed-income seniors are a growing proportion of the U.S. population, and are among the most vulnerable to energy cost increases due to their relatively low average incomes. In 2010, the median gross income of 25.4 million households with a principal householder aged 65 or older was \$31,408, 36% below the national median household income.

Energy Costs for U.S. Families, 2001–2012

Energy costs for residential utilities and gasoline continue to strain low- and middle-income family budgets. As Table 1 illustrates, the average American family with an after-tax income of \$53,229 will spend an estimated \$6,088 on energy in 2012, or 11% of the family budget. The 60 million households earning less than \$50,000—representing 50.4% of U.S. households—will devote an estimated 21% of their after-tax incomes to energy, compared with 9% for households with annual incomes above \$50,000. For the 28 million lower-income families with incomes between \$10,000 and \$30,000, energy expenditures will consume 24% of average after-tax incomes, compared with 14% in 2001.

The summary income and energy expenditure data in Table 1 are based on U.S. Bureau of the Census pre-tax household income data for 2010 (the most recent available) and energy prices for 2012 projected by DOE/EIA. The Congressional Budget Office has calculated effective total federal tax rates, including individual income taxes and payments for Social Security and other social welfare programs.³ State income taxes are estimated from current state income tax rates.

Table 1. Estimated Household Energy Expenditures as a Percentage of Income, 2012

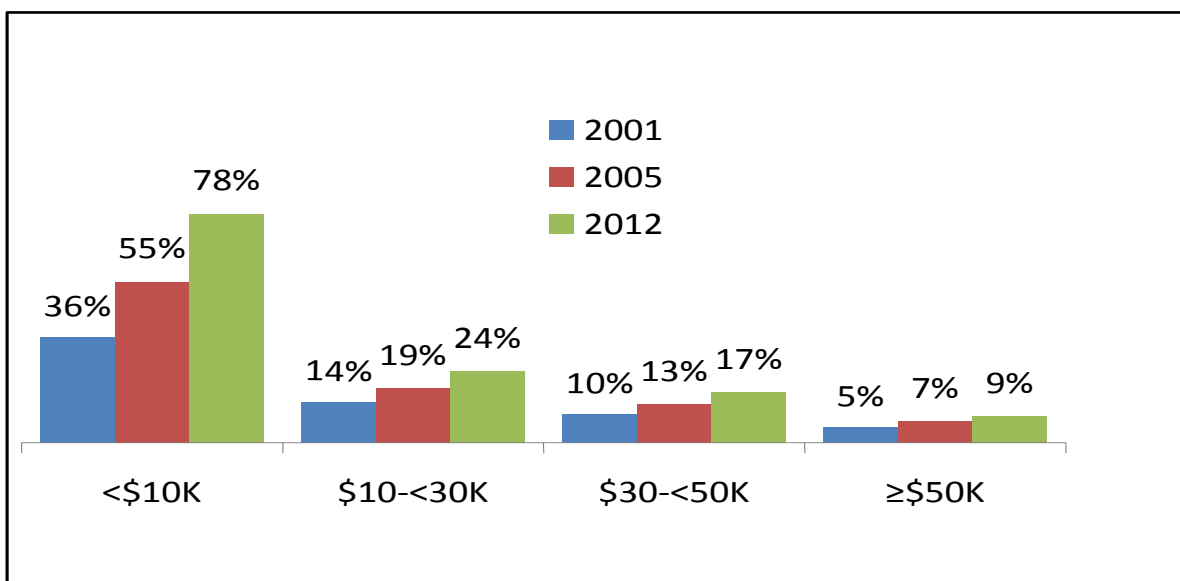
Pre-tax income	<\$10K	\$10-<\$30K	\$30-<\$50K	<\$50K	≥\$50K	Average
Est. average after-tax income	\$4,764	\$18,106	\$33,541	\$22,390	\$84,263	\$53,229
Percentage of households	7.8%	23.6%	19.0%	50.4%	49.6%	100.0%
Residential energy	\$1,596	\$1,773	\$2,044	\$1,848	\$2,554	\$2,131
Transportation fuel	\$2,106	\$2,621	\$3,705	\$2,951	\$4,953	\$3,957
Total energy	\$3,702	\$4,394	\$5,749	\$4,799	\$7,507	\$6,088
Energy pct. of after-tax income	77.7%	24.3%	17.1%	21.4%	8.9%	11.4%

Source: Appendix Table 1.

Many lower-income families qualify for federal or state energy assistance. However, these programs are hard-pressed to keep up with the increase in household energy costs. In FY2011, funding for the federal Low Income Home Energy Assistance Program (LIHEAP) was cut from \$5.1 billion to \$4.7 billion.⁴ Based on DOE/EIA’s 2005 Residential Energy Consumption Survey (2009), the \$4.7 billion funding level for LIHEAP would offset less than 2% of total U.S. residential energy bills.

The portion of household incomes devoted to energy has increased substantially since 2001 (see Chart 1). In 2001, 62 million families with gross annual incomes less than \$50,000 (2001\$) spent an average of 12% of their after-tax income on residential and transportation energy. In 2012, energy will account for an average of 21% of the after-tax income of the 60 million American families in this income category. Energy cost burdens are greatest on the poorest families, those earning less than \$10,000. Their average energy bills increased from 36% of estimated after-tax income in 2001 to 78% in 2012. These estimates do not account for any governmental energy assistance that these families may receive, and thus do not reflect actual personal energy consumption expenditures.

Chart 1
Energy Costs as Percentage of Nominal After-Tax Income,
2001, 2005, and Projected 2012

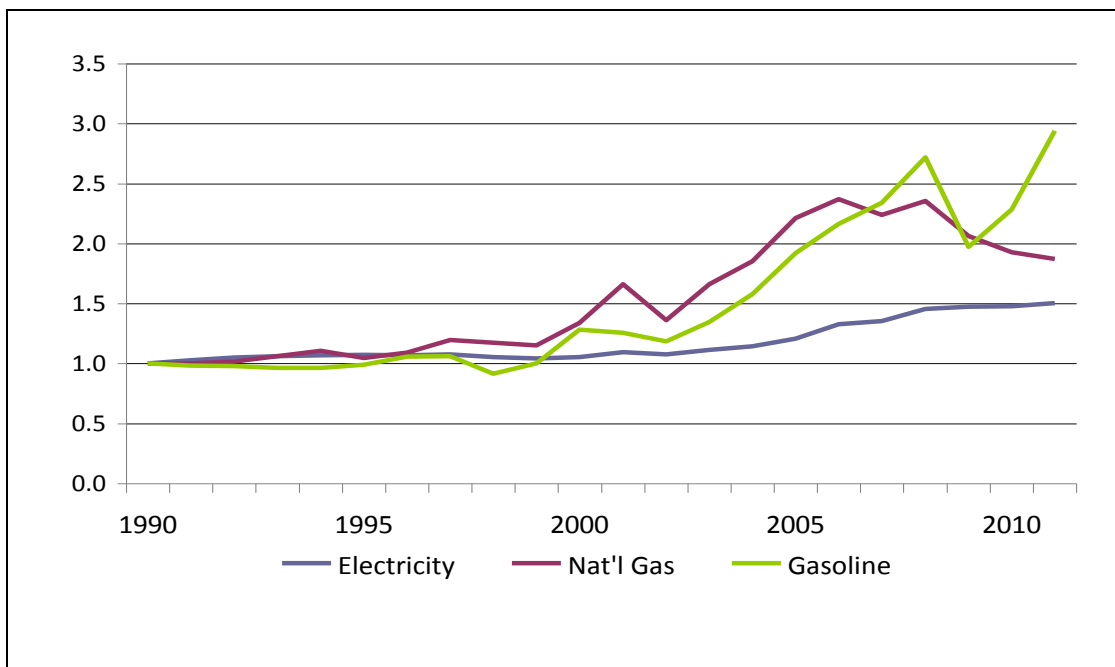


Source: Appendix Table 1.

Relative Energy Price Increases

Among key consumer energy products, electricity has increased at the lowest rate measured in nominal dollars over the past two decades. Chart 2 provides an index of consumer energy prices in nominal dollars since 1990. Prices for residential natural gas and gasoline have nearly doubled and tripled, respectively, while residential electricity prices increased by 51%, well below the 72% rate of inflation based on the Consumer Price Index between 1990 and 2011.⁵

Chart 2
Price Trends of Consumer Energy Products in Nominal Dollars, 1990-2012
(Index 1990 = 1.0)



Sources: U.S. DOE/EIA, Annual Energy Review 2010 and Short-Term Energy Outlook (January 2012).

Unlike other consumer energy products, electricity has maintained a relatively low rate of price increase below the overall rate of inflation. However, as Chart 2 indicates, virtually all of the residential electricity price increases over the past two decades have occurred since 2000. These increases are due in part to additional capital, operating and maintenance costs associated with meeting clean air and other environmental standards.⁶

Current and prospective EPA rules for the utility sector are expected to result in additional electricity price increases in many areas of the country. For example, U.S. EPA estimates the annual costs of compliance with one recent Clean Air Act regulation – the utility Mercury and Air Toxics Standards rule – at \$9.6 billion (\$2007) in 2016.⁷ The projected annual cost of this rule is 45% greater than EPA’s \$6.6 billion (\$2006) estimate of the costs of compliance with all utility Clean Air Act requirements in 2010.⁸

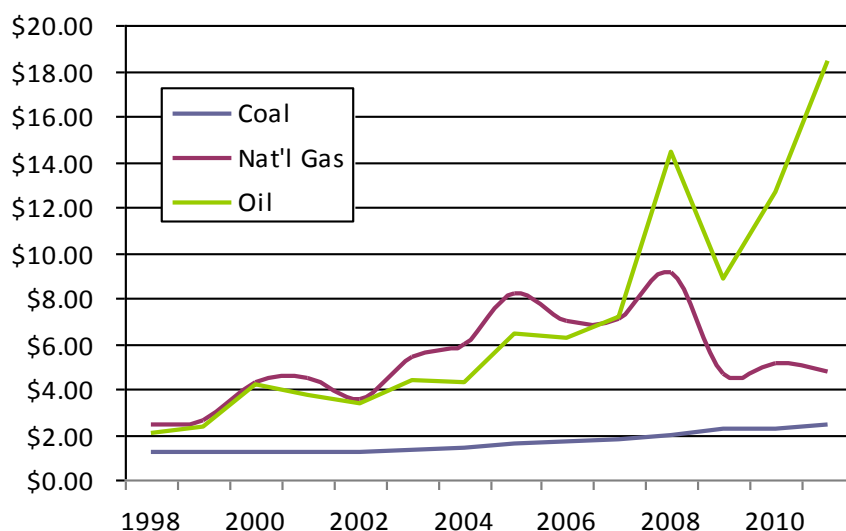
Electric Utility Fuel Cost Trends

The relatively modest long-term rate of price increase for residential electricity reflects, in part, the electric utility industry’s historic reliance on low-cost coal for roughly one-half of its energy supplies. As shown in Chart 3, coal prices delivered to electric utilities over the past decade have remained low and stable relative to competing fuels such as

natural gas and petroleum.⁹

EIA forecasts that domestic coal will cost \$2.40 per million British Thermal Units (MMBTU) delivered to power plants in 2012.¹⁰ EIA projects the cost of natural gas delivered to utility plants in 2012 at \$4.23/MMBTU.¹¹ In its most recent long-term projections, EIA forecasts that natural gas wellhead prices will remain below \$5 per thousand cubic feet (mcf) in 2010\$ through 2023, assuming continued success in the development of shale gas reserves.¹² EIA estimates that natural gas wellhead prices will reach \$6.52 (in 2010\$) per mcf (or \$6.72/MMBTU) in 2035.¹³ Minemouth coal prices are projected to increase from \$1.76 per MMBTU in 2010 to \$2.51 per MMBTU in 2035 (2010\$).¹⁴

Chart 3
Electric Utility Fuel Costs, 1998-2012
(Nominal \$ per Million BTU)



Sources: U.S. DOE/EIA, Electric Power Annual (2010) and Short-Term Energy Outlook (January 2012).

Consumer Energy Cost Estimates

The distribution of U.S. households by income categories provides the basis for estimating the effects of energy prices on consumer budgets in 2012. EIA's 2001 and 2005 Surveys of Residential Energy Consumption¹⁵ are the principal sources for estimating energy expenditures for residential heating, cooling, electricity, and other household energy services. For this report, the EIA 2005 survey is updated with Census Bureau 2010 population data and EIA's January 2012 forecast of 2012 residential

energy prices.

EIA's 2001 Survey of Household Vehicles Energy Use¹⁶ provides information for estimating transportation energy costs by household income category based on gallons of gasoline used per household. These transportation data are updated using Census Bureau 2010 population data and EIA's January 2012 national average retail gasoline price estimate for 2012 of \$3.54 per gallon.

It is assumed that household gasoline usage in 2012 will be 6.3% below the levels of the 2001 survey, reflecting a decline in household vehicle-miles traveled. The Department of Transportation's 2009 National Highway Transportation Survey (NHTS) reports that average vehicle miles traveled per household declined from 21,187 miles in 2001 to 19,850 miles in 2009.¹⁷ No adjustment is made for improved mileage performance because fleet average fuel efficiency has been flat at approximately 25 MPG since 1990.¹⁸ The 2009 NHTS does not provide data on transportation expenses by income category, but its aggregate estimate of household gasoline expenditures for 2009 is consistent with the findings of this report.¹⁹

Residential and Transportation Energy Expenses

The principal residential energy expenses are for electricity and natural gas for heating, cooling, lighting, and appliances. Some homes also use propane fuel and other heating sources, such as home heating oil, kerosene, and wood.

Gasoline accounts for the largest single increase in consumer energy costs over the past decade. EIA's Short-Term Energy Outlook projects 2012 average retail gasoline costs at \$3.54 per gallon, more than double the \$1.47 per gallon price in 2001. In 2012, the average U.S. family will spend an estimated \$3,957 on gasoline, compared with \$1,680 in 2001 – an average increase of \$2,277 per household.

The increase in gasoline prices follows a decade-long trend of increased market shares of pickup trucks and sport utility vehicles (SUVs), and an increase in the average number of vehicles owned per household.²⁰ Despite the success of the "Cash for Clunkers" program, many families continue to own low-efficiency vehicles with low trade-in values.

The impacts of residential and transportation energy costs on low- and middle-income families are summarized in Table 2 and in Appendix Table 1. Residential energy costs have increased on average by 43% since 2001, from \$1,493 to \$2,131 per household. Consumer costs for gasoline grew by 136% during this period, accounting for 79% of the overall \$2,870 increase in total household energy costs since 2001.

**Table 2. Estimated After-Tax Income and Energy Costs by Income Category,
2001, 2005, and Projected 2012
(In nominal dollars)**

Pre-tax annual income:	<\$10K	\$10-<\$30K	\$30-<\$50K	<\$50K	≥\$50K	Totals
Est. avg. after-tax income						
2001	\$5,532	\$17,520	\$32,380	\$21,834	\$76,054	\$47,396
2005	\$5,249	\$18,198	\$33,716	\$22,682	\$81,066	\$49,924
2012	\$4,764	\$18,106	\$33,541	\$22,390	\$84,263	\$53,229
Residential energy \$						
2001	\$1,039	\$1,260	\$1,456	\$1,299	\$1,836	\$1,493
2005	\$1,351	\$1,498	\$1,733	\$1,565	\$2,173	\$1,850
2012	\$1,596	\$1,773	\$2,044	\$1,848	\$2,554	\$2,131
Transport energy \$						
2001	\$934	\$1,160	\$1,638	\$1,306	\$2,195	\$1,680
2005	\$1,513	\$1,878	\$2,652	\$2,119	\$3,554	\$2,790
2012	\$2,106	\$2,621	\$3,705	\$2,951	\$4,953	\$3,957
Total energy \$						
2001	\$1,973	\$2,420	\$3,094	\$2,605	\$4,031	\$3,218
2005	\$2,863	\$3,375	\$4,385	\$3,684	\$5,725	\$4,640
2012	\$3,702	\$4,394	\$5,749	\$4,799	\$7,507	\$6,088

Source: Appendix Table 1.

Household Energy Cost Impacts

Energy costs are straining low- and middle-income family budgets. Heating, cooling, and transportation are necessities of life, and the rapid increase in consumer energy costs is impacting low- and middle-income family budget choices among energy and other necessary goods and services, such as health care, housing, and nutrition.

As energy costs have risen over the past decade, the real, inflation-adjusted incomes of American families have been declining. The U.S. Census Bureau reports in its latest assessment of income and poverty that:

Real median household income was \$49,445 in 2010, a 2.3 percent decline from 2009. Since 2007, median household income has declined 6.4 percent (from \$52,823) and is 7.1 percent below the median household income peak (\$53,252) that occurred in 1999.²¹

Poverty rates have increased along with the decline in real family incomes over the past decade, reaching historic highs in 2010:

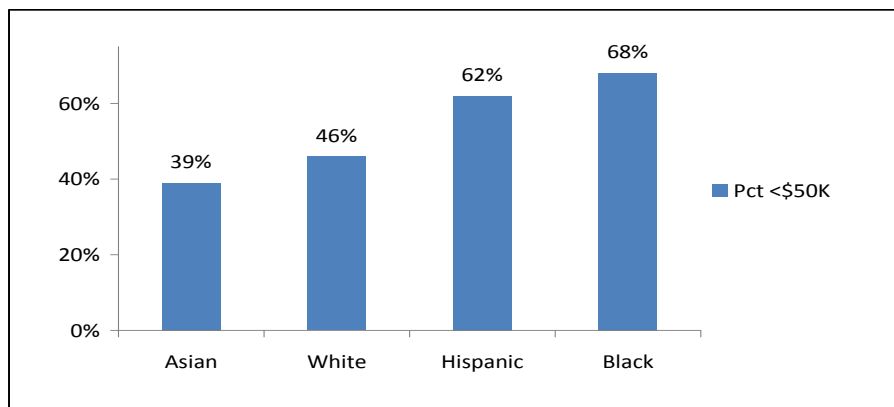
The official poverty rate in 2010 was 15.1 percent—up from 14.3 percent in 2009. This was the third consecutive annual increase in the poverty rate. Since 2007, the poverty rate has increased by 2.6 percentage points, from 12.5 percent to 15.1 percent. ... In 2010, 46.2 million people were in poverty, up from 43.6 million in 2009—the fourth consecutive annual increase in the number of people in poverty. ... The number of people in poverty in 2010 is the largest number in the 52 years for which poverty estimates have been published.²²

For low- and middle-income families, energy costs are now consuming a portion of after-tax household income comparable to that traditionally spent on major categories such as housing, food, and health care. The Bureau of Labor Statistics’ 2010 Consumer Expenditure Survey reports that 121 million “consumer units” in the U.S. with an average pre-tax income of \$62,481 in 2010 spent an average of \$16,557 (27%) on housing, \$6,129 (10%) for food, and \$3,157 (5%) on healthcare.²³

Energy Cost Impacts on Minorities

EIA’s residential energy consumption surveys do not provide energy consumption expenditures by income group combined with minority status. However, as illustrated in Chart 4, the unequal distribution of household incomes is a principal factor leading to disproportionate energy cost impacts on many minority families. More than 60% of Black and Hispanic families had pre-tax household incomes below \$50,000 in 2010, compared with 39% for Asian families and 46% for white households.

Chart 4
Percentage of Households with Pre-Tax Incomes below \$50,000, 2010



Source: U.S. Bureau of the Census, Current Population Survey Annual Social and Economic Supplement (2011).

Real, inflation-adjusted per capita incomes have declined due to the recession, with larger impacts on Black and Hispanic families than on Asian or white households. The U.S. Census Bureau reports that these recent declines in the real income of American families are part of a long-term declining trend that has particularly impacted Black and Hispanic households:

Since 2007, real median household income has declined for all race and Hispanic-origin groups. Non-Hispanic-White household income declined by 5.4 percent, Black household income by 10.1 percent, Asian household income by 7.5 percent, and Hispanic household income by 7.2 percent.

Real median household income has not yet recovered to pre-2001 recession all-time highs. Household income in 2010 was 7.1 percent lower for all races combined (from \$53,252 in 1999), 5.5 percent lower for non-Hispanic Whites (from \$57,781 in 1999), 14.6 percent lower for Blacks (from \$37,562 in 2000), 8.9 percent lower for Asians (from \$70,595 in 2000), and 10.1 percent lower for Hispanics (from \$41,994 in 2000). Black households experienced the largest household income percentage decline among the race and Hispanic origin groups.²⁴

Poverty rates have increased in tandem with the declines in real incomes for Black and Hispanic households. The Census Bureau reports that:

For Blacks, the poverty rate increased to 27.4 percent in 2010, up from 25.8 percent in 2009, while the number in poverty increased to 10.7 million from 9.9 million. For Asians, the 2010 poverty rate and the number in poverty ... were not statistically different from 2009. However, the poverty rate increased for Hispanics to 26.6 percent in 2010 from 25.3 in 2009, and the number of Hispanics in poverty increased to 13.2 million from 12.4 million.²⁵

Table 3 summarizes 2010 household incomes for Asian, Black, Hispanic, and white families in different gross annual income brackets. In 2010, the average incomes of Hispanic and Black families were 30% and 39% lower, respectively, than the average income of white households. Asian households, on the other hand, enjoyed average annual incomes of \$84,828 in 2010 compared with the U.S. average income of \$67,530. Based on these income inequality data, disproportionate numbers of Black and Hispanic families are more vulnerable to energy price increases than Asian or white families.

**Table 3. Distribution of U.S. Households by
Pre-tax Income, 2010**

Pre-tax annual income Percentage of households	<\$10K	\$10-<\$30K	\$30-<\$50K	<\$50K	≥\$50K	Totals
Asian	7%	17%	14%	38%	62%	100%
Black	16%	31%	21%	68%	32%	100%
Hispanic	10%	30%	22%	62%	38%	100%
White	6%	21%	19%	46%	54%	100%
U.S. average	8%	23%	19%	50%	50%	100%
Avg. pre-tax income						Average
Asian	\$3,057	\$19,841	\$39,445	\$23,923	\$122,997	\$84,828
Black	\$4,968	\$19,014	\$38,862	\$21,646	\$93,539	\$44,802
Hispanic	\$4,964	\$19,718	\$38,764	\$24,123	\$95,848	\$51,554
White	\$5,005	\$19,763	\$39,315	\$25,778	\$113,991	\$73,439
U.S. average	\$4,906	\$19,638	\$39,183	\$24,752	\$111,018	\$67,530

Source: U.S. Bureau of the Census, Current Population Reports – 2010 Annual Social and Economic Supplement (2011).

Impacts on Senior Citizens

More than 28% of U.S. households receive Social Security benefits. The average basic Social Security income of these 32.6 million households was \$16,236 in 2010.²⁶ Some 61% of households receiving Social Security benefits also received other retirement income averaging \$22,006.²⁷

The U.S. Census Bureau reports that the median income of 25.4 million households with a principal householder aged 65 or older was \$31,408 in 2010, 36% below the national household median income of \$49,445.²⁸

Lower-income senior households that depend mainly on fixed incomes are among those most vulnerable to energy price increases. Food, health care, and other necessities compete with energy costs for a share of the household budget. The \$31,408 median income of senior U.S. households means that half of these households depend on incomes below this level.

Conclusion

On average, energy costs have nearly doubled as a fraction of annual family budgets since 2001. The unequal distribution of incomes in the United States imposes disproportionate energy cost burdens on minority and senior households. The average after-tax incomes of low- and middle-income U.S. families have not grown since 2001. Meanwhile, inflation has eroded 27% of the value of American families' incomes.²⁹

The prices of petroleum-based fuels, particularly gasoline and home heating oil, have increased significantly in the past decade. The rapid escalation of consumer energy prices, along with stagnant income growth, magnifies the impact of energy costs on all American families.

Acknowledgment – This report was prepared for ACCCE by Eugene M. Trisko, who has conducted these analyses annually since 2000. Mr. Trisko is an attorney and energy economist who represents labor and industry clients. He previously served as an attorney in the Bureau of Consumer Protection of the U.S. Federal Trade Commission and as an expert witness on utility cost of capital.

Notes

¹ Data on residential energy consumption patterns by income are derived from U.S. Department of Energy, Energy Information Administration, “Survey of Residential Energy Consumption,” (2001 and 2005 surveys),” available at <http://www.eia.doe.gov/emeu/recs/contents.html>. Data for 2005 energy consumption by household income are updated to estimated 2012 values based on consumer residential energy cost projections for 2012 in EIA’s “Short-Term Energy Outlook” (January 2012).

² Household income by gross income category are calculated from the 2010 distribution of household income in U.S. Bureau of the Census, Current Population Survey, “Annual Social and Economic Supplement” (2011).

³ Congressional Budget Office (CBO), “Effective Federal Tax Rates Under Current Law, 2001 to 2014” (August 2004), and “Effective Federal Tax Rates 1979-2006” (April 2009). Effective federal tax rates for the income categories in this paper were interpolated from CBO’s tax rates by income quintile based on the distribution of 2001, 2005 and 2010 household incomes. State income tax rates are estimated from tax rates summarized in Federation of Tax Administrators, http://www.taxadmin.org/fta/rate/ind_inc.html.

⁴ See, <http://www.neada.org/appropriations/index.html>.

⁵ U.S. Bureau of Labor Statistics, CPI Inflation Calculator, available at <http://data.bls.gov/cgi-bin/cpicalc.pl>

⁶ See, U.S. EPA, “The Benefits and Costs of the Clean Air Act from 1990 to 2020” (2011) at Table 3-2 (electric utility direct annual compliance costs increased from an estimated \$1.4 billion (\$2006) in 2000 to \$6.6 billion (\$2006) in 2010.) Since 2000, the utility sector has complied with the federal acid rain program enacted in the 1990 Clean Air Act Amendments, EPA’s 1998 Ozone Transport Rule reducing nitrogen oxide emissions in 19 eastern states, Phase I of EPA’s 2005 Clean Air Interstate Rule requiring further reductions of sulfur dioxide and nitrogen oxide emissions in the eastern U.S., and a variety of other federal and state air and water quality standards.

⁷ U.S. EPA, “Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards,” (December 2011) at ES-14.

⁸ U.S. EPA, “The Benefits and Costs of the Clean Air Act,” *supra*.

⁹ U.S. DOE/EIA, “Electric Power Annual 2010,” (historical tables, 2011) and “Short-Term Energy Outlook,” (January 2012).

¹⁰ U.S. DOE/EIA, “Short-Term Energy Outlook” (January 2012), Table 2.

¹¹ *Id.*

¹² U.S. DOE/EIA, “Annual Energy Outlook 2012 Early Release,” (January 2012) at 5. One thousand cubic feet of natural gas is equivalent to approximately 1.04 million BTUs.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ U.S. DOE/EIA, “Residential Energy Consumption Survey, 2005,” (2009), viewable at <http://www.eia.doe.gov/emeu/recs/contents.html>.

¹⁶ U.S. DOE/EIA, “Household Vehicles Energy Use: Latest Data & Trends” (November 2005), available at http://www.eia.doe.gov/emeu/rtecs/nhts_survey/2001/.

¹⁷ U.S. Department of Transportation, 2009 National Household Travel Survey (2011), Table 6.

¹⁸ U.S. Department of Transportation, “NHTS Brief” (April 2008), Exhibit 3

¹⁹ U.S. DOT, NHTS, *supra*, at Table 34 (average household gasoline expenditures increased from \$1,275 in 2001 to \$3,308 in 2009.) The average price of gasoline in 2009 was \$2.40/gallon, one-third less than the \$3.54/gallon price that EIA projects for 2012. Adjusted by the change in average gasoline prices, the 2009 NHTS data imply average 2012 household gasoline expenditures of \$4,366, compared with the \$3,957 estimate in this report.

²⁰ U.S. Department of Transportation, 2001 National Household Travel Survey, “Summary of Travel Trends” (December 2004).

²¹ U.S. Census Bureau, “Income, Poverty, and Health Insurance Coverage in the United States: 2010” (2011), at 5.

²² *Id.*, at 14.

²³ See, Bureau of Labor Statistics, Economic News Release, September 27, 2011, available at: <http://www.bls.gov/news.release/cesan.nr0.htm>. See also, Economic Policy Institute, “Basic Family Budgets: Working Families’ Incomes Often Fail to Meet Living Expenses Around the U.S.,” Briefing Paper (2005), available at: <http://www.epi.org/publication/bp165/>

²⁴ U.S. Census Bureau, “Income, Poverty, and Health Insurance Coverage in the United States: 2010” (2011), at 8.

²⁵ *Id.*, at 17.

²⁶ U.S. Census Bureau, “American Community Survey – 2010 American Community Survey 1-Year Estimates,” (2012).

²⁷ *Id.*

²⁸ U.S. Census Bureau, “Income, Poverty, and Health Insurance Coverage in the United States: 2010” (2011), Table 1.

²⁹ U.S. Bureau of Labor Statistics, CPI Inflation Calculator, available at <http://data.bls.gov/cgi-bin/cpicalc.pl>

APPENDIX TABLE 1 - 2001, 2005 AND PROJECTED 2012 HOUSEHOLD INCOME AND ENERGY EXPENSES

2001 HOUSEHOLD ENERGY EXPENSES BY INCOME CATEGORY - ALL U.S. HOUSEHOLDS

	<\$10K	\$10K-<\$30K	\$30K-<=\$50K	>=\$50K	TOTALS	SUBTOTALS		
						\$10K-<\$50K	<\$50K	>=\$50K
Households (Mil.)	9.8	28.9	23.6	47.0	109.3	52.5	62.3	47.0
Pct of total households	9.0%	26.4%	21.6%	43.0%	100.0%	48.0%	57.0%	43.0%
Avg pre-tax income	\$5,733	\$19,707	\$39,201	\$107,649	\$60,488	\$28,470	\$24,893	\$107,649
Effec. fed tax rate %	2.0%	8.5%	13.4%	23.1%	17.3%	10.7%	9.3%	23.1%
Est. state tax rate%	1.5%	2.6%	4.0%	6.3%	4.4%	3.2%	3.0%	6.3%
Est. after-tax income	\$5,532	\$17,520	\$32,380	\$76,054	\$47,396	\$24,504	\$21,834	\$76,054
Residential energy \$	\$1,039	\$1,260	\$1,456	\$1,836	\$1,493	\$1,348	\$1,299	\$1,836
Residential electric \$	\$628	\$772	\$922	\$1,172	\$938	\$839	\$806	\$1,172
Other resid. energy \$	\$411	\$488	\$534	\$664	\$555	\$509	\$493	\$664
Transport energy \$	\$934	\$1,160	\$1,638	\$2,195	\$1,680	\$1,375	\$1,306	\$2,195
Total energy \$	\$1,973	\$2,420	\$3,094	\$4,031	\$3,218	\$2,723	\$2,605	\$4,031
Energy % of after-tax inc.	35.7%	13.8%	9.6%	5.3%	6.8%	11.1%	11.9%	5.3%
Resid. % of after-tax inc.	18.8%	7.2%	4.5%	2.4%	3.2%	5.5%	6.0%	2.4%
Trans. % of after-tax inc.	16.9%	6.6%	5.1%	2.9%	3.5%	5.6%	6.0%	2.9%

2005 HOUSEHOLD ENERGY EXPENSES BY INCOME CATEGORY - ALL U.S. HOUSEHOLDS

	<\$10K	\$10K-<\$30K	\$30K-<=\$50K	>=\$50K	TOTALS	\$10K-<\$50K	<\$50K	>=\$50K
Households (Mil.)	9.4	28.1	23.4	53.5	114.4	51.5	60.9	53.5
Pct of total households	8.2%	24.6%	20.5%	46.8%	100.0%	45.0%	53.2%	46.8%
Avg pre-tax income	\$5,400	\$19,695	\$39,388	\$106,947	\$63,344	\$28,643	\$25,055	\$106,947
Effec. fed tax rate %	1.8%	5.0%	10.4%	17.9%	16.7%	7.5%	6.6%	17.9%
Est. state tax rate%	1.0%	2.6%	4.0%	6.3%	4.5%	3.2%	2.9%	6.3%
Est. after-tax income	\$5,249	\$18,198	\$33,716	\$81,066	\$49,924	\$25,581	\$22,682	\$81,066
Residential energy \$	\$1,351	\$1,498	\$1,733	\$2,173	\$1,850	\$1,604	\$1,565	\$2,173
Residential electric \$	\$785	\$914	\$1,098	\$1,361	\$1,150	\$998	\$965	\$1,361
Other resid. energy \$	\$566	\$583	\$635	\$812	\$699	\$607	\$600	\$812
Transport energy \$	\$1,513	\$1,878	\$2,652	\$3,554	\$2,790	\$2,230	\$2,119	\$3,554
Total energy \$	\$2,863	\$3,375	\$4,385	\$5,728	\$4,640	\$3,834	\$3,684	\$5,728
Energy % of after-tax inc.	54.5%	18.5%	13.0%	7.1%	9.3%	15.0%	16.2%	7.1%
Resid. % of after-tax inc.	25.7%	8.2%	5.1%	2.7%	3.7%	6.3%	6.9%	2.7%
Trans. % of after-tax inc.	28.8%	10.3%	7.9%	4.4%	5.6%	8.7%	9.3%	4.4%

PROJECTED 2012 HOUSEHOLD ENERGY EXPENSES BY INCOME CATEGORY - ALL U.S. HOUSEHOLDS

	<\$10K	\$10K-<\$30K	\$30K-<=\$50K	>=\$50K	TOTALS	\$10K-<\$50K	<\$50K	>=\$50K
Households (Mil.)	9.2	28.0	22.6	58.9	118.7	50.6	59.8	58.9
Pct of total households	7.8%	23.6%	19.0%	49.6%	100.0%	42.6%	50.4%	49.6%
Avg pre-tax income	\$4,906	\$19,638	\$39,183	\$111,018	\$67,530	\$28,370	\$24,751	\$111,018
Effec. fed tax rate %	1.9%	5.2%	10.4%	17.8%	16.6%	7.5%	6.7%	17.8%
Est. state tax rate%	1.0%	2.6%	4.0%	6.3%	4.6%	3.2%	2.9%	6.3%
Est. after-tax income	\$4,764	\$18,106	\$33,541	\$84,263	\$53,229	\$25,320	\$22,390	\$84,263
Residential energy \$	\$1,596	\$1,773	\$2,044	\$2,554	\$2,131	\$1,894	\$1,848	\$2,554
Residential electric \$	\$930	\$1,083	\$1,302	\$1,613	\$1,330	\$1,181	\$1,142	\$1,613
Other resid. energy \$	\$666	\$690	\$743	\$941	\$800	\$713	\$706	\$941
Transport energy \$	\$2,106	\$2,621	\$3,705	\$4,953	\$3,957	\$3,105	\$2,951	\$4,953
Total energy \$	\$3,702	\$4,394	\$5,749	\$7,507	\$6,088	\$4,999	\$4,799	\$7,507
Energy % of after-tax inc.	77.7%	24.3%	17.1%	8.9%	11.4%	19.7%	21.4%	8.9%
Resid. % of after-tax inc.	33.5%	9.8%	6.1%	3.0%	4.0%	7.5%	8.3%	3.0%
Trans. % of after-tax inc.	44.2%	14.5%	11.0%	5.9%	7.4%	12.3%	13.2%	5.9%

Sources: Population and income data from U.S. Bureau of the Census, Current Population Survey Supp. (2001, 2005, 2011 eds.) Residential energy costs are based on U.S. DOE Residential Energy Consumption Survey (2001, 2005 eds.) 2012 projections based on changes in 2005-2012 residential energy prices from U.S. DOE/EIA Annual Energy Review 2005 and Short-Term Energy Outlook (January 2012). Transportation energy expenditures are estimated from U.S. DOE/EIA, Household Vehicle Energy Use: Latest and Trends (Nov 2005) and DOE/EIA Short-Term Energy Outlook (January 2012). Gasoline use per household in 2012 is reduced by 6.3% from 2001 levels based on data in US DOT 2009 National Highway Transportation Survey. Average effective federal tax rates are estimated from Congressional Budget Office, Effective Federal Tax Rates Under Current Law, 2001-2014 (August 2004), and Effective Federal Tax Rates, 1979-2006 (April 2009). State tax rates estimated from www.taxadmin.org/fta/rate/ind_inc.html.