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Energy Bills Challenge America's Fixed-Income Seniors

Energy, like food and housing, is an indispensable necessity of life. Air conditioning, lighting, and heating are essential to American daily life, and are critical for the survival of elderly and infirm citizens. High electricity and other energy prices are disproportionately impacting America's senior citizens today. The United States has 27 million households aged 65 or more ("65+"), representing nearly one-quarter of the nation's 116 million households.

Future energy price increases, driven in large measure by petroleum supply and demand trends and by current and pending U.S. EPA regulations, are likely to outstrip real household incomes among the 63% of America's 65+ households with gross annual incomes less than $50,000. EPA's newest proposal to regulate greenhouse gas emissions from existing power plants will further strain the budgets of low- and fixed-income seniors who are among the most vulnerable to electric rate and other energy price increases.

Overview

- ✓ The Census Bureau reports that the average pre-tax household income of 65+ households in America was $54,522 in 2012, 23% below the average national household income of $71,274.
- ✓ The median income of U.S. 65+ households in 2012 was $33,848, meaning that one-half of senior households had gross 2012 pre-tax incomes below this level. Households with principal householders younger than 65 had 2012 gross median incomes of $57,353, nearly 70% greater than 65+ households. U.S. Census Bureau, Statistics of Income, Poverty and Health Insurance in the U.S.: 2012 (2013).
- ✓ More than 40% of America's 65+ households had gross annual incomes below $30,000 in 2012, with an average pre-tax household income of $17,032, or $1,419 per month.
- ✓ The average annual electric bill for 65+ households, $1,164 in 2009, represented 61% of total residential energy bills.
- ✓ The average price of residential electricity per kilowatt-hour (kWh) has increased by 39% since 2003, well above the 29% increase in inflation as measured by the Consumer Price Index. This increase is due in part to higher fuel and capital costs and the costs of compliance with environmental regulations.
- ✓ The modest Cost of Living Adjustments (COLA) received by Social Security recipients, representing 29% of all America households in 2012, do not keep pace with inflation.
- ✓ Energy costs are adversely impacting lower-income seniors afflicted by health conditions, leading them to forego food for a day, reduce medical or dental care, and fail to pay utility bills (APPRISE, 2009).
- ✓ U.S. DOE's projection for Henry Hub wellhead natural gas prices - a key determinant of future electricity prices - calls for a 3.7% annual real increase from 2012 to 2040. These price increases do not account for the increase in natural gas demand expected to result from EPA's proposed Clean Power Plan ("CPP") for reducing CO2 emissions from existing power plants.
- ✓ Fossil-fueled electric utilities have reduced emissions of carbon dioxide by 12% since 2005, measured in pounds of CO2 per Megawatt-hour (MWh) of electric generation (EPA CAMD Data Base, 2014). EPA's proposed CPP rule does not give credit for these reductions. It requires states to achieve reductions in utility emissions ranging from 11% (North Dakota) to 72% (Washington) based on 2012 emission rates. The final emission target for each state is to be met by 2030, with reductions beginning in 2020.

- ✓ EPA's CPP will substantially increase electric prices for America's 65+ households. The proposed rule sets forth "building blocks" of options for reducing emissions, focused on decreasing the use of coal in favor of natural gas, while increasing energy efficiency and renewable energy resources.
- ✓ EPA's Regulatory Impact Analysis (RIA) for the CPP projects national costs of $5.4 to $7.4 billion annually in 2020. EPA's projections assume billions of dollars of offsetting annual savings from reductions of electric demand through widespread investments in energy efficiency measures.
- ✓ **EPA projects 5.9% to 6.5% average retail electric price increases for the proposed Clean Power rule in 2020, with increases as high as 10% to 12% in some regions** (CPP RIA Table 3-21). This projection is highly uncertain because it assumes that states will follow EPA's prescribed "building blocks" approach to emission reductions. If the flexibility measures in EPA's proposed rule prove unworkable, or are limited by judicial decisions, higher rate impacts could result.
- ✓ **EPA's projected national average 5.9% to 6.5% retail electric price increases due to EPA's Clean Power rule will follow a 3.1% average national price increase in 2015 for compliance with EPA's 2011 Mercury and Air Toxics Standards rule** (EPA MATS RIA, Table 3-12).
- ✓ **EPA's projected electric rate impacts are likely conservative. A March 2014 analysis by National Economic Research Associates of a CO2 reduction proposal similar to the EPA Clean Power rule estimated national average residential electricity price increases of 3.0% to 11.4% over 2018-2033**, depending upon the degree of flexibility in implementation (NERA/ACCCE, March 2014). These price increases are in addition to those expected in 2015-2017 due to the implementation of the EPA mercury rule.
- ✓ **A new NERA analysis of the proposed Clean Power Plan indicates potential delivered electric price increases averaging 12% to 17% over the period 2017 to 2031, depending upon the degree of implementation flexibility. Total consumer energy costs could rise by $366 to $479 billion in net present value** (NERA/ACCCE *et al*., October 2014)**.**
- ✓ **A July 2014 analysis by the Center for Strategic and International Studies (CSIS) and the Rhodium Group using EIA's NEMS energy model projects that national electric prices could increase by 5.4% to 9.9% due to the Clean Power rule** (CSIS at 28). These price increases also are in addition to the 3.1% increase for compliance with the EPA mercury rule.
- ✓ **The CPP will lead America to greater dependence on natural gas as a main source of electric generation**. CSIS forecasts that natural gas use could **more than double as a percent of total electric generation, rising from 19% in 2010 to 43% in 2020** (CSIS at 17, national scenario without energy efficiency). The share of coal generation declines from 46% to 21% over this period due to higher demand for natural gas.
- ✓ **EPA projects that the Clean Power Plan will lead to further increases in delivered natural gas prices of 7.5% to 11.5% in 2020** (CPP RIA, June 2014). U.S. DOE projects that the price of natural gas delivered to electric utilities will increase at a compound annual rate of 3.1% above the rate of inflation between 2012 and 2040, the highest rate of real price increase for any delivered fuel in any sector of the economy (DOE Annual Energy Outlook 2014).
- ✓ **EPA's proposed Clean Power "building blocks" for state emission reductions contain unrealistic assumptions on the potential for large-scale renewable energy and energy efficiency development within the short timetable of the EPA rule.** Lower-income seniors are among those least likely to make major investments in new energy efficiency programs with long investment payback times.
- ✓ **The CPP will cause the retirement of 30 to 49 Gigawatts of coal generating capacity by 2020** (CPP RIA, Table 3-12). This is in addition to more than 50 Gigawatts of coal capacity expected to be retired over the next few years as a consequence of compliance with EPA's 2011 MATS rule, low natural gas prices, and other factors (DOE/EIA AEO 2014). Overall, the nation will lose 126 Gigawatts of coal generating capacity between 2010 and 2020 following implementation of the CPP (CPP RIA, Table 3-12 and DOE/EIA 2011 Annual Energy Review).

- ✓ **EPA projects that coal production for electric generation will decline from 844 million tons in the 2020 base case to 616 to 636 million tons under the CPP, a reduction of 25% to 27%** (CPP RIA, Table 3-15).
- ✓ Independent experts caution about near-term electric reliability issues in the Texas, Great Lakes, and Midwest regions, reflecting a growing imbalance of generating resources and demand. This imbalance, attributable to factors including the retirements of existing generating assets, is projected to expand by 2023 to the New York/New England, Rocky Mountain, Southwest, and Southeast regions.
- ✓ The expected retirement of an additional 30 to 49 Gigawatts of coal generating capacity due to EPA's Clean Power Plan will contribute further to inadequate reserve margins in several regions, particularly if EPA's ambitious energy efficiency goals are not met. **The additional baseload generation capacity projected to retire due to the Clean Power Plan would increase the risks of brownouts, load curtailments, and other power shortages in regions impacted by these retirements.**
- ✓ **There is growing state opposition to EPA's proposed Clean Power rule**. Some 20 state legislatures passed acts or resolutions prior to the rule's proposal urging EPA to adopt an "inside-the-fence" approach for measuring emission reduction potential at individual power plants. On August 25, 2014, the attorneys general of 13 states wrote to EPA calling for immediate withdrawal of the proposed rule on the grounds that EPA failed to disclose critical data underlying the rule's building block assumptions. Federal litigation by several state attorneys general and private parties is already underway seeking to bar EPA's use of Section 111(d) of the Clean Air Act for regulating emissions from existing sources that are subject to the agency's 2011 mercury rule.
- ✓ **A new ozone air quality standard could dramatically increase energy costs for all American consumers and industries**. EPA plans to revise the 2008 National Ambient Air Quality Standard for ozone, currently set at a level of 75 parts per billion (ppb), in late 2015. A July 2014 analysis by National Economic Research Associates of a potential new ozone standard set at a level of 60 ppb indicates that such a standard could impose $348 billion in annual compliance costs across the nation. NERA projects that national average residential electricity prices would increase by 3.3% to 15%, while residential natural gas prices could rise by 7% to 32%. The upper end of these price increases reflects the potential that a new ozone standard could constrain future natural gas development, causing both electricity and natural gas prices to increase significantly. (NERA/NAM, July 2014, Figs. S-9, S-15).
- ✓ **The price of gasoline has increased by 55% since 2005, a rate nearly three times greater than the 19% increase in the Consumer Price Index.** The vast majority of seniors are drivers, representing an increasing share of total drivers on the road. U.S. Government survey data indicate that average vehicle miles per 65+ driver more than doubled between 1983 and 2009. With gasoline costs of some $3.50 per gallon, senior households spend approximately $1,500 annually per vehicle on gasoline.
- ✓ In 2012, 29% of U.S. households received Social Security benefits averaging $16,977 per household (Bureau of the Census, 2014). The future stability of this income, however, cannot be assured due to the rapidly changing dynamics of the U.S. population, and the projected increase in Social Security recipients. As more members of the baby-boom generation retire, outlays will increase relative to the size of the economy, whereas tax revenues will remain at an almost constant share of the economy. As a result, the gap will grow larger in the 2020s and will exceed 30 percent of revenues by 2030 (Congressional Budget Office, 2013).
- ✓ CBO projects that under current law, the Disability Insurance trust fund will be exhausted in fiscal year 2017, and the Old Age and Survivors trust fund will be exhausted in 2033. If a trust fund's balance fell to zero and current revenues were insufficient to cover the benefits specified in law, the Social Security Administration would no longer have legal authority to pay full benefits when they were due (CBO, 2013).
- ✓ Rising real energy costs and Cost of Living Adjustments that do not keep pace with inflation mean that every marginal dollar spent for energy reduces disposable income for 65+ households, limiting funds available for other essentials like food, housing, and medical care.

Low- and fixed-income seniors are among the most vulnerable to electric rate and other energy price increases. Current and pending U.S. EPA regulations will increase the price of electricity in America at rates above the general rate of inflation. Just maintaining the energy budget status quo for America's 65+ fixed income population requires stable electricity and other energy prices that do not increase above the rate of inflation.

Demographic Facts

- ✓ In 2012, seniors 65 and older accounted for 23% of America's 116 million households.
- ✓ 29 percent of U.S. households, representing 34 million households, received Social Security benefits averaging $16,977 in 2012.
- ✓ The average pre-tax household income of 65+ households in America was $54,522 in 2012, 24% below the average U.S. household income of $71,274.
- ✓ The median household income of 65+ seniors in 2012 was $33,848, 41% less than the $57,353 median income of younger households.
- ✓ Nearly two-thirds of America's 65+ households had gross incomes below $50,000 in 2012, with an average pre-tax income of $24,842 or $2,070 per month before state and federal taxes.

As shown in the table below, 41 percent of America's 65+ households had gross annual incomes below $30,000 in 2012, with an average pre-tax household income of $17,032, or $1,419 per month:

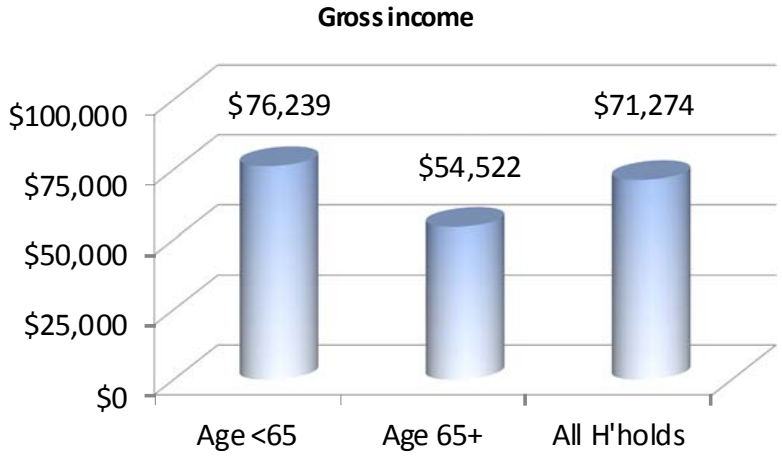
U.S. Household Income, 2012

Annual gross income	<$30K	$30-<$50K	<$50K	All households
All H/Hs (Mil.)	34.3	22.0	56.3	116.0
Pct. of H/Hs	30%	19%	49%	100%
Avg. gross income	$16,235	$39,763	$25,419	$71,274
65+ H/Hs (Mil)	11.0	5.8	16.8	26.5
Pct of 65+ H/Hs	41%	22%	63%	100%
Avg. 65+ gross income	$17,032	$39,546	$24,842	$54,522

Source: U.S. Bureau of the Census, American Community Survey (2014).

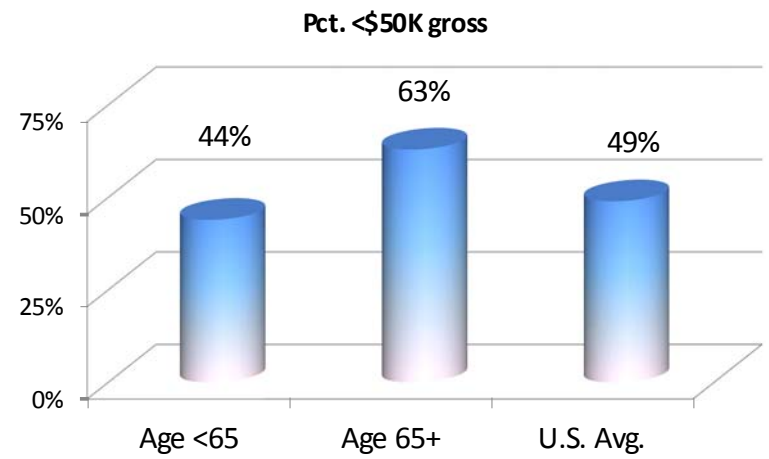
The charts below compare average gross household incomes in 2012 for U.S. households by age of principal householder. The gross incomes of households led by 65+ seniors were 28% or $22,000 below those of households headed by younger persons. Seniors also are disproportionately represented among lower-income households with gross annual incomes less than $50,000 and less than $30,000:

Average U.S. gross household income by age of principal householder, 2012

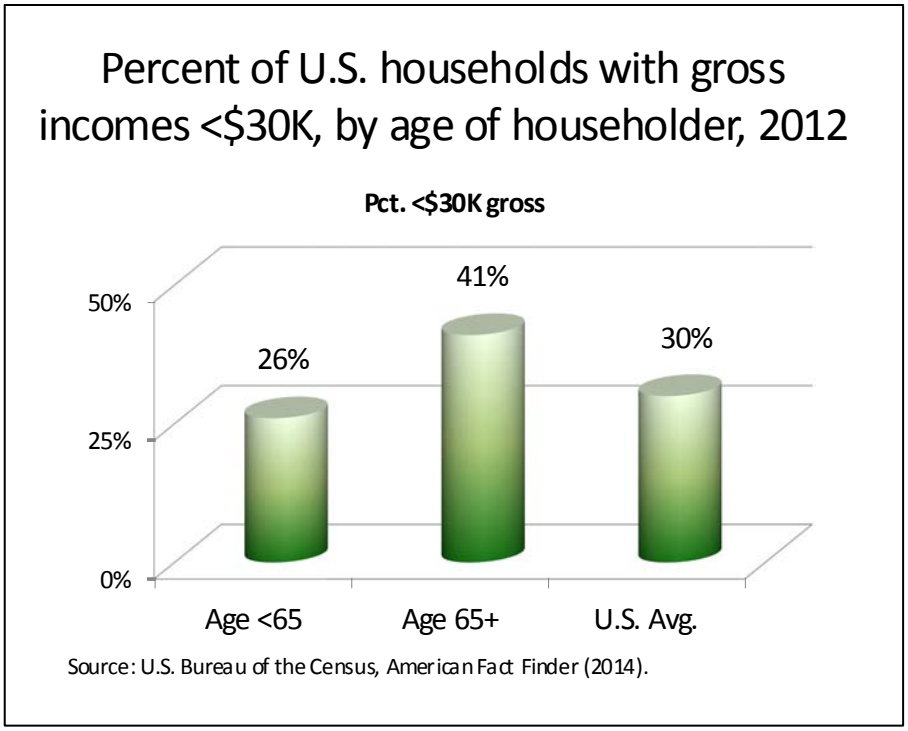


Source: U.S. Bureau of the Census, American Fact Finder (2014).

Percent of U.S. households with gross incomes <$50K, by age of householder, 2012



Source: U.S. Bureau of the Census, American Fact Finder (2014).



The median income of U.S. 65+ households in 2012 was $33,848, meaning that one-half of senior households had gross 2012 pre-tax incomes below this level. Households with principal householders younger than 65 had 2012 gross median incomes of $57,353, nearly 70% greater than 65+ households. U.S. Census Bureau, Statistics of Income, Poverty and Health Insurance in the U.S.: 2012 (2013).

Energy Facts

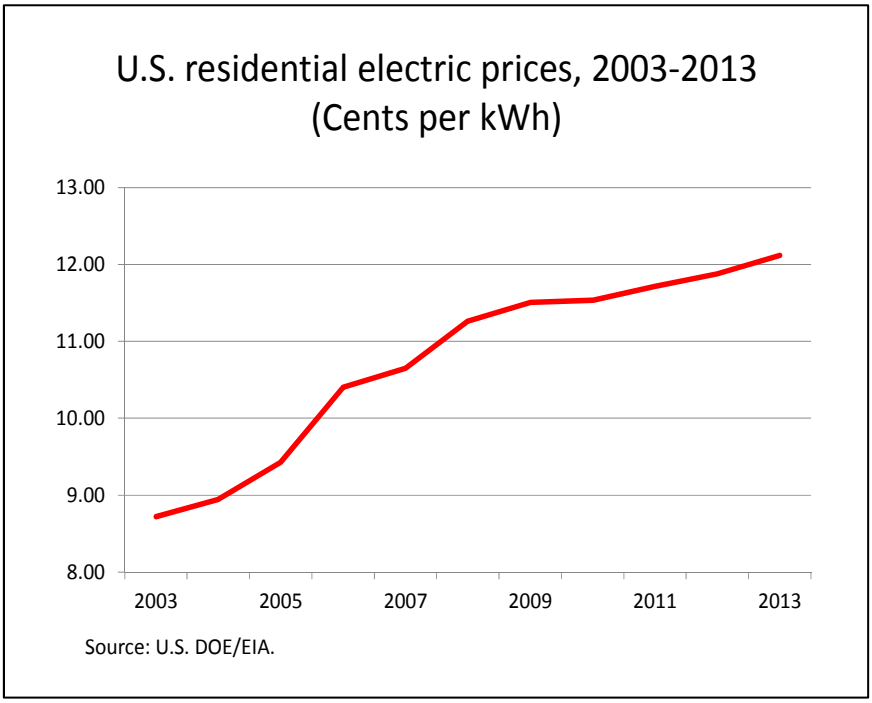
Electricity and motor gasoline are the principal energy expenditures for most 65+ households. Electricity accounts for two-thirds of average American household residential energy expenditures. Natural gas, propane, heating oil, and other fuels account for the remainder. For the nation's 27 million 65+ households, electricity represents 61% of total residential bills, as shown in the table below:

U.S. residential energy expenditures, 2009

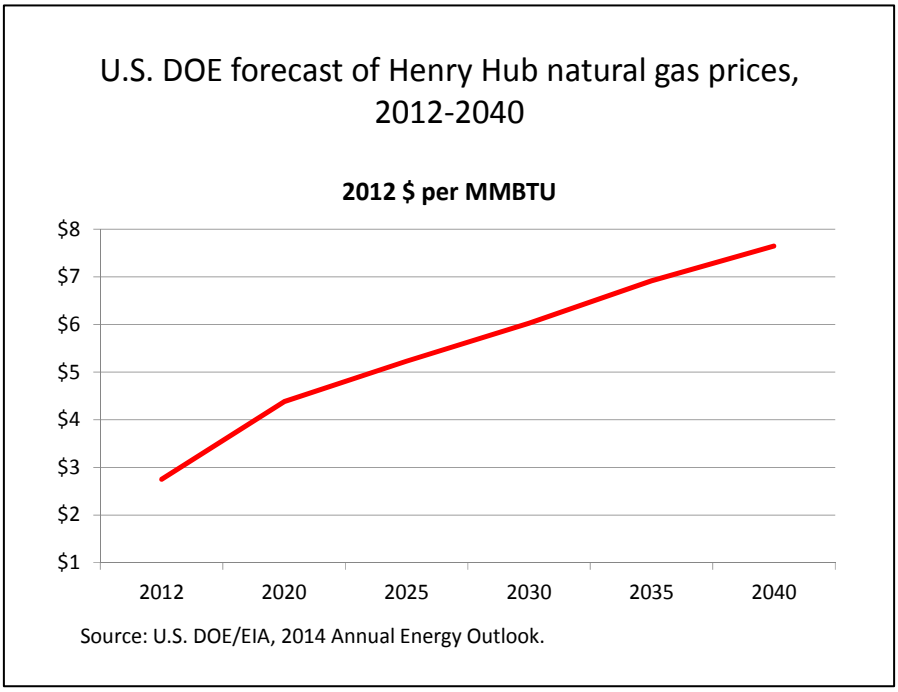
	Avg. energy expenditures	Electricity	N. Gas & other	Electricity pct. of total expends.
All H/Hs	$2,024	$1,340	$684	66%
65+ H/Hs	$1,909	$1,164	$745	61%

Source: U.S. DOE/EIA 2009 Residential Energy Consumption Survey (2012); Data for 65+ households provided by EIA.

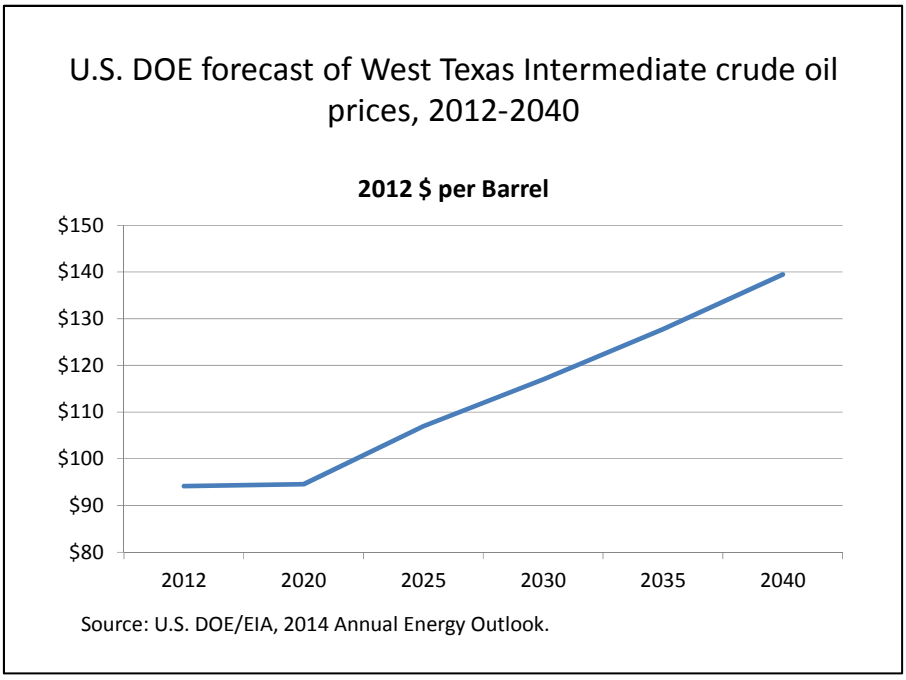
- ✓ The national average price of electricity per kilowatt-hour (kWh) has increased by 39% since 2003, substantially above the 29% increase in inflation as measured by the Consumer Price Index. This increase is due in part to higher fuel and capital costs, and the costs of compliance with environmental regulations. Recent trends in national residential electric prices are shown in the chart below.



- ✓ Electricity price increases moderated in 2011-12 due to short-term reductions of natural gas prices, a principal source of electric generation in many states. Recent reductions of natural gas prices are not expected to continue based on current Department of Energy forecasts.
- ✓ U.S. DOE projects that wellhead gas prices at the Henry Hub, a key determinant of future electricity prices, will increase in real terms by 90% from 2012 to 2025, from $2.75 per MMBTU to $5.23 per MMBTU. These price increases, shown in the chart below, do not account for the increase in natural gas demand likely to result from EPA's proposed regulations for reducing CO2 emissions from existing power plants.
- ✓ EPA projects that natural gas demand initially will increase by 12% to 14% in 2020, and then decline over time due to the Clean Power Plan's energy efficiency goals for each state (EPA CPP RIA, Table 3-16). Analysts at the Center for Strategic and International Studies and the Rhodium Group report that natural gas demand for compliance with the CPP may be three times greater than EPA projects in the absence of aggressive energy efficiency programs (CSIS/Rhodium Group, 2014).



While natural gas prices are projected to increase at rates substantially above the rate of inflation, the Department of Energy projects a steady, but more moderate, 1.4% rate of real price increase in domestic oil. West Texas intermediate crude oil prices are a fundamental barometer of future energy prices in the economy:



Electricity costs strain elderly fixed-income household budgets

For America's 17 million senior households with pre-tax incomes below $50,000 in 2012, and an average pre-tax income of $24,842, electricity costs are burdening household budgets constrained by modest Social Security cost-of-living (COLA) increases. There were no COLA increases in 2010 or 2011, and the January 2014 increase of 1.5% does not keep pace with the overall Consumer Price Index. Since January 2010, the cumulative increase in COLAs was 6.9% versus a 9% increase in the CPI. (Bureau of Labor Statistics CPI Calculator and Social Security Administration, History of Automatic Cost of Living Adjustments).

- ✓ Projections of future residential electric price increases suggest that electric prices will increase at a rate well above the general rate of inflation in the economy, adversely impacting millions of 65+ households living on fixed sources of income. The table below summarizes recent forecasts of national residential electric prices for 2025 through 2040, expressed in real (after inflation) prices per kilowatt-hour:

Comparison of residential electric price forecasts
(In constant 2012 cents/kWh)

Source	2012	2025	2035	2040	Pct. Chg, 2012-2040
EIA AEO 2014	11.9	12.3	12.9	13.3	12%
IHSGI	11.9	13.6	14.4	14.5	22%
INFORUM	11.9	15.0	19.3	22.8	92%
Average	11.9	13.6	15.5	16.9	42%

Source: U.S. DOE/EIA Annual Energy Outlook 2014, Table CP4.

- ✓ The average of these three electricity price forecasts is a 42% overall increase in real (after inflation) residential electricity prices by the year 2040.

EPA Clean Power Plan Impacts

EPA's proposed Clean Power Plan (CPP) for reducing carbon dioxide emissions from the nation's existing fossil-fueled power plants will increase electric prices for 65+ households. The proposed rule sets forth "building blocks" of options for reducing emissions, focused on decreasing the use of coal in favor of natural gas, while increasing energy efficiency and renewable energy resources. EPA's goal is to reduce national CO2 emissions from electric utilities by 30% below 2005 levels.

The CPP proposal was issued In June 2014, just after EPA issued proposed regulations that effectively bar the construction of new coal-based generation plants (*see*, 79 Fed. Reg. 1430, Jan. 8, 2014).

- ✓ The U.S. relied on coal for 41% of its electricity fuel supply in 2012, with natural gas supplying 24% of the energy input for electric generation. Nuclear energy and hydroelectric power supplied most of the remainder. (DOE/EIA 2012 State Energy Data).
- ✓ U.S. fossil-fueled electric utilities have reduced emissions of carbon dioxide by 12% since 2005, measured in pounds of CO2 per Megawatt-hour (MWh) of electric generation, and by 13% measured in tons of CO2 emitted (EPA CAMD Data Base, 2014). EPA's proposed CPP rule does not give credit for these reductions. It requires U.S. electric utilities to achieve an overall 24% reduction by 2030 from projected base case CO2

emissions. Reductions range from 11% in North Dakota to 72% in Washington. Initial reductions are to occur by 2020, with the final goal achieved by 2030.

- ✓ EPA's proposed “building blocks” are state-specific, and call for a substantial portion of the target reduction to be achieved by switching from coal generation to higher-cost natural gas combined-cycle units, with additional reductions from new renewable energy projects and increased energy efficiency measures among consumers and industry. Existing coal generating plants are required to improve their energy efficiency by 6%. Each state will have flexibility in choosing among the measures it adopts, but the target emission reduction for each state is federally enforceable under the Clean Air Act.

EPA's proposed Clean Power Plan building blocks for each state are summarized in the table below. The percentages refer to the fraction of each state's total emission reduction goal to be achieved by the various building blocks:

% Contribution of Rate Reduction by Building Block in 2030[1]					
State[2]	Coal Heat Rate Improvement	Gas Redispatch	Nuclear	Renewable Energy[3]	Energy Efficiency
Alabama	12%	27%	7%	30%	24%
Alaska	3%	29%	0%	13%	56%
Arizona	6%	62%	5%	5%	22%
Arkansas	9%	60%	3%	11%	17%
California	0%	20%	3%	27%	50%
Colorado	12%	41%	0%	21%	25%
Connecticut	0%	10%	14%	31%	45%
Delaware	5%	50%	0%	28%	17%
Florida	5%	55%	2%	17%	21%
Georgia	7%	25%	31%	16%	21%
Hawaii	10%	0%	0%	11%	78%
Idaho	0%	0%	0%	40%	60%
Illinois	12%	21%	12%	20%	35%
Indiana	24%	11%	0%	17%	48%
Iowa	18%	35%	2%	0%	44%
Kansas	19%	0%	6%	36%	40%
Kentucky	29%	15%	0%	8%	48%
Louisiana	7%	54%	3%	13%	22%
Maine	0%	10%	0%	0%	90%
Maryland	10%	6%	7%	40%	37%
Massachusetts	2%	22%	2%	40%	33%
Michigan	13%	32%	6%	13%	37%
Minnesota	9%	51%	5%	0%	35%
Mississippi	4%	57%	3%	16%	20%
Missouri	24%	25%	3%	8%	41%
Montana	24%	0%	0%	36%	40%
Nebraska	17%	14%	7%	26%	35%
Nevada	4%	44%	0%	25%	28%
New Hampshire	3%	30%	9%	40%	18%
New Jersey	2%	19%	9%	40%	29%
New Mexico	11%	38%	0%	23%	28%
New York	1%	24%	6%	36%	33%
North Carolina	9%	38%	6%	21%	27%
North Dakota	51%	0%	0%	5%	44%
Ohio	16%	14%	3%	29%	38%
Oklahoma	9%	50%	0%	21%	20%
Oregon	3%	27%	0%	35%	36%
Pennsylvania	11%	11%	7%	43%	27%
Rhode Island	0%	0%	0%	30%	70%
South Carolina	6%	14%	40%	19%	21%
South Dakota	9%	51%	0%	0%	40%
Tennessee	10%	10%	37%	14%	29%
Texas	8%	44%	1%	27%	20%
Utah	17%	40%	0%	12%	31%
Virginia	6%	33%	7%	31%	24%
Washington	3%	28%	3%	32%	35%
West Virginia	27%	0%	0%	52%	21%
Wisconsin	12%	33%	3%	18%	34%
Wyoming	26%	9%	0%	47%	18%

Notes: 1. Derived from http://www2.epa.gov/sites/production/files/2014-06/20140602tsd-state-goal-data-computation.xlsx and Appendix 1.
2. Calculations based on individual state utilization of a building block absent effects of implementation of other building blocks.
3. Excludes effects of existing renewable energy generation based on 2012 baseline.

The table below shows EPA's interim and final emission rate goals for each state, and the percent reduction from 2012 emission rates resulting from the application of EPA's proposed building blocks. The interim goal is to be met by 2020 using a multi-year average. The reductions are front-loaded, with most of the reductions to be achieved in the first years of the program.

EPA Clean Power Plan Emission Rate Targets by State (Lbs. CO2/MWh)

State	2012 Rate	Interim Goal 10-year Average	Interim Goal Reduction from 2012 (%)	Final Goal 2030-on	Final Goal Reduction from 2012 (%)
Alabama	1,444	1,147	21	1,059	27
Alaska	1,351	1,097	19	1,003	26
Arizona	1,453	735	49	702	52
Arkansas	1,634	968	41	910	44
California	698	556	20	537	23
Colorado	1,714	1,159	32	1,108	35
Connecticut	765	597	22	540	29
Delaware	1,234	913	26	841	32
Florida	1,199	794	34	740	38
Georgia	1,500	891	41	834	44
Hawaii	1,540	1,378	11	1,306	15
Idaho	339	244	28	228	33
Illinois	1,894	1,366	28	1,271	33
Indiana	1,924	1,607	16	1,531	20
Iowa	1,552	1,341	14	1,301	16
Kansas	1,940	1,578	19	1,499	23
Kentucky	2,158	1,844	15	1,763	18
Louisiana	1,455	948	35	883	39
Maine	437	393	10	378	14
Maryland	1,870	1,347	28	1,187	37
Massachusetts	925	655	29	576	38
Michigan	1,690	1,227	27	1,161	31
Minnesota	1,470	911	38	873	41
Mississippi	1,093	732	33	692	37
Missouri	1,963	1,621	17	1,544	21
Montana	2,246	1,882	16	1,771	21
Nebraska	2,009	1,596	21	1,479	26
Nevada	988	697	29	647	35
New Hampshire	905	546	40	486	46
New Jersey	928	647	30	531	43
New Mexico	1,586	1,107	30	1,048	34
New York	978	635	35	549	44
North Carolina	1,647	1,077	35	992	40
North Dakota	1,994	1,817	9	1,783	11
Ohio	1,850	1,452	22	1,338	28
Oklahoma	1,387	931	33	895	35
Oregon	717	407	43	372	48
Pennsylvania	1,531	1,179	23	1,052	31
Rhode Island	907	822	9	782	14
South Carolina	1,587	840	47	772	51
South Dakota	1,135	800	30	741	35
Tennessee	1,903	1,254	34	1,163	39
Texas	1,284	853	34	791	38
Utah	1,813	1,378	24	1,322	27
Virginia	1,302	884	32	810	38
Washington	756	264	65	215	72
West Virginia	2,019	1,748	13	1,620	20
Wisconsin	1,827	1,281	30	1,203	34
Wyoming	2,115	1,808	15	1,714	19

Source: U.S. EPA, Goal Computation Technical Support Document for the Clean Power Plan, Appendix 5 (2014).

EPA's proposed "building blocks" contain unrealistic assumptions on the potential for large-scale renewable energy and energy efficiency development within the short timetable of the EPA rule, and untenable projections of the potential for power plant efficiency improvements. The high level of efficiency improvements that EPA projects at coal-based power plants (6%) may not be feasible because the coal generating fleet is being retrofitted with emission controls to comply with EPA's 2011 Mercury and Air Toxics Standards, in many instances leading to decreased plant efficiency. Additional major investments in these plants are unlikely because EPA projects that the Clean Power Plan will reduce electric generation at coal-based facilities, thus limiting the opportunity to recover investment costs. (CPP RIA Table 3-15).

- ✓ EPA's Regulatory Impact Analysis for the CPP projects national costs of $5.4 to $7.4 billion annually in 2020. EPA's projections assume billions of dollars of annual savings from reductions of electric demand through widespread investments in energy efficiency measures.
- ✓ **EPA projects 5.9% to 6.5% average retail electric price increases for the proposed Clean Power rule in 2020, with increases as high as 10% to 12% in some regions** (CPP RIA Table 3-21). This projection is highly uncertain because it assumes that states will follow EPA's prescribed "building blocks" approach to emission reductions. If the flexibility measures in EPA's proposed rule prove unworkable, or are limited by judicial decisions, higher rate impacts could result.
- ✓ **EPA's projected national average 5.9% to 6.5% retail electric price increases due to EPA's Clean Power rule will follow a 3.1% average national price increase in 2015 for compliance with EPA's 2011 Mercury and Air Toxics Standards rule** (EPA MATS RIA, Table 3-12).
- ✓ **EPA's projected electric rate impacts are likely conservative. A March 2014 analysis by National Economic Research Associates of a CO2 reduction proposal very similar to the EPA Clean Power rule estimated national average residential electricity price increases of 3.0% to 11.4% over 2018-2033**, depending upon the degree of flexibility in implementation (NERA/ACCCE, March 2014). These price increases are in addition to those expected in 2015-2017 due to the implementation of the EPA mercury rule.
- ✓ **A new NERA analysis of the proposed Clean Power Plan indicates potential delivered electric price increases averaging 12% to 17% over the period 2017 to 2031, depending upon the degree of implementation flexibility. Total consumer energy costs could rise by $366 to $479 billion in net present value. (**NERA/ACCCE *et al*., October 2014**).**
- ✓ **A July 2014 analysis by the Center for Strategic and International Studies (CSIS) and the Rhodium Group using EIA's NEMS energy model projects that national electric prices could increase by 5.4% to 9.9% due to the Clean Power rule** (CSIS at 28). These price increases also are in addition to the 3.1% increase for compliance with the EPA mercury rule.
- ✓ Both the timing and stringency of EPA's proposed reductions will challenge the nation's electric utilities, and will lead America to greater dependence on natural gas as a main source of electric generation. CSIS forecasts that **natural gas use could more than double as a percent of total electric generation, rising from 19% in 2010 to 43% in 2020** (CSIS at 17, national scenario without energy efficiency). Coal generation could decline from 46% to 21% over this period due to higher demand for natural gas.
- ✓ U.S. DOE projects that the price of natural gas delivered to electric utilities will increase at a compound annual rate of 3.1% above the rate of inflation between 2012 and 2040, the highest rate of real price increase for any delivered fuel in any sector of the economy (DOE Annual Energy Outlook 2014). **EPA projects that the Clean Power Plan will lead to further increases in delivered natural gas prices of 7.5% to 11.5% in 2020** (CPP RIA, June 2014).

Fuel Diversity and Reliability at Risk

The prospective reduction of fuel diversity in America's electric generating fleet due to greater dependence on natural gas for compliance with the Clean Power Plan will create additional risks of electric price volatility and higher costs for elderly consumers. A recent special report by IHS examined alternative scenarios of electric supply diversity and found that household disposable incomes could be reduced by more than $2,000 annually where electric fuel supply choices are constrained:

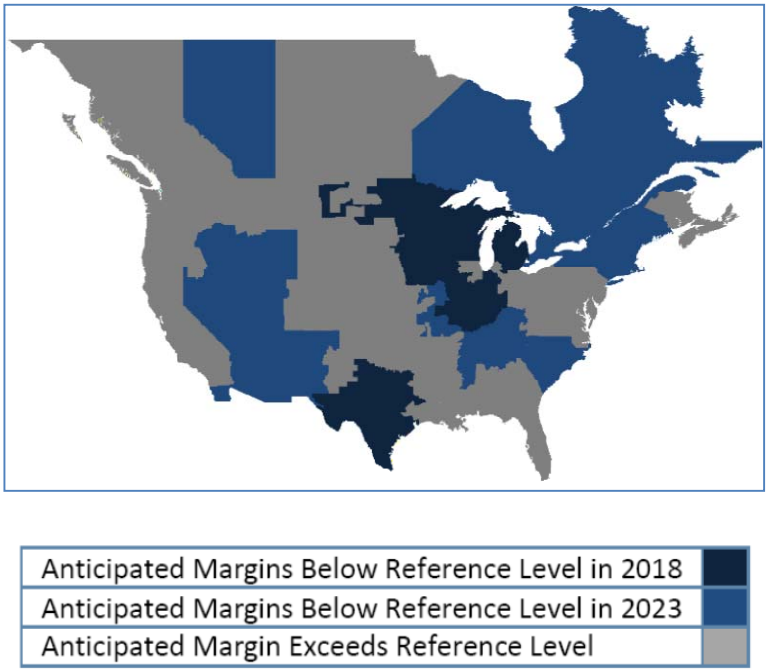
> To illustrate the importance of power supply diversity at the national level, IHS compared a base case—reflecting the generation mix in regional US power systems during the 2010-2012 period—with a reduced diversity case (a generating mix without meaningful contributions from coal and nuclear power and with a smaller contribution from hydroelectric power along with an increased share of renewable power. The remaining three-quarters of generation in the scenario come from natural gas-fired plants).
>
> In this comparison, **IHS found that the cost of generating electricity in the reduced diversity case was more than $93 billion higher per year and the potential variability of monthly power bills was 50 percent higher compared to the base case. As a consequence, the study calculates that the typical household's annual disposable income to be around $2,100 less in the reduced diversity scenario, there would be around one million fewer jobs compared to the base case and US gross domestic product (GDP) would be nearly $200 billion less. Additional costs would arise if current trends lead to the retirement and replacement of existing power plants before it was economic to do so**. *See*, http://www.ihs.com/info/0714/power-diversity-special-report.aspx?ocid=uspowderv:pressrls:01 (emphasis added).

IHS's warning about additional electric cost increases due to the retirement of existing power plants before the end of their economic lifetimes is on point. **The CPP will cause the retirement of 30 to 49 Gigawatts of coal generating capacity by 2020** (CPP RIA, Table 3-12). This is in addition to more than 50 Gigawatts of coal capacity expected to be retired over the next few years as a consequence of compliance with EPA's 2011 MATS rule, low natural gas prices, and other factors. (U.S. DOE, Annual Energy Outlook, 2014). Overall, the nation will lose 126 Gigawatts of coal generating capacity between 2010 and 2020 with implementation of the CPP (CPP RIA, Table 3-12 and U.S. DOE 2012 Annual Energy Review). **EPA projects that total coal production for electric generation will decline from 844 million tons in the 2020 base case to 616 to 636 million tons under the CPP, a reduction of 25% to 27%** (CPP RIA, Table 3-15).

The December 2013 Long-Term Reliability Assessment by the North American Electric Reliability Corporation (NERC) raises concerns about the future reliability of the nation's bulk power supply based on then-current regulatory requirements, excluding the CPP. NERC finds that one-half of the electric reliability regions may fall below reserve margin standards deemed necessary to ensure reliability:

> Based on the *2013LTRA* reference case, the Anticipated Planning Reserve Margins for 13 of the 26 NERC assessment areas will remain above the NERC Reference Margin Levels throughout the 10-year period (NERC LTRA, p. 5)

NERC Projection of Regional Reserve Margins below the Reference Margin, 2018 and 2023



Source: NERC LTRA (December 2013), Fig. 1.

- ✓ NERC's assessment identifies near-term potential reliability issues in the Texas, Great Lakes, and Midwest regions, reflecting a growing imbalance of generating resources and demand. This imbalance, attributable to a variety of factors including the retirements of existing generating assets, is projected to expand by 2023 to the New York/New England, Rocky Mountain, Southwest, and Southeast regions.
- ✓ The expected retirement of an additional 30 to 49 Gigawatts of coal generating capacity due to EPA's Clean Power Plan will contribute further to inadequate reserve margins in several regions, particularly if EPA's ambitious energy efficiency goals are not met. **The additional baseload generation capacity projected to retire due to the Clean Power Plan would increase the risks of brownouts, load curtailments, and other power disruptions in regions impacted by these retirements.**

Additional Regulatory Impacts

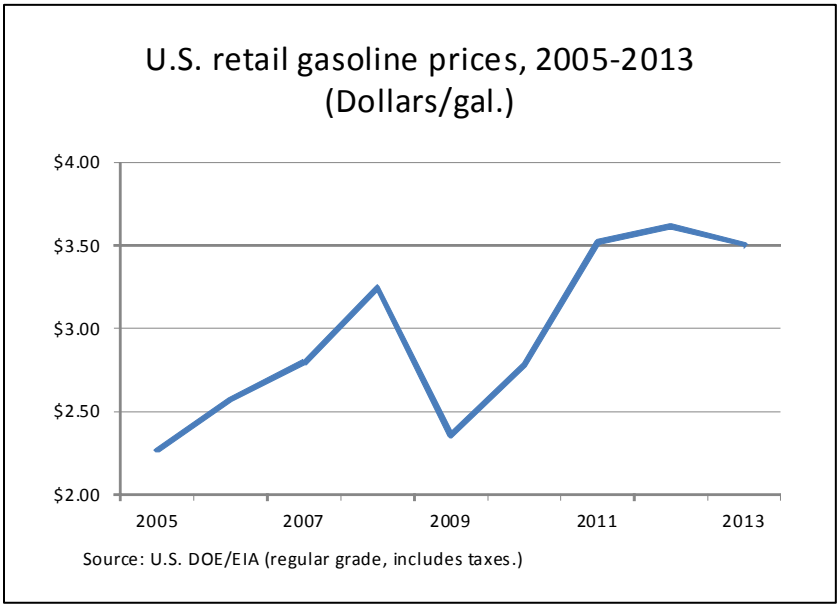
Recent and pending U.S. EPA regulations will add further cost pressures to the electric generating sector over the next few years, directly impacting electric bills in America.

- ✓ EPA's Regulatory Impact Analysis for its 2011 Mercury and Air Toxics Standards projects that this rule will cost an average of $9.6 billion annually, and will increase average retail electricity prices by 3.1% in 2015 (EPA MATS RIA, Tables ES-1 and 3-12).
- ✓ **A new ozone standard could dramatically increase energy costs for all American consumers and industries**. EPA plans to revise the 2008 National Ambient Air Quality Standard for ozone, currently set at a level of 75 parts per billion (ppb), in late 2015. A July 2014 analysis by National Economic Research

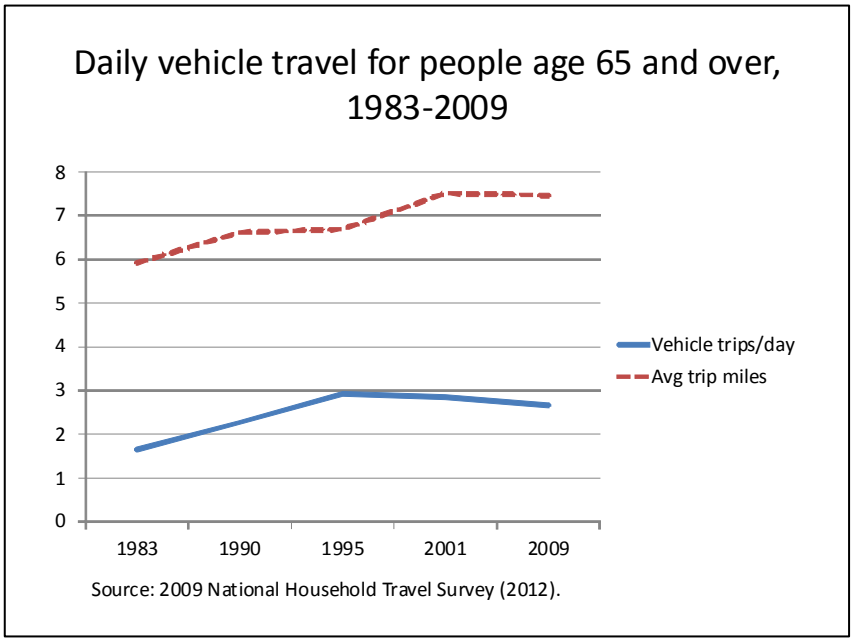
Associates of a potential new ozone standard set at a level of 60 ppb indicates that such a standard could impose $348 billion in annual compliance costs across the nation. NERA projects that national average residential electricity prices would increase by 3.3% to 15%, while residential natural gas prices could rise by 7% to 32%. The upper end estimates of these price increases reflects the potential that a new ozone standard set at such a stringent level could constrain future natural gas development, causing both electricity and natural gas prices to increase significantly. (NERA/NAM, July 2014, Figs. S-9, S-15).

Gasoline costs are high

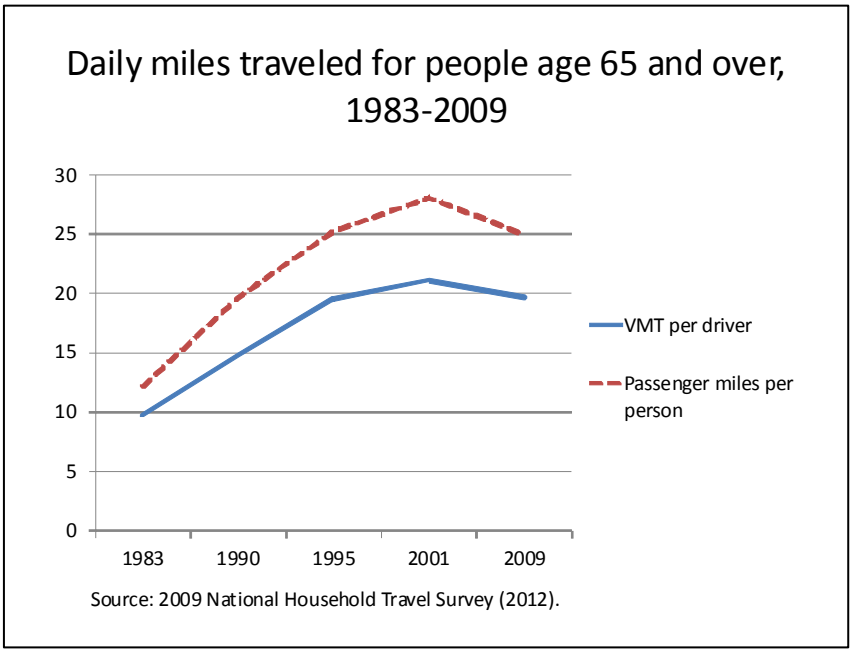
Gasoline is the largest single consumer energy expenditure for most U.S. households, including the majority of 65+ households. Gasoline prices have declined recently, but the outlook is for continued high prices. U.S. DOE projects average gasoline prices of $3.38 per gallon in 2015 (DOE/EIA, Short-Term Energy Outlook, October 2014).



- ✓ Average retail gasoline prices per gallon increased by 55% since 2005, a rate nearly three times greater than the 19% rate of inflation measured by the Consumer Price Index.
- ✓ Seniors drive fewer miles annually than younger people, since most are not commuting to work or school. Gasoline costs nevertheless account for a significant annual energy expense for most senior citizens.
- ✓ U.S. DOT's 2009 National Household Travel Survey (2012) shows that 65+ seniors have increased their average vehicle miles traveled (VMT) since 1983, through a combination of more daily vehicle trips per driver and longer average vehicle trip lengths:



- ✓ The average number of daily vehicle trips per 65+ driver increased by 61% from 1983 to 2009, while average trip length increased by 26%, from 5.9 miles in 1983 to 7.5 miles in 2009.
- ✓ Average daily vehicle miles traveled per 65+ driver more than doubled between 1983 and 2009, from 9.8 miles to 19.7 miles, as shown in the chart below:



- ✓ The vast majority of 65+ citizens are drivers. Some 91% of persons aged 60 to 69 are drivers, while 83% of those aged 70 to 79 drive. More than 60% of the 80+ population also drive (2009 NHTS, 2012).
- ✓ With an expected 60% increase in the number of 65+ persons over the next 15 years, the proportion of 65+ drivers on the road will increase from 15% in 2009 to 20% by 2025 (AARP Public Policy Institute, 2011).
- ✓ Assuming an average of 19.7 miles driven per day for 65+ drivers, and 17 miles per gallon for the average fuel economy of light duty vehicles now on the road, America's 65+ drivers will each spend approximately $1,500 annually with gasoline prices of $3.50 per gallon.

Energy Cost Increases Pose Health Risks for Low-Income Seniors

Increased energy costs function as a regressive tax on lower-income senior citizens least able to afford them by seeking employment or additional sources of income. A 2009 survey by the Applied Public Policy Research Institute for Study and Evaluation (APPRISE, July 2010) focused on the demographic, economic, and health circumstances of persons able to qualify for the federal Low Income Heating and Energy Assistance Program (LIHEAP). Nearly 1,900 interviews were completed in 13 states. Some 39% of respondents were senior citizens age 65 or older.

Among the senior population in the APPRISE survey, the following health conditions were reported:

Asthma symptoms - 42%
Hypertension, heart disease, heart attack or stroke - 75%
Bronchitis, emphysema, or COPD - 22%

Survey respondents reported the following health-related responses to energy costs (events within five years of the survey):

Went without food for at least one day - 30%
Went without medical or dental care - 41%
Did not fill prescription or took less than full dose - 33%
Unable to pay energy bill due to medical expenses - 22%
Became sick because home was too cold - 25%

The APPRISE survey data provide insights into the real-world consequences of high energy costs among America's senior population, as well as the prevalence of poor health conditions among lower-income seniors. Energy costs are constraining household budget choices for necessities such as food and limiting access to medical services.

Social Security At Risk

Social Security is a principal source of income for America's senior citizens. In 2012, 29% of America households received basic Social Security benefits averaging $16,977 per household (Bureau of the Census, 2012 American Community Survey, 2014). The future stability of this income, however, cannot be assured due to the rapidly changing dynamics of the U.S. population, and the projected increase in Social Security recipients. The Congressional Budget Office's latest assessment of the health of the Social Security system reveals the extent of these risks:

In calendar year 2010, for the first time since the enactment of the Social Security Amendments of 1983, annual outlays for the program exceeded annual tax revenues (that is, outlays exceeded total revenues excluding interest credited to the trust funds). In 2012, outlays exceeded noninterest income by about 7 percent, and CBO projects that the gap will average about 12 percent of tax revenues over the next decade. As more members of the baby-boom generation retire, outlays will increase relative to the size of the economy, whereas tax revenues will remain at an almost constant share of the economy. As a result, the gap will grow larger in the 2020s and will exceed 30 percent of revenues by 2030.

CBO projects that under current law, the DI (Disability Insurance) trust fund will be exhausted in fiscal year 2017, and the OASI (Old Age and Survivors) trust fund will be exhausted in 2033. If a trust fund's balance fell to zero and current revenues were insufficient to cover the benefits specified in law, the Social Security Administration would no longer have legal authority to pay full benefits when they were due. In 1994, legislation redirected revenues from the OASI trust fund to prevent the imminent exhaustion of the DI trust fund. In part because of that experience, it is a common analytical convention to consider the DI and OASI trust funds as combined. Thus, CBO projects, if some future legislation shifted resources from the OASI trust fund to the DI trust fund, the combined OASDI trust funds would be exhausted in 2031. *See*, http://www.cbo.gov/publication/44972.

Conclusion

Low- and fixed-income seniors are among the most vulnerable to electric rate and other energy price increases. Current and pending U.S. EPA regulations will increase the price of electricity in America at rates above the general rate of inflation. Rising oil and natural gas prices will add further pressure on residential natural gas and gasoline prices. The 65% of America's 65+ households with gross incomes less than $50,000 annually will be among those least able to afford these energy price increases.

Just maintaining the energy budget status quo for America's 65+ fixed income population requires stable electricity and other energy prices that do not increase above the rate of inflation. Lower-income seniors are among those least likely to make major investments in new energy efficiency programs with long investment payback times, as envisioned by EPA's Clean Power Plan. The suite of new regulations EPA is now pursuing inevitably will lead to ever-higher utility prices for America's elderly population, exceeding the modest cost-of-living (COLA) adjustments that many 65+ retirees depend upon just to keep up with inflationary pressures.

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