

ATTACHMENT B



U.S. Energy Poverty: Energy Inequality and Social Justice*

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U.S. Energy Poverty: Energy Inequality and Social Justice

“Social justice means ensuring that all citizens of the community have the same means and ability, however, variously defined, to be able to pursue a good life without being burdened by disadvantages that weren’t of their own making.” – *All That’s Left: What Labor Should Stand For, N. Dyrenfurth and T. Soutphommasane, 2014*

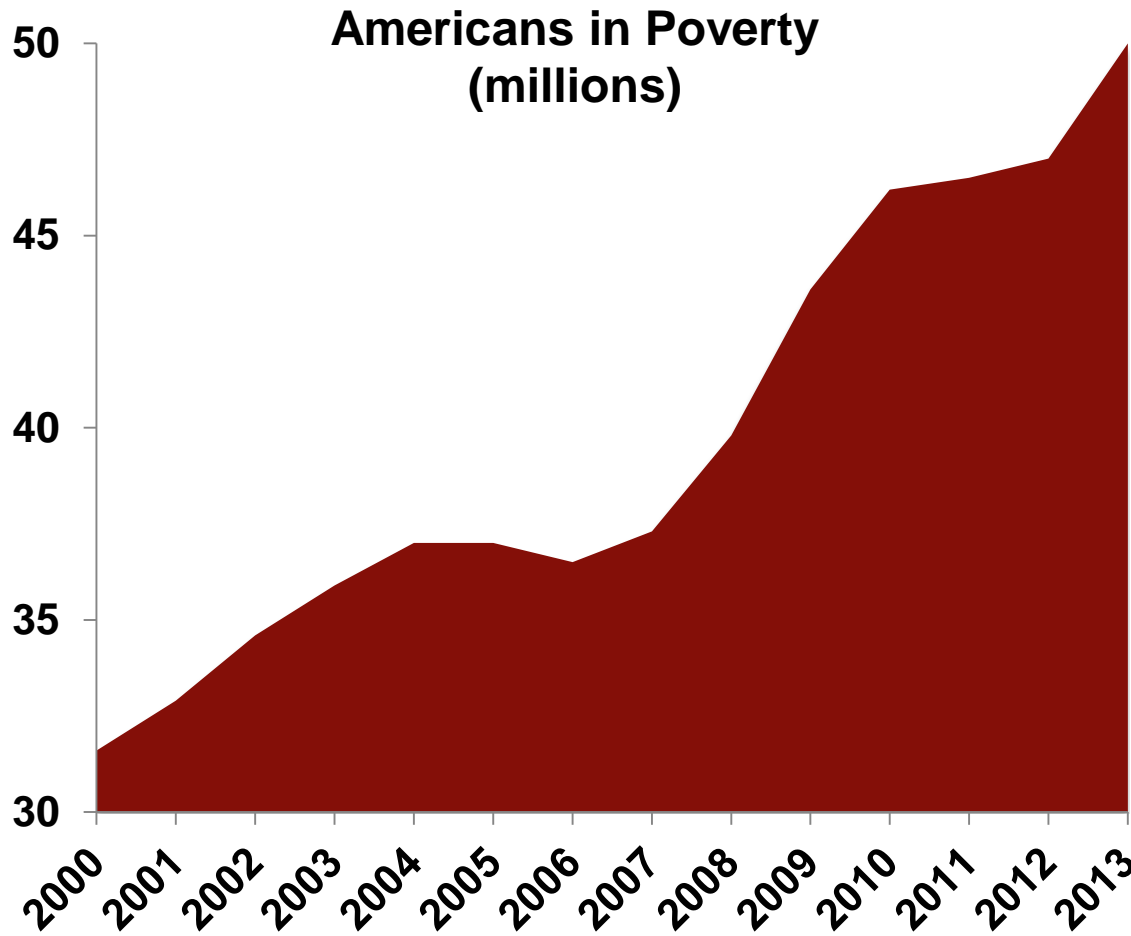
“Everywhere you turn, there are proposals and regulations to make prices go higher, the trend line is up, up, up. We are going into uncharted territory.” – *Daniel Kish, Senior Vice President, Institute for Energy Research, Los Angeles Times, April 25, 2014*

“Today’s regulations issued by EPA add immense cost and regulatory burdens on America’s job creators. They will have a profound effect on the economy, on businesses, and on families.”
– *U.S. Chamber of Commerce, June 2, 2014*

“New EPA regulations that add to the price of electricity have serious consequences for our communities, jobs and families.”
– *National Rural Electric Cooperatives Association, June 2, 2014*



U.S. Poverty: Pervasive and Escalating

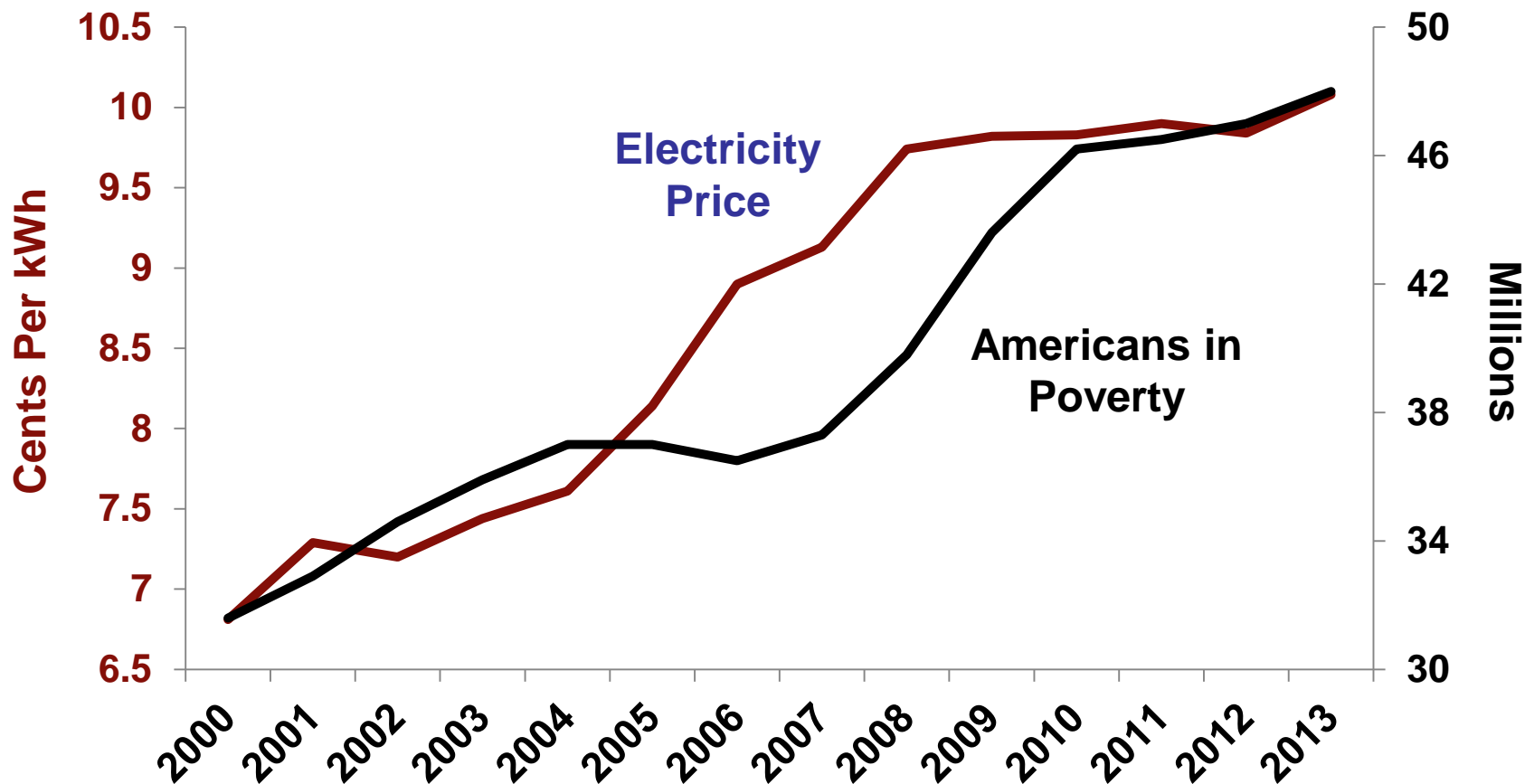


Since 2008, The number of people in poverty has grown by 8 million Americans, or 20%.

4.1 million households headed by single mothers live below the poverty line.



Higher Electricity Prices Lead to More Poverty





EPA Emissions Regulations Should Be Held to a “Minimal Impact” Standard

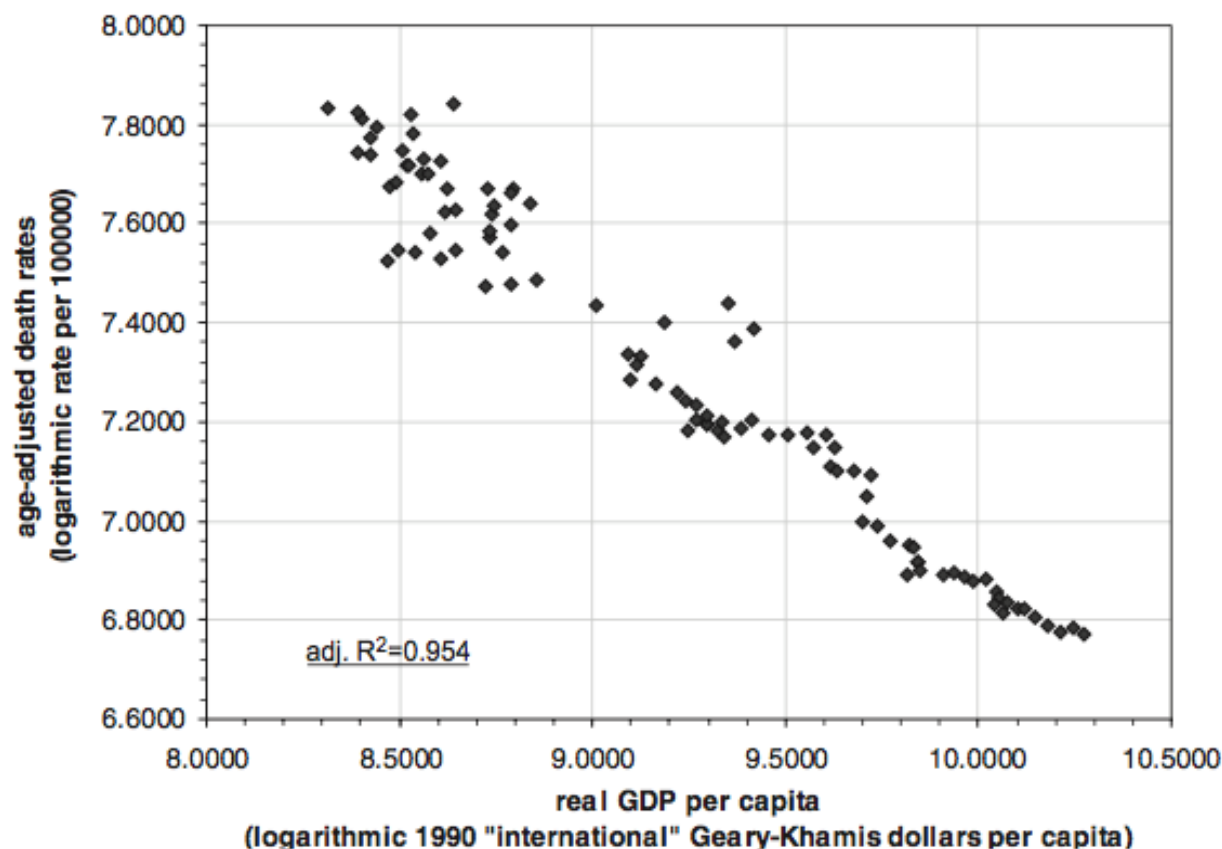
- Extreme regulations from the Environmental Protection Agency (EPA) are closing affordable, productive coal plants, which could continue operating for many decades given improved technology.
- Coal-based electricity was the reason the U.S. escaped a major energy crisis this winter when gas prices spiked 70%.
- Over 330 coal units will be closed within 36 months, as EPA imprudently forces utilities toward gas – the fuel with the greatest price volatility in the nation and surging demand.
- Increased gas demand from utilities competes with families seeking to heat their homes and with industrial firms that need gas to operate.
- EPA regulations will raise the price of electricity and will also cause gas prices to spike for all consumers, cost jobs and increase energy poverty.



Health Comes from Wealth

“Growth in real per capita income is the backbone of declines in the U.S. mortality rate.”

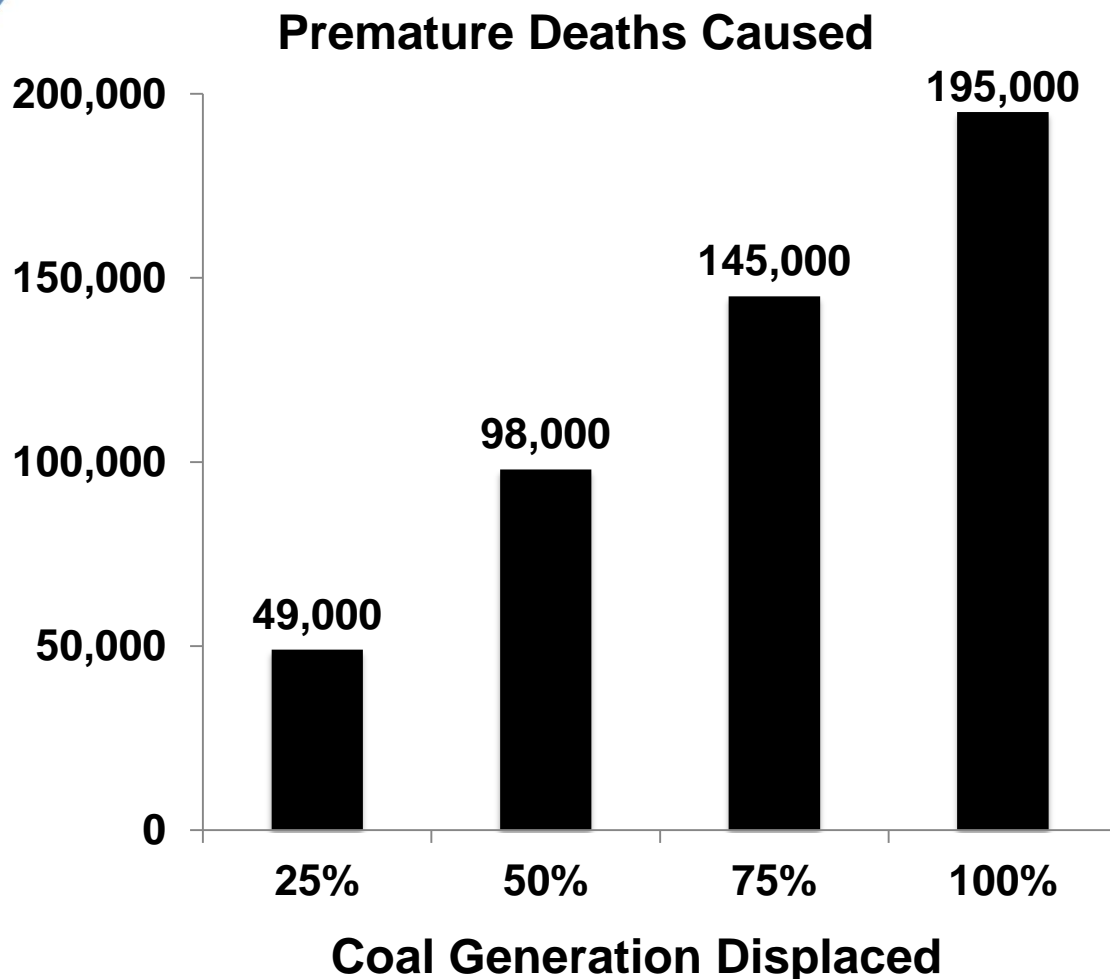
– *Dr. Harvey Brenner, Johns Hopkins University*



Source: Harvey Brenner, 2005, Commentary: Economic growth is the basis of mortality rate decline in the 20th century—experience of the United States 1901–2000, *International Journal of Epidemiology* 2005;34:1214–1221



Less Coal-Based Electricity, Higher Electric Rates, Fewer Jobs, More Premature Death



“Climate change initiatives requiring expanded use of high cost, natural gas would increase the cost of energy to the point that per-capita income and employment rates would decrease ...increased mortality rates would result from decreased household income and increased unemployment.”

– *Dr. Harvey Brenner, Johns Hopkins University*

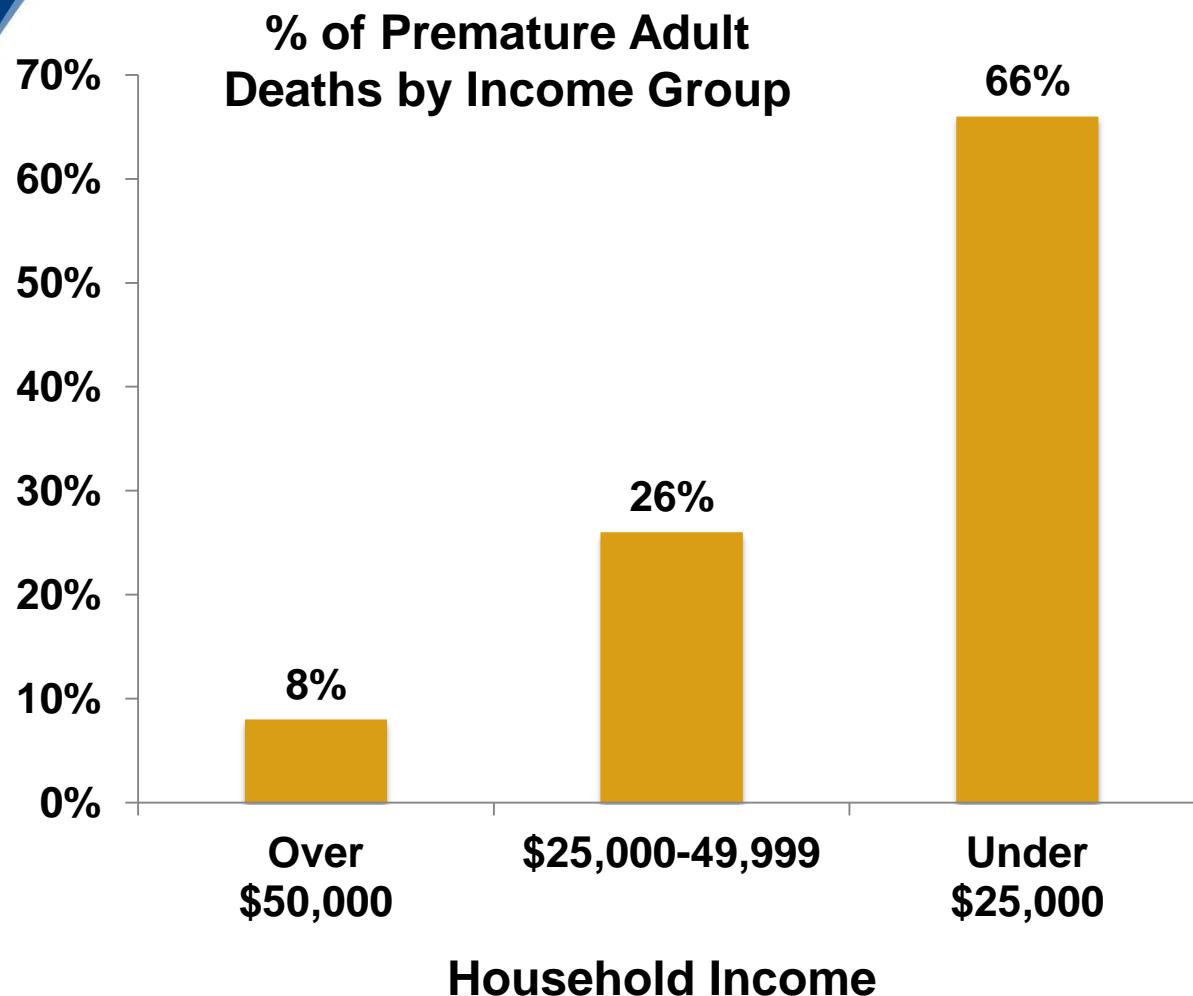


Hard Decisions: Health Implications for LIHEAP Families of Increased Home Energy Bills

Question	Percent of Respondents
Went Without Food for at Least One Day	30%
Went Without Medical or Dental Care	41%
Didn't Fill Prescriptions or Took Less than Full Dose	33%
Unable to Pay Energy Bill Due to Medical Expenses	22%



Health Impacts of Increased Energy Costs Will Disproportionately Burden the Poor and Minorities

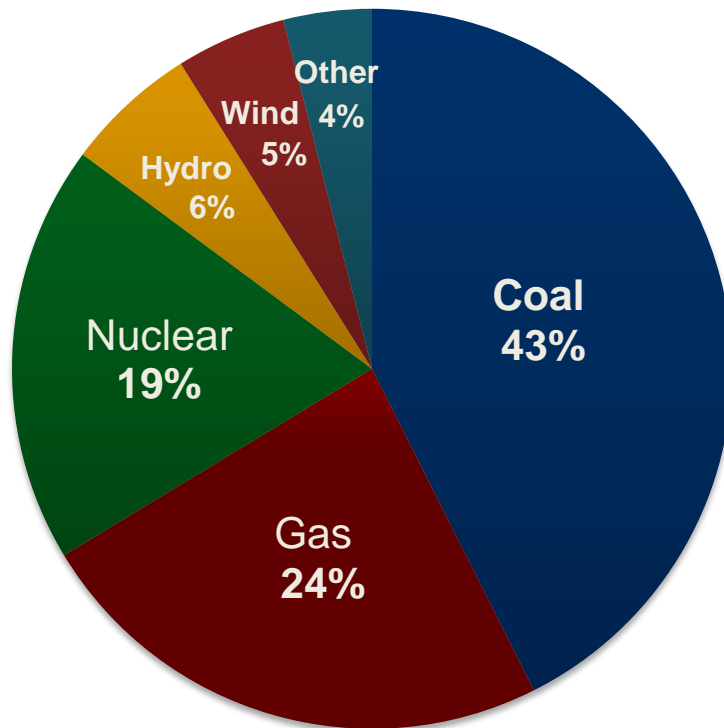


“We develop a framework for analyzing the induced adult deaths that could arise from the higher costs of forgoing the use of low-cost coal-fueled power. These potential losses ...fall disproportionately on lower-income households,... Further, mortality sensitivity to reduced income is much greater for these lower-income households, resulting in their incurring more of the deaths. Since the income-induced deaths are disproportionately focused on the lower income groups, they also disproportionately fall upon minorities.”
(Klein and Keeney*)



310 Gigawatts of Coal Capacity Provides 43% of Our Power

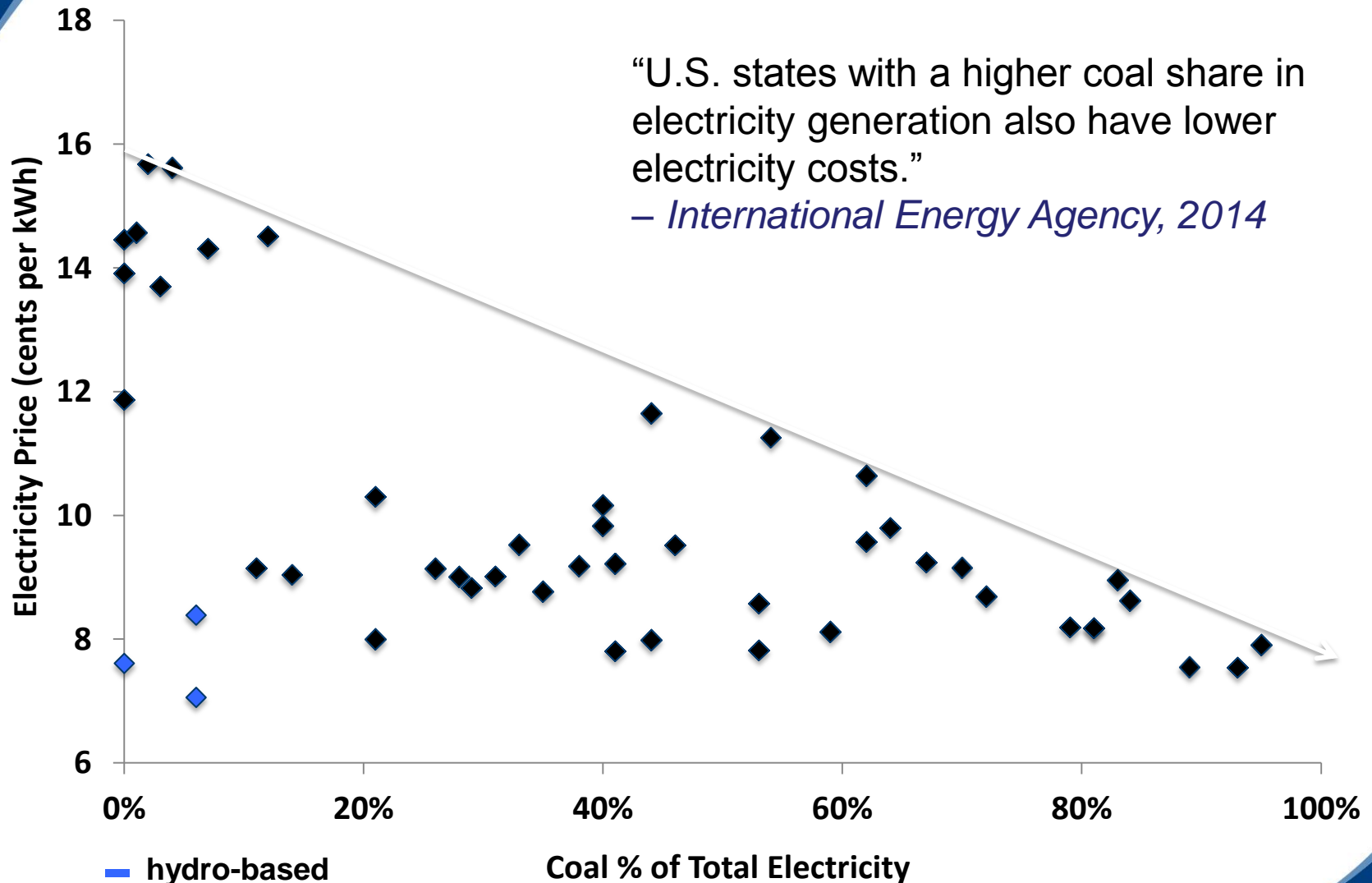
U.S. Power Generation 2014



Since 1950, coal has provided more electricity to American consumers than all other fuels combined.



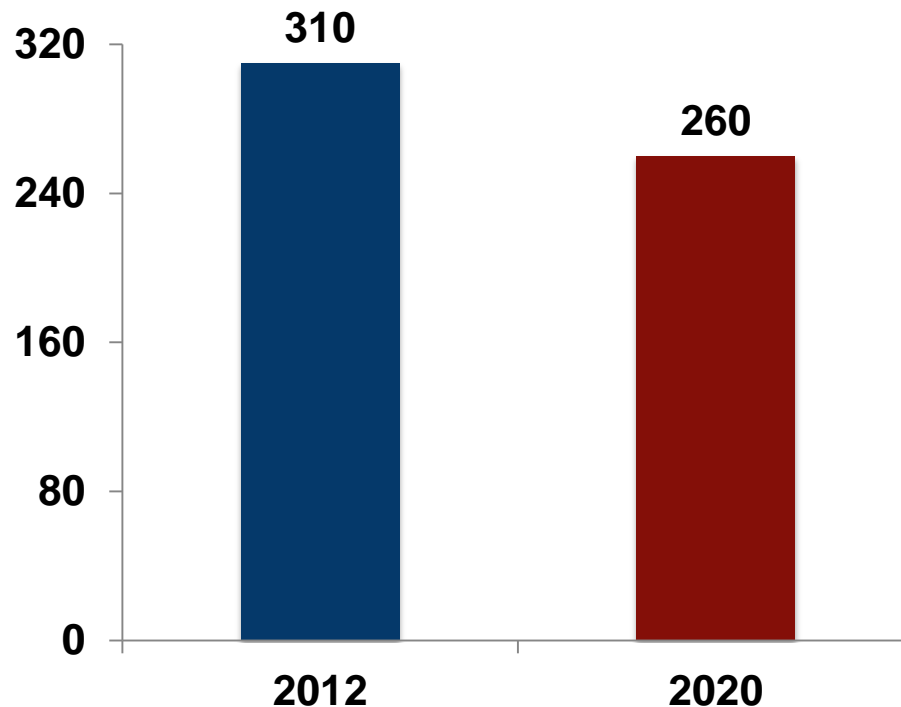
More Coal Means Lower Electric Rates





EPA Regulations are Closing Productive Coal Power Plants that Could Operate for Many Decades Given Improved Technology

**Probable U.S. Coal Capacity in 2020
(Gigawatts)**



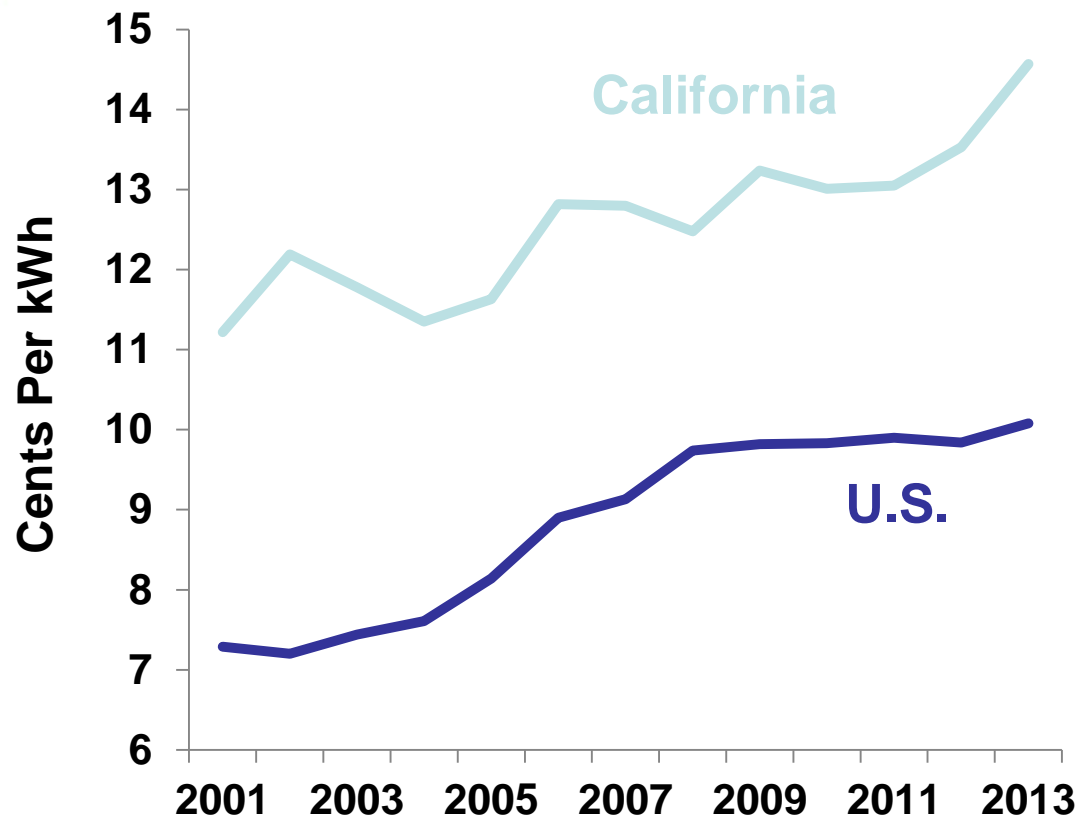
The closing of 60 GW of coal capacity is equivalent to losing 60% of America's nuclear fleet.

"We are now in an era of rising electricity prices. If you take enough supply out of the system, the price is going to increase."

– *Phillip Moeller, Federal Energy Regulatory Commission*



Electricity Prices: California's Anti-Coal Model Does Not Work



California

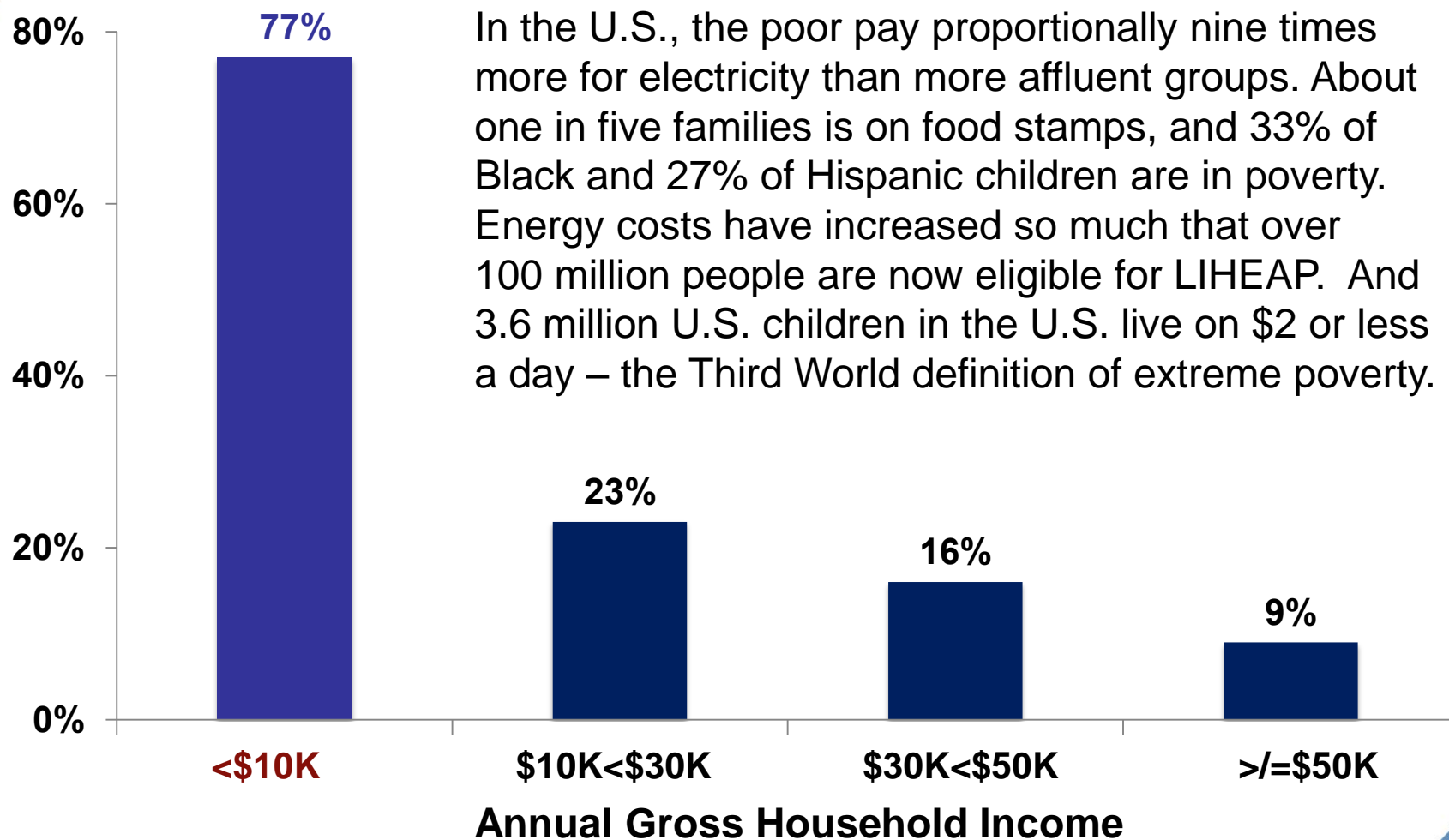
- Already has the highest electric rates west of the Mississippi*
- Electric rates are projected to rise 47% over 15 years
- Has 12% of the U.S. population but 34% of the Americans on welfare.
- More children in poverty than Nebraska has people.

*Contiguous U.S.



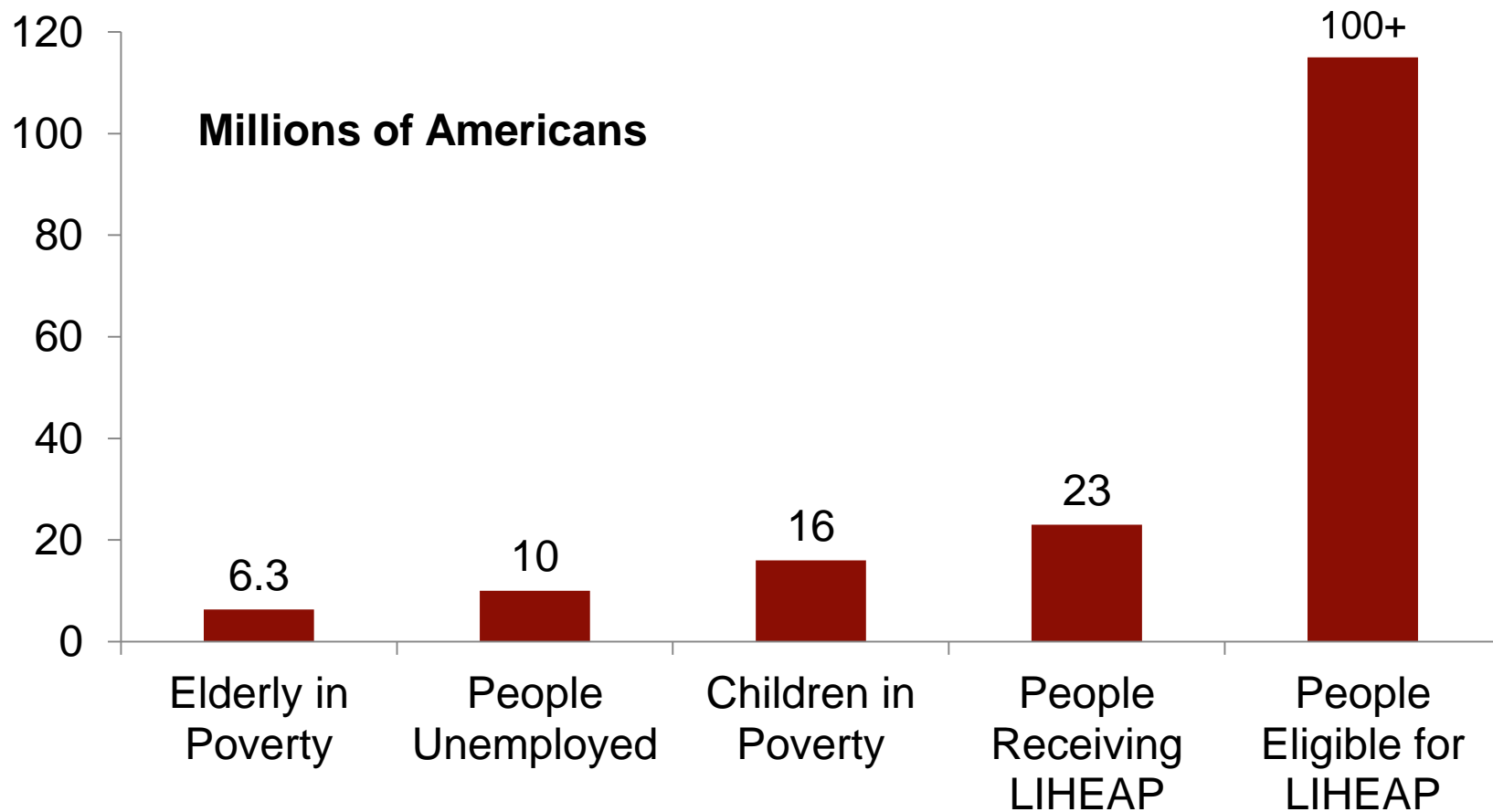
The Poor Will Notice First:

American Family Energy Costs as % of After-Tax Income





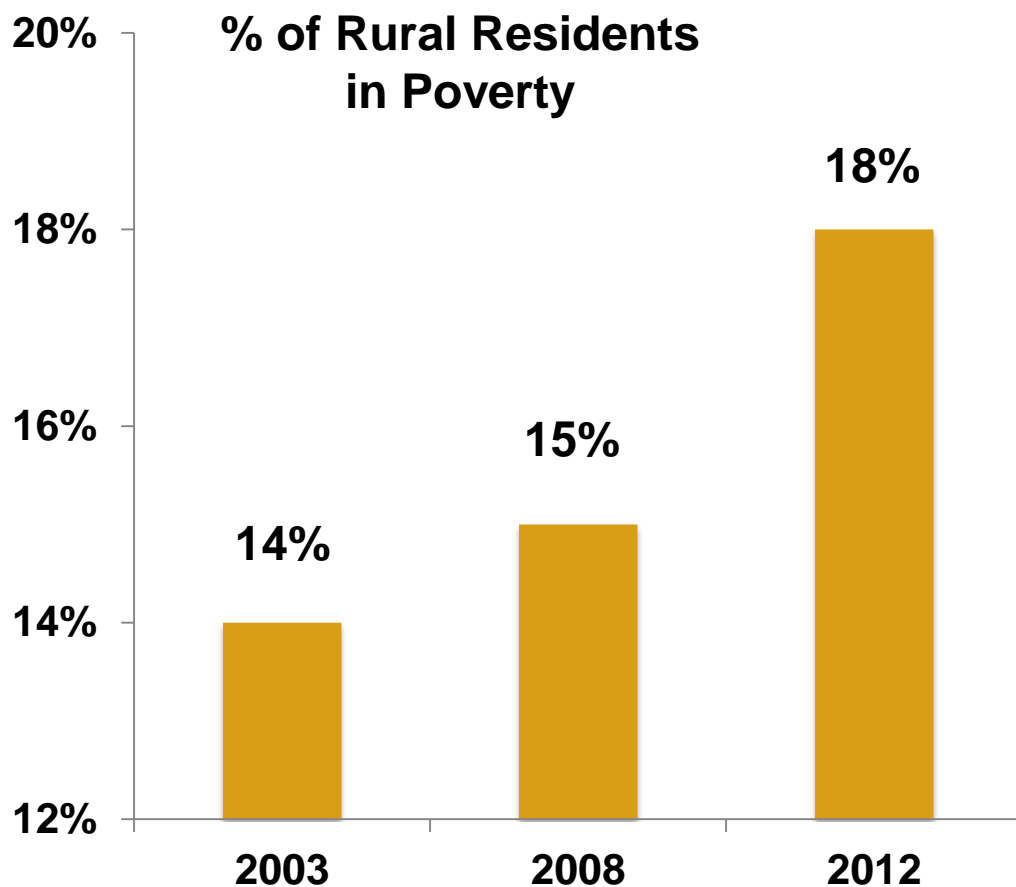
A Nation in Socioeconomic Distress



Sources: Support LIHEAP, 10 Reasons Why Congress Should Fully Fund LIHEAP; National Center for Children in Poverty; Child Poverty; National Senior Citizens Law Center, Senior Poverty: Action Needed to Address a Growing Problem



The Rising Tide of Rural Poverty

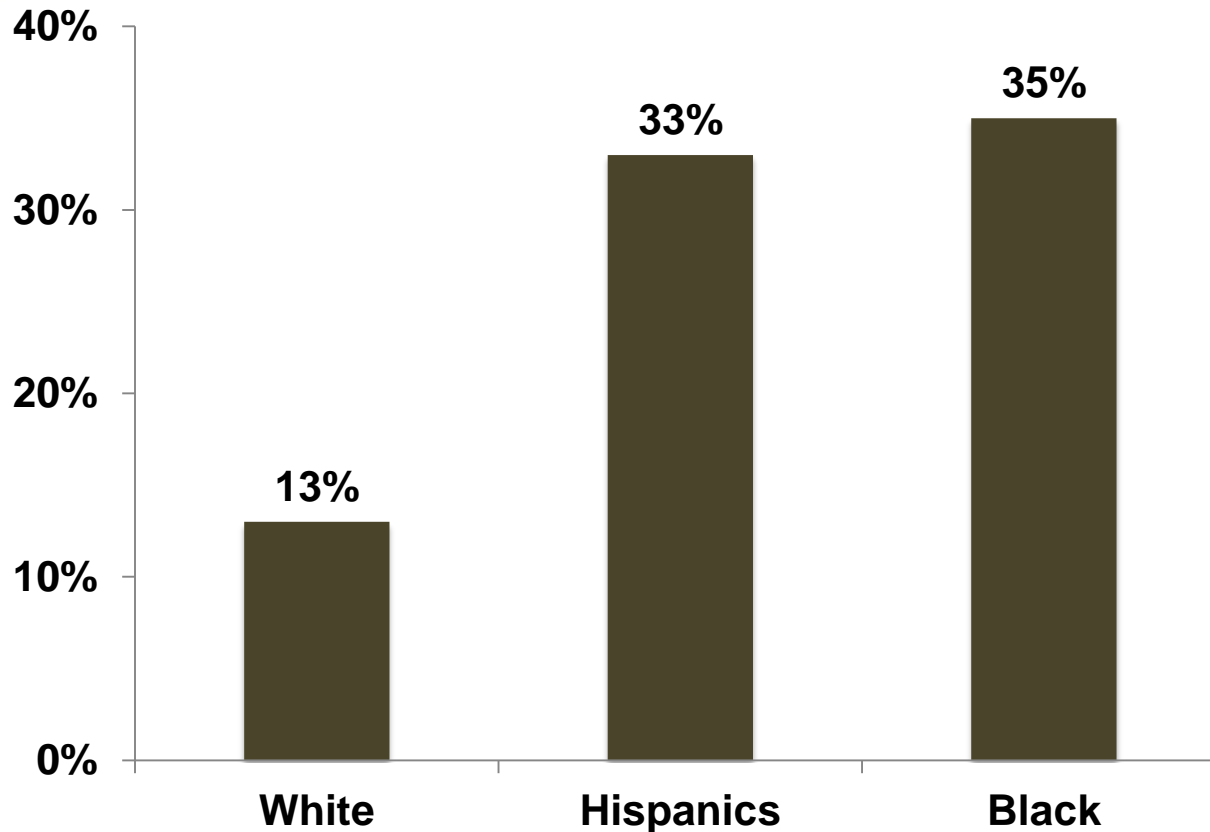


While the entire nation would be adversely impacted by EPA driven coal plant closures, the cost to rural residents will be particularly severe. The nation's electric cooperatives are 80% dependent on coal-based electricity and serve 93% of "persistent poverty counties" and 75% of the U.S. landmass.
See *NRECA*



Minorities are Most Vulnerable to Rising Energy Costs

Poverty Rates 2012

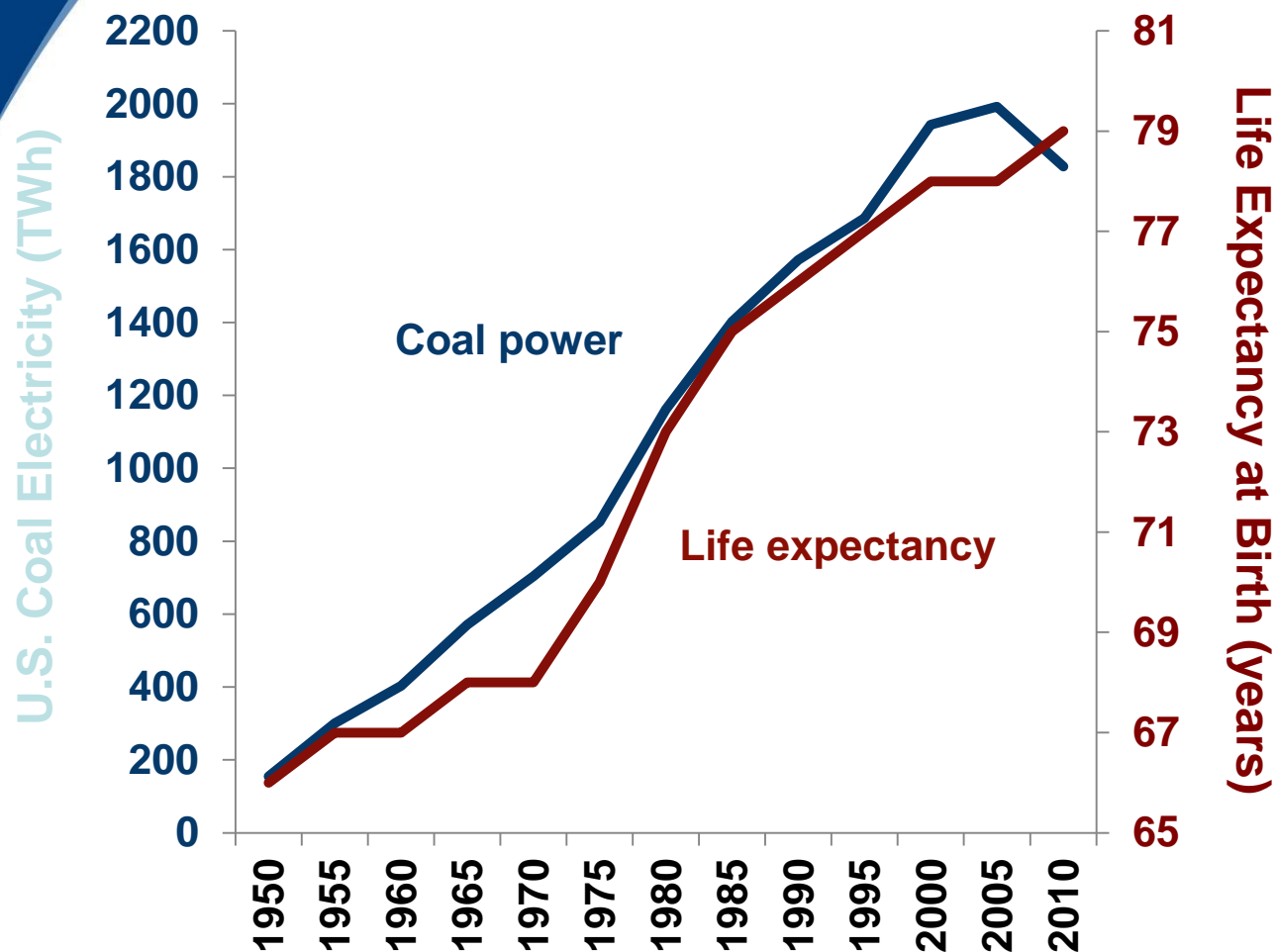


“EPA Standards Will Hurt Low-Income and Minority Households.”
 – *Working Energy Fairness.org*

Over one-fourth of adults with a disability live in poverty.



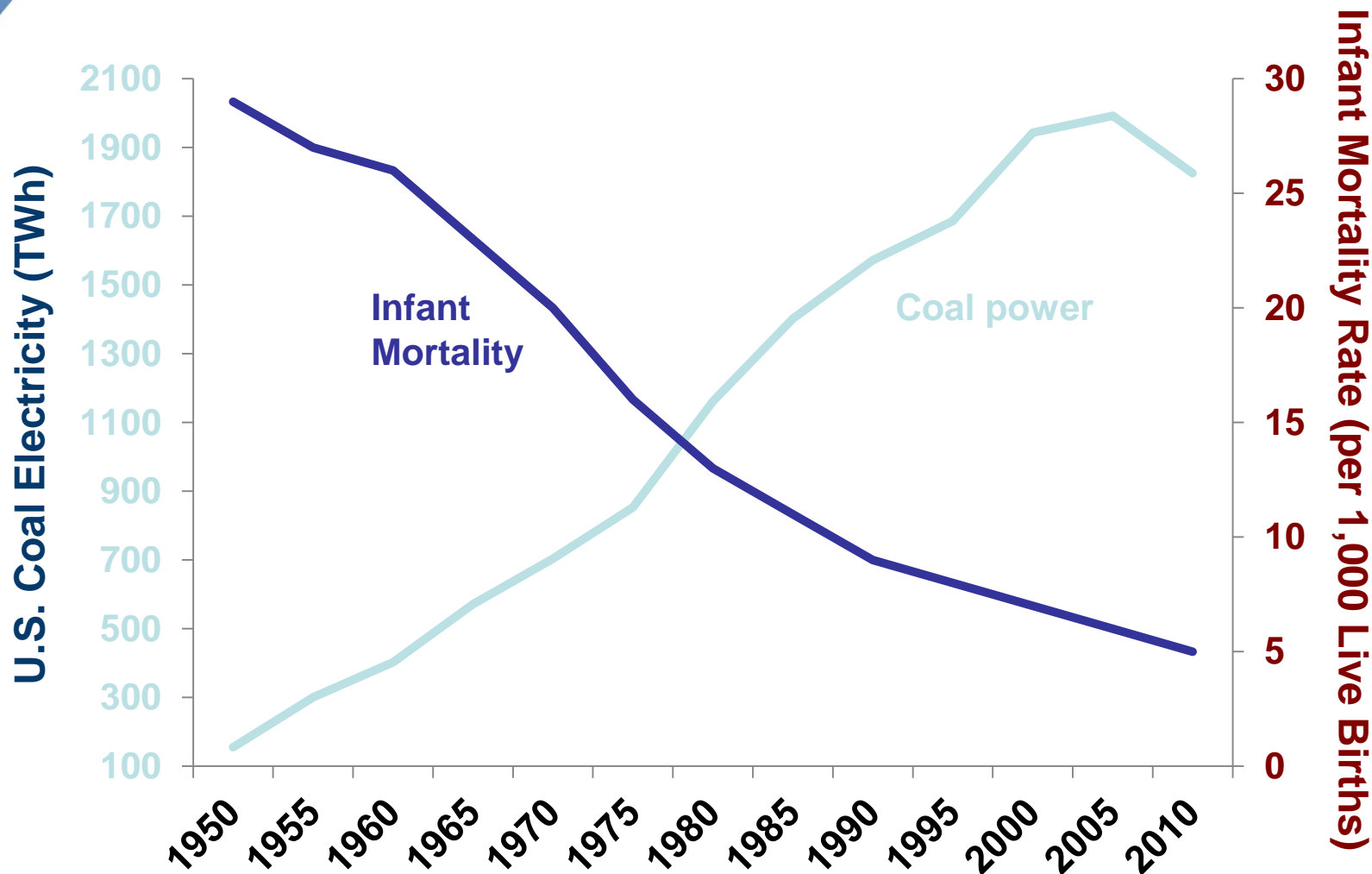
U.S. Coal Power Is Correlated With Increased Life Expectancy



The National Academy of Engineering declared electrification as “The Greatest Engineering Achievement of the 20th Century.”

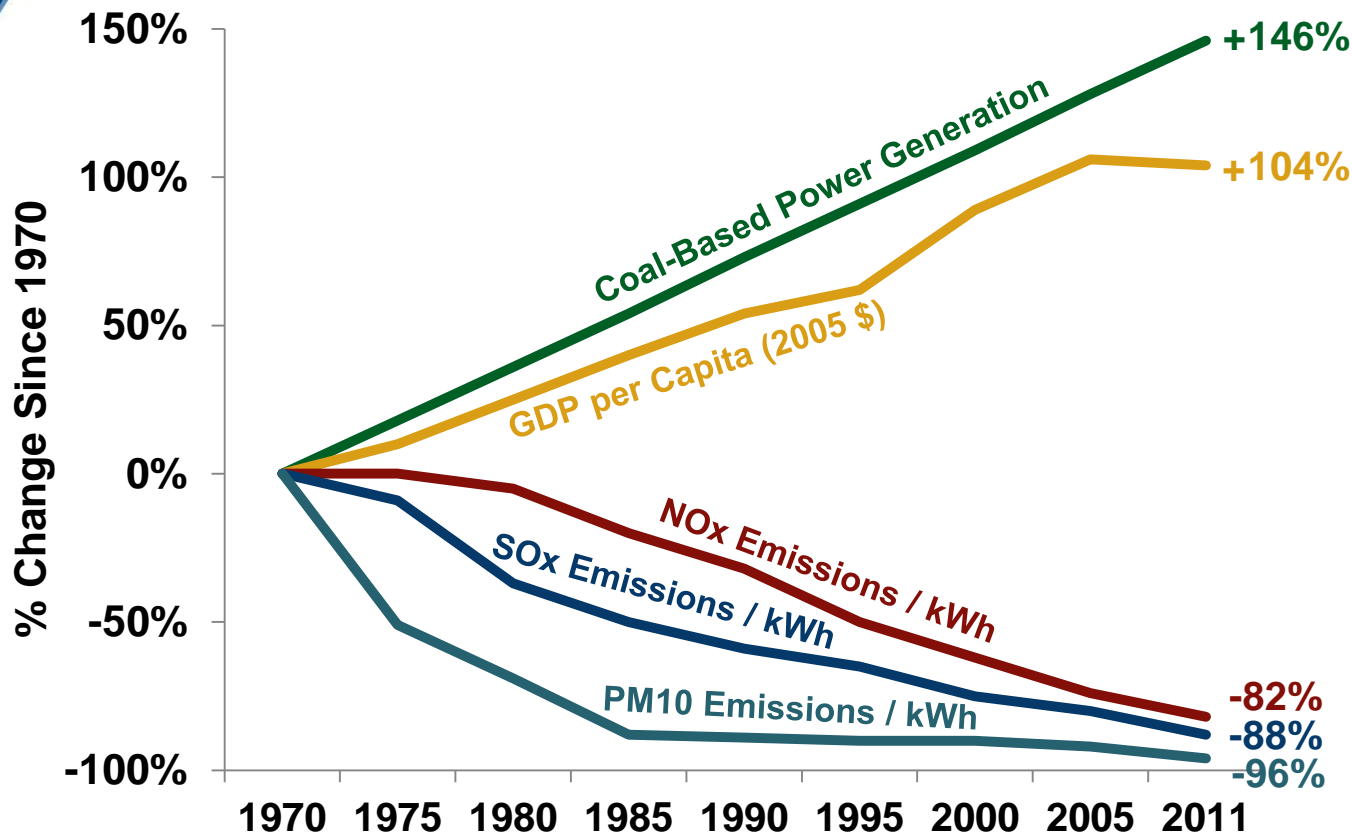


U.S. Coal Power Is Inversely Correlated with Reduced Infant Mortality Rates





Clean Coal Technologies Improve Air Quality while Coal Generation has Increased



Using low-cost coal as a primary source of electricity results in a cleaner and more sustainable environment.

Sources: EIA, Electricity, Generation & Thermal Output, Electricity Net Generation, Electric Power Sector, 1949-2011; USDA (Shane), GDP per Capita Historical; NETL, June 2012, Fossil Energy Research Benefits, Clean Coal Technology Demonstration Program



U.S. Coal Emissions in Perspective

IEA Projected Global Incremental Increases in CO₂ Emissions to 2030

**Total Incremental Global
CO₂ Emissions: 2011-2030**

**9,664
Million Tonnes**

U.S. coal-based power plants are only 0.6% of projected incremental CO₂ world emissions. Yet, EPA rules will cost U.S. families and businesses billions of dollars.

**U.S. coal incremental
emissions
62 million tonnes**



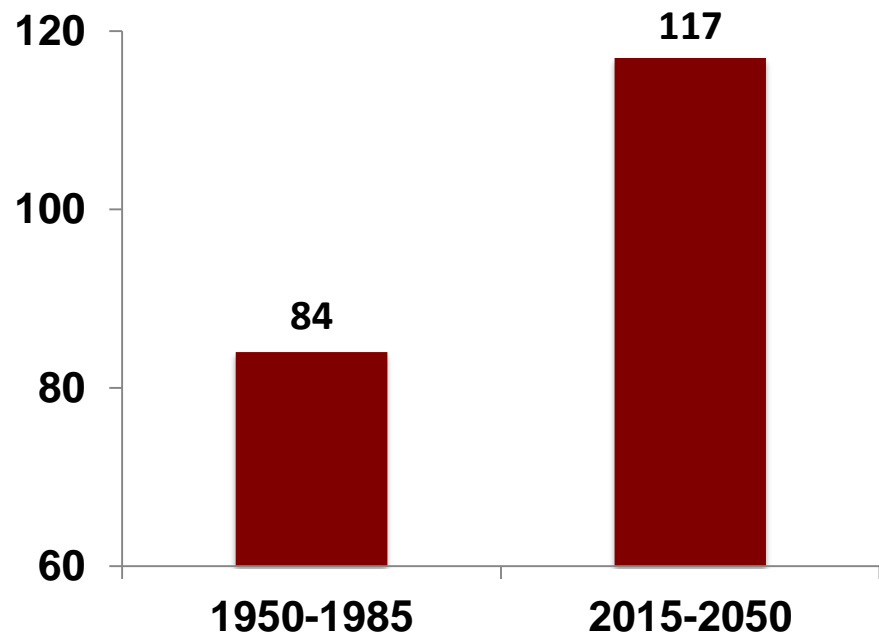


The United States Is Still a Developing Nation

The “boom” is still ahead of the U.S. as more people will be added to the population in the next 35 years than were added in the same number of years after World War II.

The U.S. is a developing nation and coal is the only fuel that can meet growing electricity demand affordably and at scale.

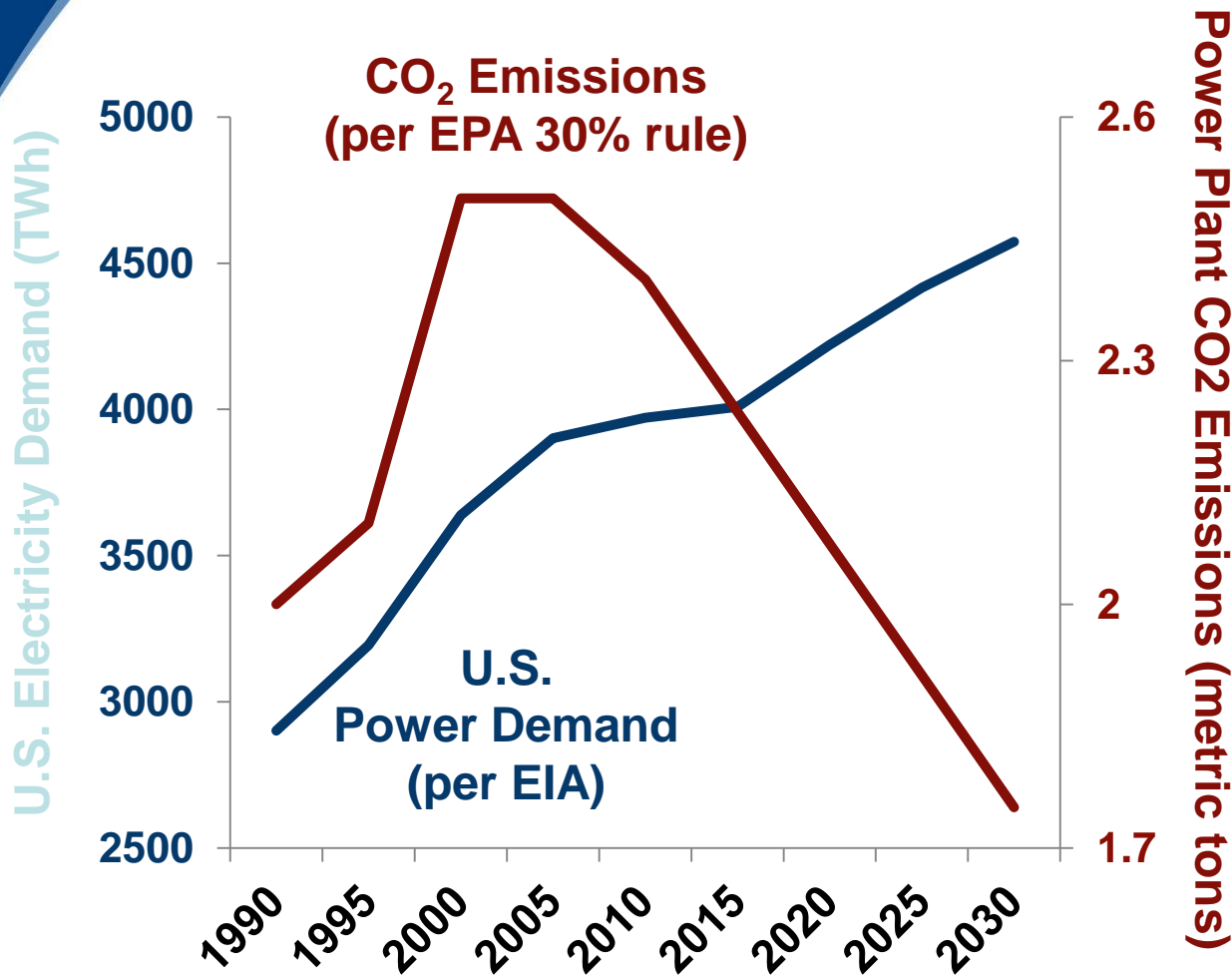
New Population in Millions



The “Boom” is Still Ahead of the U.S.



30% Less CO₂ by 2030 but Increased Power Generation?

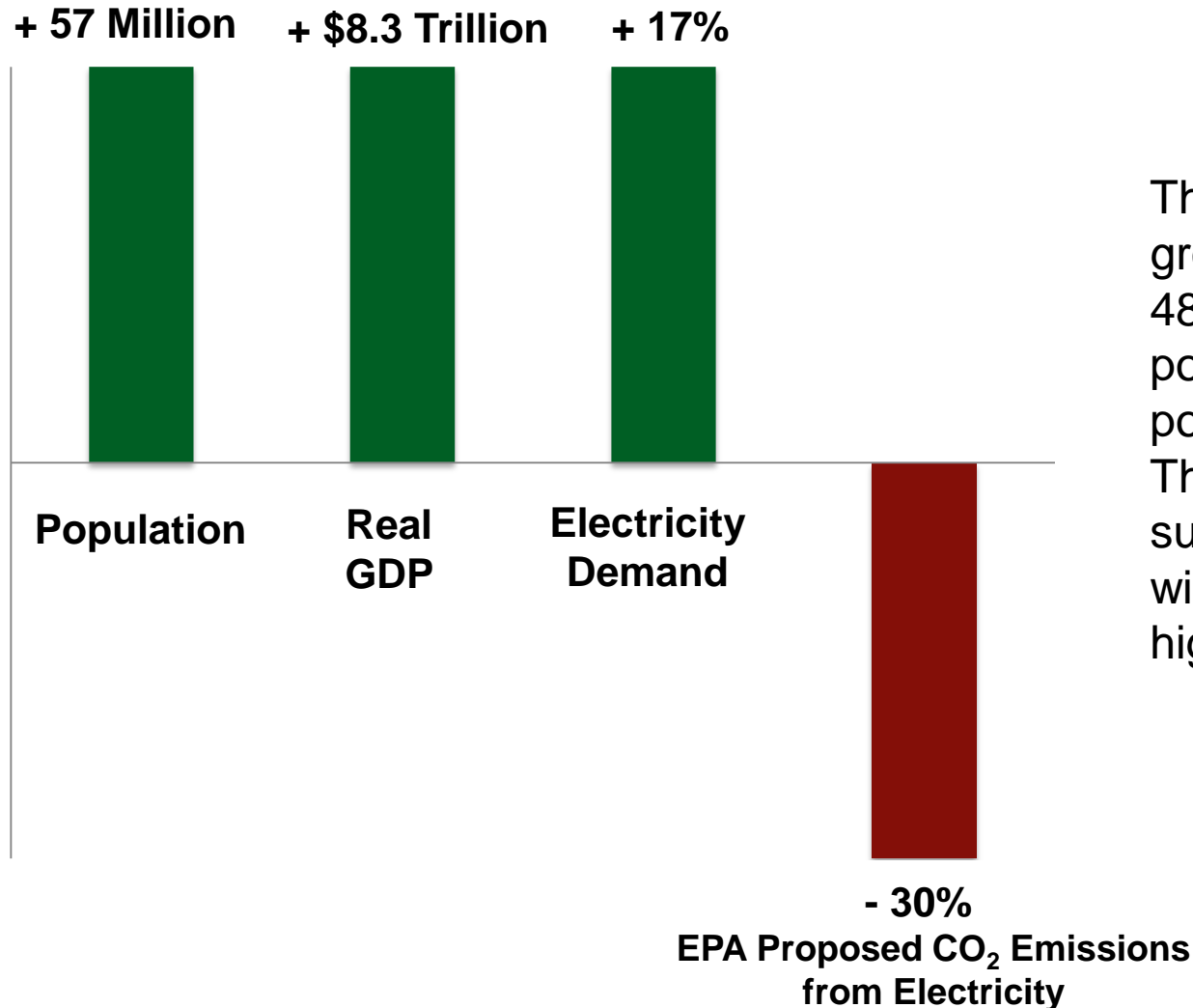


“Total electricity demand will grow by 29% from 3,826 billion kWh in 2012 to 4,954 billion kWh in 2040.”

– U.S. Energy Information Administration, May 7, 2014



In the Face of Reality: By 2030



The U.S. is a growing nation with 48 million already in poverty. Demand for power is on the rise. The constrained supply of electricity will be rationed via higher costs.



The Polar Vortex Demonstrated the Value of the U.S. Coal Fleet

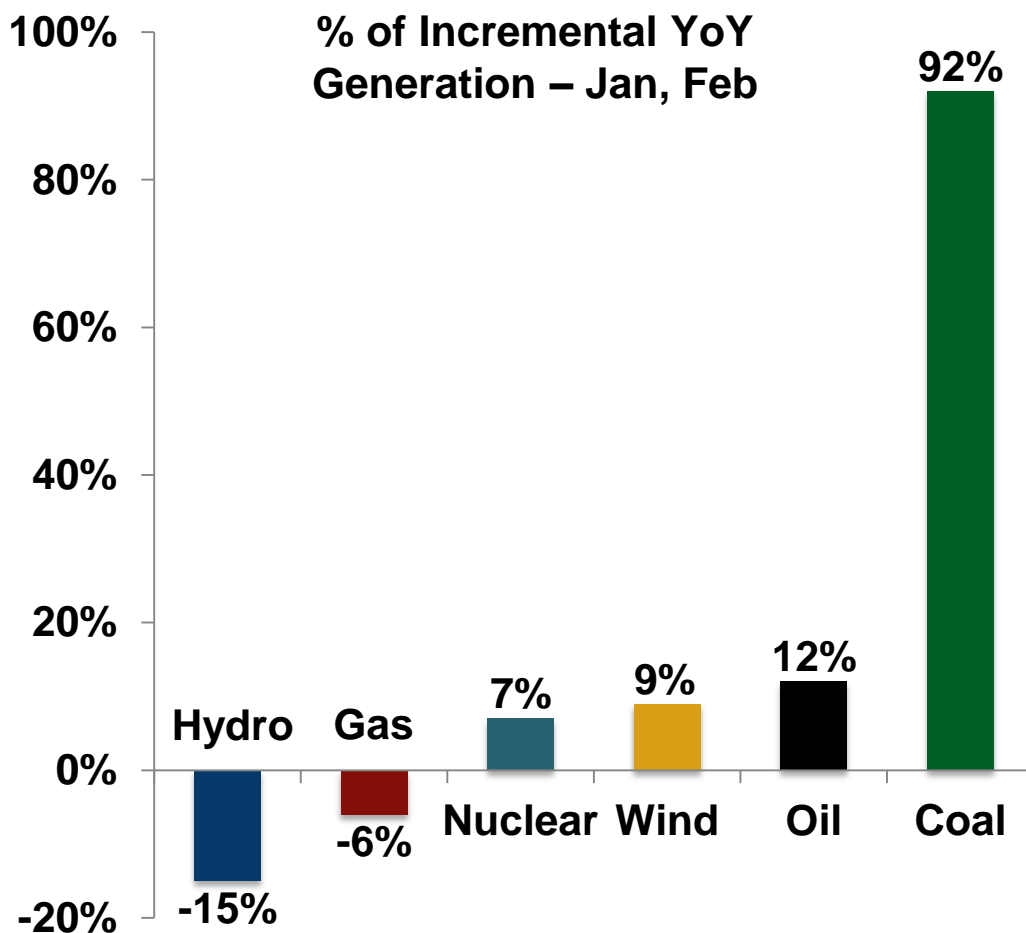
- 89% of AEP coal capacity slated for closure in 2015 was called upon.
- 75% of Southern Company's coal plants scheduled to close were needed.
- TVA set new records for electricity demand as many of its coal-fueled generating facilities are scheduled for closure, including two highly productive Paradise Units.
- "We really counted on [a] combination of coal and gas and nuclear and pump. storage and hydro, we needed every bit of it." – *Lynn Good, CEO, Duke Energy*
- In New England, at various times 75% of gas plants could not get fuel. PSNH resorted to burning jet fuel and generators now use more oil than coal.

"As demonstrated by cold snaps just this winter, natural gas prices are volatile and spike... This has an immediate adverse effect on consumer electric bills. Coal, and its stable price is a long-term proven hedge against natural gas volatility and is critical if we are to continue to provide affordable electricity for our members."

– *John Novak, Director of Environmental Issues, National Rural Electric Cooperative Association*



When the Need Was Greatest, It Was “Coal to the Rescue”*



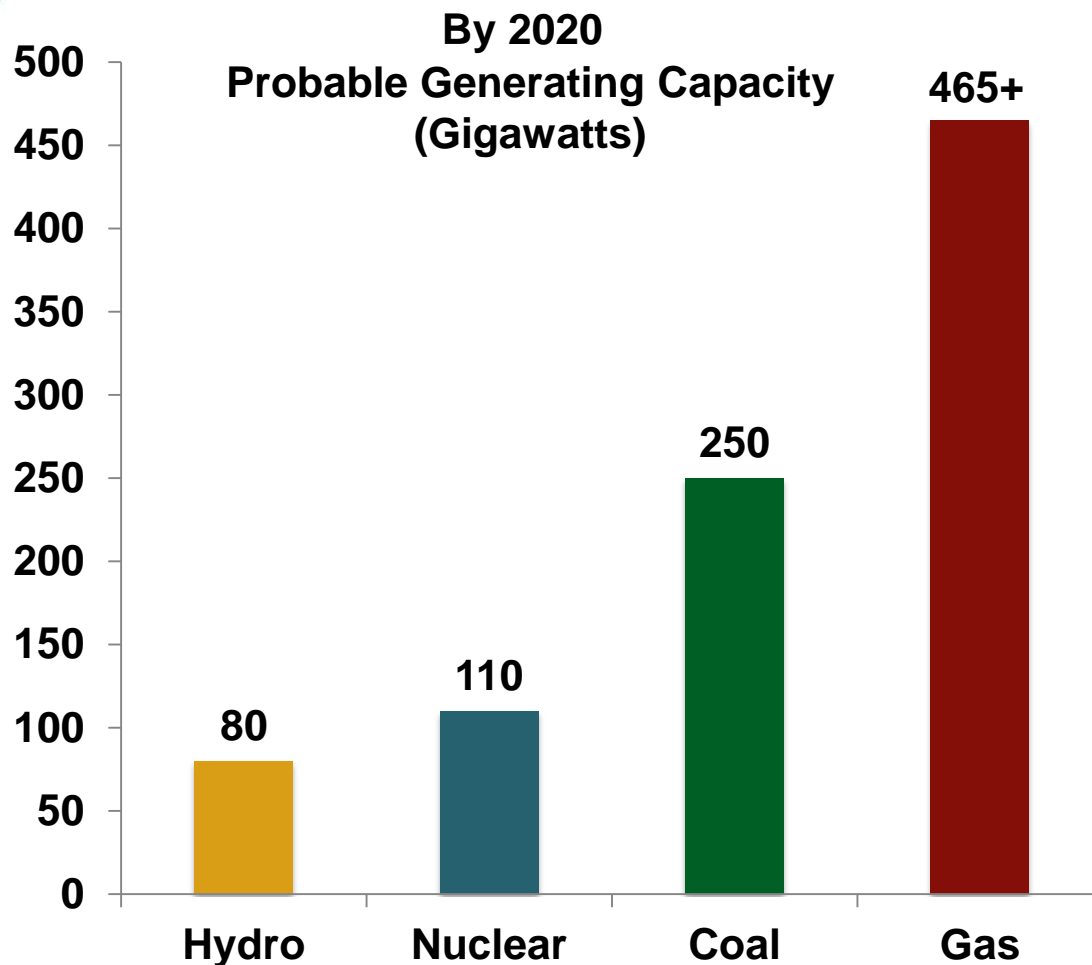
Coal produced 92% of incremental electricity supply during the periods of greatest stress this winter. Just as importantly, the price of coal was stable while gas prices in some regions exceeded the equivalent of \$500 per barrel of oil.

“I here’s nothing like a cold winter to remind utilities of the value of their coal fleet.”

– Paul Forward, Managing Director, Stifel Financial



The Skewing of U.S. Generating Capacity: The Plan to Make the Poor Poorer



“Overreliance on natural gas will raise electricity rates.”

– *Marc Brown, Executive Director, New England Ratepayers Association*

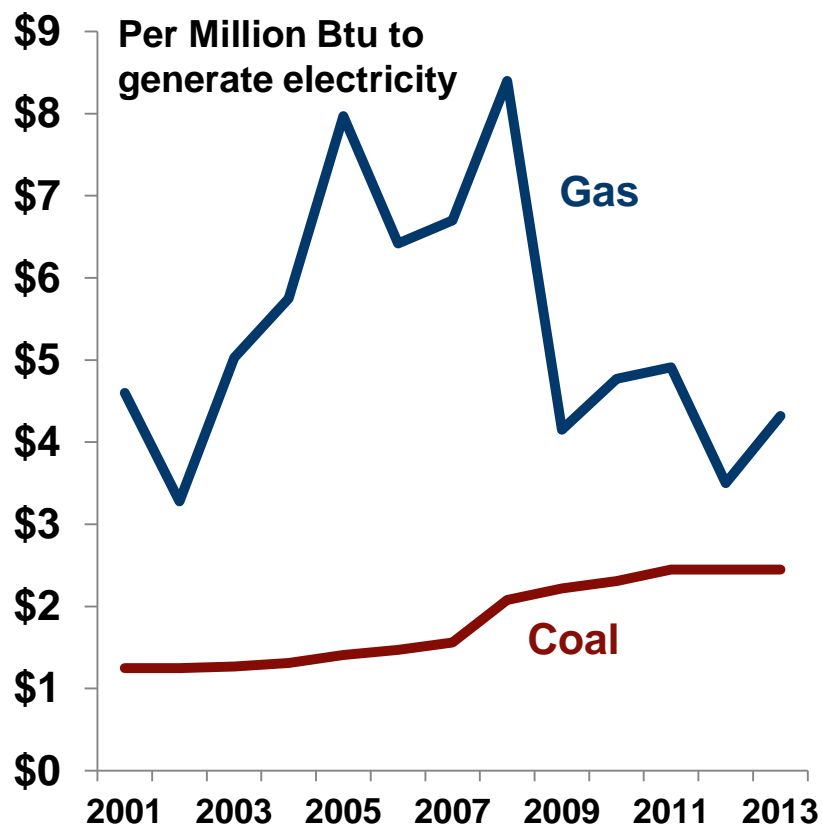
“Demand for *reliability* is rising faster than demand for kilowatt-hours themselves. The average incidence of grid outages has been rising at about 8 percent to 10 percent annually since 1990. And the duration of outages has also been rising by about 14 percent per year.”

– *Mark Mills, The American, May 31, 2014*

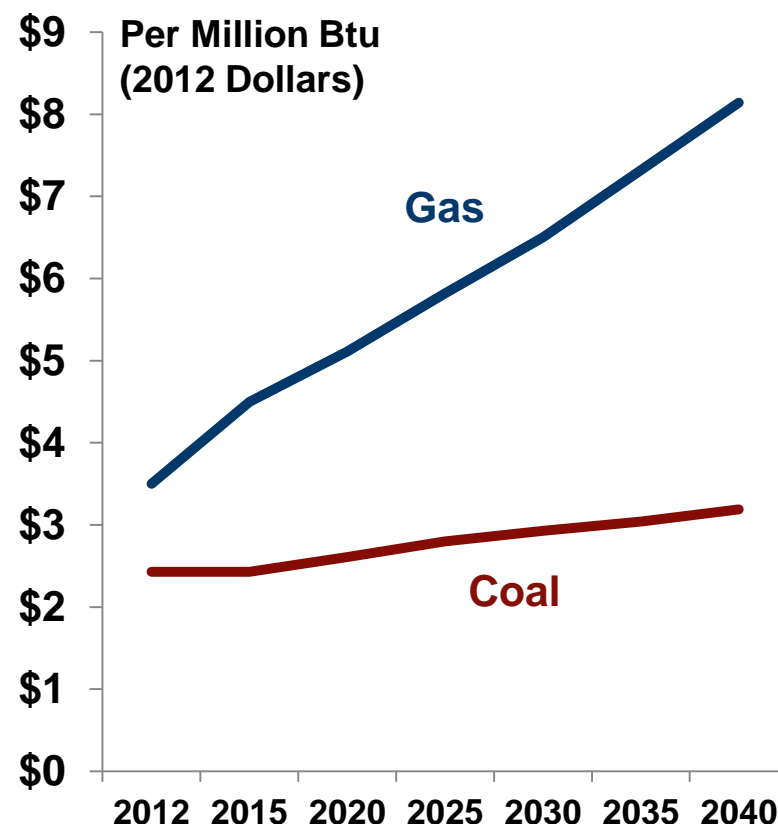


Coal is Cheaper and More Stable Than Gas

Volatility of Natural Gas Prices Compared to Coal



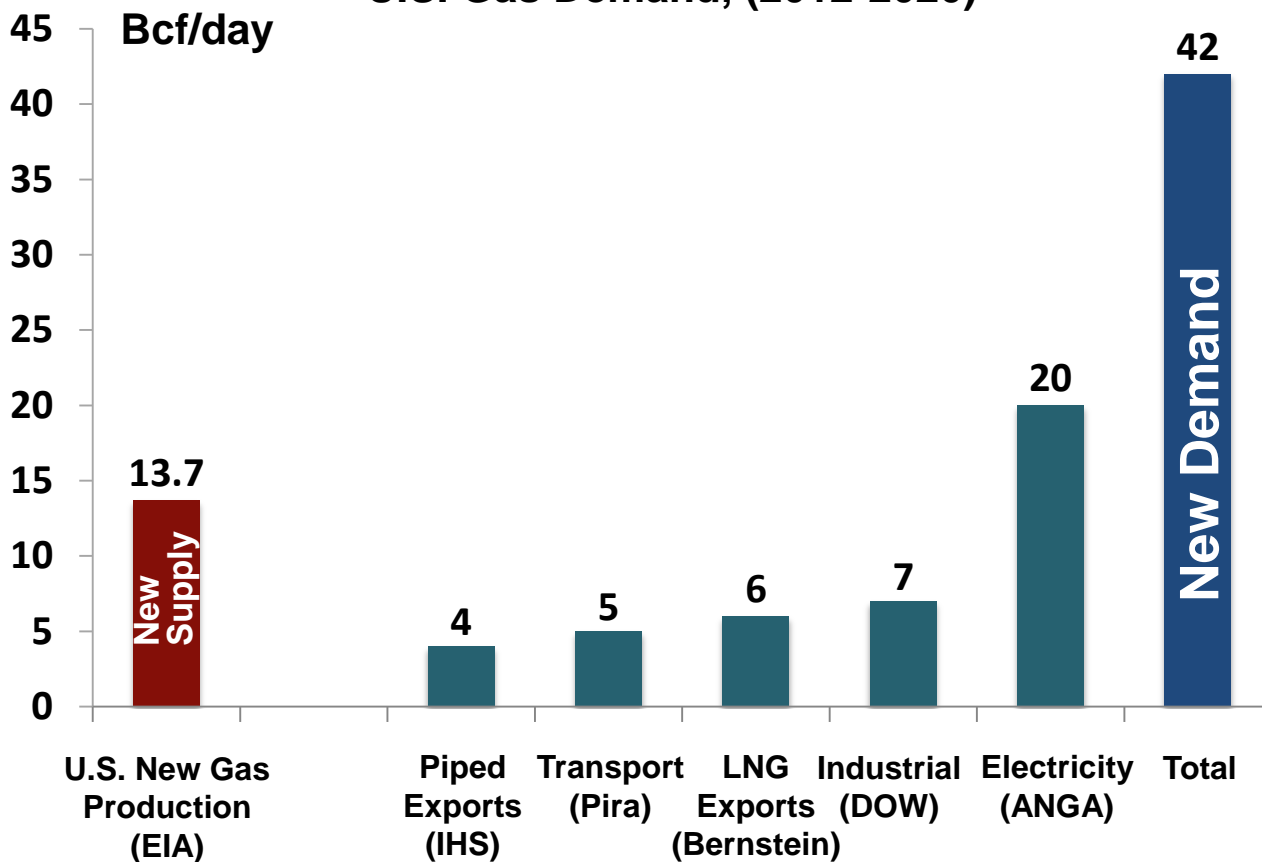
Forecast Coal & Gas Prices for Electric Power Producers





Price Spikes Around the Corner: The Emerging U.S. Gas Supply and Demand Imbalance

Projected Incremental Gains in
U.S. Gas Demand, (2012-2020)



(source of projection)



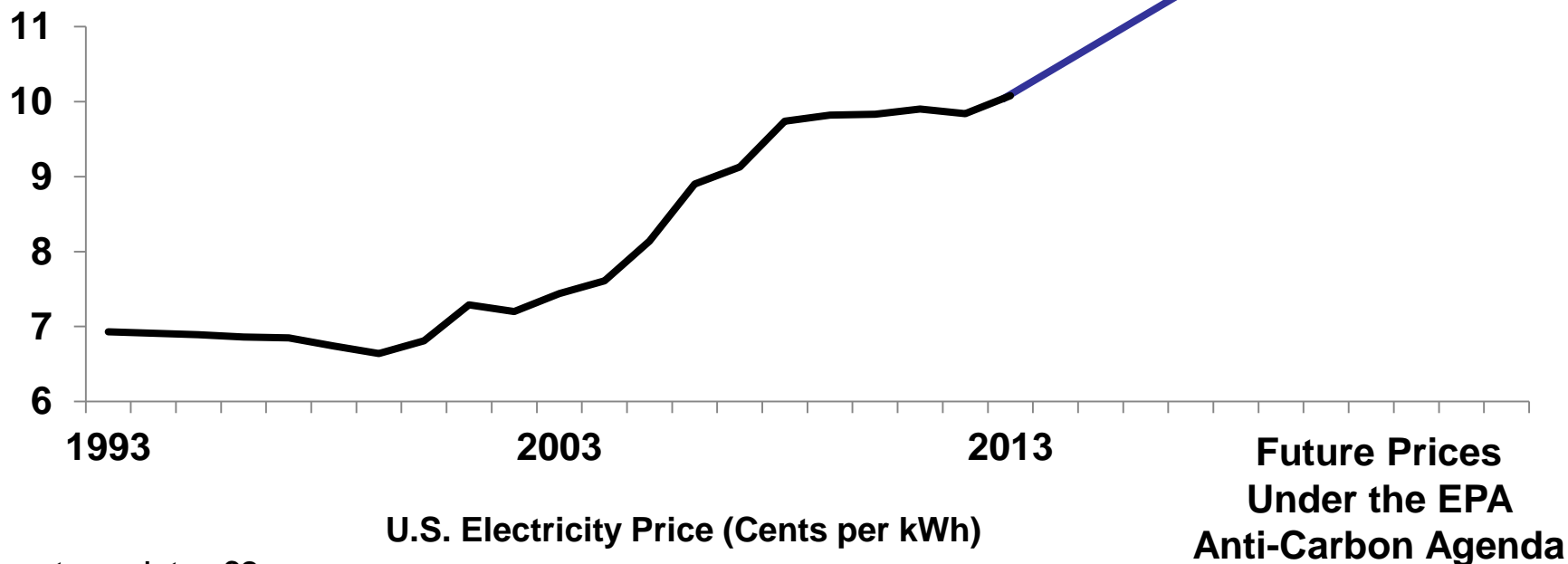
EPA's Agenda is Increasing the Cost of Electricity

"We're looking at something on the order of \$70-90 a ton. In that context, that looks something like a 70-80% increase on the wholesale price of electricity."

– *Julio Friedmann, Deputy Assistant Secretary, U.S. Department of Energy*

"Coal plants are likely to increasingly become the price-setting power units. Therefore, future security of coal supply is necessary to keep wholesale electricity prices stable."

– *International Energy Agency, Coal Industry Advisory Board, 2014*



* To capture and store CO₂.

Sources: EIA, Geography, U.S. States, State Electricity Summaries; EIA, Electric Power Monthly, February 2014, February 2013; *Power Magazine*, February 13, 2014; IEA, *The Impact of Global Coal Supply on Worldwide Electricity Prices*, 2014



Key Summary Points

- The U.S. economy and the environment benefit greatly from the availability of low-cost, reliable electricity from coal.
- The population is growing by 3 million per year, and affordable energy provides economic opportunity and alleviates income inequality.
- Low cost electricity enables people to live longer and better lives, and is essential for the reduction of poverty levels.
- Despite 48 million people in poverty, the number would be far higher without inexpensive coal's buffering impact.
- The poor are highly vulnerable and pay a much larger percentage of their income for energy.
- The cumulative impact of multiple EPA regulations will significantly increase the cost of electricity and should be weighed in EPA rulemaking.
- Increased electricity costs will erode the U.S. competitive advantage, driving businesses away as they have done in Europe and California.
- A better path: (1) Obtain half of new generation from coal, (2) Replace older plants with supercritical plants, (3) Deploy coal-to-gas, coal-to-chemicals, coal-to-liquids, (4) Develop 100 CCS projects in the next decade and (5) Commercialize near-zero emissions technology.