

The impact of an uncertain economic outlook on electric utilities

New Mexico Economic Outlook
Conference 2015

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Principal

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An important disclaimer

“The future, though imminent, is obscure.”
Winston Churchill

Countervailing forces occlude the economic outlook

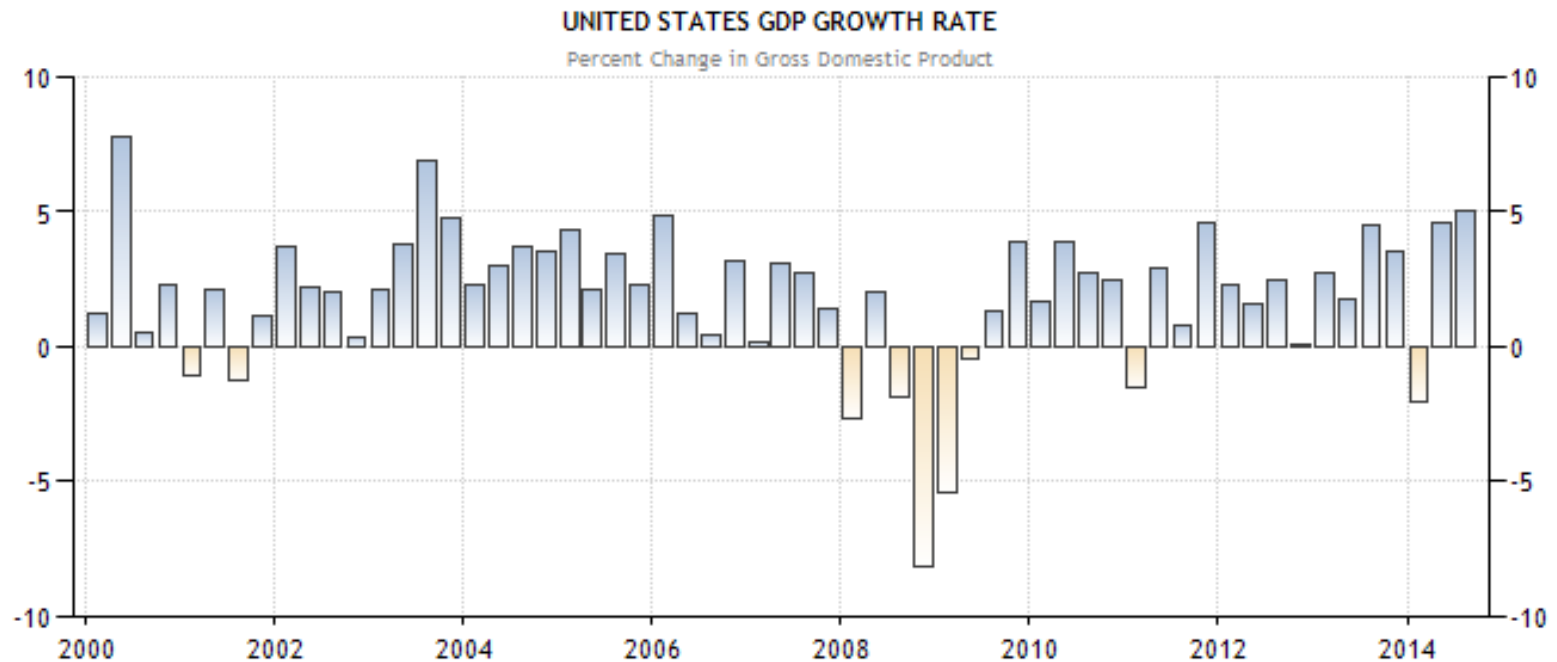
Positive forces

- 5% growth in gross domestic product (GDP)
- 5.6% unemployment rate
- Rising consumer confidence
- Strong dollar
- Falling oil prices

Negative forces

- Slow productivity growth
- Shrinking employment-to-population ratio
- Weak wage growth
- Pervasive inequalities
- Weak global economy

Real GDP increased by 5% in 2014 Q3



SOURCE: WWW.TRADINGECONOMICS.COM | U.S. BUREAU OF ECONOMIC ANALYSIS

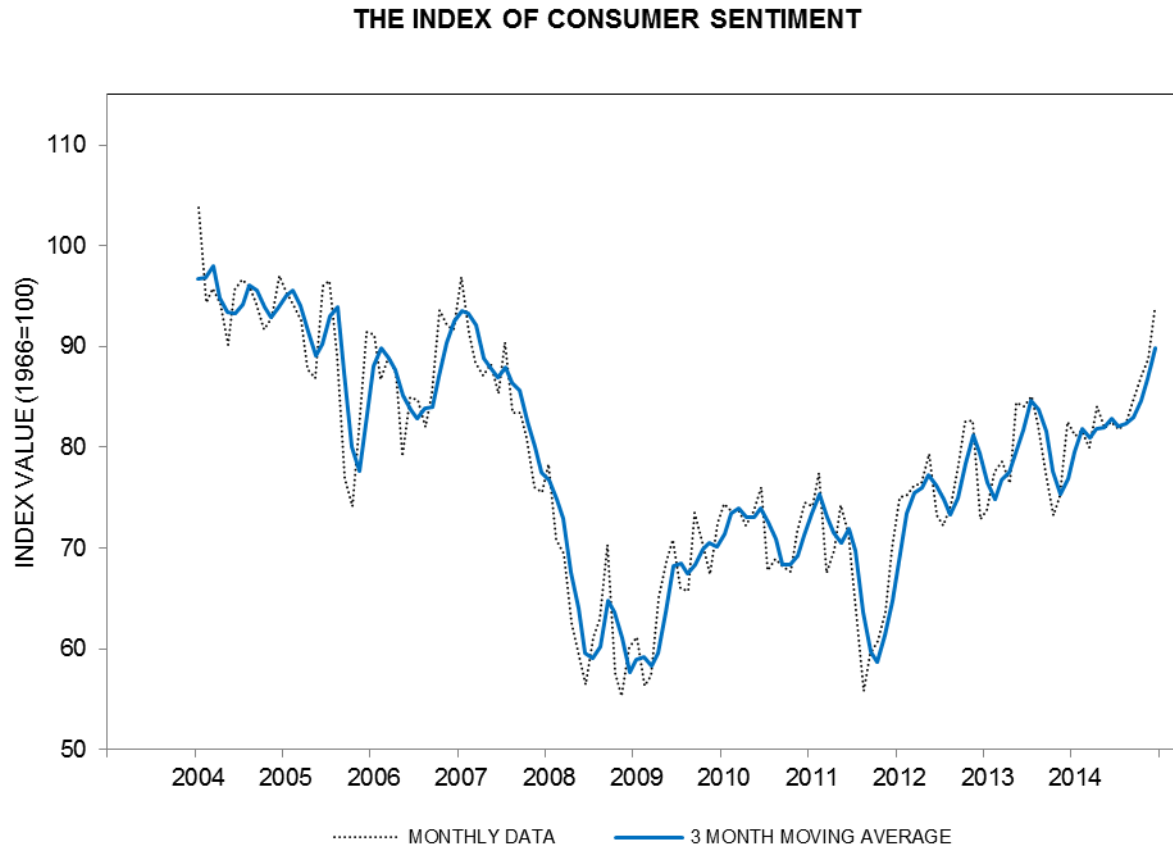
Unemployment fell to 5.6%



Note: Cross-hatched area represents recession.

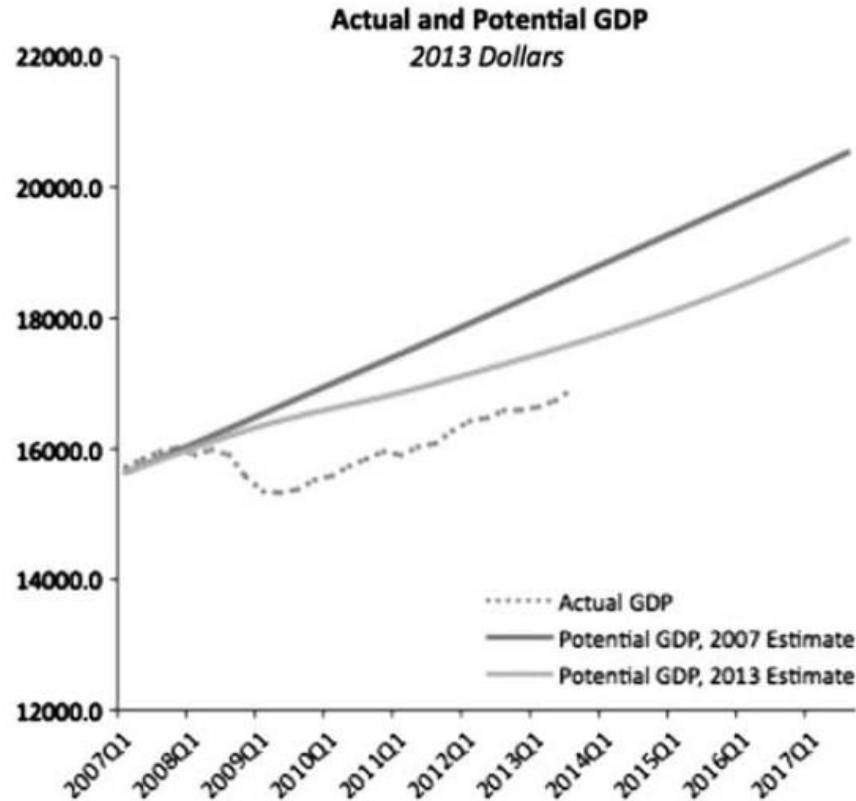
Source: U.S. Bureau of Labor Statistics

Consumer sentiment has been rising



Source: Surveys of Consumers, University of Michigan

But actual GDP remains below potential GDP, raising concerns about “secular stagnation”



Source: CBO.

Prominent economists stand on both sides of the stagnation debate

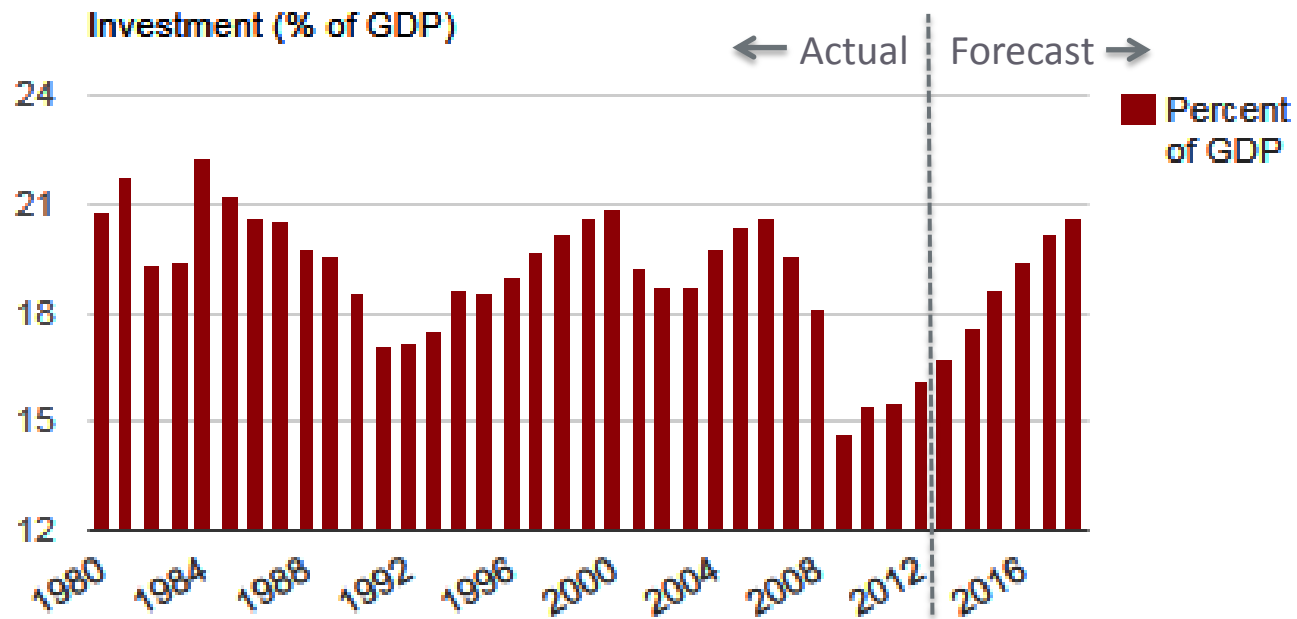
Bloomberg

Harvard's Summers and Mankiw Square Off in Debate Over Stagnation

By Rich Miller - Jan 5, 2015

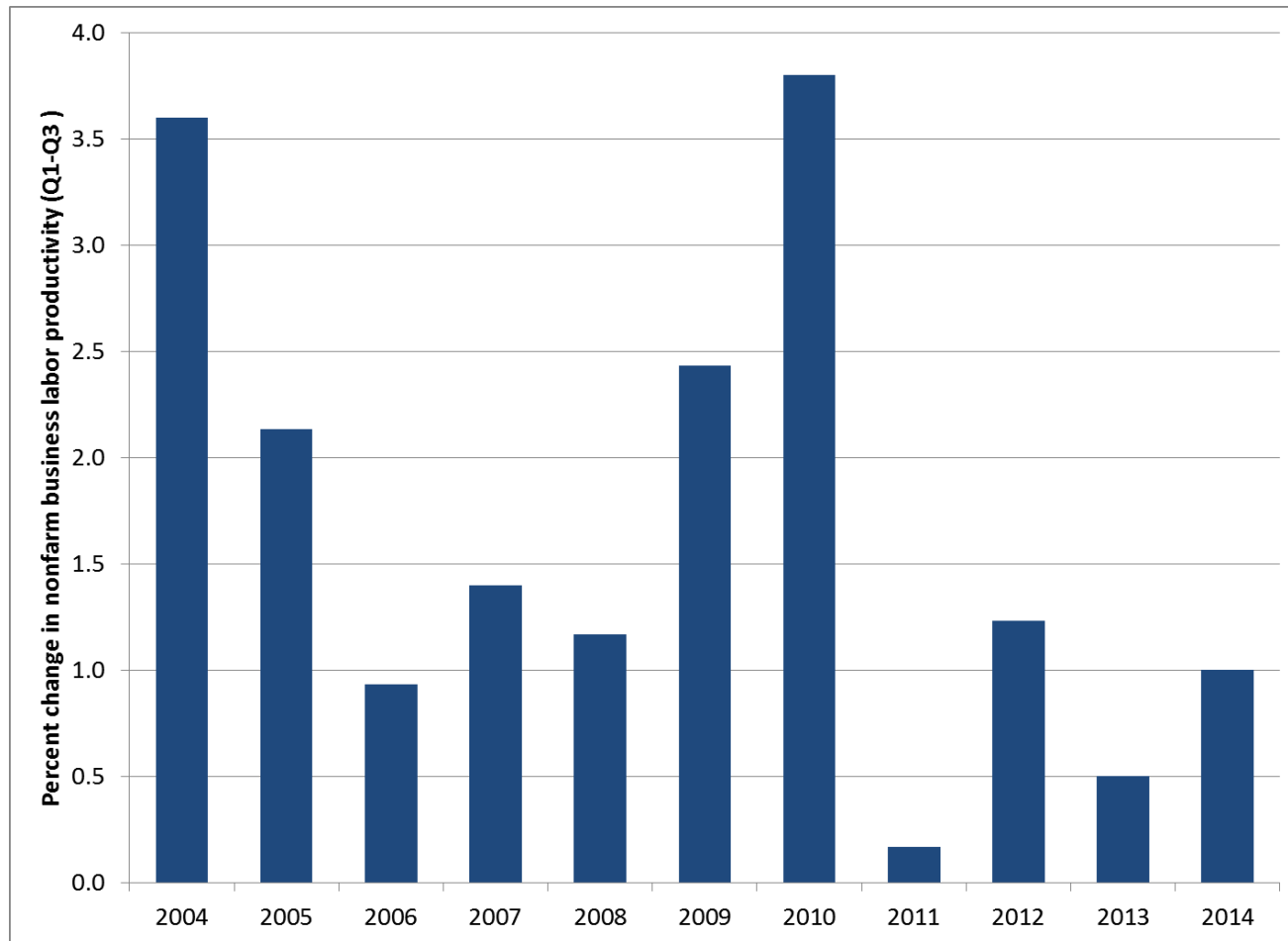


The investment rate is not at its pre-recession levels, but some predict it will get there soon



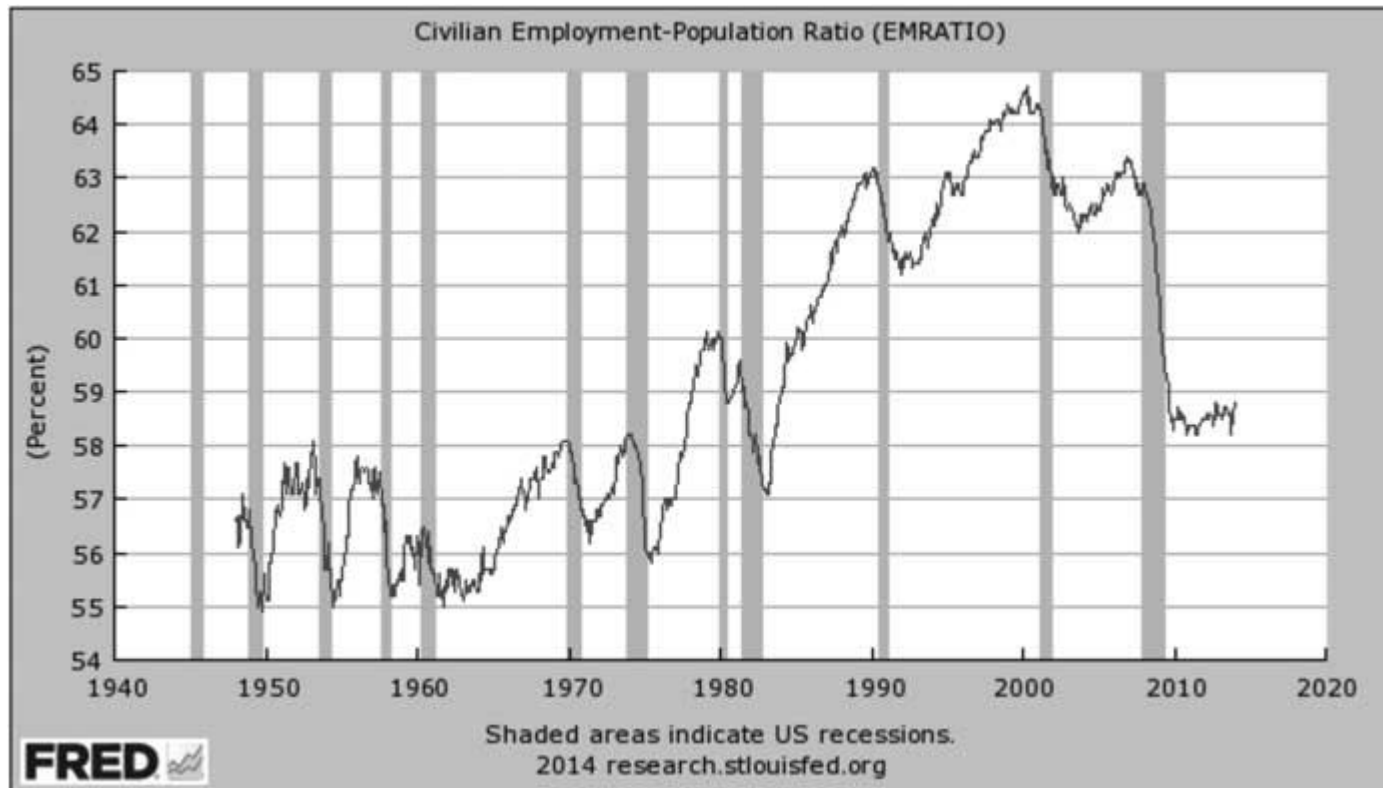
Source: International Monetary Fund (IMF)

Labor productivity growth is tepid

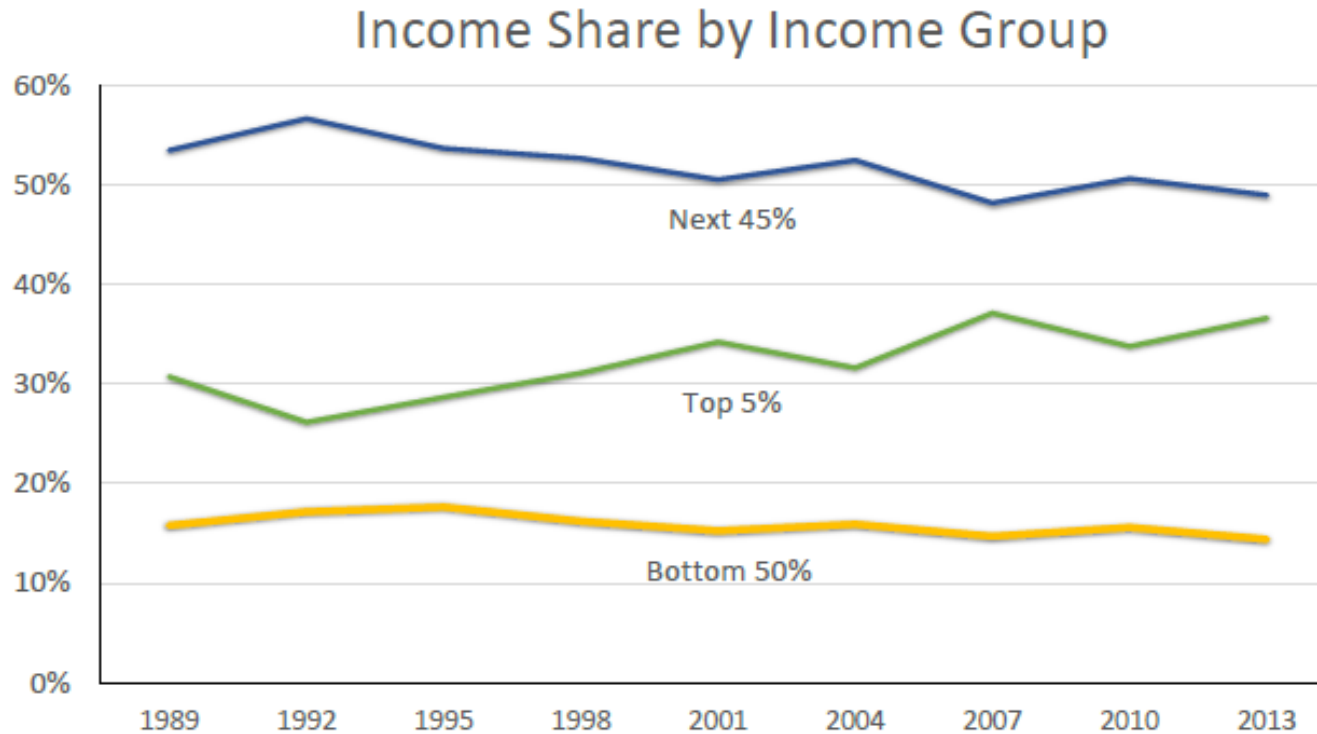


Source: Bureau of Labor Statistics

The employment-to-population ratio is shrinking



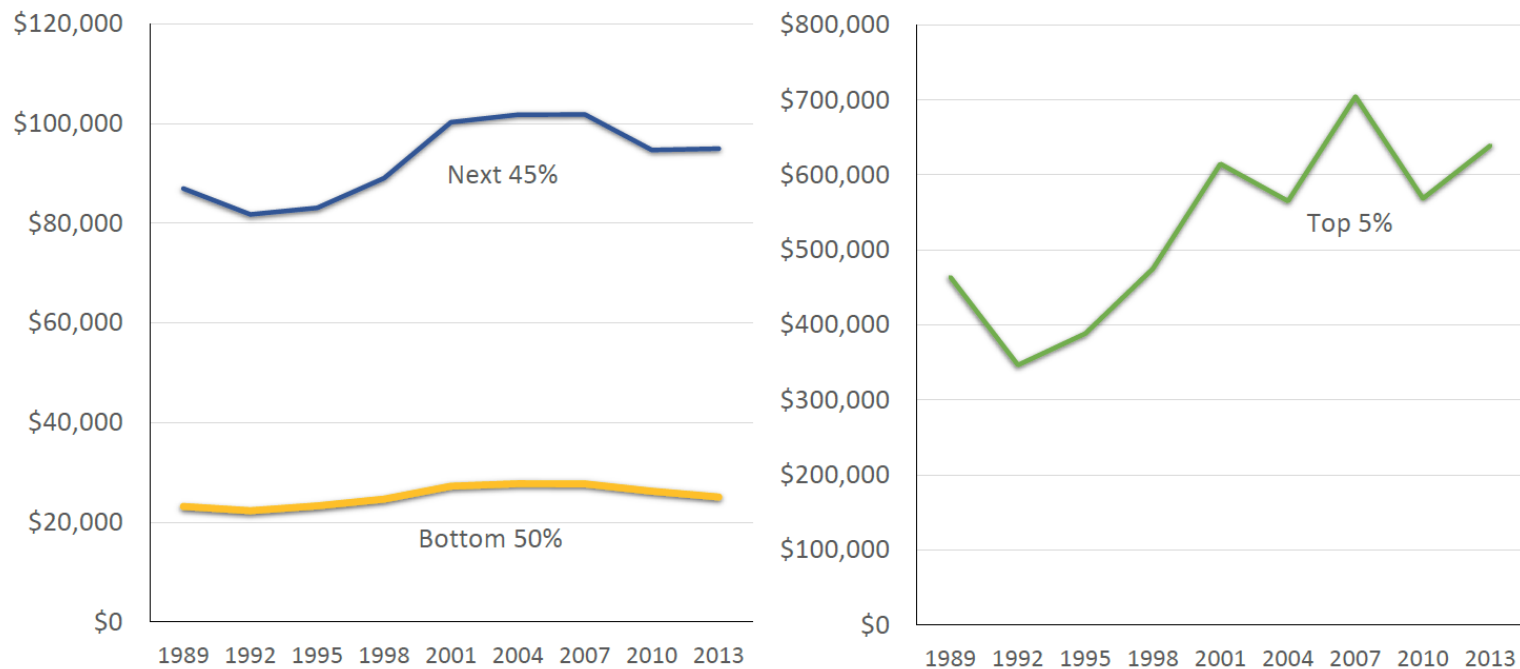
Income inequality is pronounced



Source: Board of Governors of the Federal Reserve System, Survey of Consumer Finances

Income in the bottom 50% continues to stagnate

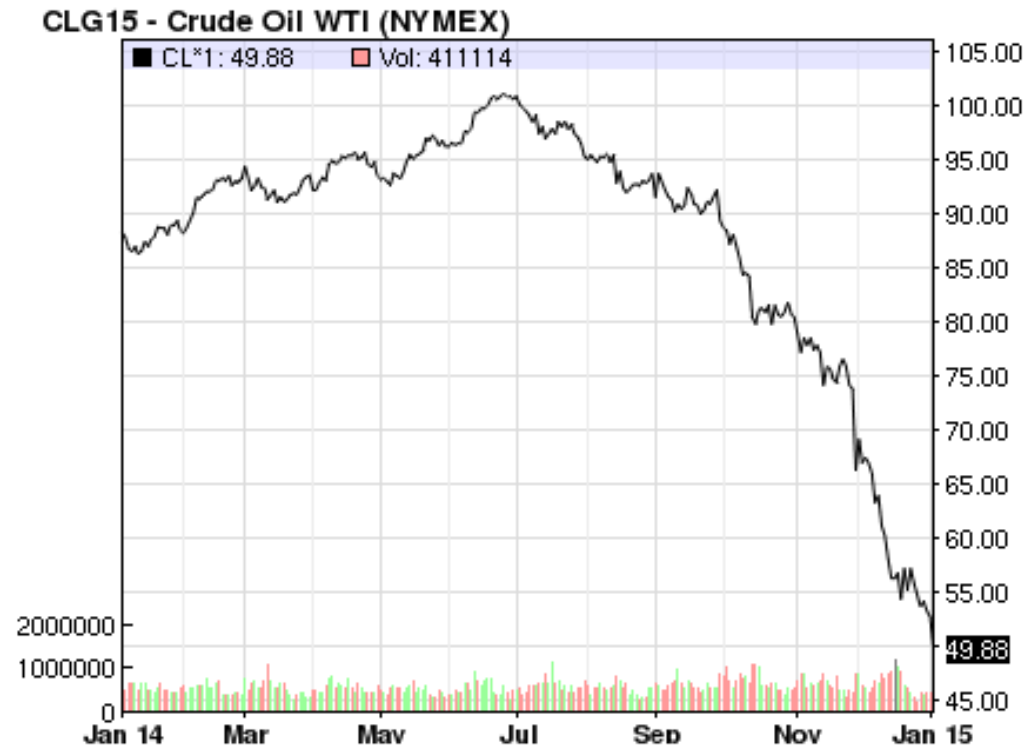
Mean Income by Income Group



Inflation-adjusted 2013 dollars

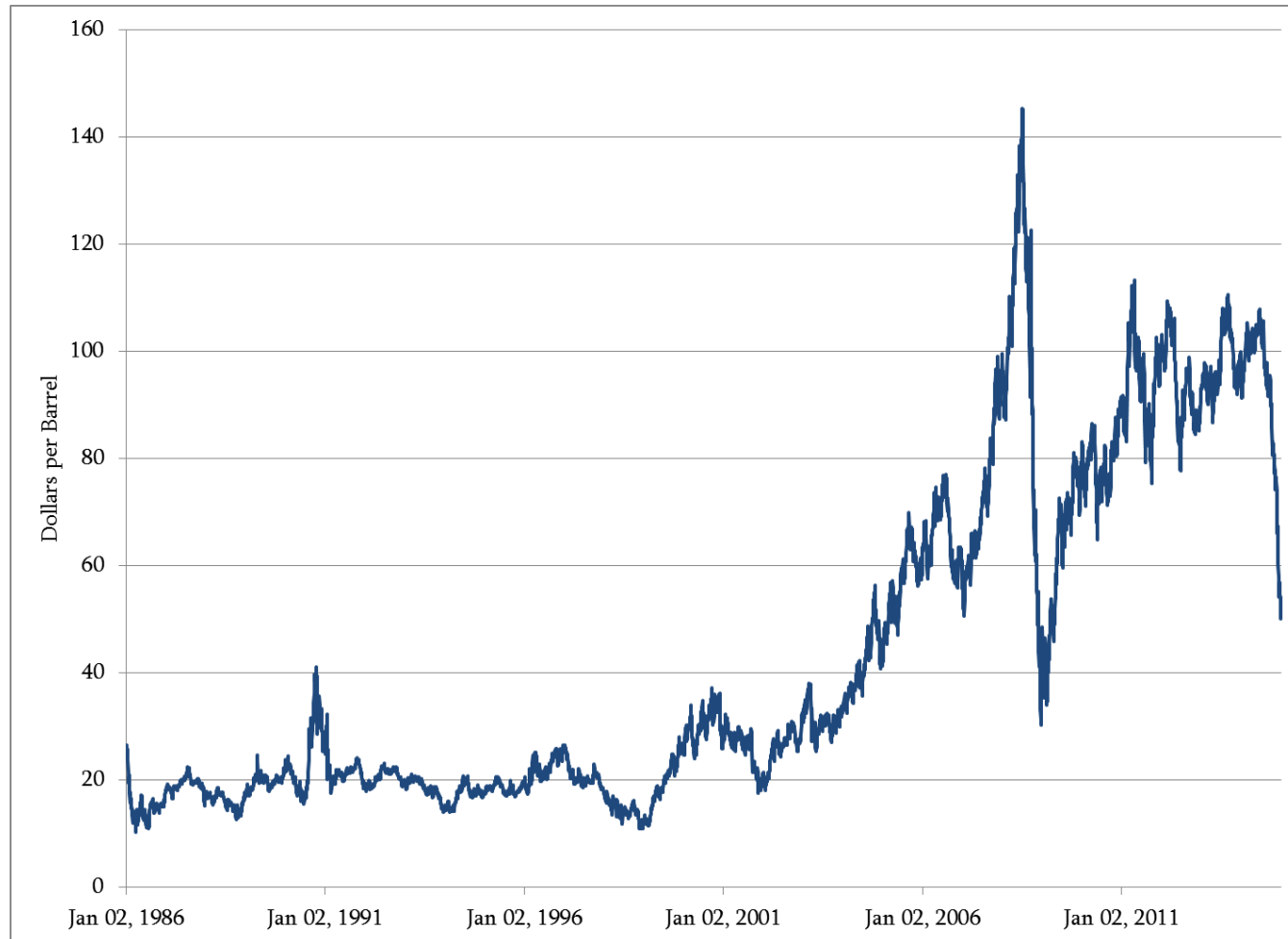
Source: Board of Governors of the Federal Reserve System, Survey of Consumer Finances

Oil prices plunged by 50% in the last six months – that is a mixed blessing



Source: Nasdaq

In the sweep of history, this should not come as a surprise

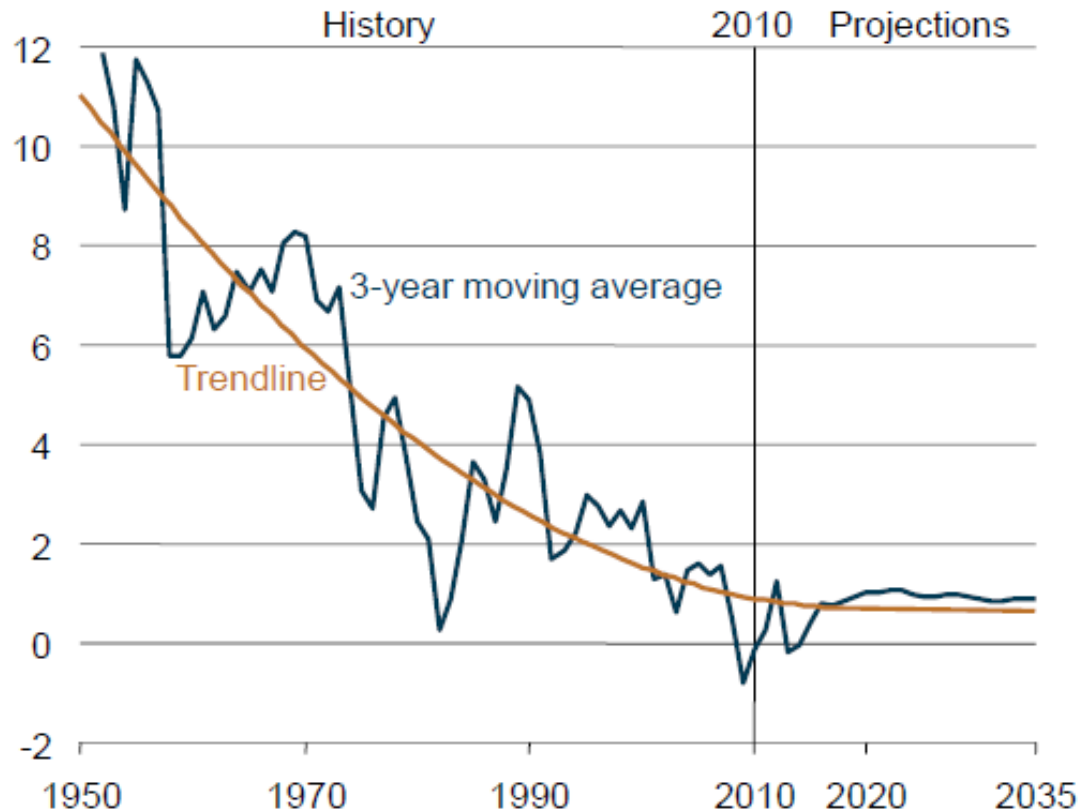


Source: U.S. Energy Information Administration

Normal electricity sales growth has not resumed five years after the Great Recession

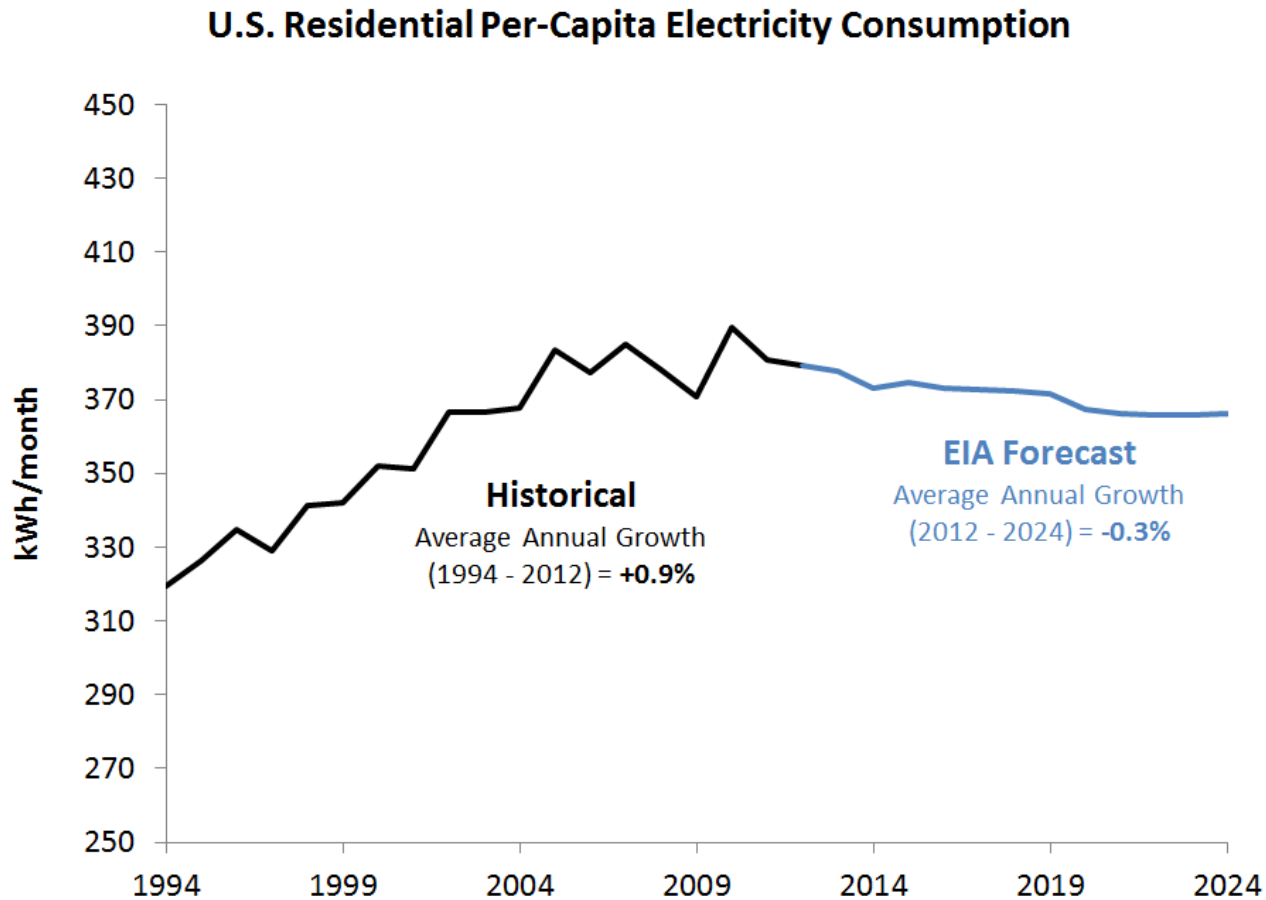
- According to Dr. John Caldwell of the Edison Electric Institute, normal growth usually resumes within five months after the recession ends; the longest it has ever taken has been twelve months
- The EIA's January 2015 Short-Term Energy Outlook (STEO) estimates that electricity retail sales grew by 1.3% in 2014 (based on actuals through October) and projects 0.8% growth in 2015
 - The corresponding numbers for the residential sector are 1.7% and 0.2%

Declining sales growth has been the norm since 1950



Source: EIA, 2012 Annual Energy Outlook

Electric use per capita is projected to decline



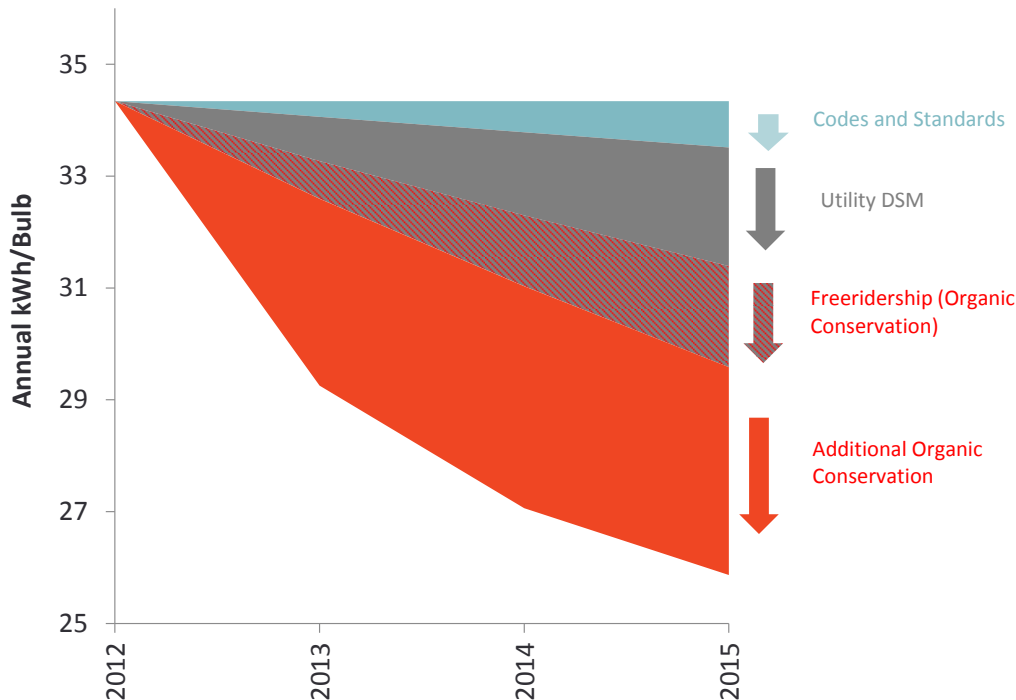
Source: EIA, 2012 Annual Energy Outlook

Besides the belt-tightening due to the recession, three new forces are shaping the future of sales growth

- **First, consumer psychology has shifted as a new generation of consumers has arrived with new values and norms**
 - Some call it “organic conservation”
- **Second, utilities are stepping up their spending on energy efficiency programs**
 - This is often prompted by new legislation
- **Third, state and federal governments are continuing to push ahead with aggressive enhancements to codes and standards**

Organic conservation plays a large role in residential lighting efficiency improvement

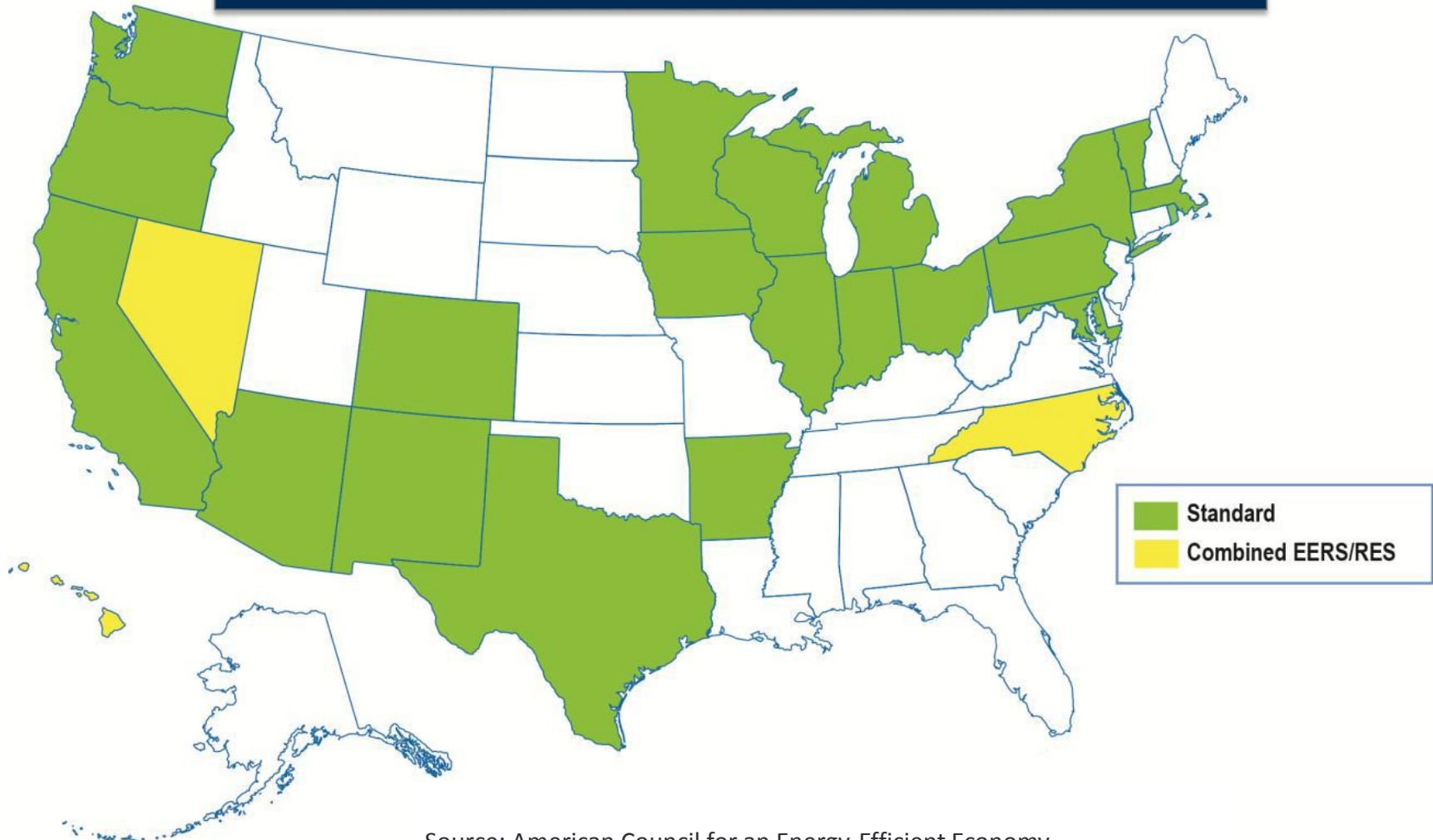
Annual Energy Consumption per Avg. Bulb



Comments

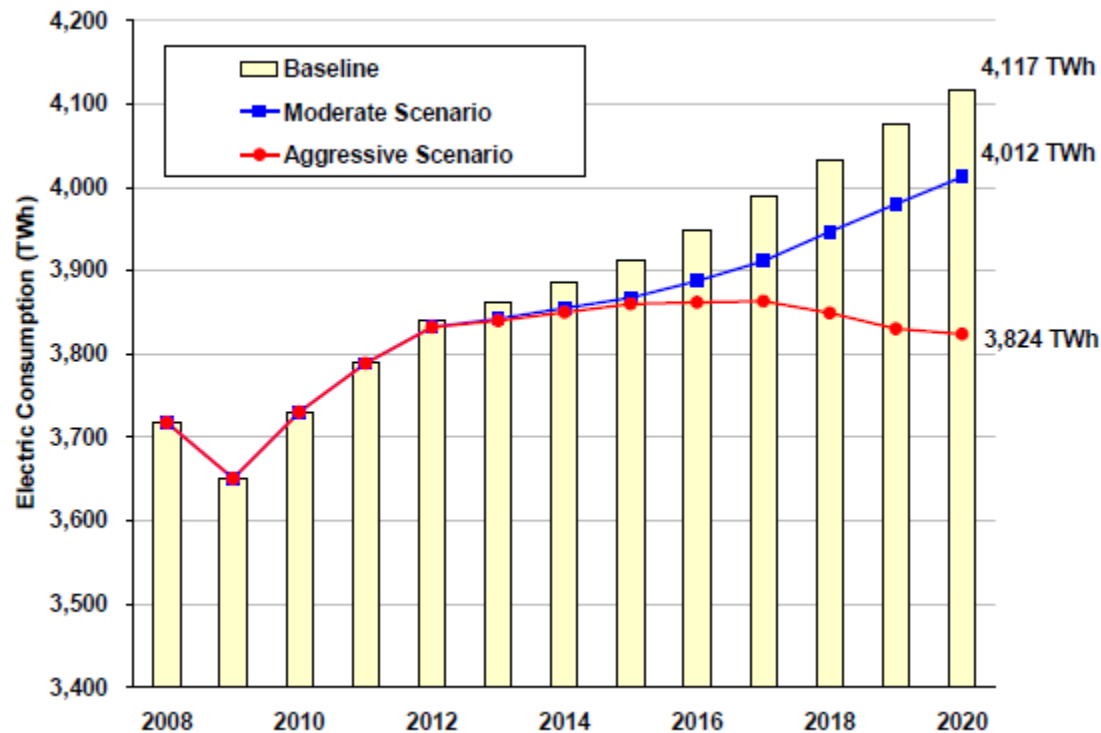
- OC is the difference between the AEO forecast and NSP's projected impact of codes and standards and DSM programs
- Including the impact of free-ridership, organic conservation will account for roughly 65% of the total efficiency improvement between 2012 and 2015

EERS Policy Approaches by State (As of September 2012)



Source: American Council for an Energy-Efficient Economy.

Impact of Codes and Standards on U.S. Electricity Consumption



Source: Institute for Electric Efficiency (December 2009)

Two new forces loom on the horizon

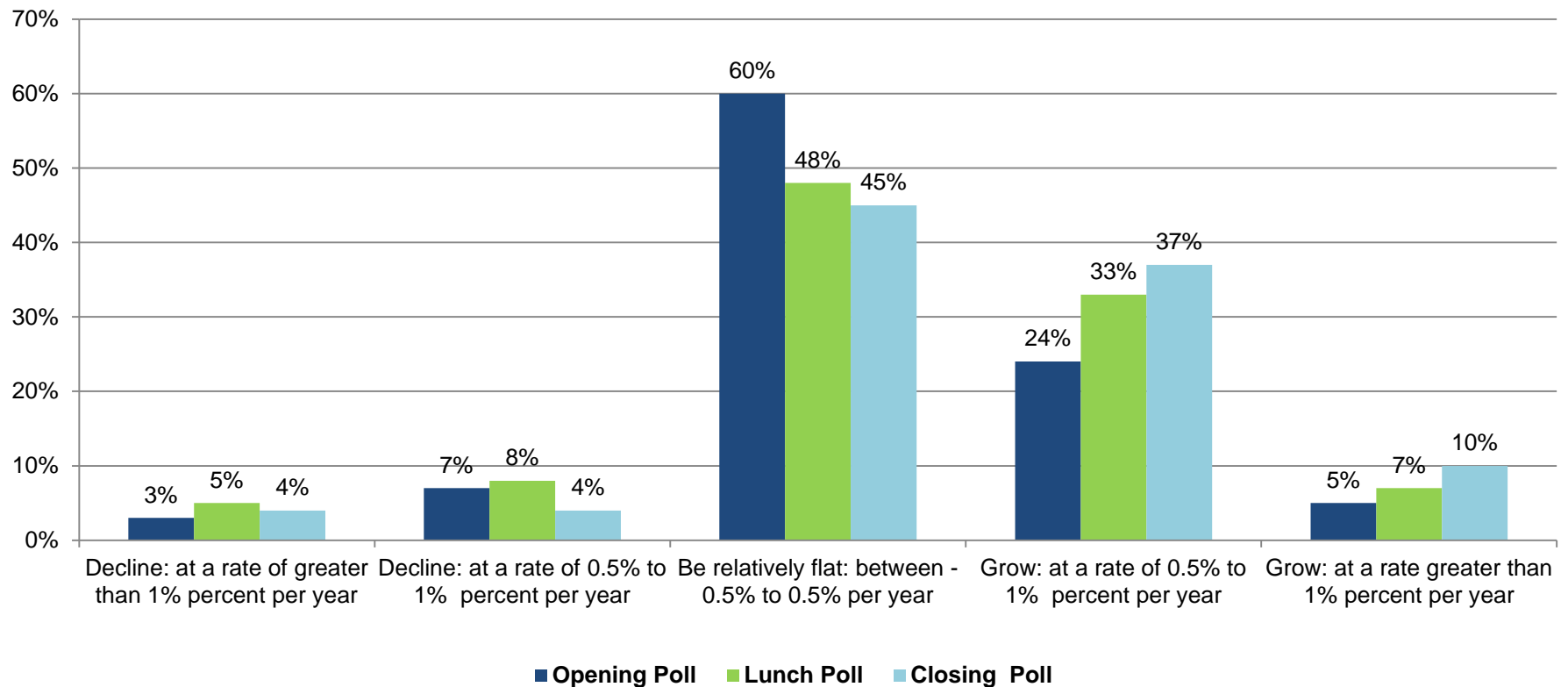
- **Distributed generation**

- Rooftop solar generation
- Wind generation
- Combined heat and power

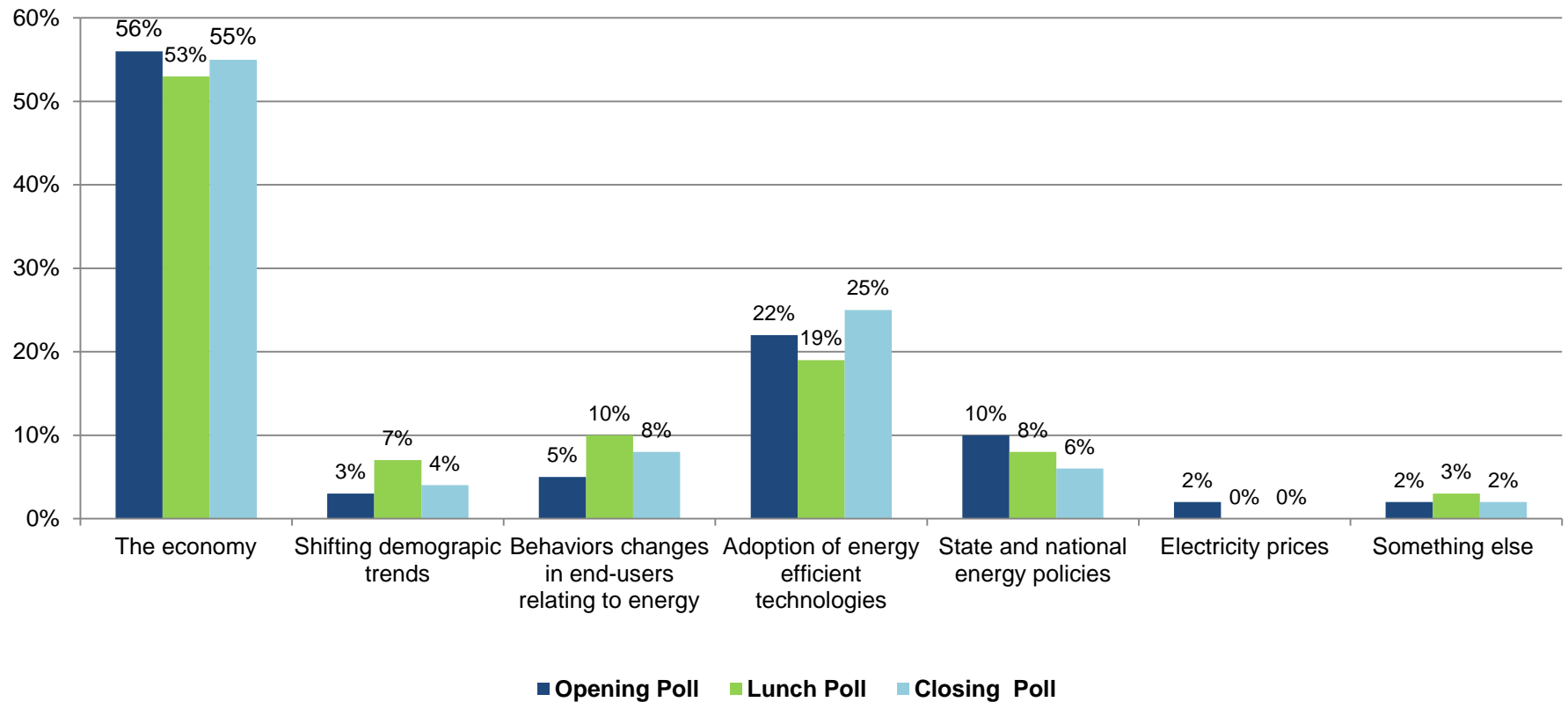
- **Fuel switching toward natural gas**

- Triggered by the fall in oil and gas prices due to fracking and the subsequent price war with Middle Eastern oil exporters

The audience at a major electricity conference was surveyed through a live poll to opine on the outlook for sales growth



Conference participants in a live poll identified the following sources of the slowdown in sales



The long term outlook for electric sales

- Growth is likely to be <1% per year, about half of the 2% rate that was observed prior to the recession and significantly lower than the 7% a year growth rate that was the norm prior to the first oil shock of 1974
- In some parts of the country, electricity sales growth may be higher while in other parts of the country it may be lower
- In countries such as Australia and Germany, negative growth rates are being observed

Electric utilities need to rethink their strategy

- **Stay the course**

- Assume that the slowdown will go away

- **Push electrification**

- Hope that heat pumps, electric cars and electric storage will be adopted by customers rapidly

- **Becomes a wires company**

- Focus on the transmission and distribution business

- **Become an energy services company**

- Begin selling heating, cooling and lighting rather than kilowatt-hours

And regardless of which strategy they pick, they need to reinvent their tactical toolkit

- **Upgrade rate design**

- Align rates with the principal of cost causation by introducing demand charges, raising fixed charges and time-varying volumetric charges

- **Repurpose load and market research**

- Gain insights into changing customer preferences and behavior

- **Refocus sales forecasting**

- Capture the effects of new technologies, impact of utility programs and governmental codes and standards

Conclusions

- While some indicators suggest that the economy has finally pulled out of the Great Recession, doubts remain about the longevity and robustness of the recovery because of concerns about secular stagnation
- The weak economic recovery has causes electricity growth to slow down; even if the economy recovers, electricity growth will stay under one percent due to a number of factors
 - Organic conservation
 - Utility energy efficiency programs
 - Governmental codes and standards
- At a time of sub one-percent sales growth, electric utilities will have to redefine their corporate strategy and reinvent their business tactics

Presenter Information



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Dr. Ahmad Faruqui is a Principal with The Brattle Group whose practice is focused on understanding and managing the needs of energy consumers. It encompasses demand forecasting, rate design, energy efficiency, demand response, and cost-benefit analysis of new end-use technologies. He has worked for more than three dozen utilities around the globe and testified before a dozen state and provincial commissions and legislative bodies. His work has been cited in *The Economist*, *The New York Times*, the *Washington Post* and *USA Today*. He has appeared on Fox Business News and National Public Radio. The author, co-author or editor of four books and more than 150 articles, he holds a Ph.D. in economics from The University of California at Davis and B.A. and M.A. degrees in economics from The University of Karachi, Pakistan.

The views expressed in this presentation are strictly those of the presenter and do not necessarily state or reflect the views of The Brattle Group, Inc.

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