

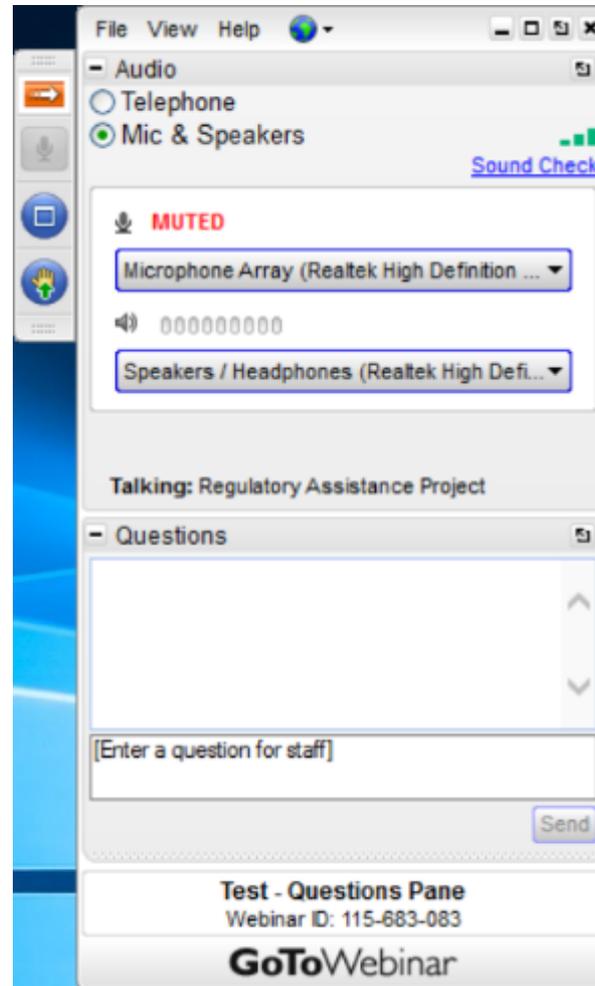
Harness the Momentum of Power Sector Transformation: Opportunities for 2017

Moderator: Richard Sedano
Panel: Ken Colburn, Dr. Carl Linvill, David Littell

January 17, 2017

Questions

Please send questions through the Questions pane.



Our Moderator



Richard Sedano

Our Experts



Ken Colburn



Dr. Carl Linvill

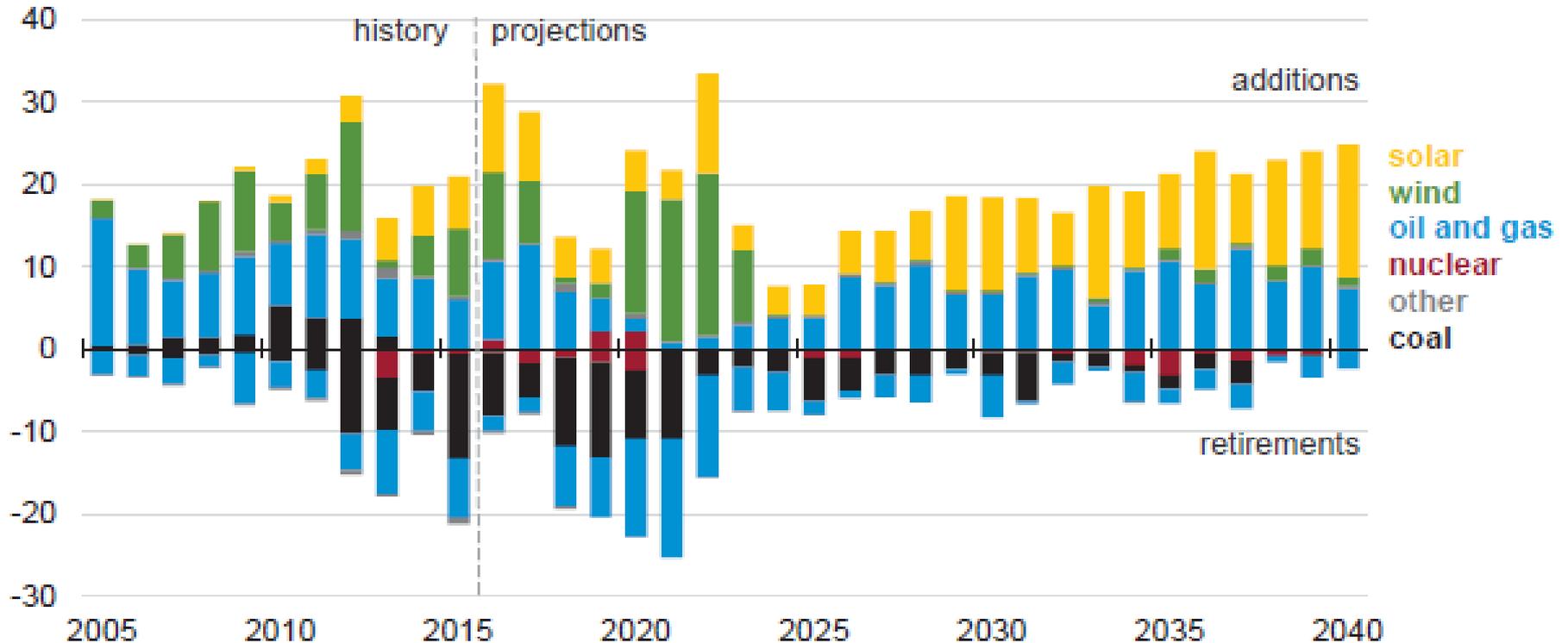


David Littell

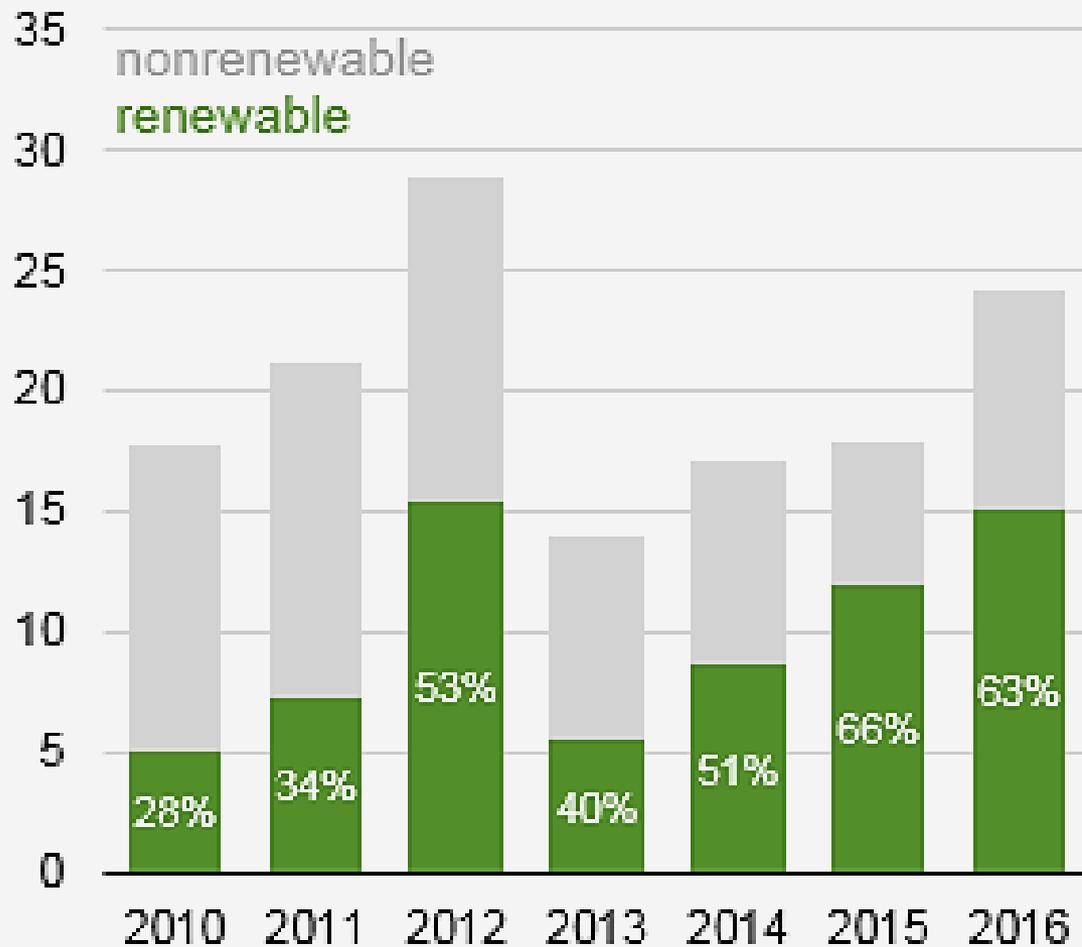
“This is kind of like DVDs versus VHS. It’s just happening. Nothing you can do to stop that.”

- Minnesota state Rep. Pat Garofalo,
Republican chair of the House panel on
energy

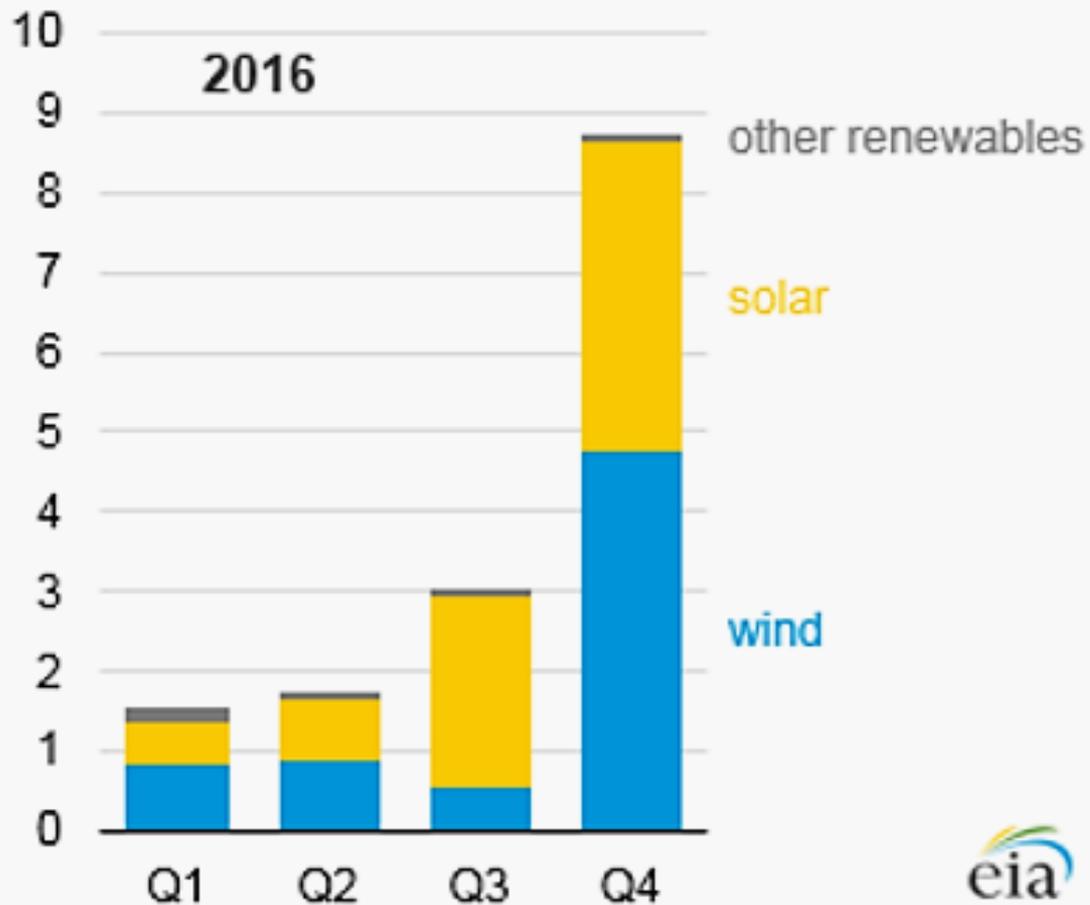
Annual electricity generating capacity additions and retirements (Reference case) gigawatts



Utility-scale capacity additions (2010-16) gigawatts



Utility-scale renewable capacity additions gigawatts



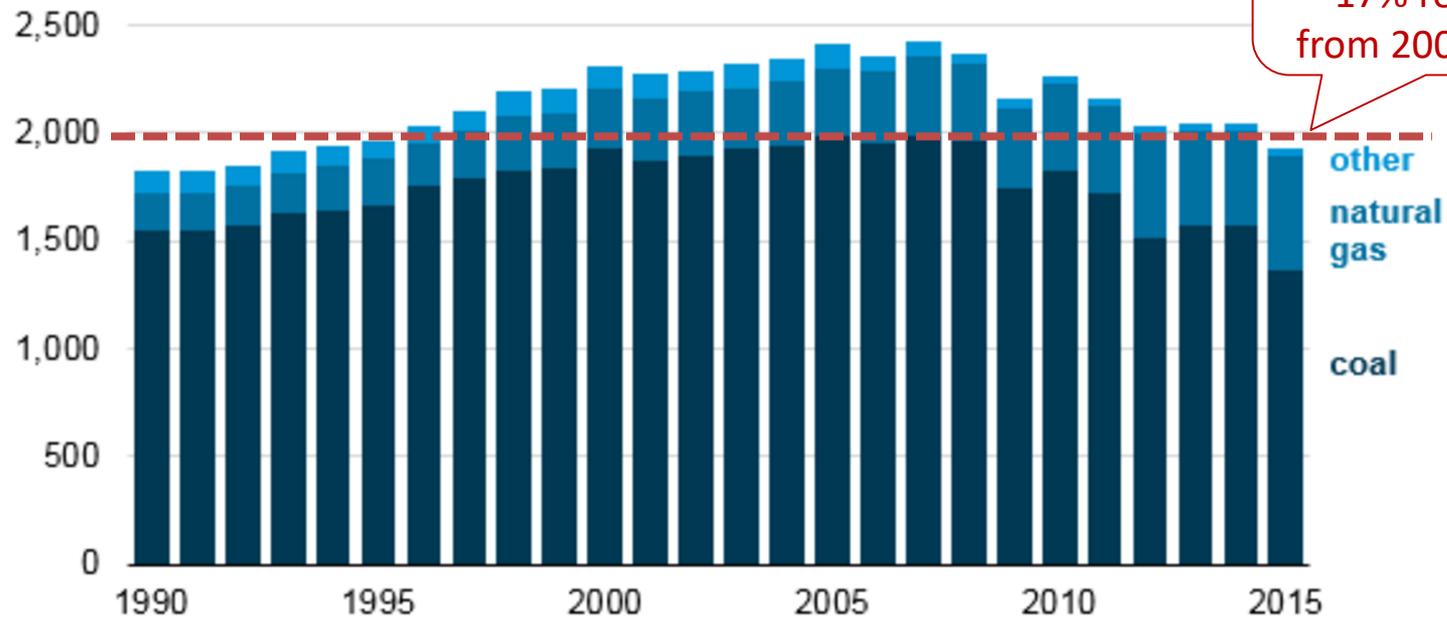
Power Sector Carbon Emissions

MAY 13, 2016

Carbon dioxide emissions from electricity generation in 2015 were lowest since 1993

Carbon dioxide emissions from the electric power sector (1990-2015)

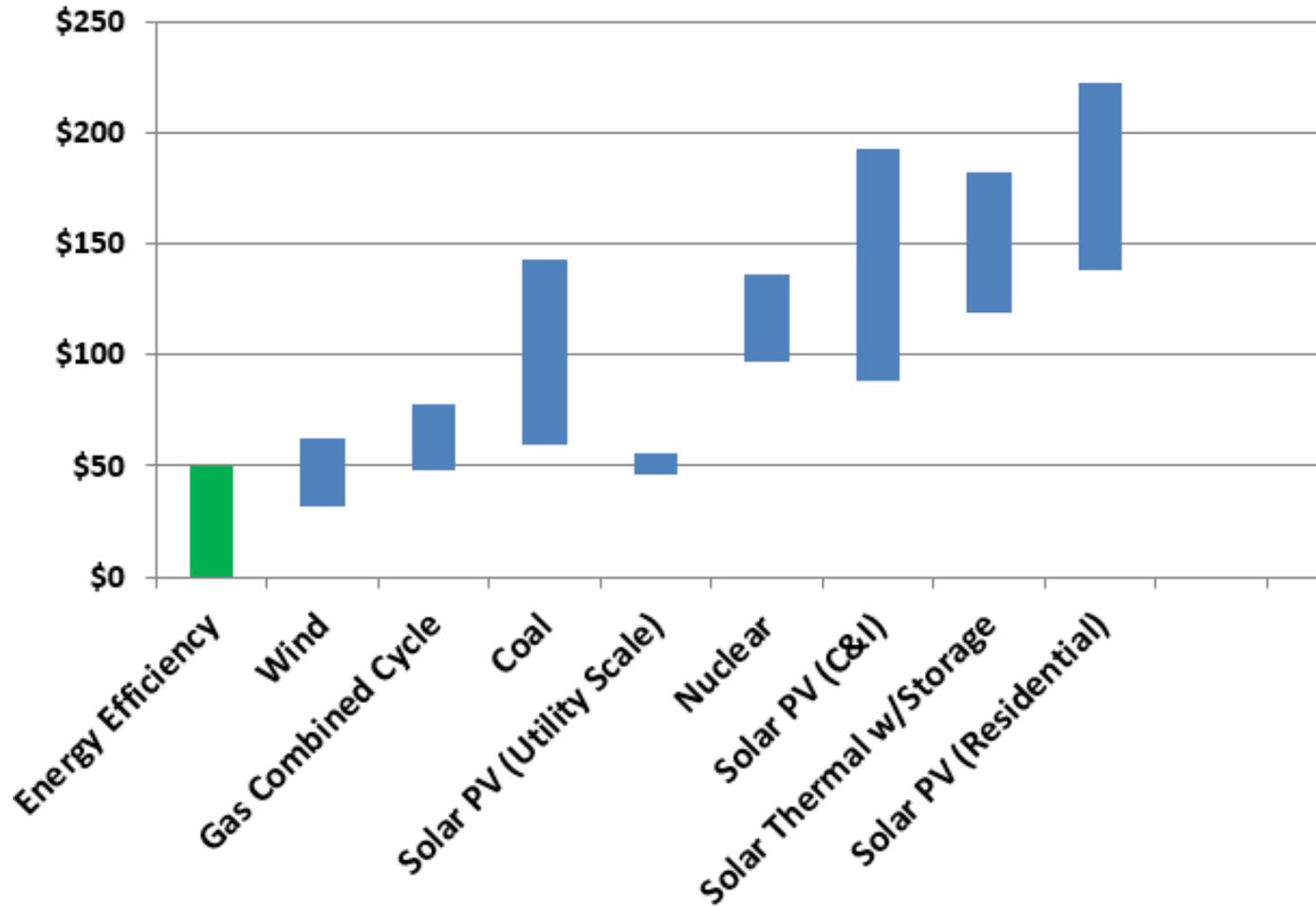
million metric tons



Source: U.S. Energy Information Administration, *Monthly Energy Review*

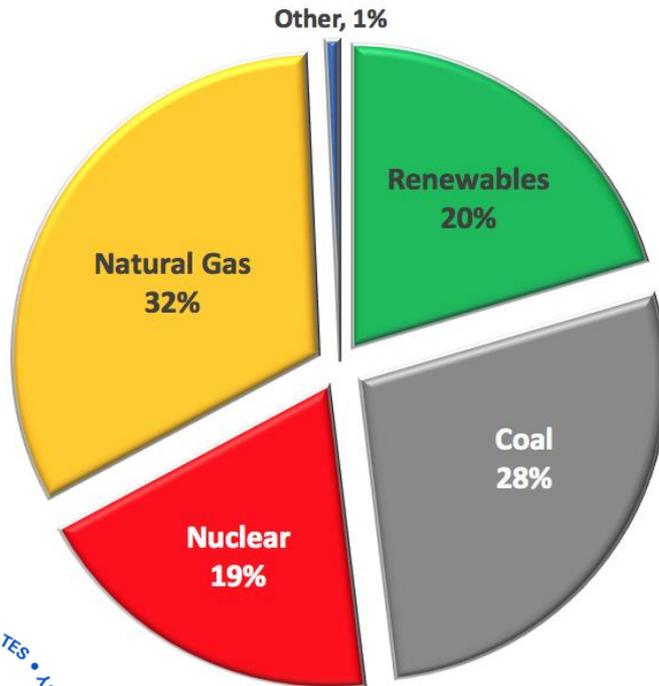
Waxman-Markey
(2009):
17% reduction
from 2005 by **2020**

Conservation is Nearly Always Cheaper Than Supply

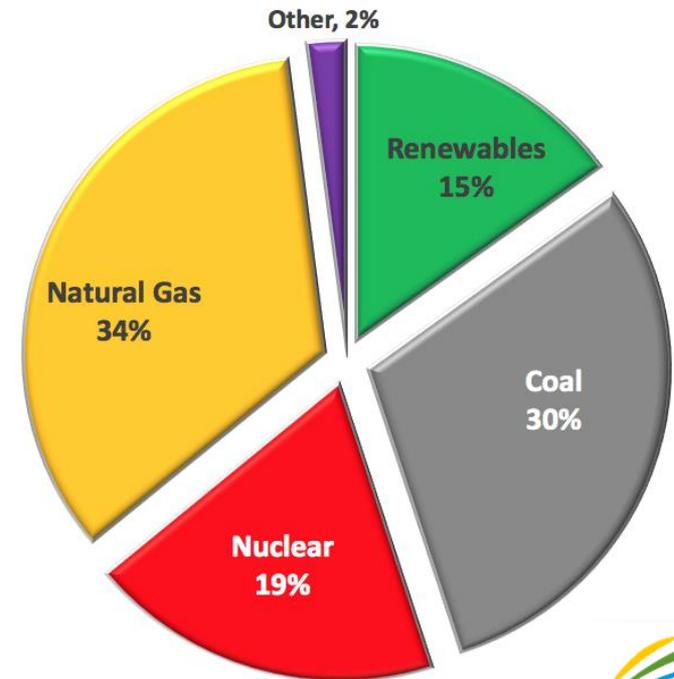


Rapidly Changing Electricity Fuel Mix

Projected **2030** Electricity Generation Mix Under the Clean Power Plan



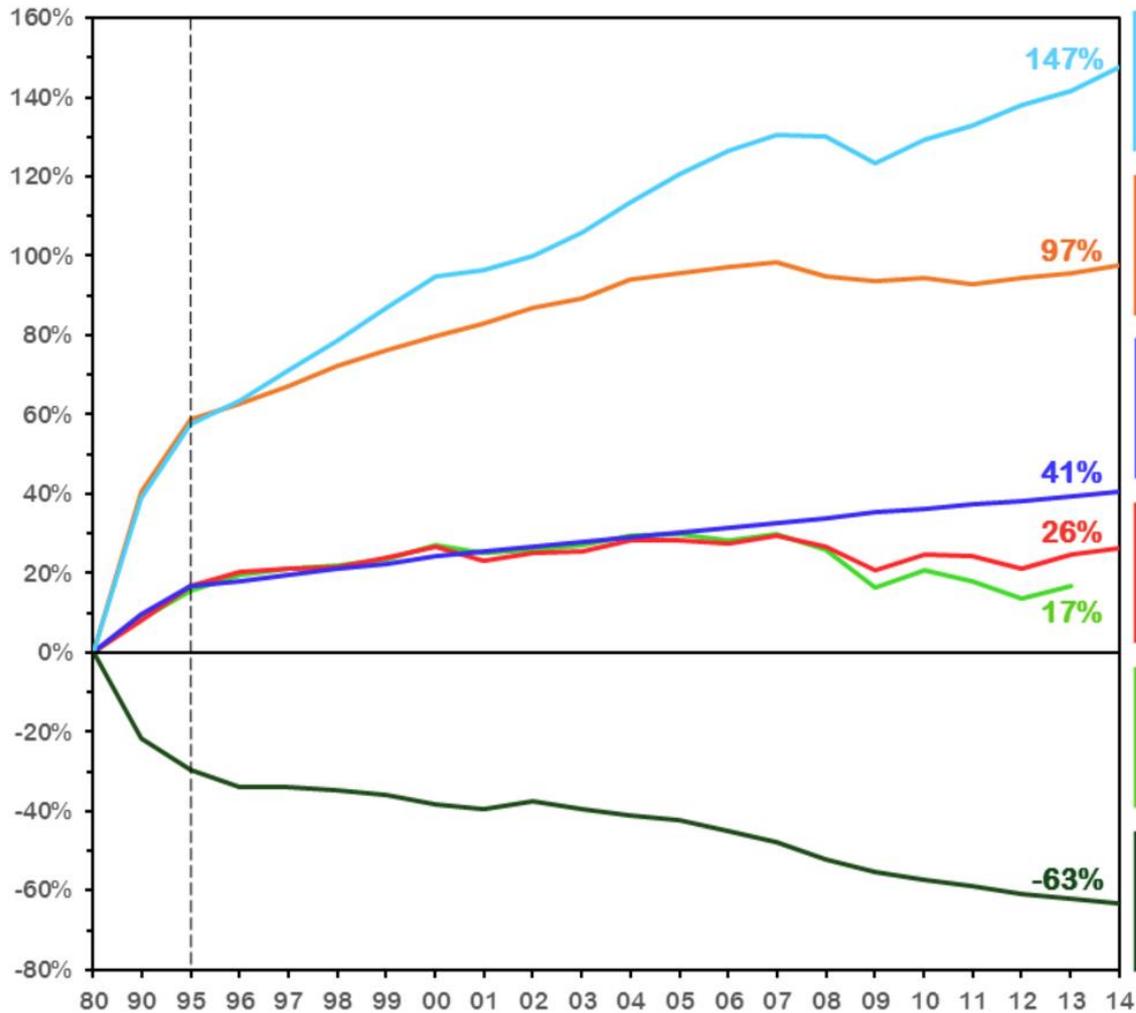
Today's Electricity Generation Mix (August **2016**, EIA)



RAP[®]

Energy solutions
for a changing world

Comparison of Growth Areas and Emissions, 1980-2014



Gross Domestic Product



Vehicle Miles Traveled



Population



Energy Consumption



CO₂ Emissions



Aggregate Emissions
(Six Common Pollutants)

Note: CO₂ emissions estimate through 2013 (Source: 2014 US Greenhouse Gas Inventory Report)

Gross Domestic Product: [Bureau of Economic Analysis](#)

Vehicle Miles Traveled: [Federal Highway Administration](#)

Population: [Census Bureau](#)

Energy Consumption: [Dept. of Energy, Energy Information Administration](#)

Aggregate Emissions: [EPA Clearinghouse for Inventories and Emissions Factors](#)

Energy Efficiency Impacts

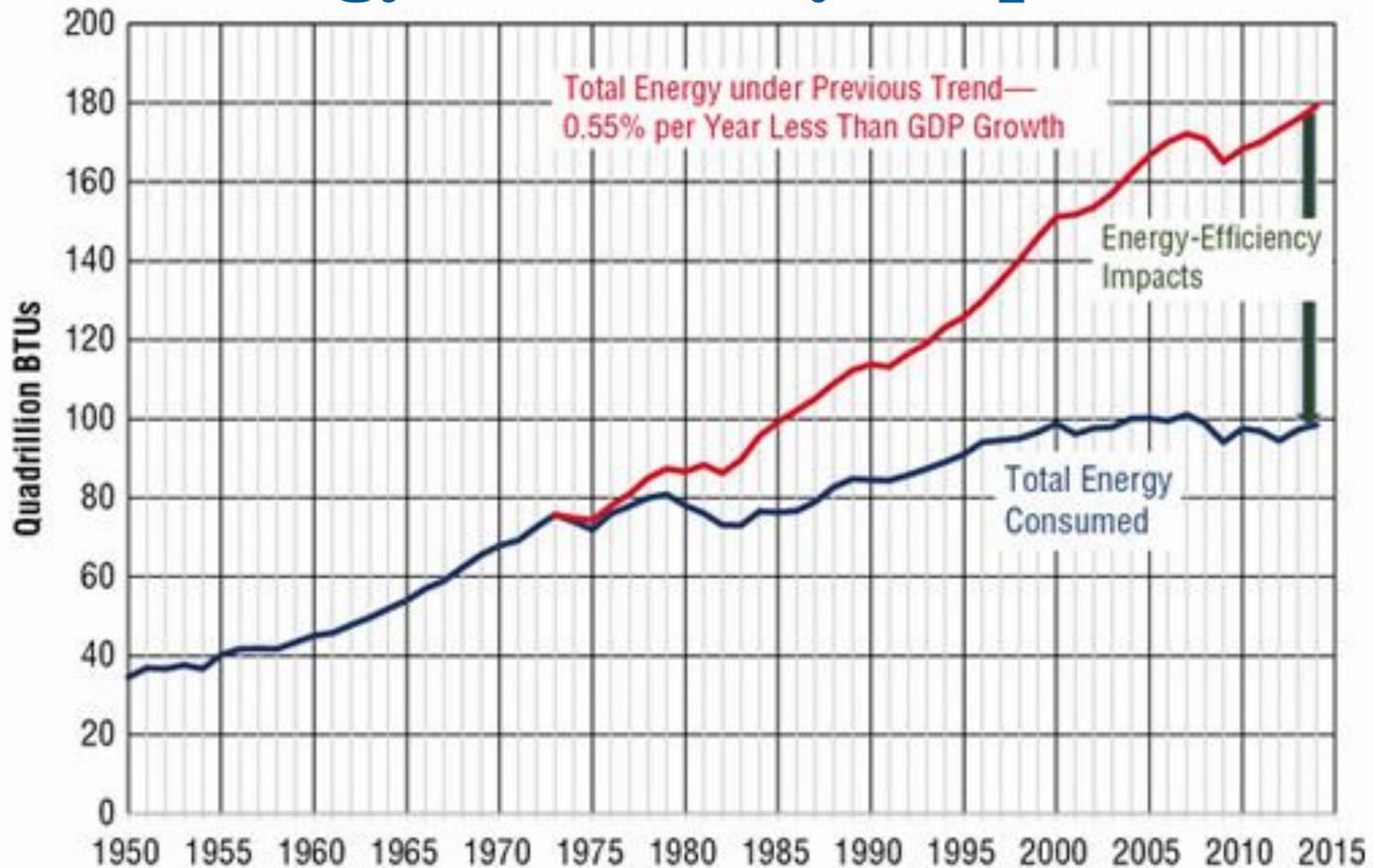


Figure 3.7. Energy Use: Actual vs. Limited-Energy-Efficiency Benchmark



RAP[®]

Energy solutions
for a changing world

Source: James L. Sweeney, *Energy Efficiency: Building a Clean, Secure Economy*, 2016

The Role of Appliance Standards

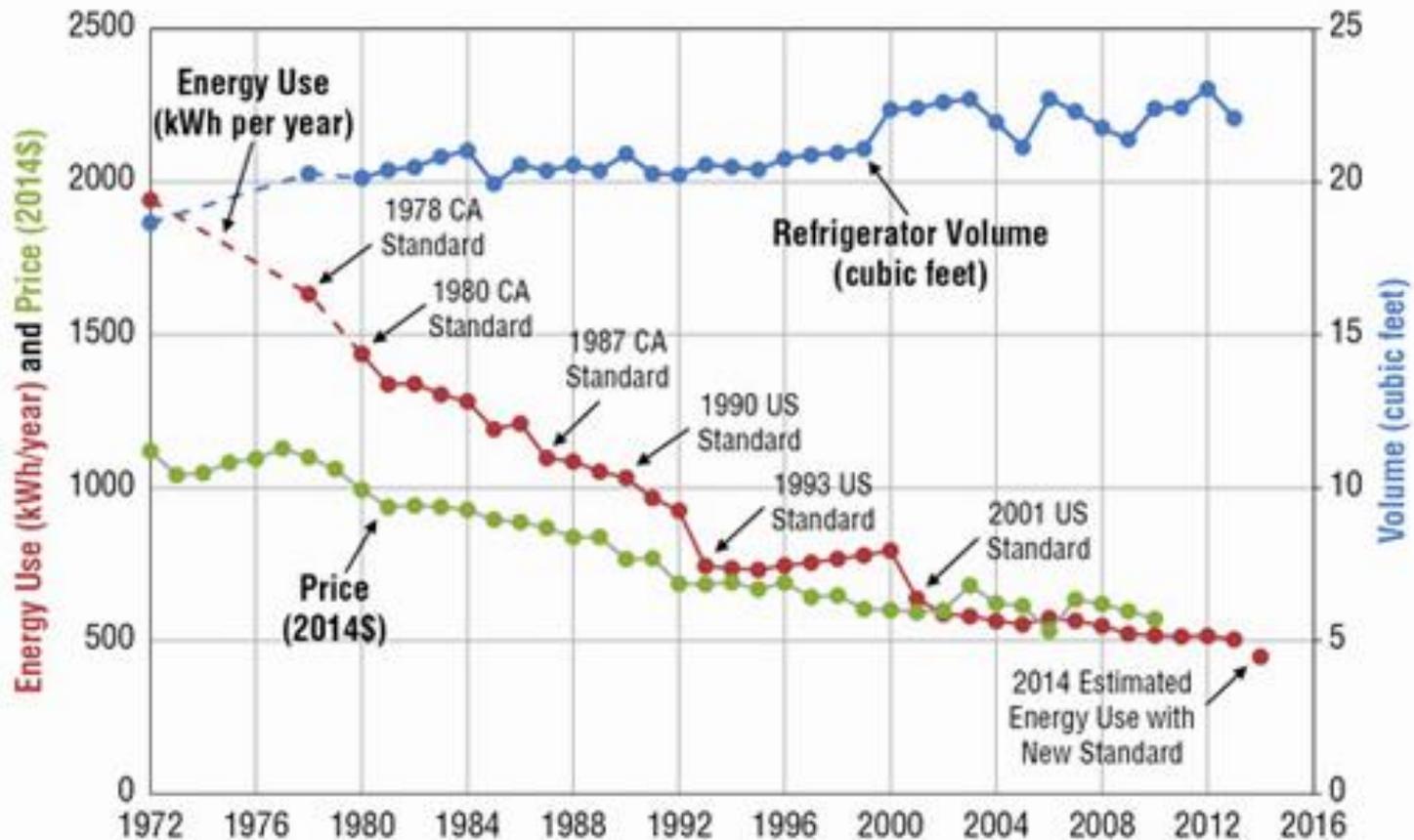


Figure 2.2. New Refrigerator Energy Use, Volume, and Price Trends



RAP[®]

Energy solutions
for a changing world

Source: James L. Sweeney, *Energy Efficiency: Building a Clean, Secure Economy*, 2016

2006



**Only three states were saving
0.8% of sales or better**

2014



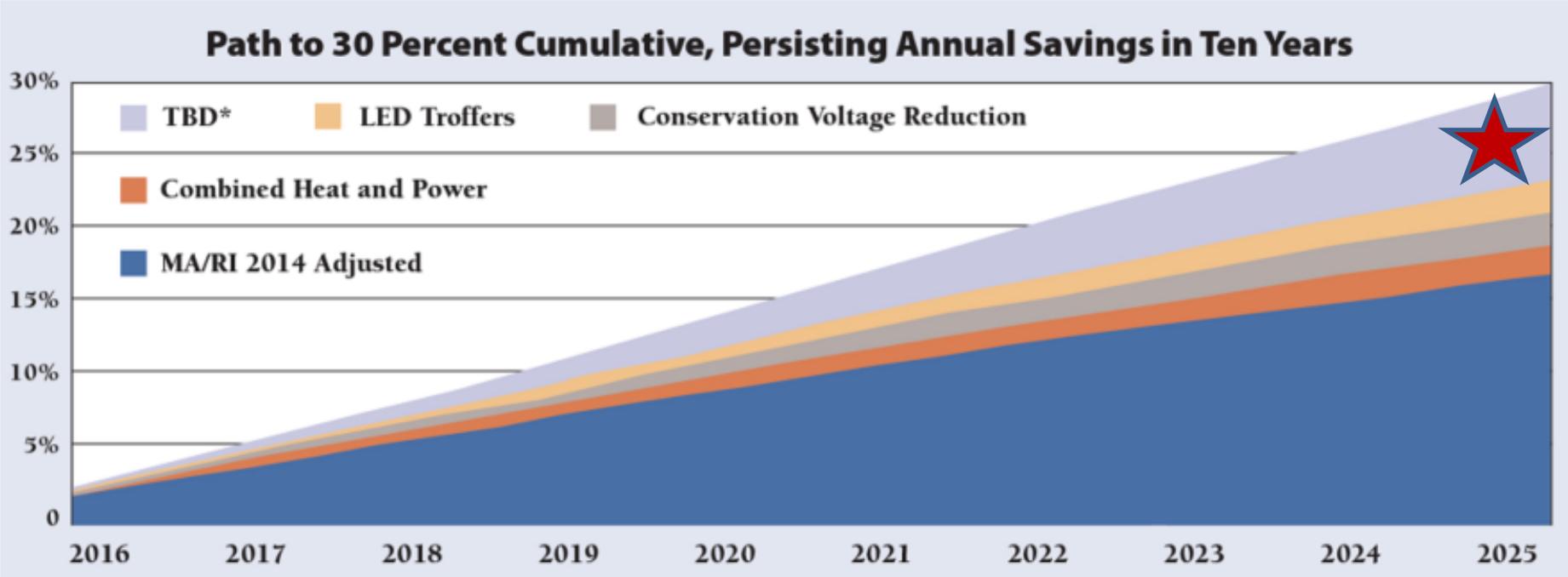
**18 states were saving
0.8% of sales or better**

2014

**Two states were
at or above 2.5%**



Technology is Key



Starred area represents the gap to be addressed by unquantified or unknown technologies and strategies.



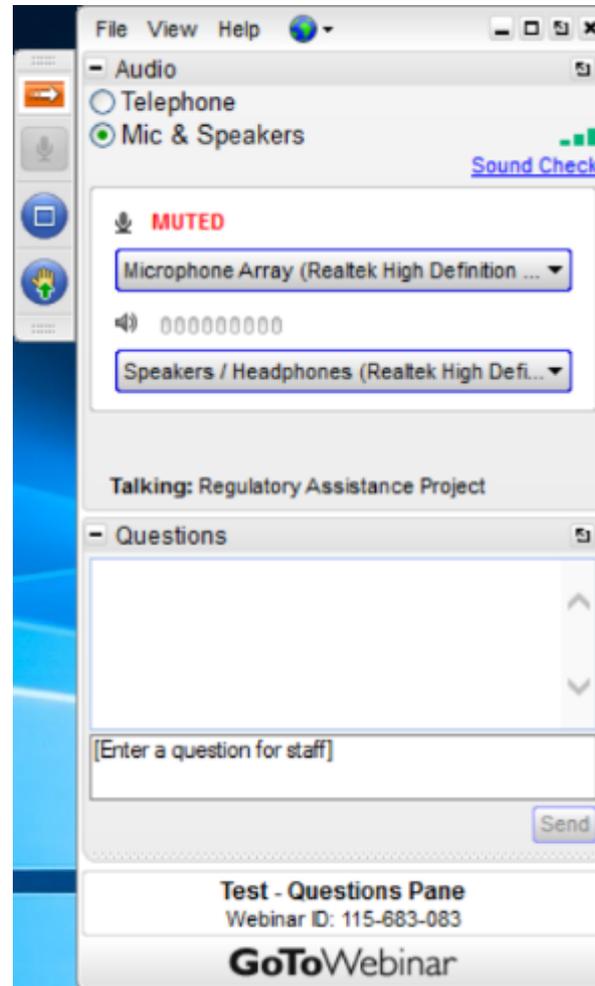
RAP[®]

Energy solutions
for a changing world

Source: RAP, Neme & Grevatt, *The Next Quantum Leap in Efficiency: 30 Percent Electric Savings in Ten Years*, 2016

Questions

Please send questions through the Questions pane.



Conclusion

- Collaborate to ensure efficient, reliable, clean, and affordable energy.
- Empower customers.
- Continue to leverage energy efficiency and renewable energy.
- Innovation at the local, state, and regional level is critical.

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

Ken Colburn, kcolburn@raponline.org

Carl Linvill, clinvill@raponline.org

David Littell, dlittell@raponline.org

Richard Sedano, rsedano@raponline.org



The Regulatory Assistance Project (RAP)[®]

Beijing, China • Berlin, Germany • Brussels, Belgium • Montpelier, Vermont USA • New Delhi, India

www.raponline.org