

Building a Powerful Future

West Virginia Energy Summit

Charles Patton, President and COO

Appalachian Power

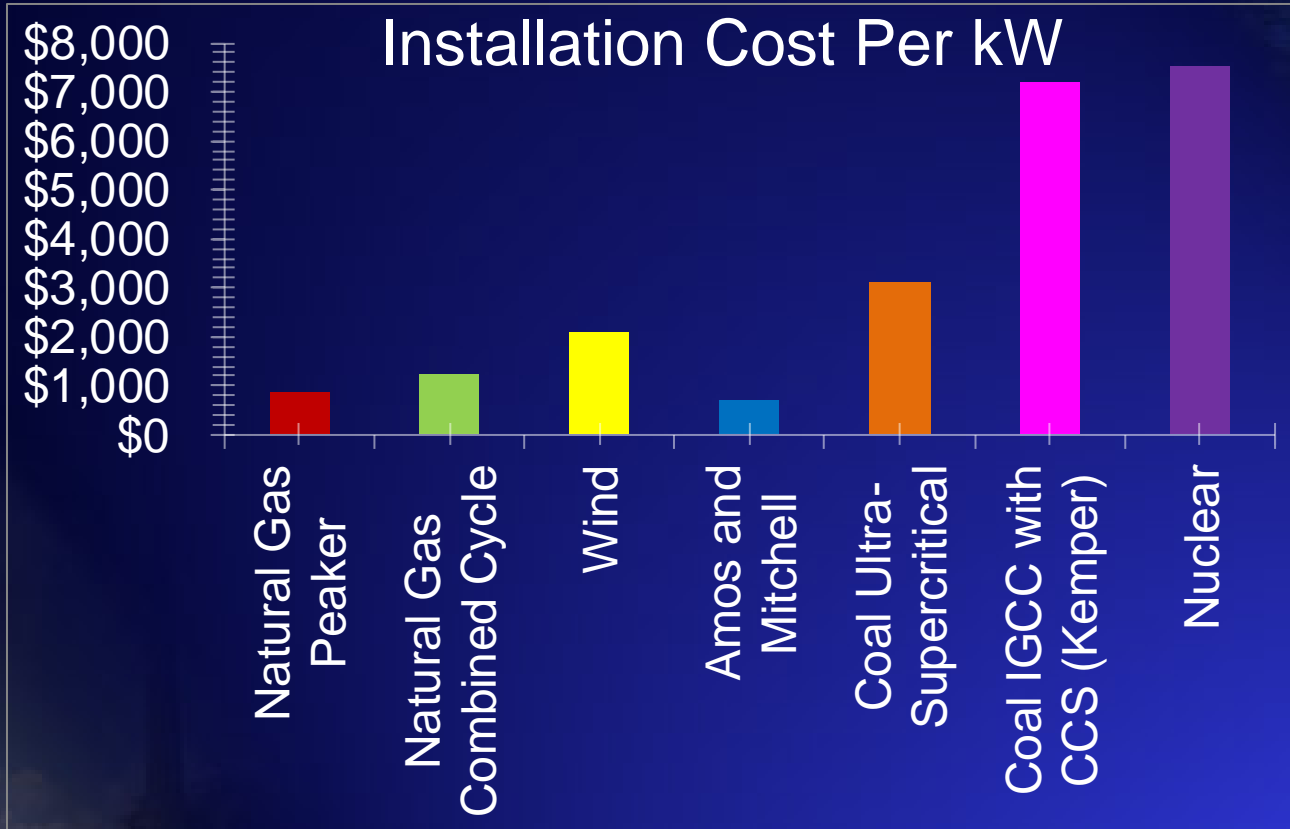
December 17, 2013



Four Take-Aways

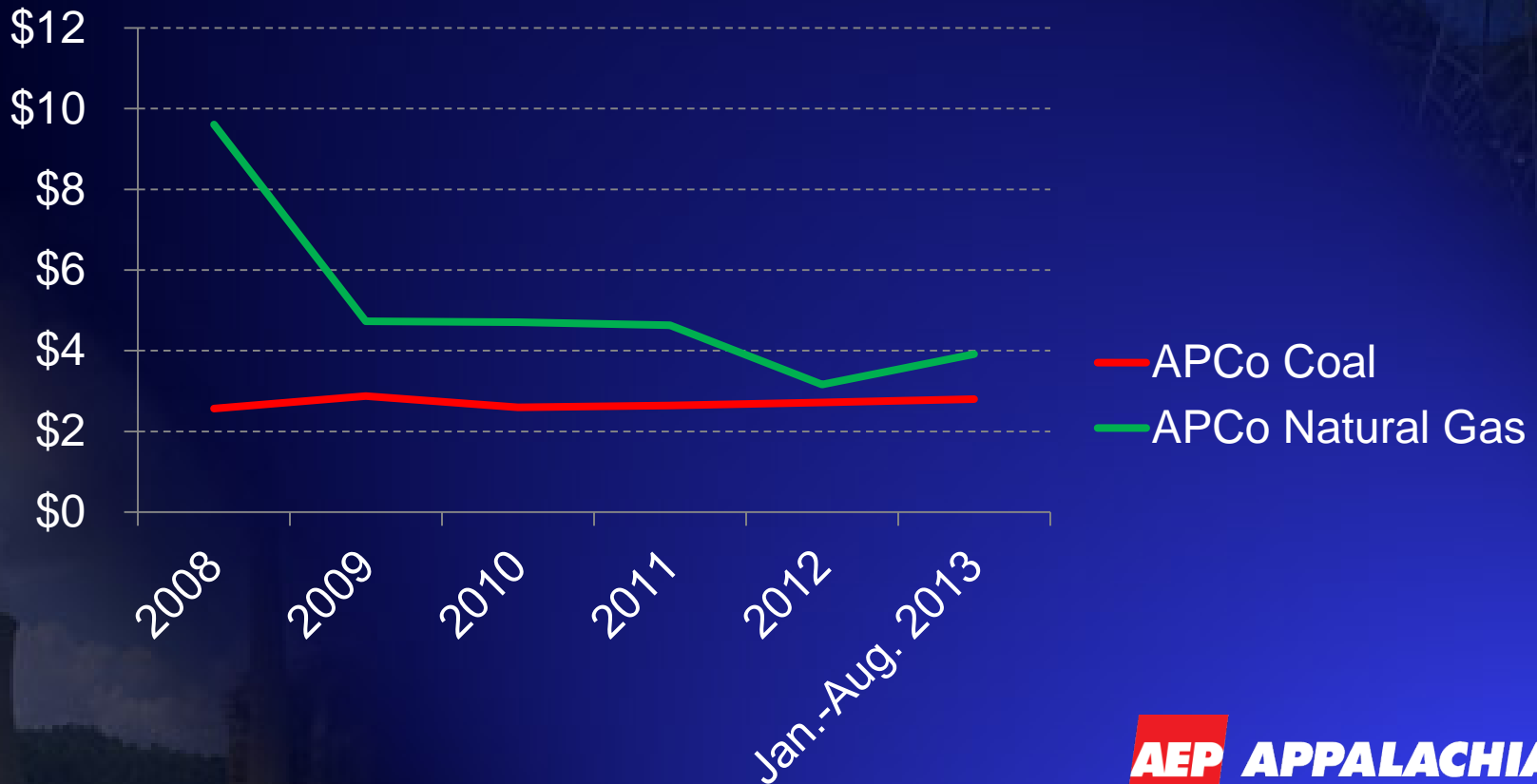
- **Economics make new coal highly unlikely.**
- **Existing coal plants can compete.**
- **The country must pursue a rational greenhouse gas mitigation strategy**
- **Availability of future capacity is a major concern.**

Cost to Build or Acquire



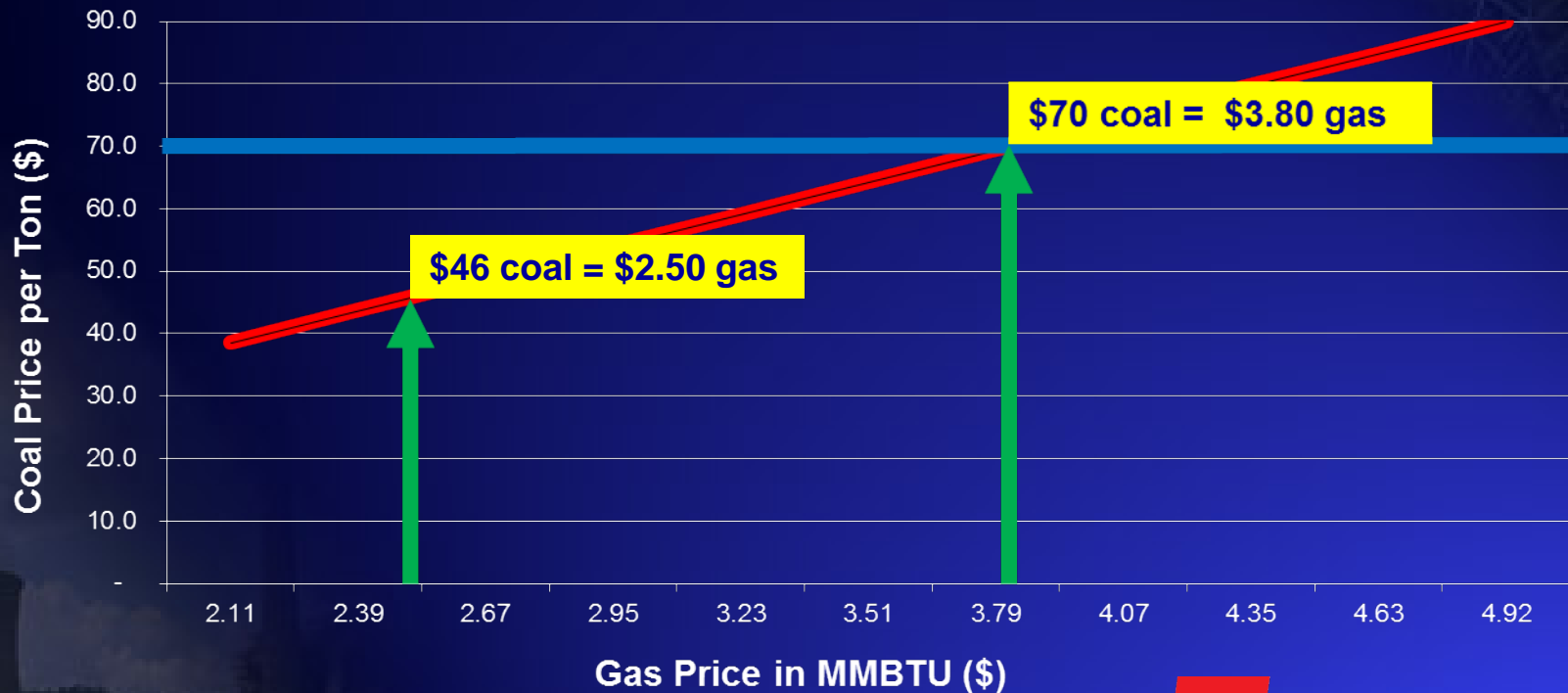
Coal vs. Natural Gas

MMBTU



Comparing Coal to Gas

Based on Appalachian's baseload plant costs



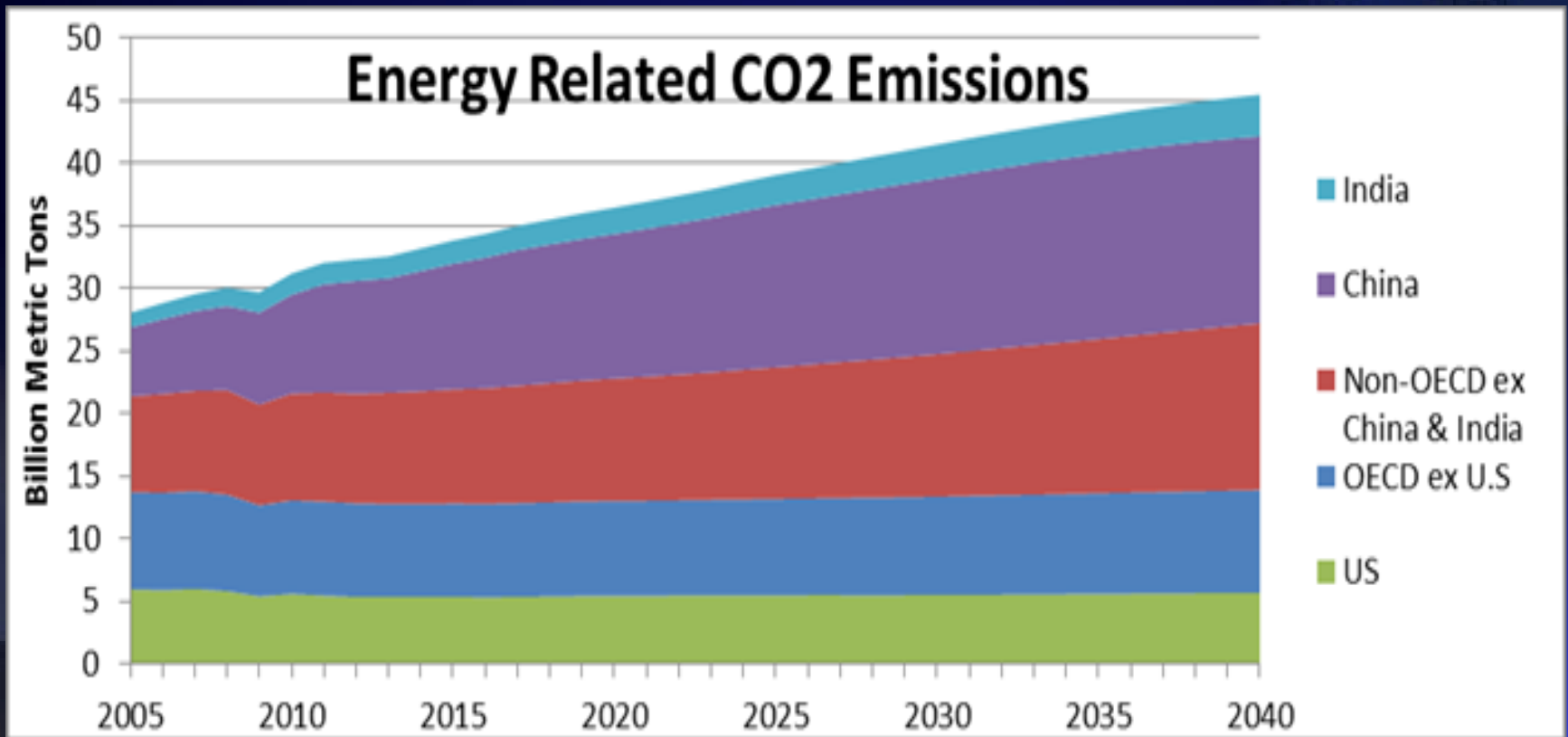
US EIA Natural Gas Storage Report

- **NYMEX forward prices**
 - Balance 2013: \$3.80
 - 2014: \$3.99
 - 2015: \$4.14
 - 2016: \$4.23

Proposed CO₂ Regulations

- 1,100 lbs. per MWh for new coal plants.
 - CCS would be required to meet goal.
- 1,000 lbs. per MWh for new natural gas plants.
- New Turk plant is 1,800 lbs. per MWh.

Global CO₂ Emissions



Global CO₂ Emissions

- **2012 global CO₂ emissions totaled 32.2 billion metric tons**
 - Of that, China accounted for 28 percent
 - The US accounted for 17 percent
- **Global emissions have increased 15 percent since 2005**
 - 80 percent of the increase is due to growth in China
- **By 2040, emissions from developing countries will rise by more than 70 percent**

US Greenhouse Emissions

- In 2011, EGU CO2 emissions were 10 percent below 2005 levels
- Preliminary 2012 EIA data indicates EGU emissions were 15 percent below 2005 levels

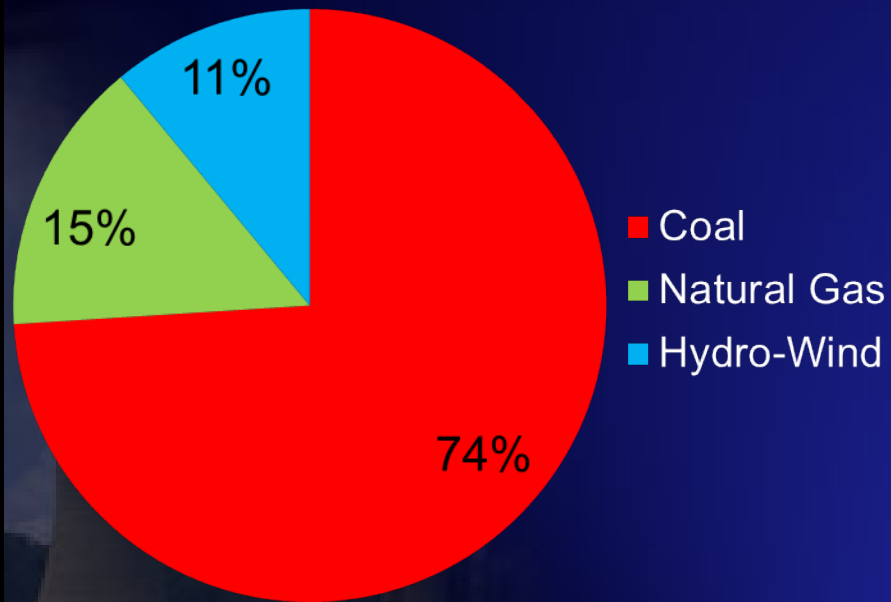
Market

Considerations for 2016-2017 PJM Auction

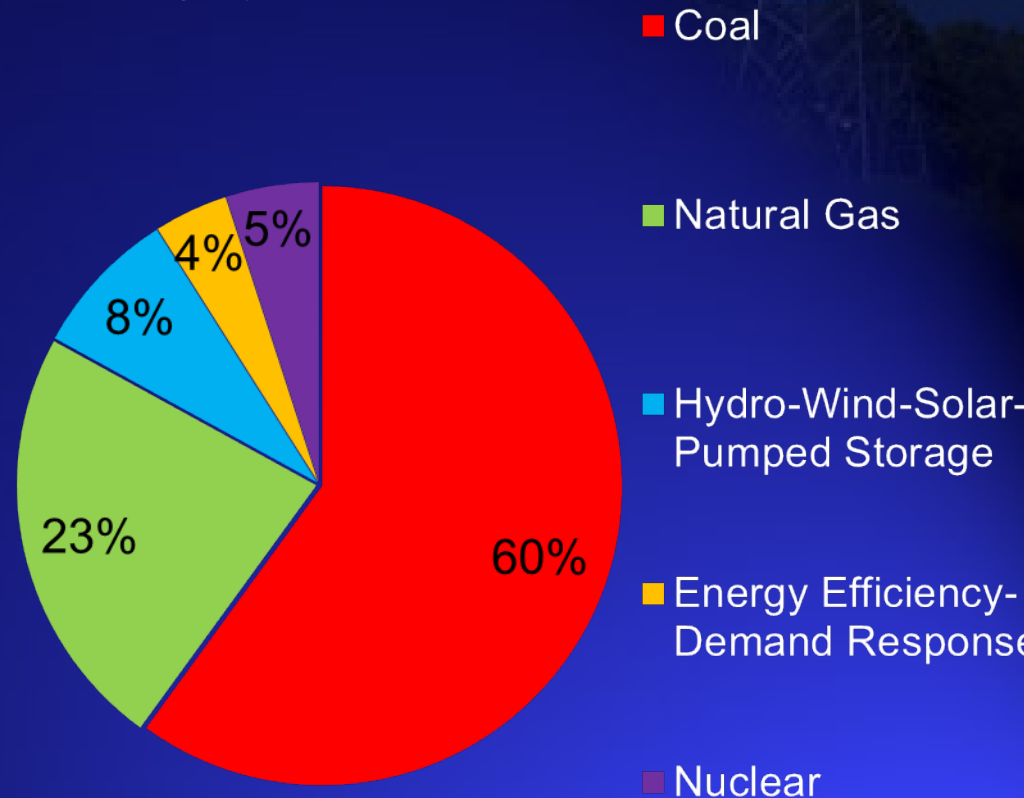
- **Potential Reliability Effects**
 - 14 percent or 24,200 MWs of total capacity market is planned capacity resources
 - Planned resources may
 - Buy out their commitment
 - Cut by external balancing authority
 - Not show up in an emergency

Electricity Generation Mix

Appalachian Power 2012

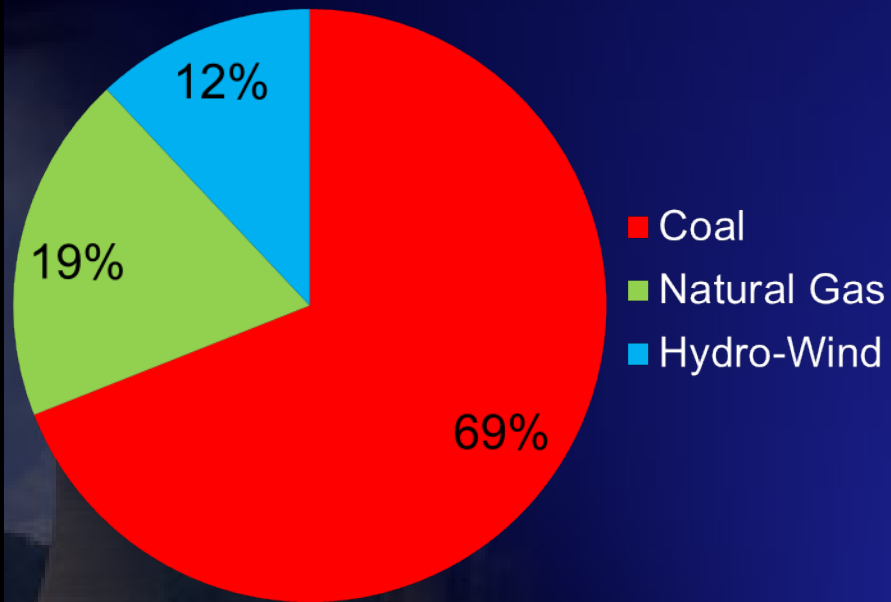


American Electric Power 2013

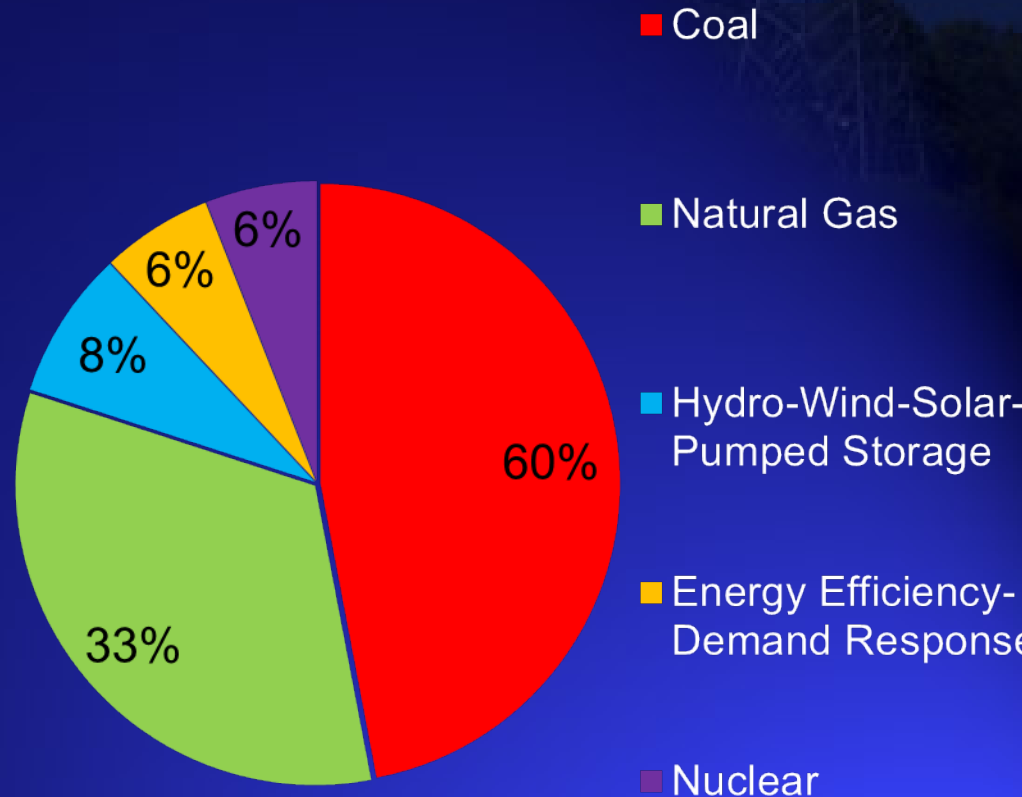


Electricity Generation Mix

Appalachian Power 2016



American Electric Power 2016



Conclusion

- **Economics make new coal highly unlikely.**
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Questions?

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