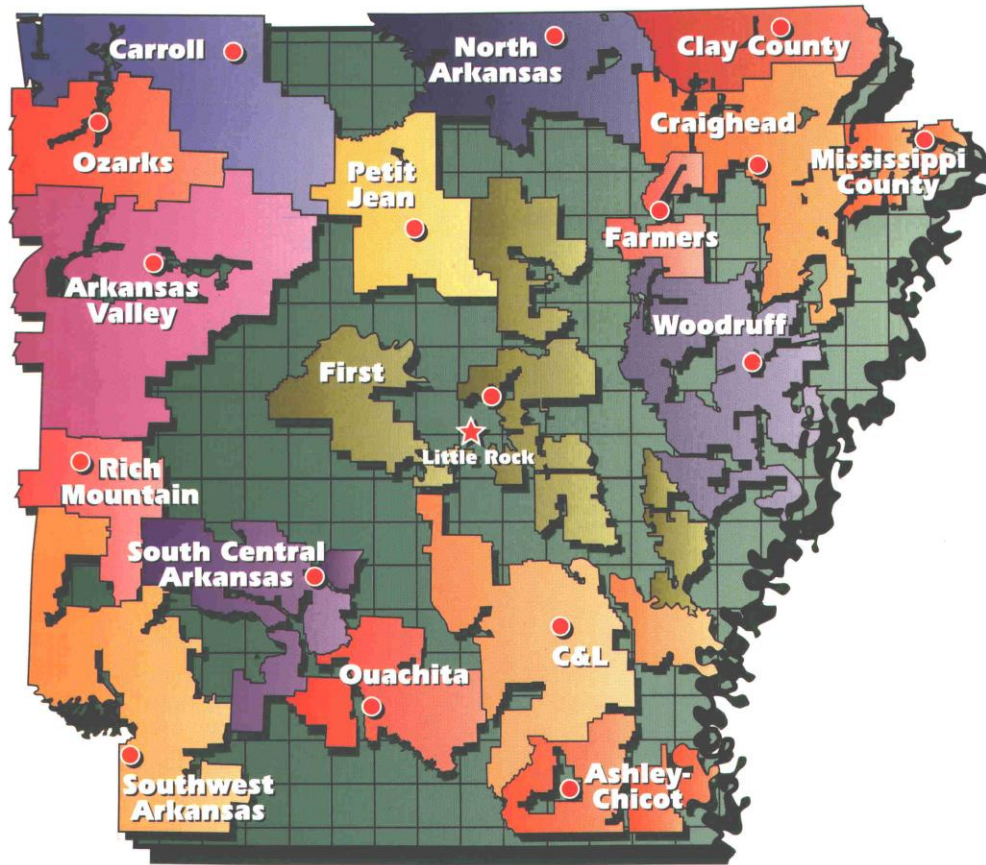


Arkansas Electric Cooperatives



**Presentation to 111(d) Stakeholders
August 28, 2014**

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Reliable Affordable Responsible

Powering Communities and
Empowering Members to
Improve the Quality of Their Lives

Diversified!



**Flat Ridge 2
Wind Farm**
Fairfax, Kansas
(Power purchase
agreement)
51 Megawatts

Flint Creek Power Plant
Gentry
AECC (coal)
1 Unit
264 Megawatts

**Eco-Vista Landfill
Biomass Generating Station**
Springdale
(Power purchase agreement)
4 Megawatts

Elkins Generating Station
Elkins
AECC (gas)
3 Units
60 Megawatts

**Independence Steam
Electric Station**
Newark
AECC (coal)
2 Units
568 Megawatts

**Thomas B. Fitzhugh
Generating Station**
Ozark
AECC (gas/oil)
2 Units
165 Megawatts

**Carl E. Bailey
Generating Station**
Augusta
AECC (gas/oil)
1 Unit
122 Megawatts

**Clyde T. Ellis
Hydroelectric
Generating Station**
Barling
AECC (hydro)
3 Units
26 Megawatts

**Carl S. Whillock
Hydroelectric
Generating Station**
Morriton
AECC (hydro)
3 Units
17 Megawatts

**Magnet Cove
Generating Station**
Malvern
AECC (gas)
3 Units
660 Megawatts

**Harry L. Oswald
Generating Station**
Wrightsville
AECC (gas)
9 Units
548 Megawatts

**Southwestern Power
Administration**
(Power purchase agreement)
189 Megawatts

**John W. Turk Jr.
Power Plant**
Fulton
AECC (coal)
1 Unit
71 Megawatts

**White Bluff Steam
Electric Station**
Redfield
AECC (coal)
2 Units
580 Megawatts

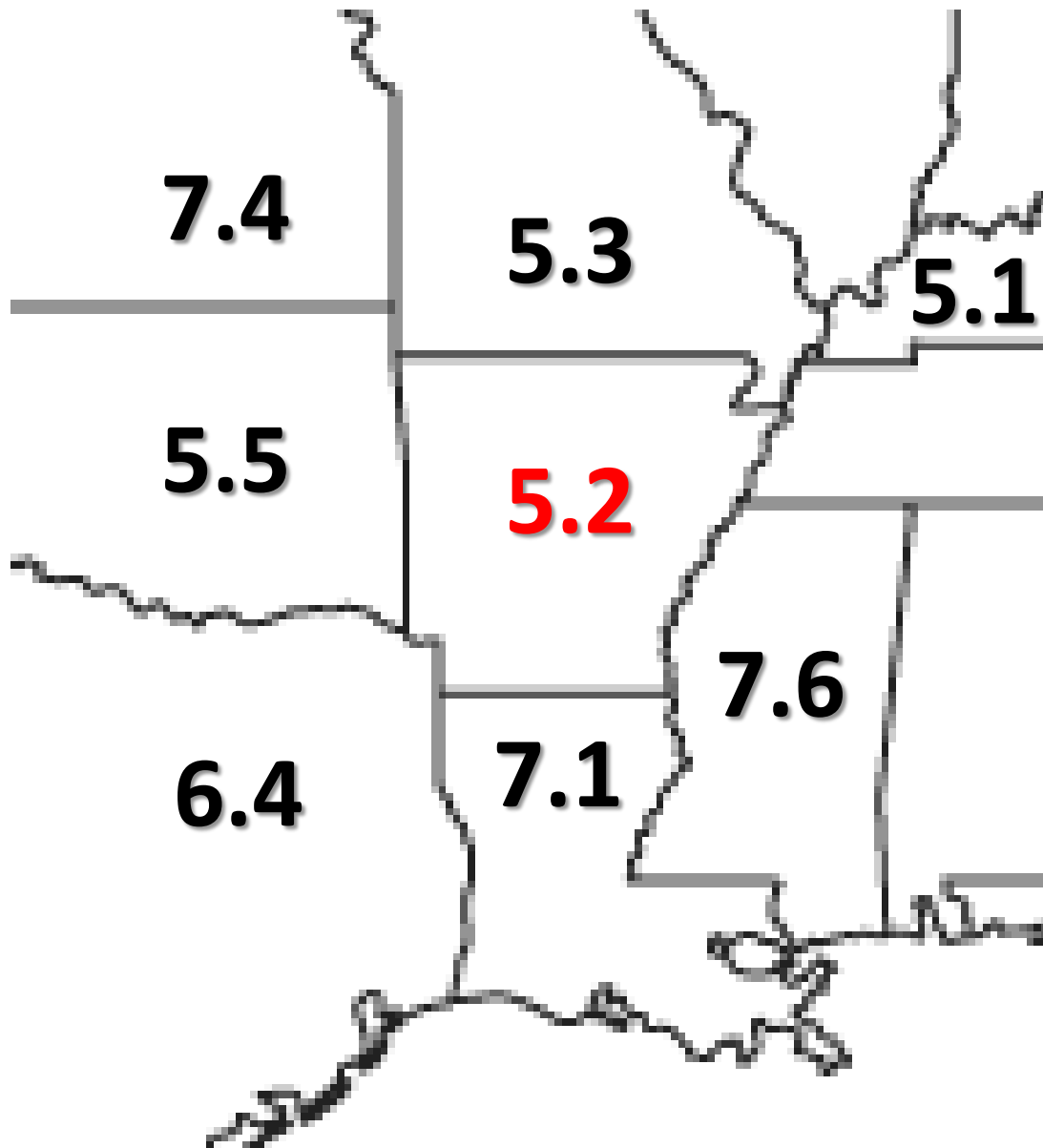
**Electric Cooperatives of
Arkansas Hydropower
Generating Station**
Dumas
AECC (hydro)
3 Units
35 Megawatts

CT-1
Fulton
AECC (gas)
1 Unit
153 Megawatts

**John L. McClellan
Generating Station**
Camden
AECC (gas/oil)
1 Unit
134 Megawatts

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Affordable



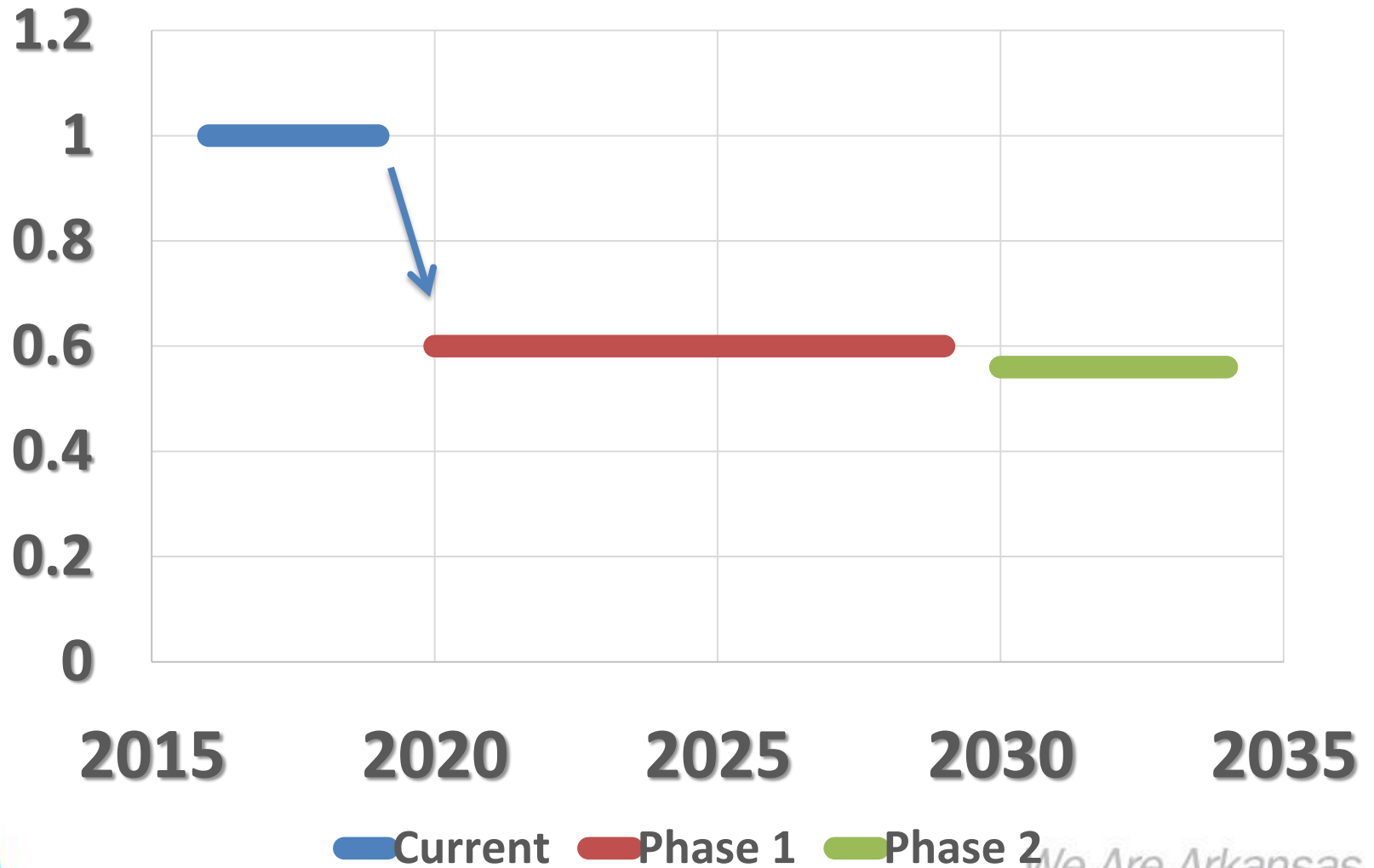


**CHANGE
AHEAD**

EPA Clean Power Plan



Target Reduction "Glide Path"





Blocks 1, 3 and 4:



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Blocks 1, 3 and 4

- Block 1 – Coal plant efficiency: 6% is not achievable.
- Block 3 – Opportunities for renewables in Arkansas are few and of limited capacity.
- Block 4 – 1.5% energy efficiency per year is extremely aggressive and burdens rate payers with additional costs for improvements.



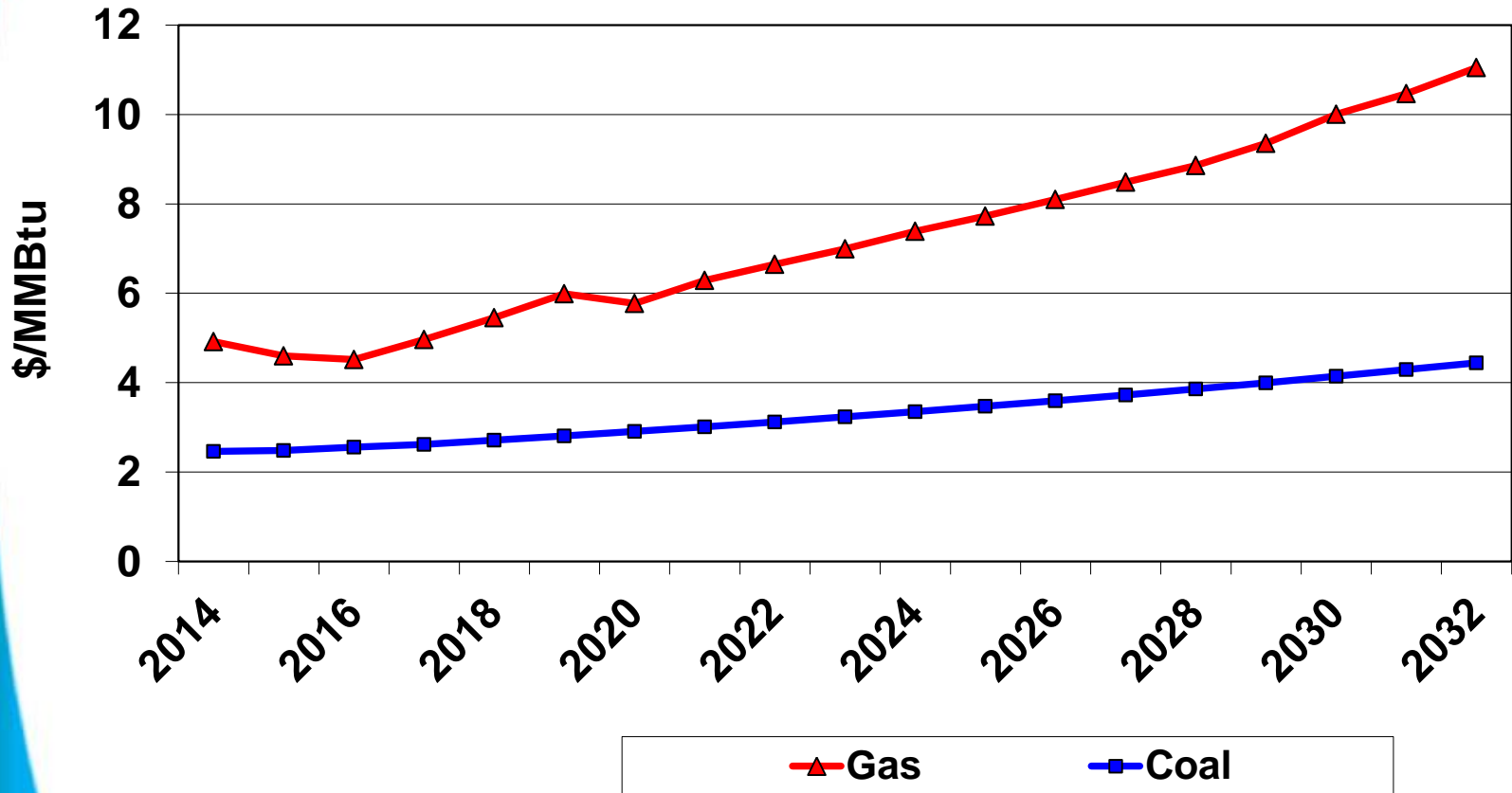
Block 2 – Major Cost Impact

- Redispatch from Coal to Natural Gas causes most of the economic impact of proposed rule.



Block 2: Redispatch Coal to Gas

Fuel Price Forecast



Gas forecast after 2018 based on forecast from the Energy Information Administration

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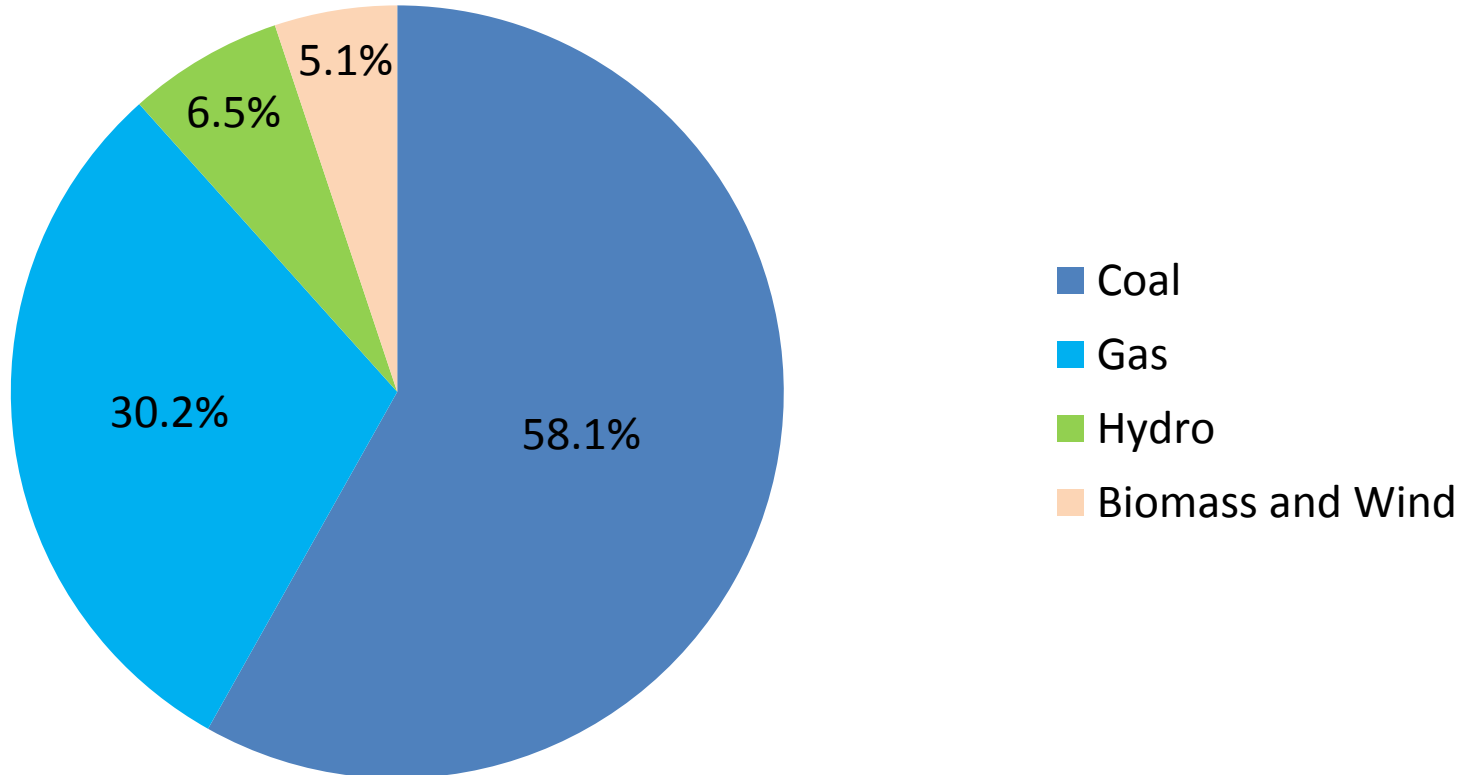


Block 2: Redispatch Coal to Gas

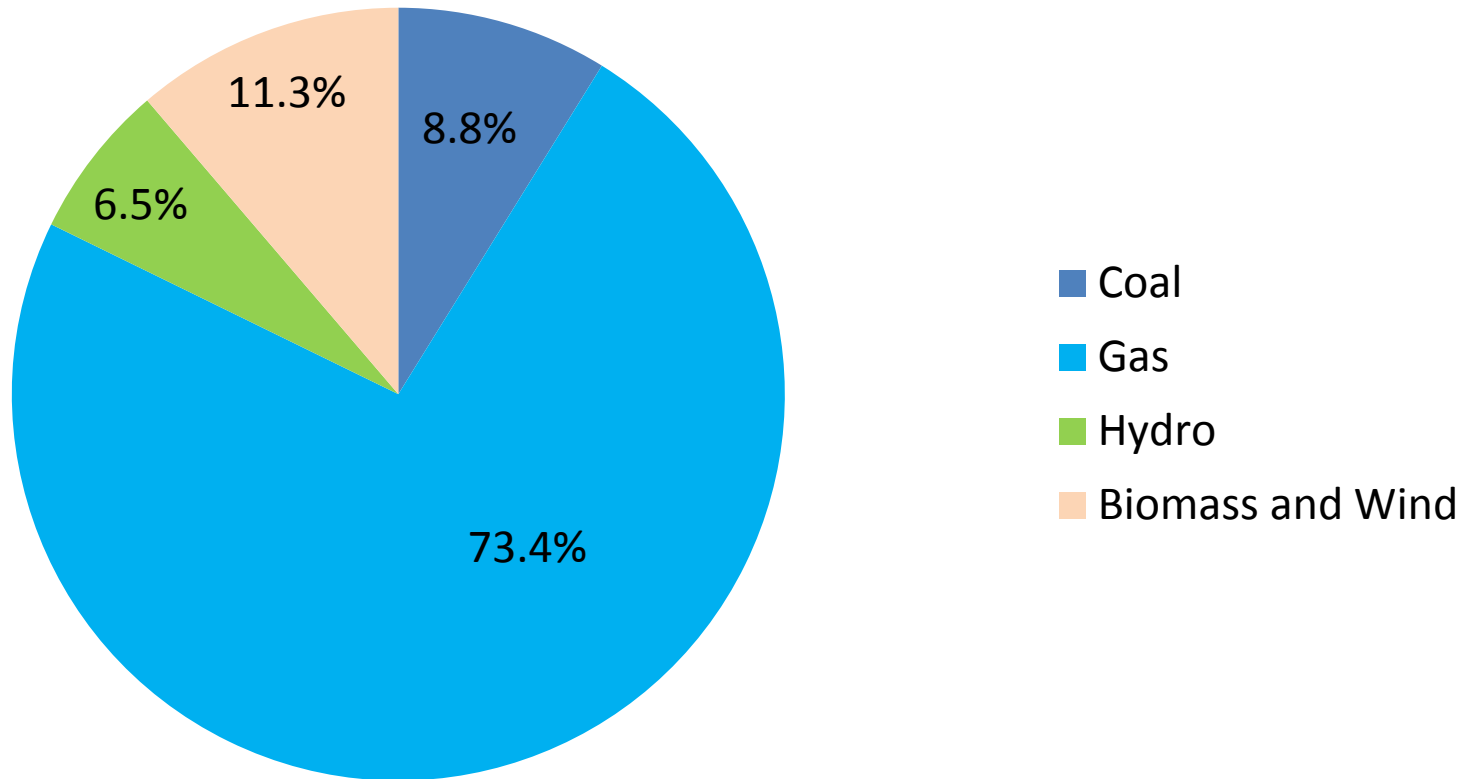
- **Cost to AECC alone:
\$74 million/year in 2020 increasing to
\$184 million in 2030**
- **Likely loss of most affordable, most
reliable units**
- **EPA made no attempt to consult with
FERC about the rule's impacts to the
reliability of the electric grid.**



2020 Generation Mix, Base Case



2020 Generation Mix “Primary Scenario”





Another Impact of Redispatch

- ◆ EPA's analysis of the rule's impact assumes that 3,700 MW of Arkansas' 5,500 MW of coal capacity will be retired by 2020, the effective date of the rule.



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White Bluff Plant

1,237 jobs depend on it





Unemployment rates by county, not seasonally adjusted, Arkansas May 2014

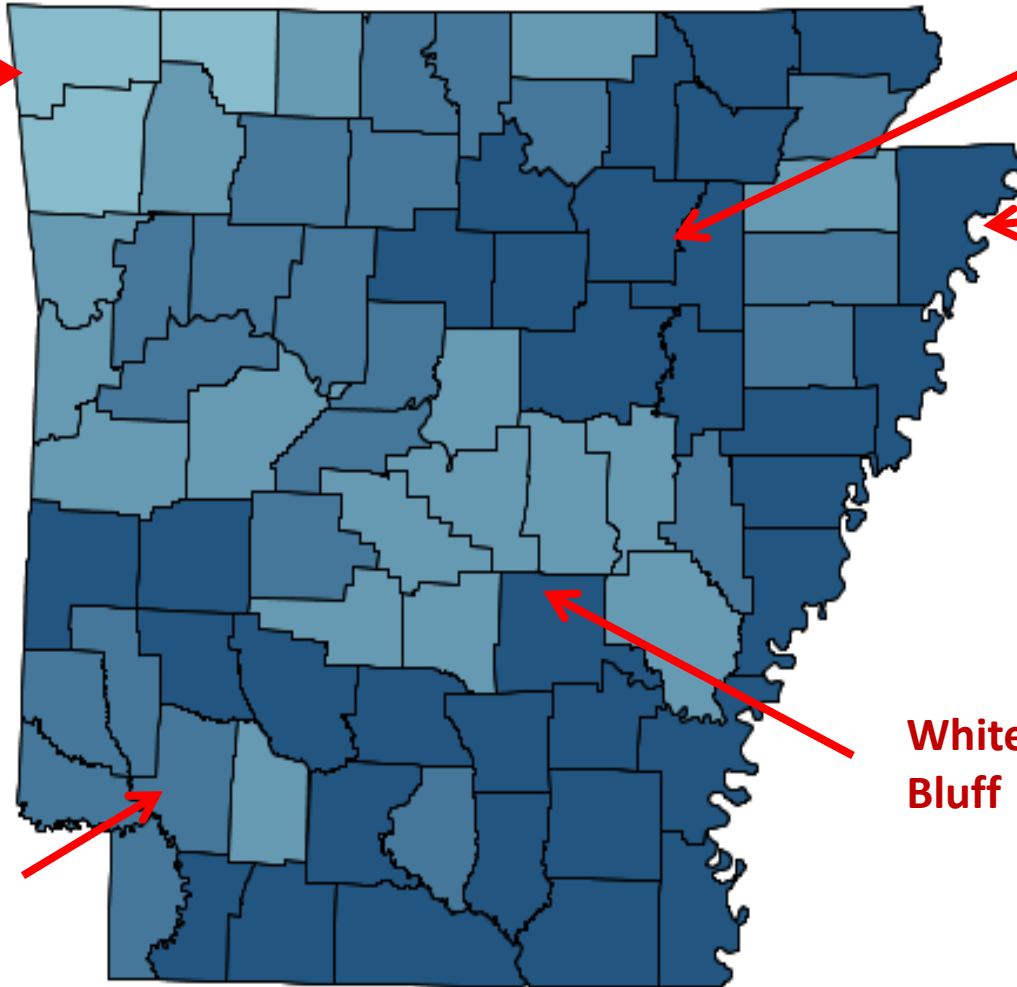
Flint Creek



Independence



Plum Point



unemployment rate(%)	
10.0 to 60.0	(Darkest Blue)
7.0 to 9.9	(Dark Blue)
6.0 to 6.9	(Medium-Dark Blue)
5.0 to 5.9	(Medium Blue)
4.0 to 4.9	(Light-Medium Blue)
3.0 to 3.9	(Light Blue)
0.0 to 2.9	(Lightest Blue)

White Bluff



Turk





What will the ratepayer see?

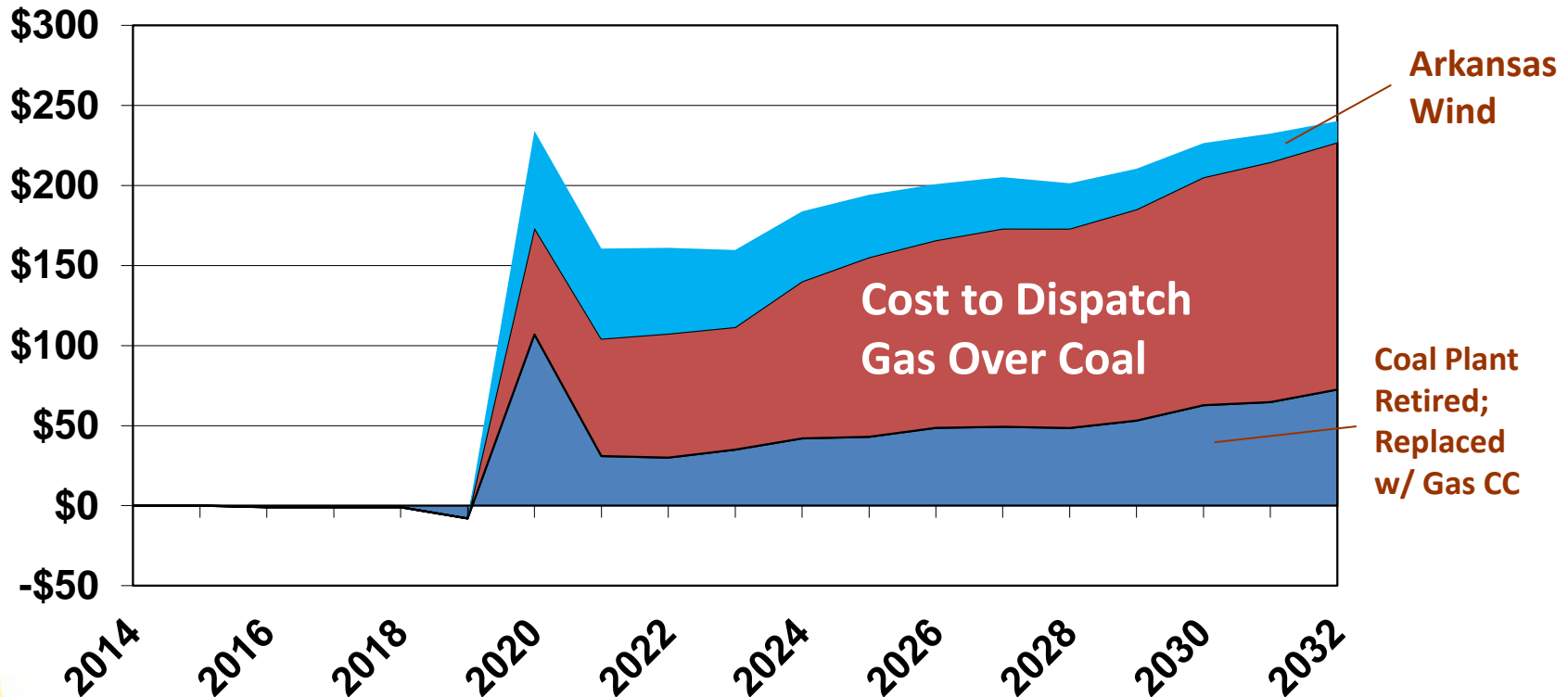


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Increase in Annual Residential Cost, Effect of Clean Power Plan: “Primary Scenario”

*Increase in Annual Cost to
Homeowners of \$150 to \$250*



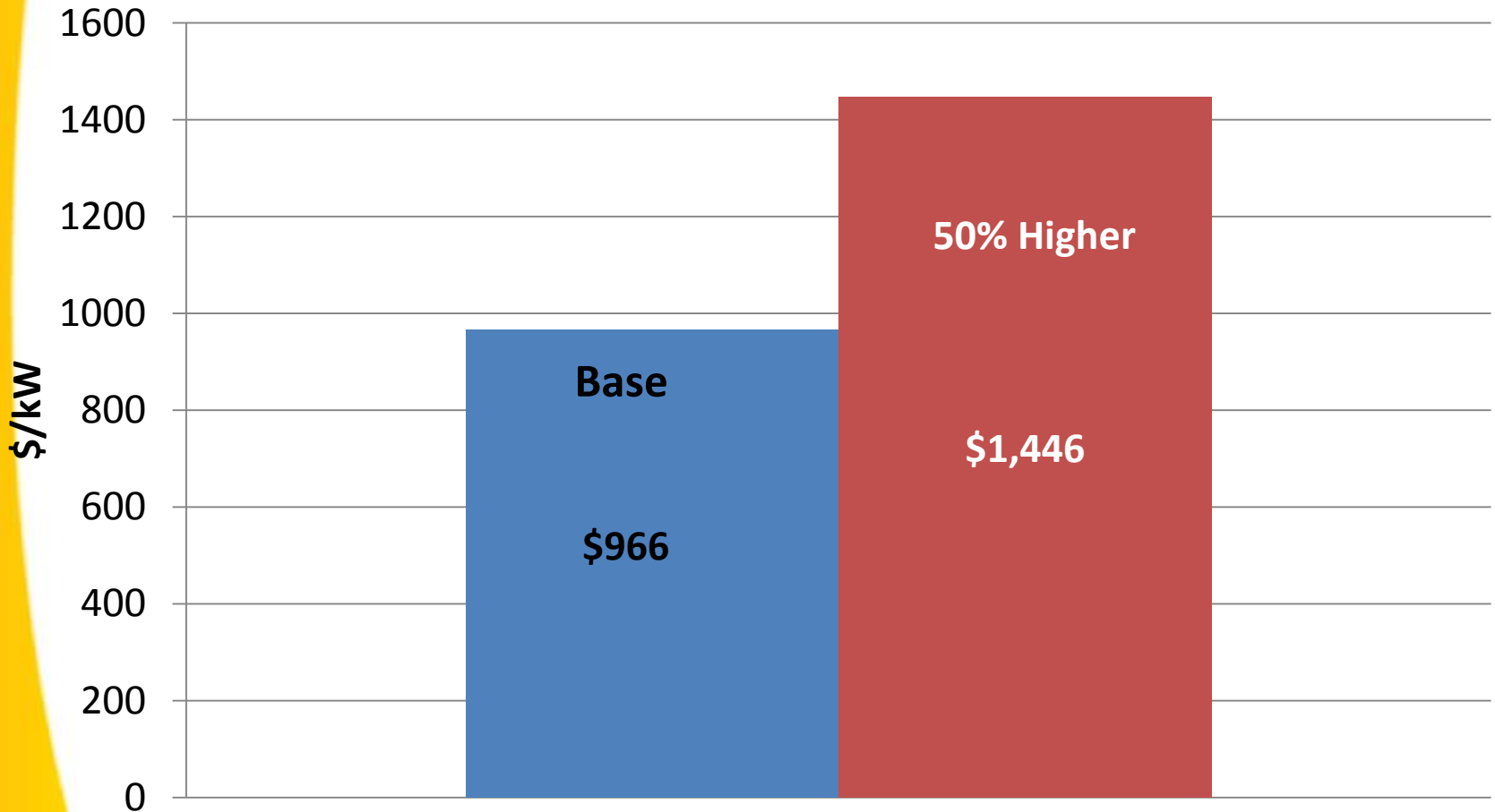


“Sensitivity Case” Scenario

- The Clean Power Plan will result in a significant need for new gas combined cycle capacity to replace retired coal plants. Sensitivity Case has **capital cost of 2020 gas combined cycle plant 50% higher**. This is based upon previous experience when during the late 1990’s and early 2000’s high demand for CCGT plants caused price spikes for installed capacity.
- The Clean Power Plan will require electric utilities to rely more heavily on gas, including the dispatch of gas ahead of coal. Increased gas demand will increase price. Sensitivity Case has a **gas price increase of \$1/MMBtu**.

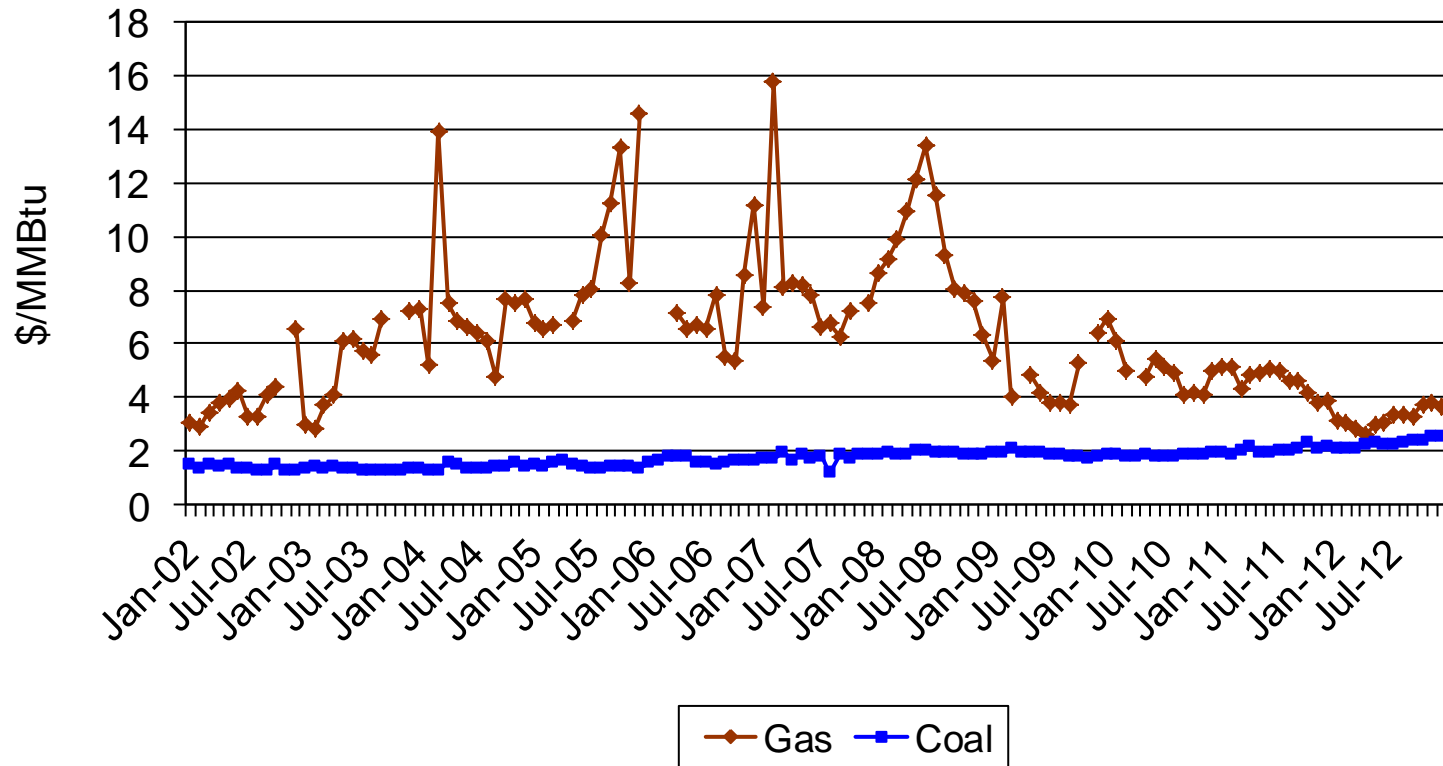


Combined Cycle 2020 Capital Cost (\$/kW)



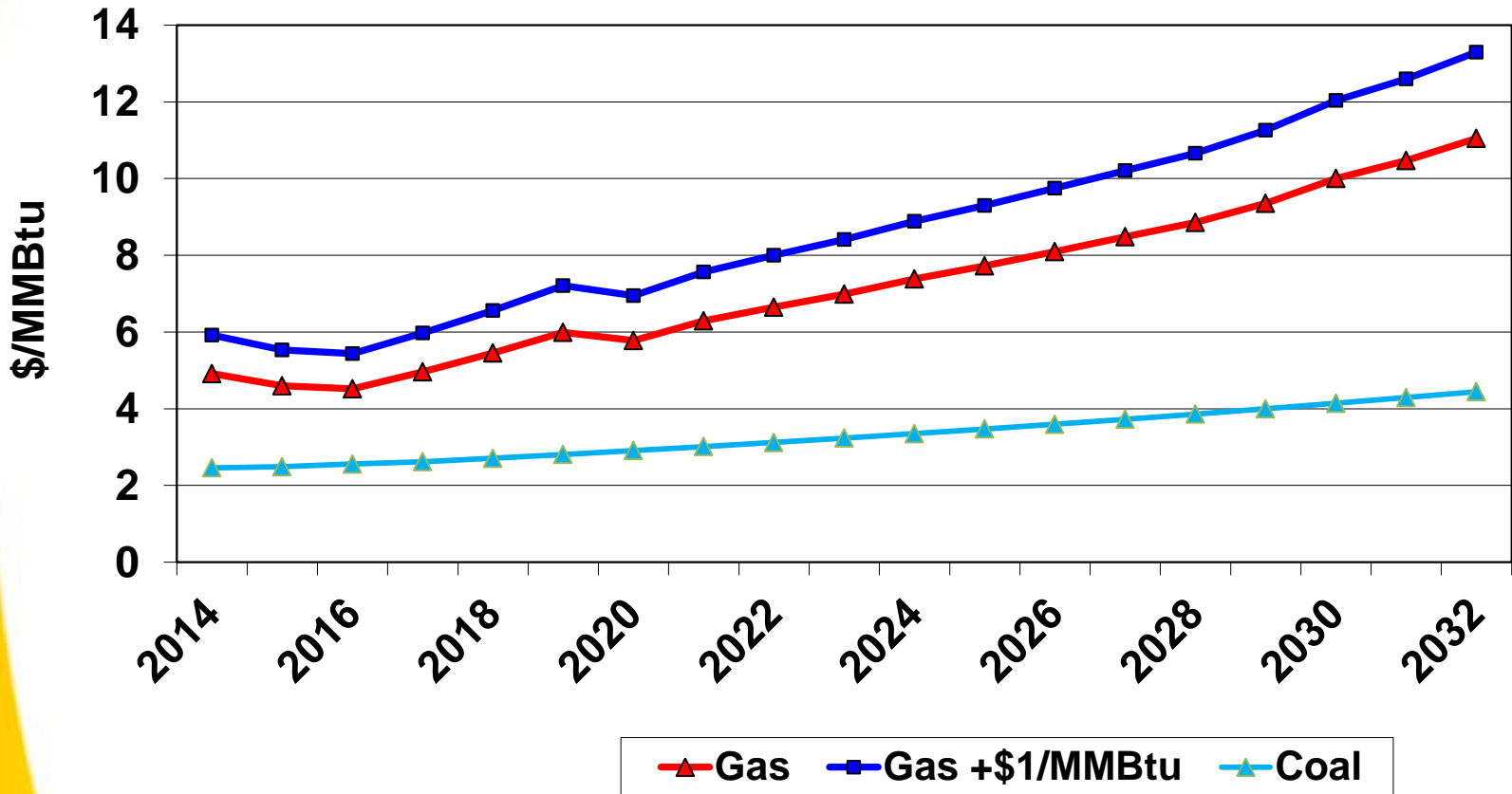


Historical Gas and Coal Costs for AECC Owned Plants





Fuel Price Forecast: Sensitivity Case



Base case gas forecast after 2018 based on forecast from the Energy Information Administration

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Increase in Annual Residential Cost Potential Effect: Sensitivity Case

*Potential Increase in Annual Cost to
Homeowners of \$280 to \$450*

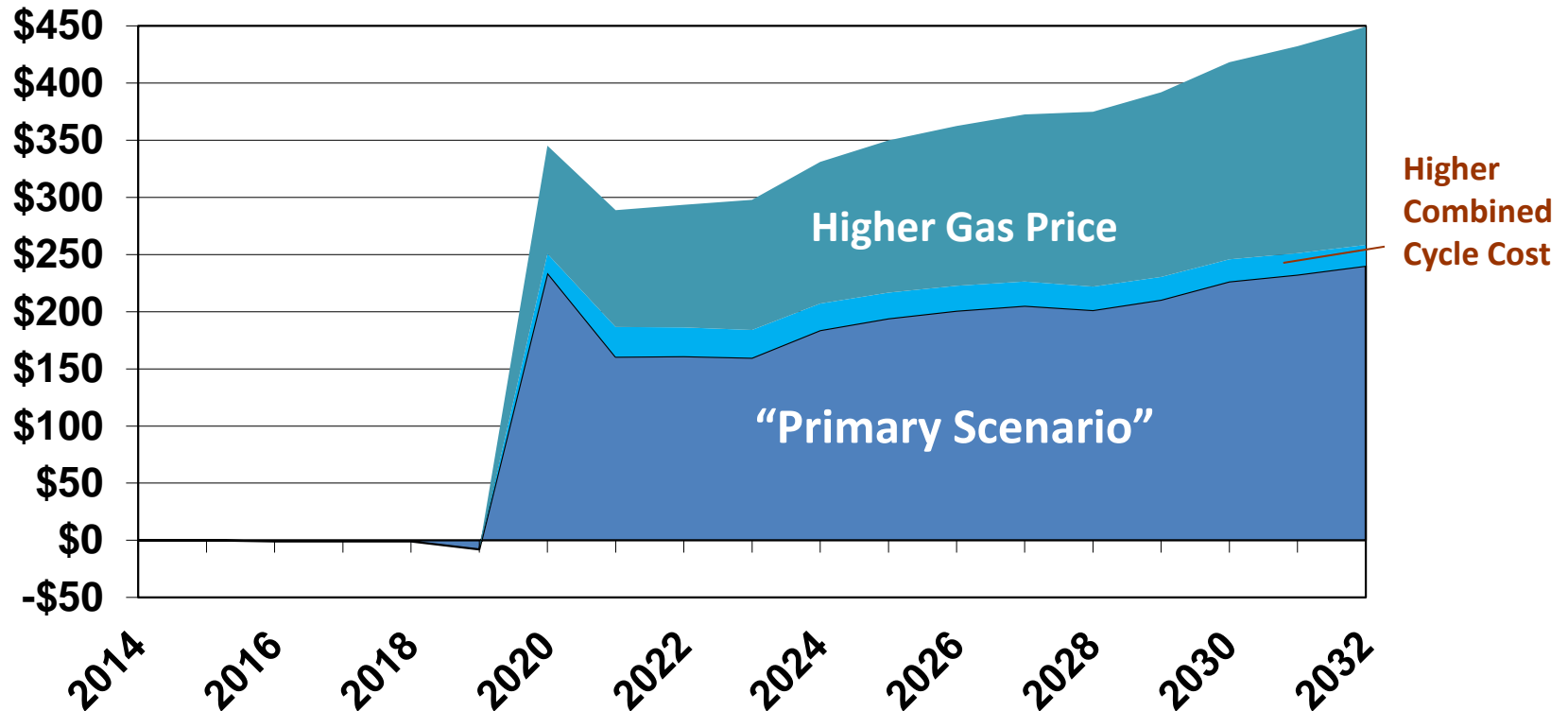
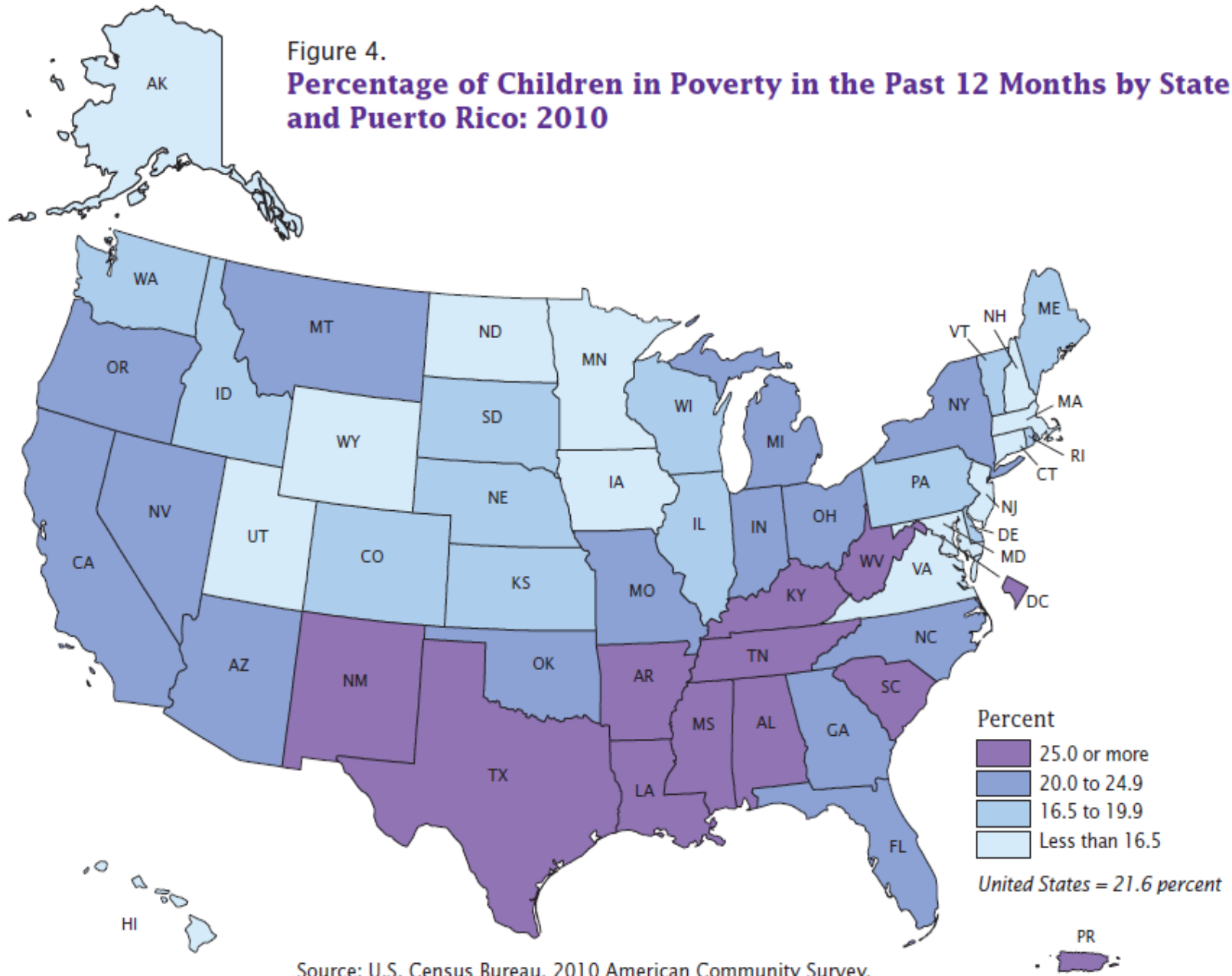


Figure 4.
Percentage of Children in Poverty in the Past 12 Months by State and Puerto Rico: 2010



Source: U.S. Census Bureau, 2010 American Community Survey.



Hunger in Arkansas

KEY FINDINGS FOR THE ARKANSAS FOODBANK

Arkansas Foodbank, through its network of 300 member agencies, serves 280,000 people annually across its 33-county service area. That is ONE in FIVE Arkansans who live in those counties.

- Among all clients, 33 percent are children under age 18 and 11 percent are seniors age 60 and older;
- Among all clients, 52 percent are white, 40 percent are black or African American and 3 percent are Hispanic or Latino;
- 9 percent of adult clients are students;
- 19 percent of households include someone who is a veteran or who has ever served in the military.

CLIENTS STRUGGLING WITH HEALTH ISSUES

- **84 percent of households report purchasing inexpensive, unhealthy food because they could not afford healthier options.**
- 73 percent of households report having to choose between paying for food and paying for medicine or medical care.
- 30 percent of households include a member with diabetes.
- 56 percent households have a member with high blood pressure.

MAKING TOUGH CHOICES AND TRADE-OFFS TO KEEP FOOD ON THE TABLE

- Following are the choices client households reported making in the past 12 months:
- **82 percent report choosing between paying for food and paying for utilities.**
 - 77 percent report making choices between paying for food and paying for transportation.
 - 58 percent report choosing between paying for food and paying for housing.
 - 33 percent report choosing between paying for food and paying for education expenses.

More than **58 percent of households** reported using three or more coping strategies for getting enough food in the past 12 months. The frequency of these strategies among all households include:

- 59 percent report eating food past the expiration date;
- 22 percent report growing food in a garden;
- 38 percent report pawning or selling personal property;
- **84 percent report purchasing inexpensive, unhealthy food;**
- 35 percent report watering down food or drinks;
- 54 percent report receiving help from friends or family.

Choices client households reported making in the past 12 months:

- **82 percent report choosing between paying for food and paying for utilities.**

- **Source: Hunger In Arkansas Report – Arkansas Food Bank**

<http://www.arkansasfoodbank.org/hunger-overcomers/press-room/press-releases>

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Conclusions & Recommendations

AECC recommends that Arkansas comment to EPA that:

- ❖ The 910 lbs CO₂/MWh target set for Arkansas is excessive - and inequitable. A higher target is justified and needed to avoid unnecessary adverse impacts to Arkansas.
- ❖ The proposed “glide path” requires almost all reductions be made by 2020, too quickly, and needs to be phased in.
- ❖ Blocks 1, 3 and 4 are not achievable in all cases and may impose additional burden on consumers.
- ❖ States and RTO’s need more time to develop the mechanisms and agreements required to move away from least cost dispatching to environmental dispatching.
- ❖ Reliability of natural gas supply must be considered as well as the time necessary to permit and construct additional pipeline capacity. FERC must be involved to determine overall reliability impacts to the electric and natural gas systems.