



EPA Carbon Regulations Stakeholder Meeting

Arkansas DEQ/PSC

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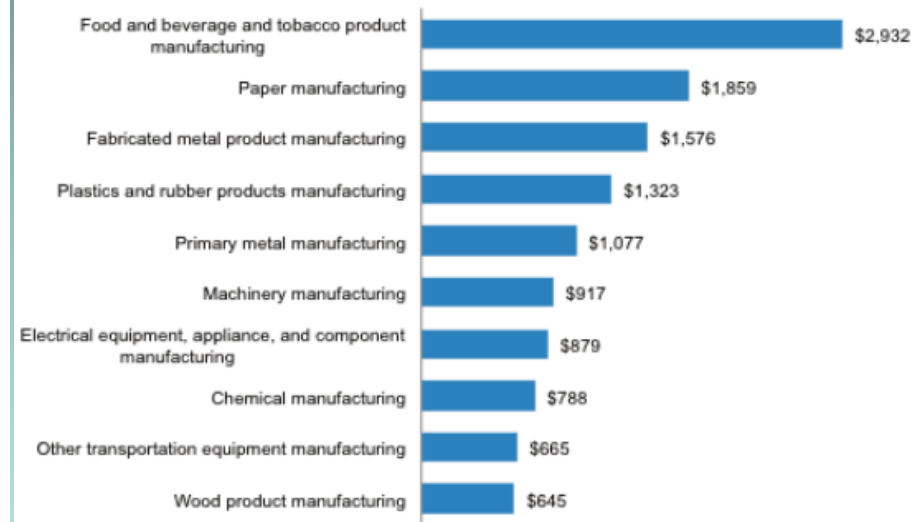
Average U.S. Retail Electricity Prices

Rank	State	Price (c/kWh)	Rank	State	Price (c/kWh)
1	WA	8.93	26	NM	12.01
2	ID	9.64	27	IL	12.02
3	WV	9.71	28	CO	12.23
4	ND	10.02	29	MN	12.24
5	AR	10.07	30	AZ	12.59
6	LA	10.24	31	SC	12.6
7	MT	10.27	32	KS	12.71
8	OK	10.43	33	OH	12.88
9	NE	10.52	34	NV	13.2
10	KY	10.55	35	PA	13.25
11	OR	10.57	36	DE	14
12	WY	10.6	37	MD	14.21
13	UT	10.79	38	WI	14.24
14	TN	10.91	39	MI	14.87
15	SD	10.99	40	ME	15.4
16	NC	11.38	41	NJ	15.48
17	VA	11.4	42	CA	16.48
18	IA	11.51	43	MA	17.63
19	IN	11.77	44	NH	17.99
20	GA	11.83	45	RI	18.08
21	AL	11.83	46	VT	18.18
22	FL	11.84	47	AK	19.84
23	TX	11.89	48	CT	20.18
24	MO	11.91	49	NY	20.62
25	MS	11.98	50	HI	38.04

Source: US Department of Energy

- Arkansas 2012 Total Manufacturing Output: **\$15.6 billion**
- Manufacturing's Share of Total Gross State Product: **14.2%**
- Manufacturing Establishments in Arkansas: **2,689**
- Manufacturing Employment: **152,400**

Top 10 Arkansas Manufacturing Sectors (in Millions of Dollars, in 2011)



Source: National Association of Manufacturers



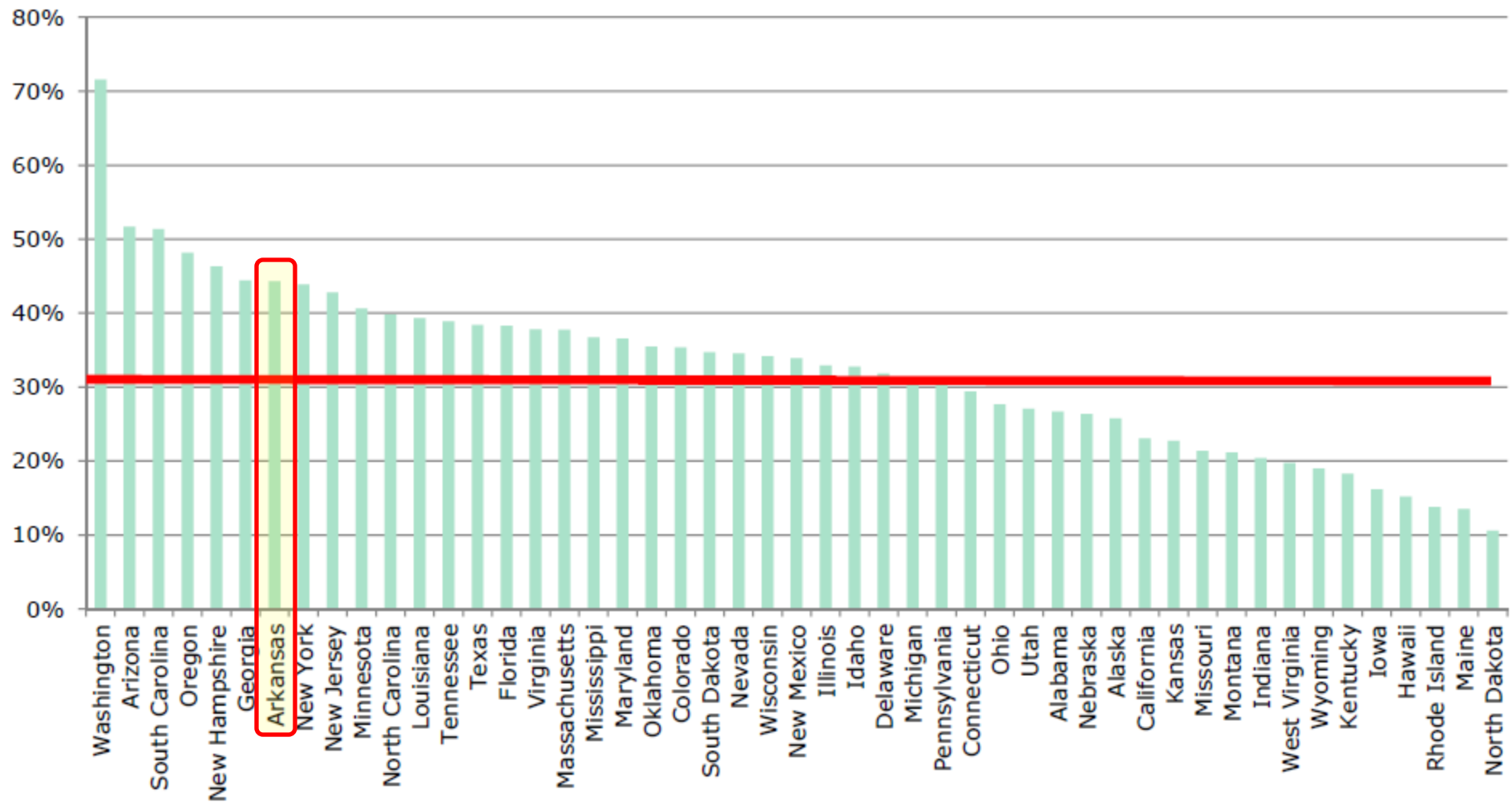
EPA Proposal for Arkansas

- EPA proposes that Arkansas **reduce its carbon emissions *rate* by 45% between 2012 and 2030** (from 1,640 lbs. CO₂ per MWh to 910 lbs. per MWh), and achieve an interim reduction of **41%** averaged over the period between 2020 and 2029.

- EPA projects that Arkansas can achieve these reductions by:
 1. **6% Heat Rate Improvements** at all coal-fired power plants
 2. Increasing the capacity factor of natural gas combined cycle (NGCC) plants from **32% to 70%**
 3. Increasing annual renewable energy generation by **183%** (from 1,660 GWh to 4,708 GWh)
 4. Preventing shutdown of **842 GWh** of “at-risk” nuclear energy (6% of current generation)
 5. Reducing electricity demand **9.71%** through energy efficiency measures

Emissions Reduction by State

Final Goal 2030





● Concerns

- Jobs/costs/electricity affordability
- Electricity reliability
- Stranded assets/investments
- State flexibility
- Technological achievability
- Fairness, disparities between state targets
- Negligible impact on climate
- Impacts well beyond coal and electricity
- Process and timeline



Economic and Electricity Market Impacts

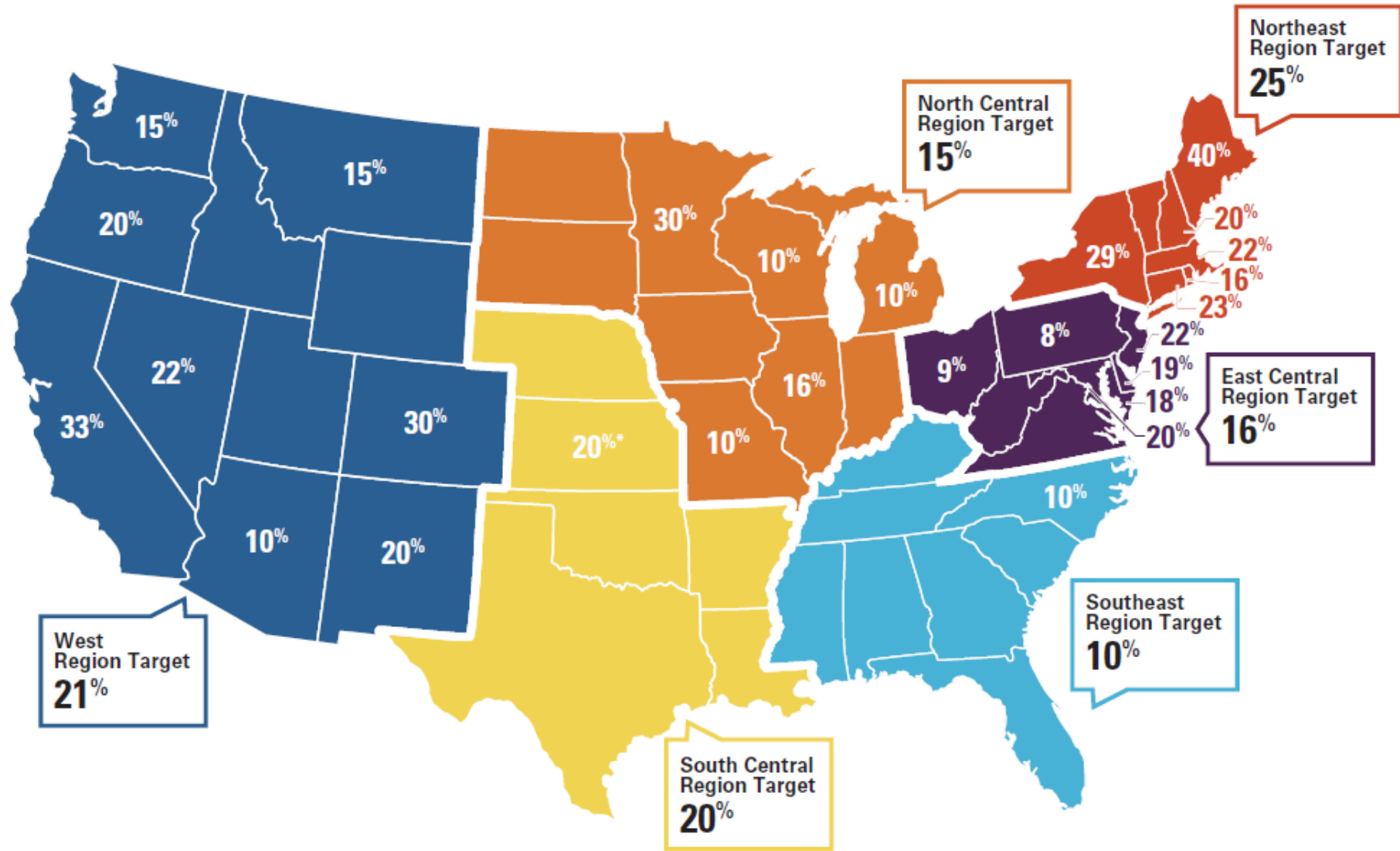
- **Additional detailed and independent analysis is needed, but EPA estimates its rule will result in:**
 - **Nationwide electricity price increases of 6-7% in 2020**
 - 11.7% in SPSO (Westernmost AR); 4.7% in SERC (Eastern AR)
 - **Annual Compliance costs of \$5.4-\$7.4B in 2020, rising up to \$8.8B in 2030**
 - **Coal retirements in 2020 of up to 49 GW nationwide, including more than 7 GW in both SERC-W and the Southwest Power Pool (SPP)**



Is EPA's Rule Truly Flexible?

- EPA Administrator McCarthy on State Flexibility:
 - "There is enormous flexibility in the definition of a state plan, and our ability to look at the timeline for...submitting the plans and achieving the reductions."
 - "There's no one-size-fits-all solution. States can pick from a portfolio of options to meet regional, state, and community needs—from ones I mentioned, or the many more I didn't, and in any combination. **It's up to states to mix and match to get to their goal.**"
- Excerpt from rule:
 - "In developing the building block data inputs applied to each state's historical data to develop the goals, the **EPA targeted reasonably achievable rather than maximum performance levels**. The overall goals therefore represent reasonably achievable emission performance levels that provide states with flexibility to **pursue some building blocks more extensively and others less extensively** than the degree reflected in EPA's data inputs while meeting the overall goals."

EPA Carbon Rule Renewable Targets



Note: EPA's carbon rule assigns each state a renewable energy generation target based on the average of state Renewable Portfolio Standards (RPSs) in 2020 for each region. States without individual percentage targets shown on the map do not have generation-based RPSs.

* Unlike the rest of the country, Kansas' 20% RPS is *capacity-based*, not *generation-based*. However, EPA uses it to set generation targets for the South Central region, significantly inflating individual renewable targets for states in that region.



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Renewable Target Concerns

Excerpt from rule: “*EPA did not include targets that were capacity-based.*”

(SOURCE: Page 4-9 of GHG Abatement Measures Technical Support Document)

EPA’s Renewable Generation Target Inflation, South Central Region

State	2012 Renewable Generation	EPA's 2029 capacity-based target	2029 generation-based target	Difference (GWh)
Arkansas	1,660	4,709	2,872	1,837
Louisiana	2,430	6,892	4,204	2,688
Nebraska	1,347	3,819	2,330	1,489
Oklahoma	8,521	15,579	9,503	6,076
Texas	34,017	85,963	52,437	33,526

Excerpt from rule: “*States within each region exhibit similar profiles of RE potential or have similar levels of renewable resources.*”

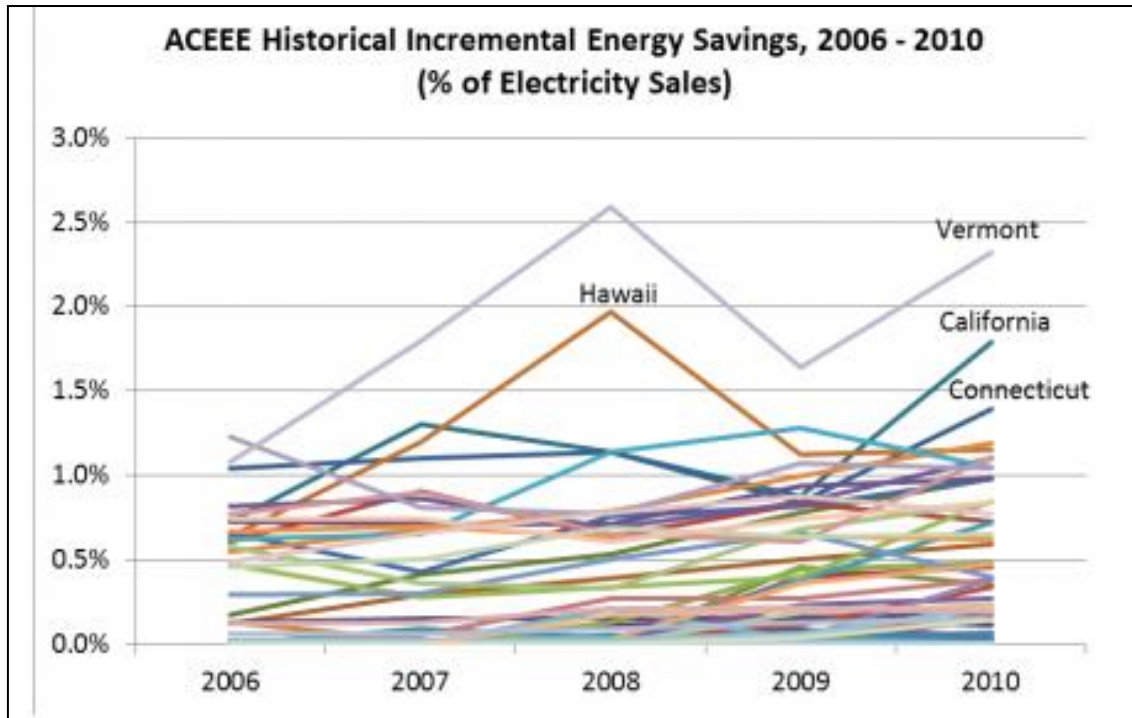
(SOURCE: Page 4-12 of GHG Abatement Measures Technical Support Document)

DOE-NREL Estimated Technical Onshore Wind Potential

State	KM ²	Gigawatts	GWh
Arkansas	1,840	9	22,892
Kansas	190,474	952	3,101,576
Louisiana	82	<1	935
Nebraska	183,600	918	3,011,253
Oklahoma	103,364	517	1,521,652
Texas	380,306	1,902	5,552,400

Efficiency Target Concerns

- Proposed rule calls for 1.5% annual reductions in electricity demand through energy efficiency measures—well beyond recent historical achievements



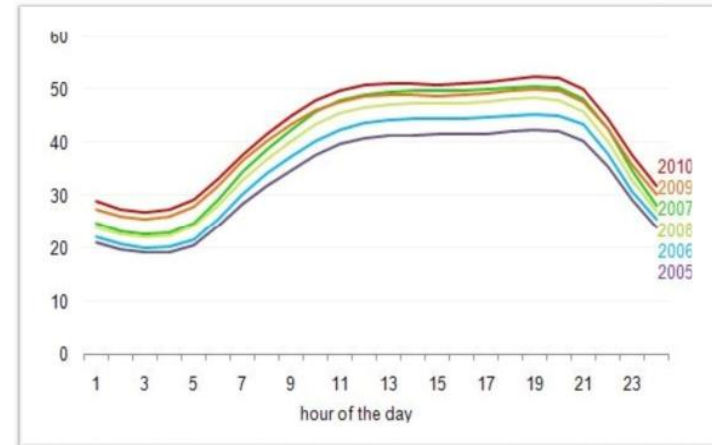
Arkansas Energy Efficiency Savings		
Year	Savings as % of Electricity Sales	MWh savings
2006	0.00%	30
2007	0.01%	6,154
2008	0.11%	50,804
2009	0.14%	59,759
2010	0.11%	55,184

Sources: NERA Economic Consulting summary of American Council for an Energy Efficient Economy data, on behalf of the American Coalition for Clean Coal Electricity

Redispatch and Reliability Concerns

Year	Level	NGCC Capacity Factor
2005	National	32%
2011	National	38%
2012	National	46%
2012	Arkansas	32%
2020 (EPA Target)	Arkansas	70%

Figure 3-3. Average Utilization of Natural Gas Combined Cycle Power Plant Fleet



- FERC Commissioner Phillip Moeller: “Changing from economic dispatch to environmental dispatch is truly a fundamental change that would require a complete redesign of markets to include essentially a carbon fee on any resources that emit carbon dioxide.”
- “I’m concerned that if we move to a system where there’s a lot more gas generation and dispatch: **Are we going to have the pipeline capacity? Can you finance the pipeline capacity to meet that need? It’s a real conundrum. One that we need to take a look at more closely.**”
- Just as the Commission does not have expertise in regulating air emissions, I would not expect the EPA to have expertise on the intricacies of electric markets and the reliability implications of transforming the electric generation sector. Hence **I reiterate my call for a forum to publicly discuss the extent of reliability challenges under the proposal and potential solutions to these challenges.**



Additional Concerns

- **Heat Rate Improvement achievability (building block one)**
- **EPA selection of 2012 baseline year and accounting for newly built coal plant.**
- **Relationship with other regulations (ozone)**

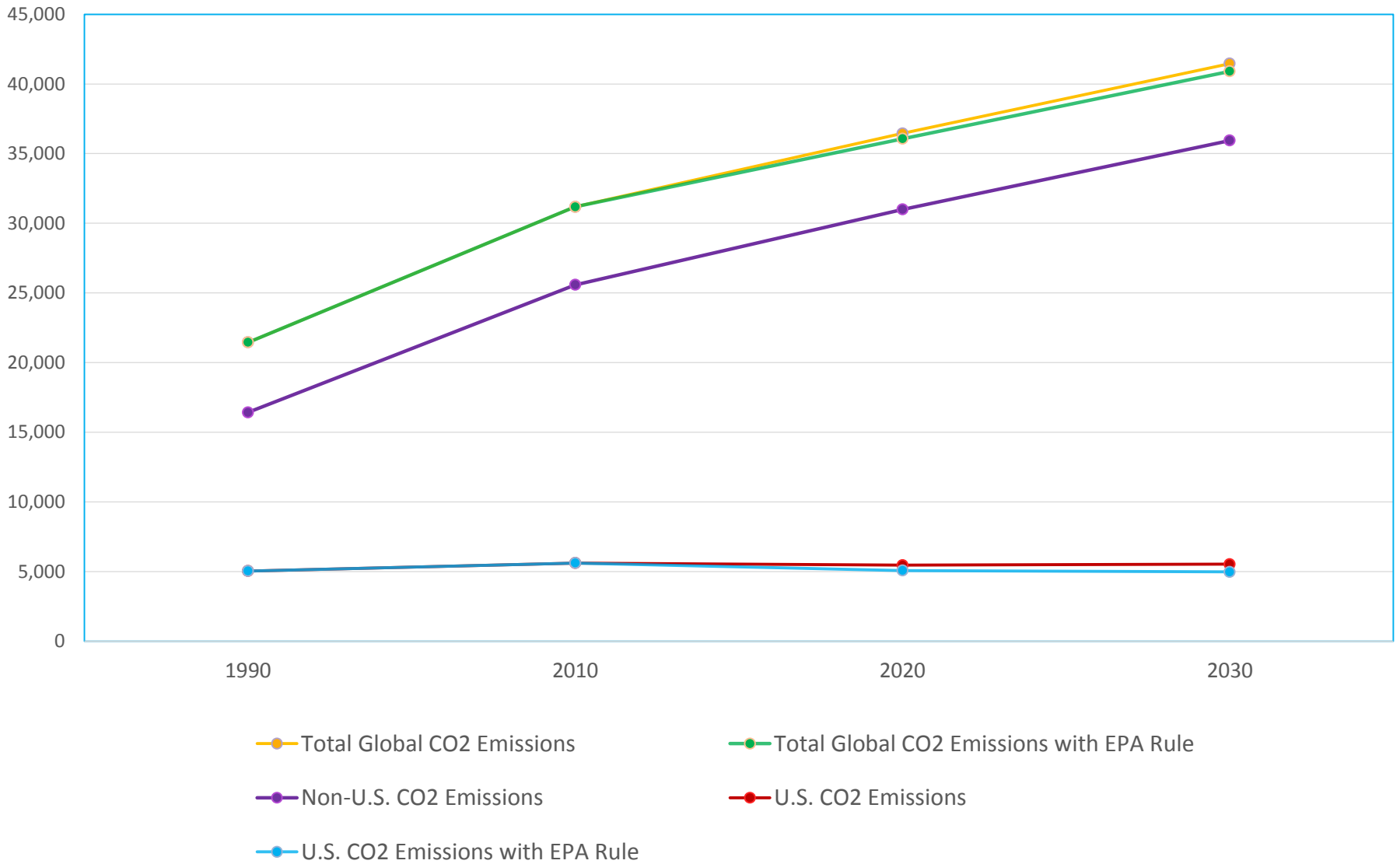


Global Context

- Non-U.S. CO₂ emissions are projected to increase **55 percent** between 2010 and 2040.
- In 2030, the reductions from EPA's rule would offset the equivalent of just 13.5 days of CO₂ emissions from China.
- Because U.S. businesses compete on a global scale, the electricity and related price increases resulting from EPA's rule will severely disadvantage energy intensive, trade-exposed industries such as chemicals, manufacturing, steel, and pulp and paper. **Such circumstances would not actually serve to reduce carbon emissions, but instead simply move them to other countries that have not implemented similar restrictions.**

U.S. and Global Carbon Emissions Projections

(million metric tons)





Process/Timeline and Authorities

● Timeline

- October 19, 2014: Comment period closes
- June 1, 2015: Rule finalization
- June 30, 2016: State Implementation Plans due (EPA may grant extensions)
- October 30, 2016: EPA approval/disapproval of state plans
- State compliance: ASAP to achieve front-loaded interim target (41% for AR)

● Authorities

- Questions regarding state authorities, entities, and authorizing legislation
- Relationship between state plans, 3rd party entities, neighboring states, etc.
- Absence of EPA “model rule” and Federal Implementation Plan details
- Major questions regarding EPA authority to mandate “outside the fence” measures



Summary/Recommendations

- **We recommend that ADEQ/PSC call on EPA to:**
 - **Extend the regulatory comment period to allow states and stakeholders sufficient time to review and analyze proposal.**
 - **Participate in technical workshop(s) on the rule with states and stakeholders.**
 - **Revise Arkansas' target to ensure equitable treatment among states and allow for true flexibility based on reasonably achievable, cost-effective performance levels at the affected source.**
 - **Work with FERC, NERC, DOE, and other appropriate entities to undertake thorough analysis of the proposed rule's impact on reliability, infrastructure, and electricity markets.**
 - **Extend state implementation plan and compliance period deadlines.**
 - **Describe its proposed model rule and Federal Implementation Plan process.**



THANK YOU!

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