Energy

Environment

Analysis of Potential Quick-Fix Legislative Changes to Address Court Decision

August 28th, 2008
Clean Air Markets Division
Office of Air and Radiation

Human Health

Background

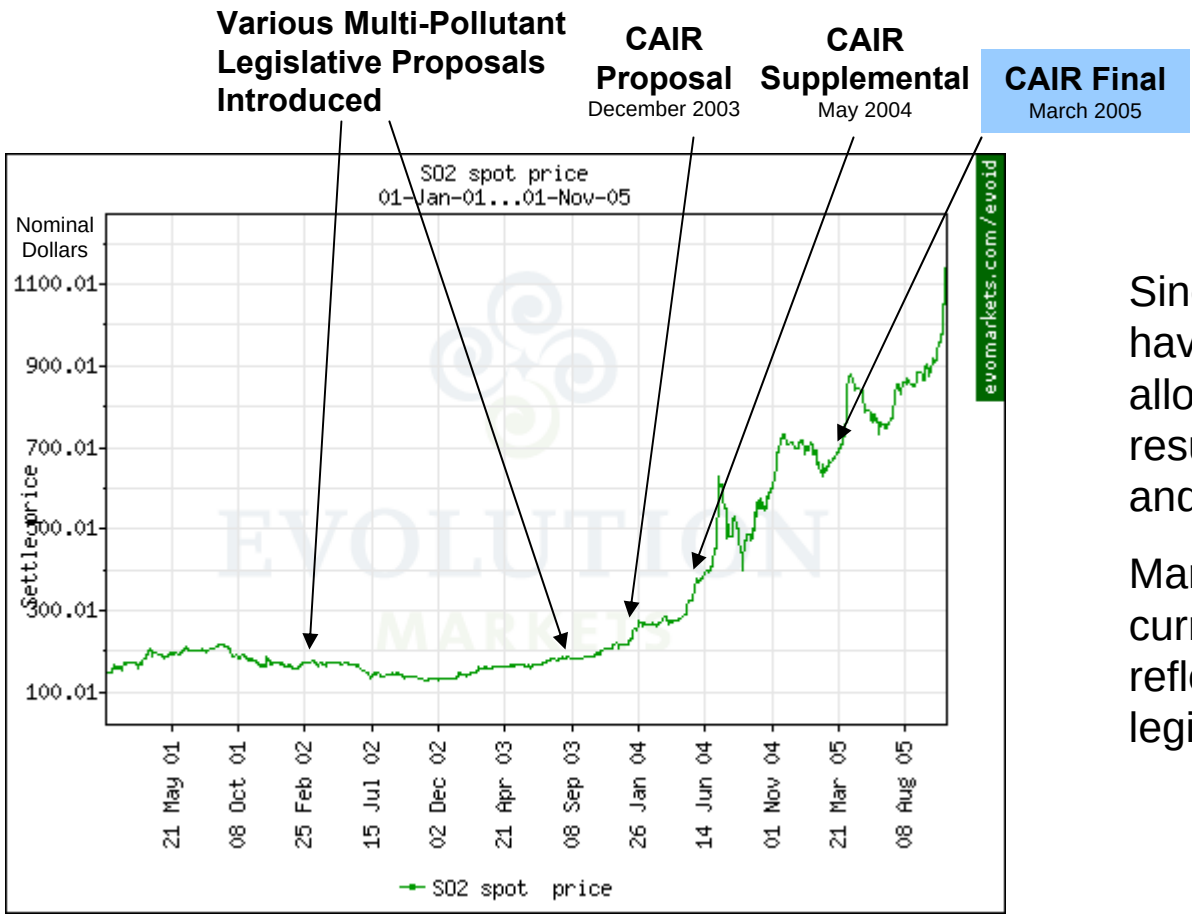
- Following the court decision a range of interested parties (Congress, States, Environmental Community, Industry) began considering short term legislative options to ensure that some of the gains from CAIR were achieved
- Options being discussed include:
  - Legislating Phase 1
    - Short term (2 years or less)
    - Medium term (4-5 years)
    - Long term (until superseded by something else)
  - Legislating full CAIR
- The following presents some analysis that EPA has performed to help inform the discussions

Key Points – SO_2

- By far the greatest health benefits from CAIR come from SO_2 reductions
- Because CAIR is based on a phased trading program, reductions and benefits achieved in Phase I are highly dependent upon market's view of Phase II and beyond
  - The impact that a legislative fix has on Phase I emission reductions varies based on:
    - Length of time for Phase I fix
    - View of what is likely to happen in Phase II
      - Does it use or build upon Title IV? (e.g. under a legislative fix or if the court reconsiders its decision), or does it use mechanisms outside of Title IV (e.g. States alone, EPA without change to court decision)
      - Timing (both when reductions are required and when the requirements are put in place) and levels

Historical Market Expectations

Historically, only definitive action (e.g., publication of CAIR proposal, promulgation of final CAIR) and not work on action (e.g., introduction of legislation) that has moved the market



Source: http://www.evomarkets.com/

Since CAIR was finalized, we have observed some allowance price fluctuation resulting from reconsideration and litigation of CAIR.

Market experts believe that current allowance prices reflect lack of confidence that legislation is likely to pass.

Key Points - NO_x

- NO_x has significant benefits particularly for ozone non-attainment areas
- Because the NO_x Trading Programs depend on banking to a much lesser extent, emission reductions are mostly impacted by level of phase I cap and timing and are much less driven by perceptions about the future
- Costs are likely to increase with short term fixes as companies favor short term solutions (e.g. switching to natural gas, potentially SNCR) with higher operating costs over more capital intensive solutions (e.g SCR) with higher capital costs, but lower overall costs
- Because reductions and benefits are mostly driven by SO_2, EPA's analysis focused on SO_2 and excludes NOx reductions and benefits, including reductions in premature mortality associated with ozone.

Where Do Players Stand? Assessment as of August 22nd

- **Environmental Groups**
  - Leading groups generally favor a CAIR Phase I fix
- **States**
  - Some favor Phase I fix (hoping that it results in enough pressure for tighter phase II)
  - Some favor locking in reductions from full CAIR before considering additional reductions
  - All appear to favor some type of CAIR fix
- **Industry**
  - Some favor full CAIR
    - Generally companies that favor tie in with Title IV, also generally heavy coal
    - Substantial amount of industry (but not all) that favor full CAIR could live with Phase I only
  - Some likely favor Phase I only
    - Some companies that “won” in litigation
  - Some favor more than CAIR
    - Companies without significant coal-fired generation
    - Have not generally weighed in on short-term fix

Background on EPA Analysis – Used New Interim Version of IPM

- Includes key updates from EIA to reflect the Energy Security and Independence Act of 2007 (EISA)
  - Lower electric demand
- Includes updated information about announced retrofits and future requirements (e.g. State rules independent of CAIR, Consent Decrees)
- Increased capital costs
- Better representation of renewables

Background on EPA Analysis – Scenarios Analyzed

- Analysis focused on impacts of alternatives on SO_2 emission reductions and related health benefits in the short-term (2009-2011), before State or Federal action would likely be able to require widespread controls to replace CAIR.
- More specifically, this analysis focuses on impact of structure of fix (e.g. length and whether it focuses on Phase I or includes all of CAIR).
- This is a stylized analysis that could only take a limited set of major factors into account. Other types of actions to make up for the lost CAIR reductions by EPA, States, and industry to add pollution controls after 2008 are not factored in and the reader needs to independently consider those implications when viewing the results.
  - Many States assume the CAIR reductions for their ozone attainment SIPs due in June 2007, Regional Haze SIPS due in December 2007 and PM2.5 Attainment SIPs due in April 2008. The analysis does not include measures they would have to take to make pollution controls federally enforceable or to require additional controls as necessary after 2008. The reader needs to independently consider those implications when viewing the results.

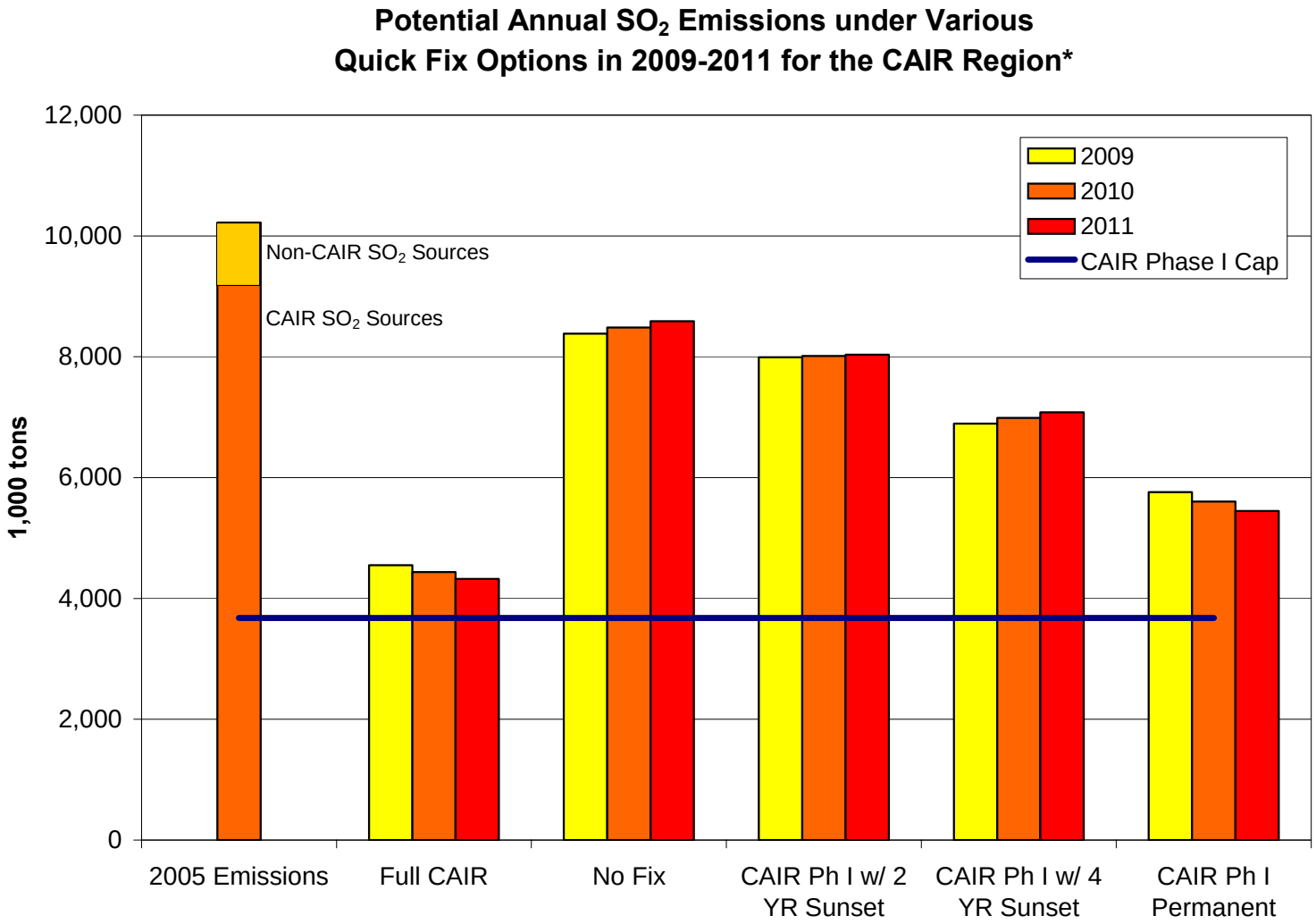
Caveats about Analytic Limitations

- Analysis is dependent upon assumptions about what will happen absent CAIR (e.g. will companies continue to install controls, will they run existing controls, will they continue to use lower sulfur coal etc.)
  - EPA assumed that all controls due to be installed through 2008 were installed even though there may be no Federally enforceable requirement to do so once the court decision's mandate issues.
  - Decisions about post 2008 controls were made by the model based on environmental constraints and cost
- Alternative assumptions are unlikely to change results directionally, but would change the numeric results

Additional Caveats and Assumptions

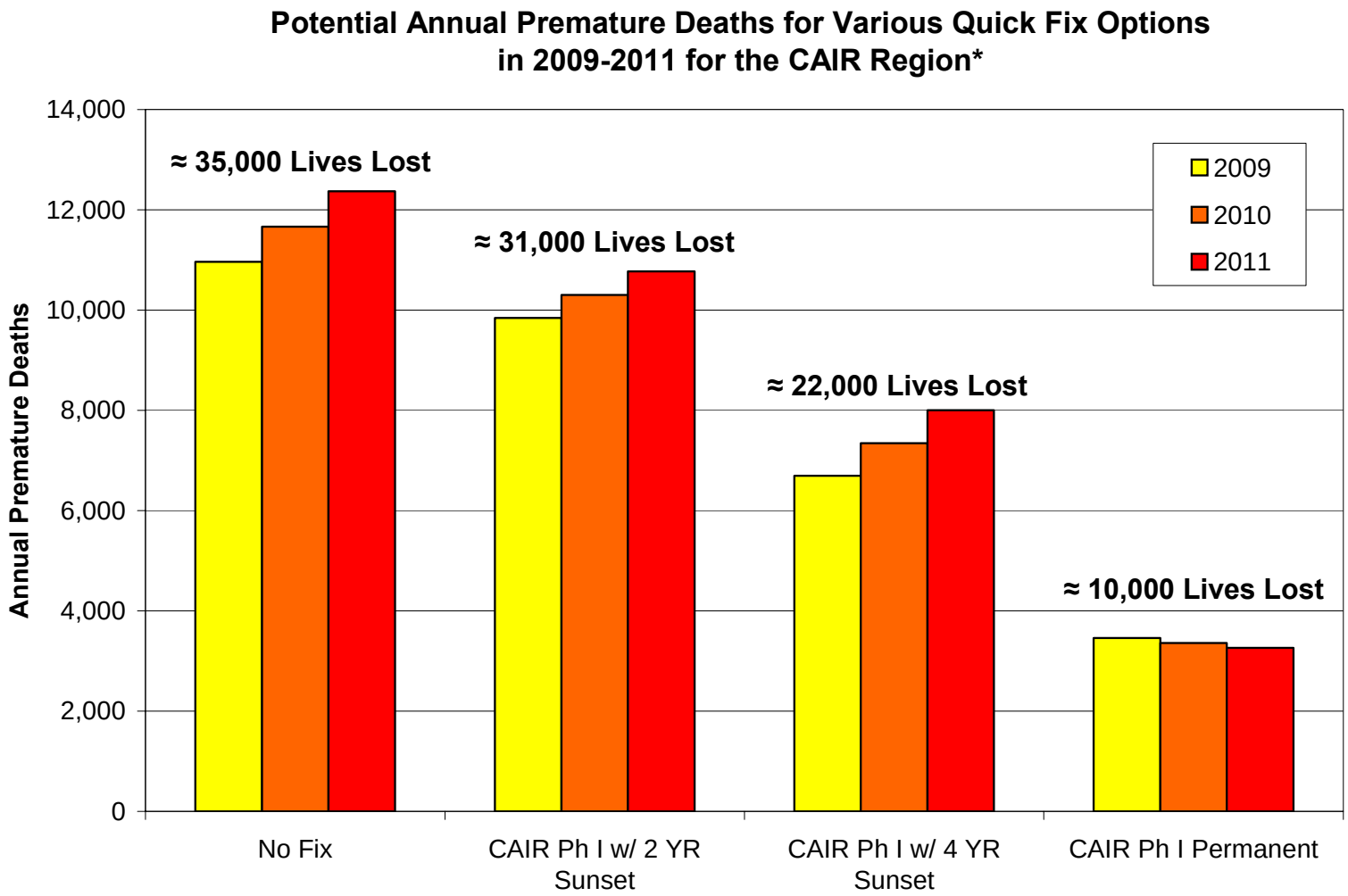
- Analysis assumes that installed controls are turned on and operated at full effectiveness:
  - Because of regulatory and operational constraints it may be difficult to turn off existing SO_2 controls
  - There is likely significantly greater opportunity to run controls at less than full effectiveness
- EPA's BenMAP model was used to calculate incidences of premature mortality avoided per 1,000 tons of SO_2 emission reduction for the CAIR and non-CAIR region:
  - The benefit per ton analysis is founded on the Pope et al. results of the Fall 2005 Multi-Pollutant Analysis of CAIR/CAMR/CAVR
  - The analysis accounts for differences in benefit per ton between 2009 and 2011 due to changes in U.S. population and underlying baseline mortality rates

SO_2 Emissions from the Power Sector in the Short-term (2009-2011)*



* This chart considers forecasted emissions from full CAIR and various quick fix alternatives. It does not factor in independent actions from States or industry to provide added controls without other direct federal requirements. For subsequent years, Clean Air Act requirements could be expected to result in new control measures needed to attain the current NAAQS and implement the more stringent 2006 NAAQS for $PM_{2.5}$ and ozone.

Benefits Relative to CAIR in the Short-term (2009-2011)*



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