

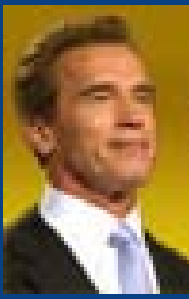
Comments on:
**California's Climate Law:
What's Missing Is What Matters Most**

by W. David Montgomery

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Before the:
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Manifest Destiny

- Leakage is a larger issue than just electricity sector but it can be significantly controlled, even if CA acts alone.
- There is a good chance CA will not act alone:
 - 6 states plus 2 Canadian provinces.
- The virtue of CA acting is that it helps provide a model for national policy.

Key Features in (Draft 5/30) MAC Recommendations

- Economy-wide approach as soon as possible.
- Auction as soon as possible.
- No safety valve
- Generous offsets (serve to contain costs)

Electricity Sector Issues

“First Seller Approach” vs. “Load Based Approach”

- State agency roles in portfolio planning
- End use efficiency – California’s untapped resource
- Consumer protection
- Leakage
 - EPRI, Bushnell et al. suggest 100% leakage
 - CEC Study on assigning out of state generation to sources
 - CCAR protocol assigns 56% of power uniquely
 - 96% of remaining is gas – little chance for contract shuffling
- Incentives – ISO day ahead market
- Accountability and transparency
- National model

Discussion

- What's Missing Matters Most?
 - Yes, but what is said in AB32 has content. California agencies have history of effectiveness.
- Policy Target
 - Above the pay grade of the Market Advisory Comm.
 - Costs should matter to setting policy goal.
 - But we should wake up to the new emerging social norm.
- Civil Wars: Cap and Trade v. Regulation
- Cost Containment Mechanisms

Technology Policies in California are Economic

Low Carbon Fuel Standard – “well to wheels”

Pavley Bill – Tail pipe standard

Senate Bill 1368 –

Electricity procurement standard

Policies promoting energy efficiency –

Decoupling

Shareholder incentives

Can incentive based policies like cap and trade do the whole job?

- Many critiques of efficient markets in specific contexts. Death by a thousand lashes?
- Example: Discount rates –
Consumer irrationality or a test of fitness?
- Example: Regulatory institutions for transmission–
\$50 billion in “costs” with one-year payback?
- Limits of political support for price instruments.
(Stanford Univ./RFF survey)
 - *The US public has a clear preference for action in the electricity sector.*
 - *Preference for standards over cap and trade or taxes.*

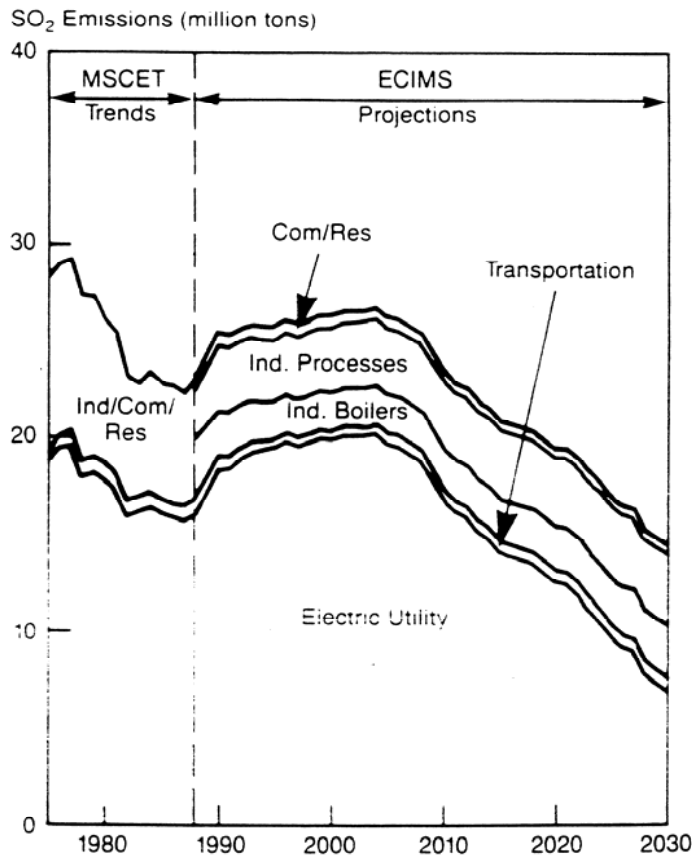
The Role of Cap and Trade with Widespread Technology Policies

- Leave no low cost emission reductions behind

The Big Technological Fix is a Diversion

NAPAP, 1980s. Reference case for electricity generation technology predicted precipitous drop in SO₂ in **2005!** due to large-scale entry of **IGCC** (73GW by 2010).

Figure 4.2-3. Historical SO₂ Emissions by Sector and Reference Case (SC0) Projections



- Even where justified, technology policy should strive to avoid picking winners.

The Lesson for Climate Change

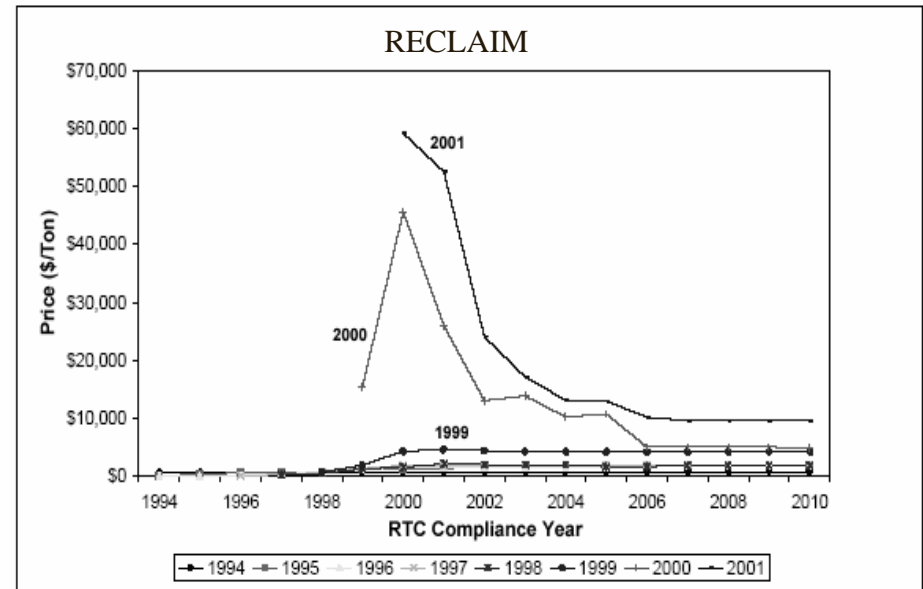
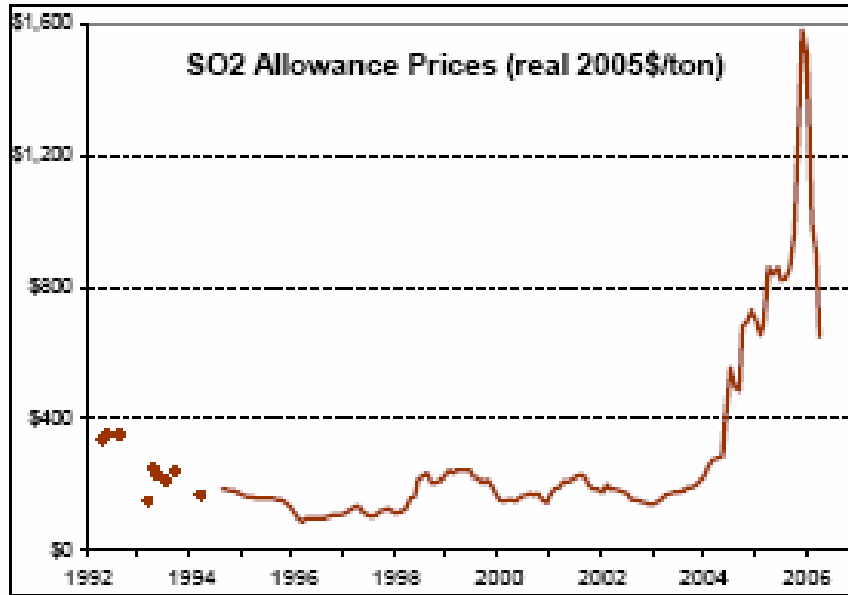
“If only because radical innovations are uncommon and unpredictable, **incremental innovations are the most appropriate policy targets**....Despite their portrayal in the press and elsewhere as critical events, ‘radical’ breakthroughs in scientific or technological knowledge generally are less economically significant than the lengthy series of incremental innovations and improvements necessary to arrive at a cost-effective product that is attractive to users....An appreciation of incremental advances is essential to the formulation of policies for fostering innovation.”

- Alic, Mowery and Rubin, *U.S. Technology and Innovation Policies*, Pew Center 2003.

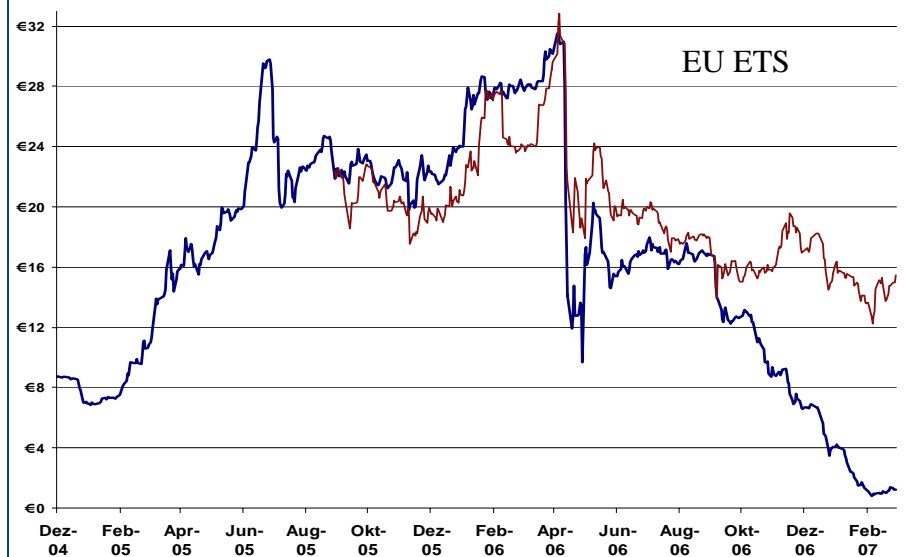
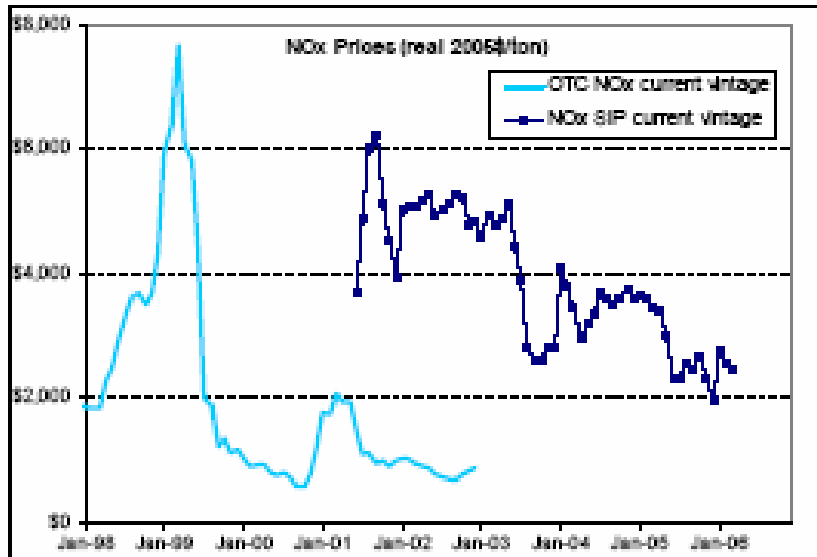
Emission Allowance Markets and Price Volatility

- Almost all emission markets have been successful, but price volatility has been an issue
- Previous programs lack flexibility mechanisms that could limit volatility such as banking, offsets, or safety valves (sometimes for good reasons)

Volatility in Emission Markets



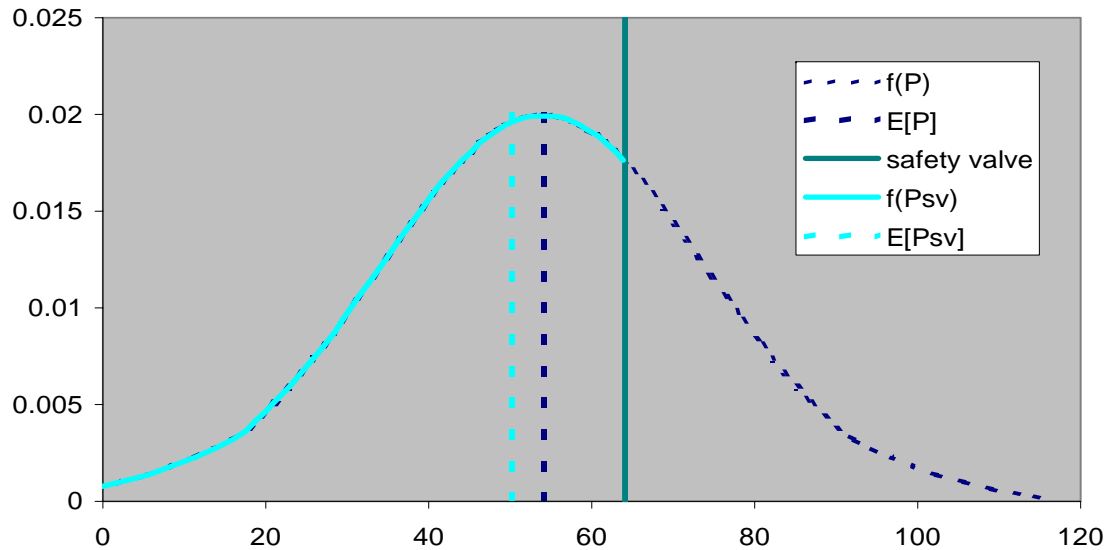
Source: South Coast Air Quality Management District (2002a).



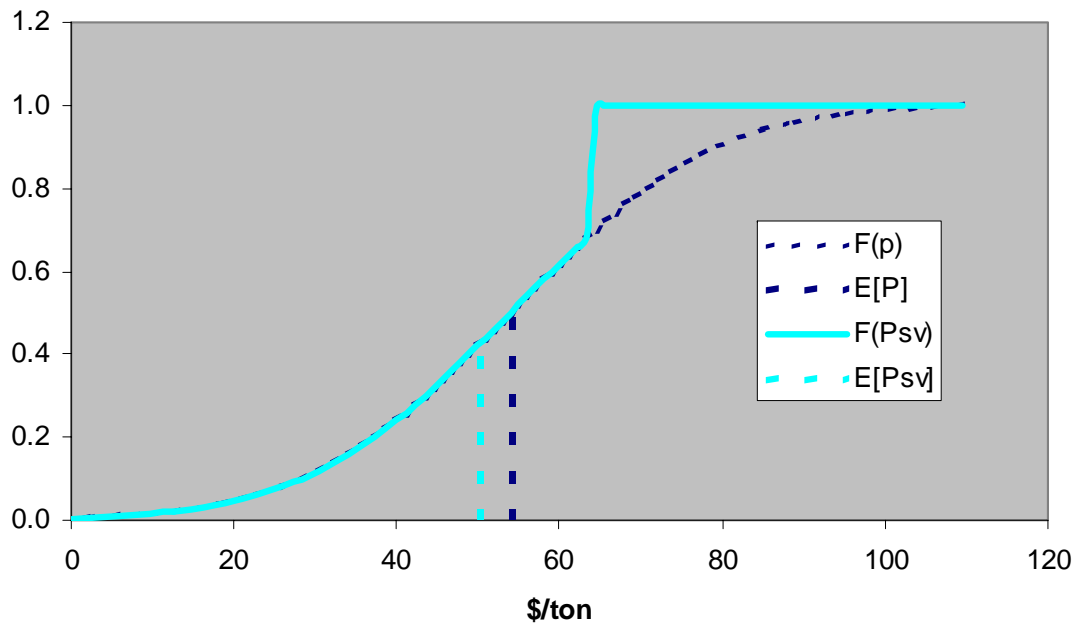
One-Sided Safety Valve Has Unanticipated Consequences

- Environmental advocates have opposed the safety valve because it is thought to **break the cap** and **reduce incentive for innovation**.
 - Potential future profits for investors in clean technologies are positively related to the expected level of future electricity price, which, in turn, depends on the level of the allowance price.
 - If the allowance price is capped then the upside profit potential for investors in clean technology is lower than in the uncapped case.
 - Thus, the one-sided safety valve lowers the investor's expected future profits and thereby limits incentives to invest in clean technologies.
 - Adding a floor on allowance prices may help to offset or reduce some of these unintended consequences. (Burtraw and Palmer 2006).

Naïve Interpretation of Safety Valve



The one-sided safety valve truncates potential high values and shifts the expected value to the left.

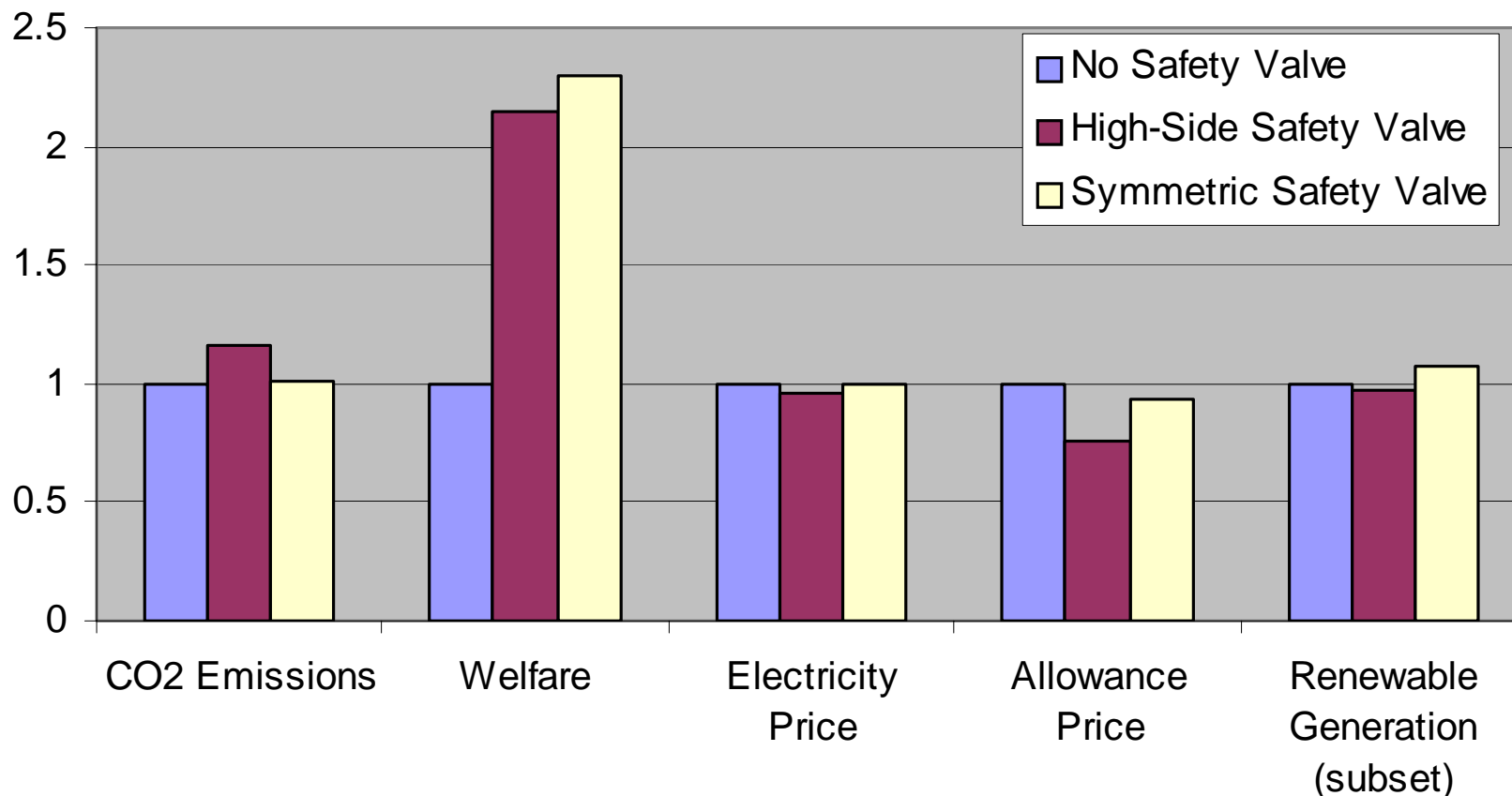


A New Policy for Addressing Uncertainty: Symmetric Cost Management

- A ceiling and a floor on allowance prices.
- The price floor could be implemented as a minimum reserve price in an allowance auction.
- Preserves the incentive for innovation and guard against price volatility making the policy more efficient and politically robust.
- **Expected** emission reductions may be unaffected (depending on functional forms).

Taylor Series Approximations of Equilibrium Measures

**Expected Values of Key Variables Compared to
No Safety Valve Policy in 2020**



- **Disclaimer:**
These views are my own.
As noted, the MAC does not recommend safety valve but does recommend for offsets and consideration of a price floor.

Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California

To be released: June 30, 2007

<http://www.calepa.ca.gov/>