Carbon Caps and the Power Sector

Why Carbon Revenues are More Important Than Carbon Prices

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Main points

- Top down cap and trade relying on price alone is more expensive, less likely to succeed than a **portfolio-based policy menu** (plus a price signal);
- **How we spend carbon revenue** is more important than the carbon price;
- **“Cap-and-invest”** can accelerate cap/trade success & contain program costs;
- **State policies** (EE, codes, portfolio mgt, RPS, etc.) are crucial to national and global success;
- **Congress should support those state policies**, both as “foundation policies” for successful cap-and-trade, and by recycling carbon revenue for long-term consumer benefit.

Policy Tug-of-War

- Most environmental economists believe change requires high carbon prices;
  - And climate legislation is the way to do this
- Consumer advocates (inc. low-income advocates and industrial customers) already want *lower* power and heat bills;
  - And climate legislation only makes the situation worse
- Congress unlikely to force hefty price increases
  - So climate legislation may be stalled or modest in effect, or stalled later

Green Realism: Where will power sector reductions come from?

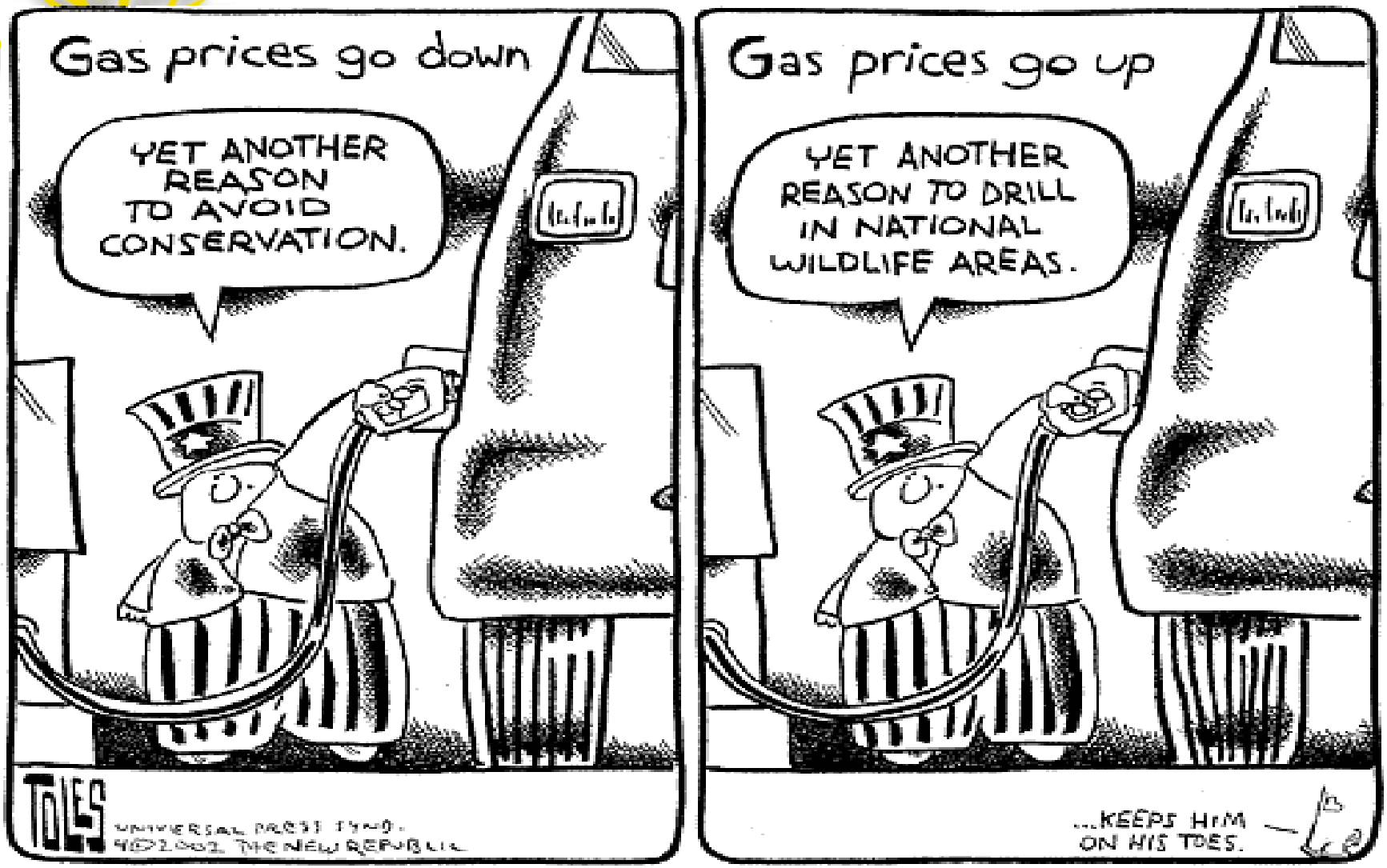
3 main possibilities:

- Reduce consumption
- Re-dispatch the existing fleet
- Lower the emission profile of new generation (including repowering)

For each opportunity, ask:

1. **How many tons will it avoid?**
2. **How much will it cost consumers per ton ?**
3. **What tools – including what kind of carbon caps -- get the best results on #1 & #2 ?**

Problem #1: It's hard to affect ***demand*** (enough) with carbon prices



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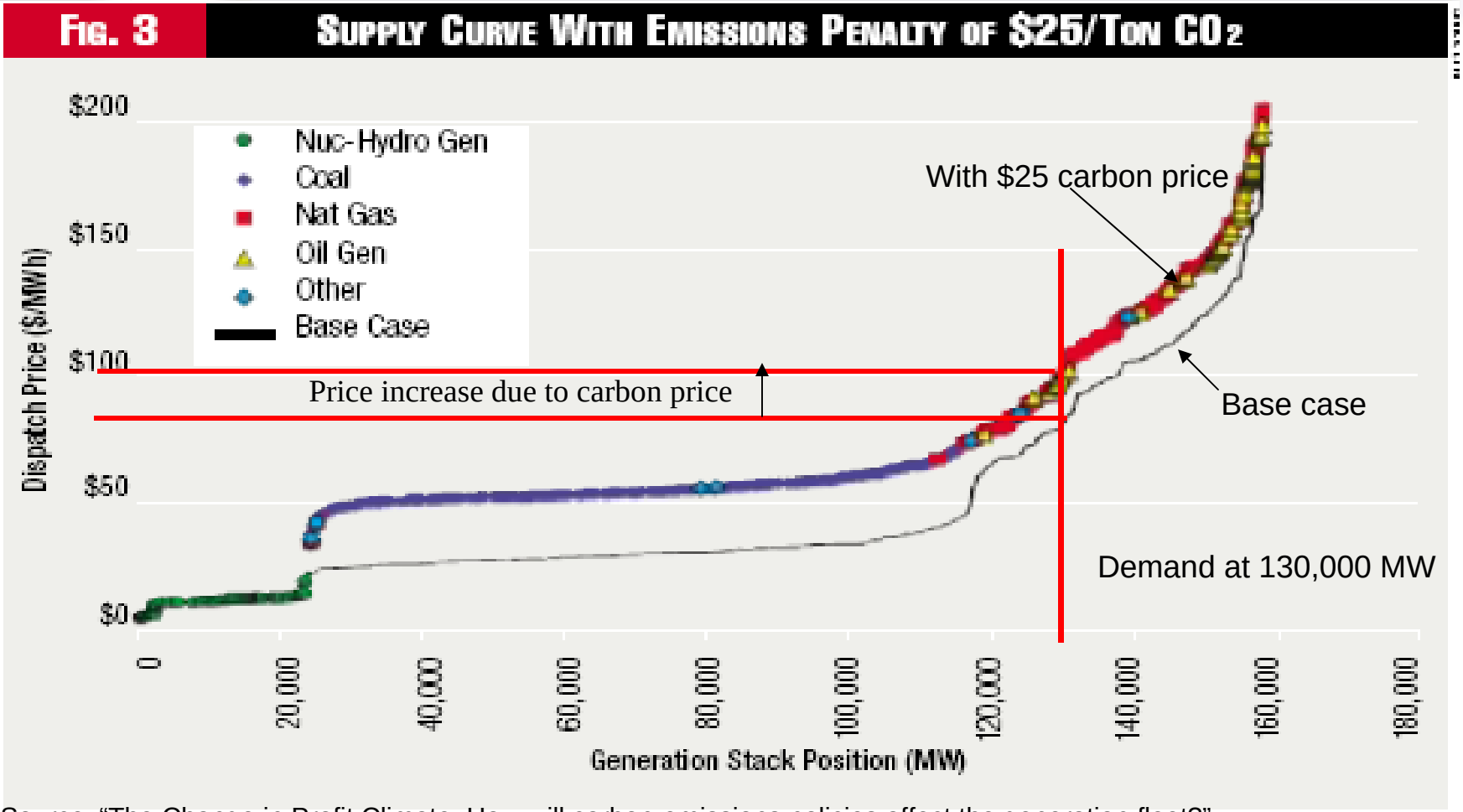
Problem #2: **Carbon taxes and auctions** to sources can increase wholesale power prices with little effect on dispatch or emissions



Source: "The Change in Profit Climate: How will carbon-emissions policies affect the generation fleet?"
Victor Niemeyer, (EPRI) -- Public Utilities Fortnightly May 2007 <some captions, demand and price lines added>

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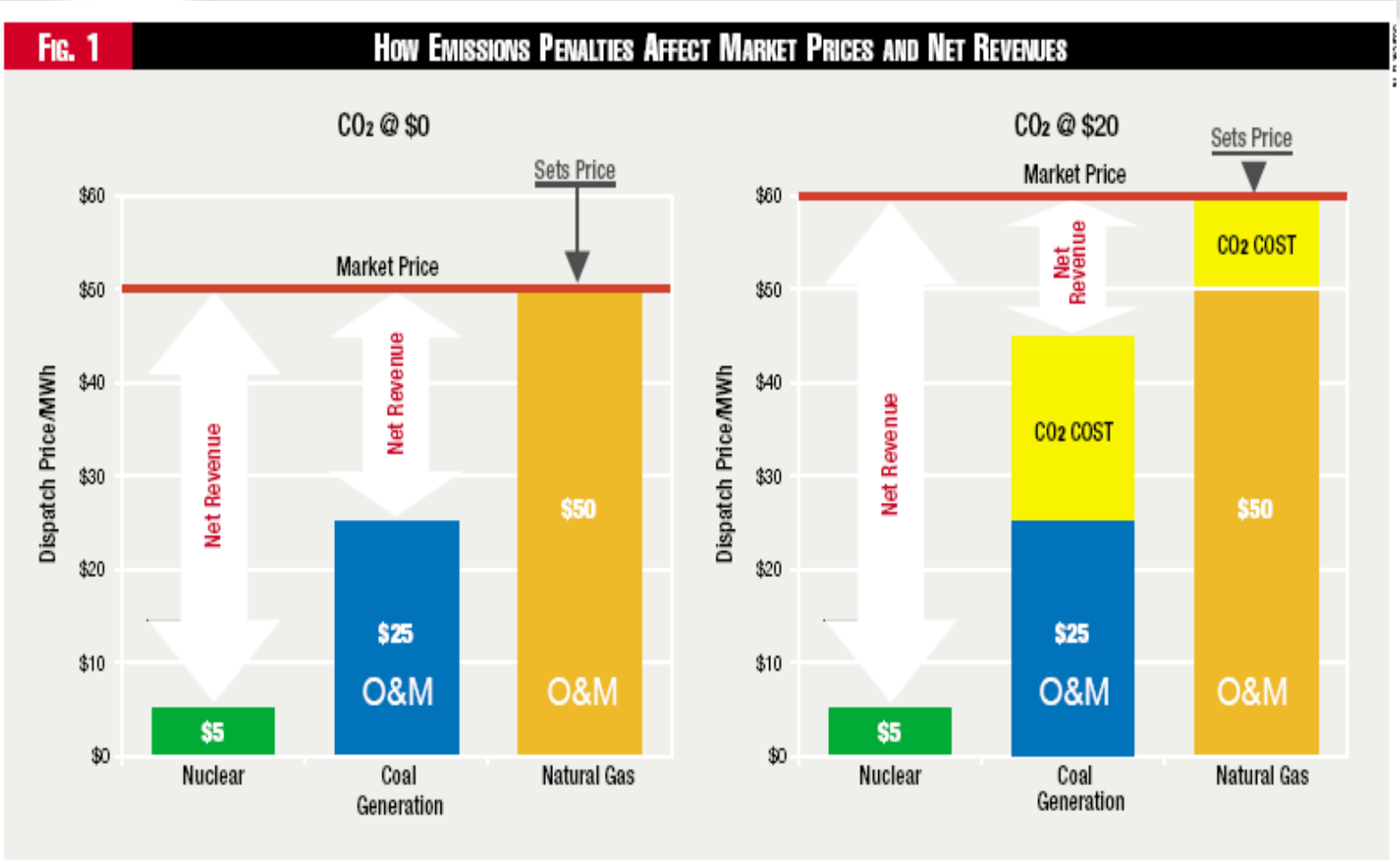
How Emission Charges Can Raise Prices and Create "High Cost Tons"

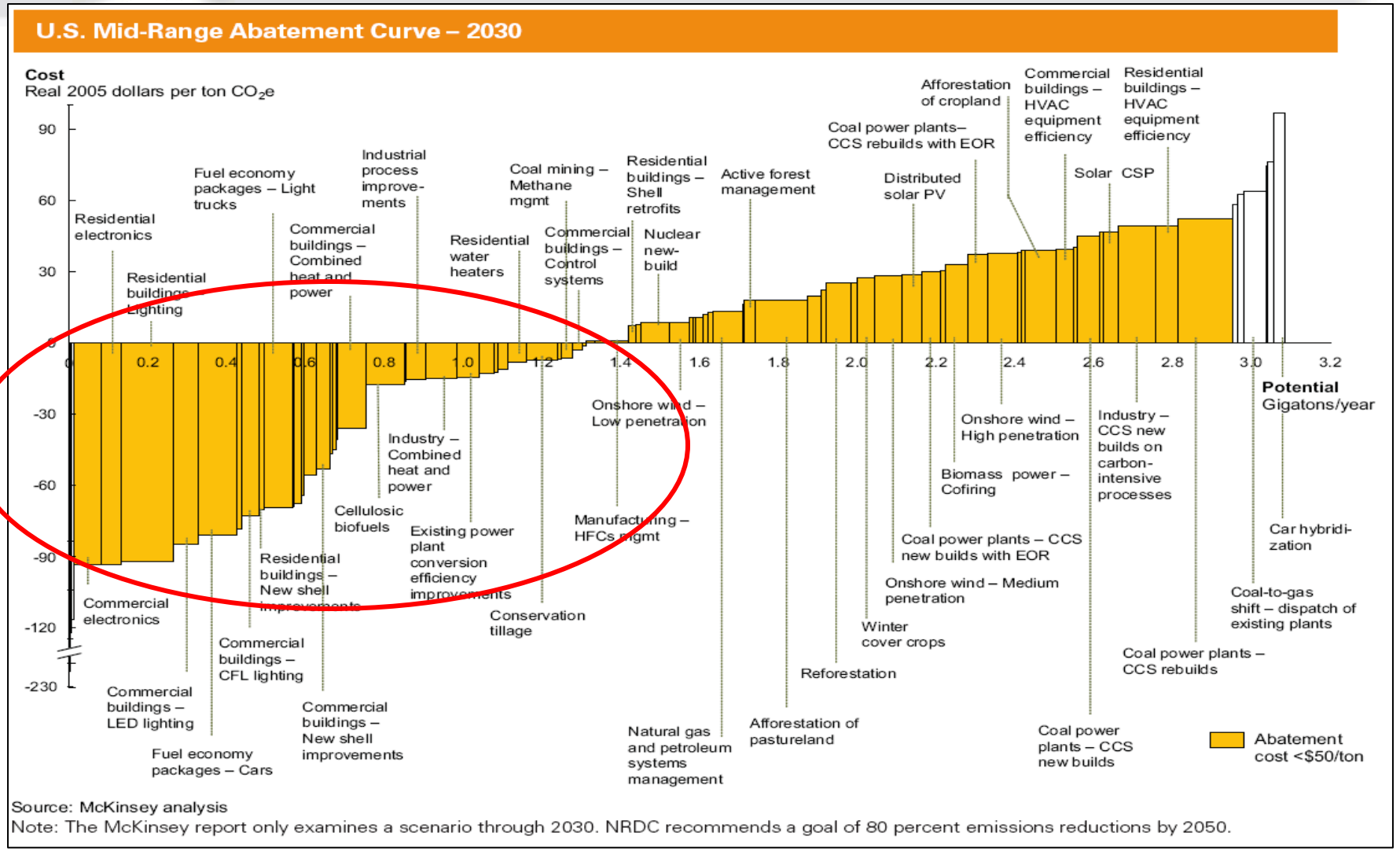


Source: "The Change in Profit Climate" -- Public Utilities Fortnightly May 2007 --Victor Niemeyer, EPRI

Problem #3: The consumer cost of clean generation

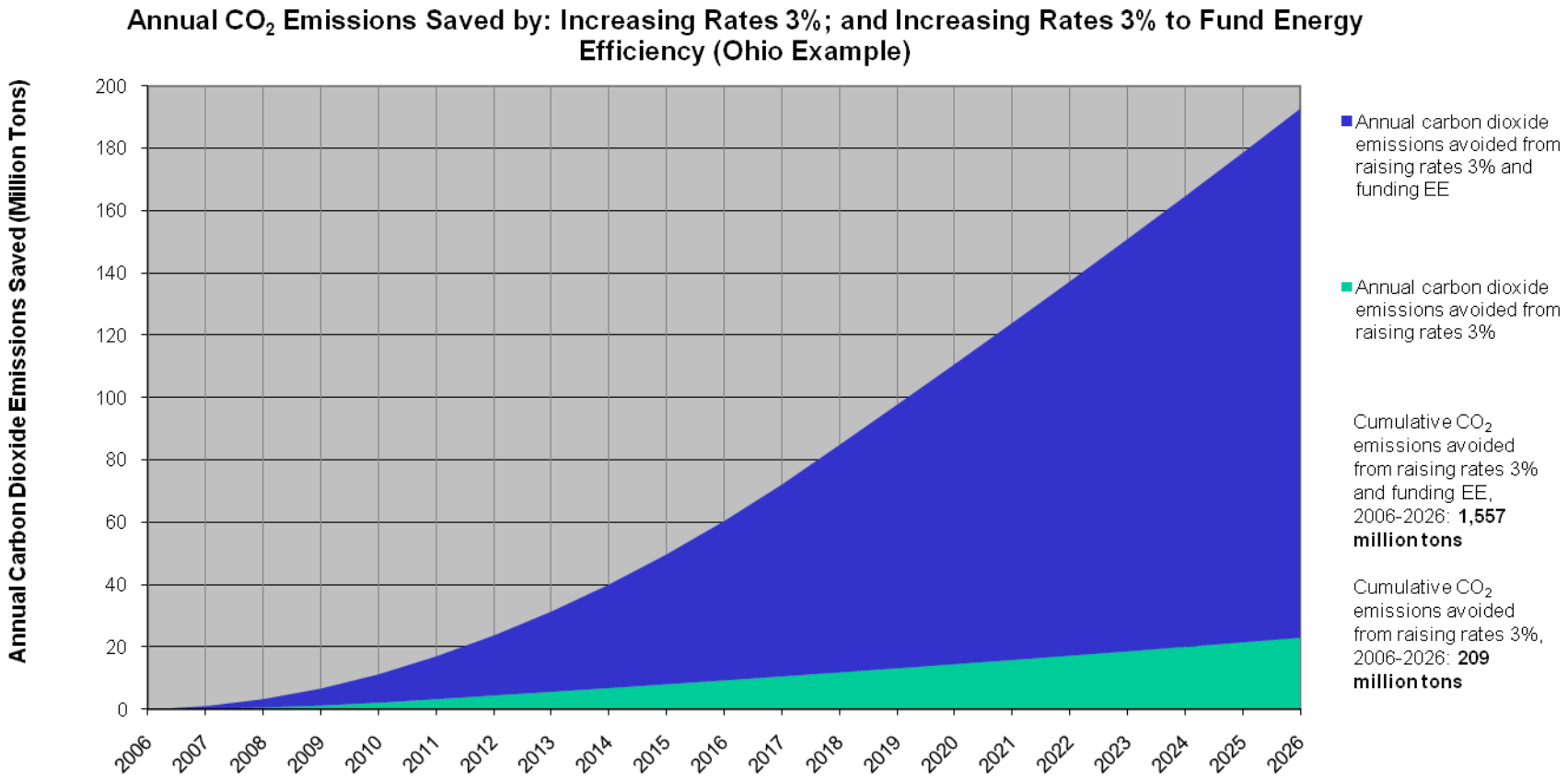
- How high must the carbon penalty be to drive replacement of coal/gas with wind/solar, on market prices alone?
- Counter-example: With the RPS, consumers pay just for the incremental cost of new RE -- without also paying increased costs for the existing fleet of coal, gas, and nuclear.
- Good news: *Most of RGGI states' and CA GHG savings will actually come from EE and RPS policies, not cap-and trade price effects.*

Response #1: Efficiency is the low-cost "carbon scrubber"



Source: McKinsey analysis
Note: The McKinsey report only examines a scenario through 2030. NRDC recommends a goal of 80 percent emissions reductions by 2050.

Efficiency programs can save 7x more carbon per consumer $ than carbon taxes or prices



What happens if we double efficiency spending in RGGI?

Modeling* for RGGI found:

- Carbon credit prices drop 25%
- Need for new fossil capacity drops 33%
- Customer bills drop 5%(Industrial) to 12%(Residential)
- And – even greater EE investments (quite attainable) would yield greater savings

**IPM model runs by ICF Consulting using EE portfolios developed by ACEEE*

Response #2: Manage carbon from the portfolio UP, not just the smokestack DOWN

- Realistic power solutions require **"what utility regulators do"** not just **"what environmental regulators do"**
- **State PUC and legislative options:**
  - Energy efficiency is the essential "bridge fuel"
  - Rediscover, update IRP and Portfolio Management for LSEs
  - New capacity: Accelerate the transition with explicit policies for low-carbon resources (e.g., RPS, advanced coal w/ storage)
  - Promote a new business model for load-serving utilities. (Decoupling, PBR, owned DG, etc.)
  - And much more: rate design for EE and DR, "loading" orders, carbon performance standards, EERS, etc.

Response #3 – The Consumer Allocation for Efficiency

a/k/a The “Cap and Invest” strategy

- Allocate most utility sector credits to consumer trustees (eg, distribution utilities, weatherization and other EE programs).
- At auction, emitters need to purchase allowances, recycling much windfall revenue BACK to consumers
- PUCs/gov’t supervise use of the $$ to benefit consumers
- **Best result: focus these $ on investments that lower carbon (EE &RE)**
  - RGGI MOU - state minimum commitment is 25%
  - RGGI states: Auction ~90%; EE allocation ~80%
- Results: lower cost per ton avoided, lighter macro-economic impact >> quicker progress in reducing GHG emissions

So what does this mean for US federal legislation?

1. Focus on **"portfolio-up" policies** (e.g.,RPS & EEPS) not just "carbon price driven" policies for power sector GHG reduction.
2. To moderate generator windfalls and lower the cost-per-ton-avoided: **auction allowances** or allocate them to **distribution utilities** (i.e., to power buyers, not sellers).
3. Dedicate auction revenues to investments in **end-use efficiency**.
4. **Allocate allowances to states and/or LDCs** using formulas that reward success in delivering efficiency and accelerating the transition to a low-carbon power sector.

Cap and invest in Waxman-Markey

- Critics are wrong that ACES is mostly a give-away to emitters: Most allowances are allocated to consumers or public purposes
  - Cap-and-invest opportunities are powerful
- Critics are right that there is inadequate assurance of investments in the low-carbon transition
- Congress and states/PUCs have a huge role to play in making this work.

For more information…

- *"Carbon Caps and Efficiency Resources: How Climate Legislation Can Mobilize Efficiency and Lower the Cost of Greenhouse Gas Emission Reduction" (Vermont Law Review 2008)*

- *"Who Slices the Pie in the Sky? What Role Should States Play in Allocating GHG Allowances and Distributing Carbon Auction Revenues?" (Issue brief for the National Association of Clean Air Agencies, January 2008)*

- *"Power System Carbon Caps: Portfolio-based Carbon Management" (NREL Carbon Analysis Forum November 2007)*

- *"Why Carbon Allocation Matters – Issues for Energy Regulators" (RGGI memo March 2005)*

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The Regulatory Assistance Project

RAP is a non-profit organization providing technical and educational assistance to government officials on energy and environmental issues. RAP is funded by US DOE & EPA, several foundations, and international agencies. We have worked in over 40 states and 16 nations.

Richard Cowart was Chair of the Vermont PSB, Chair of NARUC's Energy & Environment Committee, and of the National Council on Electricity Policy. Recent assignments include technical assistance to the Regional Greenhouse Gas Initiative, the New York ISO, the California PUC, the Oregon Carbon Allocation Task Force, the National Association of Clean Air Agencies, NARUC, the Vermont legislature, and to China's national energy and environmental agencies.