

Beware of Silver Bullets

Henry D. Jacoby

Joint Program on the Science and Policy of Global Change
Massachusetts Institute of Technology

EPRI

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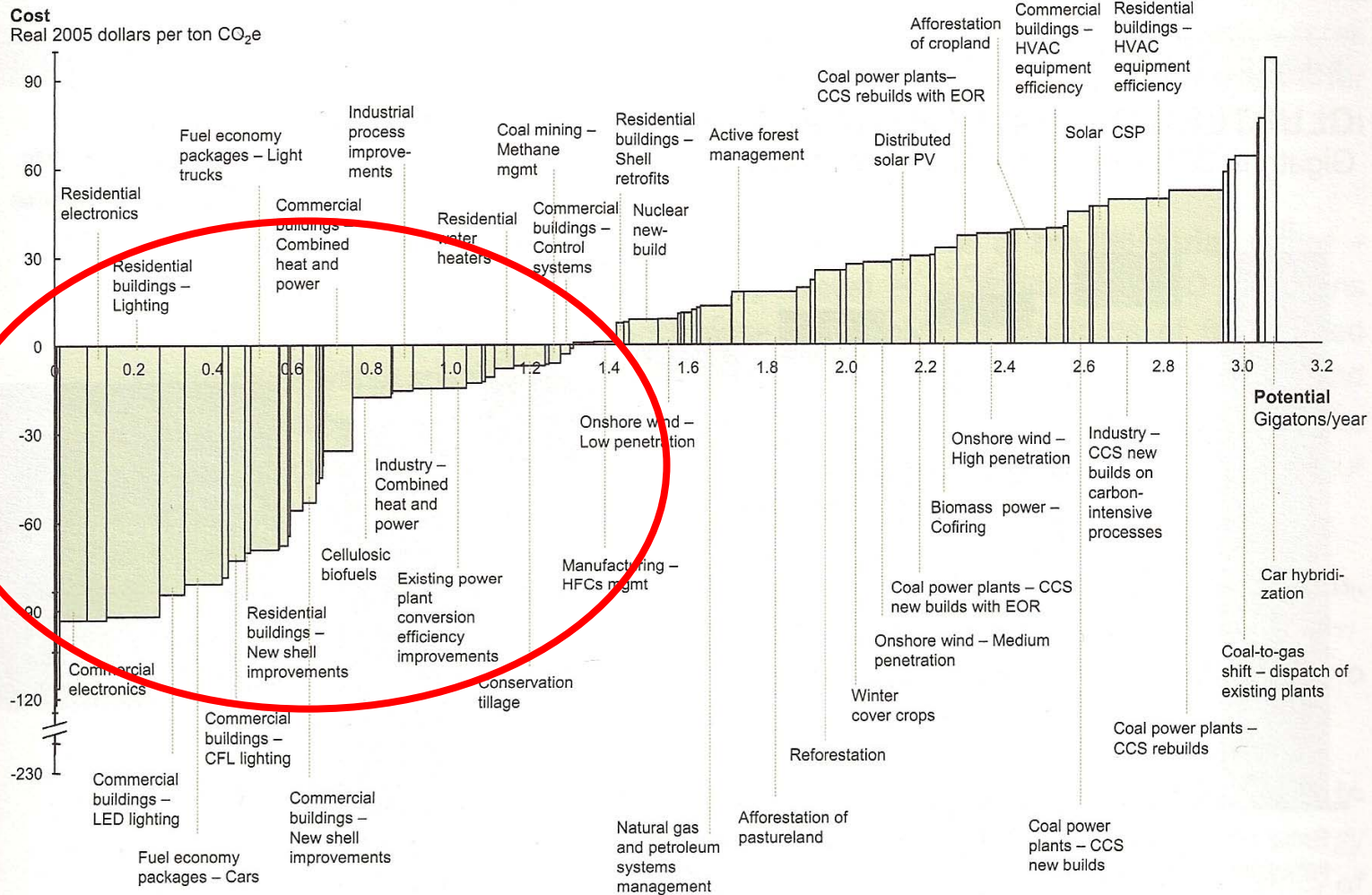
Why Beware?

- What is the problem?
 - Crowding out
 - Intellectual
 - Policy attention
 - Picking winners
 - Mislead policymakers & the public
- A qualifier regarding support for R,D & D
 - Everything to follow deserves some attention
- Now see come competing bullets
 - Illustrations with the MIT EPPA model

Conservation/Efficiency

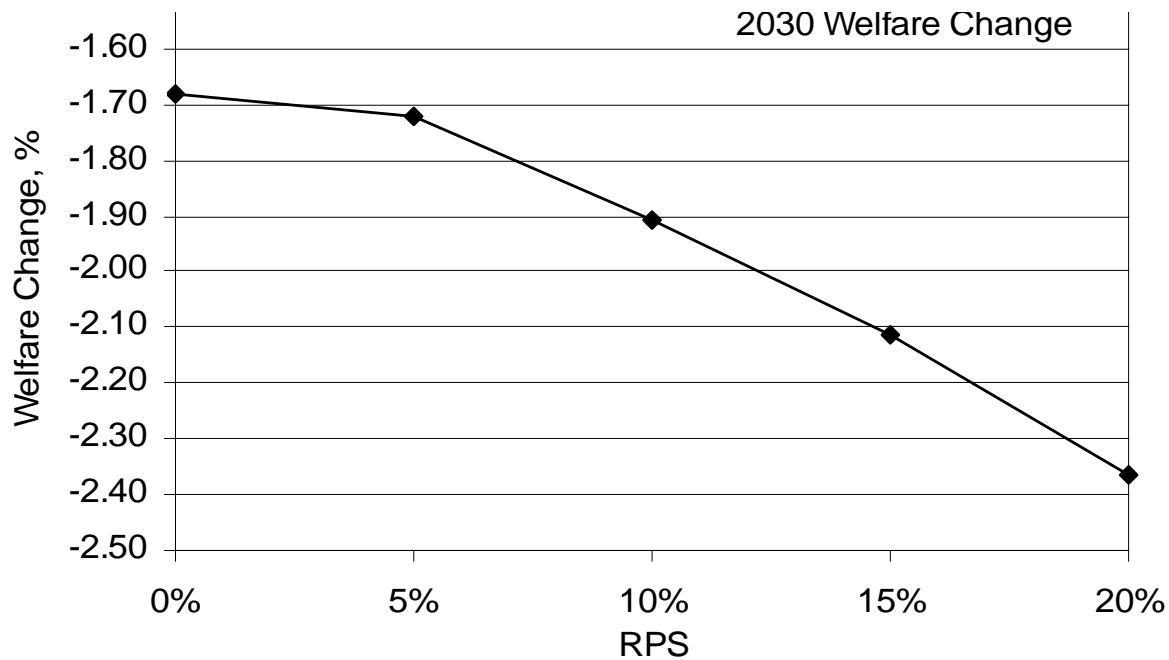
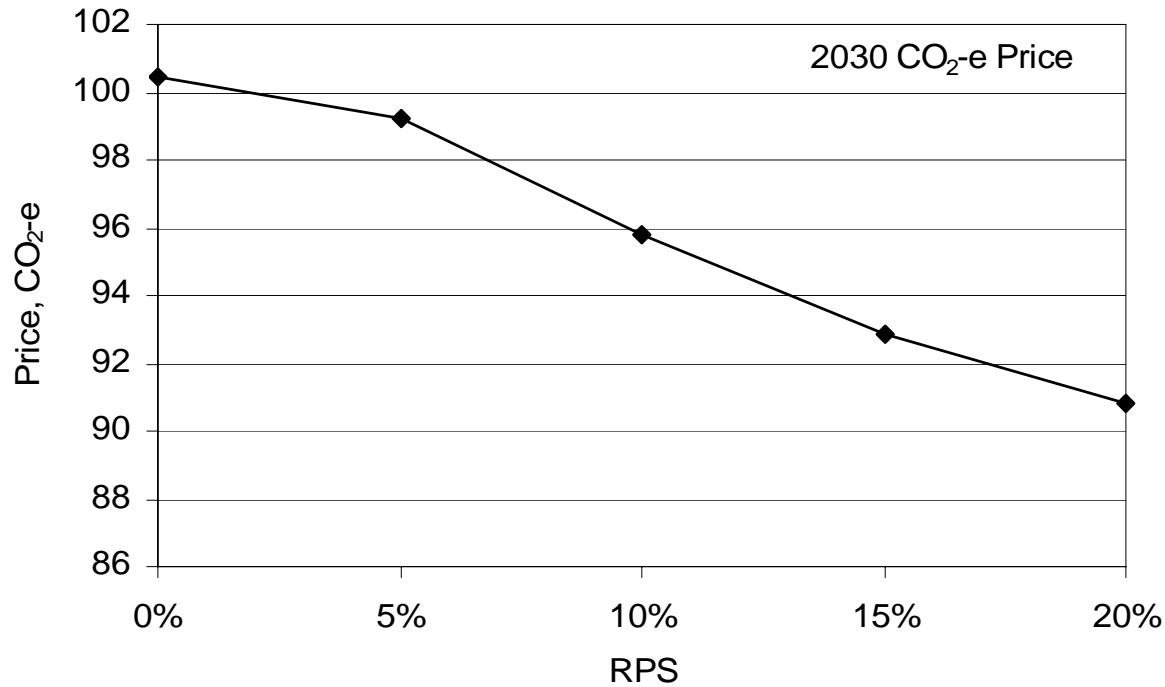
Exhibit B

U.S. MID-RANGE ABATEMENT CURVE – 2030



Source: McKinsey analysis

Renewables



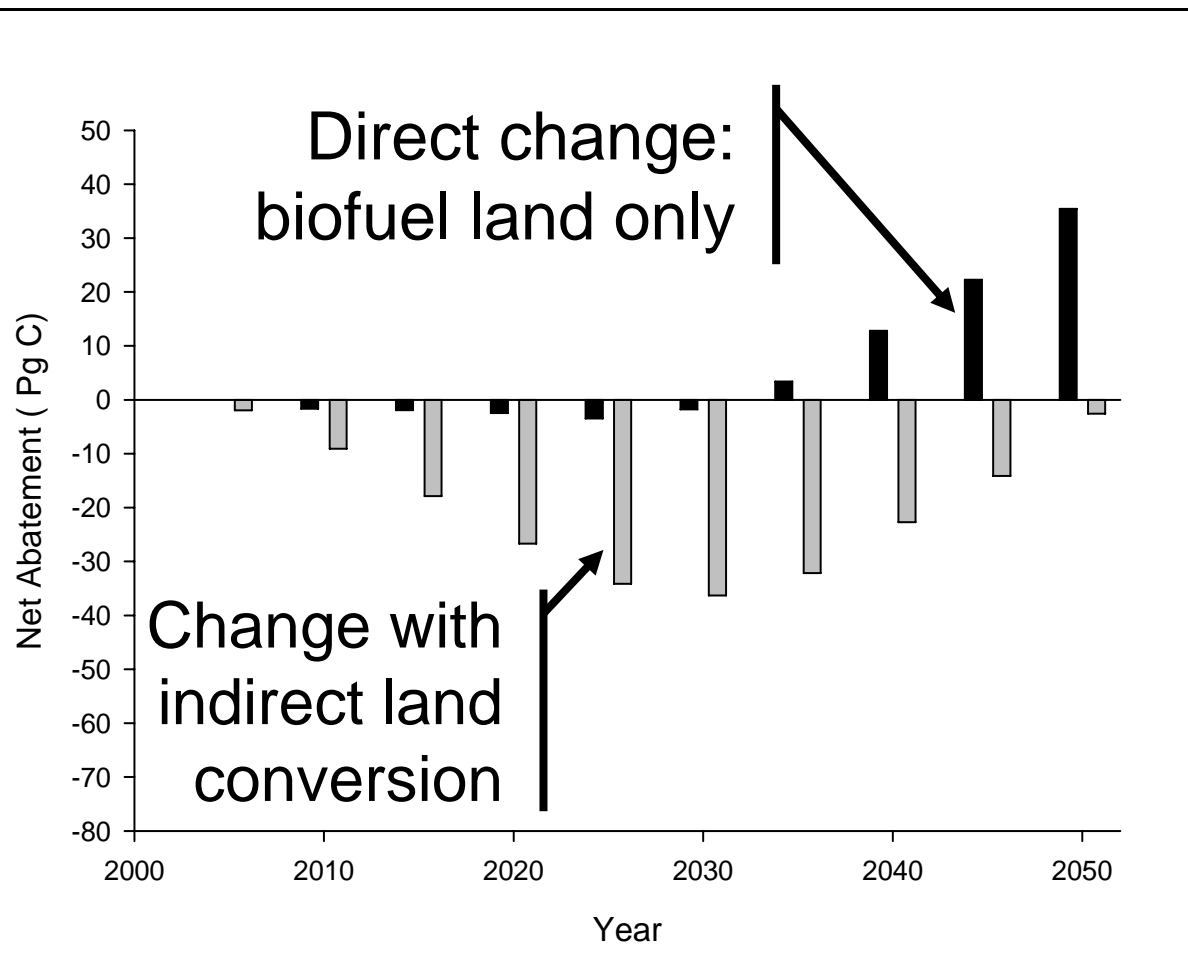
RPS effects

- Add to cap & trade
- 167bmt case
- Wind & solar
- See 2030 price

Clean Energy Jobs

Biomass

- Bush Admin. & EU mandates
- Indirect land-use effects



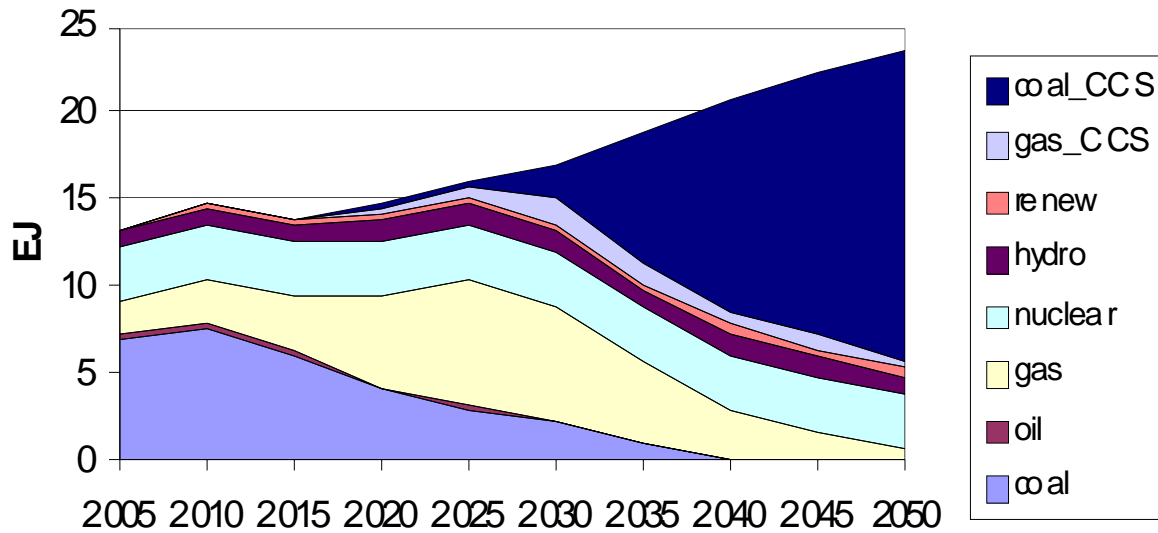
Biomass uptake

- 550 ppm scenario
- Cellulosic ethanol

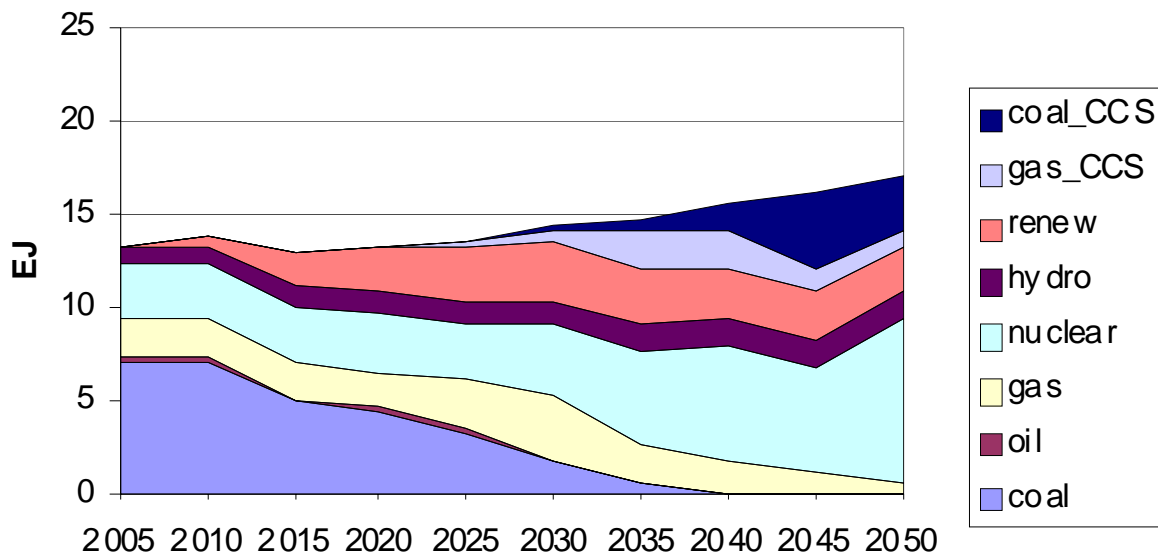
Nuclear & CCS

2007 analysis

167 bmt - Report 146



167 bmt



2009 analysis

- Lower growth
- Revised costs

CO₂ Removal

- BECS
- Air Capture (the 300X challenge)

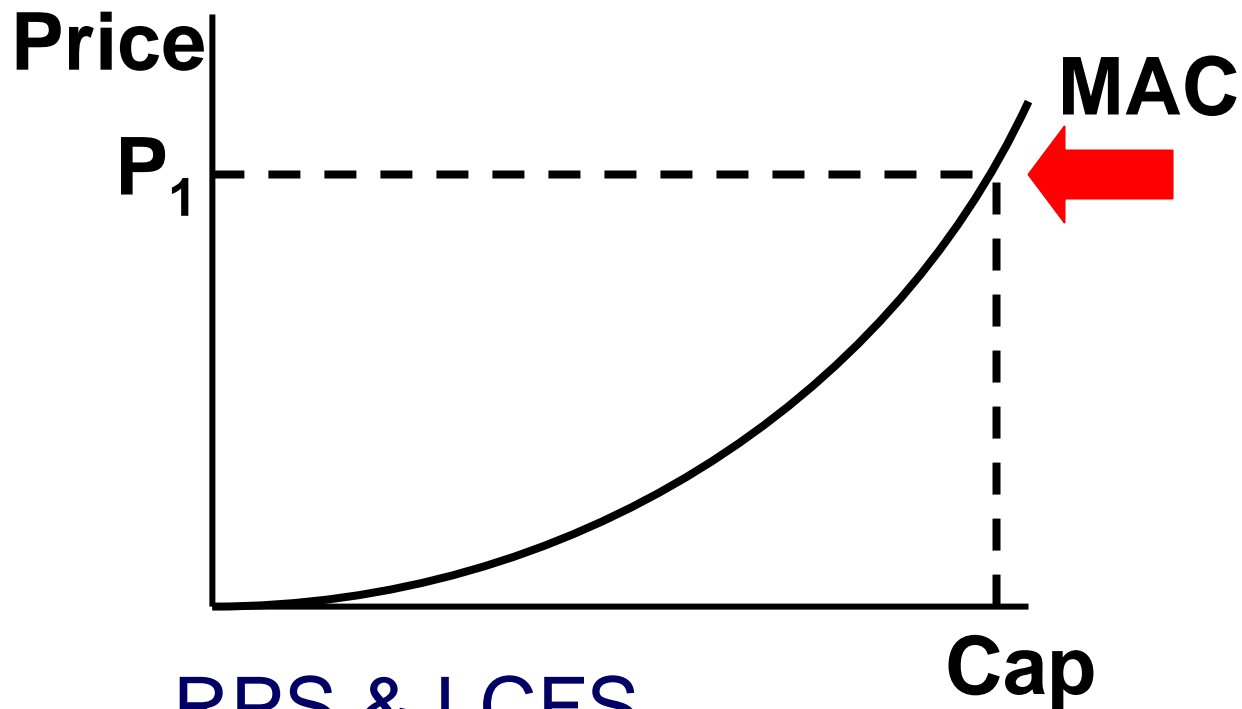


Others

- Hydrogen
- The “smart” grid
- PHEV & CNG vehicles
- Shale gas
- Fusion

Emissions Pricing

- Essential, but . . .
 - Fear of distributional effects
- Waxman-Markey: 1st of 3 primary goals:
“Protect consumers from energy price increases”



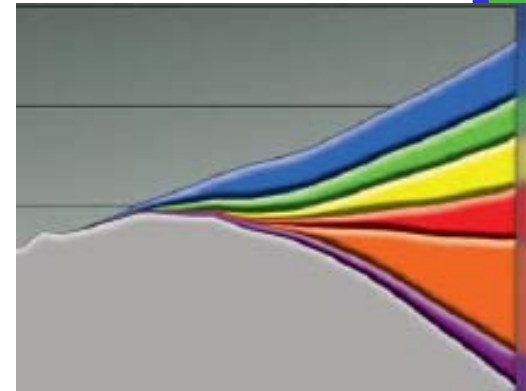
- RPS & LCFS
- Offsets

Why We Focus on the Silver Bullet

- Lure of the technical fix
 - Avoid bothersome complexity
- Sales/advocacy
- Features not understood make it plausible
 - Scale
 - Costs of transaction/transition
- Incautious application of economic models
- Target of 2° above pre-industrial

So, What is the Answer?

- Provide clear market price signals, to the extent politically possible
- Maintain a broad portfolio of R,D&D
- Try to avoid picking "winners" in terms of large-scale market penetration
 - Seek a level playing field
 - Sunsets for subsidies & mandates
- Try to educate about scale, cost



Thank You!