

Policy Options for Reducing Emissions

- Direct regulation: CAFE standards, CFL requirements, RPS's.
- Subsidize renewables and/or lower carbon intensity fossil fuel strategies: facilitate transmission lines for wind or pipelines for natural gas, biomass programs, sequestration research.
- Create incentives by pricing carbon: carbon tax and cap and trade.

Carbon Taxes and Cap and Trade

To understand the economics of carbon taxes, first you need to understand the concept of *marginal cost of emissions reductions*

CCAC Recommendations

Residential, Commercial, Institutional and Industrial Sector

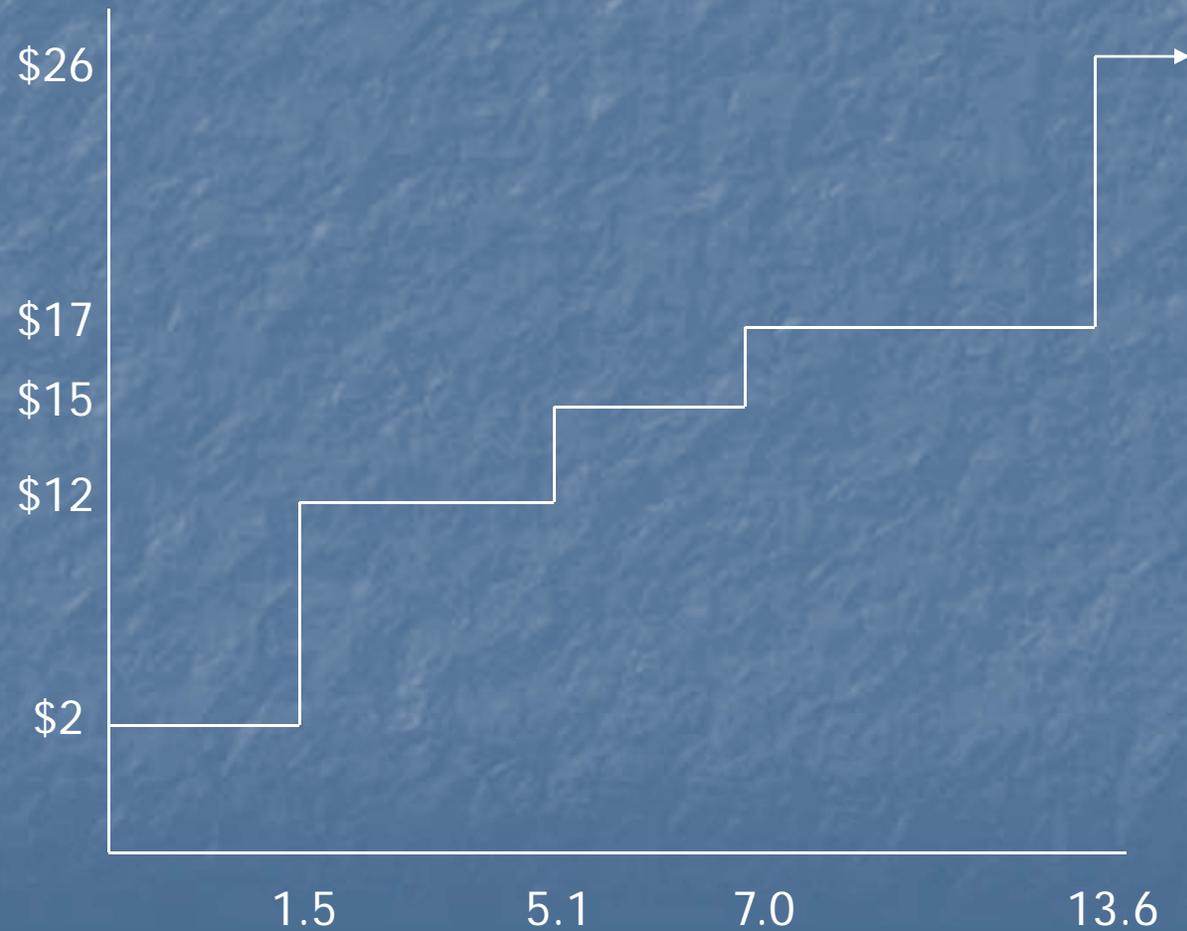
Strategy	Reductions (MMtCO ₂ e) 2007-2020	Cost (\$/t) per CCAC	Adjusted Cost (\$/t)
Improved appliance efficiency	1.5	-\$36	\$2
Industrial energy audits/implementation	3.6	-\$26	\$12
Technology development	1.9	-\$23	\$15
Demand side management	6.6	-\$21	\$17
Metering technologies for load management and choice	0.9	-\$12	\$26
Improved building design (1)	1.6	-\$10	\$28
Low income/rental housing efficiency programs	4.7	-\$9	\$29
State lead by example	2.0	-\$6	\$32
Improved building design 2)	3.4	-\$5	\$33

Marginal Cost of Emissions Reductions; Schedule for RCI Sector

Total Emission Reductions	Adjusted Marginal Cost (\$/t)
0-1.5	\$2
1.5-5.1	\$12
5.1-7.0	\$15
7.0-13.6	\$17
13.6-14.5	\$26
14.5-16.1	\$28
16.1-20.8	\$29
20.8-22.8	\$32
22.8-26.2	\$33

Marginal Cost of Emissions Reductions; Curve for RCI Sector

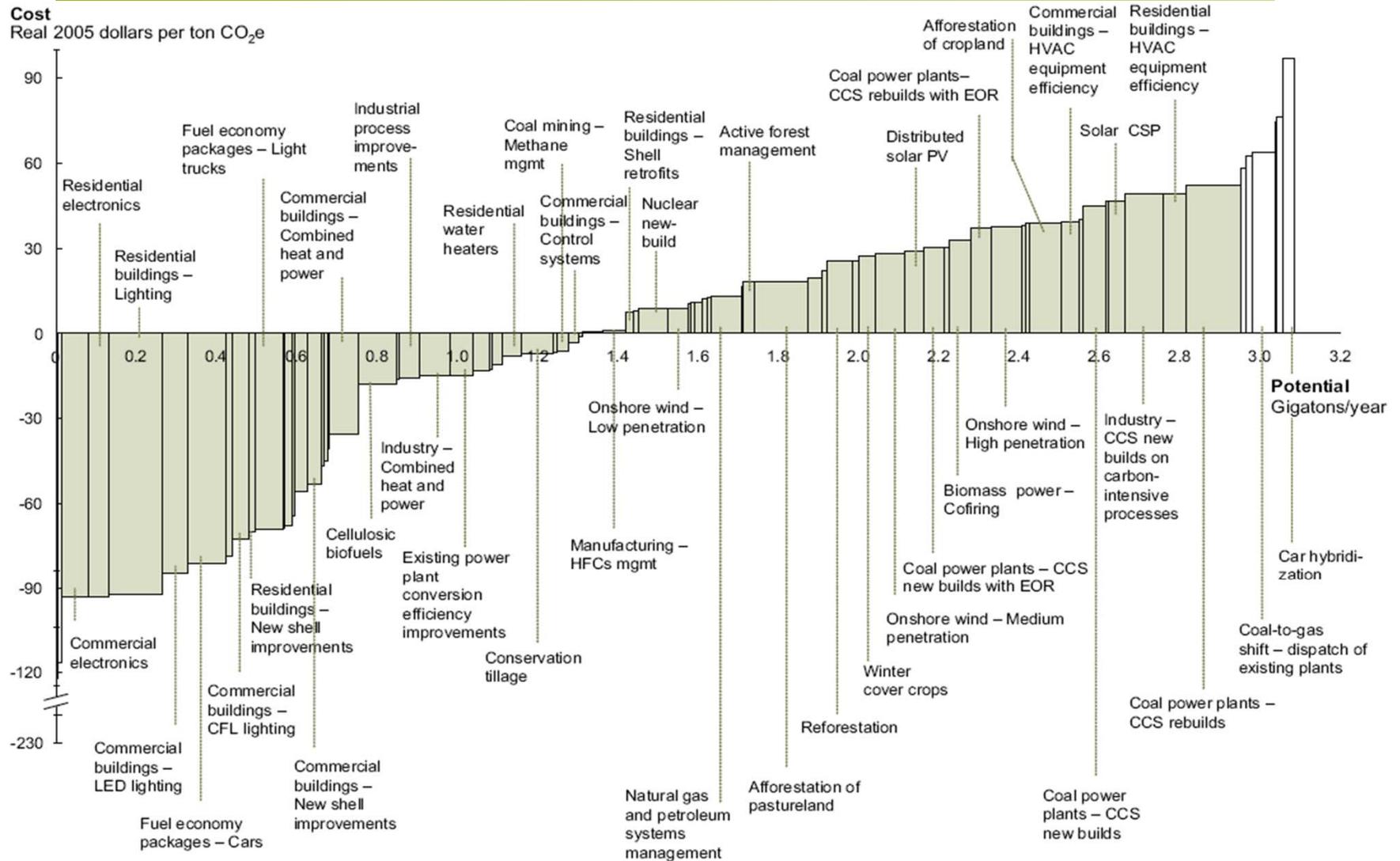
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Efficiency Can Pay For Supply-side Measures



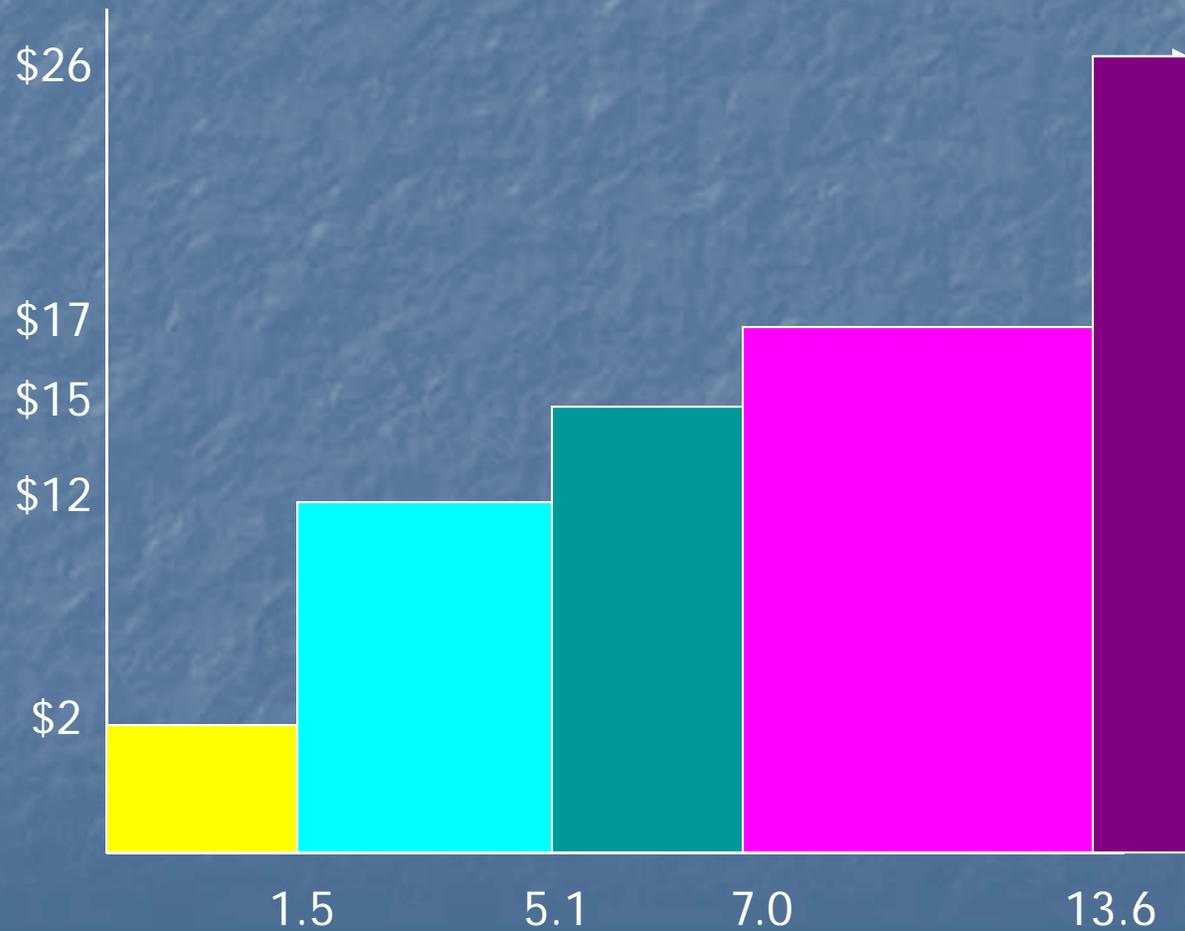
2030 U.S. abatement potential under mid-range commitment and action



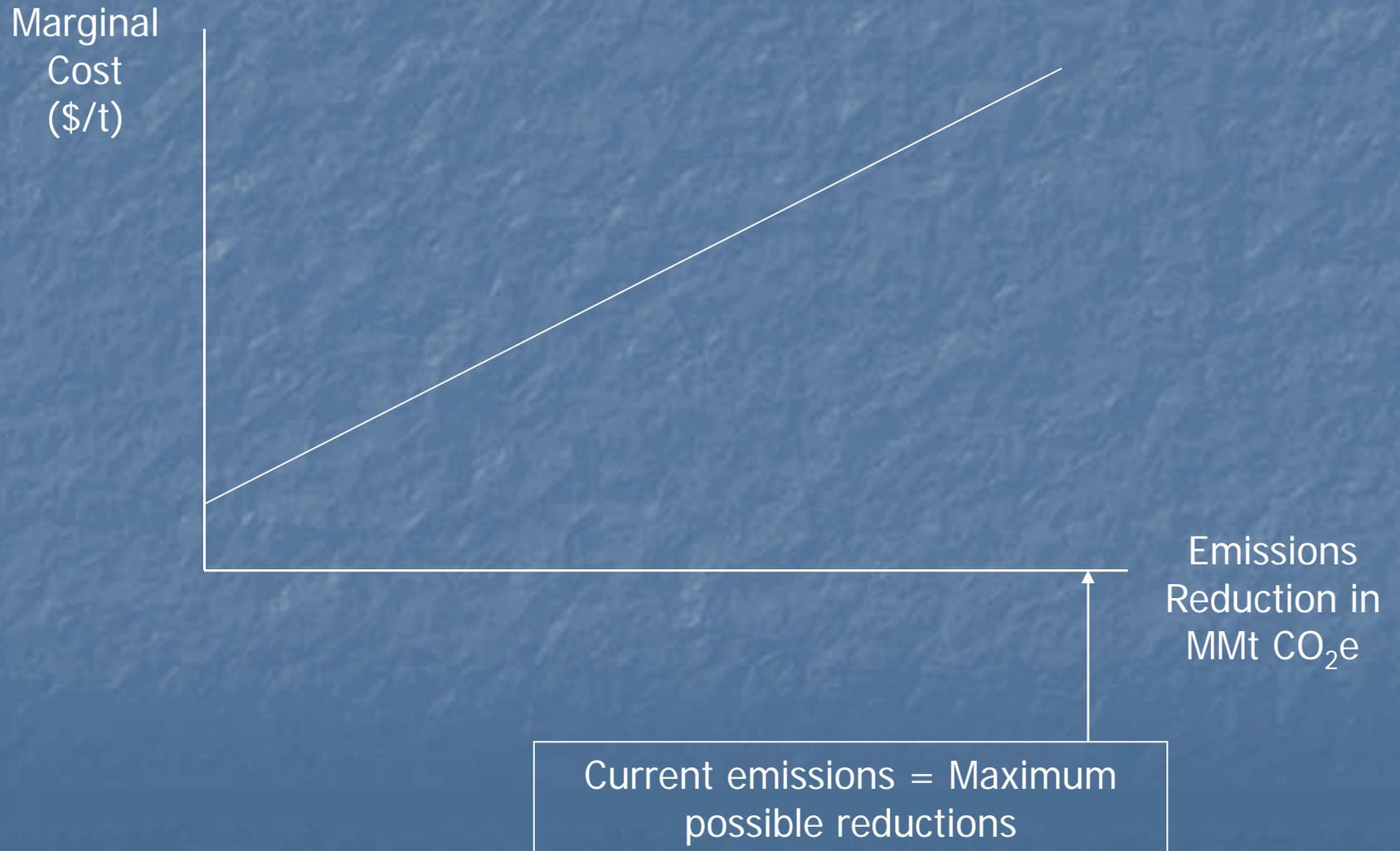
Source: McKinsey

Total Cost of Emissions Reductions; RCII Sector

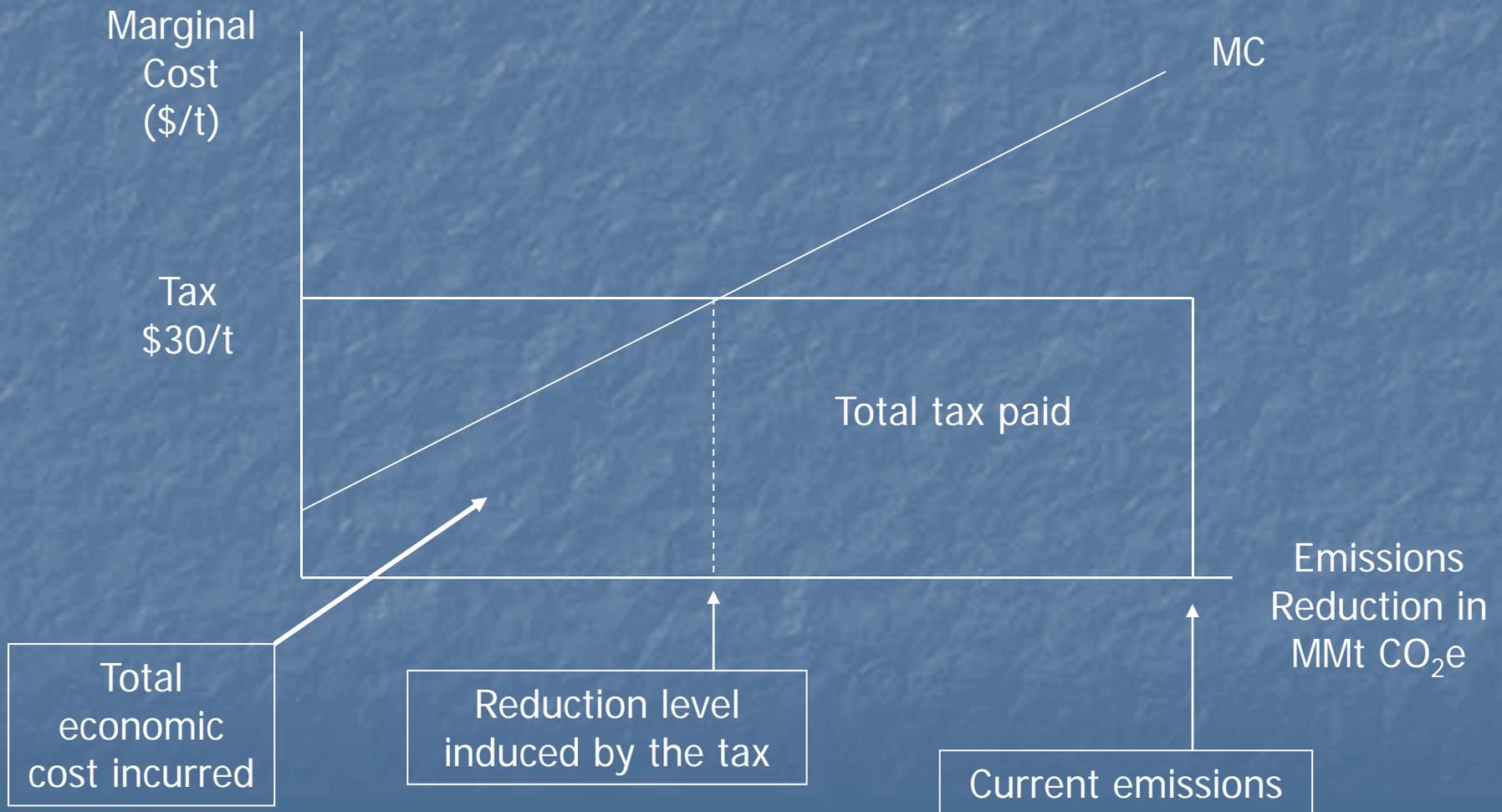
Total cost of emissions reductions of x equals the area under the MC curve, up to x .



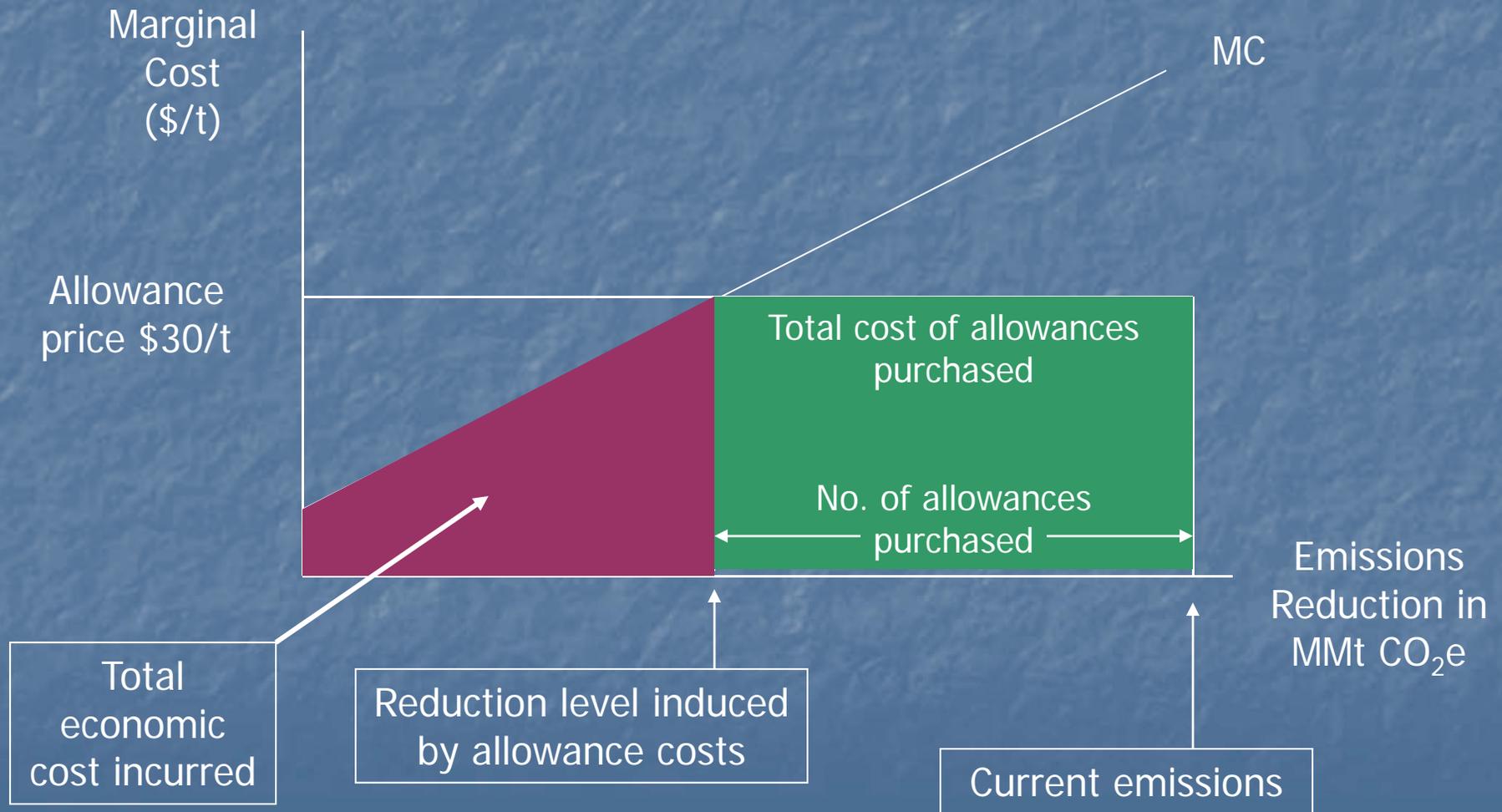
Stylized MC curve



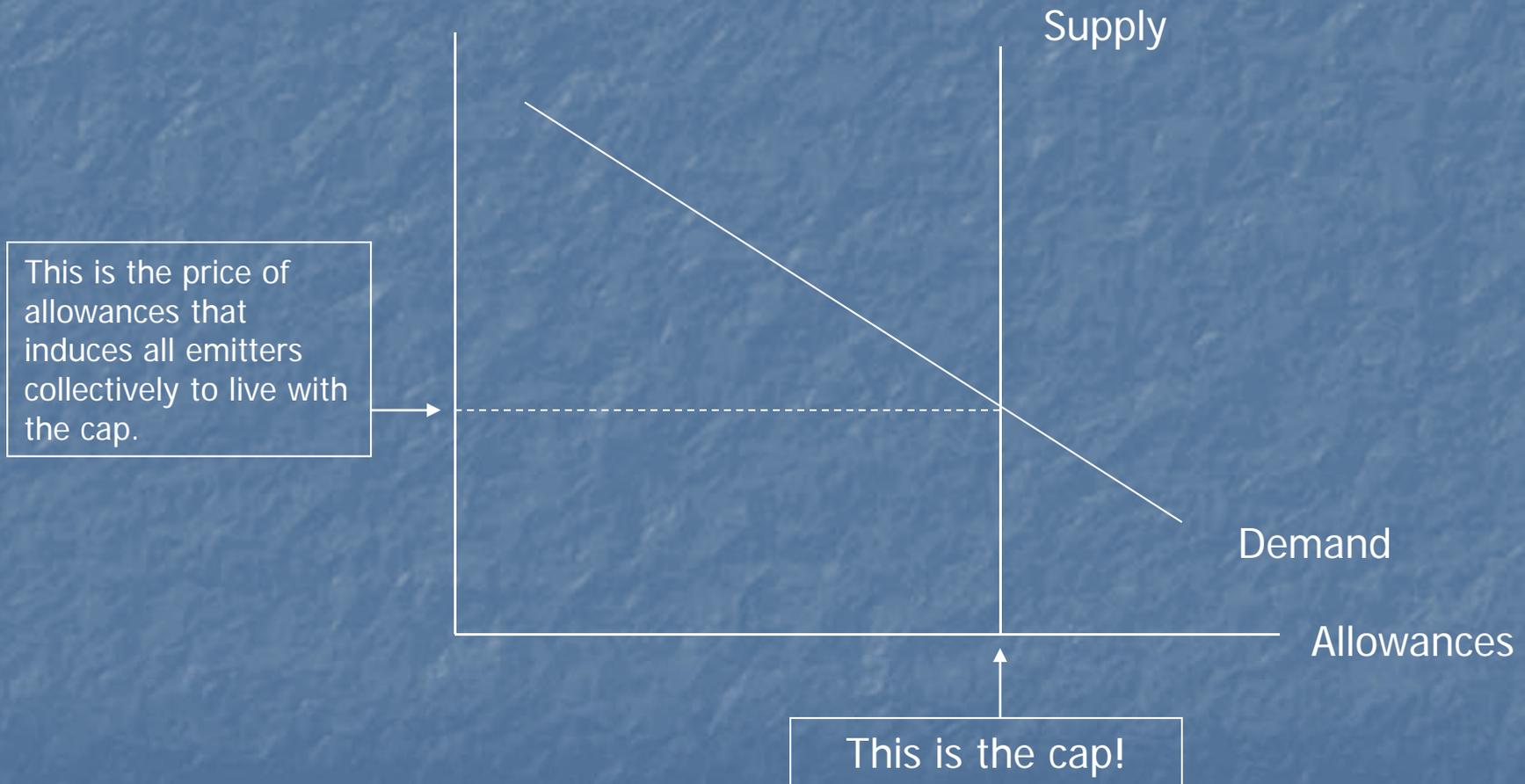
Effect of Carbon Tax



Effect of Mandatory Allowance Purchases



Allowance Market



In both Carbon Tax and Cap and Trade ...

- There is equalization of marginal costs across sources (equal to tax or allowance price).
- New technology leads to higher emissions reductions.
- There are incentives for new technology development (reduce control costs *and* tax or allowance bill).
- Revenues are generated.

Carbon Tax and Cap and Trade differ in that

- Under the tax, there is certainty about cost, but uncertainty of effect: How much emission reduction will be induced by, say, a \$30/t tax?
- Under cap and trade, there is certainty of effect, but uncertainty of cost: How much will it cost us to cap 2020 emissions at the 1990 level?

Blowing the last best chance



From Economics to Politics: What Happens and Who Cares?

- Energy prices rise: Tea Party, CC, industrial states, transportation sector.
- Competitive disadvantage: Coal and oil states and industries.
- Competitive advantage: Renewables, natural gas, efficiency and conservation.
- Offsets: Agriculture.
- Creation of allowance value: Everybody!
- Efficient reduction of emissions: Anybody?

Try to Get to 60 and Things Fall Apart

- Nuclear and off-shore drilling.
- Give allowances to and delay applicability to coal fired utilities.
- Highway dollars.
- Transition to auction (no dividend).
- Price collar.
- Separate markets for coal and oil.
- Moderate caps.

The deal collapses...



For more....

...plan to attend

“The Politics of Climate Change”

Mike Phillips*

October 21, 7 p.m., UC Theater
Society for Conservation Biology

*Montana state representative and E.D.,
Turner Endangered Species Fund