

# GHG Markets and CCS – A Launch Pad, A Cash Flow, or a Clean Miss?

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## EcoSecurities Business Profile

- > Originate, Implement, and Commercialize CERs – 350+ projects
  - First registered CDM project (Nova Gerar, Brazil)
  - First issuance of CERs (La Esperanza, Honduras)
  - Ongoing sectoral and project R&D efforts
- > Originate, Implement, and Commercialize VERs
  - Stonyfield Farm, Shaklee, AES Power Direct, Climate Neutral Network, TransAlta, Sumitomo, Entergy, Fannie Mae
- > Inform, Support, and Implement Business/Market Strategies
  - TransAlta, PacifiCorp, SCE, PG&E, NWPCC, JPower, TEPCO, World Bank, Barrick Gold, Statoil, PEMEX, JBIC, Mizuho Bank, many others

**Inform**

**Support**

**Implement**

- > First Mitigation Deals in U.S. and Globally
- > Leaders in Project, PDD, and Methodology Development
- > Won First GHG Regulatory Proceeding
- > Designed a Major GHG Early Action Crediting Program for U.S.
- > Took First Company Climate-Neutral
- > Completed First Major GHG Offset Portfolio
- > Supported First Utility-Based GHG Business Unit
- > Developed First GHG Market Supply-Demand Model
- > Point Carbon - Best CDM Project Developer 2006
- > Env'tl Finance – Best GHG Advisory Firm 2001 - 2006

# A Local Presence in a Global Market



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1. Setting the Stage for CCS
2. Forecasting GHG Markets
3. How Does CCS Fit?

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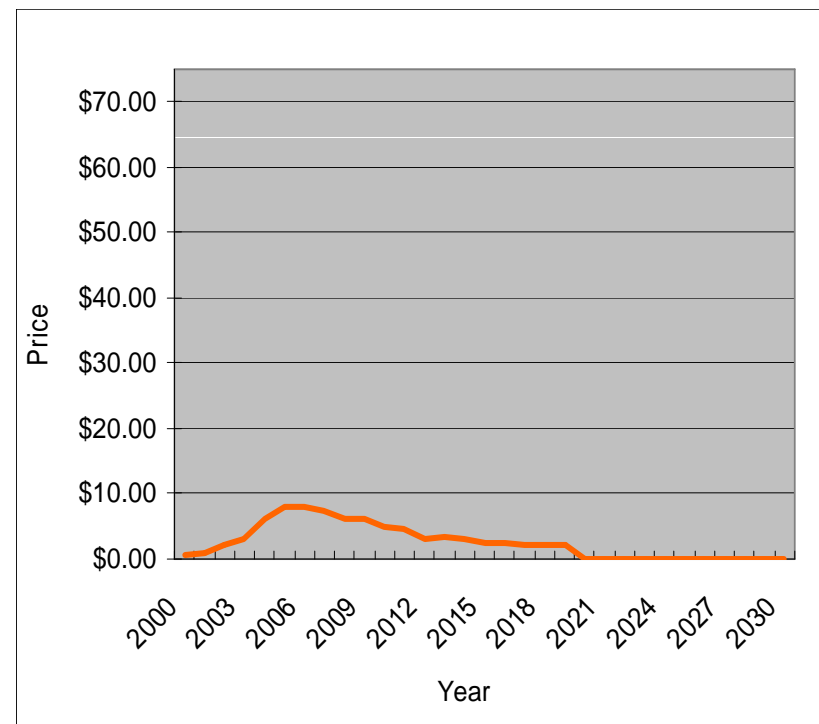
## 1. Setting the CCS Stage

## Will The Policy Pieces Fall Into Place?



## Scenario 1 – Policy Stalemate

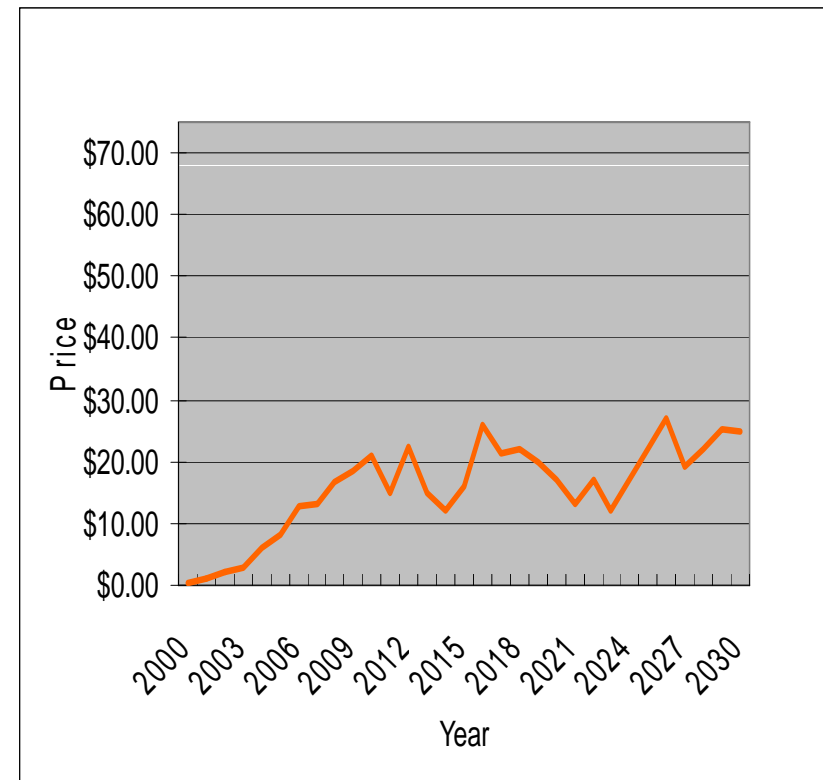
- > Major Political and Economic Challenges
- > Could Challenges Lead to Stalemate in Int'l and Domestic Policy Momentum?
  - Absent a scientific reversal, hard to see
  - Broad public support for action on this issue
- > The Odds: Increasingly Low
- > Note: Scenario Subject to Sudden Reversal





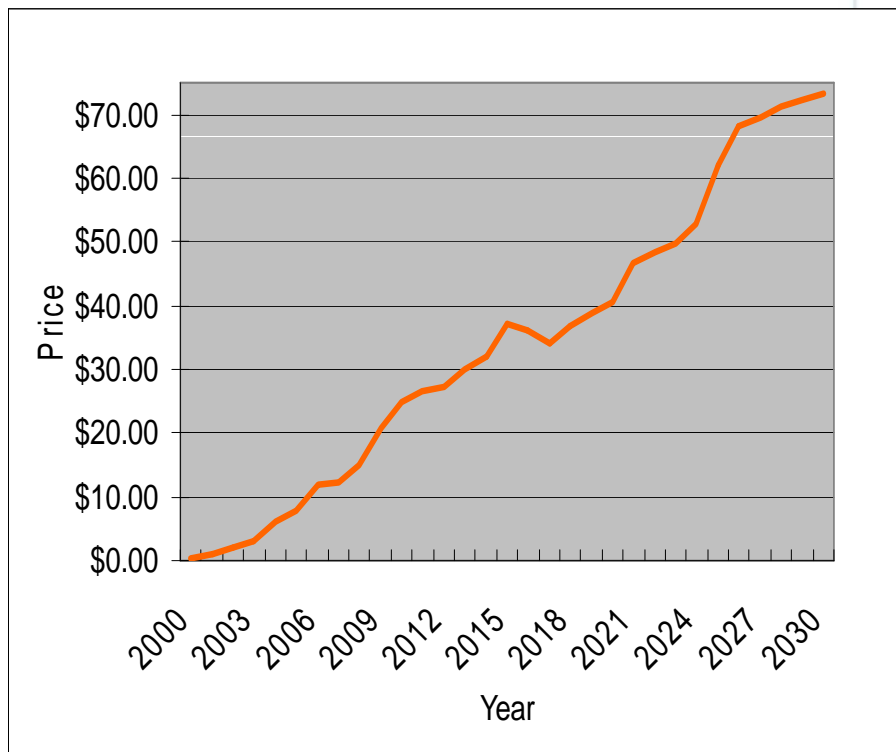
## Scenario 2 – Political Status Quo

- > Issue is Here to Stay
  - Numerous policies and measures pursued
- > Will Affect Many Sectors in Material Ways
  - Range of Cost Estimates: \$5-30/ton CO<sub>2</sub>
- > But Policy Unable to Achieve CO<sub>2</sub> Stabilization
- > The Odds: High
- > Note: Scenario Subject to Sudden Reversal



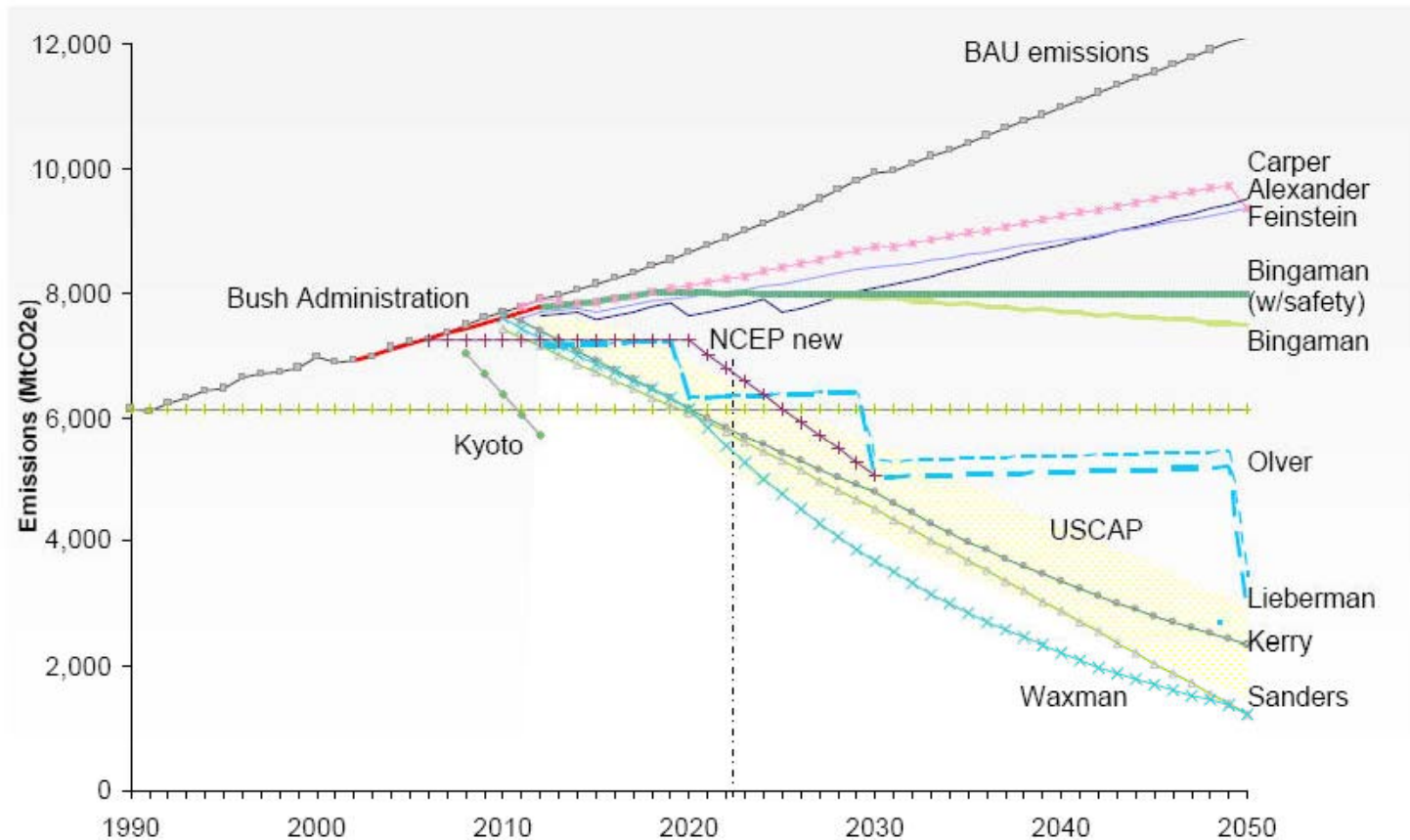
## Scenario 3 – Atmospheric Stabilization

- > Political Will Exists to Tackle
  - Aggressive reductions
  - Aggressive technology
  - Aggressive markets
- > Material Economic Impacts
  - Stanford Modeling Forum:  
\$75-100/ton CO<sub>2</sub>
- > The Odds: Modest at Best?



# Proposed Federal GHG Bills

Comparison of US 2007 Climate Change Bills – Emissions versus Targets



Source: New Carbon Finance. Notes: BAU = business as usual greenhouse gas emissions; Projections based on EIA and BEA data, and NEF extrapolations; NCEP new = National Commission on Energy Policy's revised recommended targets; USCAP = US Climate Action Partnership's recommended targets.

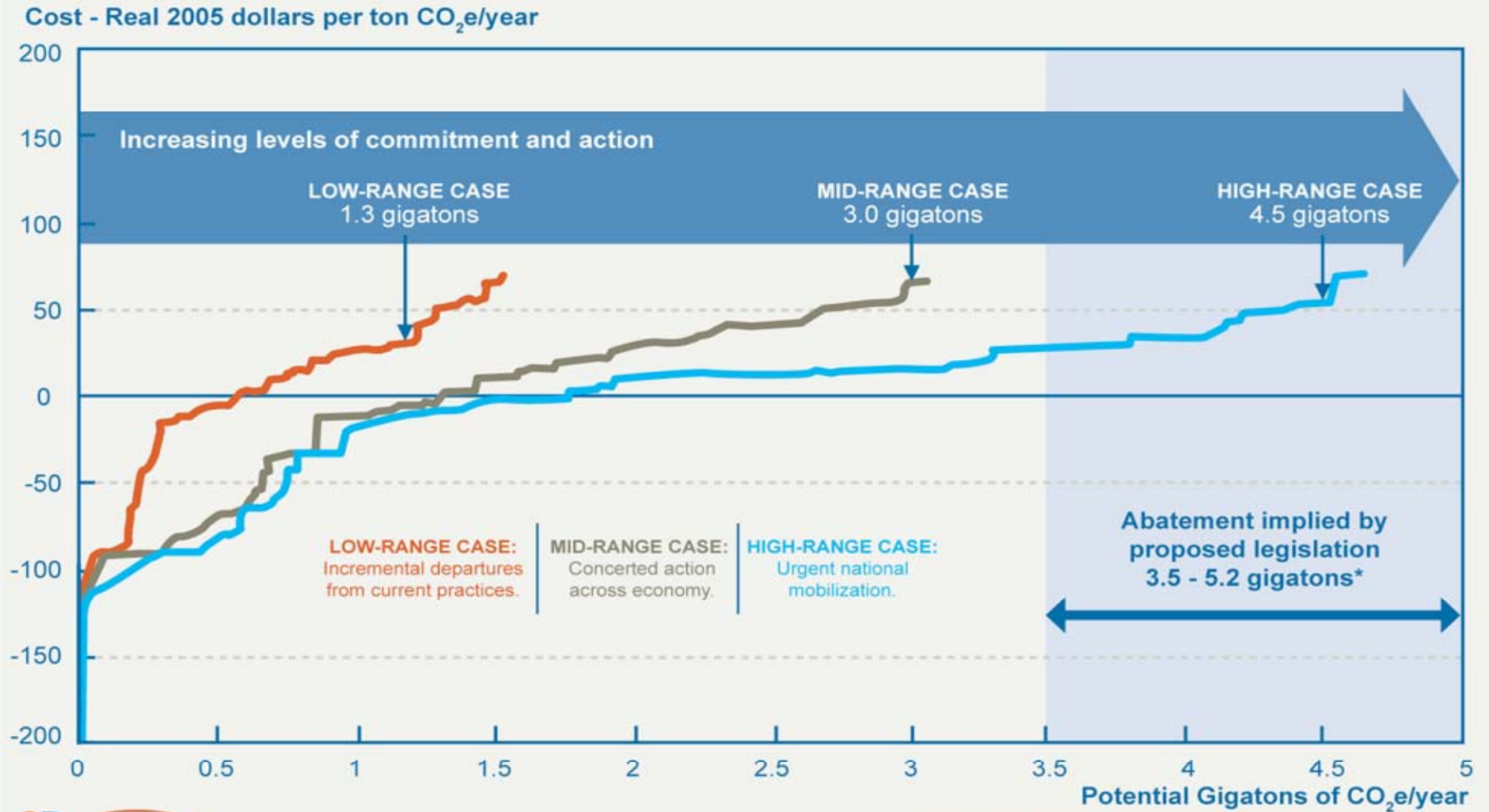
# The Context for CCS as a Key Option

- > In What Context is CCS Being Viewed?
  - Based on current market value of EOR CO<sub>2</sub> (\$15)?
  - Based on simple cost of injection of almost pure CO<sub>2</sub> (<\$10)?
  - Based on current carbon markets (\$5-10 voluntary, \$15-30 regulatory)?
  - Based on current (estimated) costs of capture through storage?
    - Pulverized coal: \$30-70
    - Gasified coal: \$15-55
    - Natural gas: \$40-90
  - There's a big gap between current CCS \$\$s, and current GHG \$\$s
- > There's a Big Gap Between Where CCS Wants to Go, and Market Has Gone So Far When it Comes to Technology Promotion
- > Can CCS Fit Into Carbon Markets? If So, How?

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## 2. Forecasting GHG Markets

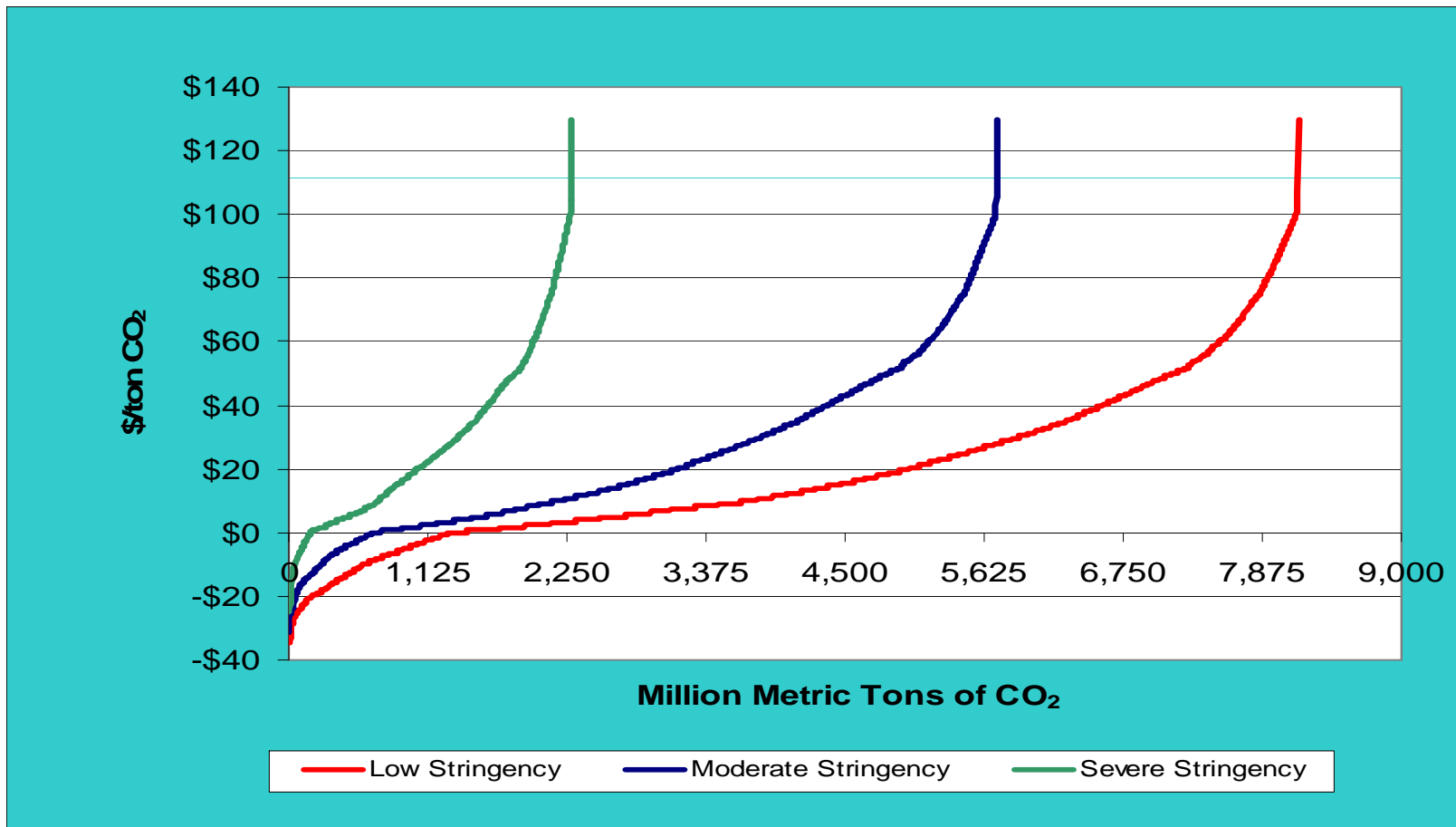
## U.S. GREENHOUSE GAS ABATEMENT POTENTIALS - 2030



## Market Variables

- > Context Variables
  - Science, media, public opinion, policy
- > Demand Variables
  - Growth, fossil prices, targets, U.S.- D.C. role
- > Technology Variables
  - Costs, R&D spending, deployment support
- > Supply Variables
  - What counts, how counted, rules, behavior, psychology
- > Transaction Variables
  - Costs, delays, taxes, certainty of rules

# 2010 GHG MAC Curve





# Carbon Credit Price Forecasting

- > While a Supply and Demand Approach Makes Sense...
  - Demand is (obviously) largely a function of policy decisions
  - But (much less obviously) so is supply
    - What is a “credit”?
    - How are “credits” qualified?
    - How are “credits” quantified?
- > This Makes the GHG Commodity Very Different
  - Price forecasting meaningless w/o policy context
  - Can't think of as predictable commodity
- > There is an Upside. Carbon Markets are Policy Markets, and We Could Use Them Accordingly

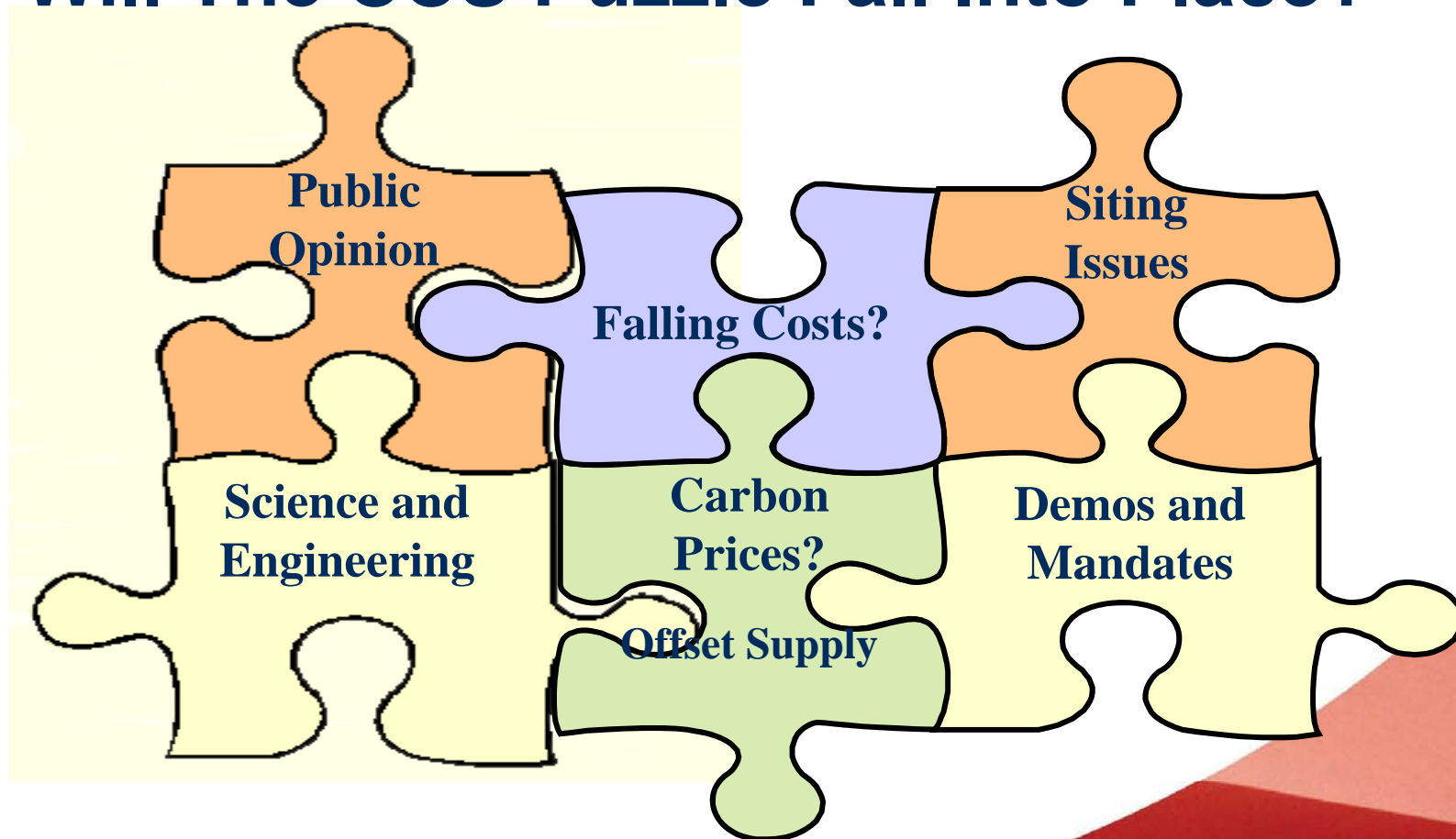
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## 3. How Does CCS Fit?

## **From the Carbon Market's Perspective**

**As We Resolve the Technical Issues, How Should We Be Anticipating CCS's Role in Carbon Markets and Business Decisions?**

## Will The CCS Puzzle Fall Into Place?



## How to Think About CCS?

- > Carbon Market Financing Very Susceptible to Risk, Uncertainty
  - Timing, risks, capital commitments?
- > Carbon Markets Very Unlikely to Overcome This Uncertainty
  - Overcoming “Mountain of Death” will require subsidies, risk offloading
  - Front loading an interesting option(s), but faces real obstacles, even though perfectly legitimate in a “policy market”
- > If You Build It, Will They Come?
  - CCS plausibly fits into a plausible GHG supply curve
  - But, there are “disruptive” technologies out there (oceans, REDD, nuclear)
  - And A LOT starts to happen at \$30/ton, and at \$130/barrel oil that may compete with CCS

## So What's The Answer?

- > So It All Comes Back to Policy, Expectations About Policy, Associated Market Demand, Supply, and Expectations About Supply
- > If We Really Believed That CO<sub>2</sub> Would Soon Have a Value of >\$50/ton in the Relatively Near Term, The World Would be a Very Different Place
- > Carbon Market as a Launch Pad? Highly Unlikely
- > Carbon Market as a Cash Flow? Much More Possible
- > Carbon Market a Clean Miss? Hopefully Not, but Possible

## For More Information

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