

# *Efficiency of CO<sub>2</sub> Emission Reduction Mechanisms*

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# Carbon Offsets and Emission Trading

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- Creation of Law and Economics
- History of emissions trading dates back over a century
  - Alfred Marshall, U.K.
  - Henry George, U.S.
- Insight: Need to assign property rights to environment in order to protect it

# Carbon Offsets – Legal Initiatives

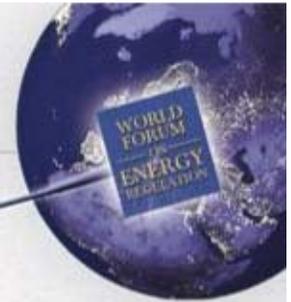
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- Kyoto Protocol/Copenhagen Successor
- EU – ETS European Trading System
- U.S. RGGI – Regional Greenhouse Gas Initiative
- All are legal/regulatory initiatives that create both the obligation and the right

# Carbon Tax vs. Offset Trading

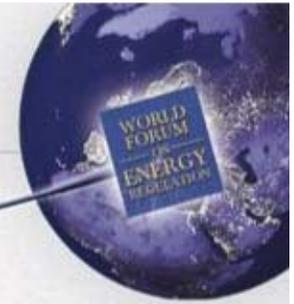
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- Taxation as tool? Serious debate on carbon tax vs. tradeable offsets
  - William Nordhaus – Yale
  - Steven Schneider – Stanford
  - Stern Report – U.K.
  - Martin Wolf – Financial Times

# American Clean Energy and Security Act of 2009

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- Passed by the U.S. House, 219-212 last June
- Backed by Obama Administration
- Broad based cap and trade scheme
- Gradual implementation over time
- Will the U.S. Senate act?

# Current State of Carbon Markets

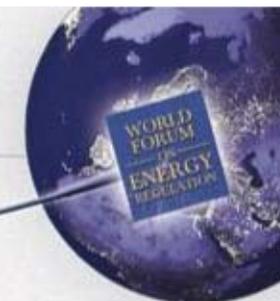


Table 1: Carbon Market at a Glance, Volumes & Values in 2007-08

	2007		2008	
	Volume (MtCO <sub>2</sub> e)	Value (MUS\$)	Volume (MtCO <sub>2</sub> e)	Value (MUS\$)
<b>Project-based Transactions</b>				
Primary CDM	552	7,433	389	6,519
JI	41	499	20	294
Voluntary market	43	263	54	397
<b>Sub total</b>	<b>636</b>	<b>8,195</b>	<b>463</b>	<b>7,210</b>
<b>Secondary CDM</b>				
<b>Sub total</b>	<b>240</b>	<b>5,451</b>	<b>1,072</b>	<b>26,277</b>
<b>Allowances Markets</b>				
EU ETS	2,060	49,065	3,093	91,910
New South Wales	25	224	31	183
Chicago Climate Exchange	23	72	69	309
RGGI	na	na	65	246
AAUs	na	na	18	211
<b>Sub total</b>	<b>2,108</b>	<b>49,361</b>	<b>3,276</b>	<b>92,859</b>
<b>TOTAL</b>	<b>2,984</b>	<b>63,007</b>	<b>4,811</b>	<b>126,345</b>

Source: World Bank, State and Trends of the Carbon Market, May 2009

# Volatility in European Market

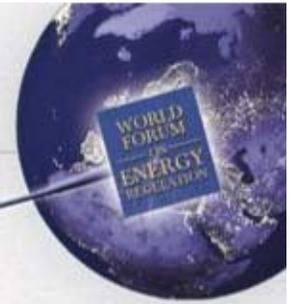
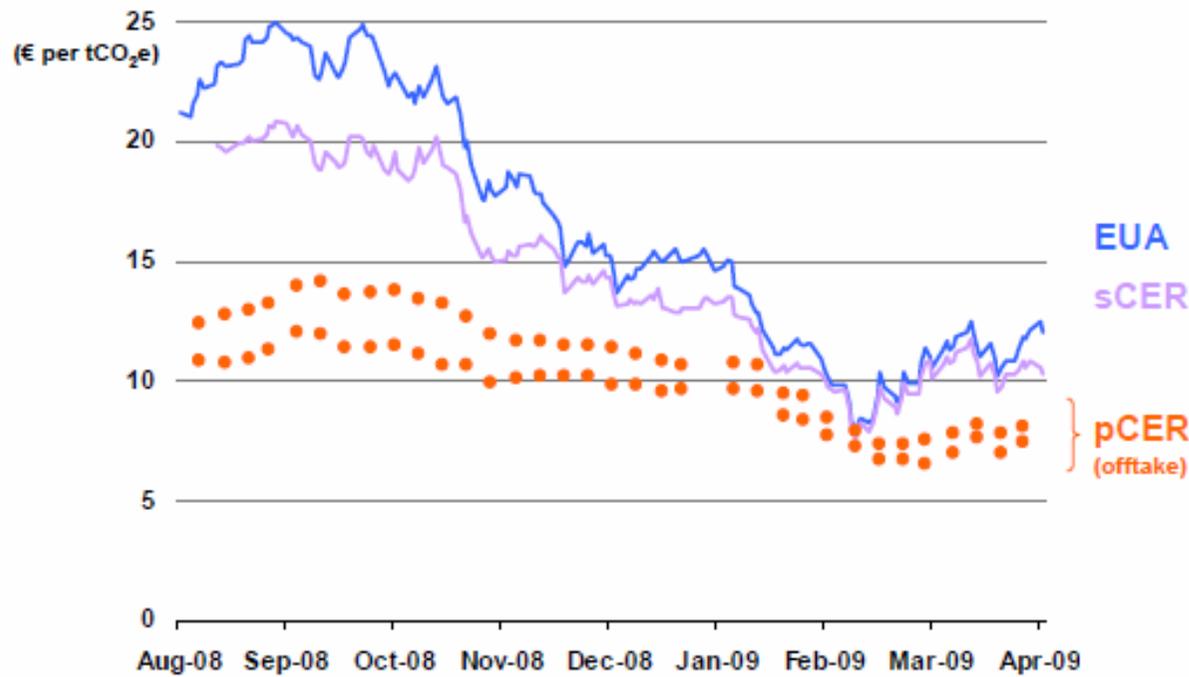


Figure 1: Carbon Prices Respond to the Recession



Source: Spot EUA and sCER (closing price): Bluenext; primary CER (average price for categories b and c): IDEA Carbon.

Source: World Bank, State and Trends of the Carbon Market, May 2009

# Observations

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- Debate over need to address climate change through legal, regulatory and market-based tools continues
- Legal/regulatory framework essential: Key to creating clear, predictable, consistent, stable conditions

# Today's Session

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- Superb panel of experts
- Reflecting different regional or national, and philosophical perspectives
- Will provide a thought provoking glimpse of the future



# ***Thank You***

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