

Carbon Markets

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VALUING NATURE'S CAPITAL

Presentation Outline

- **Carbon Market Basics**
- **Voluntary markets**
- **Regulatory markets**
- **Dynamic policy environment: Making sense of it**



Carbon Market Basics

What are carbon markets?

- Buying and selling greenhouse gas emissions, avoided emissions, or sequestered carbon
- Global problem, global market
- 2005 = \$10 billion USD, 2006 = \$30 billion USD



Carbon Market Basics

Why markets for carbon?

- Increased concentrations of CO₂ in atmosphere

17 th – 18 th centuries	280 ppm
Today	380 ppm
2050	450 – 550 ppm

- Correlation of greenhouse gases to climate change



Carbon Market Basics

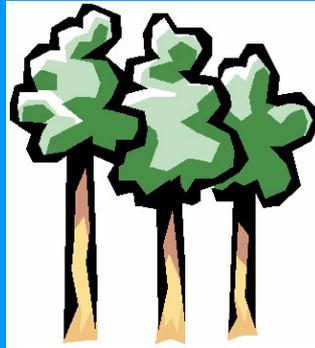
Greenhouse Gas	Global Warming Potential (GWP)
Carbon dioxide (CO ₂)	1
Methane (CH ₄)	23
Nitrous oxide (N ₂ O)	296
Hydrofluorocarbon (HFCs)	100 – 12,000
Perfluorocarbon (PFCs)	5,000 – 12,000
Sulfur hexafluoride (SF ₆)	22,000



Carbon Market Basics

Key concepts

- Offsets (project based)



- Forestry
 - Reforestation, Afforestation, Forest Management, Biomass, Wood Products
- Additionality – beyond business as usual

Voluntary vs. Regulatory Carbon Markets

Voluntary

- No mandatory emissions cap
- Range of participants
- 20-30 domestic providers
- Gourmet carbon
- Unregulated (subject to change)

Regulatory

- Mandatory emissions cap
- Applies to regulated sectors
- Offsets optional
- Commodity carbon
- Highly regulated – governing body oversight

Voluntary Carbon Market

Individuals or organizations pay to offset their carbon footprint

- **Motivators: 1) “do the right thing” 2) pre-regulation 3) green marketing**
- **\$100 million industry in 2006, expected to be \$400 million in 2008.**
- **1st deal in 1989 between American Electric Co. and Guatemalan farmers – 50,000,000 trees**



Voluntary Carbon Market

PROS

- Innovation and education
- Includes all interested parties
- Easy to maintain lifestyle
- Robust marketplace

CONS

- No standardization or oversight
- Easy to maintain lifestyle
- Risk of non-delivery



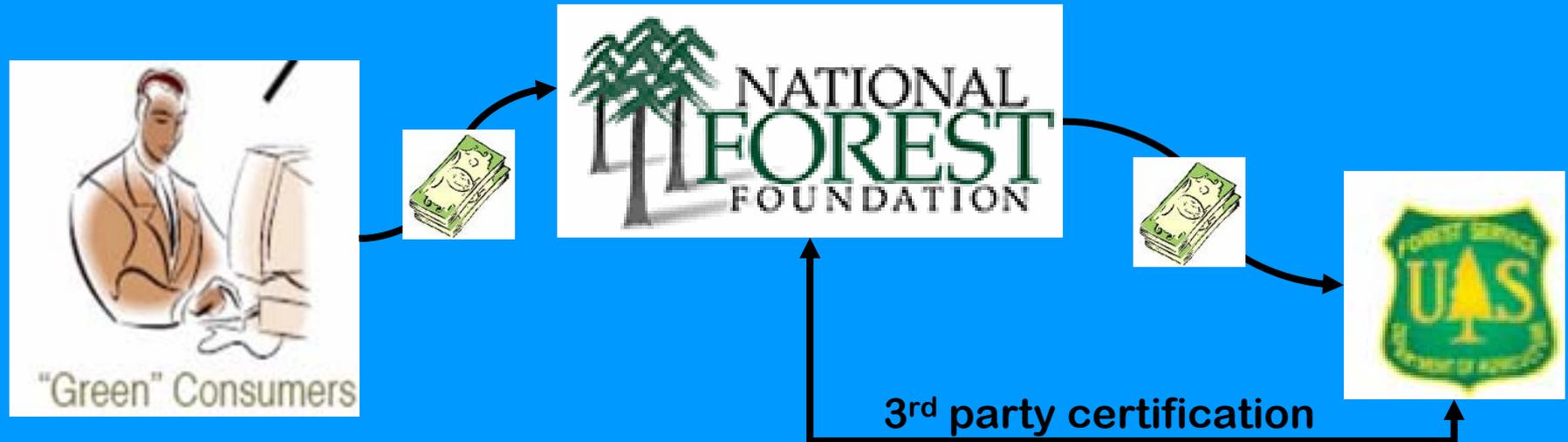
Voluntary Carbon Market

- Chicago Climate Exchange (CCX) - \$2.00/tCO₂e
- Over-the-Counter (OTC) - \$5.00 - \$15.00/tCO₂e
 - ❖ TerraPass
 - ❖ Carbonfund.org
 - ❖ Carbon Capital Fund (National Forest Foundation)
 - ❖ One-to-One transactions



Voluntary Carbon Market

The Carbon Capital Fund



- Demonstration projects: 2 – 3; approx 50 – 100 acres
- Financial Additionality: Reforestation backlog
- Biological Additionality: Moving baseline based on natural regeneration scenarios. Using FVS to model.

Voluntary Carbon Market

The Carbon Capital Fund

- Demonstration projects meet offset *principles*
- Test demonstration projects against 8 – 12 offset protocols
 - Chicago Climate Exchange
 - California Climate Action Registry
 - 1605 b): A, B, C, D
 - The Climate Registry
 - The Gold Standard
 - Climate Community and Biodiversity Alliance
 - Voluntary Carbon Standard

Regulatory Carbon Market

Governing body sets emissions cap, designates economic sectors to fit under cap

- **Motivators: Legal obligation**
- **Market-based mechanisms – Cap and Trade**
- **Offsets may or may not be included**



Regulatory Carbon Market

Key concepts

- Emission Allowances or Emission Permits



- Permit Allocation
 - Auction
 - Based on historical emissions

Regulatory Carbon Market

Key concepts

- Cap and Trade

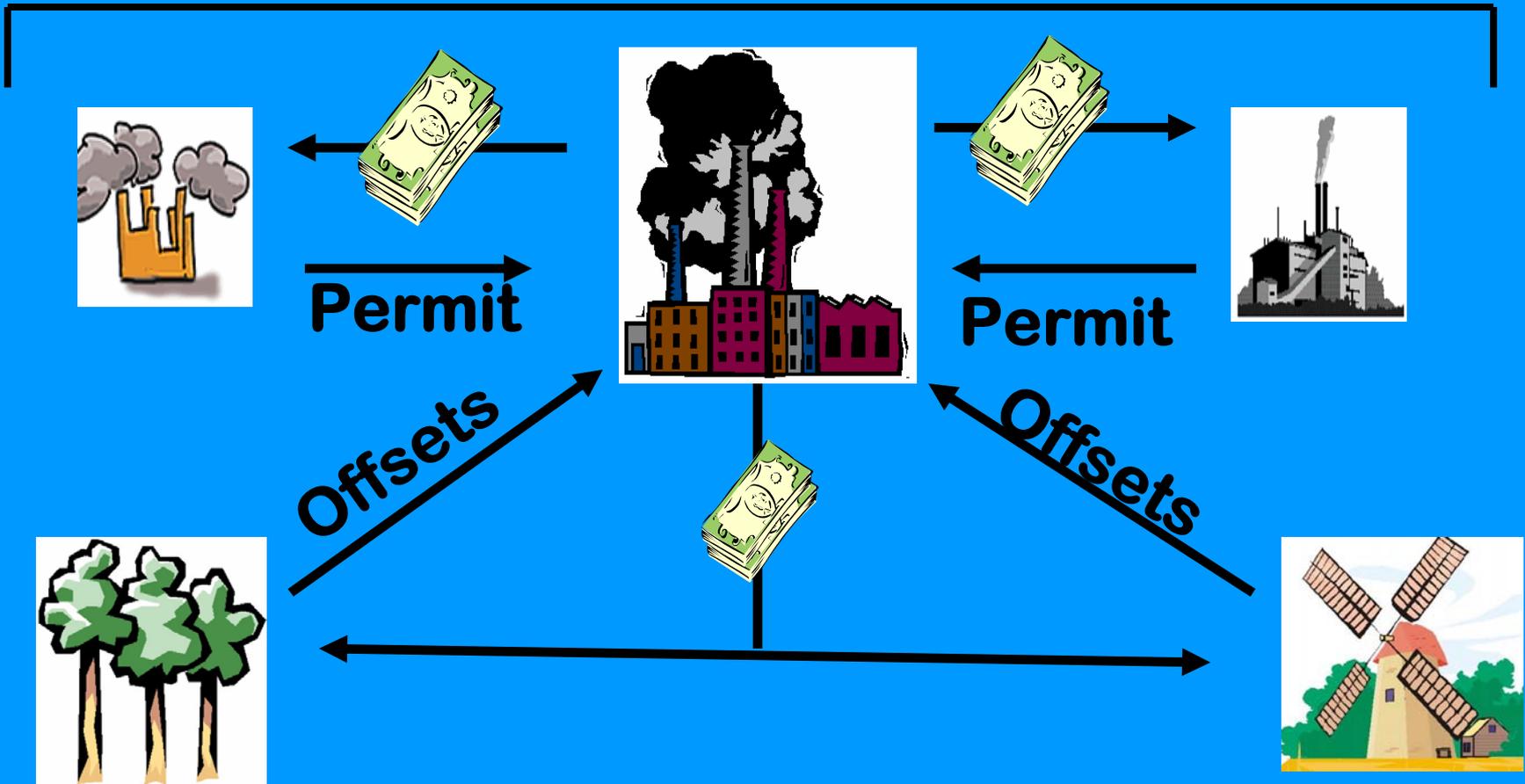


- Market-based incentives
- Promotes cleaner technology and efficient firms

Regulatory Carbon Market

Key concepts

- Cap and Trade with Offsets



Regulatory Carbon Market

Examples

- **Kyoto Protocol**
 - ❖ **EU Emissions Trading Scheme (EUETS)**
- **Regional Greenhouse Gas Initiative (RGGI)**
- **Global Warming Solutions Act – California**
- **Potential federal regulation**



Regulatory Carbon Market

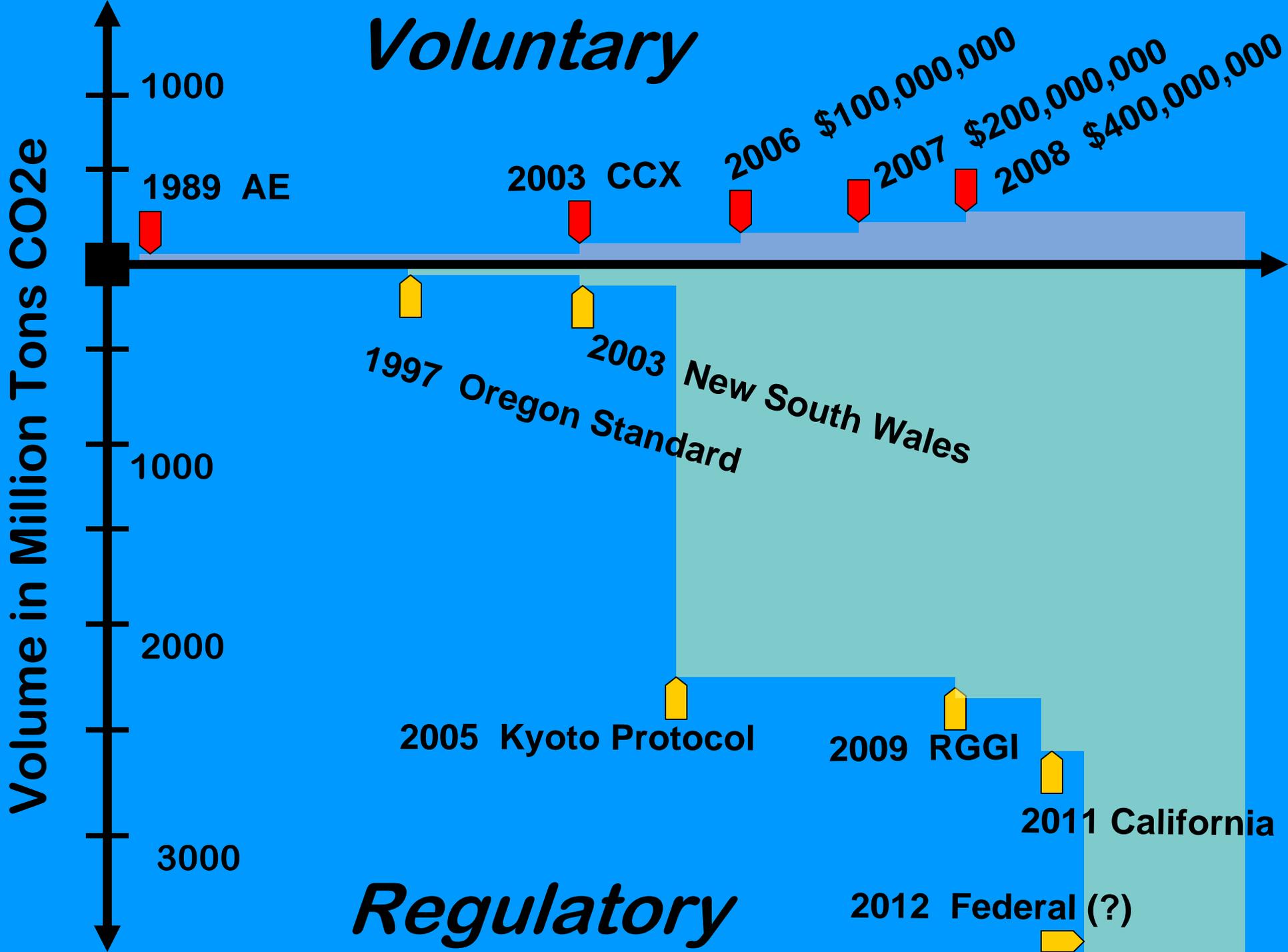
PROS

- Scope and scale
- Standards and oversight
- Promotes clean technology

CONS

- All about design
- Right to pollute
- Gaming the system





Policy Roundup

In the News...

- **Lieberman-Warner: America's Climate Security Act**

- ~1990 levels by 2020 and 70% below 1990 by 2050
- Cap and trade in 2012
- Major offset language (15% of reductions from offsets)
- Afforestation, reforestation, management
- EPA and USDA language to come up with accounting rules
- Auction allowances to set up wildfire fund (\$800 million to USFS, \$300 million to BLM)