

The background of the slide is a photograph of a dense forest. In the foreground, there are several large, vibrant green ferns. Behind them, numerous tall, slender tree trunks rise vertically, creating a sense of depth. The lighting is soft and diffused, typical of a forest interior.

Cap and Trade and Carbon Credits

What is it

How will it work

Premise, Systems, Overview

What is AB 32

- **Reduction on CA Carbon Footprint – adopted Dec. 11th, 2008**
- **Reduce GHG to 1990 levels (30%) by 2020 from business as usual**
- **Reduce GHG levels by 80% from 1990 levels by 2050**
 - Expand existing energy efficiency programs
 - Achieve Statewide renewable energies mix of 33%
 - Develop a CA Cap and Trade program
 - Establish targets, implement standards, create fees and penalties, and a fee to fund admin costs

Types of Systems

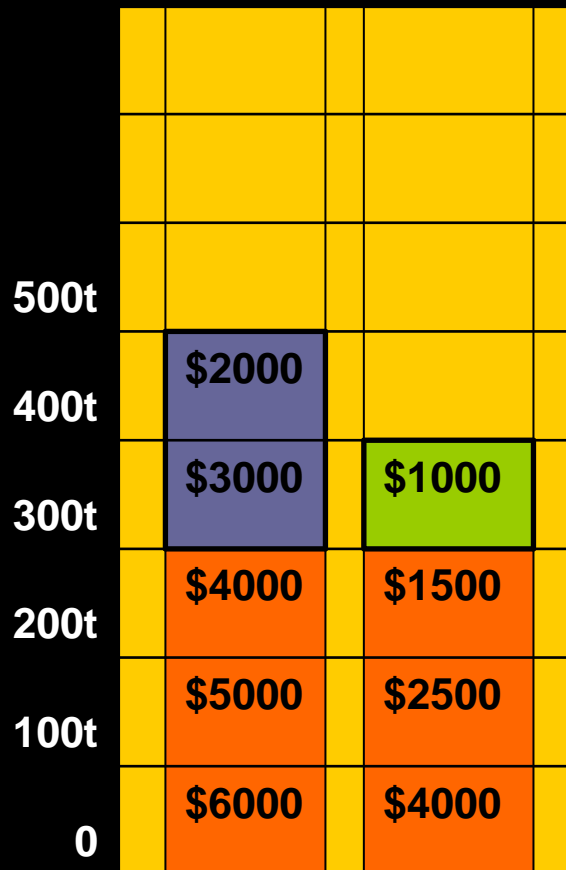
- **Command & Control vs. Cap and Trade**
- **C&C – Gov’t Regulations – Direct and indirect taxes**
- **Cap and Trade –**
 - **Set upper limit for emissions**
 - **Decide who is responsible for surrendering allowances during the compliance period**
 - **Set price for auction**
 - **Decide on allocation limits**
 - **Set timelines**
 - **Set penalties**



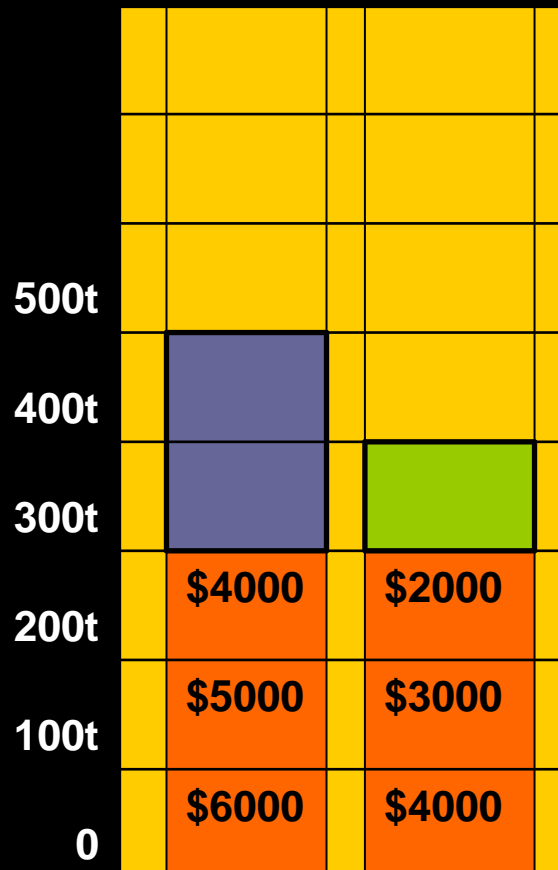
Pros and Cons

- **Allowances** – Rights to emit
- **Allocation** – Based on historical emissions
 - No revenues. Must create credits for co's who took voluntary early action.
- **Auctioning** – Gov't authorization to emit certain amount.
Total amount linked to cap
 - Generates Revenue
 - Price depends on competitiveness of industry
 - May unfairly hurt those w/o funds to purchase
 - Especially true for firms who cannot pass cost of allowances on to consumers
 - Gov't can use to lower costs in other areas
- **Trading**

Command and Control



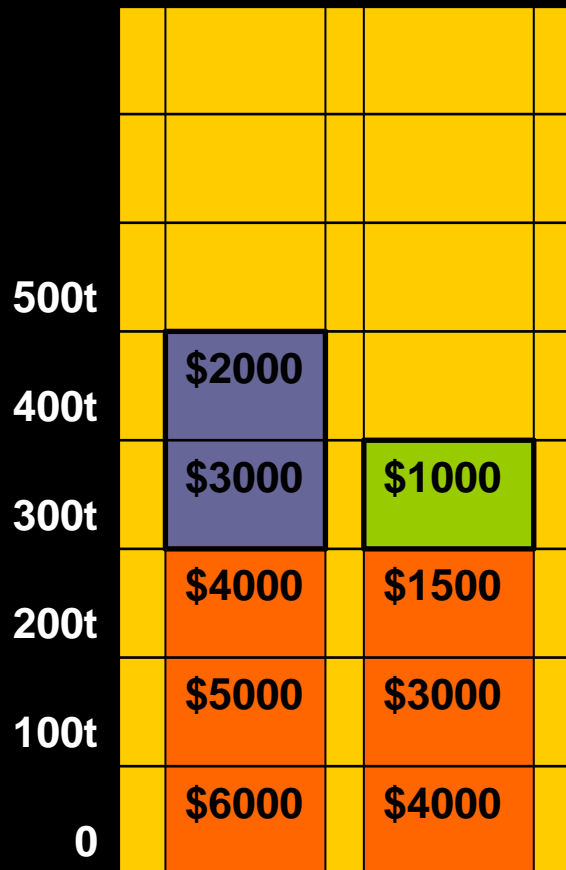
Power Plant | Manufacturer



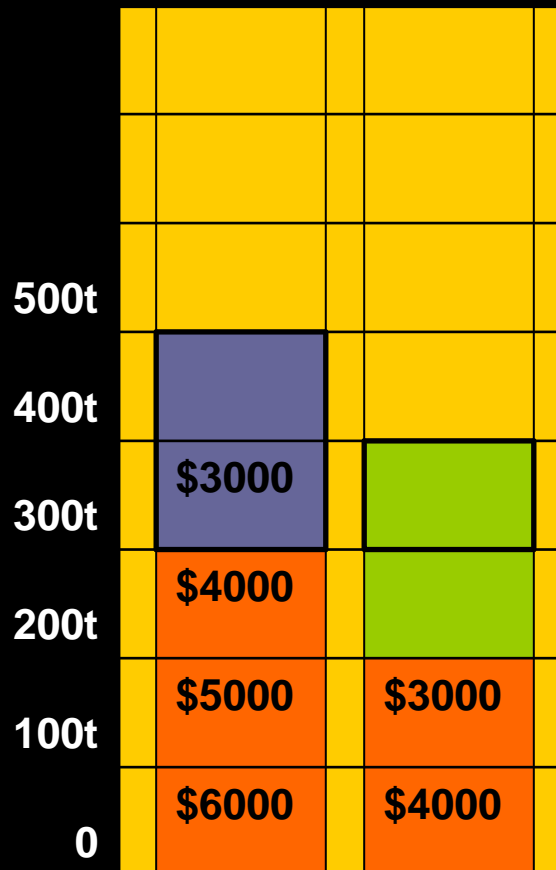
Power Plant | Manufacturer

Initial Emissions: 900t
Emissions Goal: 600t
Total Reduction: 300t
Total Cost: \$2000
\$3000
\$1000
\$6000
Cost per ton: \$20.00

Cap and Trade



Power Plant | Manufacturer



Power Plant | Manufacturer

Initial Emissions: 900t
 Emissions Goal: 600t
 Total Reduction: 300t
 Total Cost: \$2000
 \$1000
\$1500
 \$4500
 Cost per ton: \$15.00



Cap and Trade benefits

- **Market mechanisms provide a benefit for continuous innovation**
 - Under Command and Control, no incentive to go beyond regulatory standard
 - Under Cap and Trade, additional allowances can be sold or banked
 - Innovation will occur to the level of cost efficiency
- **Cap and Trade worked with Sox and Nox**
 - Up Stream – Cap on total Co2 contained in fossil fuels
 - Down Stream – Direct Emitters - Power Plants and Manufacturers
 - Product or Load Based – Covered Entities responsible for all emissions associated with production of Electricity, NG or other products provided to consumers



Terms – How they Work

- **Additionality** – Reductions achieved over and above those that would have occurred without the project
- **Allowance** – Gov't authorization to emit certain amount. Total amt linked to cap
- **Allowance Distribution** – Auction, free Allocation, or both
- **Offset** – GHG lowering outside of mandatory emissions system. Can be used, banked or sold.
- **Borrowing, Banking, Leakage**



Equivalents

- Production of 1/3 of a cheeseburger emits 6.8lbs of CO₂
- One US gallon of gasoline emits 19.14lbs CO₂
- 1999 Oldsmobile Cutlass – 3.1L 6 Cyl. driving 25,000 miles at 23 mpg. Emits 9.64 tons of CO₂. Offset cost \$96.41
- 2008 Toyota Prius – 1.5L 4 Cyl. driving 25,000 miles at 46 mpg. Emits 4.82 tons of CO₂. Offset cost \$48.21
- Coal fired plant produces 2.2lbs of CO₂ per 1 kilowatt hour

San Francisco Bay Scenarios for Sea Level Rise SFO



SF Airport at one
meter above sea
level



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