

Forest Carbon Protocol; What's the financial opportunity for Land Owners?

A Marketing Perspective

Sierra Cascade Logging Conference
February 12, 2010

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CantorCO2e

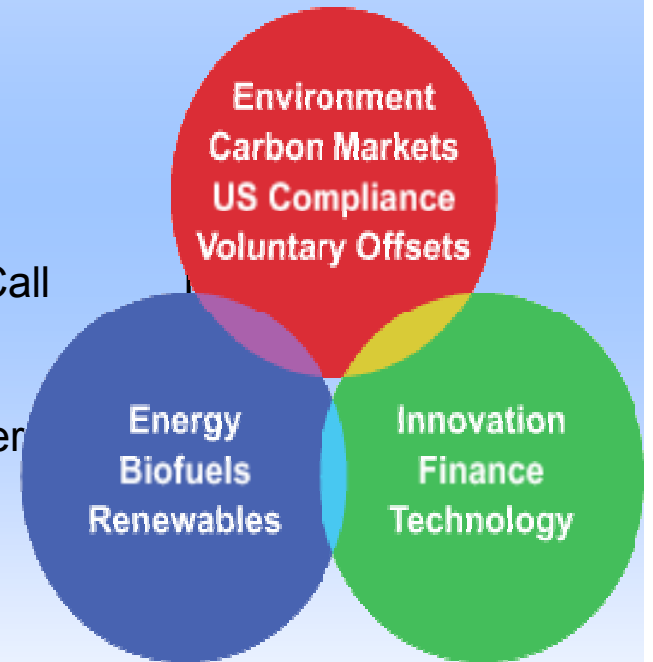
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www.emissionstrading.com

Who Are These Guys?

- Brokerage, advisory, regulatory, consultancy,
- >~40 staff ...est 1992 (staff in the business since 1981)
- >50 geographic areas...worldwide offices, globally local
 - New York San Francisco Los Angeles
 - Vermont Houston Sao Paulo
 - Mumbai London Toronto
- > \$10 billion air credit transactions
 - GHG VERs SO2 EAs NOx SIP Call
 - RGGI RECLAIM HGA
 - CERs RECs/ROCS CERs
 - ATUs EU EAs Wastewater
- Erasing Genesis' footprint
- Yahoo Googling to neutrality
- New York, New Jersey Port Authority – got a few million tons?



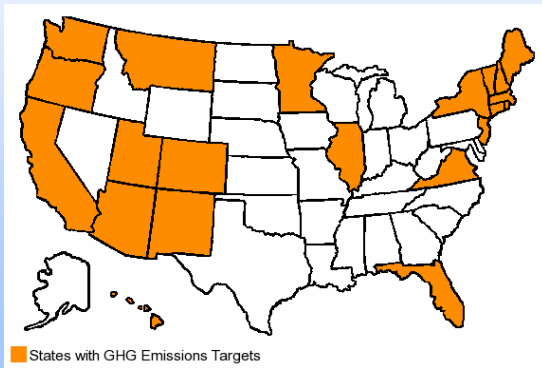
Doubts About Climate Bill Passage

- Recent weeks: doubts
- MA Scott Brown
- “Baked” Climate Science?
 - Amazon River
 - Himalayan glaciers
 - Denmark Sea level
- AZ, Utah exit WCI
- Politics:
 - Obama: Split the bill, oops, mean don't split it!
 - Senate Leadership: Full speed ahead after healthcare, jobs, banks.
 - Senate Dems: Hey, I'm running for re-election here!

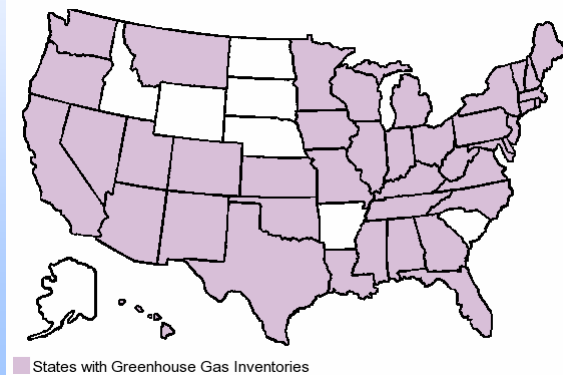


Who Cares?

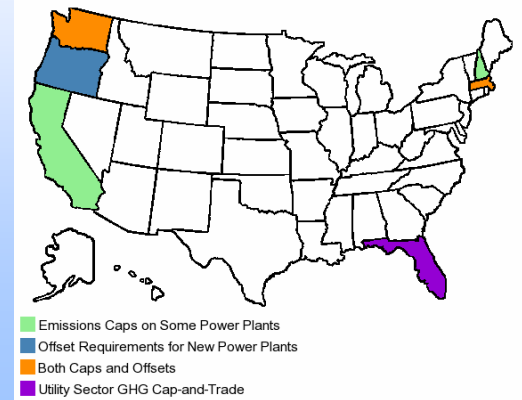
GHG Emission Targets



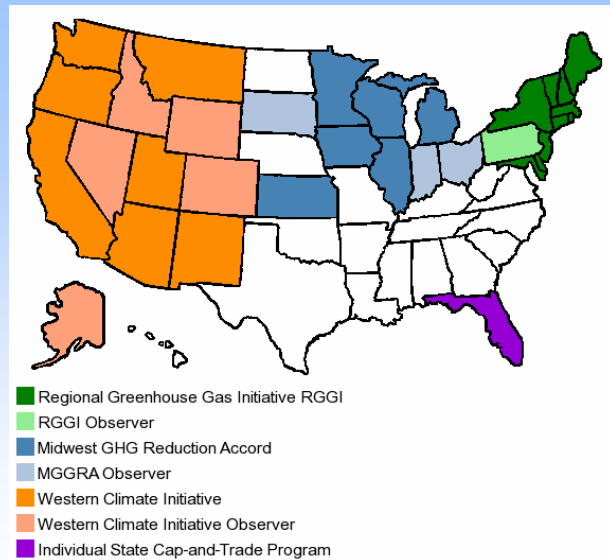
GHG Emission Inventories



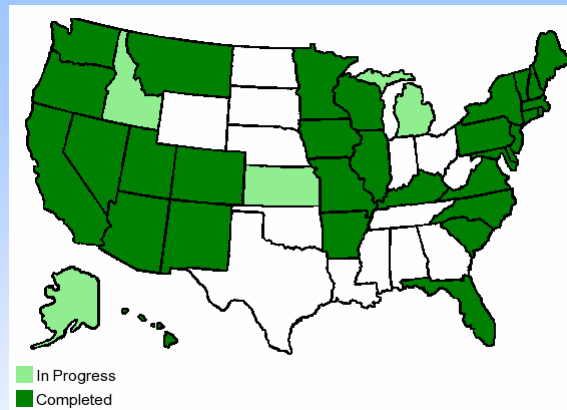
Power Plant GHG Offsets



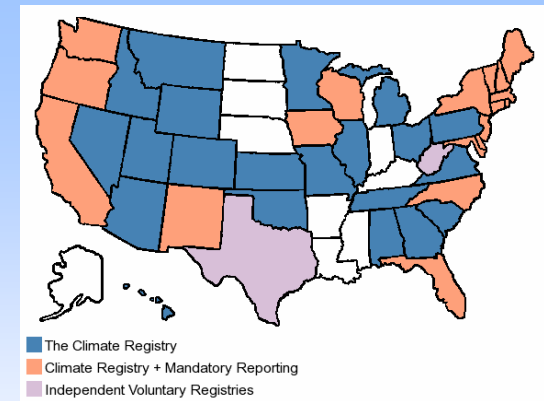
Regional Initiatives



Climate Action Plans



GHG Reporting Registries



Source: Pew Center for Climate Change

Federal Gov't GHG Regulation

■ Executive Branch

- Stationary source reduction rules – PSD, Tailoring
- Vehicle emission reduction rules
- New emission permit limits for power plants - BACT
- Mandatory reporting of emissions – Report spring 2011 for 2010
- SEC guidance on material risks
- FTC enforcement of green product marketing claims – 87 companies
- NEPA guidance -

■ Congress

- Climate change legislation

■ Federal Courts

- 2 major court decisions

Govt Regulation Will Be The Basis of...

- EPA rules to reduce emissions and cap & trade allocations
- SEC/Investor materiality assessment/requirements
- FTC Enforcement of “Green” marketing claims
- Product labeling requirements
- Brand attention – good and bad
- 5th District Court-spurred lawsuits on GHG impact
- Competitor comparisons
- Buyer/Retailer/Consumer Marketing
 - Opportunity to build reputation
 - Potential for confusion
 - Assumptions about direct, indirect and supply chain emissions
- Drive to reduce supply chain emissions
- Questions about what your company is doing to reduce its carbon footprint

Regulatory

Branding

2009-2010 Legislation

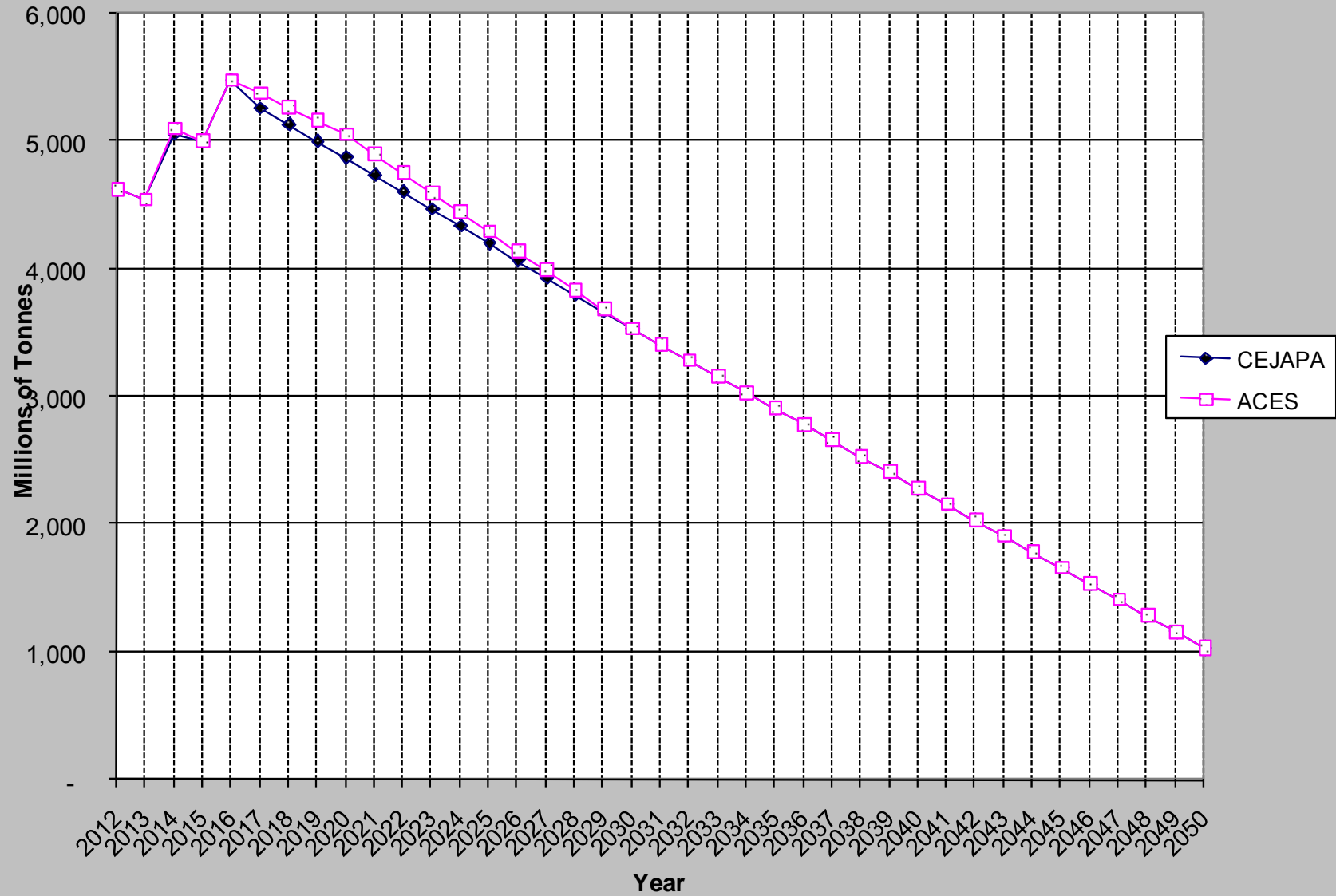
- HR 2454 – Waxman-Markey
- S 1733 – Boxer-Kerry
- S 2729 – Stabenow Amendment
- S 2776 – Webb/Alexander (nuclear)
- S 2877 – Cantwell/Collins (dividend)

- Under Development
 - Kerry-Graham-Lieberman
 - Baucus

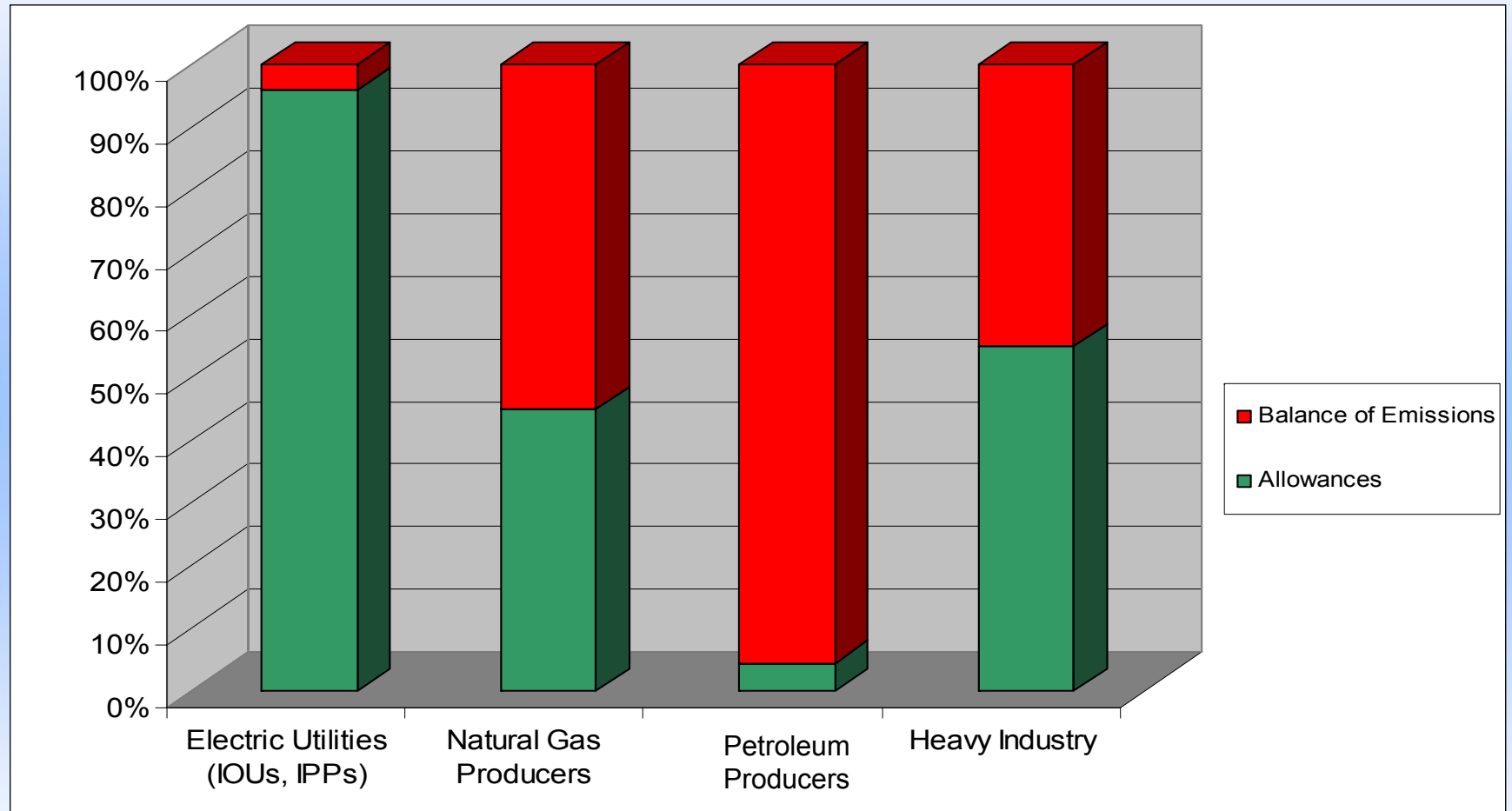
- Sen. Reid: “sometime this spring”



CEJAPA - ACES Allocations What 78% Reduction Looks Like November 2009



Winners & Losers In Climate Bills



Relative Emissions and Allowances: 2012 – 2026 (ACES, CEJA)

Clean Energy (Fence Sitters) Partnership Act

Offset Types

- Coalmine methane,
- Landfill gas
- Fugitive emissions from the oil and gas sector
- Afforestation/reforestation (1/1/09)
- Forest management and reduced deforestation
- International REDD projects started after 1/1/01

Qualifying Programs

- Climate Action Reserve
- Voluntary Carbon Standard
- American Carbon Registry
- RGGI

Timeframe

- As far back as 1/1/01
- 10 year crediting period

Fungibility

- 1 to 1 fungibility for these pre-2009 offsets

Administration

- USDA (ag and forestry) and USEPA (other)

Carbon capture and storage

Recycling/waste minimization projects

Agricultural, grassland and rangeland mgmt

Animal management practices

Urban tree-planting



What If Climate Bill Get's the Flu?

(water with your poison pill?)

- MA v EPA
- “Endangerment Finding” (next 6 weeks)
- Finalize tailpipe standard (March 2010)
- Stationary sources - “PSD/Title V GHG Tailoring Rule”
- 250 vs >25,000 MTCO₂e
- If Congress doesn't pass Climate bill:
 - EPA promulgates rule
 - ...but loses court challenges re 25k threshold
 -and has to regulate sources emitting >100 - 250 tpy??
- 13,200 sources vs >4 - 6 millions sources

5th Circuit Court – OK to Sue Petrochemicals on Climate

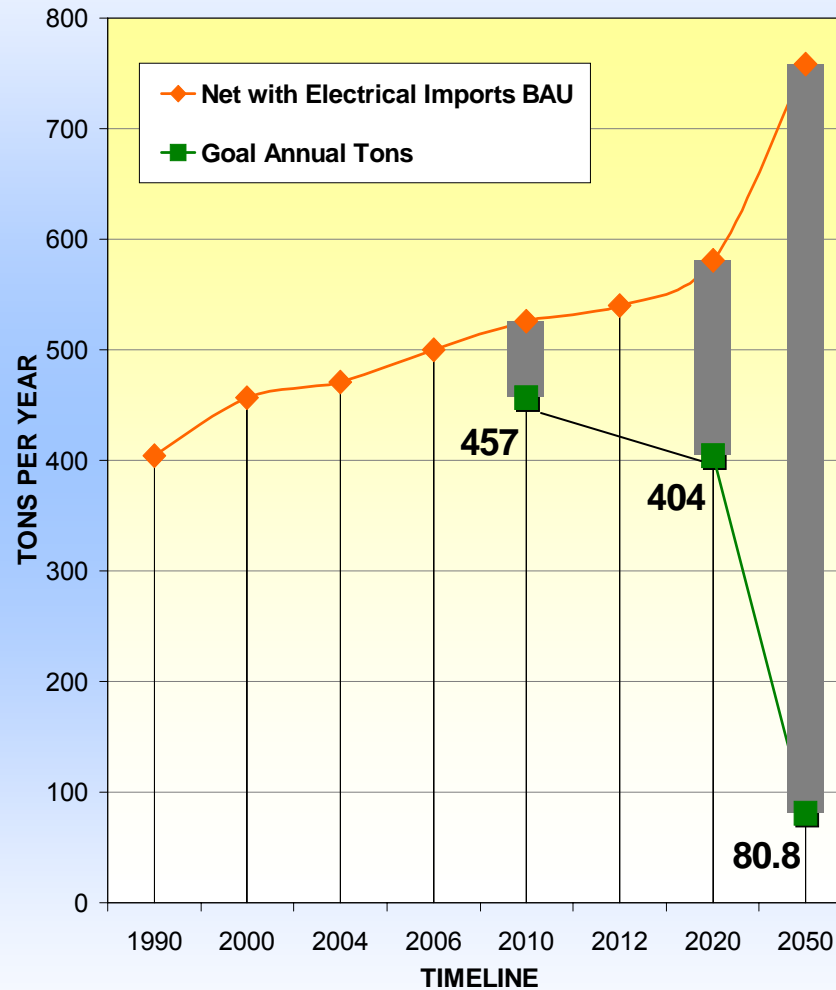
- **Katrina victims can sue oil & gas producers**
- Links emissions, climate change, storms, personal suffering
- Plaintiffs have standing to assert claims for public and private *nuisance, trespass and negligence*
- Cites Supreme Court opinion that “**accepted as plausible the link between man-made GHGs and global warming**”
- Fact: “rising ocean temps may contribute to ferocity of hurricanes.”
- Follows 2nd Circuit decision - municipalities have standing to sue to impose on caps on certain companies’ GHGs
- **Expect more suits**



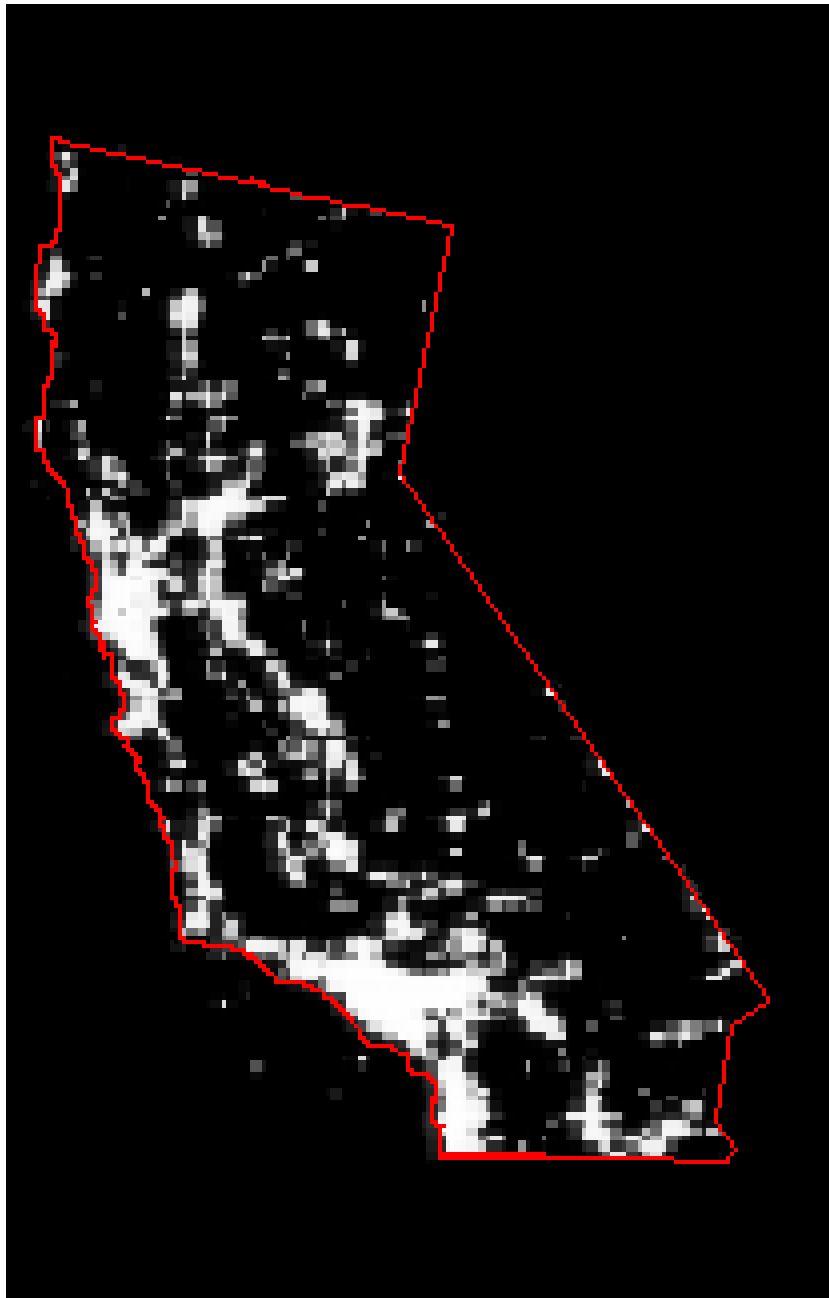
Take California...please

>52% Pop↑ 1990 - 2020
74% Pop↑ 2000 - 2050

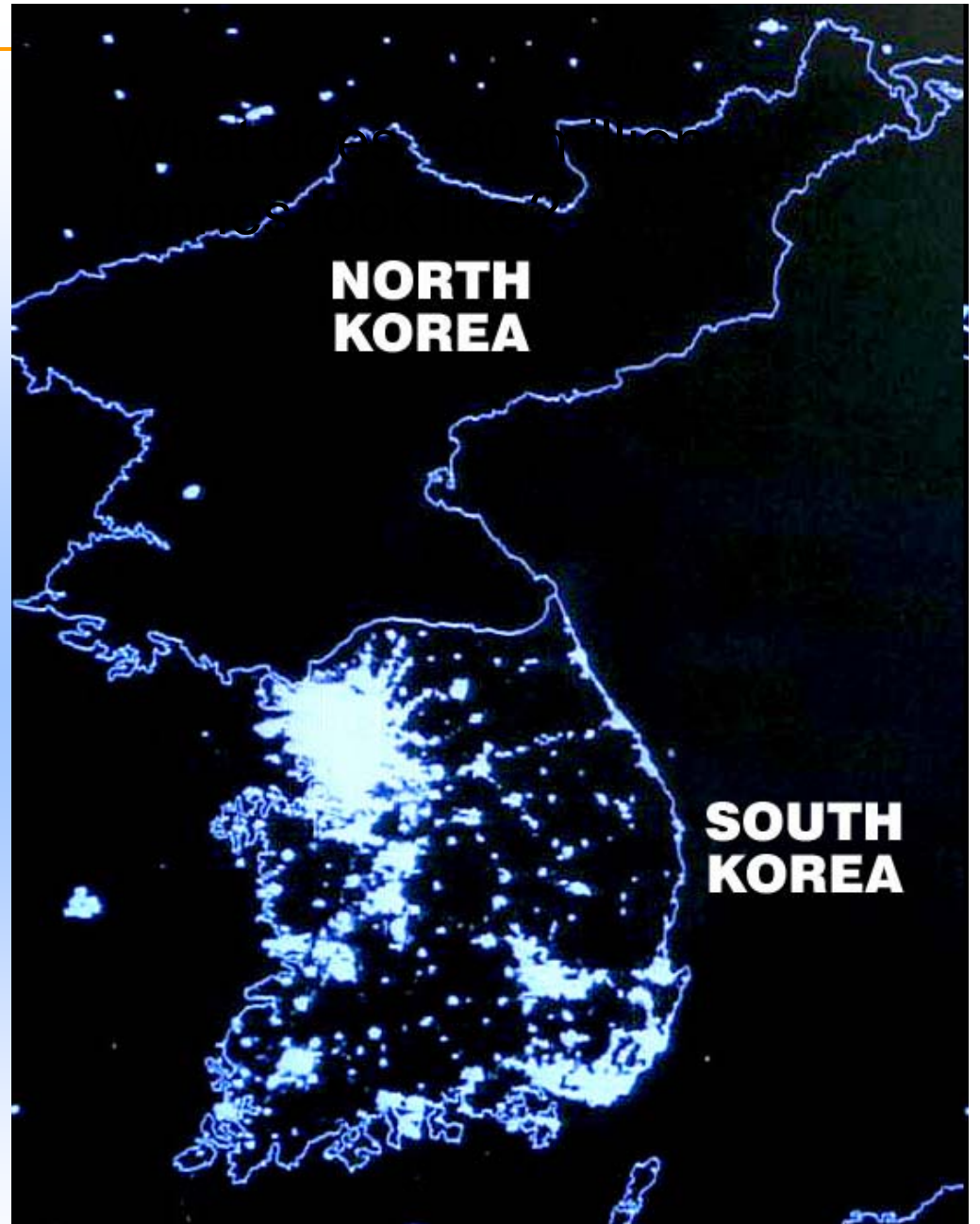
California Business-as-Usual
vs AB 32 and EO S-20-06



25 - 30% reduction by 2020
(80% below 1990 by 2050)



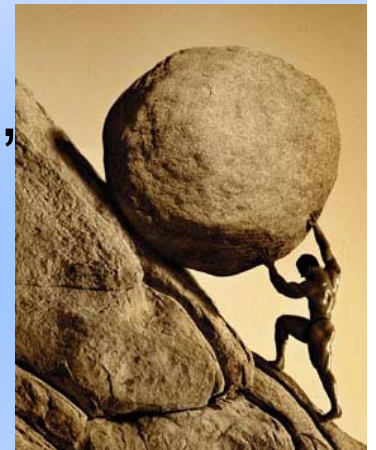
36.7 mill 156k mi²



22.9 mill 46,540 mi²

Massive Challenge

- CA pop up 74% 2000 (34.1) – 2050 (59.5) (CA Dept Finance)
- 200 BMT global reduction by 2050 (Robert Socolow, Princeton)
- 14% - shut down everything that moves
- 68% - shut down all industrial, commercial, residential activity (David O'Reilly, Chevron)
- Emitted tonnes per person: (Union of Concerned Scientists)
 - China-4.58 and India-1.16 (Union of Concerned Scientists)
 - UK-9.66, US-19.78, CA-1/2 US
- Costs to control = 1% global domestic product (Sir Nicholas Stern)
- Costs of inaction = 5 – 20% (Sir Nicholas Stern)



Markets Big Picture



- Worldwide carbon market:
 - 2006 1,702.2 MtCO₂e, \$40+ billion*
 - 2007 2,918.2 MtCO₂e, \$66+ billion*
 - 2008 \$126 billion (World Bank)
 - 2012 \$550 billion (NCF 2009)
 - 2020 ~\$3 trillion (ICF 2009)
 - 2030 \$4.2 trillion spent power plants, energy efficiency (Int Energy Agency)
- Voluntary carbon market:
 - 2006 24.6 MtCO₂e, \$4.10/tCO₂e (OTC), \$97 million*
 - 2007 65 MtCO₂e, \$331 million (OTC \$6.10, CCX \$3.15/tCO₂e)*
 - 2008 \$705 million* (~30% US)
- OTC and Exchanges

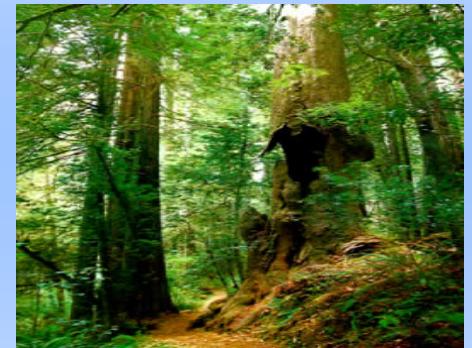


* Ecosystem Market Place, State of the Voluntary market, May 2008

** Jason Furman, National Economic Council Feb 25, 2009

Let's Talk Offsets

- Wind, solar, hydro
- Fuel switch
- Livestock (manure management)
- Waste management
- Landfill gas capture
- Wastewater treatment plant
- Cogeneration
- Avoided conversion, reforestation, urban forestry



Offsets...Looking For Guidance



Government issued or Created

- Real vs. avoided emissions
- Baseline
- Business as usual
- Additional (\$)
- Surplus
- Quantification
- Verification
- Monitoring
- Enforceable
- Guarantees

Gourmet vs cafeteria, junk/empty



By Whose Standard

- CAR
- RGGI
- CCX
- Social Carbon Methodology
- Gold Standard
- Voluntary Carbon Standard II
- American Carbon Registry
- Climate, Community and Biodiversity Alliance Standard
- Climate Neutral Network
- C Climate Exchange
- Green-e (RECs)
- Clean Development Mechanism
- Joint Implementation Steering Comm

Forestry Opportunity

- California's Demand:
 - Allowances + Offsets = 500,000,000 mt
 - Offsets < 4% of total Demand
 - 5,000,000 - 20,000,000 MT CO₂e
 - Timeframe, before 2020

- 8.6 million private timber acres in California*

- Forestry carbon potential:
 - 25-50 MMT/year CO₂e (3 – 6 mt/acre/year)
 - \$5 - \$25/MT
 - \$125 million - \$1.25 billion/year



*Forest Inventory and Analysis National Program

CA FOREST CARBON PRICES

■ CAR National

	LFG	Bid	Offer	Mid
<u>v09</u>	<u>5.6</u>	<u>6.9</u>	<u>6.3</u>	
<u>v10</u>	<u>5.9</u>	<u>7.3</u>	<u>6.6</u>	

■ CAR California

Forest

<u>v09</u>	<u>6.75</u>	<u>7.75</u>	<u>7.25</u>	
<u>v10</u>	<u>6.75</u>	<u>8.00</u>	<u>7.40</u>	

Types of Trades

- Exchange Traded and Cleared Markets in the US:

- Spot Delivery

- CRTs
- RGGI EAs

CCX Exchange offsets
CFIs

- Future Delivery

- CRTs
- CCX Exchange offsets
- Dec 2013 CFI (Fed Contract)

RGGI EA
CFIs

- Options on Futures

- CRTs
- Dec 2013 CFI (Fed Contract)

RGGI EAs

- Futures Trades

- Spread Trades
- Call Spreads

Futures Rolls
Put Spreads RGGI EAs & Dec 2013 CFI Contracts



What's the Right Price?

- >\$1,500,000/tpy - SCAQMD PM10
- **\$300/tonne – CA Refinery & Carbon Capture & Sequestration**
- \$150 - \$200/ton tax by 2050**
- **\$80/tonne– modeling (coal to gas replace)**
- \$44/tonne EUAs (4/06)
- \$28/tonne –BK pressure relief
- \$15/tonne – Congressional Budget Office 2012
- \$14- 25/ton - ConocoPhillips
- \$13-\$39/tonne – Obama Staff
- \$10/tonne – WM/BK Floor Price
- **\$6.75 – \$7.75 v09 offer CAR CA Forestry (2/10)**
- **\$6 - \$7.25 – 09-13 CAR Landfill Gas (LFG) (2/10)**
- **\$6.0 - \$7.25– 09 CAR LFG (2/10)**
- **@ \$5.50 – Ozone Depleting Subs (2/10)**
- \$2.19/ton - RGGI Auction (9/09)
- \$0.35/ton – CCX Ag soil or forestry bid



CantorCO₂e Greenhouse Services

- Transactions
- Continuous and customized auctions
- Forward sales -- debt, finance projects
- Transaction clearing
- Market analysis
- Methodology development
- Project screening, feasibility assessments
- Project documentation development
- Coordination and management of approvals processes
- Carbon management and business strategy consulting
- Technology advice
- Equity investment fund advice
- Investor project introductions
- Corporate greening
- Policy consulting



The CantorCO₂e Difference

- Your advocate – not a principal or retailer
- Competitive markets – price and quality
- 10 years in greenhouse gas markets
- 16 years in environmental markets
- Globally local (rules, opportunity, markets)
- Distinguish compliance and voluntary carbon
- Know what makes a quality carbon project
- Get it done... *quietly*



Thank You

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