



mwin Annual Luncheon:

The Reality of Carbon Trading, The New California Market, The Future

Carbon Solutions Group: Who We Are

- **Carbon Solutions Group, LLC.** (“CSG”) is an environmental asset management and carbon project development firm.
- CSG assists waste companies, engineering firms and industrial firms by providing:
 - **Carbon Market and Developmental Expertise**
 - **Carbon Market Representation and Support**
 - **Greenhouse Gas (“GHG”) Reduction Solutions**
 - **Credit Management Service**

Carbon Solutions Group:

Today's Presentation

- 1. How does the carbon market function**
- 1. What does the carbon market really look like?**
- 1. What does the California market look like and how can I benefit?**
- 1. What other solutions might I be able to take advantage of?**
- 2. What does the future hold for carbon markets and myself?**

What are Greenhouse Gases?

Greenhouse Gases (GHGs) are components of the atmosphere that contribute to the greenhouse effect. They Include:

- **Carbon Dioxide** (CO₂): Global Warming Potential (“GWP” is the measure of how much a given mass of greenhouse gas is estimated to contribute to global warming) of 1
- **Methane**: GWP of 21
- **Nitrous Oxide** (N₂O): GWP of 310
- **Sulfur Hexafluoride** (SF₆): GWP of 23,900
- **Hydrofluorocarbons** (HFCs): GWP of 12 - 12,000
- **Perfluorocarbons** (PFCs): GWP of 6,500 - 9,200

CSG Carbon Projects:

Where GHG Reduction Begins

A **Carbon Project** is classified as any action or project that is incorporated specifically to mitigate Greenhouse Gas Emissions. Carbon Projects help businesses create:

- Environmental Stewardship
- Viable On-site Clean Energy Generation
- Carbon Emission Credits
- Increases to Net Income

Carbon Offset Project Types

- Landfill Gas
- LF Avoidance
- Energy Efficiency
- Fuel Switch Projects
- Green Building Projects
- Afforestation Projects
- Alternative Waste Handling
- Solar Thermal
- Wastewater Methane Projects

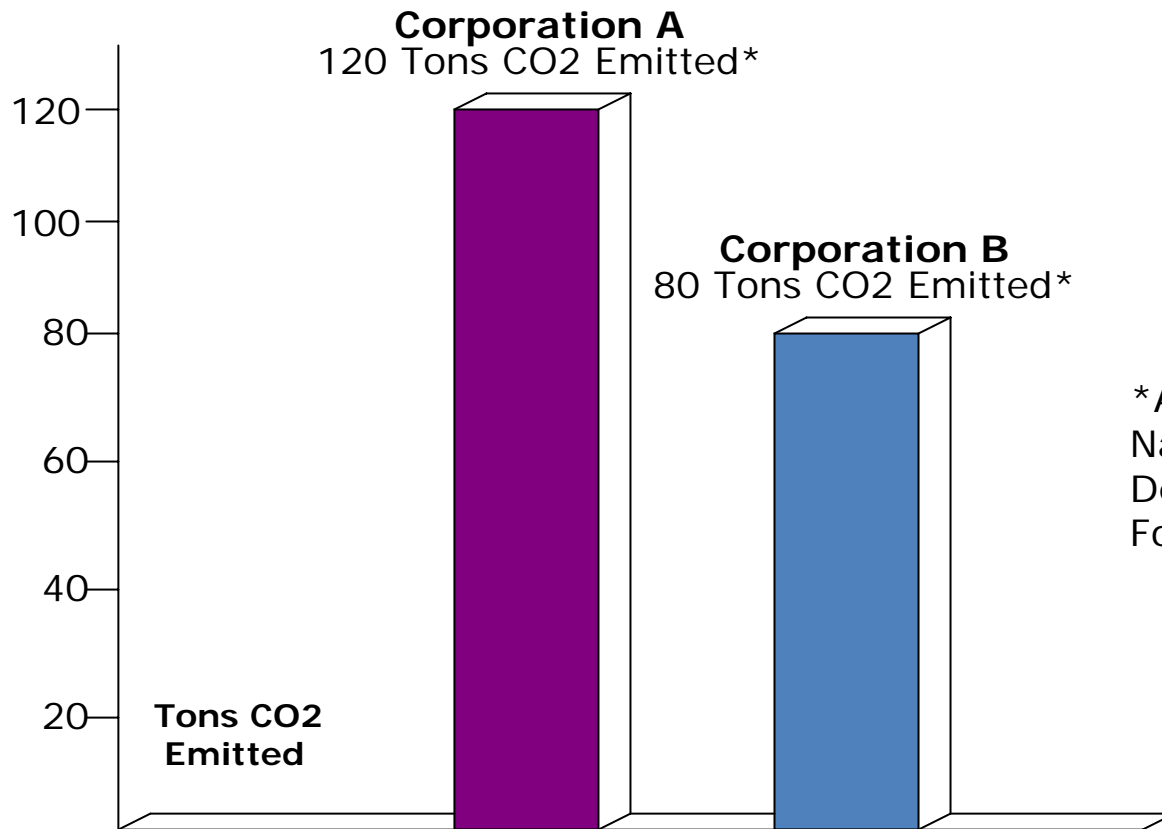
Carbon Market Background

Introduction to Carbon Trading

- There are currently several carbon trading systems in place worldwide, with the largest being the European Union's.
- These trading systems implement the “Cap-and-Trade” program which is an administrative approach used to control pollution by providing economic incentives for achieving reductions in the emissions of pollutants.
- The major **Cap-and-Trade** GHG trading system is the Kyoto Protocol, which was established in 1997.

Cap and Trade

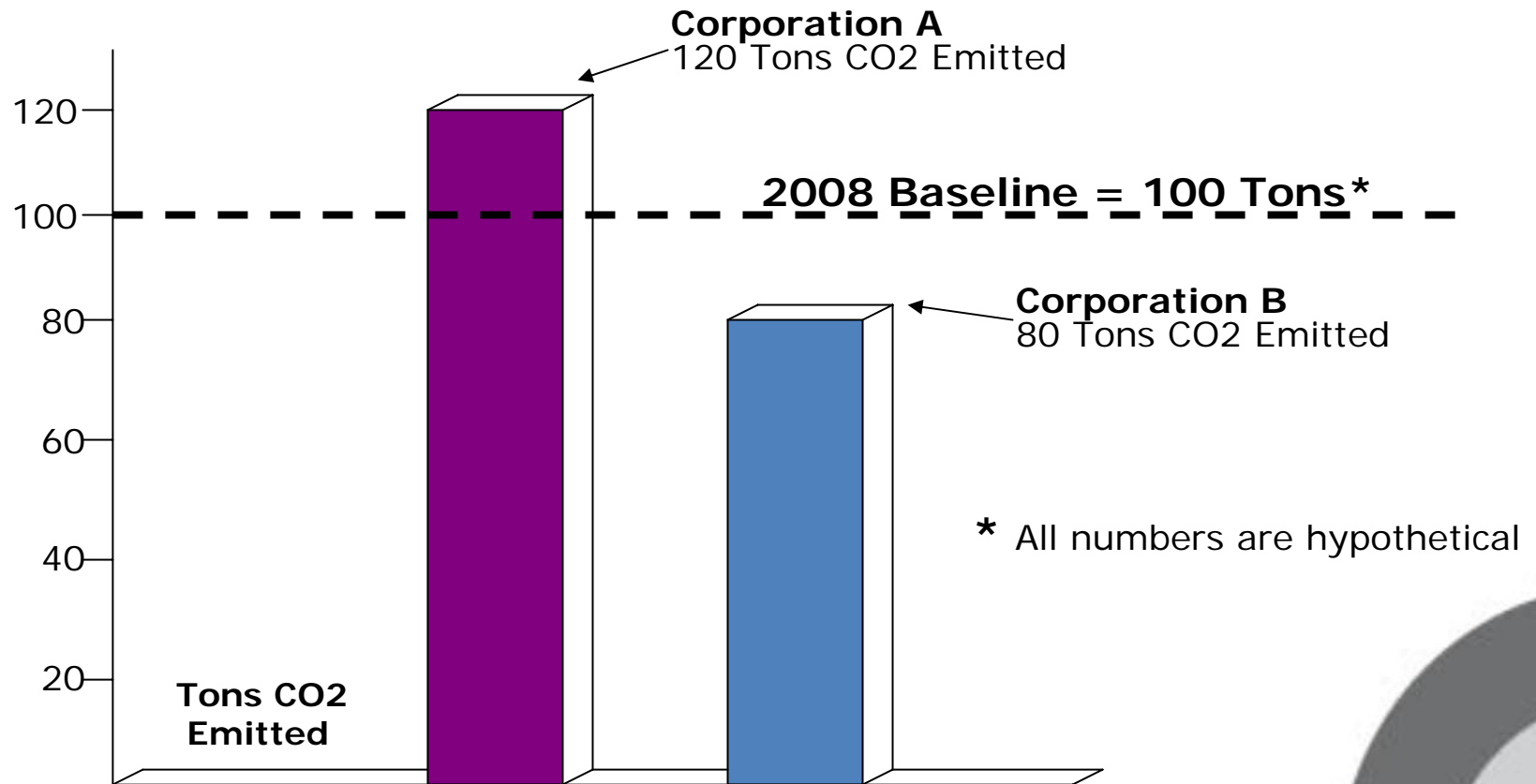
1. Determine Carbon Emissions



*A 3rd Party, Designated National Authority will Determine the Carbon Footprint

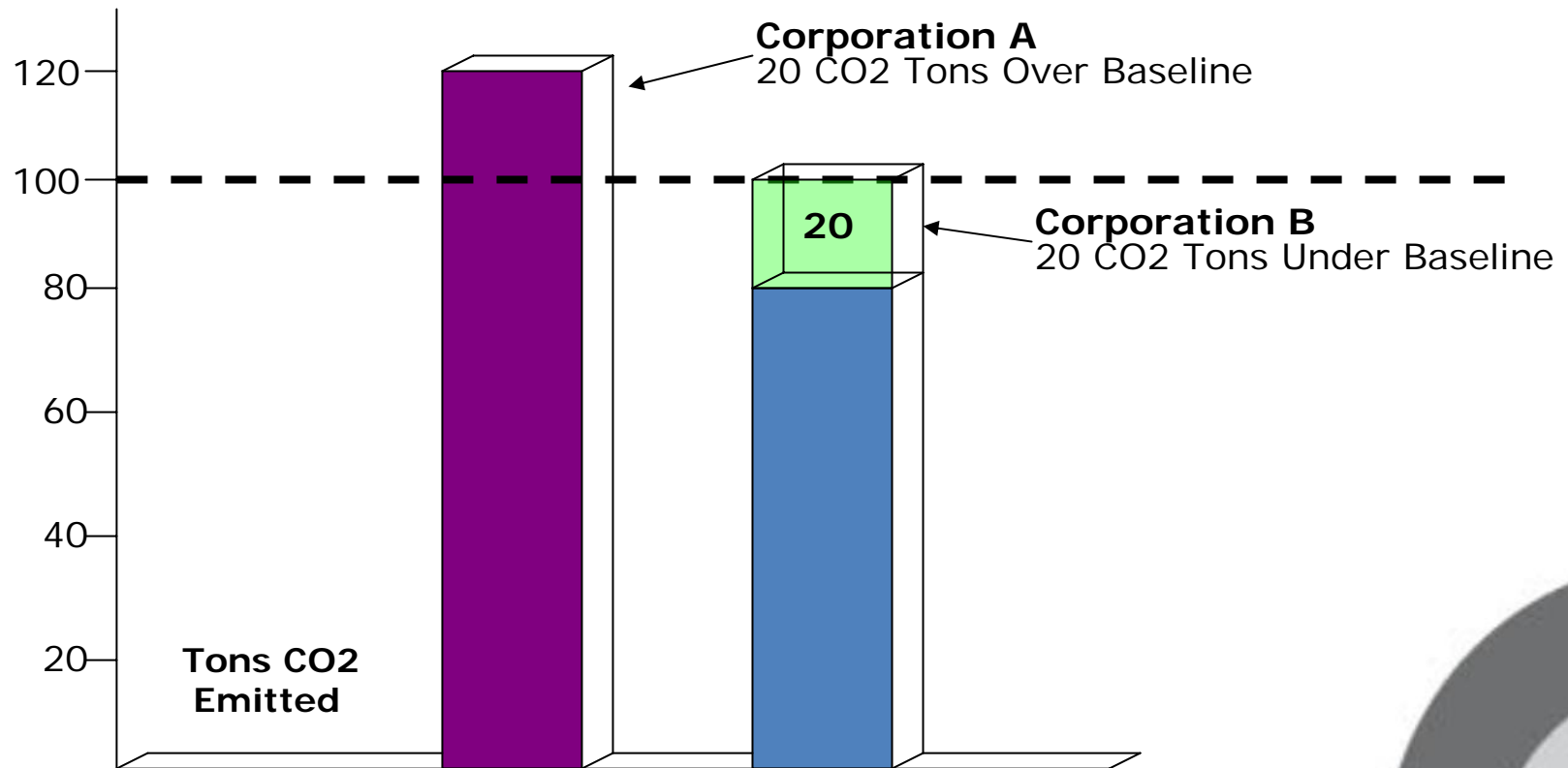
Cap and Trade

2. Establish Carbon Cap Baseline



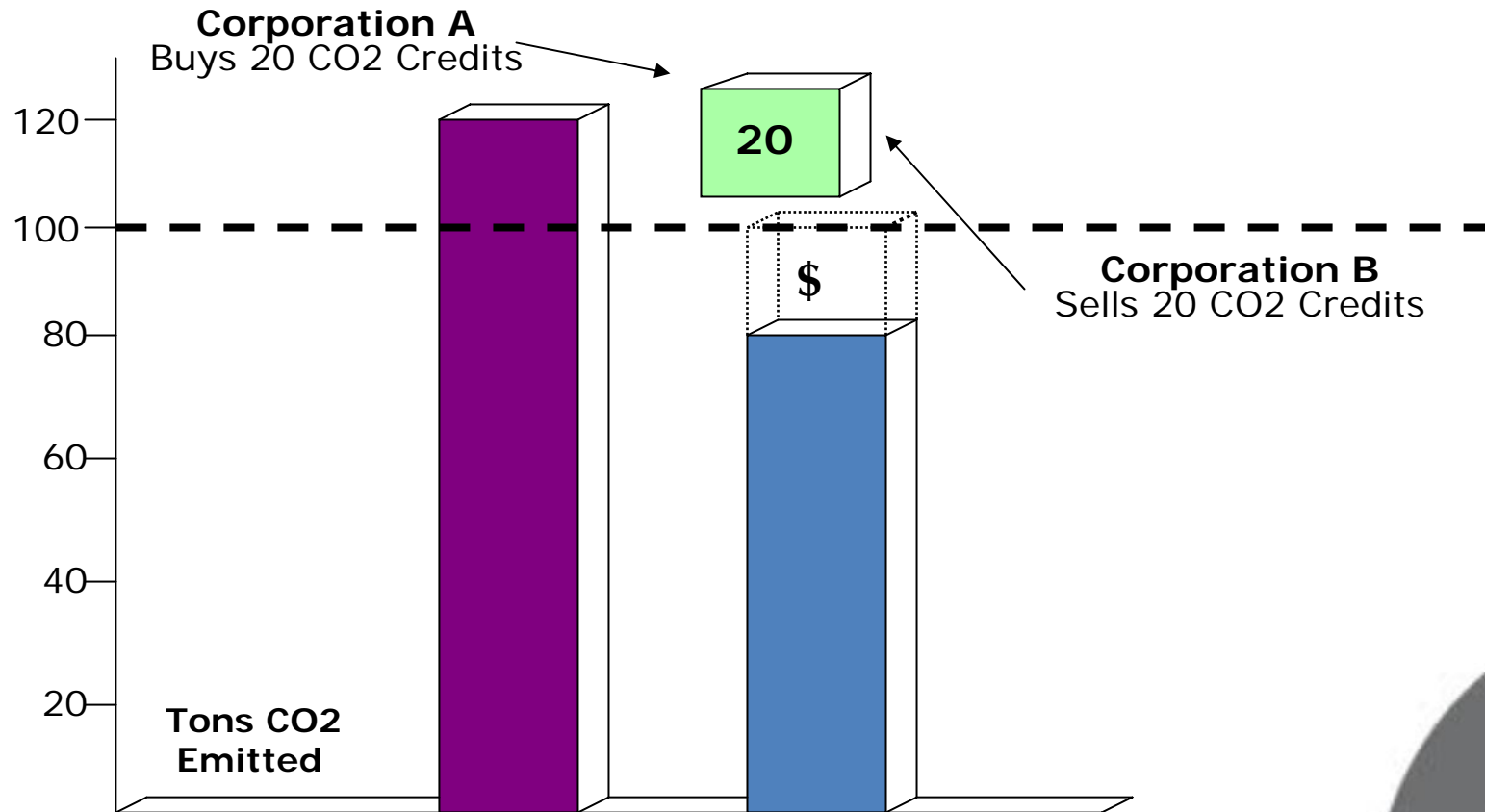
Cap and Trade

3. Determine Available Credits



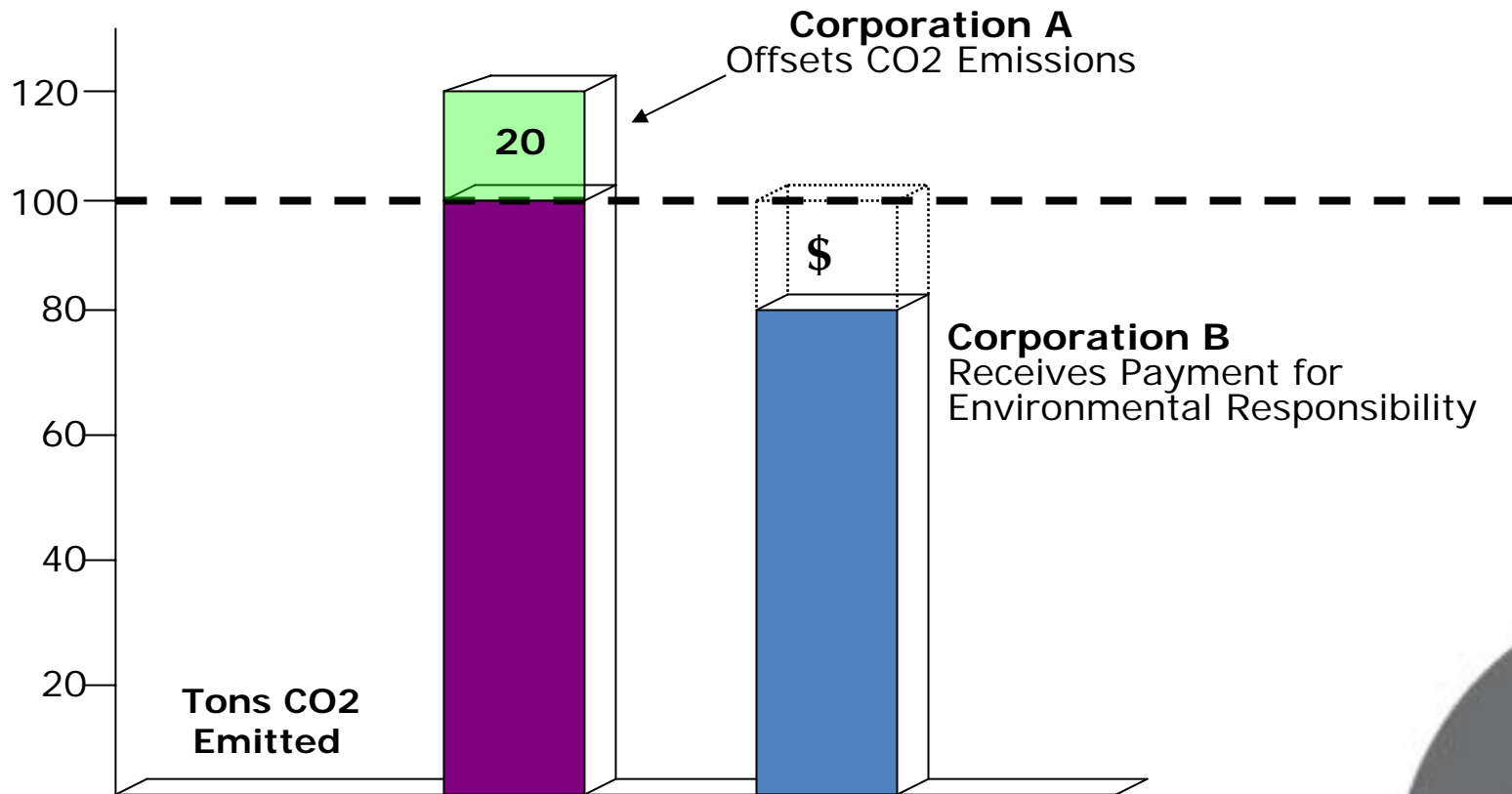
Cap and Trade

4. Sell Available Credits



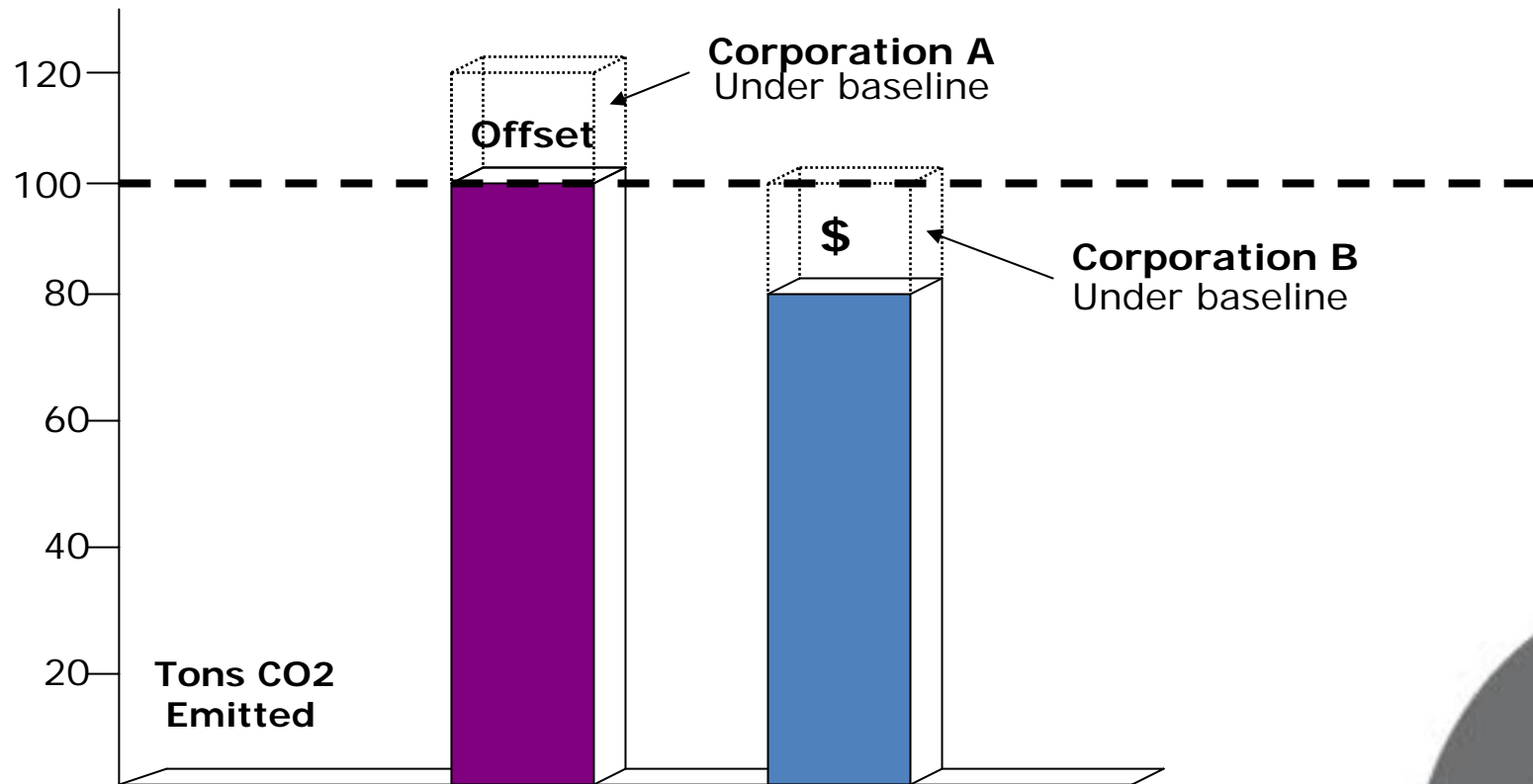
Cap and Trade

5. Offset CO2 Emissions



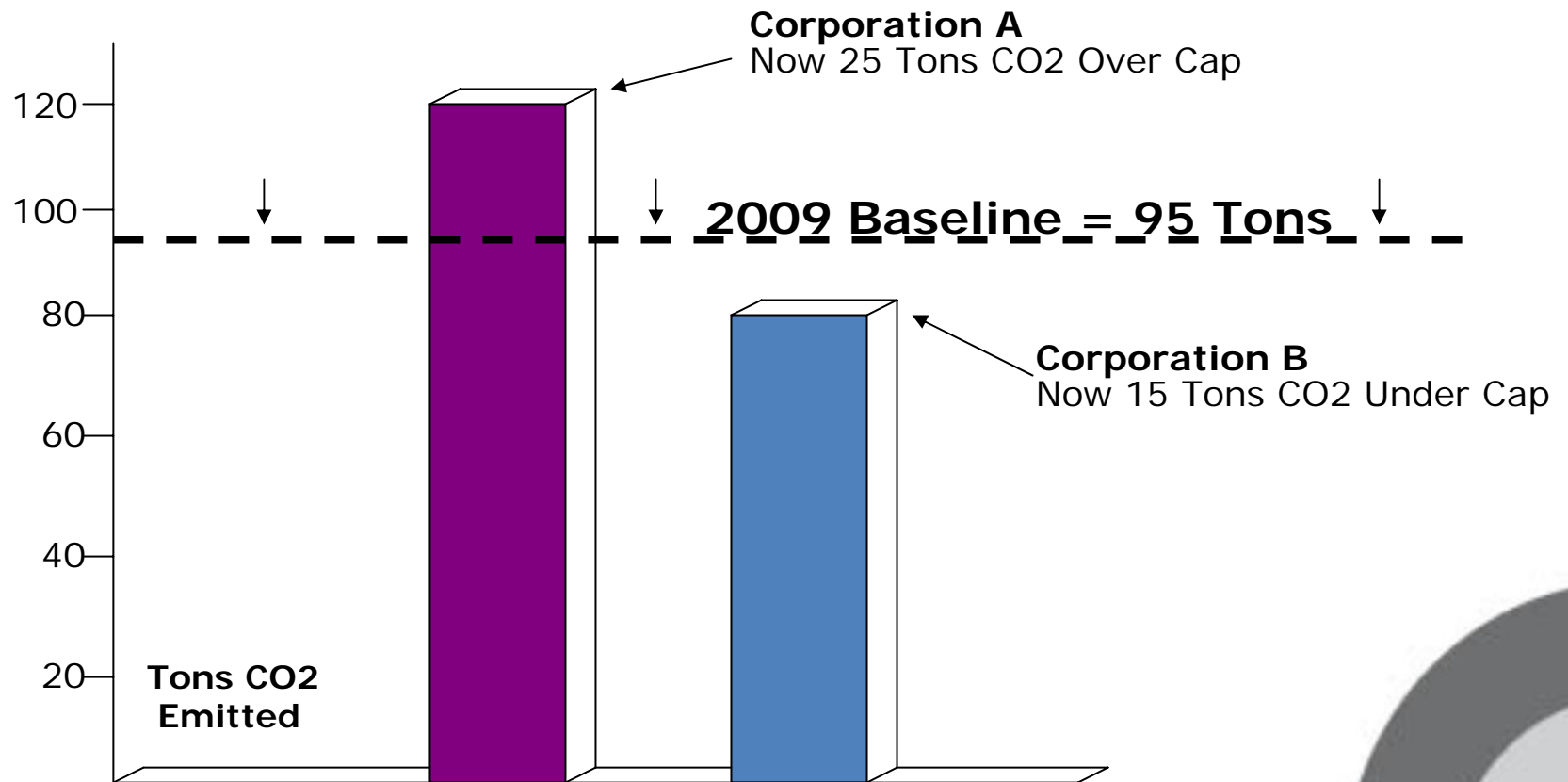
Cap and Trade

6. Establish New Emission Levels



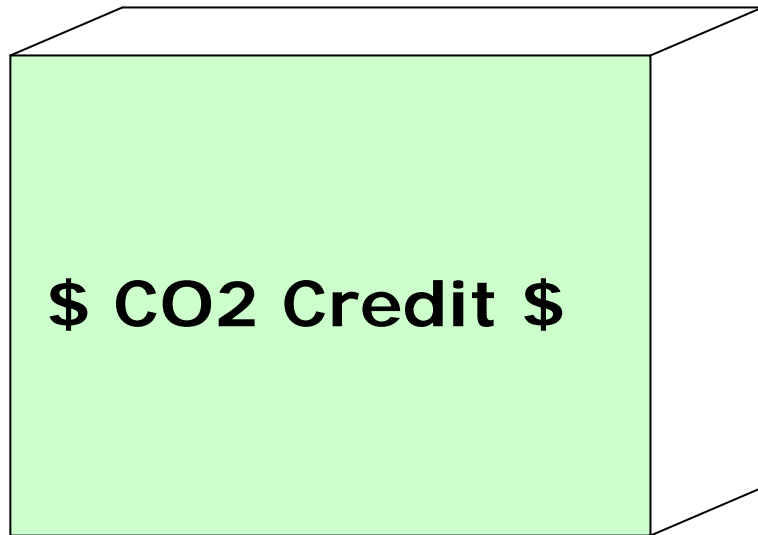
Cap and Trade

7. Lower Baseline and Repeat Process



Cap and Trade

8. Carbon Becomes a Commodity



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Carbon Market Background

International Carbon Trading

Kyoto Protocol:

- UN Framework Convention on Climate Change (1992)
- Industrialized countries committed to reducing emissions by 5.2% by 2012
- Flexible Mechanisms
- Developed vs Developing

Clean Development Mechanism:

- Precedent based protocols
- Additionality

U.S. Carbon Market

RGGI (Regional Greenhouse Gas Initiative)

- Caps electric power generators over 25 MW
- 10 Northeastern States joined
- 4 States and 3 provinces observing
Ontario, N Brunswick, Quebec
- Auctioned 12,565,387 allowances
Sept 25th for \$3.07
- RGGI cap begins Jan in 2009,



Carbon Markets

Voluntary Carbon Standard (VCS)

- VCS market is voluntary version of CDM Protocol.
- Currently the most respected voluntary market for carbon in the world.
- Readily seen as being able to turn into compliance market credits once a US Federal Cap and Trade law comes into place.
- Extra costs with VCS for validation/verification but purchase price per ton is higher.
- Two year window for past projects and precedent based.

Carbon Offset Values

- **Kyoto** CDM Projects: CERs \$22.00 - \$37.00
- **RGGI** allowances are transacting for \$2.00 - \$4.00
- **VCS** projects are \$5.00 - \$8.00 depending on project type and contract terms.
- **CCAR** projects are \$8.00 - \$11.00 depending on project type and contract terms.
- Most transactions are done OTC currently between worldwide players. The markets are moving towards electronic exchanges, but project risk tough.

Carbon Markets

California Climate Action Registry

- CCAR was created via Assembly Bill 32. Caps emissions in California starting 2011.
- Currently the most respected and highest valued market for carbon in the US.
- Readily seen as being fungible with compliance market in a US Federal Cap and Trade.
- 4 current protocols and 8 in development.
- Prescriptive Protocol.

CCAR

Landfill Gas Project Protocol V.1

- Jan 1, 2001 cut off date
- Not required, no groundwater issues, below 600lbs/mth of NMOC levels
- Early Action
- Monitoring and Verification program in place
- Closed flare, generation or combustion units only
- 10 Year crediting period
- Based anywhere in the US

CCAR

Landfill Gas Project Protocol V.2

- Closing of Jan 1, 2001 window if pre-2008.
- Not required, no groundwater issues, below 620 lbs/mth of NMOC levels approx
- Early Action
- More rigorous M&V of pre project activities
- Open flare now allowed
- Leachate Recirculation vs bioreactors
- 10 Year crediting period

CCAR

Project Development Process

- Join CCAR
- Submit Project Documents
- Project Approved by CCAR
- Pick Verifier/Verification of Project
- CCAR Final Approval of Project
- CRTs Issued
- Trade
- Anywhere between 6-18 months

CCAR

Issues and Deviations

- Prescriptive Protocol and flexibility issues
- Deviation risk, time and execution
- Regulation change and crediting period risks
- Alternative waste projects
- Time frame

Western Climate Initiative

Western Climate Action Initiative (WCI)



Western Climate Initiative

- Launched Feb 2007
- 10,000 mtCO₂e/yr ?
- Jan 1, 2012 Cap starts
- 30% below projected emissions for 2020, by 2020
- 3 year compliance periods, with banking
- ISO 14064-3 and ISO 14065
- Waste Managements Inclusion?

US Future Barack Obama

- Cap & Trade; 80% from 1990 by 2050
- Attending UN Meetings
- \$150B over next decade

Question is...

Economy?



Questions?