

**UNECE on
Sustainable
Energy
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Voluntary Markets and Standards:

The Role of Carbon Credits in a Organization's Climate Strategy

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a GE AES venture

Real carbon solutions
from a source you can trust



Agenda

- *Objective*
 - Describe the global carbon markets
 - Outline the role of carbon credits in an organization's strategy to compete in a low carbon economy
 - Present opportunities to meet carbon management needs
- *Contents*
 - About GHG Services, LLC
 - Voluntary carbon markets and standards
 - What are companies doing and why?
 - Life cycle of carbon projects and credits
 - Strategies and tactics



Greenhouse Gas Services, LLC, a GE AES venture



General Electric

✓ *GE Energy Financial Services*: Over \$20 billion in energy investments and renewable energy projects

✓ *GE ecomagination*: GE's commitment to provide products and services that generate significant environmental and economic performance advantages to GE's customers

AES Corporation

✓ 20% of global portfolio in renewables

✓ *AES Climate Solutions*: 300 people in 26 countries and 700 offset projects

✓ First carbon sequestration project in the late 1980s

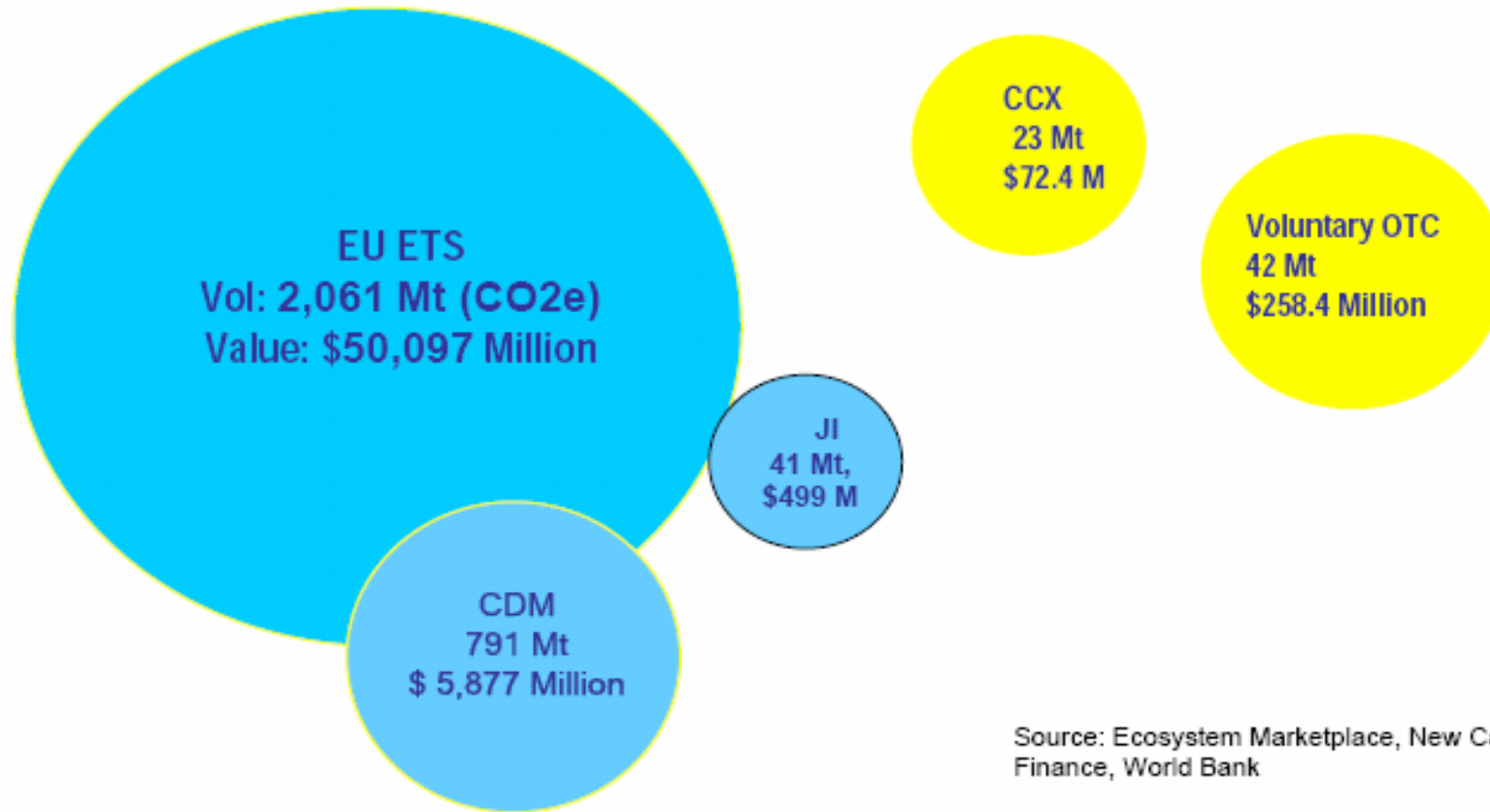
- GHGS invests in and develops projects that reduce greenhouse gas emissions and supplies clients real, independently verified credits to offset emissions



- Offers unrivalled credibility, quality, and scale
- Leverages leading carbon market expertise
- Represents highest standard of scientific and environmental integrity
- Provides diversified top-quality portfolio
- Covers full spectrum of project development and carbon asset management services



Global Carbon Market

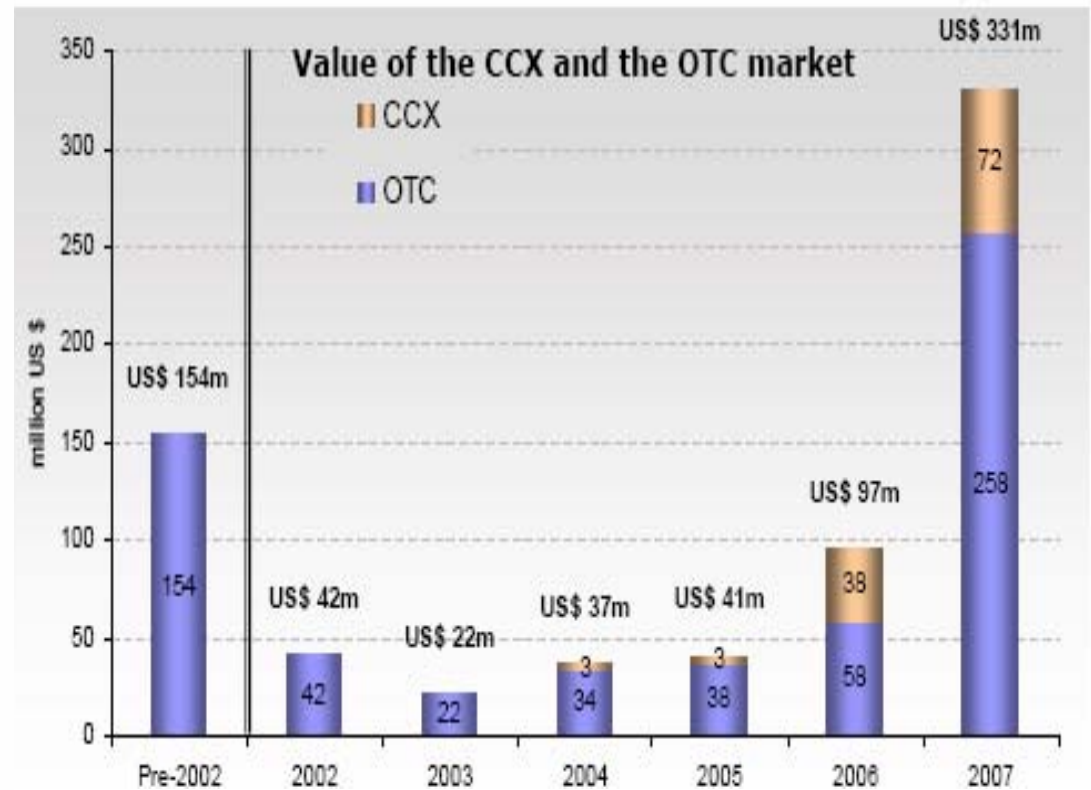


Source: Ecosystem Marketplace, New Carbon Finance, World Bank



Voluntary Carbon Market

- Two key components:
 - **Over-the-counter** (OTC) market, only offset projects (VERs)
 - **Chicago Climate Exchange**, offset projects and allowances
- Created by individuals and companies that:
 - Are offsetting their GHG emissions (Corporate Social Responsibility)
 - Preparing for legislation (pre-compliance)



Standards

| Standard | Description | Env. & Social Benefits | Reporting/ Registration | Geographical Reach |
|------------------------|---|------------------------|---|-------------------------------------|
| GHGS | ISO-based offset protocols | No | Registry incorporated | North America |
| Gold Standard for VERs | Certification for offset projects & carbon credits | Yes | Registry hosted by APX | International |
| The VCS | Certification for offset projects & carbon credits | No | Registries providers: APX, TUV SUD, Caisse de Depots; TZ1 | International |
| Green-e Climate | Certification program for offset sellers | No | Registry Incorporated | Aimed at N.A.; Int'l possibilities |
| CCB Standards | Certification program for offset projects | Yes | Projects on website | International |
| CCX | Internal system for CCX offset projects & CCX carbon credits | No | Registry Incorporated w/ trading platform | International |
| Plan Vivo | Guidelines for offset projects | Yes | No | International |
| Greenhouse Friendly | Certification program for offset sellers & carbon neutral products | No | No | Australia |
| CCAR | A Registry Protocol | No | Reporting protocols used as standards | Forestry- California; Livestock- US |
| VER+ | Certification program for offset projects carbon neutral products | No | Registry providers: TÜV SÜD, Blue Registry | International |
| ISO 14064 | Certification program for emissions reporting offset projects, carbon credits | No | No | International |
| VOS | Certification for offset projects & carbon credits | No | TBD | International |
| Social Carbon | Certification for offset projects & carbon credits | Yes | Creating its own registry system | South America & Portugal |



Companies Making Commitments in the News



“NEW YORK (Dow Jones) Sept 17, 2008 – GHG Services, LLC, a joint-venture between AES Corp. (AES) and General Electric Co. (GE) will develop projects with Google Inc. (GOOG) to offset greenhouse gas emissions, with the search engine giant using most of the reductions to erase its own carbon footprint.”



May 7, 2007 - “We are taking aggressive steps towards our goal of being supplied by 100 percent renewable energy”



Mar 2, 2008 - “Burt's Bees pays its employees to go carbon neutral”



Oct 10, 2007 - “Sun Chips announced that its products will display the Green- E seal, to highlight the company's purchase of renewable energy certificates (RECs).”



Sep 19, 2007 - “The Body Shop has pledged to become carbon neutral by 2010”

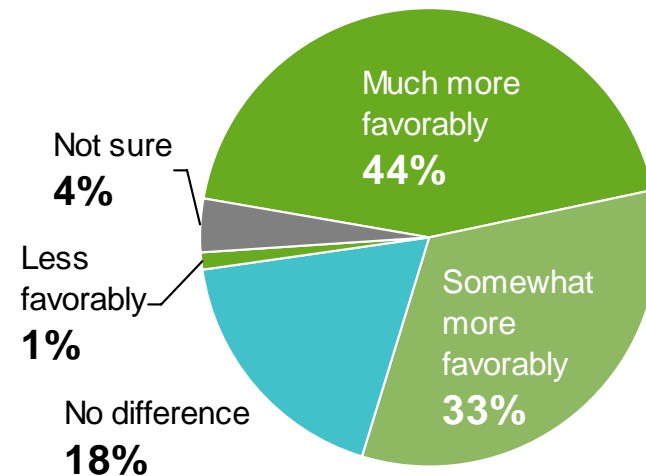
Oct 9, 2007 - “At least six of the world's largest companies, including Procter & Gamble Co., Unilever, Tesco PLC and Nestlé SA, will announce today that they are banding together to press their suppliers to release data about carbon emissions and climate-change-mitigation strategies.



Customers are Taking Notice

Offsetting emissions shown to positively impact corporate image

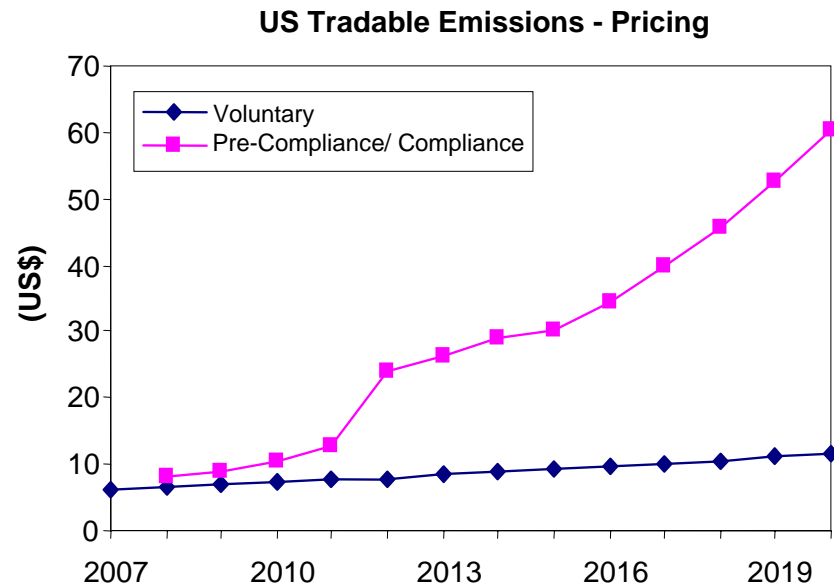
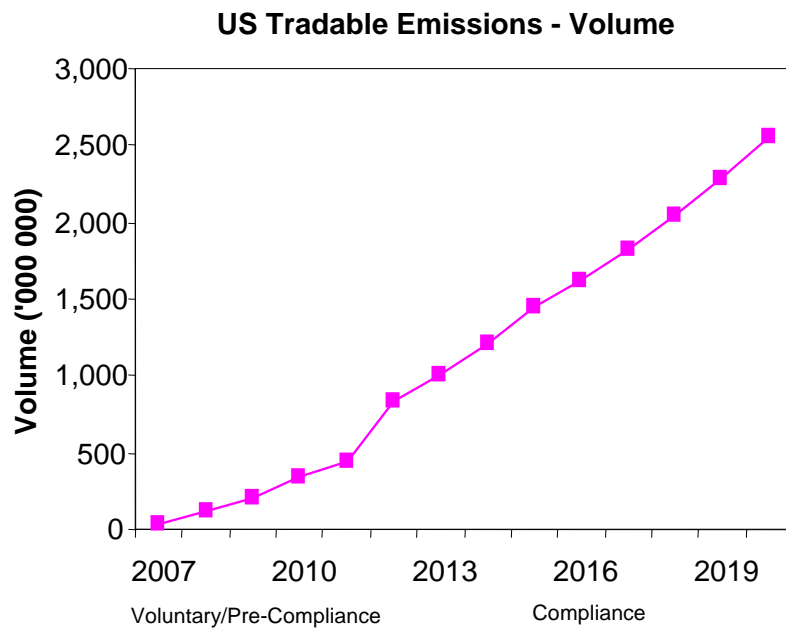
77% of Americans* have a much more or somewhat more favorable view of businesses that purchase GHG credits



*Americans who believe global warming is caused by human behavior
Source: Opinion Dynamics Corporation 2007, research conducted on behalf of GE Money



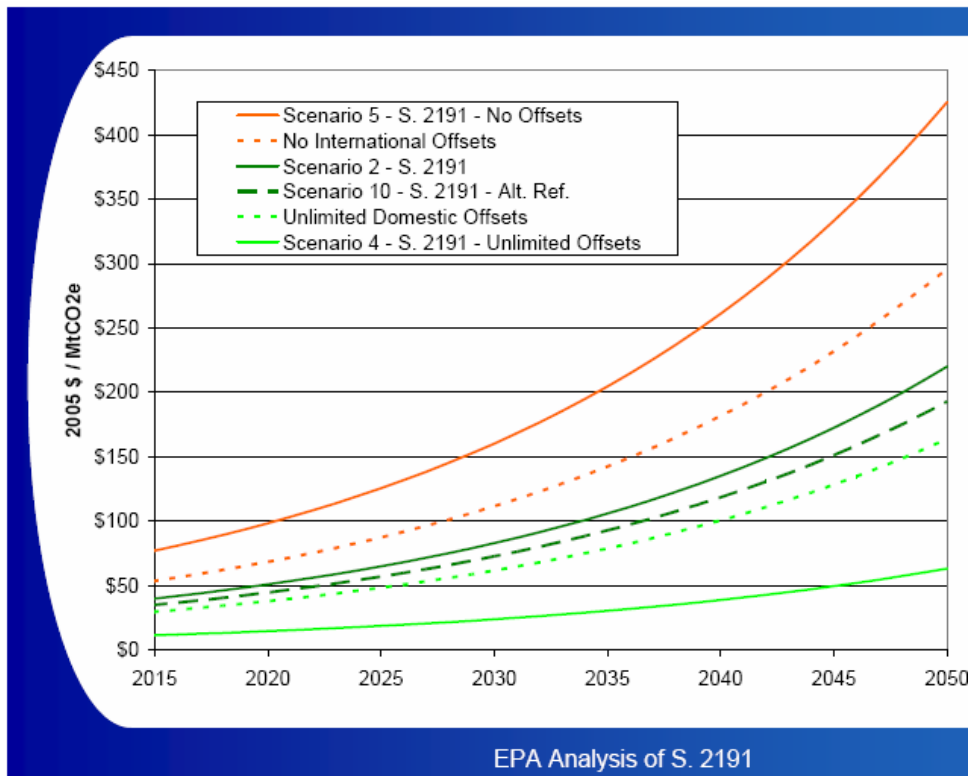
US Carbon Market: Volume and Price Forecast



Sources utilized: 1. New Carbon Finance "North America and Global Market Report", 2007; 2. New Carbon Finance, "Forging a Frontier: State of the Voluntary Carbon Markets 2008"; 3. World Bank "State and Trends of the Carbon Market", 2008; 4. Point Carbon, "Carbon Market Insights" Feb, March 2008; 5. CCX pricing; 6. Reuters CER Index Prices



Results of Price Assessments...Trending Up



Scenario 2 assumes 15% domestic offsets; 15% international offsets
US EPA Analysis of S.2191, March 14, 2008

- Price per tCO₂e is expected to climb under each scenario of S.2191 Lieberman-Warner Climate Security Act of 2008
- Current Voluntary market prices: \$3-10 per tonne
- Estimated compliance market prices in 2020: \$20-100 per tonne



Overview of Carbon Credits

The Life Cycle of a GHGS Credit



Credits Need to Meet a Premium Standard

GHGS standard ensures scientific and environmental integrity of projects

Additional. Projects must not be required by law or common industry practices; they must go beyond business as usual

Independently Verified. Projects are 3rd-party verified to ensure they result in a real and quantifiable reduction in greenhouse gas emissions

Durable. Projects must result in permanent physical reductions in GHG emissions

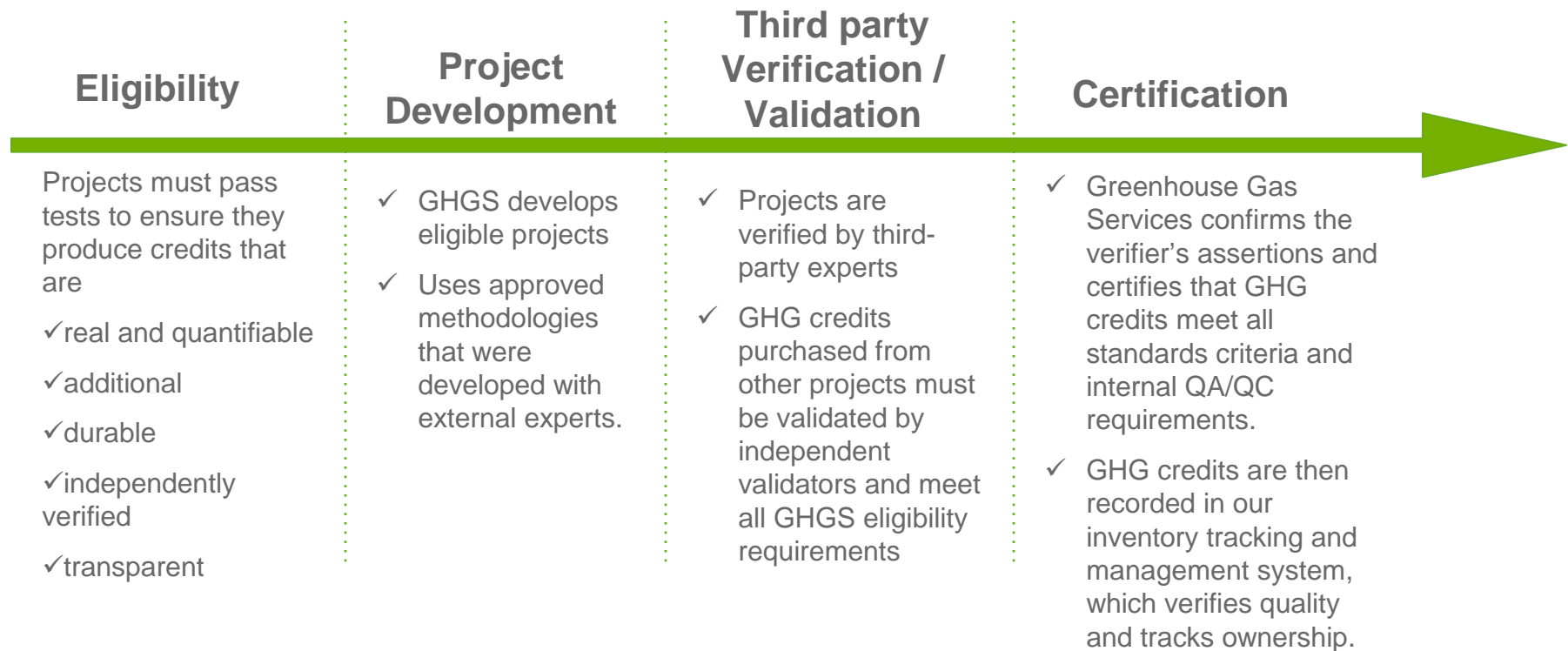
Compatible. Our standard was designed on the basis of ISO 14064 and crafted to maximize compatibility with other recognized GHG standards

Transparent. Project data are disclosed, including project summaries, verification reports and certification reports

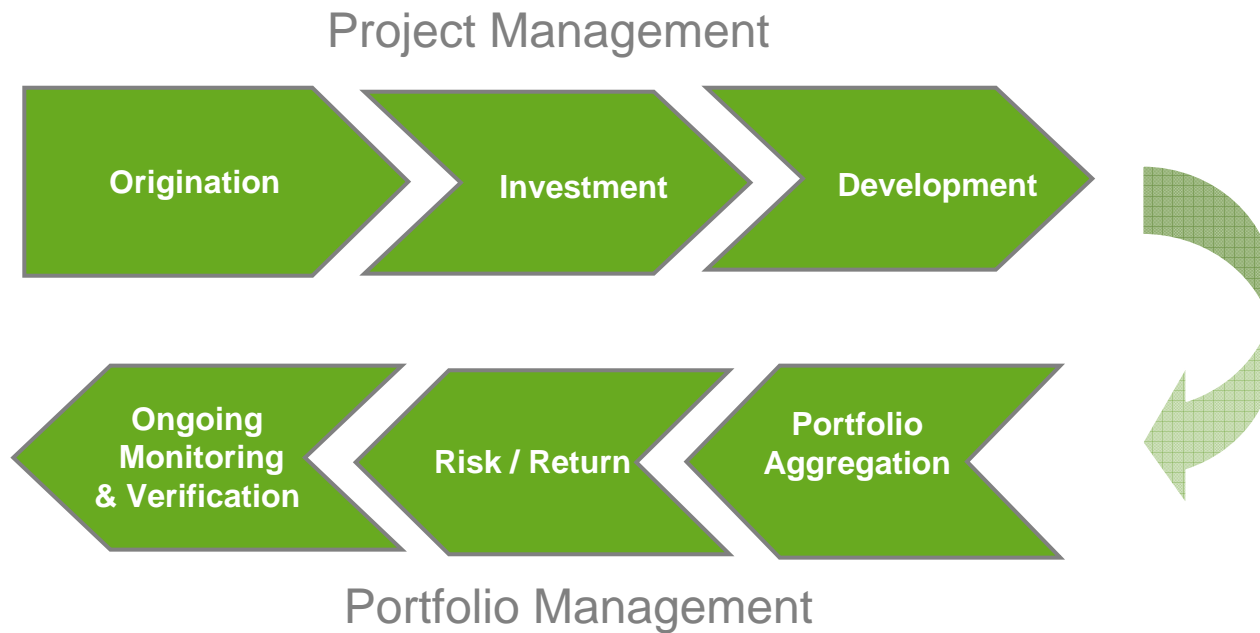
Informed. Our standard and methodologies were developed in consultation with variety of external partners



GHGS Warrants Credits...“Seal of Approval”



Full Life Cycle Model



GHGS manages the entire value chain of carbon emissions management from project origination through retirement



Project Types

- Methane capture and destruction credits are the least controversial
- The GHGS portfolio comprises a diversified set of projects across technology, vintage and geography

Methane capture and destruction from agricultural waste sites, landfills, coal mines and waste water treatment sites



Renewable energy projects that reduce the need for new fossil fuel power plants by creating new renewable sources of energy



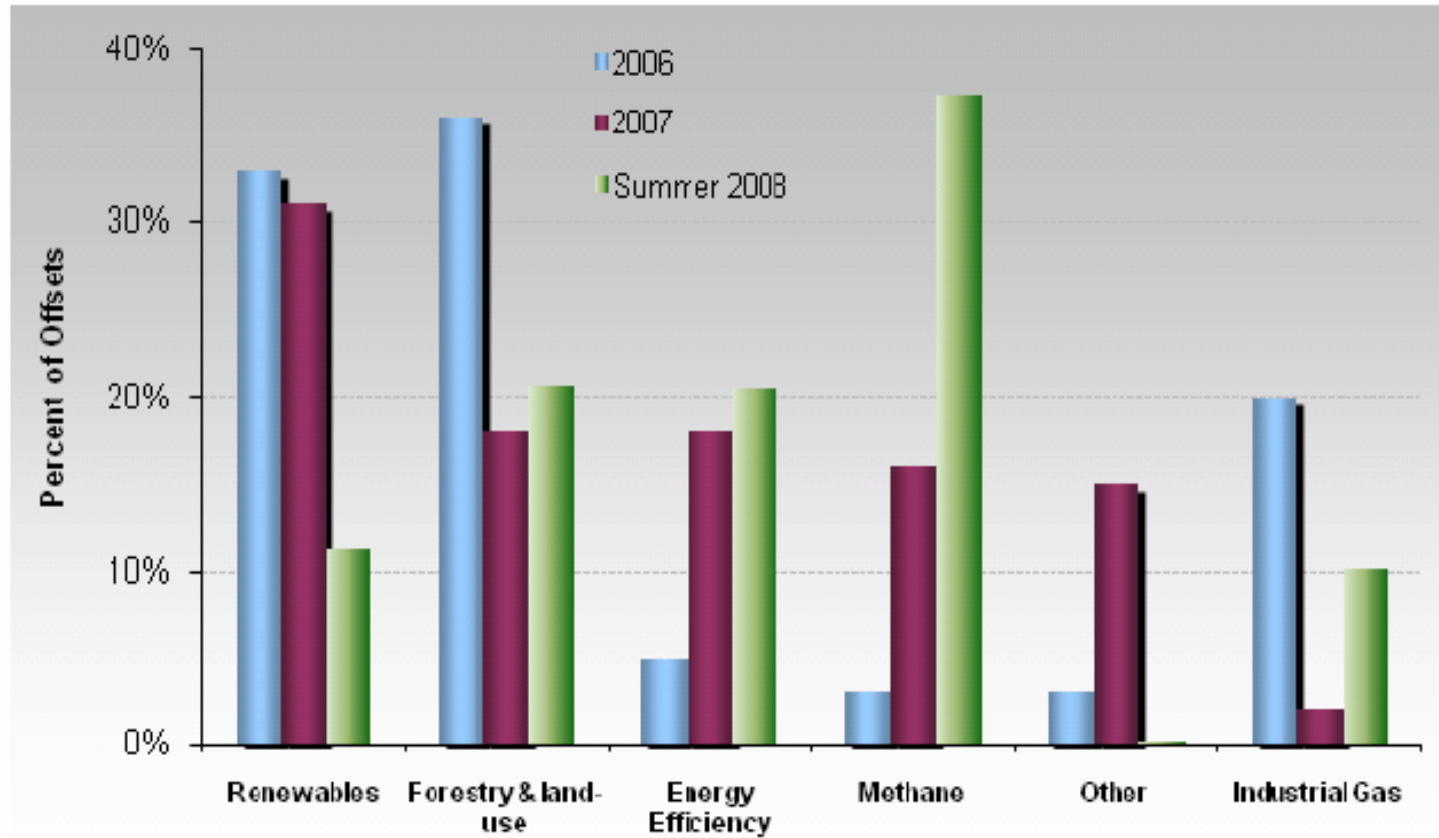
Energy efficiency projects at industrial, commercial and residential sites using energy efficient technologies and techniques



Forestry and land management projects to plant trees and improve land management to increase the capture and retention of carbon dioxide



Methane Projects Gaining Popularity



Source: New Carbon Finance - Voluntary Carbon Index, Ecosystem Marketplace



Project Examples

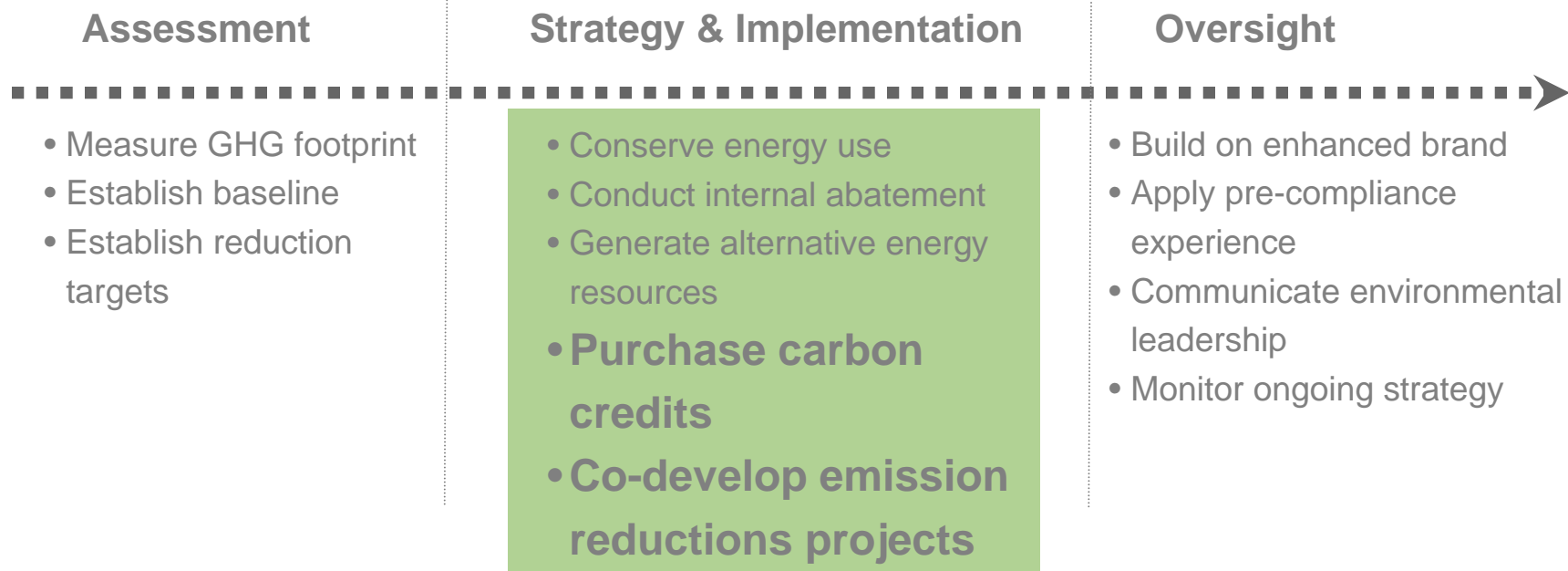
| | |
|-------------------|---|
| Project Name: | Agriculture Waste |
| Location: | Midwest |
| Project Type: | Agricultural Waste – Dairy |
| Credit Generated: | 734,000 tonnes CO ₂ over 6 years |
| Description: | The AW project will reduce emissions of methane, a greenhouse gas 21 times more potent than carbon dioxide by covering existing lagoons installing anaerobic digester systems to capture methane emissions from animal waste decomposition. |



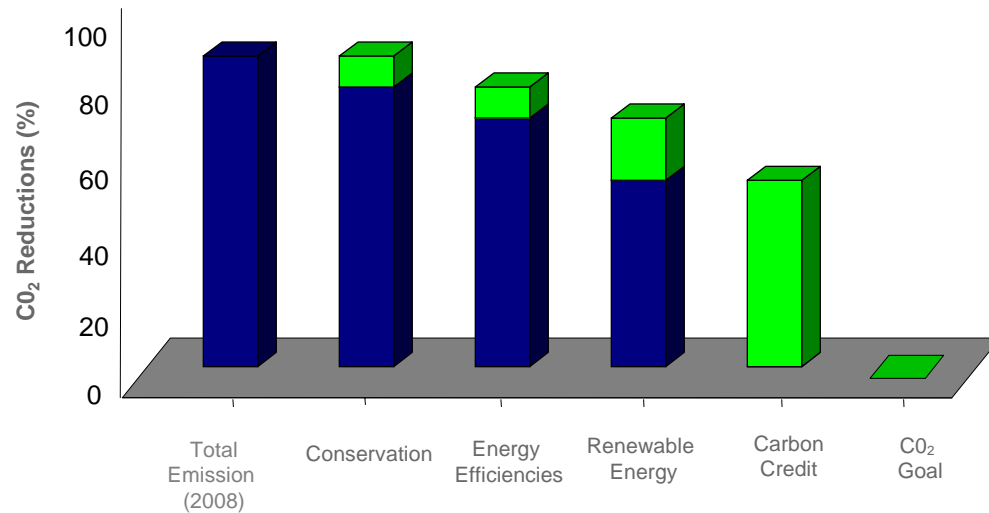
| | |
|-------------------|--|
| Project Name: | Landfill Gas |
| Location: | Northeast |
| Project Type: | Landfill Gas |
| Credit Generated: | 300,000 tonnes CO ₂ over 3 years |
| Description: | The LFG project will reduce emissions of methane by upgrading the existing gas collection and control system on the operating portion of the land fill and constructing a new collection and control system on a closed portion of the landfill. |



Carbon Credits are Key to the Climate Strategy



Typical Approach to Achieving GHG Goal



“Merck & Co., Inc. pledges to reduce total global GHG emissions by 12 percent from 2004 to 2012.”



“Johnson & Johnson pledges to reduce total U.S. GHG emissions by 14 percent from 2001 to 2010.”



“Pfizer Inc. pledges to reduce total global GHG emissions by 20 percent from 2007 to 2012.”

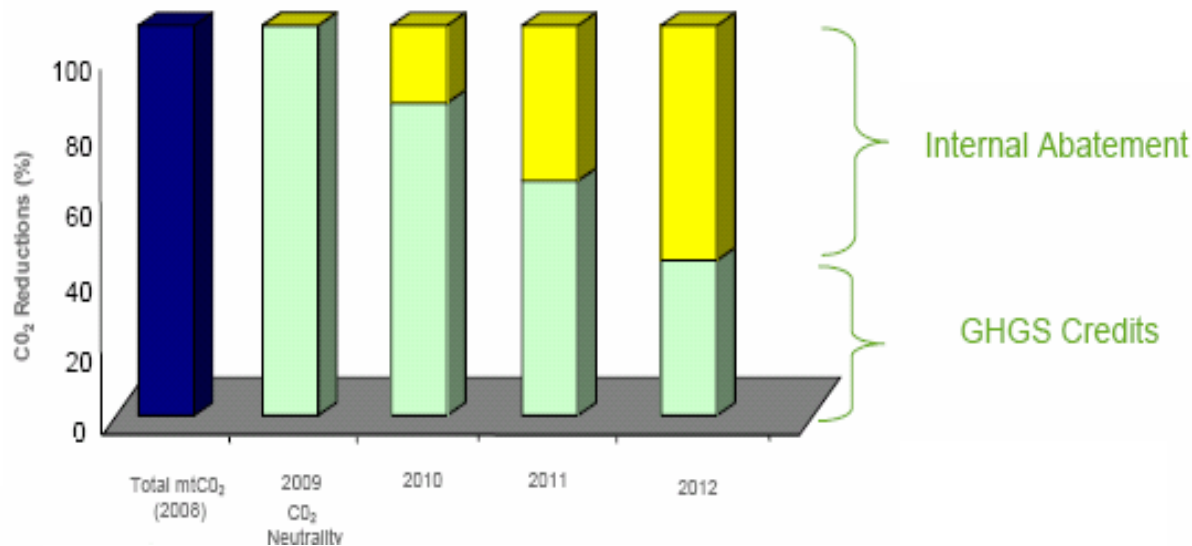


“Roche Group U.S. Affiliates pledges to reduce total U.S. GHG emissions by 15 percent from 2001 to 2010.”



New Approach: Achieve Carbon Neutrality Now

Carbon Neutral Program



Offset now and reduce the rest



“Dell announced its carbon neutral goal and a commitment to achieve that goal by the end of 2008”



“Fiji Water is going carbon negative - not just neutral - beginning in 2008.”



“Yahoo! announced its commitment to become carbon by the end of 2007”



Tactics



Baxter

“Deerfield, Ill., April 25, 2007 - Baxter announces carbon neutral headquarters”

Abbott
A Promise for Life

“Abbott Park, Ill, July 11, 2007 – Abbott announced today that it is the first FORTUNE 500 company to go "carbon neutral" with its entire U.S. fleet of company sales vehicles.”



Implementation

| Type | Description | Positive | Negative |
|---------------------|---|---|--|
| Standard Portfolio | Purchases credits from GHGS Portfolio | <ul style="list-style-type: none"> • Diversified portfolio • Low risk • Assured credit delivery • Simplicity of transaction | <ul style="list-style-type: none"> • Limited selection choice to align with company image |
| Customized Products | Purchases credits from selective technologies | <ul style="list-style-type: none"> • Diversified portfolio • Aligned with market image • Assured credit delivery | <ul style="list-style-type: none"> • Higher cost than standard portfolio |
| Individual Project | Off-taker for project specific credits (project type, location, technology) | <ul style="list-style-type: none"> • Project ties to company initiative (e.g. packaging – forestry, LFG, etc) • Perceived market image | <ul style="list-style-type: none"> • Lack of diversification • Higher risk • Higher price dependent upon project type |



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