

Enterprise Carbon Accounting:

Software Tools for Tracking, Managing and Reporting Carbon Emissions

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Agenda and Take Aways

- Agenda
 - Business case for reporting and for ECA software
 - Problems with spreadsheets
 - Review vendors
 - Making sense of 60 vendors
 - Types, new entrants, early emerging leaders
 - Vendor shortlist
 - Suggestions on selection/RFP
 - Q&A

What is Enterprise Carbon Accounting?

- Emerging business process of calculating, managing, reporting, reducing, and trading carbon emissions
- Focus today
 - Software for organizational-level reporting (Scope 1,2,3)
 - Reporting to CDP, Climate Leaders, CSR reports, etc.
- Not covered
 - Software for
 - Life cycle assessment (product – level)
 - Offsets (project –level)
 - Auction / trading systems (cap-n-trade)
 - Calculation methodologies and standards

Drivers To Calculate and Report Carbon

1. Improved Company/Brand Image

Food Products

They keep us nourished and refreshed, but what are the most well-known Food Products companies doing to address climate change? With tremendous distribution networks, packaging needs, and consumer demand, these companies have a large climate footprint as a baseline, but that expansive footprint also means they have a lot of room to improve. Some companies in this sector are setting new standards for business as a whole, while others seem lost in the supermarket.

Sector	
Stonfield Farm	78 
Group Danone	64 
Nestlé	61 
Kraft Foods	39 
Kellogg	35 
Sara Lee	13 

The higher the score, the greater the company's commitment to fighting global warming.

Climate Counts use a 0-to-100 point scale and 22 criteria to determine if companies have:

THE COLLEGE SUSTAINABILITY REPORT CARD

REPORT CARD COMPARE GET INVOLVED ABOUT MY RESEARCH

	Year	Overall	Adminis	Clima Energy	Food an	Green B
 University of Alaska—Anchorage	2009	C+	B	B	B	C
 Albion College	2009	C-	C	C	C	C
 University of Arizona	2009	B	A	B	B	B
 Ball State University	2009	B-	A	B	A	A



2. Requests from Top Customers



1-800-331-0085 www.walmartstores.com

Supplier Sustainability Assessment: 15 Questions for Suppliers

Energy and Climate: Reducing Energy Costs and Greenhouse Gas Emissions

1. Have you measured your corporate greenhouse gas emissions?
2. Have you opted to report your greenhouse gas emissions to the Carbon Disclosure Project (CDP)?
3. What is your total annual greenhouse gas emissions reported in the most recent year measured?
4. Have you set publicly available greenhouse gas reduction targets? If yes, what are those targets?

Material Efficiency: Reducing Waste and Enhancing Quality

1. If measured, please report the total amount of solid waste generated from the facilities that produce your product(s) for Walmart for the most recent year measured.
2. Have you set publicly available solid waste reduction targets? If yes, what are those targets?
3. If measured, please report total water use from facilities that produce your product(s) for Walmart for the most recent year measured.
4. Have you set publicly available water use reduction targets? If yes, what are those targets?

Natural Resources: Producing High Quality, Responsibly Sourced Raw Materials

1. Have you established publicly available sustainability purchasing guidelines for your direct suppliers that address issues such as environmental compliance, employment practices and product/ingredient safety?
2. Have you obtained 3rd party certifications for any of the products that you sell to Walmart?

People and Community: Ensuring Responsible and Ethical Production

1. Do you know the location of 100 percent of the facilities that produce your product(s)?
2. Before beginning a business relationship with a manufacturing facility, do you evaluate the quality of, and capacity for, production?
3. Do you have a process for managing social compliance at the manufacturing level?
4. Do you work with your supply base to resolve issues found during social compliance evaluations and also document specific corrections and improvements?
5. Do you invest in community development activities in the markets you source from and/or operate within?

Supplier Environmental Sustainability Scorecard			Company Name		
Enter Scope Code (based on your capability to measure):			Enter Calendar Year data:		
P = P&G-specific materials and services (DESIRED)			2009 (most recent calendar year)		
S = Site(s) (combined total) that create for P&G			2008 (previous calendar reference year)		
C = Corporate level			yyyy (optional historical reference year)		
NA = Measure does not apply to my industry/service			(If not calendar year, enter actual months)		
Core Measure	Unit	Scope Code	2009 Jan - Dec	2008 Jan - Dec	yyyy Jan - Dec
(Electric) Energy Usage	Giga-Joules or GJ / Unit of Output				
(Fuel) Energy Usage	Giga-Joules or GJ / Unit of Output				
(Input / Withdrawal) Water Usage	Cubic Meters or M ³ / Unit of Output				
(Output / Discharge) Water Usage	Cubic Meters or M ³ / Unit of Output				
Hazardous Waste Disposal	Metric Tons or MT / Unit of Output				
Non-Hazardous Waste Disposal	Metric Tons or MT / Unit of Output				
Kyoto Greenhouse Gas Emissions Direct (Scope 1)	Metric Tons of CO ₂ Equivalent or MT of CO ₂ e / Unit of Output				
Kyoto Greenhouse Gas Emissions Indirect (Scope 2)	Metric Tons of CO ₂ Equivalent or MT of CO ₂ e / Unit of Output				
Environmental Mgt. System	Yes or No	C			
P&G Initiatives Supported / Ideas Adopted by P&G (in the most recent calendar year)	Description				



3. Investor Pressure

CDP data is displayed on Bloomberg terminals and Google Finance

BHP AU Equity		Carbon Emissions Disclosure - CED	
BHP BILLITON LTD		Reporting Year: 20	
Total Global Emissions (Metric Tons)		Intensity (Metric Tons/Million US\$)	
Scope 1 Activity Emissions Globally	21,394,070	Scope 1/Sales	520
Scope 1 Activity Emissions Annex B	13,912,390	Scope 1/EBITDA	1,010
Scope 2 Activity Emissions Globally	30,626,090	Scope 2/EBITDA	1,450
Scope 2 Activity Emissions Annex B	4,058,350		
Emissions from Disposal of Services	329,993,000	Emissions by Country (Metric Tons)	
Emissions from Distribution/Logistics	N.A.	Scope 1	Scope 2
Emissions from Employee Business Travel	172,450	Australia	12,565,660
Company Supply Chain	N.A.	South Africa	4,544,870
		USA	1,162,430
		Mozambique	933,480
		Colombia	668,160
		Chile	431,740
Electricity Purchases (Megawatt Hours)		EU Emissions Trading (Metric Tons)	
Global Electricity Use	33,973,690	Year	Allowance
Global Electricity Use Annex B	5,039,900	2005	306,165
Electricity from Renewables	1,717,300	2005	306,165
Electricity from Renewables - Annex B	735,020	2006	415,652
Total Costs of Energy Consumption (US\$)*	2,570	2006	415,652
% of Total Operating Costs	18	2007	415,652
% Energy Costs from Renewables	3		

Metric Ton is in CO2 Equivalent

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2008 Bloomberg Finance L.P. 6516-983-2 19-Sep-2008 18:35:30

Feb 23, 2010
Goldman Sachs Technology Conference

Feb 9, 2010
Unveil Some New Product Innovations Webcast

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Search engine to relevant AdWords comprise the September 2009, 2010, the

Key stats and ratios

	Q1 (Mar '10)	2009
Net profit margin	28.86%	27.57%
Operating margin	36.72%	35.15%
EBITD margin	-	41.59%
Return on average assets	18.81%	18.05%
Return on average equity	21.11%	20.30%
Employees	20,621	-
Carbon Disclosure Rating	-	53/100

[Screen stocks with similar metrics »](#)

Address

1600 Amphitheatre Parkway
Mountain View, CA 94043
[United States - Map](#)

Jan 2010: SEC issues guidance to reporting material climate risk



For Some, Disclosure Treated Like Financial Disclosure

El Paso Corporation Issues Correction to the Carbon Disclosure Project's 2008 Report on Climate Change

Thursday, October 09, 2008 4:32 PM

Symbols: [EP](#)

HOUSTON, TX -- (Marketwire) -- 10/09/08 -- El Paso Corporation (NYSE: EP) today issued a correction regarding information included in the Carbon Disclosure Project's 2008 Report on greenhouse gas emissions and climate change-related strategies. In Section 9, Appendix I, page 100 of the printed report, El Paso's total emissions were incorrectly printed as 149.1 million tonnes of carbon dioxide equivalents (CO₂e). El Paso's 2006 emissions from its current assets were 15.6 million tonnes of CO₂e.

The online version of the Carbon Disclosure Project's 2008 Report has been updated to reflect the correct emissions. El Paso's responses to the Carbon Disclosure Project's Annual Information Request, sent on behalf of institutional investors and purchasing organizations, and its corrected emissions figures can be found at www.cdproject.net.

A few companies are integrating financial and non-financial (e.g. environmental) data in investor reporting



4. Cost Savings



5. GHG Regulation

Regional Greenhouse Gas Initiative

an initiative of the Northeast and Mid-Atlantic States of the U.S.



GGAS

The Greenhouse Gas Reduction Scheme

The NSW Greenhouse Gas Reduction Scheme (GGAS) commenced on 1 January 2003. It is one of the first



Emission Trading System (EU ETS)



What's Wrong with Spreadsheets?

- Natural starting place
- Challenges
 - Reconciling year-to-year datasets
 - Creating and enforcing data ownership, including global standards for asset types and energy use
 - Entering data error-free, especially without proper cell protection and validation formulas
 - Generating real-time reports and viewing across the organization
 - Obtaining ad-hoc reports and analysis
 - Managing and sharing large files

Spreadsheet frustration

"We had numerous problems with spreadsheets. We had 6 spreadsheets with one sheet that pulled it all together. We could not restrict some users to data entry only and the linked spreadsheets kept getting fouled up. This reduced our ability to have data entry at each site. Moreover, the spreadsheets created a "my data, my tool" problem, where a spreadsheet expert exerts control and access to create "award winning" graphs for management"

– From a frustrated sustainability consultant working on GHG Inventory project with team at Fortune 500 consumer goods manufacturer

Overtime spreadsheets increase cost and increase risk



Spreadsheets vs. ECA Software

Criteria	Spreadsheet	ECA Software
# of Users who collect data	few (<10)	many
# of People who need specialized reports	few (<10)	many
# of Sites tracking	few (<5)	many
# of Emitting sources	few (<5)	many
Need for verification, audit trails	none/low	high
Financial or brand risk to data errors	low	high
Reporting frequency	yearly	daily, monthly
Linkage with energy mgmt and operations	limited	tight
Time spend reconciling years, types of reports	little (<20 hr/yr)	high
Reconciliations (year/year, report/report)	rarely	common
Restate or adjust data inputs	rarely	frequently
Amount of custom reports	few (<5/yr)	many

Recently Purchases of ECA Software

Sample Companies Who Purchased ECA in last 12 months (publicly announced)

AT&T
Avaya
Autodesk
AeroJet
Akamai
Carnival
Coke
Diebold
Eli Lilly
Hitachi
Humana
News Corp
Reed Elsevier
Safeway
Sun Power
Tesco
Woolworths

Government (sample list)

City of Palo Alto (Hara)
City of San Jose (Hara)
City of Las Vegas (Hara)
State of MN (Verisae)
US Army (Enviance)



Today's ECA Market and Vendors

- Early market and highly fragmented (75+ vendors) with lots of message confusion
- ECA features part of a broader solution
- New entrants
 - CA, Hara, Microsoft, SAS, and many others
- Some consolidation
 - SAP purchase Clear Standards (2009)
 - EnerNoc acquires eEquilibrium (2009)
 - Johnson Controls buys Workplace (2008)
- Leaders emerging



Vendor Categories

The 20 vendors fall into the following categories

EHS	ERP ⁽¹⁾	Startups/specialists	Energy management
Dakota Software	CA	C3	Advantage IQ
Enablon	SAP	Carbonetworks	EnerNOC
Enviance	SAS	Hara	Johnson Controls
IHS		PE International	Pace
ProcessMAP		TRIRIGA	Summit Energy
		Viewlocity	Verisae

(1) ERP Notes: Microsoft offers a solution for its Dynamics AX customers. Oracle does not offer a stand-alone solution, but does offer solutions via its consulting group and partnerships with Tofuture Oy for Hyperion clients and NDEV for JD Edwards. IBM does not sell a stand-alone solution, but partners with C-Lock Technologies.

Energy vendors becoming more active

Most Have a Handful of Customers, a Few 20+

Number of customers for each top vendor. Some have more than 20

+ Groom Energy estimates

	Vendor (Country of HQ)	Our Estimate		Reported ECA Customers
		Low	High	
1	Advantage IQ	3	5	
2	C3 (US)	1	5	
3	CA (US)	6	10	Datotel, Tesco
4	Carbonetworks (US)	9	15	Becker Underwood, COLT Telecom, Dean Foods, Energy Systems Group, Northrop Grumman, Omnibuild
5	Dakota Software (US)	3	5	
6	Enablon (US)	20	30	Airbus, Anglo American, ANZ, Bombardier, Bosch, Carrefour, Centrica/Direct Energy, PGE, Timberland, Total, Tyco, Woolworths
7	EnerNOC (US)	2	5	Seaport Companies
8	Enviance (US)	10	25	AEP, Alliant Energy, NV Energy, Syngenta, US Army
9	Hara (US)	15	30	Aerojet, Akamai, Brocade, City of Palo Alto, City of San Jose, Coca-Cola, News Corp
10	IHS (US)	20	40	APS, Arcelor Mittal, BP, EnCana, Eni S.p.A., Exelon, Husky, Newfield, Nexen, Shell, Spectra Energy, TransAlta, TransCanada, Waste Management, Woodside
11	Johnson Controls (US)	14	20	Catholic Healthcare West, CIBA Vision, Dell, Lockheed Martin, Pfizer, Schering-Plough, Wyeth, Xerox

8 ECA Emerging Leaders

- Weighted selection methodology based on
 - Financial viability
 - Product strength
 - # of customer deployments
 - Vision
- 8 Emerging Leaders (alpha order)
 1. Enablon
 2. Enviance
 3. Hara
 4. IHS
 5. Johnson Controls
 6. PE International
 7. ProcessMap
 8. SAP/Clear Standards

Expect changes as market is very early and methodology strongly weights existing deployments

Vendor Selection Process

- Obviously, requirements are critical
- Selection criteria
 - Combining carbon and energy management
 - Carbon needs (CDP, TCR, CL, CCX, EU ETS, etc.)
 - Offerings from existing vendors (ERP, EHS, etc.)
 - Cost and need for tight integration with existing processes and skills
 - Other needs (LCA, etc.)
 - Financial strength of vendor

What are Key Features?

20 Key ECA Software Features Which Drive Business Benefit

Business Benefit	Key Features to Look For
Reduce cost: data capture <i>Reduce consultant fees</i>	<ol style="list-style-type: none"> 1. Automated real-time or batch feeds with data validation, field mapping, and error reporting 2. Deployable "data ownership model" where each piece of data is owned by a specific person in a specific role (e.g. facility manager, Jim Miller in the Houston plant) 3. Email reminders sent to data owners and exception reports (e.g. "Data Missing") reports sent to management 4. Alerts and reports that highlight "newly entered data may be out of norm" 5. Report that list data needed, owner, due date, status and place for notes 6. Data auditing, including name of owner and source of data
Reduce cost: verification <i>Reduce verification cost</i>	<ol style="list-style-type: none"> 7. Easily upload source documents (invoices, actual use, etc.) for remote third-party audit review 8. Instant reports that show which carbon emissions

Data Capture
80% of pain

Adhoc Reporting
Labor Intensive



Summary

- Customer Need
 - Spreadsheets do not scale for large organizations
 - Data capture of energy data is primary need
 - Combine energy and carbon needs
 - Business risk due to error and labor cost savings outweigh spreadsheet + spreadsheet “guru” approach
- Vendors
 - Leaders emerging. Solid vendors offerings
 - New entrants should not be overlooked

Q & A

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