

January 2006

Ball Corporation



A vertical collage on the left side of the slide featuring various environmental and recycling-related images: a blue recycling symbol, a blue recycling bin, a clear plastic water bottle, a blue recycling bin, a blue recycling bin, and a satellite in space.

Ball Corporation -- Climate Leaders Insights and Experience

**CLIMATE
LEADERS** 
U.S. Environmental Protection Agency



Starting Point – Ball’s Experience

- GHG management wasn’t a priority
- The catalyst: Ball’s participation in EPA’s Climate Leaders (CL) program in Fall 2002
- CL program is structured and was a good fit
- We liked the voluntary aspect, participation flexibility, and streamlined approach
- CL participation resulted in top management commitment and resources to incubate a GHG program
- After we signed to participate, however, our initial progress was slow – everyone’s experience is probably somewhat unique



■ **“The Sales Pitch”**

- Program motto is **“Measure, Target, Act”**
- **GHG program protocol and guidance**
- **Recognition -- press events, public service announcement (PSAs), identification on EPA’s website**
- **“FREE” Technical Assistance – developing a GHG inventory, review of inventory management plan, help setting a reduction goal**
- **Credibility – transparent GHG reporting mechanism that will develop with the science, assurance that the partner has a high-quality GHG management process**
- **1-2 meetings per year for members**
- **CL GHG Inventory Protocol is based on protocol developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD)**



GHG Management Program Overview

- Initially we really didn't know what (or how) we were doing, but the CL program, CL guidance modules, and excellent consultant assistance helped navigate the way
- GHG management programs, accounting protocols, and regulated community experience have evolved quickly in the past few years.
- A committed GHG management team is essential – EHS department, energy supply manager, purchasing department, plant EHS contacts, energy demand managers
- Ball's direction – get a handle on this issue, focus on known business value, and be ready for future changes



GHG Inventory

■ Setting Organizational Boundaries

- Included only US operations for now, international locations do not appear to have significant drivers
- Will look to possibly expand inventory based on gained experience
- Included domestic joint venture locations where we have operational control
- Getting joint venture and other divisional data is unlike getting information from your own organization

■ Setting Operational Boundaries (core versus optional)

- Core emission categories – clearly defined in CL protocol, although we could have done better job with the initial identification
- Optional emission categories – chose to exclude these types due to potential data availability and complexities (i.e. uncertainty), carbon intensity, and limited inventory resources



GHG Inventory

■ Identifying and Calculating GHG Emissions

- Some activity data was automated (e.g. manufacturing material usage through business enterprise systems), but some data was not, requiring much more effort to obtain and verify accuracy (e.g. propane usage)
- Made some knowledgeable assumptions for some small sources (e.g. vehicles miles, refrigerant emissions >0.7% of overall emissions) and documented this in the IMP
- How to calculate emissions appears to be fairly straight-forward, however, some emission factors are not static and (E-grid version, 2000) will change over time and the inventories will need adjustments
- We have focused on meeting CL reporting requirements, not other inventory program such as registries, WRI, DOE 1605b, etc.
- Will need to make a decision soon about third-party verification of base-year emission because the record will eventually be destroyed based on company records management procedures
- We used a Microsoft Excel Spreadsheet – customized for Ball, offers change flexibility, simplicity, ownership, not subject to off-the-shelf software program updates and inflexibility. Keep it simple.

Ball Baseline GHG Inventory

Emissions Source		Aerospace	Packaging- Bever- age	Packaging- Food	Packaging Plasti- cs	TOTAL		
Electricity	mt CO2e	34,594	505,509	45,562	158,584	744,249	76%	of total
Stationary combustion	mt CO2e	6,938	131,593	22,772	5,197	166,500	17%	
Steam	mt CO2e	0	43,070	0	0	43,070	4%	
Fugitive	mt CO2e	8,162	8,983	6,413	0	23,557	2%	
Mobile sources	mt CO2e	203	4,902	333	61	5,498	0.6%	
Refrigerant	mt CO2e	681	450	149	145	1,425	0.1%	
Combined		50,577	694,506	75,229	163,987	984,299	metric tons CO2e	
		5%	71%	8%	17%			



Setting a Base-Year

- 2002 chosen as base-year for domestic operations, somewhat by default based upon entering the CL program
- Choosing a base-year before 2002 would probably have been challenging due to data availability and quality
- If done, international locations will probably have a different base-year
- If you already have inventoried emissions, then maybe you'll be better informed to possibly select a year to show success



Setting a GHG Reduction Goal

- Realized for our company and culture that reductions would be a result of focus on energy conservation, process optimization, and greener electricity generation
- Developed a bottom-up effort by surveying facilities for potential opportunities, surveying our engineering group for new technologies, talking to the business leaders to understand the business direction
- Using a semi-quantitative approach, summarized reduction opportunity information by facility and then operational group, including uncertainty for event occurrence
- Bottom-up approach worked well for us to develop program awareness and perhaps buy-in, responsibility, and management accountability
- CL program involvement cajoled our goal to stretch
- Ball's GHG reduction goal is based on normalized carbon intensity, not absolute, to allow for organic growth and business changes



Accounting for GHG Reductions

- 2003 and 2004 GHG inventories completed, these years were easier than the base-year effort
- Compared activity data to successive years as a quality check and to identify potential data anomalies. Identified a few errors with the baseline data. Also helps identify intensity changes, progress, and opportunities.
- Did not obtain updated activity data for de-minimus sources (e.g. company owned/leased vehicles/miles, refrigerant loss); will instead use base-year values
- Since the 2002 baseline, hired third-party to manage and verify utility usage data.
- Will communicate data trends and goal status to management for feedback and stimulation to meet reduction goal (e.g. the EMS feedback cycle)



Reporting GHG Emissions

- Ball reporting at four levels -- corporation, division, facility, and specific sources
- Ball is using a Ratio Indicator based on carbon intensity per unit of activity for each divisional operation
- If a Ratio Indicator is used, think this out thoroughly, needs to be verifiable, accurate, transparent, and constant
- Ball struggled with this but finally worked out a solution that makes sense
- The Carbon Intensity Index, would be set at 100 (by definition) for the base-year year:

$$CII = (100 * CO2\text{-total}) / ((P1 * P1\#) + (P2 * P2\#) + (P3 * P3\#) + (P4 * P4\#))$$

Where:

CO2-total stands for total CO2 emissions in target year;

P stands for production:

P1 = square footage of aerospace division at year end

P2 = pounds of processed aluminum for beverage containers

P3 = basebox of processed steel for food containers

P4 = pounds of resin processed for plastic containers

= The weighting factors represent the normalized emissions (CO2 per production unit) of each division in the base year



Managing Inventory Quality

- The CL program required a structured, 30-part, written GHG inventory management plan (IMP) – complexity depends on organization
- The IMP essentially is a Ball-specific GHG management program QA/QC manual
- The IMP helps make our GHG program transparent, and will be invaluable when changes occur
- Our intent is to keep the IMP updated
- The IMP process included a limited verification audit, which confirmed the plant accuracy, and identified one minor error
- Ball will need to decide if external verification of the GHG program is warranted
- Ball continues to move toward more automated activity data accounting systems (e.g. improved business enterprise system and external utility bill verification and payment service), less manual management with theoretically lower risk for errors
- We've found that comparing data to successive years is the best way to review inventory quality



Overall GHG Program -- Ball Lessons Learned

- 1. Our internal and external message isn't about just protecting the climate (or economic doom), but about economic opportunity**
- 2. Attention to GHGs can increase competitiveness, demonstrates social responsibility and leadership, and lead to decreased operational costs**
- 3. Think of GHG management in an entrepreneurship viewpoint – Johnson Controls is marketing a patent pending Emissions Management Service that combines utility bill processing with emissions reporting!**
- 4. Identify the GHG management program value in business talk (e.g. shareholder value, business risk, cost savings, ROI opportunities)**
- 5. Energy conservation, audits, new technology, and innovation are reduction keys**
- 6. Our biggest energy saving opportunities are compressed air use, motors, oven temperatures, and facility ambient temperatures, but don't discount lighting and computer energy use**
- 7. Where we want (and probably need) to be is involving every employee to take responsibility for achieving the reduction goal**