2010 EHS Annual Report

Quality, Value and Performance

Formosa Plastics®

The Reliable Source for Polymer Solutions

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Corporate EHS Policy

The company is committed to the protection of our environment, the safety and health of our employees and the community.

This is accomplished through the use of clear and well-documented systems and procedures, proper training and qualification, high performance expectations, continual improvement in pollution prevention, minimization and recycling, as well as workplace hazard analysis and prevention.

Through the joint efforts of every employee, we shall maintain full compliance with all applicable environmental and safety laws and regulations, conserve natural resources, reduce wastes and keep our environment clean and our workplace free of health and safety hazards, for ourselves, for the community and for future generations.

About the cover photo: *Bill Harvey, an employee at our Point Comfort, Texas site, captured this amazing photograph of the Formosa wetlands walkway in Port Lavaca.*

Photo credit: *Bill Harvey*

Message from the Executive Vice President

Our efforts are guided by our sustainable development principles:

- Embrace continual improvement in all aspects of our work.
- Respect and comply with all environmental and safety laws and regulations.
- Instill the concept of safety and health in all our activities.
- Conserve resources, prevent pollution, protect and enhance the environment wherever possible.
- Be a force of positive change in communities where we work and do business.
- Promote an engaging workplace for diverse and talented people who want to make a difference.
- Establish a connection between financial success and contributing to society.
- Learn from our experiences, listen to the ideas of others, and regularly report our progress to the public.

The overall economic outlook for 2011 is not much different than 2010. The global economy is expected to remain uneven and fragile; emerging markets are expected to continue leading the way and there will be a slow, but steady, recovery in developed markets. Further, the strong demand for basic commodity materials will continue, driven by demand from China and other emerging markets. We also expect a weak U.S. dollar, modest oil price increases, inexpensive natural gas and a continued, slow growth in chemical demand. The U.S. economy is projected to experience a 2-3% increase in the U.S. Gross Domestic Product (GDP) and be characterized by persistent unemployment and a weak housing market.

In the coming year, the ethylene market will be shaped by the continuing competitiveness of the availability and low cost of North American shale gas. Meanwhile, the propylene supply gap created by the industry's ongoing shift to natural gas feedstock from oil/naphtha feedstock will be filled with "on-purpose" process technologies and a moderation in demand. The polyethylene market is expected to see a continued up-tick in domestic demand, and exports will remain very competitive. Likewise, the PVC market should see further growth in export demand during 2011.

Overall, we will continue to succeed by ensuring success in four key areas: 1) Pursuing full capacity operation and sales; 2) Implementing an advanced Process Safety Management program, including more thorough pre-start-up safety reviews; 3) Continuing to control expenditures; and 4) Securing our access to, and the cost of, our important raw materials.

While 2011 will continue to present us with many challenges, early results already show that we're off to a good start.

Sincerely,

Mr. C. L. Tseng
Executive Vice President,
Formosa Plastics Corporation, U.S.A.

Introduction to Performance Data from the Vice President of Environment, Health and Safety

Over the last few years our company and the chemical industry in general have faced many environmental challenges. This year, like many other years, we have seen progress in some areas, while other areas still require more work and effort. Yet, too often, issues such as the imposition of new environmental regulations overwhelm the discussion and receive all the attention. This year, I would like to preface this report by discussing the hard work and professionalism of those individuals at FPC USA who work to achieve and maintain compliance. While it is our company's philosophy and practice that all employees are responsible for regulatory compliance, there are some that specialize in this field and their efforts are to be acknowledged and applauded.

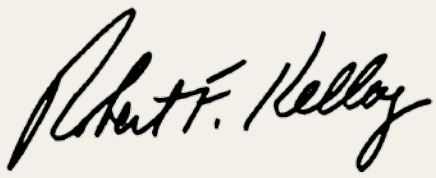
Environmental, Health and Safety requirements in a modern petrochemical company encompass a colossal number of rules, regulations, policies and procedures. A list of the number of pages of rules, or the shelf space required to hold all the regulations cannot fully convey the level of complication and in some cases, contradictions, posed by our modern world. Dozens of highly trained professionals tirelessly work within the various EHS Departments to research, understand and comply with this bewildering array of requirements that relentlessly change and grow.

Additionally, every manufacturing unit employs dedicated personnel to work with the EHS specialists to ensure that new requirements are implemented and managed successfully. To check ourselves, every facility is audited routinely by the local, state and federal government officials, in some cases up to 30-40 times each year. Furthermore, each site is audited and inspected by our own internal audit personnel and an external 3rd party specialist to ensure that all the appropriate systems and procedures are working as expected. Finally, third-party contractors are used to audit internal systems and practices as part of our ISO 9001 and 14001registration process.

This remarkable effort is expended to ensure that each facility we operate is in compliance with all the applicable rules and regulations - that all our employees and our communities where we work are safe and that the environment is protected. It is a job that requires the review of millions of pieces of compliance information, thousands of environmental samples and the submission of hundreds of regulatory reports. It is a difficult job that is largely unrecognized by the public, but which is absolutely necessary.

To increase the awareness and accessibility of our company safety and environmental metrics, the EHS department is working with the FPC Information Technology group to develop a "cloud"-based EHS data solution to streamline reporting and data collection. This advanced IT application allows all Formosa employees to access EHS information wherever they are, using an internet connection, while reducing data processing costs and improving service reliability.

To all the members of the EHS departments at FPC USA, to the environmental coordinators, operators, engineers and managers - thank you for a job well done. Your efforts are bearing results and I believe that the company has made steady progress over the last fifteen years. Nevertheless, our customers, employees and other stakeholders demand and deserve improvements. Together, I am confident that we can and will continue to improve.



Robert F. Kelley
Vice President, Environment, Safety and Communications

Production and Operations

Formosa Plastics Corporation, U.S.A. is comprised of several wholly-owned subsidiaries, including three chemical manufacturing companies, which are the primary subject of this report. Environmental, health, and safety activities at our chemical manufacturing subsidiaries are conducted, managed, and evaluated according to corporate policies and procedures, and, therefore, reported cumulatively on behalf of the corporation.

Formosa has traditionally reported only one dimension of environmental performance: the impact of our manufacturing operations. This has included emissions, waste generation, the number of instances of "reportable releases," and permit exceedances.

One way to measure, and compare, environmental performance is to "normalize" results relative to production, which is what we have done in parts of this report. For example, environmental performance measurements for waste generation were calculated by dividing total hazardous waste generation by the cumulative amount of products produced. Figure 1 reflects the growth in production we use to benchmark our report.

The benchmark "production" materials for this report include polyvinyl chloride (PVC), high density polyethylene (HDPE), linear low density polyethylene (LLDPE), polypropylene (PP), ethylene glycol (EG), and caustic soda.

Terminology

Formosa Plastics Corp., U.S.A.	FPC USA
Formosa Plastics Corp., Texas	FPC TX
Formosa Plastics Corp., Louisiana	FPC LA
Formosa Plastics Corp., Delaware	FPC DE
Formosa Hydrocarbons Co., Inc.	FHC

A Combined Report

This year's report incorporates, for the second time, our Annual Carbon Footprint Report. Previously, our carbon footprint report was issued each Fall. By combining these two reports, we are now able to report on all performance parameters at one time and much sooner than previously possible.

FPC USA

Formosa Plastics Corporation, Texas (FPC TX)
Point Comfort, TX

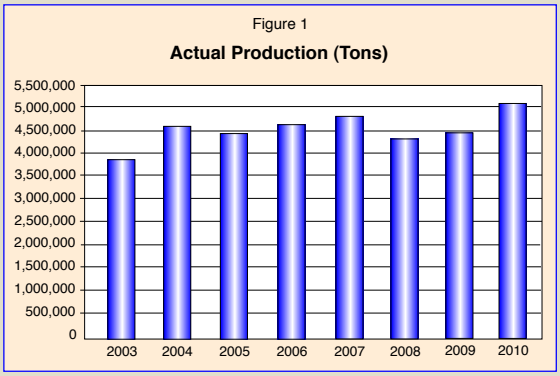
Formosa Plastics Corporation, Louisiana (FPC LA)
Baton Rouge, LA

Formosa Plastics Corporation, Delaware (FPC DE)
Delaware City, DE

Formosa Hydrocarbons Co., Inc. (FHC)
Point Comfort, TX

Formosa Plastics HQ Offices
Livingston, NJ

Figure 1



Safety Performance

Personnel Safety Performance

Our Recordable Injury Rate (RIR) in 2010 increased from 2009. As shown in Figure 2, our RIR was 0.79 injuries per 200,000 hours worked, across the corporation. In comparison, the BLS Plastics Materials average for 2009 was 2.2 and the ACC Responsible Care average was 0.96.

Our Louisiana site completed another year without a single lost time injury and our Texas site achieved an impressive low lost time rate of 0.12. The Lost Work Day Case Rate across the corporation was 0.4. See Figure 3.

Process Safety Performance

Process safety metrics are reported in our Annual Report for only the fourth time (Figures 4 and 5). The Center for Chemical Process Safety (CCPS) has developed lagging indicators for process safety to help chemical processing companies' benchmark performance using a standard set of criteria for identifying and tracking a process safety incident (PSI) and calculating process safety incident severity. A PSI event can involve a release of a process safety regulated chemical beyond primary containment, an injury, fire, explosion, or monetary damage to equipment beyond a set level. The PSI rate was 0.03 incidents per 200,000 hours worked in 2010.

The Process Safety Severity Rate takes into account the extent of the damage, release, or injuries related to any PSI. Scoring for any one PSI can range from a high of 108 points to a low of 1 point. The Severity Rate in 2010 was 0.06 per 200,000 hours worked, down significantly since we began tracking process safety incidents. The charts include contractor man-hours worked for 2008, 2009 and 2010.

Comparison of Injury Rates - 2010	
Formosa Plastics	0.79
U.S. Labor Statistics Avg. NAICS 325211 Plastics Material (2009) – most recent data	2.2
American Chemistry Council Responsible Care Companies Average (2009) – most recent data	0.96

Figure 2

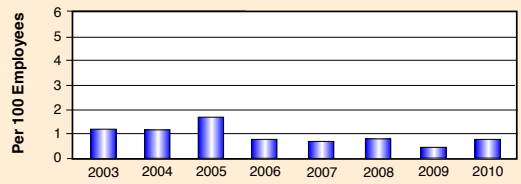


Figure 3

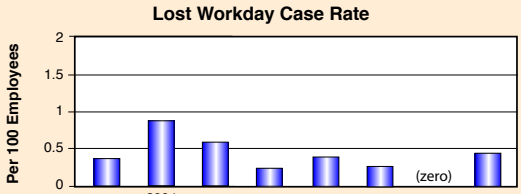


Figure 4

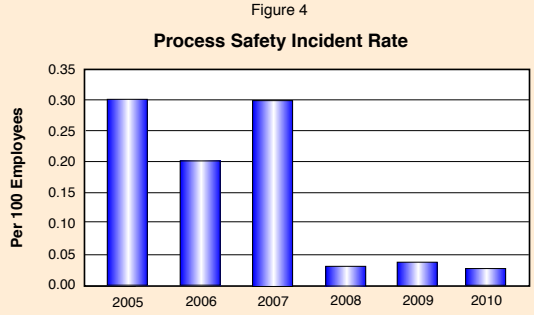


Figure 5

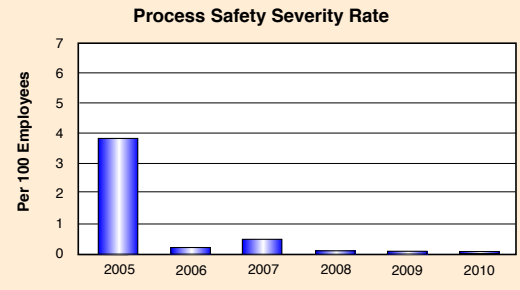


Figure 6

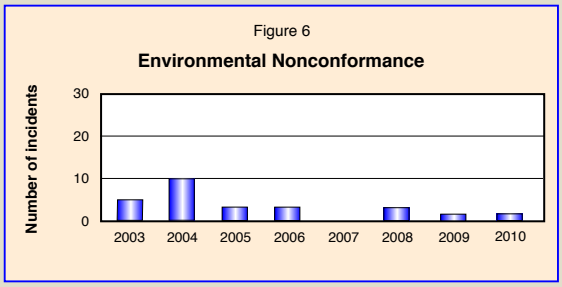
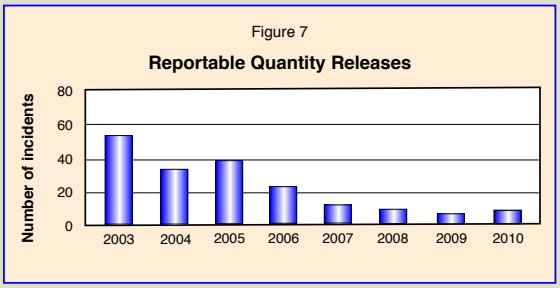


Figure 7



Environmental Performance

Maintaining Compliance

During 2010, FPC USA reported a low number of releases and maintained a very low rate of 2 permit nonconformances. As Figure 6 indicates, Formosa continues to manage permit compliance successfully. Over the past ten years, permit nonconformance events have declined by approximately 90 percent. The non-conformance data shown in the figure are mainly related to state authorized wastewater discharge permits. This figure does not typically include individual air permit excursions, self-reported to state agencies under the Federal Air Permit program (Title V). Air permit "deviations" for example, are more often related to missing data and "downtime" for air pollution control instruments with little or no impact on the environment. The purpose of the chart is to track permit nonconformance incidents (NCRs) that involve an actual impact on the environment.

Federal regulations require certain facilities to report information to the National Response Center (NRC) immediately after the occurrence of an accidental release that is greater than a certain threshold quantity. In the event that an accidental release occurs at one of our facilities, immediate action is taken to notify the NRC, as well as state agencies, and an investigation is immediately launched. The investigation team identifies the fundamental cause of the release, determines whether the incident demonstrates a trend, and recommends corrective actions to prevent the release from recurring. Release events that do not reach the "reportable quantity" threshold are also investigated as "near miss" incidents. As Figure 7 demonstrates, Formosa has made steady progress in reducing the overall number of reportable release events.

For the past five years, Formosa has classified all reportable release events according to a system that assigns a point value to the event based on a number of criteria. Spills and releases are evaluated using four criteria: (1) Size of Release, (2) Type of Chemical, (3) Off-Site Impact and (4) On-site Impact. The four scores are added to generate a total score. The total score is then compared to three alphabetical categories:

A: > 40 points - Major Incident
B: 30 - 40 points - Moderate Incident
C: 0 - 25 points - Minor Incident

As shown in the chart below, the vast majority of our reportable release events over the past five years fall into the "minor" incident category. Since 2003, Formosa has reduced the number of the most severe incidents by 80%, moderate incidents by 69% and minor incidents by 85%.

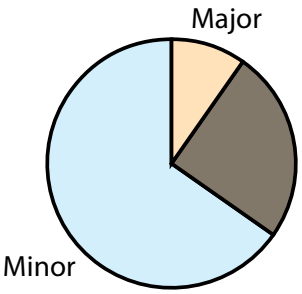


Chart 1: Distribution of Release Events 2003-2010

We will continue to work to drive this number lower by investigating near miss release events and determining the root-cause of each incident.

Citations and Penalties Paid

Notices of Violation (NOVs), or citations, are official documents received from state or federal regulatory agencies regarding air, water or waste regulations. A citation or NOV typically describes an allegation of non-compliance with an environmental or safety regulation.

Notices of violation, citations, warning letters, consent orders and enforcement notices are tracked by FPC USA's Corporate Environment, Safety and Communications Division and reported as part of our Environmental Management System (EMS) to ensure that every item is addressed in a timely and effective manner by senior management.

Figure 8 shows the number of NOVs received by Formosa Plastics Corporation, U.S.A. from 2003-2010. Figure 9 presents the penalties paid during the same period.

In 2010, Formosa Texas and Louisiana settled claims with the USEPA and Department of Justice (DOJ) against the company for a variety of allegations stemming from an inspection of our plant sites in 2003 and 2004. Formosa Plastics disputes many of the agency's allegations and regulatory interpretations, but desired to move forward rather than pursuing the matter through litigation; the decree specifically states that the company does not admit to any liability alleged in the complaint. While the agreement does specify a $2.8 million monetary penalty, many of the agreed-upon additional environmental monitoring efforts (estimated to be about $10 million over the next five years) go well beyond existing state and federal requirements.

Please note that Figure 9 identifies the penalties in the year they are actually paid by Formosa, not the year in which the violation occurred or the citation was received.

Figure 8

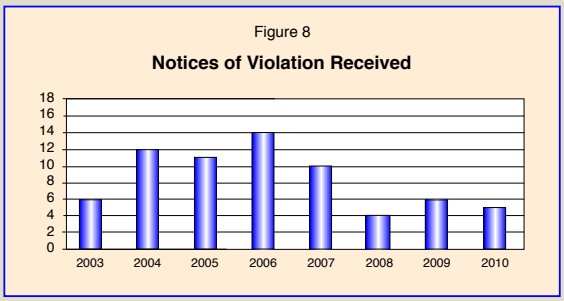
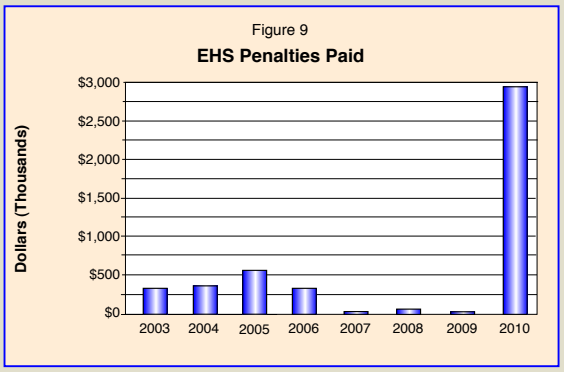


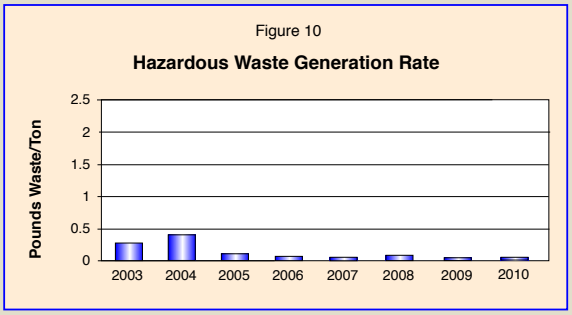
Figure 9



Resource Management

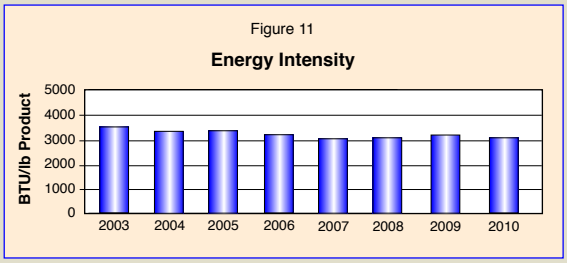
Hazardous waste generation as a function of production remained near the all-time low, as shown in Figure 10. This reduction was achieved mainly by a continued effort to reclassify materials and a focused program to reuse our resources. More importantly, the company has met its long-term goal of a 95% reduction in hazardous waste generation from our 1995 baseline level.

Figure 10



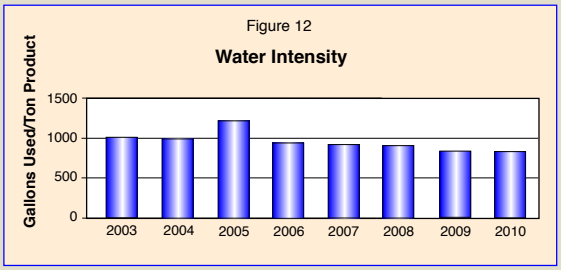
Future efforts will focus on the remaining waste streams at our operations and new methods to reduce, reuse or recycle materials. In 2007, Formosa completed the installation and start-up of a multi-million dollar project to utilize the Catoxid® technology, a proprietary reuse technology for a major process by-product. The use of this new process enhances resource recovery and eliminates emissions associated with transporting the material.

Figure 11



For the past several decades, energy supply and demand have been at the center of many major environmental and sustainability debates. See Figure 11. While Formosa is a major producer of energy, we are committed to demand-side management. Better energy management reduces the cost of our products, as well as the energy burden of our production processes. Formosa's operations employ modern natural gas fired turbines that produce some of the lowest cost, lowest emission electricity in the region.

Figure 12



Our operations continue to evaluate new methods to reduce the need for water, as shown in Figure 12. One project under review includes the consolidation of concentrated brine streams that would allow for the enhanced recycling of other process wastewater.

Figure 13

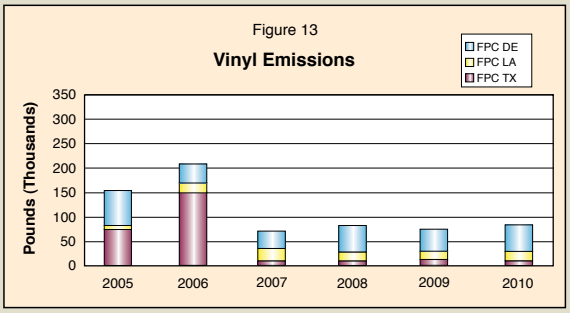


Figure 14

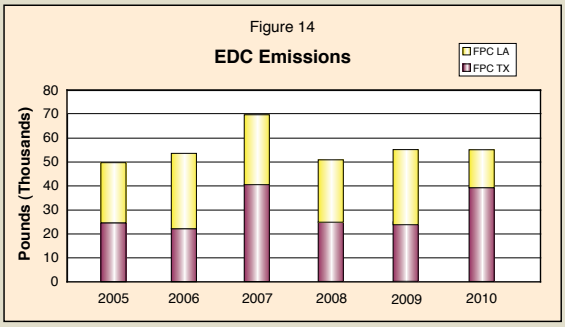


Figure 15

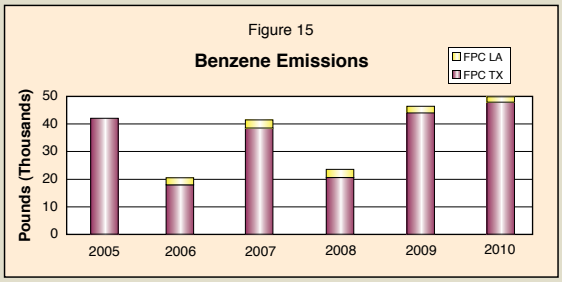
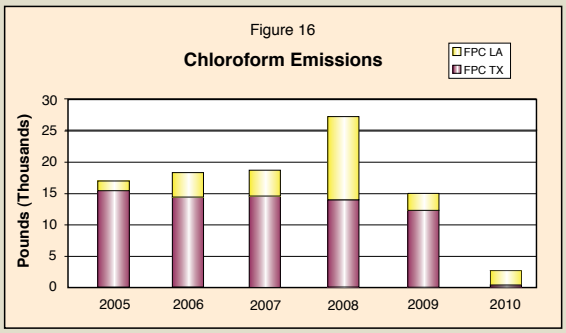


Figure 16



Air Emissions

Federal regulations require that manufacturers who use threshold quantities of listed chemicals report a variety of information to local communities and to state and federal governments. One of the most substantive means to report this information is through the annual Toxic Release Inventory (TRI).[1]

Total TRI Air Emissions, Pounds

	2008	2009	2010
FPC TX	1,462,507	1,488,211	1,438,542
FPC LA	116,087	109,880	121,602
FPC DE	96,194	87,000	114,650
FPC USA	1,674,788	1,685,091	1,674,794

As shown in the table, our total TRI air emissions in 2010 were roughly the same as in 2009. Emission data are subject to year-to-year variability caused by factors such as production rates (higher or lower emissions), unit shutdowns (lower emissions) and startups (one-time, higher emission events).

Overall, our 2010 air emissions were within this expected variability, with some increasing and some decreasing. Vinyl emissions (Figure 13) increased slightly, with an essentially even trend since the one-time emission event in 2006. EDC emissions (Figure 14) were also essentially even, with modest year-to-year variability.

Benzene emissions (Figure 15) were slightly higher because of new sources and additional test data; we expect our recent emission control actions to decrease these emissions significantly and rapidly. Chloroform emissions (Figure 16) continued their ongoing downward trend since 2006, disrupted by a one-time estimation calculation anomaly at our Baton Rouge site in 2008. The dramatic drop in chloroform emissions in 2010 was due to new test data and improved operational procedures/controls.

1 The TRI data is typically not available for each year's report until about the middle of the following year. To accommodate this delay, we typically publish two editions of our EHS Annual Report. The first edition is published during the first quarter of each year to report on the information available at that time, including data on our environmental and safety performance and carbon footprint. It's reissued during the third quarter each year to include the previous year's TRI emission data.

Social Performance

Employee Turnover

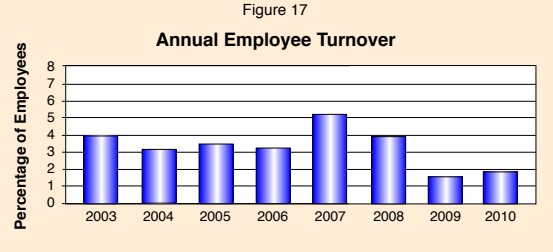
Formosa offers competitive salaries and benefits that meet the changing needs of our employees.

Our annual employee turnover remains low, at about 1.9%, as shown in Figure 17. In comparison, the average for all manufacturing in 2009 was over 16%. This demonstrates our success at motivating, and retaining, a highly skilled, experienced workforce.

Factors contributing to this success include:

- Formosa incurs the full cost of health, dental, life and long-term disability insurance premiums for each eligible employee and dependents.
- Company-sponsored training is available to all employees.
- Formosa offers a range of work/life benefits such as flextime and a Life Assistance Program.

Figure 17



Corporate Contributions

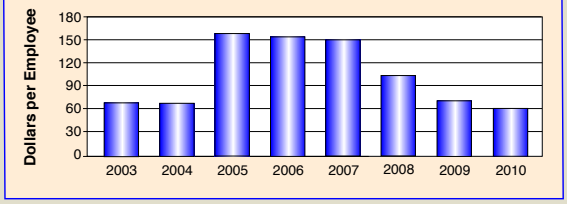
In 2010, as in past years, our corporate contributions focused on supporting key programs and services that improve the lives, health and education of people who live in the communities in which we operate. Figure 18 presents our results from 2003 through 2010.

The decline in corporate contributions since 2007 has been the result of several factors, including:

- A return to more normal contribution levels following substantial donations made in response to Hurricanes Ike, Rita and Katrina.
- An IRS interpretation regarding what can be categorized as a charitable contribution for tax purposes.

In addition, not shown in Figure 18, employees' record donations in 2009 and 2010 helped victims of natural disasters around the world. In early 2011, employees and the company also provided donation to aid disaster relief efforts resulting from the earthquake and tsunami in Japan.

Figure 18



Corporate Citizenship

Formosa Plastics is proud to be a member of the communities in which we operate and is committed to making substantive contributions in each of them.

Over the past twenty years, we've made it a point to work with local organizations to improve education, health, civic growth, spiritual development and environmental protection/preservation. Donations of time and funds are only the beginning.

For example, Formosa has helped build new Habitat for Humanity homes almost every year for the past 12 years. Formosa employees from all over the country join forces to turn lumber into homes for hard-working families who might not otherwise achieve the dream of home ownership. We've specialized in conducting 'Blitz Builds', which transform a concrete slab into a new home, ready for occupancy, in just one week!

Formosa Plastics' employees help build homes in Louisiana and Texas.

All of our facilities actively support education in, and the well-being of, their respective communities:

Delaware City, Delaware

- Funded a scholarship for high school seniors to pursue a college education in math or science.
- Donated funds to continue a school's *Nature Tours* program.
- Offered in-classroom presentations and lectures to further enhance students understanding of business and technology.

Baton Rouge, Louisiana

- Endowed two Professorships in the College of Engineering at Louisiana State University (LSU).
- Provided financial support for a capital campaign to improve facilities and instruction at Louisiana State University's College of Engineering.

Livingston, New Jersey

- Granted National Merit Formosa Scholarships that are renewable for up to four years of fulltime study at an undergraduate college.
- Held its Holiday Food Drive, with employees donating over 3 tons of food, and the company donating over 400 turkeys, to feed local area families.
- Conducted its Annual Blood Drive.

Point Comfort, Texas

- Presented employees' professional/career experiences to local high school students to encourage them to stay in school and pursue post-high school academic or vocational studies.
- Funded water, electrical and sanitary utilities for the Calhoun County Independent School District's outdoor education center at the Formosa Tejano Wetlands.
- Sponsored a sporting event that raised nearly $40,000 in donations to the United Way of Calhoun County.

Formosa Plastics' late founder, Y.C. Wang, established five foundation trusts to fund community organizations in the Point Comfort, Texas area:

1. Formosa Environmental Trust;
2. Calhoun High School Scholarship Trust;
3. Formosa Religious Trust;
4. Memorial Medical Hospital Equipment Trust; and
5. Edna School Trust.

Each year these trusts provide about $250,000 in grants to schools and community organizations in Calhoun and Jackson Counties.

Economic Performance

In 2010, our net sales volume increased significantly, on sales of nearly $4.6 billion. Formosa was profitable for the year.

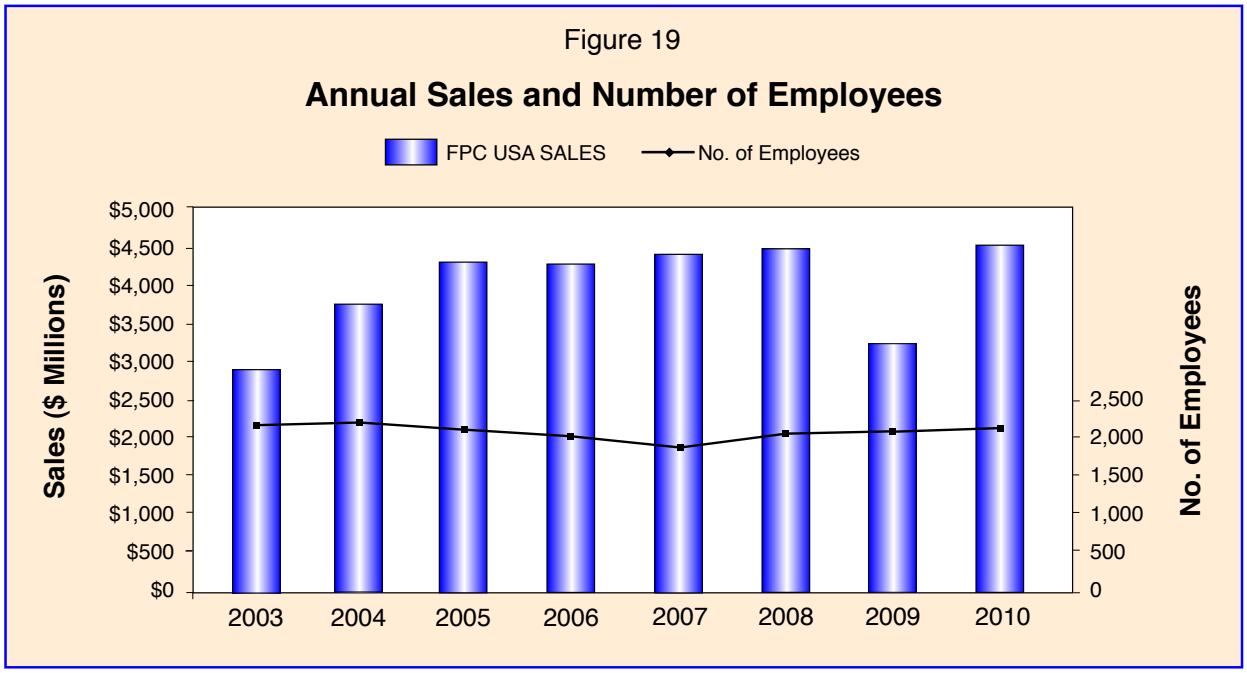
As we move forward, a key success factor of our company strategy is making sure that we are strongly positioned in the right markets to deliver growth. Part of this involves our continued expansion of exports to Latin America, where much of our new sales were generated.

In 2011, we will continue to invest in our plants and equipment, ensuring that Formosa has some of the most technologically advanced production capacity in the industry. For example, in 2011 our Specialty PVC plant in Texas is on track to come on stream, as is a caustic soda plant expansion and our new CFB utility power plant.

In 2010, we demonstrated the strength of Formosa's business strategy. During 2011, you can expect that we will follow the same principles that have guided our success thus far.

We will stay focused on excellence in operations and maintain our record for financial discipline while seeking new opportunities to create value for our customers and stakeholders.

Figure 19



Carbon Footprint Performance

Figure 20 presents our carbon equivalent emissions, or carbon footprint, from 2003 through 2010. Since 2003 our carbon footprint has shrunk by about 11%, despite more than a 38% increase in production. As shown in Figure 21, this translates to a 35% reduction in carbon equivalent emissions per ton of final product produced. These accomplishments are primarily the result of our ongoing and significant energy efficiency improvements.

Figure 20

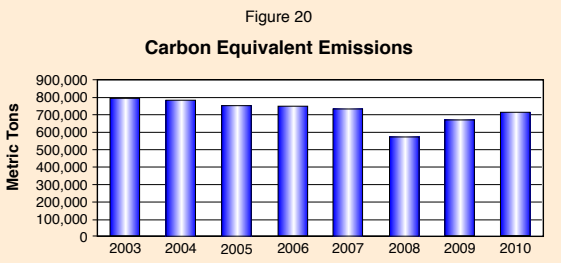
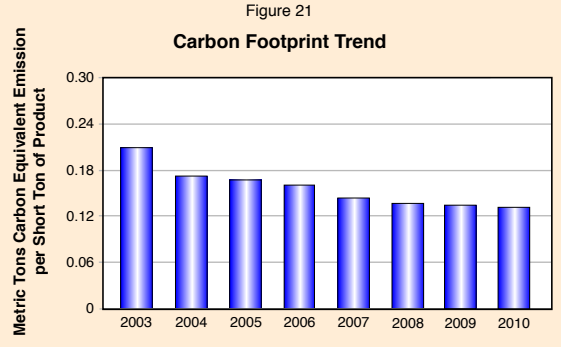


Figure 21



Bases

Any carbon footprint calculation result is only relevant to the bases upon which it is founded. Results should never, or at least rarely, be used to compare one company, facility or product with another without fully understanding their bases, assumptions and supply chain structures.

Appendix 1 provides additional background information on carbon equivalent emissions and calculations, as well as a list of resource references.

For the purposes of these performance results, our carbon equivalent emission calculations and estimates:

- Are for production-related processes only; our administration, personnel and transportation carbon emissions are not included. These emissions can be considered negligible; for example, most of our products are shipped by very energy-efficient rail transport systems.
- Are from products produced at our Point Comfort, TX and Baton Rouge, LA manufacturing sites only. They do not include GHG emissions from our Specialty PVC manufacturing site at Delaware City, DE and our administrative operations at Livingston, NJ.
- Use the standard conversion factor of 14.47 million metric tonnes carbon equivalent (MMTCE) per quad (10^{15} Btu) for electricity generated by natural gas.
- Include natural gas electricity and steam generated by general site utilities units, which are distributed equally among all products at their respective site in proportion to the quantity of respective product produced. Several units have their own additional electricity or steam generation; carbon equivalents for that electricity and steam are assigned wholly to those respective production units.
- Exclude offsite raw material production and transportation, offsite product transportation and the use, reuse and disposition of our customers' products. We produce no retail end-use products.

2 The new U.S. EPA regulatory GHG tracking and reporting requirements and system have been delayed until September, 2011. The data and past charts presented here continue using Formosa Plastics' tracking and reporting system until such time as the U.S. EPA requirements are in place.

Results – By Product Line

Table 1 presents the normalized carbon footprint for each of our major products in 2010. Because VCM and PVC production systems are so integrally linked[3], the normalized carbon equivalent emission for the combination of both products is also provided for reference. Since 2007 was the first year in which we included product-specific carbon equivalent emissions to our list of tracking metrics, the figure does not present results for 2006 and earlier.

Table 1
Normalized Carbon Footprint;
Lbs CE Emitted / Lb Product
(rounded-off to nearest 0.01 lb/lb)

Product	2007	2008	2009	2010
Caustic	0.45	0.43	0.43	0.44
EDC	0.01	0.01	0.01	0.01
VCM	0.09	0.09	0.08	0.08
PVC	0.05	0.05	0.05	0.04
Olefins	0.03	0.04	0.04	0.03
EG	0.03	0.04	0.04	0.03
HDPE	0.04	0.04	0.04	0.04
LLDPE	0.04	0.04	0.04	0.03
PP	0.03	0.03	0.03	0.03
VCM & PVC	0.07	0.07	0.07	0.06

Note: EDC = ethylene dichloride; VCM = vinyl chloride monomer; PVC = polyvinyl chloride; EG = ethylene glycol; HDPE = high density polyethylene; LLDPE = linear low density polyethylene; PP = polypropylene.

As expected, caustic is the product with the most significant carbon footprint, owing to the amount of electricity used in the dissolution of the saltwater to produce the caustic. Likewise, it is not unexpected that the carbon footprint for the polyolefins products -- HDPE, LLDPE and PP, are so similar.

These products' carbon footprints cannot be simply added together to produce an accurate aggregate footprint for the company. This is due to the manner in which the footprint for each product line was calculated, coupled with the high degree of process integration both within our Point Comfort, TX site and between our Point Comfort, TX and Baton Rouge, LA sites.

3 Ethylene dichloride (EDC) is used internally to produce vinyl chloride monomer (VCM) and, subsequently, polyvinyl chloride (PVC). Because EDC can also be used for other purposes, as well as be sold as an end product itself, EDC has not been included in the combined VCM/PVC carbon equivalent emission presented in Table 1.

Our results show that if we continue our rigorous efforts to reduce costs through improved energy efficiency, our carbon footprint will take care of itself. Significantly more sophisticated, resource-intensive efforts like addressing carbon emissions from employee commuting/ business travel or funding carbon sequestration projects would provide only small, incremental improvements.

Our Future Opportunity

Our future opportunity is how to achieve sufficient energy efficiencies to offset carbon emissions from production unit expansions due to come online in the near future. In addition, the startup and operation of our new CFB power generation units in Texas may have a notable impact on some segments of our carbon footprint.

April, 2011

Appendix 1

Carbon Footprint Background

Sections:

1. Introduction

The temperature of the earth is affected by many complex factors, including emissions resulting from both natural and man-made activities. Water vapor, carbon dioxide, methane and other compounds are collectively referred to as 'greenhouse gases' because they 'trap' heat that might otherwise escape the planet, like a greenhouse. When they exist in the upper regions of our atmosphere they can lead to global warming and subsequent climate change. On the other hand, natural and man-made emissions, such as particulate and sulfuric acid, act to cool the planet by blocking the amount of solar radiation that reaches the surface of the Earth. Also, carbon dioxide emissions in the lower atmosphere can be considered beneficial as they increase plant growth and the production of oxygen.

Not all greenhouse gases (GHGs) have the same greenhouse warming potential (GWP). See Table A-1. Some GHGs, like water vapor, are relatively weak with relatively little GWP. Others, like carbon dioxide (CO_2) and methane (CH_4) have greater warming potential. A few, like chlorofluorocarbons (CFCs) and sulfur hexaflouride (SF_6), are mega-greenhouse gases. The total greenhouse warming effect is a combination of each compound's GWP and the quantity of each respective compound in the upper atmosphere.

A carbon footprint is the total amount of GWP-weighted greenhouse gases produced by an activity – such as one's lifestyle, a community, a country or a commercial/ industrial operation within a given time frame, normally a year. Due to the various impacts of the diverse array of GHGs, a carbon footprint is expressed in either carbon dioxide equivalent (CO_2e) emissions or million metric ton (tonnes) of carbon equivalent (MMTCE) emissions.

Table A-1

Greenhouse Gases and Their 100-Year Global Warming Potential (GWP), Relative to CO_2

Greenhouse Gas	GWP
Carbon Dioxide	1
Methane	21
Nitrous Oxide	310
CFCs (CF_4 – C_6F_{14})	6,500 – 9,200
SF_6	23,900

For example, when you buy food and other goods, their production and transportation (and possibly use) often produce greenhouse gas emissions that may include CO_2 as well as methane. When you drive a car or travel in an airplane, train or bus, the engine burns fuel and emits CO_2, water vapor and possibly nitrous oxide; emissions from any specific travel event depends on the type of fuel, the engine's efficiency and the distance traveled. When you heat your home or office with oil, gas or coal, that activity also produces CO_2 and other GHG emissions, as does the electric power generated to power your appliances, lights and industrial process equipment.

Carbon footprint calculations typically ignore the impact of water vapor emissions, which also contribute to the greenhouse effect in the atmosphere.

2. Carbon Equivalent Emissions

The carbon dioxide equivalent emission is merely a form of expressing actual emissions of the various greenhouse gases having diverse greenhouse warming impacts into a single, normalized unit of measurement. Referring to Table 1, one metric tonne (2,200 lbs) of CO_2 emissions would be stated as one tonne of CO_2 equivalent emissions, CO_2e. One tonne of CH_4 emissions would be stated as 21 tonnes of CO_2e. The carbon dioxide equivalent emissions of the defined activities would then be the sum of all the respective greenhouse gas emissions, expressed in carbon equivalents. Adjusting for the atomic mass of carbon dioxide (44) to carbon (12), 3.67 tonnes of CO_2e equivalent emissions equals one tonne of carbon equivalent (CE) emissions.

Perhaps the greatest flaw with using carbon equivalents as a measure of one's greenhouse gas emissions, hence global warming potential, is that it does not include water vapor emissions. Even though water vapor's relatively low GWP is cited as the rationale for not including such emissions, the amount of water vapor emissions is far, far greater than carbon dioxide, so may have an overall greater impact on greenhouse warming, possibly greater than carbon dioxide or the other GHG emissions typically included in a carbon equivalent calculation. Reference 5 provides more complete information.

3. Uncertainties with Greenhouse Gas Emission Calculations and Comparisons

Calculations, bases and assumptions are becoming more standardized, though they still vary greatly among individual companies, facilities, communities and even governments. While international standards such as ISO14044 provide some commonality and consistency, one-to-one comparisons among diverse companies and products are difficult, or impossible, unless one fully understands and adjusts for their diverse bases, assumptions and supply chain structures.

For example, a company with integrated production may incorporate upstream carbon equivalent emissions into its downstream products while another company may not. Meanwhile, a third company without upstream integration might not even have a carbon footprint basis for that portion of their operation. Other firms may or may not include transportation carbon emissions between their sites, to their customers' sites and/or downstream to the use and disposition of their products.

Thus, there are few common bases upon which to make a 'better' or 'worse' comparison between individual companies, facilities, operations or products. The most important result is the trend direction for the same activity over time, using the same bases and assumptions -- is the carbon footprint of the defined activity increasing, staying the same, or decreasing?

4. Carbon Offsets, Credits and Trading

Various mechanisms and systems have been developed, proposed and, in some regions, implemented to encourage the proactive and voluntary reduction of greenhouse gas emissions. All of these systems include or involve one or more of the following features:

- Offsets – Increases in greenhouse gas emissions can be 'offset' by reductions elsewhere. Sometimes, the offset is generated by implementing projects that absorb ("sequester") CO_2, such as the reforestation of areas with trees having high CO_2 uptake rates.
- Credits – If a project can reduce greenhouse gas emissions over and above the reductions specified by a particular set of standards, those additional reductions can be converted to credits – a sort of greenhouse gas 'coupon' that entitles a purchaser to apply those reductions to its activities and operations without having to reduce its own emissions. This is supposed to encourage the cost-effective reduction of greenhouse gases

across operational, governmental and regional boundaries.

- Trading – These credits can be bought and sold in certain regions of the world that participate in specific trading schemes and networks, primarily based in Europe. The advantage is that such credits work to produce cost-effective reductions beyond what would normally get created by normal financial consideration. The disadvantage is that these trading networks rely on a cumbersome, inexact process that has faced many volatility and credibility issues over the past several years.

Formosa Plastics Corporation, U.S.A. does not currently participate in the carbon offset/credit markets. Many U.S. companies do not participate in these markets for a variety of reasons, including a) continued market volatility and credibility issues and b) the absence of an established framework in the U.S. Many of the companies in the U.S. that do participate are U.S. affiliates of European-based companies, where carbon credits created in the U.S. can be credited and marketed through their European operating entities.

While there is increasing pressure to regulate carbon emissions, currently there are few definitive rules or regulations. The greatest amount of regulatory activity in the U.S. is now at the national level, rather than at the state and regional levels. Such sub-global efforts however, can not be expected to be effective in addresing the global nature and context of climate change.

5. Frequently Asked Questions (FAQs)

Q: Why is the carbon footprint for your caustic (sodium hydroxide) product so much higher than your other products, especially since the primary feedstock is salt water, not carbon-based petroleum, and the production process requires no combustion heat source, hence carbon equivalent emissions?

A: *Caustic is produced by the electrochemical disassociation (separation) of salt water by electricity. This separation requires significant amounts of electricity, which is provided by natural gas-fired electrical generation units. The indirect carbon equivalent emissions from the combustion of the natural gas used to produce the electricity have been allocated directly to the caustic product.*

Q: How can carbon equivalent emissions go down while production goes up? This seems counter-intuitive.

A: *Formosa has invested heavily in energy efficiency projects such as waste heat recovery, low pressure steam utilization and process optimization. In addition, vertical integration and targeted production debottlenecking improvements often provide additional economy of scale and critical mass for greater operational production efficiencies that produce additional product at little or no increase in energy use (hence carbon equivalent emissions).*

Q: What will the company's carbon footprint look like when you start using steam and electricity produced by the new Circulating Fluidized Bed (CFB) units?

A: *We are still evaluating the impact of that future change. While the pet coke fuel will have a greater carbon intensity content than natural gas, it will also have higher energy per pound-mass and the unit will be more efficient in its conversion of fuel to useful energy. We are in the process of determining the appropriate "metric tonnes of carbon equivalent emissions per quad of electricity" conversion factor appropriate for the type of pet coke that these units will be using as their primary fuel. A 'quad' of electricity represents 10^{15} Btus.*

Q: Why don't you include carbon emissions from your Delaware City, DE and Livingston, NJ sites in your carbon footprint calculations?

A: *Scoping calculations have shown that these facilities and operations have very minor carbon footprints compared with our two major production facilities at Baton Rouge, LA and Point Comfort, TX.*

Q: Some companies also include the carbon impacts of its products' transportation, use and disposition into their calculations. Why doesn't Formosa?

A: *There are many ways that companies, communities and governments both measure and report on their carbon footprints. At this time Formosa Plastics Corporation, U.S.A. has chosen not to include carbon emissions from materials, processes and activities external to our own onsite operations. Those carbon emissions may be included in other sources' calculations and reporting, so including them in our footprint might 'double count' the footprint in any regional or industry- sector compilations. Also, it's important to note that one company has been heavily criticized for taking carbon equivalent credit for its products that reduce others' energy use and emissions.*

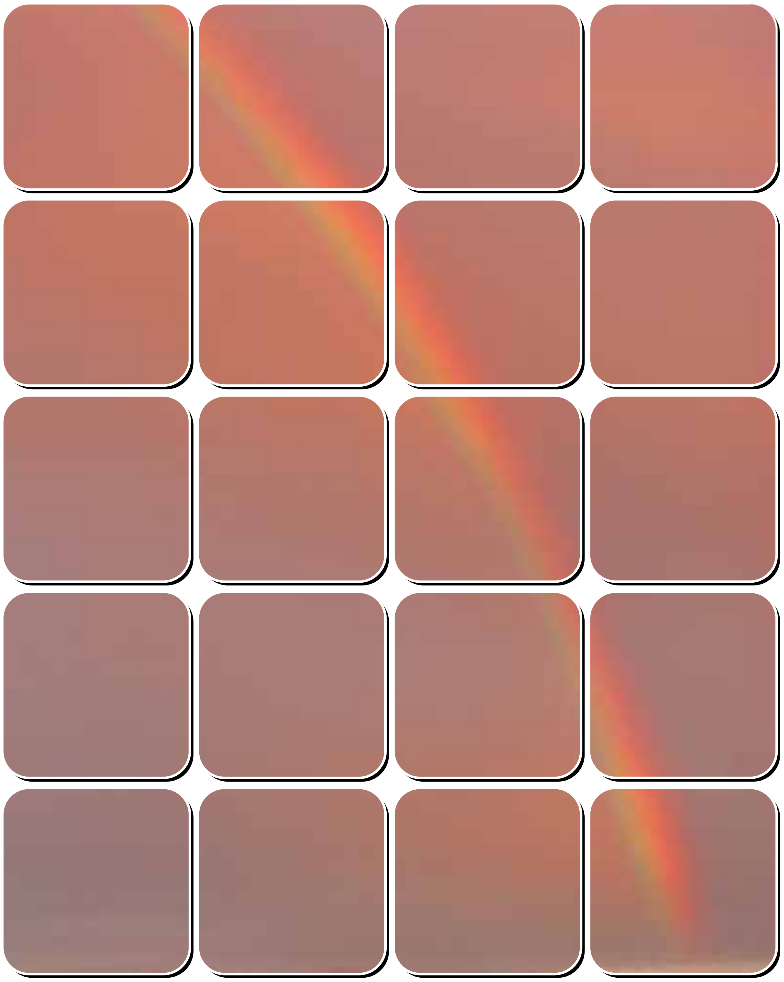
Q: What is Formosa's carbon footprint reduction goal and position on global warming/climate change?

A: *Each year we set very aggressive internal energy efficiency improvement targets. We believe that this is the best overall way to a) reduce energy use, b) reduce costs, c) improve productivity and d) reduce carbon equivalent emissions – all at the same time. Our results demonstrate that if we take aggressive action on energy efficiency goals, we will also achieve significant carbon footprint reductions.*

6. Additional Resources

The following resources provide additional information on carbon footprints, carbon equivalents and related issues:

1. Appendix X to the General Reporting Protocol: Power/Utility Reporting Protocol. October 15, 2004.
2. Carbon Finance Newsletter. Fulton Publishing Ltd.; See www.carbon-financeonline.com
3. *Carbon Neutral*; See www.CarbonNeutral.com
4. *Climate Biz*; See www.climatebiz.com
5. "Just how much of the greenhouse effect is caused by human activity?" See http://www.geocraft.com/WVFossils/greenhouse_data.html
6. "Key Issues and Mandates: Climate Change – Frequently Asked Questions", National Energy Technology Laboratory; See http://www.netl.doe.gov/KeyIssues/climate_change3.html
7. "Our Operations – Vertical Integration". An interactive diagram that illustrates how Formosa Plastics' production chemistry and processes are vertically integrated for energy/resource efficiency and operational productivity. See www.fpcusa.com/company/operations/vertical.html.
8. Pew Center on Global Climate Change; See www.pewclimate.org
9. Regional Greenhouse Gas Initiative (RGGI); See www.rggi.org
10. U.S. EPA Climate Leaders Program; See www.epa.gov/climateleaders/
11. U.S. EPA Natural Gas Star Program; See www.epa.gov/gasstar
12. Voluntary Carbon Markets – An International Business Guide to What They Are and How They Work; R. Bayon, A. Hawn and K. Hamilton; 2007.



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