

Sustainable Profits

Lessons for Louisiana about the Impacts on Profits from Investments in Environmentally Sustainable Practices

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Reader's Guide to this Report

BACKGROUND AND SUMMARY

As a new millennium begins, the citizens of Louisiana face a wide array of economic and environmental challenges. Louisianians widely support the twin goals of having both economic growth and a healthy environment but, as the state struggles to overcome its problems, moving toward both goals at the same time seems impossible: yes, improving the economy and the environment at the same time would be nice, but necessity requires choosing one at the expense of the other. The record of the past decades shows, however, that such thinking has been unproductive. By almost every indicator of economic well-being and environmental degradation, Louisiana, relative to other states, persistently ranks at or near the bottom

This report provides evidence showing that it makes sense to move toward *both* economic growth *and* environmental improvement simultaneously. Specifically, it summarizes case studies of 57 businesses, in Louisiana and neighboring states, that have taken steps to implement environmentally sustainable business practices and have saved money in the process. Financial data for just 19 of these case studies show that sustainable practices resulted in annual cost savings of \$45.9 million. The findings reported here demonstrate that Louisianians can have both a healthy economy and a healthy environment and, increasingly, they must pursue both simultaneously to have either one.

The research reported here is modeled on similar research elsewhere, and especially the Pacific Northwest, a region often recognized as a global leader in technological, economic, and environmental innovation. One recent study (Doppelt and Watson 2000) catalogued one-hundred-sixty firms that have reduced their costs by more than \$55 million annually by reducing their impact on natural ecosystems, diminishing their use of raw materials, and eliminating practices that waste energy and resources. Another (Goodstein et al. 2000) found that, between 1992 and 1999, 137 firms and agencies saved more than \$42 million, and the researchers concluded that, if only one-quarter of the firms in nine industrial sectors were to take similar actions, the total savings (and increase in profits) for the region would exceed \$1.1 billion over five years. These findings, and others like them, have helped business leaders and elected officials recognize the importance of taking the steps needed to encourage broader adoption of actions that can improve the region's economy and environment.

The data reported here show that some of Louisiana's business managers already have begun to follow the lead of industry leaders in other regions. Equally important, however, we found that business managers in neighboring states appear to be even more aggressive in investing in sustainable practices. This finding has two implications: (1) Louisiana seems to be lagging behind other states; and (2) the fact that it is lagging behind

indicates that there is greater potential here than elsewhere for the realization of sustainable profits.

Finally, we offer a note of caution about the limitations inherent in this report's data and findings. Much of the data come from the firms themselves, reported either directly to us or to other researchers, whom we cite. We have not verified the veracity of the data. Also, by identifying a specific sustainable activity adopted by a firm we are not saying that all the firm's practices are sustainable. Indeed, we observe that some firms have found the adoption of some practices to be profitable precisely because historically their full suite of business practices have been such a long way from sustainable.

AUTHORS AND ACKNOWLEDGEMENTS

Anne Fifield and Ernie Niemi wrote this report at ECONorthwest, an economic consulting firm in Eugene, Oregon, in conjunction with People First, Sustainable Communities, an organization committed to promoting the accomplishment of prosperous communities and a healthy environment in Louisiana. Funding support for the project was provided by the Ford Foundation. We gratefully acknowledge the insight and assistance of Paul Templet, Amy Clipp, and all the individuals we interviewed. We, however, are solely responsible for the report's content.

GETTING MORE INFORMATION

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Sustainable Development

It is impossible to overlook the linkages between Louisiana's economic and environmental problems. Relative to other states, it ranks at or near the bottom of indicators. A study from the Institute for Southern Studies (Ernst and Kromm 2000) ranked the 50 states for economic performance and environmental standards. Louisiana ranked 48th for economic performance and dead last for the environment. The state's poor environmental performance stemmed from high toxic chemical discharges, hazardous waste generation, and energy consumption. Its low economic rating results from a high poverty rate, a large income gap between rich and poor, low education levels, and tax inequality.

Other studies concur. List and McHone (2000) placed Louisiana in the bottom quarter of the states' environmental quality, based on air and water quality. Another survey of many different factors affecting livability, including the economy, environment, crime, education, and others, placed Louisiana as one of the least livable states in the U.S. (Morgan et al. 2000).

Both its economic and its environmental problems are symptoms of inefficiencies in how Louisiana uses natural resources. In a cross-state analysis of the relationship between energy use and economic performance, for example, Templet (1995) found that Louisiana was at the bottom in terms of the number of jobs and amount of value-added output produced per unit of energy consumed. In using the additional energy, Louisiana's businesses incur additional costs, unnecessary costs relative to competitors elsewhere. Wasteful energy use also results in environmental damage, such as greater air pollution and accelerated destruction of coastal marshes by the oil and gas industry. For decades, the prevailing economic and political reasoning in the state was that Louisianians had few options. Environmental degradation was seen as the price that must be paid to have even a limited degree of economic development.

This report demonstrates that there is another way. It describes more than 60 companies and organizations that have implemented waste-reduction changes in business practices, thereby generating savings of \$45.9 million annually, while significantly reducing their environmental impacts. Fewer than half of the examples come from within Louisiana, the remainder from neighboring states in the Southeast.

This research was inspired by similar, recent studies conducted for the nation as a whole and in the Pacific Northwest. One milestone was Joseph Romm's (1999) publication of the book, *Cool Companies: How the Best Businesses Boost Profits and Productivity by Cutting Greenhouse Gas Emissions*. The book laid out a vast amount of national evidence regarding the ability of firms, governmental agencies, and organizations to realize substantial, on-going cost savings by investing in energy-conservation measures. The Center for Watershed and Community Health, at Oregon's Portland State

University, has expanded upon Romm's work to document the savings firms and institutions in the Pacific Northwest have realized from a broader array of conservation measures, involving reductions in the use of energy, toxic materials, water, and other resources. These studies' findings reflect powerful economic trends that should apply to Louisiana. To confirm that they do, we initiated this study to see if firms and institutions in Louisiana and neighboring states are similarly finding that investments in using resources more efficiently result in cost savings and higher profits.

SUSTAINABLE DEVELOPMENT: WHAT IS IT?

The 1987 U.N. World Commission on Environment and Development developed the term 'sustainable development' to describe the response to complex economic, social, and environmental problems. It defined the term as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs." In other words, sustainability means passing along to future generations ample stocks of environmental capital such as clean water, clean air, topsoil, predictable climate, intact ozone layers, forests, clean estuaries, oceans, and a diverse biodiversity including fish, wildlife, and plant species.¹

Many find this definition to be too vague. To make the concept of sustainable development more concrete, we recommend thinking of sustainability in terms of disconnecting the historical linkages between economic growth and environmental degradation. In the past the two have moved hand-in-glove: as profits, incomes, and employment have moved to new levels, so too has the amount of raw material extracted from the earth and the amount of (often toxic) pollution dumped onto the land and into the rivers and the air. Sustainable development means finding ways to realize improvements in the standard of living without trashing the environment.

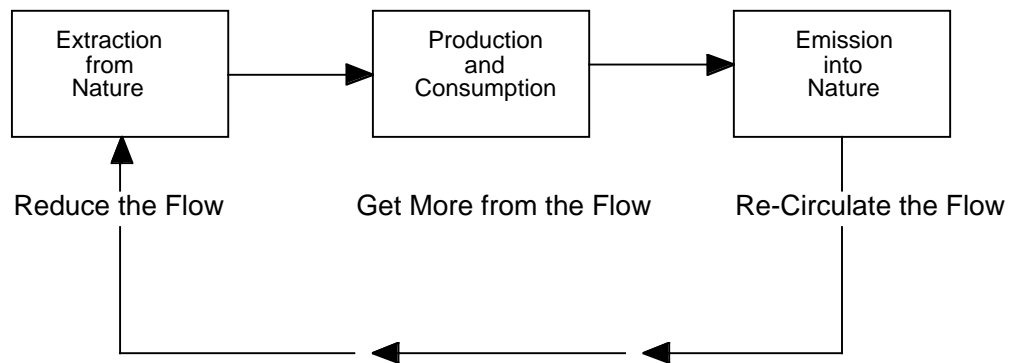
Moving toward sustainable development means finding ways to increase the standard of living while steadily diminishing the impacts on the environment. There are three separate ways toward this end:

- **Reduce the flow** of scarce resources, toxic materials, and energy used by a firm or organization by reducing unneeded inputs and finding non-toxic, environmentally-sound alternatives.
- **Get more output per unit of input** by instituting measures to reduce the wastage in the use of scarce resources, toxic materials, and energy.
- **Re-circulate all waste materials** by finding ways to use the waste as a raw-material input into the production of other products.

¹ This discussion is taken from a variety of papers prepared by the Center for Watershed and Community Health at Portland State University.

These three ways to disconnect economic growth from environmental impacts are illustrated in Figure 1. The boxes at the top of the figure, commonly called the economic value chain, identify the three major ways in which conventional human activity increases the value of environmental resources: extracting them from their natural state, producing and consuming goods derived from the extracted resources, and disposing of wastes by emitting them into the environment. In each of these cases, the linkage between the economy and the environment can be broken, or at least weakened.

Figure 1: Disconnecting the Linkages Between Economic Growth and Environmental Impacts



Source: Center for Watershed and Community Health.

Reducing the flow includes shifting to methods of farming, fishing, water use, mining, and energy generation that does not deplete the resource faster than nature can replace it. For example, farming practices have resulted in the loss of fertile topsoil; some fisheries have collapsed from harvest rates that exceed replacement rates; and most electricity is generated from fossil fuels. Reducing the flow of resources extracted from the environment entails adopting farming practices that generate less erosion, eliminating over-fishing, and increasing the output from electricity generators that rely on renewable energy sources, such as wind.

Getting more from the flow requires redesigning products so they require fewer resource-inputs to produce, redesigning production processes so they are more efficient, and adopting more-efficient technologies. The opportunities are manifold. Many factories use water one time, and then flush it into the sewer system, when it would be cheaper to either use less, or use it multiple times. Motors that waste large amounts of electricity, because they use out-dated technology or are inappropriately matched to their loads, can be rewired or replaced with smaller, more efficient ones. Buildings that waste energy and incorporate toxic materials harmful to occupants can be retrofitted with additional insulation, more heating/cooling systems, and non-toxic building materials.

Re-circulating the flow of resources includes re-use and recycling. Often the waste products from one part of a production process can become an input

for another: heated waste water from the end of a manufacturing process, for example, can be cycled back and used to warm the water going into the process. A waste product from one firm also can be an input for another firm. The essential point is that, in today's economy, waste products that in the past would have had little value and, hence were discarded, now increasingly have a value.

At its heart, sustainable development entails solving problems before they are created. In the past, for example, the environmental problems associated with industrial activity were addressed at the end of the industrial process—at the end of the pipe, just before effluents were released into the air or water or dumped on the ground. The sustainable approach entails moving upstream in the system to redesign products and production process so they require fewer inputs and produce less waste.

It also is important to recognize that moving toward sustainable development involves a fundamentally different way of thinking than what underlies traditional environmental-compliance programs. Though government can play important roles in providing the governance structures, policies and programs needed to foster these sustainable-development efforts, sustainability measures are typically adopted voluntarily by a firm or organization because they believe the practices will provide added value. They are not an environmental-compliance module added onto the central, core functions of a firm or organization. Instead, they build upon, enhance, and are integrated into existing profit-enhancement, quality control, human-resource, and other internal programs. They have these characteristics because they evolve in response to recognition that environmental problems are indicators of inefficiencies and design flaws, which waste resources, energy, and, ultimately, money.

PRINCIPLES OF SUSTAINABLE DEVELOPMENT

To achieve the goal of sustainable development, firms and organizations tend to apply one or more of the four principles described below (adapted from The Natural Step, <http://www.naturalstep.org>).

1. *Conserving, protecting, and restoring the productivity and diversity of nature to levels necessary to maintain ecological health, with emphasis on key areas, such as riparian areas, floodplains, wetlands, and native-plant habitats.*

This principle is important because ecological science shows that human health and prosperity depend on the ability of nature to produce a continued supply of physical goods, such as wood and fish, as well as ecological services, such as cleaning pollutants from air and water. Today, many ecosystems in Louisiana have lost their ability to provide these goods and services in perpetuity.

2. *Reducing the use and emission into nature of toxic minerals, metals and fossil fuels and synthetic, persistent toxic materials and substances, and*

enhancing the use of renewable energy and non-toxic materials and substances in processes, goods and services.

This principle is important because, to maintain healthy ecosystems, toxic materials must not be discharged into nature faster than nature can break them down and reintegrate them into natural cycles. Today, industries and communities in Louisiana are emitting many toxic materials and substances faster than nature can assimilate them.

3. *Increasing the efficiency by which natural resources and energy are extracted, processed, used, and reused.*

This principle is important because the population and economy have grown so large that materials and substances must be used as efficiently as possible to avoid violating the first two principles.

- 4 *Enhancing business development, economic competitiveness, job creation, and fairness in the distribution of resources to meet basic human needs, public safety, health care, and education consistent with the principles above.*

This principle is important because, to meet the previous principles, Louisiana (and its neighbors) must have healthy economies and communities which benefit all citizens. Increasing prosperity for everyone will lead to increased support for and involvement in sustainability programs.

SUSTAINABILITY PRACTICES AND STRATEGIES

There are many ways that firms and organizations can apply the principles, described above, to realize cost savings. The following list offers some illustrative practices and strategies:

Efficient Design – designing products, manufacturing processes, services, buildings, and construction practices so they use less energy, water, and raw materials.

New Technologies – employing equipment that requires less energy, water and raw materials, and that can remanufacture products with reused and recycled materials.

New Control Systems – applying more sophisticated control systems that monitor and reduce the use of energy, water, and raw materials.

More Sophisticated Management – emphasizing continual pursuit of cost savings through reductions in the use of energy, water, and raw materials.

New Production Processes – manufacturing more efficiently, reducing unneeded steps.

Material Savings – using just the right amount of energy, water, and raw material, similar to the just-in-time manufacturing processes.

Non-toxic Materials and Substances – using naturally occurring, non-toxic materials and substances.

Use of Services versus Products – leasing or renting products, such as cars and copiers, rather than promoting their purchase by every consumer.

RESEARCH INDICATES THAT SUSTAINABILITY IS OFTEN “JUST PLAIN GOOD BUSINESS”

The Appendix of this report contains 57 case studies of firms and organizations in Louisiana and neighboring states that have applied one or more of the sustainability measures described above. Financial data, which are available for only 19 of the examples, show that these projects, alone, resulted in a total annual savings of \$45.9 million, and demonstrating that the adoption of these environmentally sustainable practices was just a plain, good, business decision. This should not be a surprise.

Although they generally require an initial expenditure of capital and managerial effort, steps to reduce the use of energy, water, and raw materials usually pay for themselves through lower, long-run costs and improved competitiveness of new product or service specifications. Hence, as this report found, many investments in sustainability result in cost savings, increased productivity and market share. These findings are reinforced by similar research elsewhere. For example, in their report, *Saving Salmon, Saving Money: Innovative Business Leadership in the Pacific Northwest* (Goodstein et al. 2000), economists in Oregon and Washington assessed data provided to ten public agencies by businesses and organizations representing nine industry sectors. Data on cost savings were available from 137 firms, which reported a combined minimum gross savings of over \$42 million from 1992-1999, with most savings coming in the last three years. The initial investment costs were recovered, on average, within 4.04 years for private firms and 8.79 years for public organizations.

A related report on the cost savings potential of sustainable building practices found that by incorporating green building practices, Washingtonians and Oregonians could save more than \$90 million each year in energy, water and construction-related costs (ECONorthwest 2000). The building practices included in the study include increased use of energy- and water-conservation appliances, better lighting, reduced use of toxic building materials, and well-designed management of stormwater. Benefits from the adoption of sustainable building practices were shared by builders, homeowners, businesses, taxpayers and electricity and water ratepayers.

A larger, national study (Russo and Fouts 1997), analyzed the economic and environmental performance of almost half of the Fortune 500 companies over a two-year period and found that those with superior environmental performance also exhibited higher returns on investment, relative to their competitors. This conclusion held true even after the analysis accounted for differences in market position and growth of sales. The authors concluded that, contrary to the common perception that firms engaging in

environmentally responsible practices incur costs without realizing offsetting benefits, “when you actually crunch the numbers, it turns out that good environmental citizenship is great for the bottom-line.”

Table 1 below briefly summarizes the quantified resource savings achieved by firms in the case studies reported in the Appendix. Savings range from finding a use for discarded Christmas trees, to drastically reducing hazardous waste production.

Table 1: Resource Savings from Case Studies

Resource/Waste	Savings
Air Emissions	Hazardous waste reduced from 1,170 to 634 tons/yr. Reduced incinerated chlorinated hydrocarbons by 3.8 million lbs/year
Energy	51,000 gallons of fuel oil per year Reduced gas consumption by 60% & electricity use by 40% per lb. of product
Fuel Consumption	Reduced jet fuel disposal by 240,000 gallons/year Reduced energy use by 52 million cubic feet of natural gas per year Reduced fuel consumption by 18 tons/day
Hazardous Waste	Reduced sulfur dioxide emissions by 400,000 lbs Reduced hazardous waste by 136,000 lbs per year Eliminated methyl ethyl ketone from their facility Reduced hazardous waste disposal by 1,500 pounds/year Reduced hazardous waste by 599,000 lbs/year Reduced hazardous waste from 1.23 to .09 lbs per 1,000 lbs. of product
Solid Waste	Reduced wood waste by 200,000 lbs & plastic waste by 60,000 lbs Reduced waste by 10,760 tons Reduced paper consumption by 1,000 lbs. Reduced waste generation by 1,637 tons Reduced solid waste by 180 tons Reduced waste by 10 tons/year Diverts 500,000 pounds of waste per year from landfill Saved 1,346,000 lbs of paper by printing customer bills on both sides of paper Reduced weight of aluminum can by 7%, saving 40 million lbs per year Reduced solid waste by more than 300,000 lbs per year Raised post-consumer content in cardboard boxes from 18% to 40% 2.5 million pounds of nylon a year Discarded Christmas trees used to rehabilitate wetlands and marshes Composted waste fiber, diverting 12.5 million lbs of waste Converted 482 million lbs of wood by-products into soil ammendments
Water	Reduced water consumption by 5.5 tons/day Reduced fresh water consumption from 330 kgal/day to 7.8 kgal/day Reduced wastewater disposal by 10,000 gallons/year

Source: ECONorthwest.

CONCLUSIONS

The firms and organizations described in the Appendix have demonstrated that they can realize significant economic benefits by taking steps that reduce their impacts on the environment. Thus, these firms and organizations are at the leading edge of the movement to place Louisiana and its neighbors on a more environmentally and economically sustainable path.

It must be noted, however, that, although the findings reported here are impressive, they represent a tiny fraction of the firms and organizations that potentially could benefit from similar actions. Moreover, an even smaller number of firms and organizations have implemented comprehensive sustainability programs. Instead, the adoption of sustainability measures can best be characterized as somewhat haphazard, with a scattered set of projects, driven more by regulatory pressures or enlightened managers and employees than by strong, consistent company policies and programs. This state of affairs raises questions about what economic, social and environmental benefits would materialize if a broader set of firms and organizations, throughout Louisiana were to adopt first individual sustainability measures and then comprehensive sustainability programs, addressing all environmental-economic issues through a systematic, integrated approach.

Results from this study, combined with those from the Pacific Northwest and elsewhere, indicate that the potential savings must total several billion dollars. That is to say, the adoption of sustainable business practices offers Louisianians several billions of dollars in cost savings, higher profits and reduced rates for taxpayers and utility ratepayers. We hope the information in this report serves to inspire similar and more widespread applications of sustainability measures at many firms, organizations and government throughout Louisiana, as well as a more serious dialogue among Louisianians about strategies for accelerating the process.

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Appendix: Case Studies

This Appendix lists the case studies we identified in Louisiana, Texas, Arkansas, Mississippi, Alabama, and Georgia. We obtained information about the case studies from numerous sources, including local, state, and federal agencies, and other organizations. We describe each case study in the following manner.

Firm/Organization: Identifies the name of the firm or organization.

Location: Identifies the city or state of the firm or organization.

Industry: Describes the type of business the firm represents.

Issue: The type of environmental media the measure addresses. Issues include Air Emissions, Energy, Fuel Consumption, Hazardous Waste, Solid Waste, and Water.

Costs: The investment capital needed to complete the project.

Annual Financial Savings: The total annual savings the investment generated.

Total Financial Savings: The total amount of money saved over the life of the investment.

Payback Period: The time it took to pay back the initial investment.

Resource Savings: The reductions in water, energy, toxic materials, waste and pollution created by the measure.

Source of Case Study: Identifies where we found information about the case study.

Summary: A short explanation of the actions the firm or organization took to generate their economic and environmental savings.

Please note that there are numerous data gaps in the case studies. We described what we could given the information we could obtain.

Firm/Organization: Air Products and Chemicals

Location: St. Gabriel, Louisiana

Industry: Gas and Chemical Manufacturer

Issue: Air Emissions

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced air pollution emissions

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Made process renovations involving conversion to continuous processing, more efficient catalyst, and improved vent recovery. Resulted in significant reduction in air pollution, reduction in organic waste, and reduction in worker exposure.

Firm/Organization: American Plastics, Inc.

Location: Rayville, Louisiana

Industry: Plastics Recycler

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Diverts 500,000 pounds of waste per year from landfill

Source of Case Study: "Teamwork Louisiana" Winter 2001-an Entergy Corporation newsletter

Summary: American plastics opened a new facility near Guide Corporation, an automobile headlamp manufacturer. American Plastics will recycle remnant pieces from Guide's manufacturing process. They will grind or demanufacture plastics to create new feed streams.

Firm/Organization: Anniston Army Depot (ANAD)

Location: Anniston, Alabama

Industry: Industrial Base for Ammunition Storage, Vehicle Repair

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings: \$1.85 million

Payback Period:

Resource Savings: Reduced hazardous waste generation by 55%

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: Changing hazardous waste management systems and replacing solvents with non-chlorinated alternatives, ANAD reduced hazardous waste generation 55%. They reduced hazardous waste disposal costs by \$1.85 million. Reduced overall VOC emissions by 95%, or 500 tons. Eliminating coal-fired boilers reduced pollutants by 423 tons.

Firm/Organization: Anniston Army Depot (ANAD)

Location: Anniston, Alabama

Industry: Industrial Base for Ammunition Storage, Vehicle Repair

Issue: Solid Waste

Costs:

Annual Financial Savings: \$465,000 in disposal fees;; \$107,000 in mgt costs

Total Financial Savings:

Payback Period:

Resource Savings: 13 million pounds of metals, wood, paper products each year

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: Recycling program diverts aluminum, brass, copper, ferrous, steel, aluminum cans, wood products, cardboard, and paper from landfills. ANAD now diverts 56% of their solid waste from disposal facility.

Firm/Organization: BASF Corporation

Location: Geismar, Louisiana

Industry: Chemical Manufacturer

Issue: Water

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced nitrates in wastewater

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Developed a biological treatment system that converts over 2.3 million lbs of nitrates annually in their wastewater to atmospheric nitrogen. Reduced the nutrient loading in the Gulf of Mexico.

Firm/Organization: BellSouth

Location: New Orleans, Louisiana

Industry: Telecommunications

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Recovered and re-used anti-freeze from 2,600 vehicles

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Recovered and re-used anti-freeze from 2,600 vehicles operating from 351 manned facilities across Louisiana. Recycles 12,000 florescent bulbs annually.

Firm/Organization: BellSouth

Location: Georgia

Industry: Telecommunications

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings: over \$4 million

Payback Period:

Resource Savings: Saved 1,346,000 lbs of paper by printing customer bills on both sides of paper

Source of Case Study: EPA: Waste Wise Program Case Study

Summary: Began printing customer bills double sided: saved 1,346,000 lbs of paper and \$535,000. Also eliminated the use of fiberoptic wooden reels by purchasing cable only on reusable steel reels. Resulted in 459,000 lbs decrease of wood waste. Implemented an electronic filing system, conserved millions of pages of paper and \$3.5 million.

Firm/Organization: Boise Cascade

Location: Jackson Mill, Alabama

Industry: Paper Manufacturer

Issue: Fuel Consumption

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced energy use by 52 million cubic feet of natural gas per year

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: Developed and implemented an anaerobic treatment system which produced methane rich biogas. The system produces 7.6 Btu per hour, reducing the facility's use of fossil fuels. They reduced their natural gas consumption by 52 million cubic feet per year.

The treatment system also reduced air emissions from 4,940 Kg per day to 296 Kg per day and reduced non-hazardous solid waste from 1.2 million kg per year to 285,000 kg per year.

Firm/Organization: Chevron Oronite Company

Location: Belle Chasse, Louisiana

Industry: Gasoline Additives

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced sulfur dioxide emissions by 400,000 lbs

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: They developed a technological breakthrough that allows desulfurization of highly variable batch cycle process. Resulted in eliminating 400,000 lbs of sulfur dioxide emissions while recovering four million lbs of sulfur.

Firm/Organization: Coca-Cola Company

Location: Georgia

Industry: Beverage Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced weight of aluminum can by 7%, saving 40 million lbs per year

Source of Case Study: EPA: Waste Wise Program Case Study

Summary: Reduced weight of aluminum can by 7%, saving 40 million lbs per year. Recycled more than 1.2 million lbs of various materials. Purchased \$2 billion in recycled-content materials.

Firm/Organization: Cryopolymers, Inc.

Location: St. Francisville, Louisiana

Industry: Tire Recycler

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Recycles used tires

Source of Case Study: Louisiana Technology Transfer Office (www.ltto.org)

Summary: Cryopolymers freezes used tires, separating rubber from reinforcing steel belts and polyester fibers. Materials are used in asphalt roadbeds, new tires, and other items. The scrap metal and polyester residue can be incorporated into new products as a reinforcing fiber.

Firm/Organization: Delta Air Lines

Location: Atlanta, Georgia

Industry: Commercial Airline

Issue: Fuel Consumption

Costs:

Annual Financial Savings: \$196,000/year

Total Financial Savings:

Payback Period:

Resource Savings: Reduced jet fuel disposal by 240,000 gallons/year

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By filtering and recycling Jet A fuel drained during maintenance activities, Delta reduced by 240,000 gallons/year the amount of Jet A fuel formerly treated as hazardous waste, and saved over \$70,000/year in disposal costs and \$126,000/year in reclaimed product.

By tracking and rotating chemical inventories to prevent shelf-life expiration, Delta reduced hazardous chemical use 30% over 4 years. Through the practice of single-engine taxiing, Delta reduced its fleet fuel consumption by about 40 million gallons/year.

Firm/Organization: Dow Chemical Company

Location: Louisiana

Industry: Chemical Manufacturer

Issue: Energy

Costs: \$7.5 million (in 1989)

Annual Financial Savings: \$37 million/year

Total Financial Savings:

Payback Period:

Resource Savings: Reduced energy consumption

Source of Case Study: Cool Companies by Joseph Romm

Summary: The Louisiana Division initiated an annual contest in 1982 for employees to energy-savings projects that paid for themselves in less than one year. The first year identified 27 projects with a return on investment of 173%. Every year, the contest yielded cost-effective projects. In 1989, employees identified 64 projects, which cost \$7 million, but saved the company \$37 million a year.

Firm/Organization: Dow Chemical Company

Location: Plaquemine, Louisiana

Industry: Chemical Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced solid waste by more than 300,000 lbs per year

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Reduced solid waste by over 300,000 lbs per year from their Methocel Production unit through the efforts of a seven-employee team using a systematic approach to identify and eliminate the root cause of off-specification product.

Firm/Organization: Dupont Dow Elastomers, Pontchartrain Site

Location: Laplace, Louisiana

Industry: Chemical Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced hazardous waste by 136,000 lbs per year

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Designed and substituted a non-fouling spray condenser in their Dichlorobutene unit. The system reduced hazardous organic waste emitted into the atmosphere and dissolved into waste water, about 136,000 lbs of waste per year.

Firm/Organization: Engelhard Corporation

Location: Huntsville, Alabama

Industry: Pollution Abatement Systems Manufacturer

Issue: Water

Costs:

Annual Financial Savings: \$85,000 per year

Total Financial Savings:

Payback Period:

Resource Savings: Reduced fresh water consumption from 330 kgal/day to 7.8 kgal/day

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: The company installed a closed loop cooling tower. The evaporator/condenser was tied to the existing chiller system, virtually eliminating the use of fresh water for once-through non-contact cooling. The company reduced its fresh water use from 330 to 7.8 kilogallons per day, saving \$85,000 in annual costs. They reduced their total non-hazardous wastewater from 330 to 0 kilogallons per day. They also eliminated discharges of chlorine. The reduced wastewater volume eliminated the facility's need for water discharge permit, further reducing costs.

Firm/Organization: General Motors

Location: Shreveport, Louisiana

Industry: Vehicle Manufacturing

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Eliminated methyl ethyl ketone from their facility

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: They completely eliminated methyl ethyl ketone from their facility by finding substitutes and making process improvements. They reduced air toxic emissions, hazardous waste disposal, and worker exposure.

Firm/Organization: Georgia-Pacific

Location: Georgia

Industry: Lumber and Wood Products

Issue: Energy

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: 51,000 gallons of fuel oil per year

Source of Case Study: Environmental Protection Agency

Summary: A new scrubber system reduces the pitch content of exhaust air, the pitch is collected and reduced to a liquid with the same Btu rating as No. 6 fuel oil. The recovered fuel oil replaces 51,000 gallons fuel/ per year.

Firm/Organization: Georgia-Pacific

Location: Georgia

Industry: Paper Mill

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Raised post-consumer content in cardboard boxes from 18% to 40%

Source of Case Study: EPA: Waste Wise Program (1996)

Summary: Used 108 million lbs of post-consumer material in its corrugated boxes and linerboard products. The linerboard is 100% post-consumer mixed paper, the corrugated boxes are made of old cardboard containers. The combined percentage of post-consumer content is 40%, up from 18% in 1994.

Firm/Organization: Georgia-Pacific

Location: Madison, Georgia

Industry: Plywood Plant

Issue: Fuel Consumption

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period: 6-months

Resource Savings: Reduced fuel consumption by 18 tons/day

Source of Case Study: Cool Companies by Joseph Romm

Summary: The plant uses wood by-products and wood bark for fuel. They installed fiberglass insulation on 1,500 feet of steam lines, reducing their fuel costs by 1/3. Insulation has eliminated the company's dependence on outside fuel, and they now sell excess fuel to a local paper company. The insulation allowed the firm to reduce fuel consumption by about 18 tons/day. The project also increased operating temperatures by 15 percent, and maintained the process temperature along the length of the line, making a faster and more efficient plywood veneer process. Working around the steam lines is now safer for employees because of the lower surface temperature of the pipes.

Firm/Organization: Greenville Tube

Location: Clarksville, Arkansas

Industry: Steel Tube Manufacturer

Issue: Energy

Costs: \$37,000

Annual Financial Savings: \$77,000

Total Financial Savings:

Payback Period:

Resource Savings: Electricity consumption dropped 34%

Source of Case Study: Cool Companies by Joseph Romm

Summary: The company replaced a motor at key point in the tube production facility with a larger, but more efficient motor for \$37,000. Electricity consumption dropped 34 percent, saving \$7,000 per year. The more efficient motor allowed the facility to reduce the number of times that tubes needed to be processed through that point in the facility. The reduced processing saved the company \$24,000 in labor costs, \$41,000 in stainless steel scrap, and additional process savings of \$5,000. The new system provided better process control, resulting in improved product quality.

Firm/Organization: Hines

Location: Houston, Texas

Industry: Real Estate

Issue: Energy

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Hines properties use 24% less energy than average office buildings

Source of Case Study: 2001 Energy Star Award Winner

Summary: Hines has benchmarked the energy performance of 83% of its office building square footage and achieved the Energy Star label for 32 buildings, or 37% of its eligible office portfolio. On average, Hines properties use 24% less energy than the average office building.

Firm/Organization: Interface, Inc.

Location: Georgia

Industry: Carpet Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: 2.5 million pounds of nylon a year

Source of Case Study: Cool Companies by Joseph Romm

Summary: Interface seeks to be a 'zero waste company.' Management has made extensive efforts to revamp every aspect of the business to reduce waste. Interface has a carpet product, 'Evergreen', where they lease the services of the carpets to the building owner. Old carpet tiles are removed and replaced with new ones, the old tiles are broken down and remanufactured into new tiles.

Firm/Organization: International Paper, Pineville Mill

Location: Pineville, Louisiana

Industry: Paper Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Found markets for landfilled by-product

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Started marketing wood ash (a high volume solid waste generated in paper manufacturing) as a soil amendment or nutritional supplement in agriculture, preventing its disposal in landfills.

Firm/Organization: Jefferson Parish Christmas Tree/ Marsh Restoration Project

Location: Louisiana

Industry: Non-Profit

Issue: Solid Waste

Costs: \$78,000

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Discarded Christmas trees used to rehabilitate wetlands and marshes

Source of Case Study: Center of Excellence for Sustainable Development

Summary: Uses the strategic placement of discarded Christmas trees, in dead-end canals and on shoreline fences, to stop the erosion of, and rebuild, marshes and wetlands. 10,000 linear feet of shoreline cribs have been constructed, which will create more than 20 acres of marsh. Another 20 acres is expected from the placement of trees in five dead-end canals.

The program has educated local residents, who then voted to create a Wetlands Trust Fund.

Firm/Organization: Johnston Industries

Location: Georgia

Industry: Textile Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Composted waste fiber, diverting 12.5 million lbs of waste

Source of Case Study: EPA: Waste Wise Program Case Study

Summary: Implemented an onsite waste fiber composting project, which diverted 12.5 million lbs of waste from landfill facility.

Recycled more than 600,000 lbs of paper in 1996.

Evaluated reusable totes to eliminate steel drum disposal, resulted in a reduction of 3,000 lbs of steel .

Firm/Organization: Laport Water Technologies, Inc.

Location: Alpharetta, Georgia

Industry: Swimming Pool Chemicals Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings: \$100,000

Payback Period:

Resource Savings: Reduced hazardous waste disposal by 1,500 pounds/year

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By restructuring chemical formulations, the company improved product quality and reduced chemical and rinse water needs. They implemented a program to sell back to a supplier any unused chemicals instead of paying a hazardous waste disposal fee.

By changing their clean-up methods, they reduced wastewater by 10,000 gallons in one year.

Changing monitoring processes of container fill-up, they reduced chemical loss by 10,000 pounds and saved \$100,000.

Firm/Organization: Laport Water Technologies, Inc.

Location: Alpharetta, Georgia

Industry: Swimming Pool Chemicals Manufacturer

Issue: Water

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced wastewater disposal by 10,000 gallons/year

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By restructuring chemical formulations, the company improved product quality and reduced chemical and rinse water needs. They implemented a program to sell back to a supplier any unused chemicals instead of paying a hazardous waste disposal fee.

By changing their clean-up methods, they reduced wastewater by 10,000 gallons in one year. Changing monitoring processes of container fill-up, they reduced chemical loss by 10,000 pounds and saved \$100,000.

Firm/Organization: Louisiana-Pacific Corporation

Location: Louisiana

Industry: Building Products Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Converted 482 million lbs of wood by-products into soil amendments

Source of Case Study: EPA: Waste Wise Program (1996)

Summary: Re-used 20 million lbs of asphalt, made it into a log deck and storage area.

Recycled more than 482 million lbs of wood by-products into marketable soil amendments.

Sold more than 12,000 lbs of baled plastic to an archery range, donated 350 used tires to a local shooting range.

Firm/Organization: Milliken Carpet

Location: LaGrange, Georgia

Industry: Carpet Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Carpet is recycled, instead of disposed

Source of Case Study: U.S. Green Building Council (www.usgbc.org)

Summary: The company makes Earth Square renewable carpet. Old carpet is recycled and re-used through a closed-loop recovery program. Used modular carpet is shipped to Milliken, where it is re-engineered. Milliken removes dirt and debris, and applies new patterns and colors.

Firm/Organization: Motorola Inc.

Location: Texas, Georgia

Industry: Electronics Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings: \$521,438 (in 1999)

Total Financial Savings:

Payback Period:

Resource Savings: Reduced waste generation by 1,637 tons

Source of Case Study: EPA: Wastewise Program (6th year progress report)

Summary: Switched to reusable plastic packaging, worked with suppliers to reuse plastic packaging, and reduced cardboard packaging in shipping products. The company prevented 1,637 tons of waste from being generated, they collected 16,529 tons of recyclable materials, and purchased 899 tons of products with recycled content.

Firm/Organization: Nesbit Environmental

Location: Baton Rouge, Louisiana

Industry: Environmental Consulting

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Prevents illegal disposal of hazardous materials

Source of Case Study: Louisiana Technology Transfer Office (www.ltto.org)

Summary: Nesbit uses remote sensing to help locate abandoned barges in southern Louisiana's waterways. Many abandoned barges are used to illegally dispose of hazardous waste materials, or had been abandoned with oil or hazardous materials on board.

Firm/Organization: NOVA Chemicals

Location: Decatur, Alabama

Industry: Crystal and Impact Polystyrene Resin Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings: \$53,000 per year

Total Financial Savings:

Payback Period:

Resource Savings: Reduced hazardous waste from 1.23 to .09 lbs per 1,000 lbs. of product

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: The company installed a mist eliminator system to control styrene emissions. The new system's reusable filters eliminated 3,600 lbs. per year of filter waste. Improving waste segregation procedures resulted in the re-use of 1,100 gallons of Therminol heat transfer fluid. The company reduced hazardous waste generated per 1,000 lbs. of product from 1.23 to .09 lbs, and saved \$53,000 per year.

Firm/Organization: Occidental Chemical Corporation

Location: Muscle Shoals, Alabama

Industry: Chemical Manufacturer

Issue: Water

Costs: \$400,000

Annual Financial Savings: \$400,000/year

Total Financial Savings:

Payback Period: 1 year

Resource Savings: Reduced water consumption by 5.5 tons/day

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: The company installed a water re-circulation system to prevent mercury-contaminated water from contaminating clean process water, reducing water treatment costs. They saved \$400,000 per year, earning 100% return on investment in the first year .

Recycling cooling tower water reduced water consumption by 5.5 tons per day,

Firm/Organization: Occidental Chemical Corporation

Location: Muscle Shoals, Alabama

Industry: Chemical Manufacturer

Issue: Air Emissions

Costs:

Annual Financial Savings: \$100,000 per year

Total Financial Savings:

Payback Period:

Resource Savings: Hazardous waste reduced from 1,170 to 634 tons/yr.

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: The company implemented many programs to reduce waste. Their total solid hazardous waste generation decreased from 1,170 to 634 tons per year.

They developed a market for 2,200 tons per year of spent sulfuric acid, eliminating the need for treatment and release. They developed a 3rd stage chlorine liquefaction system, eliminating the use of carbon tetrachloride and associated water and air emissions. The company saved \$100,000 per year.

Firm/Organization: Pioneer Americas, Inc.

Location: St. Gabriel, Louisiana

Industry: Chemical Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced mercury content of waste

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Optimized its integrated mercury recovery system, reducing the mercury content wastes disposed off-site by 99%.

Firm/Organization: PPG Industries, Lake Charles Facility

Location: Lake Charles, Louisiana

Industry: Chemical and Glass Manufacturer

Issue: Air Emissions

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced incinerated chlorinated hydrocarbons by 3.8 million lbs/year

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Designed a new process to reduce total waste and recycle recovered organics to the reactors. Resulted in the reduction of 3.8 Million lbs annually of chlorinated hydrocarbons to be incinerated and over 2,300 tons less salt added to the Calcasieu River estuary.

Firm/Organization: Prince Street Technologies

Location: Cartersville, Georgia

Industry: Carpet Manufacturer

Issue: Energy

Costs:

Annual Financial Savings: \$100,000-\$200,000

Total Financial Savings:

Payback Period:

Resource Savings: New facility reduced use of electric lighting, and uses more natural lighting

Source of Case Study: Cool Companies by Joseph Romm

Summary: New facility space relies on natural lighting, and worker's compensation cases fell from 20 per year to fewer than 1 per year.

Firm/Organization: Rainbow Acres Farm

Location: Marion County, Georgia

Industry: Chicken Farm

Issue: Water

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Prevented water pollution by applying chicken waste to nearby fields

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: Farm management saw an opportunity to match nutrients from chicken operation with crop needs based on annual soil sampling. With the assistance of the Natural Resources Conservation Service, nutrient needs were determined on a field-by-field basis. Rainbow Acres applied chicken waste to the field, protecting surface and ground water on the farm. The farm also build the first poultry composter in Georgia as an alternative for disposing of poultry mortalities in pits.

Firm/Organization: Russell Corporation

Location: Alexander City, Alabama

Industry: Textile Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings: \$4,825,000 (in 1999)

Total Financial Savings:

Payback Period:

Resource Savings: Landfill waste reduced 94% from 1980 level

Source of Case Study: Alabama Pollution Prevention Program (www.adem.state.al.us)

Summary: By separating 17 million lbs of waste cloth by color, the company reduced disposal costs and increased sales by \$3.7 million. They reduced their total landfilled waste by 94% from 1980 levels, saving \$900,000 in 1999. The company also returned poly-cotton cut waste to fiber for re-use, saving approximately \$225,000, and reducing waste by 750,000 lbs.

Firm/Organization: SI Corporations

Location: Chickamauga, Georgia

Industry: Carpet Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: 93.4% reduction in VOC emissions

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: Energy-efficient electric motors and pumps replaced older inefficient equipment, energy-efficient light systems were installed, and natural gas boilers replace electric boilers. VOC emissions were reduced by 93.4% by changing 3 dye ovens to one efficient, improved-process oven.

The Chickamauga facility achieved a 49.6% overall reduction in air emissions, wastewater, water and energy use, and solid and hazardous waste at the plant.

Firm/Organization: SI Corporations

Location: Chickamauga, Georgia

Industry: Carpet Manufacturer

Issue: Water

Costs:

Annual Financial Savings:

Total Financial Savings: \$1,456,920

Payback Period:

Resource Savings: Reduced water consumption and wastewater

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By recovering filtering, chilling, and reusing the cooling water at the plant, the company saved almost \$1.5 million in city water and sewer cost.

Firm/Organization: Southern Mills, Inc.

Location: Senoia, Georgia

Industry: Textile Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings: \$9,500 (in 1998)

Total Financial Savings:

Payback Period:

Resource Savings: Reduced waste by 10 tons/year

Source of Case Study: EPA: Wastewise Program (5th year progress report)

Summary: Switched to reusable plastic cones and tubes, and initiated a tube return program with customers. The company prevented 10 tons of waste from being generated, and collected 450 tons of recyclable materials. They purchased 7.5 tons of materials with recycled content.

Firm/Organization: Southwire Company

Location: Carrollton, Georgia

Industry: Copper Rod, Cable, and Wire Manufacturer

Issue: Energy

Costs:

Annual Financial Savings:

Total Financial Savings: \$40 million from 1981 to 1988

Payback Period:

Resource Savings: Reduced gas consumption by 60% & electricity use by 40% per lb. of product

Source of Case Study: Cool Companies by Joseph Romm

Summary: Company surveyed all motors, identified those that were oversized. When oversized motors burn out, they are replaced a correctly sized, efficient model. Every motor under 125 hp that fails is replaced with a high-efficiency motor, instead of being rewound. For larger motors that fail, Southwire compares the costs and savings of rewinding vs. a replacement motor, and it buys a new motor if its five-year life-cycle cost is lower than that of rewinding.

Firm/Organization: SST Trucking, LLS

Location: Garland, Texas

Industry: Trucking

Issue: Solid Waste

Costs:

Annual Financial Savings: \$55,630 (in 1999)

Total Financial Savings:

Payback Period:

Resource Savings: Reduced solid waste by 180 tons

Source of Case Study: EPA: Wastewise Program (6th year progress report)

Summary: Used reusable shipping tracks, reduced packaging, and established a transport packaging return program. The company reduced waste generation by 180 tons, they collected 672 tons of recyclable materials, and purchased 6 tons of good with recycled content.

Firm/Organization: Syngenta Corporation

Location: St. Gabriel, Louisiana

Industry: Pesticide Manufacturer

Issue: Air Emissions

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced hazardous waste emissions by 65%

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Developed a release and electronic reporting system that addresses all releases however small, by documenting, investigating, and tracking all releases, followed by aggressive corrective action. Releases have decreased by 65%.

Firm/Organization: Texas A&M University

Location: Houston, Texas

Industry: Medical School

Issue: Energy

Costs:

Annual Financial Savings: \$196,000/year

Total Financial Savings:

Payback Period:

Resource Savings: Reduced electricity consumption

Source of Case Study: Cool Companies by Joseph Romm

Summary: Corrected a temperature sensor calibration problem, and changed the winter and summer HVAC settings to optimize efficiency.

Firm/Organization: Texas Instruments

Location: Dallas, Texas

Industry: Computer Products

Issue: Solid Waste

Costs:

Annual Financial Savings: \$1,110,000 (in 1995)

Total Financial Savings:

Payback Period:

Resource Savings: Reduced wood waste by 200,000 lbs & plastic waste by 60,000 lbs

Source of Case Study: EPA: waste wise program (1996)

Summary: Reused wood pallets, semi-conductor shipping devices, and secondary packaging. These activities eliminated 200,000 lbs of wood waste and 60,000 lbs of plastic waste. Recycled more than 40 million lbs of material.

Firm/Organization: The Seydel Companies

Location: Pendergrass, Georgia

Industry: Chemical Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings: \$500/year (in 1998)

Total Financial Savings:

Payback Period:

Resource Savings: Reduced paper consumption by 1,000 lbs.

Source of Case Study: EPA: Wastewise Program (6th year progress report)

Summary: By encouraging double-sided copying, setting up phone lists and edits on e-mail, and using overheads in meetings instead of distributing handouts, the company reduced its consumption of copier paper by 500 lbs. They also contacted vendors who mailed multiple catalogues, and asked to reduce mailings to a single copy. The company circulated magazines and articles, and conserved 500 lbs of catalogs.

Firm/Organization: U.S. Postal Service

Location: Atlanta, Georgia

Industry: Mail Carrier

Issue: Solid Waste

Costs:

Annual Financial Savings:

Total Financial Savings: over \$300,000

Payback Period:

Resource Savings: Eliminated more than 1,000 tons of undeliverable bulk mail

Source of Case Study: EPA: Waste Wise Program Case Study

Summary: Since 1992 reduced solid waste by 50% Eliminated more than 1,000 tons of undeliverable bulk mail, saved \$76,000. Recycled 44,250 tons of paper, plastic, metal, and wood and earned nearly \$230,000 from the sale of recyclables. Spent \$3.7 million on recycled-content purchases.

Firm/Organization: U.S. Postal Service, Atlanta District

Location: Atlanta, Georgia

Industry: Mail Carrier

Issue: Energy

Costs:

Annual Financial Savings: \$200,000/year

Total Financial Savings:

Payback Period:

Resource Savings: Converting to energy-efficient light reduced energy use

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By upgrading 50 facilities with energy-efficient lights, they saved \$200,000.

Firm/Organization: Unilever Home and Personal Care, USA

Location: Cartersville, Georgia

Industry: Detergent Manufacturer

Issue: Water

Costs:

Annual Financial Savings: \$105,000/year

Total Financial Savings:

Payback Period:

Resource Savings: Reduced wastewater volume by 77%

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: A water conservation and effluent reduction project achieved a 77% reduction in effluent volume and average annual cost savings of \$20,000 in potable water. This led to the reduction of daily and monthly monitoring of the effluent, saving \$85,000 per year in testing, maintenance, and labor fees.

Firm/Organization: Uniroyal Chemical Company

Location: Geismer, Louisiana

Industry: Chemical Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced hazardous waste by 599,000 lbs/year

Source of Case Study: Louisiana Environmental Leadership Pollution Prevention Program

Summary: Reduced waste by a series of process changes based on research to better understand process reactor mechanisms. Reduced Rubber Gel hazardous waste by 515,000 lbs/year or 91% Reduced three Toxics Release Inventory (TRI) chemicals by about 84,000 lbs/year or 53%.

Firm/Organization: University of Georgia

Location: Georgia

Industry: University Laboratories

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced laboratories' hazardous waste disposal

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: University laboratories often end up in possession of chemicals they don't need. Instead of disposing chemical materials as hazardous waste, the labs now post lists of their chemicals on a list-serve shared with other laboratories. By exchanging surplus chemicals, 1,000 containers of surplus chemical materials have been transferred between labs in one year.

Firm/Organization: Vermont American Corporation

Location: Toccoa, Georgia

Industry: Steel Saw Blade Manufacturer

Issue: Hazardous Waste

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced hazardous waste discharge by 90% since 1989

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By replacing their chrome plating processes with an electrostatic paint line, Vermont American reduced its hazardous waste generation by 90% since 1989.

Firm/Organization: Vermont American Corporation

Location: Toccoa, Georgia

Industry: Steel Saw Blade Manufacturer

Issue: Water

Costs:

Annual Financial Savings:

Total Financial Savings:

Payback Period:

Resource Savings: Reduced wastewater discharge by 20% since 1989

Source of Case Study: Pollution Prevent Assistance Division, Georgia Department of Natural Resources

Summary: By replacing their chrome plating processes with an electrostatic paint line, Vermont American reduced wastewater discharges by more than 20% since 1989.

Firm/Organization: Virco Mfg. Corporation

Location: Conway, Arkansas

Industry: Furniture Manufacturer

Issue: Solid Waste

Costs:

Annual Financial Savings: \$430,800 (in 1999)

Total Financial Savings:

Payback Period:

Resource Savings: Reduced waste by 10,760 tons

Source of Case Study: EPA: Wastewise Program (6th year progress report)

Summary: Initiated a program to eventually eliminate the use of wooden pallets, repaired more than 9.5 tons of pallets, and mulched discarded boards. They conserved 1,250 tons of plastic pellets, and re-used 9,000 tons of wood dust as a soil amendment. Overall, the company prevented 10,760 tons of waste, they collected 15,947 tons of recycling, and purchased 1,0025 tons of products with recycled content.