

Global Asset Sustainability

The Key to a Greener Organization



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Executive Summary

Science, business, and government organizations are starting to support the fact that reducing greenhouse gas is an inevitable and integral component of doing business. Environmental awareness, particularly excess greenhouse gases, has seen a surge of visibility from the international and domestic business communities. Thus, businesses worldwide are turning their focus to increased environmental awareness through reduction of resource consumption, particularly of fossil fuels, which is the leading cause of excess greenhouse gases.

AMR Research addresses business' role in contributing to the betterment of the planet with the term Corporate Social Responsibility (CSR). CSR is not in opposition to good business practices or improving financial performance. In fact, resource conservation can and does make good business sense. CSR is gaining support throughout the broad spectrum of the business world. Firms engaged in manufacturing, transportation, utilities, government, services, and agriculture are all adopting CSR-related policies, processes, and procedures – more often ahead of governmental regulation than because of it. Companies initiating such programs find that their bottom lines actually improve through greater efficiencies and increases in productivity and through greater consumer patronage in recognition of the company's socially responsible position.

In business, one of the keys to successful environmental management is the collection of pertinent data and the processing of that data to determine program success and the direction of efforts required to expand success and remedy areas of weakness. One of the critical programs that can help organizations address this is an asset management application.

Purchasing such an application is not a casual exercise – it represents a commitment of resources, personnel, and company focus. As the data in this White Paper will demonstrate, many successful businesses have found that the effort brings substantial rewards. This application can and will be a valuable tool in your overall business plan for resource conservation and for corporate success.

The History of Green Initiatives

The emergence of green initiatives in recent times is often looked upon as a new revolution freshly begun with the turn of the 21st century. Nothing could be further from the truth. Environmental awareness and the accompanying economic impact has in fact, been around for years.

Theodore Roosevelt was a “conservationist.” At the turn of the 20th century, he initiated the National Parks system to preserve pristine areas of natural beauty for future generations. The 1973 oil embargo set forth another kind of conservationism – economic conservation: The sharp rise in the prices of petroleum products – especially gasoline – forced consumers to conserve resources because of the cost of such commodities. Resulting governmental mandates dictated to automobile manufacturers new, increased mileage requirements for their vehicle offerings. And the desire to get the most out of petroleum purchases led to the rise of automobile companies such as Toyota, Nissan (then Datsun), and a little-known company more famous for motorcycles than cars: Honda.

Each of these examples reflects conservation initiatives, which at the time, were seen as having a negative impact on business. Teddy’s conservationism withheld large portions of old-growth forests from harvesting thus increasing the cost of lumber. He met with vocal opposition, yet stuck to his guns – often alone and unsupported. Historically, efforts to conserve resources and protect the environment have been viewed as anti-business and anti-consumer. “Tree-hugger” was the common axiom used for persons thought to be irrationally focused upon their estimation of “nature” to the detriment of common work-a-day folk. At best, green initiatives were the purview of well-off liberal-leaning persons that were out of contact with mainstream reality.

Current Initiatives and Commitment to a Greener Planet

Earth Friendly Direction

Recent times have seen a tremendous shift in thinking when it comes to environmental issues. The emergence of the economies of China and India has sparked world-wide competition for oil. Even the American consumer is shifting to an environmentally aware position: dolphin-free tuna, organically grown produce, a move toward hybrid cars and ethanol-based fuel, fluorescent over incandescent light bulbs, solar panels and wind mills – consumers are “voting with their wallets” in favor of products and activities that are conservation-oriented and environmentally friendly.

More significant than these individual instances of conservation awareness are the actions of political and economic leaders:

- In December 1997 the Kyoto Protocol to the United Nations Framework Convention on Climate Change was drafted, representing an effort of the international community to significantly reduce the production of greenhouse gases. As of 2006, 169 nations had signed these accords.
- In his most recent book, *Where Have All the Leaders Gone?* Lee Iacocca urges US auto manufacturers to develop vehicles with zero emissions, fueled by non-petroleum-based resources.
- In June 2007 the Chinese government vowed to reduce its pollution levels as it continues its economic development.
- With the Global Warming Solutions Act of September 2006, Governor Arnold Schwarzenegger and the California State Legislature dictated a 25% cut in the state's greenhouse gas emissions by 2020 from 2006 levels which when factoring in the current growth in energy consumption equates to a 46.5% reduction in GHG. The legislation went further by mandating that by the year 2050 that GHG levels would be cut to 80% below 1990 levels.
- Earlier this year, Time Inc. participated in a study by the Heinz Center that looked at the amount of carbon dioxide emissions produced over the process of publishing *Time and In Style*. The company is said to be seeking ways to reduce its effect on the environment.

Earth-friendly activities are no longer on the fringe; they are mainstream and growing rapidly at a time when the evidence of global warming and climate change is indisputable.

Good Business Sense

Businesses are run to make a profit. How does the for-profit origin of business mentality coexist with the growing wave of environmentally oriented consumer preferences and demands?

Some of the most successful businesses – those with foresight, imagination, leadership, and policies that are “in-touch” with their customers – have eagerly adopted earth-friendly practices.

Today’s business leaders have made a real and substantial commitment to those practices (green) initiatives. Such commitment of time and resources is motivated by several factors, not the least of which is the enhancement of earning capacity.

The most successful forward-looking businesses are embracing the economic benefits of environmental responsibility. They are finding that good stewardship of the planet is not necessarily detrimental to the bottom line. To the contrary, the best of the best companies have found substantial profitability in such stewardship. Witness the recent television spots about the Subaru auto plant in Lafayette, Indiana. These spots tout the facility as being “zero land-fill” and as operating within a virtual nature preserve. This plant is one of the most efficient manufacturing enterprises in the world, ringing up profit margins well in excess of its less efficient, less environmentally friendly competitors.

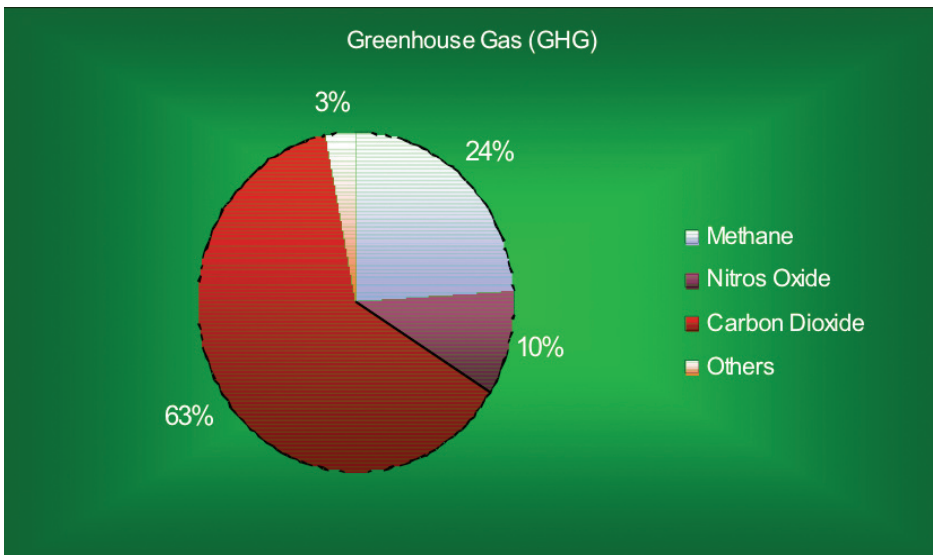
The message is clear. Profit awaits the environmentally conscious, publicly responsible business. Conservation has become big business. Companies throughout the business spectrum are picking up in environment issues and are responding with initiatives that promote conservation, reduce greenhouse gas emissions, and foster continuing ecological awareness in their business practices as well as in their clientele.

“Instead of running away from the threat of regulatory sanctions, forward-thinking plant professionals should be running toward a strategy for bottom-line improvement that rests on three ideas: economic prosperity, environmental stewardship and social responsibility.”

**Growing Green Plants,
Russ Kratowicz,
PlantServices.com, 2007**

The Science behind Greenhouse Gas

As illustrated in previous sections, there is a huge concern over the human production and release of greenhouse gases.



Greenhouse gases absorb energy from the sun and reradiate that energy in the form of heat into the atmosphere. This heat, added to the warmth of the sun absorbed by the Earth directly, determines the general temperature of the planet.

The main sources of carbon emissions are power generation plants fueled by coal, oil, or gas and from transportation (chiefly automobiles). The numbers are staggering. Recall the California initiative to reduce emissions by 25% by 2020. This goal means reducing California's carbon emissions by 174 thousand metric tons per year! That's just California – many other states are following suite.

We have already seen the measures California has implemented. Its carbon emission goals are to be accomplished through a combination of improving vehicle fuel economy (by 33%), greater efficiency in energy consumption, "smart growth" such that communities concentrate where public transportation is readily available, the use of renewable energy sources (hydro, solar, wind), upgrading existing power plants for greater generation efficiency, and wise management of forests (trees absorb carbon dioxide in their growth process). Control of energy consumption is key.

The Role of Asset Management in Curbing Greenhouse Gas Emissions

AMR Research addresses business' role in contributing to the betterment of the planet with the term Corporate Social Responsibility (CSR). CSR is made up of four factors: Marketplace, Environment, Community, and Workplace:

Each of these factors exerts pressures on business decisions. Responsible businesses must balance these factors such that financial responsibilities to the marketplace and stakeholders merge with obligations to promote the welfare of the community, the environment, and the workplace.



Thus, CSR represents a business contribution to sustainable development goals. CSR is about how business takes account of its economic, social, and environmental influences in the way it operates – maximizing the benefits and minimizing the downsides. This equates to the voluntary actions that business can take, over and above compliance with minimum legal requirements, to address both its own competitive interests and the interests of wider society.

Critical factors that a business can control in an environmentally responsible way include waste management, infrastructure management (buildings, facilities, and their energy efficiency), emissions management, and asset management.

Asset management? Unfortunately, asset management is often forgotten as a key contributor to energy use. Assets are purchased and expected to perform satisfactorily until their estimated end-of-life. However, assets represent a significant portion of a business' operating expense, impacting environmental as well as financial performance.

Since careful management of assets will effect a company's overall environmental efficiency, it is important to integrate energy management into a company's Enterprise Asset Management (EAM) program – both to support CSR goals and to continue improvements in the company's overall financial performance. The best and most well-rounded EAM programs include:

- Maintenance Program Management: factoring asset operating performance (energy consumption) into maintenance strategy and activities
- Event Management: alerting of existing asset condition or trend outside of optimum operating parameters for evaluation or remediation
- Planning: assessing existing asset configuration (design basis) and performance (energy consumption) for optimization

A business can be both environmentally responsible and economically competitive.

This means carefully monitoring assets' energy usage, implementing a comprehensive preventive maintenance program that takes into consideration energy usage, and factoring energy consumption into any plans that include asset acquisition, allocation or replacement.

Note the emphasis on monitoring and preventive maintenance. Energy efficiency cannot be estimated without having accurate data as a basis for that estimation. And preventive maintenance, as has been proven over decades of operation, is the single greatest contributor to asset useful life and optimum equipment productivity.

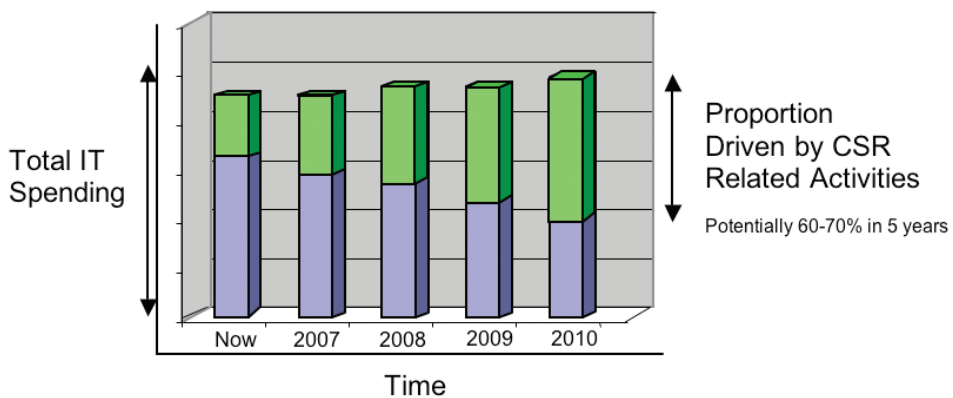
Efficient assets, then, minimize energy use and improve productivity. A business can be both environmentally responsible and economically competitive.

Recommendations for a Green-centric Asset Management Application

Implementing and sustaining a quality CSR-oriented asset management program requires the ability to gather, store, and process large quantities of information related to energy consumption, asset condition, asset productivity, and the like. Executing such a program manually would be an impossible task – because of the volume of data to be gathered and processed.

Green Investment Projections

Forward-looking companies are investing in software applications that greatly simplify and streamline the information aspects of environmentally responsible asset management. This chart from AMR Research (2007) illustrates the relative portion of a company's IT budget will shift more and more toward CSR operations:



With so much of a business' precious IT budget oriented toward CSR goals, and with so much riding on the success of environmentally responsible operations, a business must be very careful in selecting software applications. There are many excellent applications on the market. Very few of them offer features that are genuinely oriented toward CSR opportunities.

Features that Promote Green

The following features are recommended to support green CSR goals with respect to environmental sustainability and optimum energy conservation. Many of the following features also improve a business' position with respect to overall asset management. The two goals are mutually supportive.

Additional features may be added, but at minimum, the following are essential:

- Provide the ability to track commodity (electric, water, gas) consumption and rate details associated at the meter level with value roll-up within the organizational asset hierarchy.
- Provide the ability to track electric sub-meter interval data, via integration with an Enterprise Energy management (EEM) application, at the operational asset or system level.
- Provide existing and pre-existing asset performance monitoring and measurement via Key Performance Indicators (KPIs) that can be displayed on a dashboard configuration page.
- Provide asset condition monitoring through alert set-ups. Unacceptable asset condition should be easily observable.
- Provide a comprehensive Preventive Maintenance (PM) program that can be triggered by set dates, by metered usage, or by selected time intervals.
- Provide a thorough inspection capability that allows users to enter inspection results as subjective values (good, poor, fail) or as quantitative values.
- Provide comprehensive data gathering capability for asset performance and maintenance history.
- Provide library of preformatted reports covering best-practices business processes – including reporting on energy usage and comparison.
- Support WAGES (water, air, gas, electricity, steam) usage logging and reporting.

End Game

Is the urgency to curb greenhouse gas emissions a fad or at a critical turning point in our history? As businesses and governments begin taking action to reduce greenhouse gases, what type of approach makes the best financial sense for your business?

Only your company can decide. As your business continues to respond to consumers and regulatory agencies who demand a more environmentally conscious approach, it makes good business sense to include Asset Management as part of your CSR and green strategy.

Any green strategy must rely on the wise collection of pertinent data and the processing of that data to determine program success and the direction of efforts required to expand success and remedy areas of weakness. A comprehensive, green-oriented asset performance management solution will enable you to achieve compliance, efficiency, and consumer appeal.

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