

Best Practices: Johnson Controls — Building a Business Case for Sustainability

Emerging Agenda

MARKET OVERVIEW

#MI218681

Kimberly Knickle

MANUFACTURING INSIGHTS OPINION

Sustainability brings to mind uncertainty and costs for many manufacturers, but we also find that many manufacturers continue to find opportunities in sustainability. Johnson Controls is an interesting case study, not just because of its work in making its own company more sustainable, but also because of the revenue generation that sustainability is bringing to its business. In addition:

- Johnson Controls states its corporate vision as "a more comfortable, safe, and sustainable world."
- The types of products Johnson Controls manufactures and sells have a high profile in other companies' sustainability — for example, its building efficiency products that can be a component of a Leadership in Energy and Environmental Design (LEED)-certified green building, lithium ion batteries starting to be used in many hybrid and plug-in hybrid vehicles, or automotive components that use a higher percentage of recycled materials.
- As a manufacturer, Johnson Controls is taking a leadership role in sustainability and applying its expertise to guide customers toward products that will help them improve their environmental footprint. This case study provides an example of how making it easy for its customers to go green is good business.

TABLE OF CONTENTS

	P
In This Report	1
Situation Overview	1
Defining a Sustainability Strategy	1
Helping Customers Go Green: Rethinking the Product	3
Expanding on Sustainability.....	6
Sustainability Leadership.....	7
Future Outlook	11
Challenges and Opportunities Ahead	11
Essential Guidance	12
Actions to Consider.....	12
Learn More	13
Related Research.....	13

LIST OF TABLES

	P
1 Examples of Johnson Controls Product Changes	5
2 Manufacturing Insights Model of Sustainability	7
3 Tools Applied During the Empire State Building Project	9

IN THIS REPORT

This Manufacturing Insights report provides a case study of Johnson Controls Inc. (NYSE: JCI), with a focus on changing the product mix and examining the product life cycle from cradle to cradle — from design to recycle or repurpose or landfill.

SITUATION OVERVIEW

Johnson Controls, with \$38.1 billion in revenue in 2008, is headquartered in Milwaukee, Wisconsin, and employs 140,000 people worldwide. Manufacturing Insights spoke to Clay Nesler, Johnson Controls' VP of Global Energy and Sustainability, about the company's progress and plans. For Johnson Controls, its products and services "make it easy for customers to go green," a phrase we often use to remind manufacturers that they need to take a leadership role and apply their expertise to guide their customers toward more sustainable products and products that will improve their customers' environmental footprint.

Defining a Sustainability Strategy

Johnson Controls' corporate vision is "a more comfortable, safe, and sustainable world." After benchmarking its sustainability practices in 2008, Johnson Controls made a statement that is a good indication of how integral sustainability is to the company's business processes: "We are now focusing on our own sustainability profile with the same discipline we apply to quality, safety, and cost."

"We are now focusing on our own sustainability profile with the same discipline we apply to quality, safety, and cost."

Beginning with New Processes and Process Change

As a result of the company's integral view of sustainability, Johnson Controls has implemented numerous energy efficiency and waste reduction practices within its facilities globally as it works toward reducing its greenhouse gas (GHG) intensity by 30% by 2012 from its 2002 baseline. The company continues to review its operations and supply chain to identify continuous improvement activities and better its performance. At a high level, examples include:

- Improving the energy efficiency of administrative and manufacturing facilities
- Installing onsite renewable energy sources
- Implementing manufacturing processes that reduce emissions and scrap

- Incorporating sustainability into supplier requirements, scorecards, and evaluations

One of Johnson Controls' efforts is to make its Wisconsin headquarters the world's first multibuilding LEED platinum–certified campus. The company wants its headquarters to be a showcase for energy efficiency and renewable energy sources, including solar power, geothermal energy, and gray water capture and use.

Building a Business Case for Sustainability

Johnson Controls describes its work in sustainability as a vital element of "walking the talk" to match what it offers to the marketplace, meaning it expects its own facilities to be energy-efficient, use less water, and minimize waste. While the company can quantify dollars saved from sustainability, Nesler made it clear what's more important is the programmatic approach the company takes to investment decisions.

Instead of evaluating a project for just one facility, Johnson Controls reviews the impact across the entire company. Then, an ROI is calculated and reviewed by the CFO across an entire portfolio. This broader business case review allows Johnson Controls to maintain a corporate standard of efficiency and sustainability, ensure smaller facilities or plants aren't left behind, and obtain very significant cost reductions in total. In contrast, many companies wait for projects to bubble up, carried by the individual plant or operations managers to the attention of those holding the budget for capital improvements.

Instead of evaluating a project for just one facility, Johnson Controls reviews the impact across the entire company.

Nesler emphasized the company doesn't maintain a specific budget for energy efficiency investments, and as a result, there are no separate criteria for sustainability projects — they are integrated into the overall capital budgeting process. Efficiency investments should be able to stand up against more revenue-focused investments. Johnson Controls does add one unique component to projects — investments that will most likely have a significant impact on the company's environmental footprint include an estimate of the carbon impact with the appropriations request. This helps connect projects to its overall GHG savings targets as well as the goals allocated to individual businesses. For example, a review of leased vehicles, renewable energy options, or energy management systems would also include a carbon impact assessment, although there is no business rule as to when to make the calculation and when not to; it's just common sense.

Investments that will most likely have a significant impact on the company's environmental footprint include an estimate of the carbon impact with the appropriations request.

The Organization's Fundamentals: Sustainability Council

As we find in most companies leading in sustainability, Johnson Controls' organization includes a global environmental sustainability council to drive the sustainability policy across the company. With executives from all three businesses and corporate, the group also

includes legal, public affairs, and the company's most senior EH&S manager. The business unit members represent a range of different disciplines — not just for environmental compliance but also for product development and innovation and design for sustainability, for example. There's a conscious recognition that the council's job is one of governance, creating strategy and policy that must be executed in all of the three businesses (using various incentives), in every region, and monitored with environmental metrics and scorecards.

The council's job is one of governance, creating strategy and policy that must be executed in all of the three businesses (using various incentives), in every region, and monitored with environmental metrics and scorecards.

Another impact within the organization can be seen in the workforce at large. Johnson Controls' sustainability work, internally and externally across its products and services, is yielding a large and expanding green-collar workforce. The company currently has a global LEED Training Program under way with the goal of having 800 LEED-accredited Johnson Controls employees worldwide by October 2009, with 500 trained salespeople in North America and 300 trained in other areas of the world.

Applying Information Technology Internally

One of the most visible changes in the use of IT is in the use of sustainability metrics and scorecards. Johnson Controls continues to work on identifying the key metrics and collecting the relevant data to support those metrics. These metrics often must be collected on a bottom-up basis, at a plant level, at an equivalent production level, and on a monthly basis. The data can also be rolled up to the overall company level. In this way, Johnson Controls can track the energy intensity of an individual plant, compare it with best-in-class plants, and track an individual plant's progress over time.

Scorecards will be geared to different opportunities for improvement; for example, a product development scorecard could track reductions in refrigerant per unit of capacity, decreases in weight per (automotive) seat, or the increase in power density of batteries. The challenge is in defining the key product metrics that must be optimized. Ultimately, the executive scorecard combines sustainability metrics into the same dashboard used for Johnson Controls' basic business metrics — safety, cost, production efficiency, and quality.

The tools Johnson Controls uses to track its own progress can potentially be incorporated into a product for its customers.

The tools Johnson Controls uses to track its own progress can potentially be incorporated into a product for its customers.

Helping Customers Go Green: Rethinking the Product

Johnson Controls has three distinct business units: Automotive Experience, Power Solutions, and Building Efficiency. In each of those businesses, the company has introduced new energy-saving offerings and products that also reduce greenhouse gases (see Table 1). Making these changes is often the result of years of investments, and

the company estimates it has invested more than \$100 million in pollution control and technology processes. One example is Johnson Controls' PowerFrame battery grid technology for automotive batteries, which reduces pollutant emissions, consumes 20–30% less energy than other similar processes, improves the quality and performance of batteries (and also makes them a more competitive product), and improves plant safety.

Although Johnson Controls, like many companies, has recently experienced decreases in its sales revenue, recent opportunities for growth can be found in new construction of institutional buildings, stimulus funding for energy efficiency and infrastructure, hybrid batteries, and global expansion.

Consider a recent announcement of a joint venture in Michigan with Saft where Johnson Controls will create 500 new jobs and produce an initial output capacity of 15 million lithium ion cells — batteries for hybrid and plug-in hybrid vehicles. Johnson Controls estimates it will spend \$220 million to renovate an existing plant in Holland, Michigan, but the company also received \$148.5 million in state tax incentives. The Michigan Economic Growth Authority approved tax credits for batteries for electric and hybrid vehicles as part of Michigan's efforts to subsidize what is expected to be a growth sector in the auto industry.

Nesler talked about the company's strong alignment between business and sustainability. Johnson Controls' experience is that sustainability improvements add value to its operations, reducing cost while improving environmental footprint. Basically, what is right for the business can also be right for the environment. Johnson Controls wants to be an example for its customers by showing how a major manufacturer and services organization can use sustainability practices to be more competitive.

Opportunities for growth can be found in new construction of institutional buildings, stimulus funding for energy efficiency and infrastructure, hybrid batteries, and global expansion.

TABLE 1

Examples of Johnson Controls Product Changes

Product Line	Enhancements, New Offerings, and Examples
Cross company	Added hybrids to services fleets; reduced energy consumption with fluorescent lighting, compressed air optimization, motor and drive replacement, and power conditioning equipment; and installed onsite renewable energy sources and supplier scorecard changes.
Automotive experience	Focused on developing products using renewable materials, including lighter weight, recyclable interior components. Examples include soy foam seating and reducing the amount of chemicals used in seating and SmartGauge with EcoGuide product for 2010 Ford Fusion and Mercury Milan hybrid sedans. The SmartGauge adds two reconfigurable LCD screens to help a driver attain maximum fuel efficiency for the hybrid electric vehicle (HEV).
Power solutions	Opened the first production facility in the world for lithium ion batteries for hybrid electric vehicles in Nersac, France. Expanded the use of a proprietary lead acid battery manufacturing process that reduces air emissions by 30%, Johnson Controls-Saft will supply the complete battery system for Ford Motor Company's first production plug-in hybrid electric vehicle (PHEV), which will be introduced in 2012.
Building efficiency	Expanded energy efficiency capabilities and focused on more renewable energy projects while adding to offerings in systems technology and advisory services.

Source: Manufacturing Insights, 2009

Incorporating IT into the Products

Although we summarized some of Johnson Controls' work related to its product lines in Table 1, we'd like to highlight some of its offerings that incorporate IT directly into the product or service to reduce its customers' carbon footprint.

Johnson Controls has launched a variety of other systems to encourage energy efficiency, including:

- **Metasys Sustainability Manager:** This is a building management system integrated with software acquired from Gridlogix. The system aggregates facility data across the enterprise to support data reporting, analysis, and intelligent real-time decision making.
- **IBM Tivoli Monitoring for Energy Management:** This is a software tool that integrates with the building management system to provide end-to-end energy management for datacenters.
- **Energy and Emissions Management System:** This is an energy management program (acquired from PWI) that helps global organizations measure, manage, and reduce their energy costs as well as their overall greenhouse gas footprint.

Johnson Controls also uses many of these applications internally to generate greater cost savings and GHG reductions and for overall better management of its projects.

Taking a Product Life-Cycle Perspective: Recycling

Johnson Controls also reviews how it can impact the end of the product life cycle. Automotive batteries are one of the most highly recycled products used by consumers. In the U.S. market, 97% of lead acid batteries are recycled, and 95% of the material in the batteries is reused. Johnson Controls has worked to reduce the number of batteries that end up in landfills, including its leadership in using recycled lead in new batteries.

Johnson Controls has worked to reduce the number of batteries that end up in landfills, including its leadership in using recycled lead in new batteries.

Johnson Controls played an important role in the industry's closed-loop battery recycling program in the United States, and in 2008, JCI launched the EcoSteps battery recycling program to extend this to Europe. While many sustainability programs start in Europe and come to the United States, this is a case where the relative simplicity of the U.S. retailer-manufacturer-recycler supply chain made it an easier process in the United States. As part of introducing the program in Europe, the connections between retailer, manufacturer, and recycler needed to be established as part of a new, systematic recycling process.

Expanding on Sustainability

Manufacturing Insights acknowledges that one of the most difficult challenges for companies related to sustainability is determining what to prioritize, what trade-offs to make, and then how to measure success. To support the decision-making process, we have identified five basic issues within a sustainability strategy, and in Table 2, we've indicated examples of how Johnson Controls has approached these issues.

TABLE 2**Manufacturing Insights Model of Sustainability**

Category	Description	Johnson Controls Example
Material selection	Evaluating materials selected during the design phase against regulatory compliance, customer mandates, and corporate sustainability requirements	Use of recycled lead and incorporating other recycled and renewable materials into new products
Sourcing policies	Defining the requirements for procurement procedures and supplier qualification, taking into consideration issues such as transportation, quality, resources consumed during production, disposal of by-products, and emissions	Updating supplier scorecards and procurement policies to include more environmental attributes and identify sources of recycled material
Resource consumption and emissions	Examining the consumption of limited resources, specifically energy and water, and greenhouse gas (GHG) and other relevant emissions and carbon footprint calculations	Installation of onsite renewable energy sources, reducing energy consumption with fluorescent lighting, compressed air optimization, motor and drive replacement, and power conditioning equipment
End-of-life (EOL) postponement and management	Focusing on quality and service, including warranty service, of the product, as well as recycling, reuse, and disposal at EOL	Expansion of recyclable battery programs and providing market for recycled materials
Customer demand and fulfillment	Balancing issues such as customer demand for new options in packaging types and sizes, consumption patterns, or even alternative products with the challenges of building sustainability into products, packaging, warehousing, and distribution	Expanded energy efficiency capabilities to shift consumer demand to better, greener products, focus on more renewable energy projects, incorporate more energy-efficient vehicles into fleet

Source: Manufacturing Insights, 2009

Sustainability Leadership

Johnson Controls' leadership is visible in many ways, from its invited participation in indexes such as the Dow Jones Sustainability World and North America Indexes, FTSE4Good Index Series, KLD Indexes, Carbon Disclosure Leadership Index, and the Calvert Social Index, to the membership of the United Nations Global Compact, Carbon Disclosure Project's Supply Chain Leadership Collaboration, and the U.S. Environmental Protection Agency (EPA)'s Climate Leaders.

In 2008, Johnson Controls benchmarked its environmental and governance performance against 13 competitors, peers, and customers, in two key areas:

- **Environmental performance:** Ensuring environmental policy is applied consistently around the world and to supplier programs
- **Governance practices and conduct relevant to sustainability:** Ensuring commitments to environmental stewardship are executed, tracked, measured, and documented

Of the 13 companies, Johnson Controls did well in the Environment and Governance and Conduct categories. The company attributes its high ratings to its programs in procurement, climate change, emissions to air (non-greenhouse gas), hazardous waste management, and materials use. The report also gives Johnson Controls credit for its efforts to remain fully informed about the impact of its products, services, and activities on its stakeholders. Even though Johnson Controls commissioned the study, it's worth noting that articulating the relevant metrics is often a significant component of a sustainability strategy, and without those metrics, Johnson Controls would not be able to compare itself with its peers or identify remaining areas needing improvement.

Empire State Building — Putting Leadership into Practice

One of Johnson Controls' most visible, recent projects is working on a major energy efficiency retrofit of the Empire State Building. Johnson Controls is part of a five-member team that also includes the building owner, the Clinton Climate Initiative, the Rocky Mountain Institute, and Jones Lang Lasalle. To put the project in perspective, construction on the building began in 1930, resulting in more than 2.6 million square feet of space in the 103 stories (for more building and project facts, check out www.esbnyc.com or www.esbsustainability.com).

The team reviewed the building over an eight-month design phase to find the best-fit optimization of the whole system, using industry standard sustainability ratings and tools developed to combine multiple design approaches (see Table 3). For example, the team used two LEED ratings for benchmarking the Empire State Building — LEED for Existing Buildings: Operations and Maintenance rating system and the LEED for Commercial Interiors program.

TABLE 3

Tools Applied During the Empire State Building Project

Category	Description
Project summary	Large-scale energy efficiency retrofit of the Empire State Building will result in energy use reduction of 38%, energy costs reduction of \$4.4M annually, and carbon dioxide reduction of 105,000 metric tons over 15 years.
eQUEST energy modeling program	Analyzes annual energy consumption in building, based on weather simulation data with inputs for the building construction and operating parameters to calculate energy consumption and peak demand by end use and by zone (The tool is a front end to the DOE-2.2 simulation engine.)
AGI32	Builds environments for most electric lighting or daylighting applications with unlimited luminaires, calculation points, and reflective or transmissive surfaces
SPOT	Assists designer in quantifying the existing or intended electric lighting and annual daylighting characteristics of a given space and in establishing the optimal photosensor placement for the space relative to annual performance and annual energy savings
Climate consultant	Graphically displays climate data in either metric or imperial units in dozens of ways useful to architects and engineers including monthly bar charts, timetable charts, and psychrometric charts, sun shading charts, and sun dial charts
EPA's target finder tool	Helps architects and building owners set energy targets and benchmark a building design's estimated energy use relative to the energy use of similar building types
LEED green building rating system	Nationally accepted benchmark for the design, construction, and operation of green buildings (It reviews performance in six key areas: sustainable site development, water savings, energy efficiency, materials and resources selection, indoor environmental quality, and innovation in design.)
Green globes	Green building rating system based on 1000 points over six categories: energy, water, resources, emissions/effluents/pollution control, indoor environment, environmental management system
The sustainability metrics model	Developed by the project team to quantify a facility or company's impact on global warming and local environment resulting from sustainability initiatives using Global Warming Potential (GWP) and supported by tools and information from the EPA, EIA, WRI, and DOE
Financial modeling	Determines the relative financial impacts of implementing individual measures and packages of measures, calculating net present value of the incremental cash flows over a 15-year period (2008–2023) that will result from proposed energy efficiency measures (Relevant incremental cash flows include repair and maintenance impacts, revenues, and rebates.)

TABLE 3

Tools Applied During the Empire State Building Project

Category	Description
Integrated design checklist	Introduces variables and "what-if" scenarios, to allow decisions based on benefits (energy reduction, cost reduction, LEED points, aesthetics, and comfort), to upstream and downstream impacts on other building systems and infrastructure, and overall project goals and supplements other design models
Tenant design assistance feedback	Helps tenants in the Empire State Building easily and quickly understand the economic impact of incorporating energy efficiency measures into fit-out designs based on financial impacts of capital costs and energy savings, creates a cash flow chart showing the tenant's expected additional capital expenditure in year one (e.g., additional costs during fit-out) and the expected savings each year for the life of the lease and provides net present value of the capital costs and energy savings

Source: Manufacturing Insights, 2009

After the design phase, the team also conducted a three-month budget and scope review, and the \$20 million project with core and shell building retrofits is to be finished within 20 months and tenant space renovations by 2013. The current building energy cost (prior to the project) is approximately \$11.4 million, and the project is going to reduce that by \$4.4 million — yielding a 38% reduction in annual energy cost and usage.

The project is balancing a few objectives, with the most obvious being cost and quality, but from a sustainability perspective. Here are a few examples where that balance can be seen:

- The 6,500 windows in the Empire State Building are *not* being replaced
- New systems will monitor energy usage by the overall building, by floor, *and* by tenant

First, the windows are relatively new, part of a 1992 renovation approved by the Landmarks Preservation Commission. However, the windows are being *updated*, essentially remanufactured onsite by removing them and putting in a third pane of film, which acts as a UV blocker and insulator, and then reinstalling them. This upgrade approach reduces waste and eliminates the environmental costs related to transporting new windows in and old windows out (picture the number of trucks needed to transport 6,500 windows).

Second, by implementing Metasys Sustainability Manager, the maintenance staff (all 150+ of them) can help tenants optimize their own spaces and allow the building owner to monitor overall usage.

With this amount of detail, both the owner and the tenants can understand the direct connection between cost and usage and make better decisions about how to optimize their space. The owner may also then be able to explore innovative leasing approaches, such as possible rebates for low energy use.

FUTURE OUTLOOK

Challenges and Opportunities Ahead

As Johnson Controls continues its work in sustainability, one of its biggest challenges is the fact that the company is global — more than half of its sales revenue is from outside of the United States. Managing global sustainability policies means figuring out how to collect data on a worldwide basis to track its GHG footprint. In some places in the world, that may mean something as basic as scanning bills and other paperwork. The level of coordination required to get accurate data and keep consistent tracking processes in place is substantial. Nesler credits some of its success to senior leadership support, with managers taking the efforts seriously. The sustainability council plays a role here in meeting on a monthly basis to take those challenges and break them down to approachable tasks.

The level of coordination required to get accurate data and keep consistent tracking processes in place is substantial.

American Recovery and Reinvestment Act (ARRA) and Other Government Options

The company is looking at the American Recovery and Reinvestment Act (also known as the stimulus plan) for opportunities and incentives. Take a quick look at www.recovery.gov and consider the significant amount of funds set aside for new infrastructure, infrastructure upgrades, energy efficiency, and renewable energy, or grants available to R&D seeking ways to improve infrastructure's (buildings and vehicles) environmental footprint. In some cases, states and local utilities are also providing incentives for companies to invest in the kinds of products and services that Johnson Controls can offer, and the challenge is in taking advantage of them and keeping track of all of the variations in those incentives. As is the case with its Holland, Michigan, plant, states may offer incentives to businesses that can offer employment in industries that are in growth mode, as green technologies are. What Johnson Controls ideally wants to do is make its customers and prospects aware of any tax credits or ways to lower the financial cost of making environmentally friendly improvements.

External Spheres of Influence: NGOs and Political Process

Another notable change for Johnson Controls has been its increasing interaction with non-governmental organizations (NGOs) and legislators. The company employs registered lobbyists in Washington, D.C., as do an increasing number of manufacturers. This is a shift for

Johnson Controls, from something that was very tactical and operationally focused to something that is now quite strategic, indicates Nesler. This public component to sustainability, influencing other organizations and the legislative process, is making the company's sustainability strategy more visible in the market.

This public component to sustainability, influencing other organizations and the legislative process, is making the company's sustainability strategy more visible in the market.

ESSENTIAL GUIDANCE

Actions to Consider

From Johnson Controls' experience in incorporating sustainability into its own operations as well as its products and services, we can make the following suggestions:

- Consider the fact that if you're selling green products or products that will help your customer go green, you need to be able to explain how environmentally friendly your own practices are, not just how green your products are.
- In many cases, what works from an efficiency or cost-saving standpoint is also better for the environment, but don't assume the first option is necessarily the better. You'll still need to do a carbon impact assessment, and you may even have to propose several options with varying impact on cost and emissions before you find the one that works for the CFO and the chief sustainability officer (CSO).
- Share your learning with customers because with sustainability leadership comes market opportunity. This is an emerging market; prospective buyers are looking for vendors that not only sell the product but also can help them understand the benefits of those products, and first-hand knowledge is very valuable. In turn, Johnson Controls is able to build on its own sustainability efforts to create better, more competitive offerings.
- Don't be afraid to ask for help. Navigating the opportunities in the stimulus package and in state and local governments and utilities is complex. In some cases, having staff members or working with consultants that know the government, regulations, or utilities inside out will make the difference.
- Keep track of your sustainability performance in the overall company, by division, by country, by individual plant, by product, and so on. This is a discipline where the numbers count, and you need to be able to do the comparisons to know what's working and what isn't, especially when you need to benchmark your performance with a competitor.

- Executive leadership makes a difference. Because of the leadership in Johnson Controls from its CEO and sustainability council, knowing what the goals are enables the company to fully commit to improvements. Remember Johnson Controls' perspective that if an initiative is good at one facility, it's also good for the next. Those are the kinds of projects that bring corporatwide cost savings and demonstrate commitment to the rest of the organization. This carries through to many more areas of the business, including product development.

LEARN MORE

Related Research

- *Eco-driving: Fiat's eco:Drive Software Helps Reduce 15% of CO2 Emissions* (Manufacturing Insights #MIAS51R9, May 2009)
- *Methods and Practices: Engineering-Oriented Value Chains Industry Update and Sustainability Strategies* (Manufacturing Insights #MI218511, May 2009)
- *Manufacturing Insights: Of Survivability and Sustainability* (IDC #lcUS21749209, March 2009)
- *Sustainability 4Q08 Update: Attitudes and Trends Toward Greening Manufacturing and the Supply Chain in North America* (Manufacturing Insights #MI215499, December 2008)
- *Sustainability 3Q08 Update: Finding Technology-Based Solutions at World Environment Center's Roundtable and Dow Chemical* (Manufacturing Insights #MI215250, November 2008)
- *Sustainability Excellence Brings Profits to Manufacturers — Linking Going Green with Financial Health* (Manufacturing Insights #MI214459, October 2008)
- *Sustainability in Manufacturing: Innovation Brings Opportunity* (Manufacturing Insights #MI213313, July 2008)

Synopsis

This Manufacturing Insights report presents a case study based on interviews with Johnson Controls' Clay Nesler, VP of Global Energy and Sustainability.

"Johnson Controls, through its products and services, is making it easy for customers to go green, a phrase we often use to remind manufacturers that they need to take a leadership role and apply their expertise to guide their customers toward more sustainable products

and products that will improve their customers' environmental footprint," says Kimberly Knickle, practice director at Manufacturing Insights.

Copyright Notice

Copyright 2009 Manufacturing Insights, an IDC company. Reproduction without written permission is completely forbidden. External Publication of Manufacturing Insights Information and Data: Any Manufacturing Insights information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate Manufacturing Insights Vice President. A draft of the proposed document should accompany any such request. Manufacturing Insights reserves the right to deny approval of external usage for any reason.