



2013 SUSTAINABILITY REPORT

We See Sustainability Differently

EXECUTIVE LETTER

More than six decades ago, well before the term *sustainability* was coined and before sustainable regulations and measurements were in effect, Jacobs was founded as an ethical, relationship-based, and cost-conscious company. Since our inception, the tenets of sustainability have been woven inextricably into who we are and how we do business.

Over the years, we have evolved and expanded into one of the world's largest and most respected providers of professional technical and construction services. We operate in more than 25 countries around the world, partnering with our clients to consistently deliver value and quality. Timely and efficient services and effective, tailored sustainable solutions are the best ways we can save our clients money and make their businesses successful. To help them reach their goals, we always approach our work with their strategic, financial, social, and environmental initiatives in mind.

We see sustainability as we see the other important aspects of our business — through the lens of our core values: People Are Our Greatest Asset; We Are Relationship-based; and Growth is an Imperative. These values provide the solid foundation that supports our leadership, culture, and business practices. They guide our commitment to our stakeholders to run a sustainable business and to conduct ourselves with integrity. Doing so requires daily balanced consideration of our BeyondZero® safety philosophy, our low-cost posture, and our adherence to our Seven Principles of Sustainability, which you can read more about on the following pages of our *2013 Sustainability Report*.

This marks our fifth year of reporting on our sustainable practices and contributions, and it's my pleasure to show examples of our principles in action, serving the interests of our clients. To that end, we continue to utilize the GRI Reporting Framework to ensure consistent, authentic reporting with tangible metrics. A recognized international system for sustainability reporting, the GRI methodology is also used by many clients, giving us an opportunity to engage in even deeper dialogue and allowing us to better understand their specific needs and sustainable project goals.

Each year we learn from each other and from our clients, and we use those lessons to further enhance our sustainable behaviors and efforts. The sustainable marketplace remains fast-growing and

everchanging, but it hasn't fundamentally changed how we do business, or the way we see sustainability. As you read this report, I encourage you to think about not only the specific information within, but also the bigger picture.

We are continually improving and reinvigorating our efforts to be responsible stewards of the natural world as we contribute to safe and sustainable solutions for our clients. We remain focused on operationally sound business practices, and on the well-being of our employees and the communities in which we work. With ongoing advances in the sustainability arena, our opportunities to help achieve effective and efficient sustainable solutions are limitless.

We See Sustainability Differently.



Craig L. Martin
President &
Chief Executive Officer



BY THE NUMBERS

SERVICES

LEED-ACCREDITED
PROFESSIONALS

623

(At publication)

BREEAM/CEEQUAL
PROFESSIONALS

21

(At publication)

ESTIDAMMA CERTIFIED
PROFESSIONALS

5

(At publication)

JacobsValue+
\$3.2 billion

For FY2012

Our FY13 savings through JacobsValue+ is tracking to an unaudited total of more than **\$6 billion**

REVENUE FROM SUSTAINABLE PROJECTS

FY2012 Revenue from LEED Registered/Certified, BREEAM Certified, Estidama Certified

\$128 million

(Revenue includes full services, including sustainable services, provided for clients' qualifying projects)

CLIENT SATISFACTION SURVEY SCORES FOR 2012

91.6%

4 CONSECUTIVE YEARS OUR SINGAPORE OFFICE HAS RECEIVED THE ANNUAL WORKPLACE SAFETY & HEALTH PERFORMANCE AWARD FROM MINISTRY OF MANPOWER SINGAPORE

INTERNAL

SAFE HOURS WORKED BY ZERO ACCIDENT AWARD
WINNING SITES & OFFICES

82 million

(Achieved by our Zero Accident Award Winners)

CHARITABLE DONATIONS MADE TO THE UNITED WAY,
AMERICA'S CHARITIES & GLOBAL IMPACT

\$1.9 million

PAGES OF PAPER SAVED THROUGH OUR PRINT
REDUCTION PROGRAM

37 million

(Equivalent to 74,250 reams/206 tons/34,455 trees)

RANKINGS

No. 2

FORTUNE MAGAZINE
Jacobs ranked No. 2 in the "Engineering & Construction" category of *FORTUNE Magazine's* 2013 World's Most Admired Companies. With the exception of 2007, we have held a top-3 spot on this ranking for 15 years.



"In my mind sustainability is about minimizing waste. Whether that means streamlining work processes, reducing energy and/or water usage, or simply recycling, taking a holistic approach to waste minimization will drive sustainability success over the long term for Jacobs and our clients."

Chris

Jacobs, Regional Inside
Sales Manager
Calgary, Canada

Jacobs® is one of the world's largest and most diverse providers of technical, professional, and construction services, including all aspects of architecture, engineering, and construction, operations and maintenance, as well as scientific and specialty consulting.

We serve a broad range of companies and organizations, including industrial, commercial, and government clients across multiple markets and geographies. Our global network includes more than 170 offices in more than 25 countries, with operations in North America, South America, Europe, the Middle East, India, Australia, Africa, and Asia. We were founded in 1947, and our headquarters is in Pasadena, California.



“We strive to achieve value for our clients by doing things the right way, which starts with truly understanding the customer’s perspective. Our proven processes help us deliver projects efficiently, taking into consideration any sustainable goals our customers have.”

Steve

Jacobs, Vice President, Technology Group
Tullahoma, Tennessee, USA

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We constantly strive to improve sustainability within our company while making a positive impact in the communities where we live and work.

SYMBOLS REPRESENTING SUSTAINABLE ELEMENTS

We use the following symbols to represent sustainable attributes of various projects and initiatives:



Carbon savings/reduction



Water savings/reduction



Cost savings/reduction



Social/Community benefits



Energy savings/reduction



Materials savings/reduction



Environmental benefits



Certified/Recognized/Award-winning

We See Sustainability Differently

We look at sustainability through the lens of our
core values: People Are Our Greatest Asset;
We Are Relationship-based; Growth is an Imperative.

Our core values drive our leadership, business practices, and culture.

They help us stay the course and run an ethical, relationship-based,
and cost-conscious business — a sustainable business.

Our Philosophy

Jacobs® is committed to continuous improvement, helping solve our clients' toughest challenges, and creating a brighter future for our employees, their families, and their communities.



Our investment in sustainable development grows from this foundation and is upheld by our core values, which in turn enforce our commitment to a sustainable, safe, and ethical workplace.

Sustainable development is the delivery of competitively priced goods and services that satisfy human needs and add to quality of life. Ecological impacts and resource intensity are progressively and cost-effectively reduced

“Our PMCM business provides our clients with total program management – a way to integrate all service providers for the development of major projects under one management umbrella for more effective project outcomes.”

Paul

*Jacobs, Vice President,
Healthcare National
Market Leader
Arlington, Virginia, USA*

throughout the life cycle of those goods and services, thereby ensuring future generations' ability to do the same. At Jacobs we reinforce this encompassing definition of sustainable development with a solid foundation: our core values. Our core values allow us to see sustainability differently, ensuring that our commitment to sustainable development crosses regions, cultures, departments, and disciplines — and permeates all that we do.

We See Sustainability Differently

The following illustrates the connection between our philosophy, our core values, and the principles of sustainability that help guide us. While these facets keep us grounded and steadfast in our mission, we are guided and engaged by much more: our clients, our employees, our board of directors, and our unwavering commitment to run an inclusive and ethical business. As you explore the various sections of this report, learn about the elements that make up our approach to sustainable leadership, and observe them put into action through our business and our employees, it becomes clear that at Jacobs...

We See Sustainability Differently.

OUR PHILOSOPHY

Core Values: Tenets of Sustainable Development

At Jacobs, we understand that the ability to sustain requires a solid foundation. It is no coincidence that our core values — People Are Our Greatest Asset, We Are Relationship-based, Growth is an Imperative — align so well with the core drivers of sustainability.

Our core values, like the core tenets of sustainable development, are inextricably linked. Each balances the others, for a cohesive whole. That balance among our core values provides the framework that allows us to meet our clients' sustainable project goals, enhances our internal sustainable practices, and supports our ability to grow as a company. At Jacobs, sustainable development is evident across all market sectors of our business and is woven into the fabric of our culture. It's part of who we are.

People Are Our Greatest Asset

The human side of our company — our people — is our most valued asset, which is why we focus so strongly on safety for all our employees, partners, and clients. As engineers, architects, scientists, planners, builders, and more, our people are the foundation for our commitment to sustainable development. Our people are experts, and the force in bringing the best business results to our clients. This means they are skilled and experienced in the delivery of sustainable development and design, and related services. We come from diverse backgrounds, speak various languages, and live in geographies around the world. We are residents of Los Angeles, Milan, Singapore, Mumbai, and beyond, and yet we work without boundaries. This diversity strengthens our ability to offer innovative and sustainable solutions all over the world for both our clients and our communities. It is ultimately our people who help make our collective environments a safer, more efficient, and more sustainable place to live.

We Are Relationship-based

The way we interact with others and our surroundings is paramount. Jacobs is committed to building deep, lasting relationships with our clients. We are dedicated to making meaningful, long-term improvements to the sustainability of our world on behalf of our clients. This is one of the most rewarding aspects of our work, and where we make our biggest contribution to sustainability. We deliver the tangible, technical solutions that really make a difference to our clients' social, economic, and environmental goals, resulting in a solid triple bottom line.

Growth is an Imperative

We are driven to excel. At Jacobs we have a responsibility to our investors, our clients, and our employees to grow our profit by 15 percent on average year after year — every year. Our passion for sustainable development helps us keep that promise. Taking sustainable actions within our company, such as reducing consumption and improving efficiency, directly results in lowering costs and increasing profitability. Having such laser focus on our own costs allows us to offer competitively priced services. Better yet, our cost consciousness is embedded in our operational standards and extends to our commitment to always look for opportunities to save money for our clients, too.



OUR PHILOSOPHY

Seven Principles of Sustainability

Jacobs is a company that is authentic in all that we do, and we do not take commitment lightly. Therefore, it is natural for us to create guidelines to assist us in our ongoing pursuit of sustainable development. With our core values as the foundation, these seven principles illustrate the way sustainability is woven into the fabric of our company.

1

Sustainable development is a corporate priority

Our core values exemplify our commitment to sustainable development. Our policies, programs, and practices comply with laws, regulations, and good practices of sustainable development.

2

We seek broad, deep capabilities and services

We seek to offer best-in-class capabilities in all aspects of sustainable development. We learn from ongoing research and study industry developments. And, we benefit from opportunities to share best practices internally and with clients.

3

Sustainable development is integrated into our business

We integrate appropriate sustainable development practices, including continuous performance improvement processes, into our work processes and programs.

4

We strive to broaden our sustainable influence

We train and educate employees on current principles, technologies, and best practices that support sustainability. We seek to advise and educate customers on their best options.

5

Our facilities and operations follow sustainable principles

We apply economically sound sustainable development principles to our business and seek to maximize energy efficiency, use renewable resources, and minimize waste. Our activities are undertaken with a commitment to prevent serious or irreversible impacts on our environment.

6

We encourage others toward sustainable development

We encourage our supply-chain partners to adopt similar sustainable principles and improvements. We foster the transfer of knowledge, support the dissemination of best practices in public forums, and provide policy advice to governments and non-governmental organizations.

7

We are open and transparent, responding to concerns as they arise

Transparency is critical to running an ethical business. We foster dialogue on issues of sustainable development and are responsive to concerns raised about our practices. We measure our performance, present a periodic progress report to our Board of Directors, and provide annual reporting as part of our public disclosure.

BeyondZero®

Safety is a top priority at Jacobs. It's more than a policy manual or list of do's and don'ts. BeyondZero® is an internal program that promotes a Culture of Caring at Jacobs.

BeyondZero® goes beyond an incident-and injury-free workplace, and encourages all employees to think about the ways we can put the health and safety of our employees first in everything we do. After all, People Are Our Greatest Asset, so ensuring their safekeeping makes perfect sense. As part of our BeyondZero® program, our employees participate in formal safety-related committees. As individuals, we are committed to making safety a personal value and taking responsibility for ensuring no one is injured on or off the job — including our colleagues, families, and friends. ■

Client Features

Our sustainable principles and practices are designed to help clients achieve success by improving their businesses.



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Style De Jour

Campbell Soup Company commits to local community, builds new headquarters



In 2007, Campbell Soup Company stood at a crossroads: Should the Fortune 500 corporation stay in Camden, New Jersey, USA, or relocate to another city? Many large corporations enjoy starting fresh in new places. On the other hand, Campbell had been founded in Camden in 1869 and had deep ties to the community. After deliberation, the company made a firm decision: Campbell would renew its commitment to Camden. The visible sign of that commitment would be a new world headquarters building.

Equally important to Campbell — the new structure's design also had to reflect the company's dedication to environmental sustainability. Jacobs embraced the challenge of designing the structure, determined to create an emblem of revitalization while simultaneously reducing the carbon footprint of the new facility. The company brought together multiple disciplines to form a dream team of architects, engineers, landscape architects, interior designers, and workplace strategists to collaborate on a design that combined their best efforts.

Fresh Solutions

The decision to stay in Camden and redevelop an existing urban site with access to public transportation was just one of the many factors

that led to the new Campbell Employee Center achieving LEED Silver certification; LEED offers points for redeveloping on existing urban sites.

Jacobs worked hard to find ecologically friendly, sustainable solutions to multiple design challenges. Strict codes were followed throughout construction to ensure that the indoor air environment was not adversely affected, and CO₂ sensors are in place to ensure indoor air quality. The Campbell Employee Center promotes water efficiency through a system that cuts usage by 20 percent. In addition, the new building contains recycled building materials, including carpeting and counter tops. The majority — 74 percent — of wood products used in construction earned forest sustainability certification. And careful planning insured that 99 percent of construction waste was diverted from landfills.

Jacobs' LEED-accredited professionals designed a white roof that reflects heat, as well as high-efficiency cooling systems. Designers also created a unique steel-supported glass wall incorporating an air movement system that keeps condensation from obscuring the glass. These walls are designed to conserve energy, efficiently maintain the building's temperature, and provide daylight and outdoor views from 90 percent of the new indoor space.

DESIGNED FOR GREAT TASTE

Campbell's re-commitment to the city of Camden, N.J., USA, is more than a business decision, it's a decision about staying true to its values, honoring its birthplace, and respecting its employees. Campbell Soup Company asked us to design a new world headquarters that would accomplish the same goals. Named the Campbell Employee Center, the LEED Silver-certified building features a café, courtyard, vegetable and herb garden, and a Campbell Employee Store — all alongside more standard corporate fare of conference rooms, learning facilities, and an employee fitness center.



Wednesday's Soup		
Company's Choice New England	Small	Large
Club Choice	\$1.75	\$2.00
Chicken & Wild Mushroom Cream Gravy	\$2.45	\$2.75
Roast Turkey with Gravy, Mashed Potatoes & Stuffing	\$2.50	
Spicy Sausage, Potato & Bean	\$2.75	\$2.95
*Must eat with Bread Or Calzone Recipe!		



Pizza



Grill





In the cafeteria, Styrofoam™ containers and disposable utensils have been abandoned in favor of china, silverware, and reusable takeout containers to reduce landfill waste. Employees are encouraged to use a company-issued reusable mug which gets them a discount in the café.

Outside the Campbell Employee Center, the environmentally conscious effort continues. The employee parking lot provides preferred parking spaces for van/car pool vehicles. The company provides free shuttle service to and from Camden's Walter Rand Transportation Center (a light rail/bus transportation hub) and Philadelphia's 30th Street train station. In addition, the facility provides shower/changing facilities and bicycle storage in the on-site Health and Fitness Center for employees who prefer to bike to work.

Nourishing Culture

The new Campbell Employee Center has become the heart of the Campbell campus, with a visitor reception and exhibition hall, café, employee store, and fitness center. More than that, the Campbell Employee Center embodies Campbell's commitment to corporate social responsibility and a dedication to nourishing consumers, neighbors, employees, and the environment. Maintaining visibility of the logo as a sign of Campbell's investment in the community was vital, so Jacobs designed a graphic that stretches 280 feet long and two stories high. As a nod to what made Campbell the world's number one soup manufacturer, the Jacobs team designed a new café where pride of place is granted to a soup bar that features not only Campbell favorites but also a variety of creative toppings and specialty soups crafted by Campbell chefs.

FEATURE | CAMPBELL SOUP COMPANY

The team also designed interactive learning and development spaces on the top floor for the Campbell University learning and development center. Nearby is pilot space for new office configurations and ways of working. Jacobs' workplace experts designed a modern interior that promotes collaboration, innovation, and

teamwork. The model is being rolled out across the headquarters campus.

In addition, Jacobs' landscape architects designed a courtyard and garden for associates to enjoy. The garden flows out of the cafeteria and offers WiFi so employees can work outside on sunny days, and features the vegetables and herbs that go into Campbell products — in summer, basil grows alongside red tomatoes and green peppers

Better Together

The commitment to community continues today; Campbell is now working with the state of New Jersey to develop an office park intended as a gateway to the east side of the city. Staying in Camden wasn't the obvious — or the easiest — choice, but it was right for Campbell. Meanwhile, when Camden residents glimpse the familiar glowing red logo, they can remember Campbell chose to make this community its home while lessening its environmental footprint in the area.

This recognition of the environment reinforces the principles, beliefs, and promise of the Campbell Soup Company while rendering it a model of sustainable design. ■



“Working with Campbell on the design and realization of the World Headquarters was highly rewarding. We created a place that embodies the pride and history of the Campbell brand while enriching the daily lives of employees with spaces filled with light, color, and joy. The Campbell Employee Center project created a place for employees to engage, interact, and be creative.”

Tejoon

Jacobs, Design Principal,
Philadelphia, Pennsylvania,
USA





Banking on Efficiency

Intesa Sanpaolo gains from dynamic energy model, invests in new, efficient headquarters



Images courtesy Andrea Cappello

Intesa Sanpaolo S.p.A. is a leading banking group, in Italy, across the Euro zone, and throughout much of the world.

The financial institution has a market capitalization of €18.6 billion, and provides retail, corporate, and wealth management services to over 19 million customers through a network of 6,800 branches in Italy, Central Eastern Europe, the Middle East, and North Africa.

However, Intesa Sanpaolo is more than just a hugely successful bank.

The company believes deeply in the importance of corporate responsibility, community involvement, and environmental sustainability. As part of that commitment, Intesa Sanpaolo takes special care to reduce its overall ecological impact. Those efforts include monitoring and reducing waste and energy consumption, buying sustainable products when possible, and reducing the environmental footprint of its buildings and facilities.

So it came as no surprise that when the company began planning its new headquarters, this socially-conscious bank took special care to build cost and energy-efficiency into the new facility.

A Bioclimatic Approach

When completed, Intesa Sanpaolo Tower is planned to accommodate more than 2,000 employees and guests, feature a rooftop garden and restaurant, panoramic terrace, and a 364-seat public auditorium and other leisure facilities for the general public. The environmental aspects of the bank's new headquarters are truly remarkable.

Designed by architect Renzo Piano as a "bioclimatic building," the Intesa Sanpaolo Tower incorporates cutting-edge energy technologies and materials. Energy consumption has been optimized, and the interior office is designed to maximize natural daylight. The cladding consists of transparent double-skinned glass facades incorporating louvers for greater efficiencies.

Advanced logic control systems and passive strategies reduce energy consumption, while ensuring the comfort of employees. Other sustainable features include a coupled system heat pump and geothermal wells, solar photovoltaics (2,000-square-meters of PV panels on the south façade), thermal systems, and a rooftop greenhouse positioned to prevent accumulation of solar radiation on the roof.

EFFICIENT BIOCLIMATIC BUILDING

Cost and energy efficiency are literally built into Intesa Sanpaolo S.p.A.'s new headquarters. Designed by architect Renzo Piano as a "bioclimatic building," the Intesa Sanpaolo Tower incorporates cutting-edge energy technologies and materials. They called on us for project and construction management, design verification, and procurement assistance services for the project. We also served as LEED Administrator and Commissioning Authority, overseeing testing and quality control of many technological systems, ensuring the building would operate sustainably, and meet Intesa Sanpaolo's environmental goals.



Jacobs provided project and construction management, design verification, procurement assistance, and other services for the complex Intesa Sanpaolo Tower project. Intesa Sanpaolo also called upon Jacobs to serve as LEED Administrator and Commissioning Authority.

In those roles, Jacobs oversaw the testing and quality control of heating, ventilation, air conditioning (HVAC) and other technical systems, as well as the full integration of the automation control and monitoring technologies needed to ensure the building would operate in a sustainable manner.

To align with Intesa Sanpaolo's environmental goals during the construction phase, wastes are being separated and diverted from landfills. Currently more than 75 percent of construction waste has been recycled.

The construction site is also ISO certified 14001 (Environmental Management System), EMAS (Eco Management and Audit Scheme) certified and is intended to meet LEED GOLD standards when complete.

Modeling for the Environment

To support the innovative "bioclimatic building" approach, Jacobs conducted an energy model review — a powerful tool used to forecast energy use in buildings. Jacobs employed a dynamic energy model review that examined the building's geometry and envelope, the technical characteristics of heating, cooling, ventilation, mechanical, and other internal operating equipment, lighting, and control systems.

Energy modeling is a required step in earning LEED® certification for new construction or major renovations. Using advanced analytic software, the energy model evaluated how the bank's new headquarters building would be occupied and used on a daily basis.

Modeling examined data on the building's physical location, the surrounding environment, and the regional climate. The model also analyzed how the production of energy from renewable resources, the reuse of rainwater, and other efforts would impact the building's total environmental footprint.

Advanced modeling allowed Intesa Sanpaolo to plan and build in a smarter way to achieve a final result that demonstrates their environmental and social commitments: a headquarters that is comfortable, cost-efficient, and environmentally sound. ■



Liftoff

The 310th Space Wing embarks on the next chapter of its storied history in a space-age headquarters that combines security, sustainability, and style



When the U.S. Air Force Reserve Command's 310th Space Wing activated in early 2008, it had a strong foundation to build upon. First, it had a proud heritage dating back to World War II, when the 310th Bombardment Group contributed to the Allied Victory in North Africa and Italy. Second, it had an exciting future. The new Wing brought together several existing squadrons that support the United States' space capabilities. The 310th combined experts in satellite launches, counter-space operations such as surveillance and intelligence analysis, and space-based support for troops, including weather data, navigation aids, and communications systems.

New Frontier

What the 310th Space Wing lacked was a home. The new Wing needed a headquarters of its own at Schriever Air Force Base near Colorado Springs, Colorado, USA. Demands on the facility were high: it needed to be low cost but high quality, both able to withstand harsh Colorado winters and to keep energy use low. Smart security and effective space management were critical.

Jacobs knew it was up for the task. With decades of experience working with the U.S. Army Corps of Engineers (USACE) on military construction projects, the company brought together experts in planning and design who could craft a headquarters for the 310th Space Wing that not only met the Wing's requirements but also provided a visual representation of its high-tech mission.

Working Angles

Multiple concerns, from security to climate, went into every decision at the 310th Space Wing headquarters. For example, the entrance needed to be positioned near the base's West Gate to enhance the Wing's visibility, but away from the perimeter to accommodate security concerns.

It needed to be protected from prevailing winds and blowing snow, yet also allow building occupants views of the mountains. Ultimately, the entrance was designed as a tower that joins together the two angled wings of the building. A curved, gleaming aluminum roof creates a high-tech, space-age feel, echoes the metal façade of the building, and reflects the architectural details

A BASE TO CALL HOME

When the 310th Space Wing activated in 2008, it brought together squadrons with impressive capabilities and histories to match. Now, it needed a home. We drew upon our experience working for the Army Corps of Engineers to plan, design, and realize a space-age facility featuring the security, sustainability, and high-tech style worthy of the Wing. The headquarters opened in 2011 under budget. It was designed to meet requirements for LEED Silver certification.



of nearby facilities. At the same time, warm golden rock contrasts with the metal and recalls the Rocky Mountain setting. Architects considered the location of each and every window, striving for a balance between generous natural lighting and limited heat gain.

Space-Age Sustainability

Designers met LEED Silver guidelines by investing in high-efficiency systems chosen through life-cycle analysis and energy modeling. A sophisticated HVAC system includes air-side economizers on the building's two air handling units that increase the amount of outside air allowed in the building in the winter, reducing or even eliminating demand on the chiller and saving substantial energy. High-efficiency plumbing fixtures conserve water by up to 30 percent, and durable, modular millwork and casework in offices and meeting rooms maximize the flexibility of the space to adapt to future mission requirements. Despite the complex and secure information technology systems necessary for the Wing Command's high-tech mission, Jacobs achieved a balanced sustainable design solution that minimized the building's environmental impact and met the Air Force's mandated LEED Silver design guidelines with 33 points.



“Our team’s greatest satisfaction on this project was the collective passion to partner with client stakeholders to establish a common vision of project goals, resulting in the delivery of a facility that reflects their high-tech image and improves their visibility as part of Space Command at Schriever Air Force Base.”

Joey

Jacobs, Assistant Project Manager
Fort Worth, Texas, USA



All Systems Go

When the 310th Space Wing headquarters opened in late 2011, construction costs came in 23 percent less than anticipated. This was partly due to the global recession, putting downward pressure on prices for materials and labor, but is also a credit to Jacobs' cost-conscious approach. Consistent application of best practices ensured the building could move from concept to execution on time and under budget. Today, the 310th Space Wing has a headquarters worthy of its history and its status in the U.S. military. ■



Chipping Away at CO₂

Heathrow adopts wood-fueled power plant for new terminal



London's Heathrow Airport is one of the world's largest and busiest. In 2012, just under 70 million passengers and 1.5 million metric tons of cargo moved through Heathrow — an average of 1,300 daily flights to some 190 destinations in 90 countries worldwide.

Like all large airports Heathrow brings massive benefits to the economy and society, but such an enterprise cannot help but have environmental impacts.

As part of the airport's commitment to the larger community, Heathrow is working hard to minimize the negative impacts and accentuate the positive. One of the areas where Heathrow has been delivering savings is in reducing its carbon dioxide emissions from its fixed assets.

Heathrow set an ambitious goal: by the year 2020, it plans to reduce CO₂ emissions from energy use in terminals and other buildings by 34 percent compared to a 1990 baseline.

So when airport planners sat down to design a new flagship Terminal — the latest phase of the ten year, £11 billion transformation of Heathrow — they looked for smart ways to minimize waste, to protect local habitats, and to go the extra mile on carbon reduction. The new facilities, to be known

as 'Terminal 2: The Queen's Terminal,' in honor of Her Majesty the Queen is planned to open in 2014 and ultimately welcome more than 20 million passengers through its doors. But what many of those passengers will never know is the level of environmental management behind the scenes.

Innovative Approach

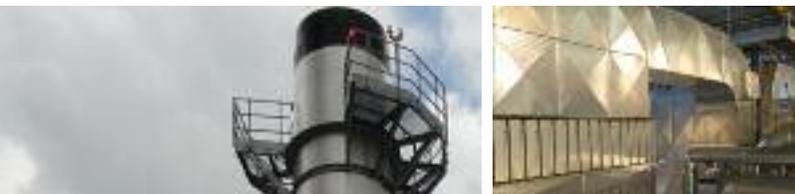
As part of the approach to Terminal 2, and responding to planning requirements, Heathrow needed to find the most technically feasible and commercially viable options for delivering low carbon heat and power to the Terminal and the airport.

Building on detailed assessment for an airport energy supply strategy, Heathrow turned to Jacobs to develop in more detail the best options for Terminal 2. Jacobs developed the scheme design for a ground-breaking, biomass fuelled, Organic Rankine Cycle (ORC) tri-generation plant (also known as combined cooling heat and power, CCHP), supplemented by high efficiency gas boilers. Jacobs' scheme design was taken forward by HAL and Morgan Sindall, with Jacobs retained as concept guardians throughout construction and commissioning, and supporting applications for United Kingdom renewable energy financial support mechanisms.

SHRINKING CARBON FOOTPRINT

London Heathrow Airport strives to deliver savings through reduction of carbon dioxide emissions from its fixed assets. When planners begin designing a new flagship Terminal, they looked for ways to minimize waste, protect local habitats, and reduce carbon. We developed the scheme design for a ground-breaking, biomass fuelled, Organic Rankine Cycle tri-generation plant supplemented by high efficiency gas boilers, and stayed on as concept guardians throughout project construction and commissioning. After final testing, Heathrow Airport Energy Center is expected to reduce the airport's carbon footprint.

FEATURE | LONDON HEATHROW AIRPORT



Terminal 2, replacing an aging boiler house and further extending the efficiency benefits of this novel application of a very traditional fuel, wood.

The Energy Center includes a 12 MW input biomass boiler (from VAS), supplying a 1.8 MWe ORC engine (from Turboden), and heat to the Terminals and a 1.8 MWth absorption chiller.

The biomass boiler is fueled by virgin woodchip from U.K. forests, a fuel considered to be zero carbon, because the carbon released in combustion has been absorbed during the growth cycle, and further carbon will be absorbed by trees planted as part of the fuel cycle.

Savings that Soar

Running at full capacity, the Heathrow Airport Energy Center should save around 13,000 tons of CO₂ at today's grid factors, making a significant contribution to the airport's carbon management strategy. At that rate of operation, the Energy Center expects to use about 30,000 metric tons of virgin woodchip a year, which are responsibly sourced from an auditable end-to-end sustainable supply chain. The wood comes from within a 100-mile radius of the airport and the supplier, LC Energy, has a target to deliver 75 percent from within a 50-mile radius. All timber originates from managed estates in the local area, improving land and forest management as well as providing job security and business development in the local community and rural areas. Because the fuel comes from uncontaminated virgin timber, 100 percent of the ash residue can be collected and re-used as soil conditioner or in the construction industry.

Most passengers pass through an airport unaware of the phenomenal amount of activity behind the scenes, making sure their journeys are safe, convenient, and efficient. At Heathrow, in addition to the most up-to-date baggage systems, building services, and facilities maintenance, 'Terminal 2: The Queen's Terminal,' houses a brand new biomass CCHP, chipping away at fixed asset CO₂ emissions. ■



Homecoming

The GSA and AFRH raze and rebuild a veterans' retirement community destroyed by Hurricane Katrina



When Hurricane Katrina slammed into the Armed Forces Retirement Home (AFRH) in Gulfport, Mississippi, USA, veterans riding out the storm felt the building swaying in the wind and watched as the storm surge destroyed the campus. Within days residents were evacuated, and many wondered if they would ever return to the Gulf Coast.

While the battered facility would need to be completely rebuilt, the storm created an opportunity for AFRH management to upgrade housing for the nation's retired servicemen and women, many World War II and Korean War veterans. Congress agreed, and in 2007 authorized funding for a new facility — with the conditions that the General Services Administration (GSA) manage planning, design, and construction and that the home open within five years after Congress approved funding for the program. In fact, funds had to be obligated by the end of the fiscal year.

That's when GSA called on Jacobs. As a Jacobs core client, the agency had an existing long-term relationship with us. Jacobs' staff embraced the challenge to manage design and construction for the whole project, and resolved to create a home worthy of the nation's heroes.

Early to Rise

GSA set an aggressive schedule: award a design-build (D/B) contract in just five months and complete the entire project in three-and-a-half years. Similarly sized projects routinely take up to 10 years, so Jacobs hit the ground running, convening interactive planning workshops with the GSA and AFRH. The result was not only an overall description of the facility, but also a room-by-room breakdown of space requirements. In fewer than three months, Jacobs was able to prepare and have GSA issue a detailed Request For Proposal for prospective bidders. The GSA goal of awarding the D/B contract within the fiscal year was realized when the contract was signed in late September 2007. On a parallel timeline with the D/B procurement, Jacobs also oversaw the demolition and implosion of the old building. Careful planning and rapid award of the contract sped up demolition and allowed the D/B contractor on site a full month early.

Wall-to-Wall Living

The final building features four towers housing 536 rooms for independent and assisted-living residents, and 48 rooms for long-term-care residents. The fully furnished independent-living

TOTAL CAMPUS MAKEOVER

In the wake of Hurricane Katrina's damage, the campus needed to be re-built, so we managed the entire process from demolition and procurement through construction. The result is a LEED Gold status building, more than \$7 million in savings, and a campus built to endure a Category 5 storm. Only the original 80-year-old chapel survived Hurricane Katrina and was able to be renovated without being demolished.



FEATURE | GENERAL SERVICES ADMINISTRATION



rooms are each 450 square feet, spacious compared to the scant 90 square feet in the old building. A community level connects the towers and serves as the heart of the complex; with dining facilities, a wellness center, arts-and-crafts rooms, a library, a hair salon, and even a four-lane bowling alley. Outside, residents can use the in-ground heated swimming pool or cross the pedestrian bridge to stroll the beach.

The design ensures the building can withstand Category 5 hurricane winds, and the elevated community level prevents flooding. In fact, generators ensure the entire building can remain in operation for a full week without outside support. At the same time, the design emphasizes sustainability and energy efficiency, allowing the building to achieve LEED Gold status.

Moving Day

Throughout construction, Jacobs kept communications flowing among the design-build contractor, AFRH, and the GSA. The two agencies had never before worked together, but the Gulfport project was so successful the two are already moving ahead — with Jacobs

as construction manager — on rehabilitation of the historic AFRH campus in Washington, D.C.

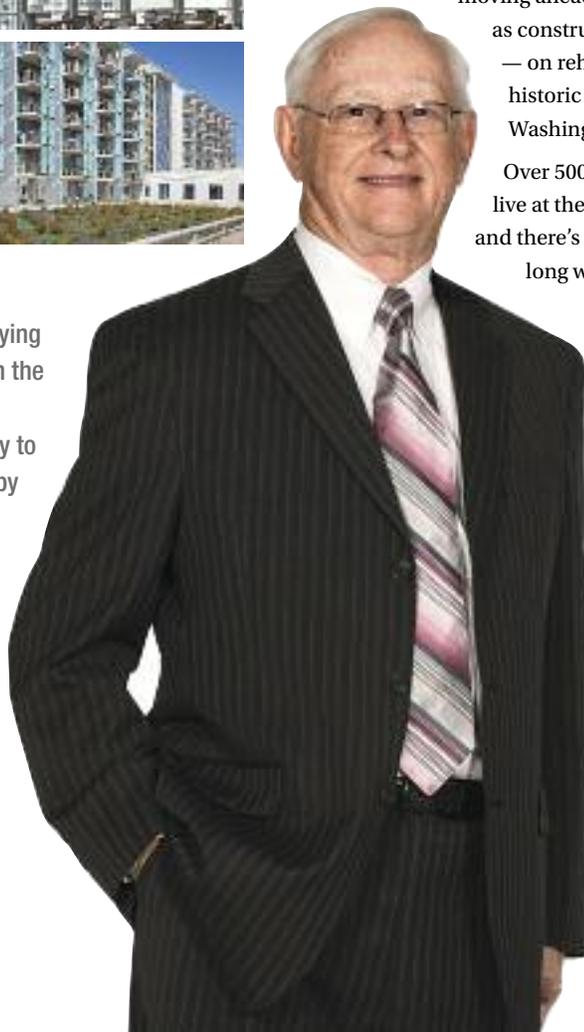
Over 500 veterans now live at the Gulfport facility, and there's a year-and-a-half long waiting list for new residents. As well

as offering comfortable, safe housing, the AFRH Gulfport facility earns a consistent point of praise from the veterans; the chow, they say, is the best. ■

“Our diligent team was highly focused on applying Jacobs’ standards for quality management on the project, resulting in more than \$7 million in project savings for the GSA and AFRH. The key to success was communication and partnering by all parties involved in the project. This approach allowed the facility to open on schedule, and its displaced residents to move in earlier than planned.”

Richard

Senior Project Manager
Orlando, Florida, USA





Savings on Tap

Gwinnett County replaces five facilities with improved Yellow River facility, new technology



Georgia's Gwinnett County has long been one of America's fastest growing counties. Situated just northeast of Atlanta, Ga., USA., the County grew from less than 45,000 residents in 1960 to an estimated 2012 population of more than 824,000 residents.

Such significant growth brings both opportunities and challenges.

To meet those growing needs, Gwinnett County leaders created a 50-year master plan designed to deliver affordable, high-quality water, wastewater, and stormwater service. As part of that plan, the county embarked on an ambitious effort to consolidate six aging water reclamation facilities into a single, modern, high-capacity treatment facility.

The \$245-million project would increase the treatment capacity of the county's Yellow River Water Reclamation Facility (WRF) from 14.5 million gallons per day (MGD) to 22 MGD. The plan was to replace obsolete systems at the Yellow River WRF, thereby improving the economy and efficiency of the county's water reclamation efforts.

Guarding the Yellow River

Gwinnett County set ambitious goals for project schedules, cost containment, and final quality.

To protect the sensitive ecology of the Yellow River itself, the Environmental Protection Division of the Georgia Department of Natural Resources strictly limited the pollution released into that river system — both over long-term operation and during the construction process. After initially planning a conventional activated sludge system, the County selected a more modern process that used membrane-based technologies to filter and treat wastewater.

The facility itself is located in a bustling residential community, and construction was undertaken within the footprint of that existing treatment plant. Finally, the entire project was to be completed while maintaining ongoing plant operations, meeting stringent discharge limits, and preserving the region's sensitive natural water resources.

ECOLOGICAL SUCCESS

When Gwinnett County leaders decided to consolidate six aging water reclamation facilities into one, modern, high-capacity treatment facility, they called on us for assistance. We partnered with Gwinnett County on the Yellow River Water Reclamation Plant, and as part of an integrated delivery team provided engineering and construction management services in a Construction Manager-at-Risk approach. The new plant replaces five wastewater treatment plants and is the first in the county to use advanced membrane bio-reactor technology, which helps reduce the pollutants discharged into the Yellow River.



 OPERATIONS CENTER
YELLOW RIVER
WATER RECLAMATION FACILITY

FEATURE | GWINNETT COUNTY, GEORGIA

Clear Achievements

Jacobs partnered with Gwinnett County for this project, and as part of an integrated delivery team provided engineering and construction management services in a Construction Manager-at-Risk (CMAR) approach.

The new plant replaces five other wastewater treatment plants and is the first in the county to use advanced membrane bio-reactor technology. The project included new pumps, screens and grit removal, sedimentation, biological nutrient removal, membrane biological reactors, ultraviolet disinfection, and aeration systems. A new Plant Maintenance building and a LEED Gold certified operations building house plant controls, a new lab, training space, and office spaces.

The upgraded Yellow River WRF met the ambitious objectives set by Gwinnett County.

The new facility increased operational efficiencies and enabled the County to decommission several obsolete plants. It occupies about half the previous facility's footprint, allowing the County to reforest some land and leave room for future expansion. Innovative technologies now measurably reduce the volume of pollutants discharged into the Yellow River, control odors at the site, and allow the solids to be used to generate natural gas as a renewable source to generate electricity. The project was completed 12 months ahead of schedule for \$11 million less than the projected investment.

Not surprisingly, this facility upgrade earned recognition and awards from a number of industry groups, including the 2012 CMAA infrastructure award in the over 150 million category project of the year, LEED Gold certification from the U.S. Green Building Council for the Operations, and the 2012 Best Civil Works/ Infrastructure Award from Engineering News-Record (ENR). The real benefits, however, will be seen by Gwinnett County's business and residential communities. Thanks to this successful project, those constituents can enjoy more affordable, environmentally-sound wastewater treatment services for many years to come. ■





Well Grounded

Suncor taps Jacobs' expertise to power oil sands projects, improve sustainability



They said it couldn't be done. Extracting fuel from oil sands was dismissed as too difficult to be worthwhile—but Suncor proved them wrong, opening the first oil sands mine in 1967. Starting from 30,000 barrels per day of synthetic crude at that first production facility, Suncor now produces more than 350,000 barrels (as of Dec. 31, 2012) per day from its in situ and mining operations. Though it isn't impossible, it still isn't easy — oil sands development is complex.

Back in 2002, Suncor looked for a company to work on its in situ Firebag project. The requirement: The company must understand the ins and outs of oil sands production and what is required when working in the sometimes extreme temperatures of Northern Alberta. Suncor chose Jacobs.

Layers of Success

From that first engineering contract — working out the details of a new oil sands production process known as steam-assisted gravity drainage — came other contracts and for the last 10 years,

we've supported Suncor's operations. We offer a solid technical understanding of oil sands production combined with dedication to sustainability and operational excellence. We've provided detailed design of multiple projects as well as construction, commissioning, start-up support, maintenance, and turnaround services. We're ready to step in at a moment's notice if needed, mobilizing up to 1,700 tradespeople to Northern Alberta to replace or repair broken equipment.

Environmental Efficiency

We also support Suncor's efforts to improve sustainability and energy efficiency. In 2010, we helped implement a corporate-wide energy management system, and now we're at work developing a roadmap to improve oil sands energy efficiency and greenhouse gas emissions mitigation. The result is a nonconventional source of energy that promises to support consumers while leaving a light footprint on the environment. ■

TRANSFORMING LANDSCAPES

Oil sands mines produce tailings — leftover material produced during the extraction process that separates bitumen from the oil sand. Since 2009 we have assisted Suncor in the implementation of the assets to support the company's new TRO™ tailings management process, which is expected to significantly improve the speed of transforming mature fine tailings into a solid landscape suitable for reclamation.



“Working so closely with the client allows us to get a deeper understanding of their business needs, so we can respond with better design solutions. The Suncor/Jacobs relationship is mutually beneficial; the latest stage of the Firebag plant has recently been commissioned and production started smoothly.”

Karen

Jacobs, Project Manager
Calgary, Canada



A Teaching Environment

Growing to meet intense demand, the Indian Institute of Science Education and Research, Thiruvananthapuram develops a new rainforest campus dedicated to higher education and sustainability



The youth population in India is characterized by boundless ambition and a desire to learn. Many of the 90 million Indians between the ages of 17 and 21 recognize that the way to get ahead in India's economy is through education, so more teens than ever before are seeking a college degree — to the point that the nation's higher education system is under strain. Prestigious schools offering degrees in science and technology are forced to be painfully selective — the Indian Institute of Technology can accept only about two percent of the 500,000 students who apply annually.

Growing Opportunity

The Indian government recognizes the challenge — and is hard at work creating new educational opportunities. In 2006, the state founded the Indian Institutes of Science Education and Research (IISER) in Pune and Kolkata, respectively, to create new research centers of the highest caliber. The five IISER campuses focus on under-graduate and post-graduate teaching and research. The Thiruvananthapuram campus, located on the southwestern tip of India, is already moving students through Ph.D. and integrated

B.S./M.S. programs, but lacks a research facility of its own. The government allocated 200 acres of lush vegetation draped over steep hills, but building a research campus from scratch while preserving the site's natural characteristics would be a challenge. That's when IISER called on CES — now a Jacobs company. Charged with creating a cutting-edge science facility while preserving as much of the ecosystem as possible, we set to work assessing IISER's needs and the site's potential.

Environmentally Intelligent

We adopted a philosophy of “do no harm” for the Thiruvananthapuram campus and sought to preserve as much of the site's terrain and ecosystem as possible. The result was a master plan that follows the contours of the land and incorporates the existing streams and rivers. Buildings are clustered into logical groups — for academics, student housing, and faculty housing — that fit into sloping hillsides. Covered walkways connect different parts of the campus, allowing easy movement even during the monsoon season. Smart environmental design drove decision-making for the campus and ultimately resulted in a design that aims to meet

KEEPING IT GREEN

IISER needed to add a campus in Thiruvananthapuram, India, and they asked us to design a campus that not only achieved its goals as a science and research educational facility, but also one that preserved the rainforest environment. The result is a sustainable campus integrated within the lush terrain that, among other features, uses rainwater harvesting to leave area streams untouched. The site has been designed to meet, but has not yet been awarded, India's Green Rating for Integrated Habitat Assessment (GRIHA) four-star rating. The campus is expected to open early 2013.



requirements for a four-star rating from GRIHA, the Green Rating for Integrated Habitat Assessment program, India's green building ranking system; four stars are considered equivalent to Leadership in Energy and Environmental Design (LEED) Gold status. Buildings include high-efficiency air-conditioning and a rainwater harvesting system that leaves the area's streams untapped. Careful soil management during and after construction prevented erosion on hillsides, and all mature trees were preserved. The clustered site design allowed a large portion of the campus to be left undisturbed as a conservation area, which will be studied by scientists at the Institute.

Of Streams & Elephants

We were responsible for architectural, structural, mechanical, electrical, and plumbing engineering, landscape, and infrastructure design. Construction in the rainforest had its own challenges. A wildlife expert consulted with the team to ensure local animals, including herds of elephants, were not disturbed during construction on the site.

Open for Learning

The IISER Thiruvananthapuram campus is expected to open in 2013, and students and scientists to begin work in new, fully equipped laboratories and classrooms. The goal is to create a new generation of Indian scientists, ready to lead the burgeoning nation to the forefront of science. Meanwhile, students prepare for the future in a verdant, natural campus. ■

“When I first glimpsed the forested, hilly site, I thought of India's ancient educational culture where shishyas (students) used to go to gurus (sage teachers) to take lessons in schools that grew out of the forest, and were a part of it. This is something Noble Laureate Rabindranath Tagore did successfully at Shantiniketan. What an opportunity and challenge the IISER project has been.”

Partha

Jacobs, Architect
Nehru Place, India



Solid Savings

West of England Waste Partnership uses planning and innovations to forge waste management strategy



As human population levels grow around the world, so too does the amount of waste those populations produce. Waste disposal has a significant impact on climate change; rotting waste generates methane, a potent greenhouse gas. Managing waste safely, efficiently, and more sustainably is an ongoing challenge for municipalities, especially those with limited landfill space available.

In 1999, the European Landfill Directive was enacted to address this problem. The Directive imposes strict limits on the quantity of biodegradable municipal solid waste sent to landfills, with ever-reducing allowances through the year 2020. In the United Kingdom legislation was passed for a £150 fine for each ton landfilled over the allowance set by the European Union.

In addition to the fines, a landfill tax, which increases by £8 yearly, is imposed on each ton of waste landfilled. The tax is currently £72 a ton (2013-14), and will rise to £80 a ton from 2015 until 2020.

With limited available void space for landfill, taxes, and fees, the United Kingdom's Bristol City Council faced an urgent challenge. In 2005, they appointed Jacobs to provide technical support and advice to the Council and their three adjacent

local authority partners (Bath & North East Somerset Council, North Somerset Council, and South Gloucestershire Council), collectively known as West of England Waste Partnership.

Sizing Up the Challenge

Jacobs helped the Partnership develop and approve their first joint municipal solid waste management strategy. To do this, we had to know how much and what type of waste existed at the time; approximately 550,000 tons of municipal solid waste was produced by the Partnership in 2005.

Through extensive and complex modeling Jacobs predicted that, even under the lowest growth scenario, an extra 100,000 tons was likely to be produced during the following quarter century; the primary influencing factor on this increase was the instruction by the U.K. Government to build an additional 96,000 new houses in the Partnership area.

With an estimate of future waste established the next challenge was faced; a critical shortage of available landfill capacity in the southwest of England. Taking quick action to help the Partnership divert waste from landfill, Jacobs helped develop and propose a four-phase strategy:

WELL-MANAGED REDUCTION

Several years ago, the United Kingdom's Bristol City Council faced an urgent challenge; meeting recently enacted legislation that limited the quantity of biodegradable municipal solid waste sent to landfills. Along with their local authority partners, collectively known as West of England Waste Partnership, they called on us to provide technical support and advice on waste management plans. We have helped the Partnership develop and approve their first joint municipal solid waste management strategy, and also helped develop strategy to divert waste from landfills.

- **Phase One:** Minimize the quantity of municipal solid waste produced through targeted communications and minimization campaigns aimed at the public;
- **Phase Two:** A five-year interim treatment solution to divert biodegradable waste away from landfills in order to meet European Union target goals;
- **Phase Three:** A longer-term treatment solution to secure treatment capacity over the next 25 years;
- **Phase Four:** An option to embrace new technology as it emerges from the year 2020 onward.

Jacobs supported the Partnership in drafting the initial strategy and engaging the public to obtain feedback. The strategy was unanimously adopted by all four Partnership authorities in 2008 and work on Phases One and Two of the strategy began in earnest.

Picking a Partner

During Phase Two, Jacobs took a lead advisor role in helping the Partnership define a procurement strategy and develop the contract objectives for a contractor who would design, build, procure, finance, and operate a treatment plant to process a set tonnage of residual municipal solid waste and to divert as much of that waste away from landfill as possible. To meet their landfill allowance targets, the Partnership needed to divert 120,800 tons of waste per year to the contract, so selection of the right contractor — was crucial.

Following a thorough and transparent evaluation process, the contract was awarded to New Earth Solutions to deliver a £26-million, 200,000 TPA (tons per annum) mechanical biological treatment (MBT) facility to a site in Avonmouth, near Bristol.

In addition to recovering recyclable materials during the mechanical stage of the process, the MBT facility is configured to produce refuse-derived fuel (RDF) — a biomass-rich product created from the fraction of the waste that cannot be recycled. Energy can be recovered from this fuel to provide power to local homes.

Energy was being recovered from this RDF through combustion in a number of third-party energy-from-waste facilities. However reliance on these third party arrangements has decreased as, on the same site in Avonmouth, a dedicated 13 MW low-carbon renewable energy plant has been constructed. Phase One, consisting of 6.5 MW of power output, has been commissioned and is operational. Phase Two, comprising another 6.5 MW, will become operational by the end of 2013. The plant receives the RDF directly from the MBT plant by conveyor feed, and will generate enough power to meet the needs of nearly 25,000 homes in the Bristol area.

The combination of the value extracted from the recyclable material and the RDF is that 95 percent of incoming waste is currently diverted from landfill, exceeding the target set out in the initial contract.

The Partnership saw the potential value of the service that New Earth Solutions could provide and shortly after the contract had been signed, they agreed to a full four-year extension, creating a nine-year contract that extends through 2020.

“The Jacobs team put their hearts and souls in to the relationship with the Partnership. The substantial JacobsValue+ and JacobsSustainability+ savings we recorded are testament to a forward looking client, their investment in the relationship, and their trust in our expertise.”

John

Divisional Director
Reading, England, U.K.





Through 2008-2011, the financial crisis hit and the house building program slowed. The Partnership's communications efforts under Phase One of the Strategy had a significant positive influence on residents' attitudes toward waste minimization and recycling. Combined, the result was such a reduction in waste being produced in the Partnership that the longer-term treatment solution proposed under Phase Three of the strategy is unlikely to be needed. The Partnership continues to review its data and plans to review the four-phase strategy next year in 2014.

Piling on the Savings

Jacobs recognized the significant environmental benefit that the contract provided, so we calculated the net carbon benefit of diverting over 987,000 tons of waste away from landfill over the nine-year contract using the U.K. Environment Agency's lifecycle assessment software WRATE (Waste & Resources Action Tool for the Environment).

The WRATE model estimates that over the nine-year contract, 400,999 tons of CO₂ (equivalent) should be saved. Applying the U.K. government's medium non-traded carbon price (currently £57.88 per ton in 2013) to the 400,999 tons of

carbon saved yields an estimated carbon cost saving of £24,653,500. This has been recorded as a client-approved JacobsSustainability+ saving.

An Ongoing Relationship

Due to the success of the waste management project, Bristol City Council again engaged Jacobs in 2010 to provide technical, procurement, commercial, and financial advice to help them procure a seven-year, £96-million waste and recycling collection, street cleaning, and winter maintenance contract, the largest such contract procured in the United Kingdom.

Jacobs facilitated stakeholder consultation and engagement on a detailed technical options appraisal to agree upon:

- The services Bristol required;
- How the Council would evaluate the tender responses by determining and weighting the evaluation criteria; and
- What they could and could not afford against their medium-term financial budget, which included mandated Council-wide savings of £65m over three years.

The Council set ambitious citywide targets for carbon emissions reduction, planning for a 25 percent cut by 2015 and 40 percent cut by 2020. In response, Jacobs outlined the requirements of a Sustainability and Carbon Management Plan that embedded an innovative performance regime in which failure to meet year-on-year reduction targets led to a financial penalty to the contractor for each one percent shortfall against the target in each contract year.

A series of other stretch targets for the contractor include:

- Improvement of street cleanliness for litter, graffiti, prevention of illegal dumping, and detritus; maintaining customer satisfaction with the street cleaning services.
- Reduction of the quantity of residual, i.e. non-recyclable, household waste by 16 percent in seven years;
- Improvement of street cleanliness for litter, graffiti, prevention of illegal dumping and detritus;
- Maintaining customer satisfaction with the street cleaning services.

In addition, we recommended that the contractor should be entitled to an incentive for over-performance against the waste reduction targets, which the Council accepted.

Jacobs supported the Council throughout the procurement process, and completed financial and technical evaluations of tender responses, leading to the Award of Contract in July 2011, in time for a contract start date of November 2011.

A client-approved £19.7 million JacobsValue+ saving was confirmed on the seven-year contract price, which was a significant contribution to the £65 million efficiency savings the Council needed to make. This JacobsValue+ saving included a £96,000 savings on Jacobs' fees accrued through innovations in our delivery methodology, using secondments and the efficient techniques we used to engage and interface with stakeholders.

Today, Bristol City Council is recycling 49.7 percent of its municipal solid waste, making it the highest performing City in the United Kingdom. Moreover, the overall amount of municipal solid waste has been reduced from 195,000 tons in 2005 to just over 160,000 tons in 2013 — a remarkable achievement. ■





Expanding Heritage

Liverpool Wastewater Treatment Works preserves heritage site while expanding



Flowing from the Pennine mountains to the Irish Sea, the River Mersey helped make Liverpool a major world port during the 18th and 19th centuries, and contributed to the growth of the British Empire. The river and its estuary once also supported a rich ecology of fish, marine mammals, and other wildlife.

Yet by the mid-1980s, after decades of industrial waste and sewage being discharged directly into the river, the Mersey had also earned the dubious distinction as being one of the most polluted rivers in Europe. So the Liverpool community set out to clean up its historic waterway.

United Utilities (UU) provides water and water treatment services to the region. In 1984, North West Water, UU's predecessor, built the Liverpool Wastewater Treatment Works as part of an ambitious effort to help clean and restore the Mersey.

That effort yielded positive results, but by 2010, urban growth and stricter water quality standards meant that the facility had reached the limit of its capabilities. UU began planning a major extension of the current Liverpool facility, but it faced a unique challenge.

The wastewater treatment facility is situated in Liverpool's historic docklands, in the buffer of the Liverpool Maritime Mercantile City World Heritage Site, a cityscape certified by UNESCO as being of Outstanding Universal Importance. Extension of the facility meant building inside the historic Wellington Dock, which was originally built in 1848. UU was committed to improving water quality in the Mersey, while minimizing impacts on the city's internationally significant heritage.

That's when they called on the professionals at Jacobs.

Close Scrutiny

Jacobs was commissioned to provide planning and environmental support on the project.

The entire effort was under intense scrutiny, as Jacobs specialists worked to meet the demands of operational requirements, environmental water quality, and heritage conservation.

Operationally, the challenges were significant. The facility serves a region that is home to more than three quarters of a million residents. After this planned £200 million extension, the Works is

BALANCING ACT

United Utilities (UU) provides water and water treatment services to the Liverpool, England region. They asked us to provide planning and environmental support in their upgrade of the wastewater treatment facility in Liverpool's historic dockland. In addition to meeting the demands of operational requirements and environmental water quality, we consulted specialists on heritage conservation to ensure the Liverpool Maritime Mercantile City World Heritage Site was respected and maintained. Scheduled for completion in 2016, this expansion is planned to create a more efficient facility.



FEATURE | UNITED UTILITIES



expected to be able to treat up to 950 million liters of wastewater to the appropriate standards each day.

The entire project had to be undertaken with a keen appreciation for heritage conservation. Local planning policies were strongly weighted against any infill of the historic Liverpool docks. Any objections to the proposals from English Heritage or UNESCO would likely cause significant and costly delays. To overcome these risks, the application had to clearly demonstrate why the facility needed to be located within Wellington Dock and how the proposals could be successfully accommodated within the setting of the World Heritage Site.

Past and Future

Jacobs helped meet that challenge, with a planning and study effort that sought input from a range of environmental and technical specialists.

The team consulted with English Heritage, Liverpool City Council World Heritage Site and Conservation officers and other historic preservation groups, and prepared a robust planning application for the scheme. UU and Jacobs then prepared joint presentations describing the project to the World Heritage Mission and to the planning authorities.

Those efforts helped win approval for the project with no major objections.

Scheduled for completion in 2016, this expansion is planned to create a more efficient facility and help restore the unique environment of the River Mersey, all while preserving the heritage of this great port city. ■



Talent Refined

Saudi Aramco creates cleaner fuel, grows local talent with Ras Tanura Refinery



The Saudi Aramco name is unparalleled in the world of leading energy companies. Headquartered in Dhahran, Saudi Arabia, Saudi Aramco is a fully integrated global petroleum and chemical company as well as a leader in exploring, producing, refining, distributing, shipping, and marketing of hydrocarbon products and by-products.

The company manages the world's largest proven conventional crude oil and condensate reserves of 259.7 billion barrels. In 2011, the average daily crude production stood at 9.1 million barrels per day. Saudi Aramco's downstream capabilities include a worldwide refining capacity of more than 4 million barrels per day, and it is one of the world's largest exporters of natural gas liquids.

But Saudi Aramco is more than a world-class energy company. It is committed to helping solve a host of pressing issues — by investing in research and development of improved or new technologies, by fostering educational opportunities, by partnering for energy sustainability and environmental awareness, and by asking their partners, like Jacobs, to develop full-service engineering capability in kingdom.

All of those values are reflected in the Ras Tanura Refinery Clean Fuels and Aromatics Project.

Promoting Cleaner Products

Located in the Eastern Province of Saudi Arabia, the Ras Tanura Refinery is the most complex facility in the entire Arabian Gulf, with a crude oil distillation capacity of 550,000 barrels per day. On-site tanks can store 5.8 million barrels of crude oil at any given time. The plant also processes natural gas and can generate more than 145 MW of electrical power. It produces more asphalt than any other refinery in the kingdom.

In keeping with its commitment to promote sustainable and environmentally sound facilities, Saudi Aramco set out to make the Ras Tanura Refinery more efficient and profitable, while also creating jobs for the Saudi workforce.

To help meet this goal, Saudi Aramco called on its partners at Jacobs. In 2011, Jacobs was awarded a major, five-year contract. Named Saudi Aramco's General Engineering Services (GES+), it provides for general engineering and project management services and requires that the majority of its engineering services requirements be conducted within the kingdom. The Ras Tanura Refinery Clean Fuels and Aromatics Project awarded to Jacobs is the first awarded under the GES+ contract and is expected to be the largest FEED execution undertaken in Saudi Arabia.

IN-KINGDOM ENGINEERING

The Ras Tanura Refinery Clean Fuels and Aromatics Project is expected to be the largest FEED execution undertaken in Saudi Arabia. In addition to traditional engineering services, we provide expertise to Saudi Aramco as it works to meet demanding safety, cost, and schedule objectives. Through a series of value-improvement practices, review and decision cycles have been streamlined, construction efficiencies enhanced, and more than \$100 million in potential clean fuel production savings identified.

Energizing Safety & Efficiency

In addition to more traditional engineering services, Jacobs provides expertise to Saudi Aramco as it works to meet demanding safety, cost, and schedule objectives. By implementing a series of value-improvement practices, the team has streamlined review and decision cycles, enhanced construction efficiencies, and identified more than \$100 million in potential clean fuel production savings. To date, Jacobs has completed 500,000 work-hours with no safety incidents.

Jacobs is also working with Saudi Aramco to ensure sustainable systems that meet new efficiency and environmental standards in the kingdom. The Clean Fuels Project is expected to provide the necessary upgrade to allow Ras Tanura Refinery to meet increasingly stringent European Union standards for clean gasoline and diesel. Those “Euro V” regulations define acceptable limits for carbon monoxide, nitrogen oxide, and total hydrocarbon emissions for all new cars, tractors, trains, and similar machinery sold in EU member states. The Ras Tanura project also includes modifications to help the refinery comply with future environmental regulations.

The Clean Fuels and Aromatics Project also includes a world-scale paraxylene complex. Paraxylene is an intermediate petrochemical that is used to produce polyester fibers. As more arable land is used for food production instead of cotton, polyester has become the cotton substitute for clothing.

Growing Kingdom Talent

As the state-owned energy company of the kingdom of Saudi Arabia, Saudi Aramco has stated one other important objective on this project: to nurture and utilize the professional talents of Saudi citizens.

To that end, the Ras Tanura Clean Fuels Project was awarded under the company’s GES+ program. Because the GES+ program requires that certain numbers of Saudi talent be hired and developed, it provided the perfect umbrella to encourage the implementation of Aramco’s Saudization goals as work progressed on capital improvement projects. Based on a strong presence in the kingdom, and a proven record of nurturing local talent, Jacobs was a natural choice to support this important effort.

The Jacobs team has created professional development programs for top Saudi talent, offered training and internships, and encouraged female professionals to enter the Saudi workforce. On the Ras Tanura Refinery capital improvement project, fully 40 percent of designers and engineers, and 25 percent of the entire workforce are Saudi nationals.

Ongoing Partnership

Saudi Aramco and Jacobs continue to work together to find the best project solutions for the kingdom.

As the Ras Tanura project moves forward and builds on its success, there is no doubt that it can be an outstanding example of using local talent to produce cleaner, more efficient fuels and value-added products of the future. ■



Our Processes & Tools

Solving our clients' toughest challenges and offering them the best services possible are always our leading priorities.



Growing a strong, sustainable business allows us to provide the best possible services to our clients, who in turn are able to grow their businesses and meet their sustainable project goals wherever they do business, all around the world. As a global service provider doing work across multiple and varied market sectors, we are keenly aware of our clients' need for best practices to support their sustainability goals.

We deliver the tangible technical solutions that really make a difference

“Sustainability matters, to us and to our clients. We take seriously our responsibility to help preserve and grow our clients' brands by making decisions and taking actions, big and small, that foster sustainability on every project.”

Lisa

Jacobs, Senior Vice President –
Global Sales
Pasadena, California, USA

to our clients' social, economic, and environmental goals, resulting in a solid triple bottom line.

The following pages detail our overarching project development methodologies, and provide just a few examples of the types of tools we use to support each phase of the project life cycle of plan, design, build, operate, and maintain. We also address industry standards and regulations, with particular emphasis on safety and the environment.

We believe our project delivery tools and processes contribute to better solutions for our clients, more efficiently executed projects, and longer lasting, more energy-independent facilities in the community. We also believe that our employees' adoption of our core values, culture of caring, and commitment to ethics and integrity brings a higher level of service to our clients, ultimately resulting in more sustainable solutions across the globe.

Health, Safety & Environment

Jacobs Safety Information Management System (JSIMS)

Launched in 2007, Jacobs Safety Information Management System (JSIMS) is our multilingual, Web-based system that tracks safety incidents, including environmental safety, around the globe. JSIMS supports analysis of incidents, reporting, follow-up, and sharing of lessons learned at the

OUR PROCESSES & TOOLS

project and office levels. JSIMS allows us to collate useful information on the types and root causes of incidents so we can best identify improvement opportunities by client, region, industry, contract type, and more. All environmental incidents are recorded in JSIMS to ensure visibility, discipline, and a history of lessons learned.

Construction Safety Program

In 2011, Unilever signed an Alliance agreement with Jacobs. The Alliance is managed out of Singapore and provides engineering services for Unilever's manufacturing sites around the world. The Alliance also operates within Unilever's aggressive capital expansion program, working to make improvements in project delivery, addressing all aspects of cost, speed to market, operations, and sustainability.

The Alliance helps Unilever implement operating cost reductions, drive co-innovation, and implement the harmonization and cross-category standardization of designs. It's also responsible for working with Unilever's supply chain teams to support increased speed to market and develop engineering designs that reduce carbon, water, and waste footprints across its manufacturing sites.

Around the same time the Alliance agreement was formed, Unilever created the Unilever Engineering Services (UEnS) organization, headquartered in Singapore. UEnS works worldwide to support all Unilever supply chain clusters, particularly with challenges of scale up and speedy delivery of major capex projects.

In October of 2012, UEnS sought Jacobs' guidance on improving their construction safety worldwide.

We gladly took on this challenge and went to work developing and delivering a Construction Safety Program targeted to help Unilever achieve their safety goals. As part of their Sustainable Living Plan, Unilever has set new targets for creating a better workplace, including reducing workplace injuries and accidents. With a projected increase in capital projects across the globe, particularly in emerging markets with less sophisticated safety systems and culture, this new program is considered an important piece of improving safety worldwide.

The Construction Safety Program includes 38 construction standards. Ten of those standards were selected and developed into training modules. We are now facilitating training at Unilever offices around the world. Training sessions often are held at a central geographic location, with Unilever employees from multiple nearby countries and cities attending. Thus far, training sessions have been held in six locations; Singapore, Turkey, India, Brazil, China, and South Africa, with future sessions planned for other locations. Approximately 100 Project Delivery Managers representing projects in 24 different countries have attended a workshop. Local Jacobs staff attend and support training sessions whenever possible. In addition to the in-person training sessions, we are working with Unilever to develop the training modules into e-learning units, creating a greater opportunity to reach all Unilever employees. A long-term goal for the program is to have successful results be felt globally by Unilever and its suppliers, customers, and neighbors, while improving safety at Unilever sites worldwide.



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Planning

Business Management Framework

Sustainability can be implemented in a range of ways and covers economic, social, and environmental matters. Because it can touch many aspects of a project or organization, it can also be complex to address and manage. Therefore, Jacobs has developed a Business Management Framework (BMF) to provide a structure for the implementation of sustainability within an organization. A structured context allows for more ease in embedding sustainability within the organization or business.

The BMF approach is based on five key steps which allow us to work with our clients to approach sustainability in a structured and managed way. Through these steps we work with clients to set and respond to their high level sustainability aspirations. We are also able to help with performance and specific project objectives. Following the steps ensures we engage appropriately with staff and key stakeholders to gain buy in. We define all the processes and procedures required to meet objectives, and then track and monitor progress, allowing results to be published.

This simple yet very effective process embeds sustainability within organisations and projects. An added bonus is the ability of the BMF to act as an audit tool to identify progress and gaps.

Jacobs System to Ensure Project Success (JSTEPS)

JSTEPS is the Jacobs system that demonstrates repeatability. Repeatable service delivery is instrumental in achieving on-time and on budget project delivery. JSTEPS is a flexible delivery system that was developed with the specific understanding that every client has unique needs. This tool can be customized to meet the needs of our clients in every industry we serve.

C-CLEAR

Carbon management is increasingly a priority for a number of our clients. To help focus our efforts in working to deliver client needs and to standardize our approach, the sustainability team in the United Kingdom developed the C-CLEAR energy management and carbon reduction tool to use during project planning.



The basic C-CLEAR method takes the project and client team through the following six steps: Communicate, Calculate, List, Evaluate, Agree, and Review.

Designing & Building

Eco-charrette

An eco-charrette uses the same intensive workshop setting as a typical charrette, but the eco-charrette's subject matter is focused on the sustainable principles of the project rather than the programming. Our high-performance eco-charrettes help clients identify and outline the first steps toward sustainable design, establish an all-inclusive project team, and create a vision for the project. Some of our most recent eco-charrettes include a Net Zero Feasibility Study and multiple studies targeting LEED Silver minimum certification.

Application of Combined Heat and Power for Efficiency, Reliability and Emissions Reduction

Combined Heat and Power – what is it?

Combined heat and power (CHP) is the simultaneous production of electricity and thermal energy from a single fuel source. CHP, also referred to as cogeneration, is an applied and integrated energy system that can be scaled and optimized to match the operating needs of a facility or campus. It provides onsite generation of electricity while recovering waste heat in turn used for heating or cooling processes. The family of CHP technologies can play an important role in meeting the energy needs of a facility as well as in reducing the environmental impact associated with traditional power generation.

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The various technologies that comprise CHP systems are not part of an emerging trend, but a proven and reliable utility service strategy. CHP systems are widely deployed throughout the world. In the United States, CHP accounts for roughly seven percent of the electricity generated in the country. In many European countries it is much higher, even exceeding 50 percent of the electricity generated in Denmark.

In a traditional CHP system, a combustion turbine or reciprocating engine generates electricity by burning fuel (commonly natural gas) to generate electricity and then uses a heat recovery unit to capture heat from the combustion system's exhaust stream. This heat is converted into useful thermal energy, usually steam or hot water. The



steam or hot water is then used to provide heating or serve a process load, but can also be used to produce chilled water or generate additional electricity with a steam turbine.

Why is CHP Relevant?

CHP is applicable for many end users, including industrial facilities, universities, hospitals, corporate campuses, airports and others. Many clients turn to CHP as a strategy to improve their efficiency and carbon footprint. CHP offers the following benefits:

Efficiency— CHP requires less fuel to produce a given energy output, and avoids transmission and distribution losses that occur when electricity

travels long distances over power lines. The average efficiency of a fossil-fueled power plant is 33 percent; this means that two-thirds of the energy in the fuel is lost— exhausted as heat— at most power plants. By recovering this waste heat, CHP systems can achieve total system efficiencies of 60-80 percent for producing electricity and thermal energy. Higher efficiency translates into lower operating costs.

Environmental— CHP systems offer considerable environmental benefits when compared with purchased electricity and onsite-generated thermal energy. By capturing and using heat that would otherwise be wasted from the production of electricity, CHP systems require less fuel to produce the same amount of energy. As such, greenhouse gas emissions such as carbon dioxide (CO₂) and air pollutants like nitrogen oxides (NO_x) are reduced.

Reliability— Recent natural disasters like those caused by Hurricanes Katrina and Sandy have highlighted the vulnerabilities of traditional utility services. Unreliable electricity service represents a quantifiable business, safety and health risk for campuses and facilities. CHP can be designed to provide high-quality electricity and thermal energy to a site independent of the power grid, decreasing the impact of outages and improving power quality. When properly applied, CHP can provide critical power reliability while providing electric and thermal energy on a continuous basis, resulting in operating cost savings.

Economic— CHP systems can reduce operating expenses considerably and help to stabilize energy costs thanks to their high efficiency and reliable performance. Today, there are many regulatory and climate-driven issues that create a forecast for considerable electricity cost escalation. With the advancement and long-term stable outlook natural gas supplies brought about by shale gas developments, CHP can provide a hedge against volatile energy prices due to the stable market condition of natural gas compared to electricity.

CHP is currently enjoying a groundswell of support because of these stated benefits. In August of 2012, President Obama issued an Executive Order calling for investments in industrial energy efficiency to achieve a national goal of deploying 40 gigawatts of new, cost effective industrial CHP in the United States by the end of 2020.

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Jacobs Approach to CHP Applications

CHP systems are most efficient when sized to operate at full capacity while matching the thermal energy needs of the campus or process load. Jacobs' Energy and Power Solutions group has developed a highly specialized technical methodology for evaluating and optimizing CHP applications that has been successfully implemented to maximize energy savings for our clients.

First, we create comparative thermodynamic performance simulation models for the existing campus utility configuration (business as usual) and another for the CHP alternative configuration. Multi-variable parametric equations are next developed to predict hourly system performance based on factors like ambient temperature, relative humidity, campus heating profiles and electrical demand. The resultant performance models are then applied across the annual utility demand profiles and used as input for calculating the life cycle cost of the CHP alternative for comparison to business as usual. These results help to develop optimized operational parameters forming the basis of design for the prime mover (combustion turbine or reciprocating engine) and heat recovery device.

Our approach has been successfully employed as a programming activity for many of our CHP clients. Furthermore, the accuracy of our methodology has

been verified and validated. At the University of Texas at Austin, we designed a new 32.5 megawatt combustion turbine and heat recovery steam generator to help power their campus. UT has measured the actual operating performance of this system and validated the accuracy of our predictive performance model to within 0.5 percent.

CHP Project Successes

When sized and applied properly, CHP offers tremendous economic and environmental benefits for our clients.

Our energy and power solutions team has designed a number of successful installations across the United States. For one client, The University of Minnesota, the benefits of their CHP system are staggering. Our CHP sizing methodology determined a nominal 22.8 megawatt combustion turbine was ideally suited to serve their campus, instead of the 15 megawatts of CHP they originally planned to install. By optimizing the CHP process and right-sizing the turbine and heat recovery equipment, Jacobs was able to help the University of Minnesota forecast savings of more than \$94 million over the life of the project compared to their original plan. In addition, this CHP will reduce estimated carbon emissions by more than 10,000 metric tons on an annual basis compared to the smaller CHP option, equaling more than 32,000 metric tons annually compared to business as usual.



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Jacobs is also a member of the U.S. Department of Energy CHP Partnership. Through our participation with the Partnership and our involvement with CHP projects throughout the U.S., the Partnership estimates that in 2012, Jacobs CHP projects contributed to avoided greenhouse gas emissions exceeding 1 million metric tons, the equivalent emissions produced by 129,000 average homes annually.

Building Information Modeling

Building Information Modeling (BIM) facilitates the complex processes and analyses associated with building performance and evaluation. We create models to predict building performance and include facility sustainability analysis using standards such as the United States Green Building Council's Leadership in Energy and Environmental Design (LEED), mechanical simulation and analysis, daylighting, energy performance, and life cycle assessment. Linking BIM to analysis tools can provide immediate feedback for alternate design options that can help make a project more sustainable.

Carbon Calculator

The Carbon Calculator was originally developed in 2007 as a result of the request from the Environment Agency (EA) in the United Kingdom. The EA, the key environmental regulator in England, commissioned Jacobs to develop a carbon calculation tool to support sustainability decisions for its flood-risk construction work. The Carbon Calculator calculates the embodied carbon dioxide of materials, plus CO₂ associated with transportation of those materials. Since its creation, Jacobs has continued to develop adaptations and additional uses for the Carbon Calculator so it may be used by more construction clients, contractors, and consultants for their project needs. Below are just some of the things the EA Carbon Calculator includes:

- Top 10 tips based on lessons learned from the use of the tool to date
- Hints and tips to reduce carbon based on materials selected
- Simplification of the plant emissions, site energy use, and personnel travel sections to reduce input time and improve clarity

- Inclusion of updated ICE data in units of CO₂ equivalents
- Capture of lessons learned for each Project

Operating & Maintaining

Commissioning

Commissioning describes services designed to continually improve asset management and performance and plays an important role in sustainable design. At Jacobs, commissioning goes beyond industrial facilities and buildings. Maintaining system performance of any asset contributes to increased energy efficiency over the life cycle of the asset and furthers the sustainable goals of our clients. At facilities we operate, our goal is a safe and environmentally sound system that performs at the highest level possible throughout its life cycle. We strive to maintain performance that is within 98 percent of the original design performance level.

Jacobs' Sulfur Solutions

We are the global leader in treating gas and recovering sulfur from fossil fuels for the global heavy industrial and process markets. We supply expertise, technology, and full delivery for cost-effective sulfur recovery plant operations. We find optimal solutions using open processes, our proprietary SUPERCLAUS[®] and EUROCLAUS[®] technologies, or others that we sub-license. Our Comprimo SUPERCLAUS[®] technology recently marked its 25th anniversary in the markets. Our technologists are experts in all of the key processes to maximize "Sulfur Block" performance. These include gas/liquid treating technologies, NH₃ destruction, hydrocarbon destruction, O₂ enrichment, sulfur degassing, and sulfur handling.

Sulfate Removal System:

An Environmental Success Story for Chlor-alkali Plants

The chlor-alkali industry produces chlorine and caustic soda in about 600 plants worldwide. A collective commitment to ensuring the best health, safety, and environmental practices in the manufacture of chlor-alkali products is essential to the sustainable development of this large and closely watched industry. Our Chemetics[®] patented Sulfate Removal System (SRS) is a novel nanofiltration-based process that replaces

OUR PROCESSES & TOOLS



A larger unit with automatic control.



A smaller SRS unit with manual control.

conventional methods of sodium sulfate control in chlor-alkali plants. Based on the principle of selective filtration of molecules and ions through membranes, the SRS treats brine effluents to reduce the effluent volume and increase the sulfate concentration — both by a factor of more than 10. As an environmentally beneficial and economically attractive technology, the SRS also eliminates solid wastes and the handling of hazardous compounds associated with other treatment methods.

SRS Unit in Action: Charting Results

The stream summary table shown, which corresponds to a recently sold SRS unit with a capacity of 242 kg/h Na₂SO₄ removed, summarizes the flows into and out from the SRS unit, providing a quantitative basis for assessing its environmental benefit. This particular SRS reduces the brine purge volume from 35 m³/h to 2.3 m³/h (a reduction of 95 percent) or completely eliminates the consumption of 8.5 tons/day of toxic barium chloride and the associated production of 9.5 tons/day of barium sulfate solid waste.

Reliable Performance

Our Chemetics® SRS technology has operated successfully over many years, and has been adopted by more than 70 plants worldwide. In addition to its environmental and occupational safety benefits, the technology offers an attractive return on investment through reduction of plant operating costs, and has found widespread acceptance in the chlor-alkali industry.

SRS STREAM PROPERTIES



Stream Flows (mass/concentration)		Units		1		2		3	
Sodium Chlorate	NaClO ₃	kg/h	kg/m ³	494	10	23	10	471	10
Sodium Chloride	NaCl	kg/h	kg/m ³	3,380	200	338	176	5,482	201
Sodium Sulfate	Na ₂ SO ₄	kg/h	kg/m ³	331	6.7	233	103	98	2
Minor Impurity		kg/h	kg/m ³	0	0	0	0	0	0
Water	H ₂ O	kg/h	kg/m ³	44,125		1,991		42,134	
Total Mass Flow		kg/h		54,830		2,645		52,185	
Volumetric Flowrate			m ³ /h	49.4		2.3		47.1	

OUR PROCESSES & TOOLS

Getting Results

JacobsValue+ is an outstanding example of a program that tracks innovative practices and ideas and then implements them in applicable situations, passing the value created (typically savings) and benefits on to our clients. The primary objective of JacobsValue+ is to deliver, measure, and demonstrate value to our clients by increasing their return on investment. In 2012, we saved or avoided an estimated \$3.2 billion, and those savings were passed on to our clients through our JacobsValue+ program.

JacobsSustainability+ is a data capture tool designed by a global team of Jacobs sustainability experts and is a complement to our JacobsValue+ tool. Phase 1 of JacobsSustainability+, released in summer 2010, was designed to capture sustainable-related information, specifically within the categories of carbon savings, green buildings, and energy incentives.

The number of entries has continued to increase year over year since we launched JacobsSustainability+ in 2010. As awareness has grown, so also have overall usage of the tool, investment in the data captured and recorded, and suggestions for tool improvement. With measurement processes becoming more advanced, we are able to take lessons learned from the regions with the highest usage rates and apply them to regions where increased usage is desired. This task is made easier because the tool is used across all of our operations.

This year, we began rolling out an internal social networking tool to promote greater collaboration and knowledge sharing among our global operations. This has spawned the startup of three global collaboration groups dealing with sustainability:

- The JacobsSustainability+ Group focused on promotion of our global metrics tool and training and adoption of methods for measuring our sustainable efforts.
- The Green Building — Sustainability Forum focused on sustainable design and LEED, BREEAM and other green building certification schemes.
- Sustainable Solutions focused on sharing and promoting best practices for improving economic, environmental and social efficiencies and ideas.

A recent example of advancement of JacobsSustainability+ comes from our office in Leiden, The Netherlands. To further the use and support of JacobsSustainability+, the Leiden office selected a pilot project on which to review our process and approach to better realize and record sustainability performance.

To accomplish this end goal, project team members reviewed improvement ideas that were already recorded in our JacobsValue+ tool. Relevant ideas that could also be applied to sustainable performance were then implemented on the pilot project. The resulting improvements in CO₂ emission reduction (1,383 metric tons per year) were quantified, approved by our client, and put into the JacobsSustainability+ database.

As we look to the future, we continue to focus on measurement and tracking to foster ongoing improvement. New opportunities are being identified, our already transparent system is being made more so, and we are constantly increasing awareness. The increasing growth and evolution of JacobsSustainability+ allows us to set more and more measurable goals. Equally important are the efforts we make to ensure JacobsSustainability+ creates and nurtures an inspiring environment for our project teams to develop ideas around the capture of sustainability-related data. ■

U.S. Energy Information Administration: Today in Energy: "<http://www.eia.gov/todayinenergy/detail.cfm?id=8250>" \l "#" Combined Heat and Power Technology Fills an Important Energy Niche. October 4, 2012.

Oak Ridge National Laboratory for the U.S. Department of Energy Combined Heat and Power: Effective Energy Solutions for a Sustainable Future, December 2008.

August 30, 2012 Executive Order -- Accelerating Investment in Industrial Energy Efficiency

Project Gallery

Our sustainable services, principles, and practices cross all market sectors and geographic boundaries, and they are designed to help our clients achieve success.



ADMA OPCO



Das Island Master Plan and Urban Development
Abu Dhabi, UAE

Concept design stage to detailed engineering stage

- Jacob provides master planning, infrastructure design, architecture and landscape concept design
- Targeting 2 Pearl Rating Estidama certification for both buildings and community



ANGLIAN WATER



Bedford Growth Project
Bedford, United Kingdom

Area project management, process design, carbon reduction, commissioning, and optimization.

- Anglian Water intends to reduce embodied carbon in assets it constructs by 50 percent by 2015
- Jacobs one of seven partner companies in the @one Alliance
- Commissioned by Anglian Water to achieve carbon targets
- Jacobs provides project management services and specific technical input
- Project expected to be delivered at a cost 25 percent under original budget
- Expected embodied carbon saving of 67 percent
- Future operational saving due to site power requirement reduction estimated £230,000 per year
- Project won the Anglian Water Drop CO2 Award 2012

PROJECT GALLERY



CESSNA



Valencia Citation Center
Valencia, Spain

Engineering, procurement, construction

- Madrid, Spain office led multi-office project
- First project to obtain Spanish Sustainability Certification (Verde) from the Green Building Council Espana (GBCe)
- Project completed on time
- Total cost reduced 14 percent of original investment estimate



CITY AND COUNTY OF DENVER PUBLIC WORKS DEPARTMENT



Denver Animal Shelter
Denver, Colorado, USA

Agency Construction Management Owner's Representative services

- First USGBC LEED Platinum certified animal shelter in the United States
- Developed on former brownfield site; redeveloped site includes natural elements including native grasses
- Photovoltaic-ready design allows for addition of solar panels if desired at a later date
- Kennels have radiant-floor heat; energy efficient and reduces the spread of disease.
- Natural process of evaporation cool the air instead of environmentally-damaging refrigerants
- Daylight sensors automatically control the lights when there is adequate daylight, reducing need for electricity.
- Water efficient fixtures reduces water consumption by 45 percent compared to standard practice for fixture based water uses



CLARION PARTNERS



Metro Park VI
Franconia, Virginia, USA

Architecture, engineering, LEED certification, and CFD modeling

- Received LEED Platinum certification from USGBC
- Metro Park IV designed to reduce annual energy costs by 27 percent
- Sub-metering of electrical usage allows monitoring of energy costs, provides feedback
- Low-flow plumbing fixtures reduce water usage over 40 percent
- Drought-tolerant grasses, plants and trees selected for landscape
- Highly reflective white membrane roof for lower ambient temperatures on building site and reduced heating loads



HUMBERSIDE POLICE AUTHORITY



Clough Road Police Station and Custody facility
United Kingdom

Project Management, architecture, and multi-disciplinary consultancy services.

- Project developed on brownfield site
- Replaces existing building; forms cornerstone of plan enabling client to shrink overall estate by ten percent
- Building is BREEAM Excellent rated
- Solar and wind power generation
- Bio-mass boiler
- High levels of thermal insulation resulting from use of 200 mm Structural Insulated Panels with rainscreen cladding for facades
- Close attention to detailing of facade and building element interfaces result in air tightness of less than 5 meters per square meter per hour

PROJECT GALLERY



[Source JB_1984]

NETWORK RAIL



Blackfriars Station and Bridge Redevelopment Refurbishment, London, England, United Kingdom

Design services

- Sustainability a key focus for Network Rail on Thameslink Programme
- Restricting carbon emissions one of nine sustainability objectives
- Incorporation of photovoltaic cells at Blackfriars Station is a flagship project, creating the 'world's first solar bridge'
- More than 4,400 PV panels spanning the bridge have been installed; as well as more than 6,000 square meters of PV panels on new roof of the historic structure
- Energy generated by the cells should reduce carbon dioxide emissions by 550 tons a year
- Redesign of the construction's power supply resulted in savings of approximately 2.8 tons of CO₂, £1,200 per week in hire costs, and reduced fuel movement



TECK METALS LTD.



Acid Plant No. 1
British Columbia, Canada
Images courtesy Teck Metals, Ltd

Design and supply of equipment and materials

- New plant to replace two aging plants
- New plant expected to improve operating reliability and flexibility, reducing downtime and maintenance costs
- Expected to improve environmental performance
- Estimations predict the total SO₂ emissions should be reduced between 15 and 20 per cent per year from current levels



SELLAFIELD LIMITED



Isolations & Risk Reduction Project
Sellafield Nuclear Site, Cumbria, England, United Kingdom

Engineering, Procurement, and Construction Management (EPCM)

- More than 150,000 hours of work without Lost Time Incident
- Winner of NDA Supply Chain Award for 'Best Example of Innovation by a Large Company'
- Significantly reduced risks posed by degrading state of the plant
- Use of local supply chain maximized to reduce impact on environment
- Combined test rigs (carbon, material, cost, and energy savings)
- Remotely operated indexing frame enabling a significant reduction in dose uptake



TEXAS A&M UNIVERSITY



CHP Upgrade
College Station, Texas, USA

Study and detailed design services for 32.5 MW gas turbine, 210,000 pounds per hour heat recovery steam generator, 11 MW back pressure steam turbine generator, and complete reconfiguration of campus medium voltage electrical systems

- CHP system requires one third less fuel than typical off-campus power plant with similar outputs
- Prevents emissions of air pollutants equal to generation of electricity used by more than 11,000 homes
- Generates up to 45 MW of electricity
- Designed to operate and remain fully functional during power outage
- Actual savings in A&M's first month of operation exceeded \$1 million
- Expected CO₂ reduction of 1,366,290 tons over 20 years

PROJECT GALLERY



UNIVERSITY OF MINNESOTA



Combined Heat and Power Plant
Minneapolis, Minnesota, USA

Design services for Plant Equipment and Processes, Building M/E/P Design, Management of Architectural, Structural and Civil Engineering Design, Construction Administration, and Field Engineering during Construction and Commissioning

- The anticipated 22 MW Combustion Turbine Generator and Heat Recovery Steam Generator is expected to substantially reduce the annual electric power purchased from the local utility
- Expected to augment existing natural gas/coal-burning facilities providing steam energy to the campus
- Expected to substantially reduce carbon footprint in accordance with its published Climate Action Plan



UNIVERSITY OF NORTH TEXAS SYSTEM



Zero Energy Lab
Denton, Texas, USA

Full architectural and engineering design services for: photovoltaic panels, solar thermal panels, ground source heat pump, under-floor radiant heating and cooling, rainwater collection, solar chimney, and a vertical axis wind turbine to function as live/work space for research related to Sustainable Buildings Materials and Systems

- Provide educational opportunities for the University and larger community
- Photovoltaic panels
- Solar thermal panels
- Ground source heat pump
- Under-floor radiant heating and cooling



SAUDI ARAMCO



Shaybah Biodiversity Protection Area

Rub Al-Khali desert (also known as the Empty Quarter), Saudi Arabia

Concept design, design and management

- Jacobs providing design services for project
- Establish a biological research facility
- Restore and enhance viable populations of native plant and animal species
- Reintroduce animal species
- Total water demand to be sourced from sewage treatment plant
- Visitor Center with interpretation program
- Wetland to be created near visitor center
- Development of an ecological monitoring programme to measure the success of restoring and enhancing the desert ecosystem



“We provide our clients real business value through sustainable solutions by leveraging the broad thinking expertise of our creative engineers and architects. Sustainable solutions that actually drive down construction cost are a way of life for us – they are not just an experiment with “new cool stuff.”

Jeff

Jacobs, OS,
Public Sales
Norcross, Georgia,
USA

PROJECT GALLERY

Projects from Client Features



CAMPBELL SOUP COMPANY



Campbell Employee Center
Camden, New Jersey, USA

Design, interior design, landscape services

- USGBC LEED Silver Certified
- Redevelopment of existing urban site with access to public transportation
- CO₂ sensors ensure good air quality
- Efficient water system cuts usage by 20 percent
- 74 percent of wood products used in construction earned forest sustainability certification
- 99 percent of construction waste diverted from landfills
- In cafeteria, Styrofoam™ containers and disposable utensils replaced with china, silverware, and reusable takeout container
- Employee parking lot provides preferred parking spaces for van/car pool vehicle



INTESA SANPAOLO



Intesa Sanpaolo Tower
Turin, Italy

Project and construction management, design verification, procurement assistance, testing and quality control of technical systems

- Designed by architect Renzo Piano as a “bioclimatic building”
- Naturally ventilated and cooled
- Interior offices maximize natural daylight
- Solar photovoltaics
- Rooftop greenhouse prevents accumulation of solar radiation
- Currently more than 75 percent construction waste recycled
- Intended to meet LEED GOLD standards when complete



UNITED STATES AIR FORCE RESERVE COMMAND



310th Space Wing Headquarters
Schriever Air Force Base, Colorado, USA

Planning and design

- Designed to meet USGBC LEED Silver certification standards
- Completed under budget
- Windows positioning achieves balance of natural lighting and limited heat gain
- Building materials reflect natural surroundings
- High-efficiency plumbing fixtures conserve water by up to 30 percent
- Sophisticated HVAC system includes air-side economizers that increase the amount of outside air allowed in the building in the winter, reducing or even eliminating demand on the chiller and saving substantial energy



LONDON HEATHROW AIRPORT



Heathrow Airport Energy Center
London, England, United Kingdom

Scheme design, concept guardianship, and environmental permitting

- Heathrow Airport Energy Center is one of only three of its type in the United Kingdom
- 12 MW input biomass boiler (from VAS), supplying a 1.8 MW ORC engine (from Turboden),
- Biomass boiler fueled by virgin woodchip from U.K. forests, a fuel considered to be zero carbon
- With fuel from uncontaminated virgin timber, 100 percent of ash residue may be reused as soil conditioner or construction industry
- Expected to save around 13,000 tons of CO₂ at today's grid factors

PROJECT GALLERY

Projects from Client Features



GENERAL SERVICES ADMINISTRATION



Armed Forces Retirement Home
Gulfport, Mississippi, USA

Construction management assistance

- USGBC LEED Gold Certified
- Achieved more than \$7 million in project savings for client
- Design emphasizes energy efficiency
- Design ensures building can withstand Category 5 hurricane winds
- Elevated community level prevents flooding



WINNETT COUNTY, GEORGIA



Yellow River Water Reclamation Facility
Improvements
Gwinnett County, Georgia, USA

Engineering and construction management services in a Construction Manager-at-Risk approach (as part of integrated team with Gwinnett County)

- New plant replaces five other wastewater treatment plants
- First plant in the United States to use advanced membrane bio-reactor technology
- USGBC LEED Gold certified
- Won 2012 CMAA Infrastructure Award in Over \$159 Million Category Project of the Year
- 2012 Best Civil Works/Infrastructure Award from Engineering News Record
- Increased operational efficiencies, allowing decommissioning of several obsolete plants



SUNCOR



Tailings Reduction Operation Project
Calgary, Alberta, Canada

Engineering, construction, commissioning, start-up support, maintenance, and turnaround services for various projects

- Improves oil sands energy efficiency
- Mitigates greenhouse gas emissions
- Nonconventional energy source
- Reduces environmental footprint
- Corporate-wide energy management system



INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH (IISER), THIRUVANTHAPURAM



IISER-TVM Campus, Vithura, Thiruvanthapuram
Thiruvananthapuram, India

Master planning, architectural services, structural, mechanical, electrical, and plumbing engineering, landscape, infrastructure design, and GRIHA 4 Star accreditation

- Site designed to meet, but not yet awarded, India's Green Rating for Integrated Habitat Assessment (GRIHA) four-star rating
- Rainwater harvesting
- Preservation habitat; trees, streams, elephant watering holes
- Buildings include high-efficiency air-conditioning
- Soil management prevented erosion on hillsides
- Clustered site design leaves large portion of campus undisturbed as conservation area

PROJECT GALLERY

Projects from Client Features



BRISTOL CITY COUNCIL



West of England Waste Partnership
Bristol, England, United Kingdom

Technical advice, policy guidance, and procurement support

- Extensive, complex modeling predicts amount of waste to be produced during upcoming quarter century
- Developed four-phase strategy to divert waste from landfill
- Mechanical biological treatment facility is configured to produce refuse-derived fuel
- 95 percent of incoming waste currently diverted from landfill, exceeding target set in initial contract
- Estimates made using U.K. Environment Agency's lifecycle assessment software indicate more than 400,999 tons of CO2 could be saved over nine-year contract+



UNITED UTILITIES



Wellington Dock Environmental Impact Assessment
Liverpool, England, United Kingdom

Planning, and environmental impact assessment

- Facility situated in Liverpool's historic docklands in buffer of Liverpool Maritime Mercantile City World Heritage Site
- Scheduled for completion in 2016
- Expected to be able to treat up to 950 million liters of wastewater to the appropriate standard each day
- Planned to create a more efficient facility and help restore the unique environment of the River Mersey
- Preserves the heritage of a great port city



SAUDI ARAMCO



Ras Tanura Refinery Clean Fuels and Aromatics Project
Kingdom of Saudi Arabia

General Engineering Services provider (general engineering and project management)

- Value-improvement practices help identify more than \$100 million in potential clean fuel production savings
- To date, 500,000 workhours completed with no safety incidents
- Expected to provide necessary upgrades to meet European Union clean gasoline and diesel standards
- Professional development programs nurture local Saudi talent

Sustainability in Our World

Through the promotion of safe and sustainable practices we enhance the lives of the people we touch through our business.



The work we do goes beyond client projects: We are committed to not only establishing sustainable practices in our own offices, but also to contributing to the communities in which we live and work.

Many of our offices are already certified through the U.S. Green Building Councils' Leadership in Energy and Environmental Design (LEED) rating system, and others are working toward that goal every day.

“Sustainability is becoming one of the main drivers in our client's projects. Our expertise is essential for providing value services, as part of our value plus or value engineering practices, that focuses on real cost saving to our clients, at initial investment and also at their operating costs. Sustainable projects are beneficial for clients and society, and consequently linked to our core values.”

Carmen

Jacobs, Project Manager
Madrid, Spain

Calgary and Edmonton, Alberta, Canada

Last year we reported on our Quarry Park office in Calgary, Canada and their efforts to become the first of our Canadian offices to be LEED certified. This year the office has advanced significantly with their sustainability efforts.

Implementation of the waste management program is now complete, with highlights listed below:

- Central disposal stations consisting of green organics collection bins, blue recycling bins and black garbage bins (as well as Shred-it bins for paper recycling) are located throughout the project floors and in each kitchen.
- All individuals have been given a personal waste basket for temporary waste storage, and they are responsible for transporting their waste to the central disposal stations.
- All conference rooms have similarly been set up with small green/blue/black bins, to address (especially) disposal of waste from lunch-time meetings.
- The cafeteria and kitchen Styrofoam and non-recyclable paper cups have been replaced with compostable cups, and the cafeteria Styrofoam food containers have been replaced by compostable containers.
- Recycling of bathroom paper towels has been testablished.

SUSTAINABILITY IN OUR WORLD



- Employee education has continued via onboarding for new hires, email updates to the Calgary office residents, signage, and updates at town halls.

The waste management/diversion program has also been very successful. Highlights include:

- Exterior waste storage has shifted from two large dumpsters and one cardboard bin to one garbage dumpster (with less frequent pick-up), one cardboard bin, one paper towel bin, and additional storage for composting and recycling streams.
- Contamination of composting and recycling streams was a concern early on, but through education has been reduced greatly such that off-site composting and recycling facilities experience very low rejection rates of our waste streams.
- For six months operation (the last half of 2012), the program resulted in:
- Diversion from landfill of almost 8,000 kg of mixed recycling (almost five kg/person resident in QP)
- Diversion from landfill of over 16,000 kg of organics (almost ten kg/person) to a 'second life' as farming compost/mulch
- For the year, 1443 trees were saved — almost one tree per QP resident

- The program is the largest retrofit application to date in Canada of a commercial facility, and is being studied closely by the City of Calgary and its Industrial, Commercial & Institutional (ICI) Waste Diversion Stakeholder Engagement Project.

Official LEED certification has been delayed by a year, due to energy reduction challenges.

Application for LEED certification is now being pursued by the building owner at the end of 2013.

Quarry Park is seeing success in serving as a role model for other Jacobs offices. Two of our three offices in Calgary have been converted over to the identical waste management program; the third location will be brought on line this year.

Elsewhere in Canada, our Edmonton office also just moved into a LEED certified building.

Cambridge, Massachusetts, USA

Our Cambridge, Massachusetts, USA, office has been LEED GOLD certified through the LEED Commercial Interiors Rating System since 2009. When we originally had the opportunity to relocate to this office, the fast-track schedule allowed only five months to design and construct the new 15,000-square-foot space. With LEED Gold certification as a goal, emphasis was placed on providing daylight and views to every single employee. Daylight dimming controls save on energy costs, and low panel workstations allow team members to discuss projects as well as develop camaraderie. Offices are left open at the fronts to increase collaborative opportunities, and each has a meeting table that can be used by all.

The limited schedule also generated an intense research aspect, to identify sources and materials that were readily available and would provide high relative design value. Emphasis was placed on a distributed selection of high impact spaces, combined with a creative cost-neutral use of colors, finishes and lighting. Future expansion needs were also factored into the design.

Overall the project and office both serve as learning tools. The process of designing, constructing, and earning LEED certification while acting as both the design team and the client gave us a unique perspective on the challenges and rewards of the sustainable design process. Each team member is now an even stronger advocate and leader for

SUSTAINABILITY IN OUR WORLD

sustainable design initiatives in the industry and in the local community. The office itself is a leader in the field of sustainable design in the local community. In addition to the design and construction of sustainable building projects, we are actively involved in educational initiatives, including LEED training sessions for students, colleagues, and clients in the local building community.

From double sided printing to our energy saving lighting systems, the result of each sustainable practice is clearly demonstrated throughout the office via signage. This assures that both our employees and clients can easily associate each sustainable solution with its direct benefits. This allows the office to act not only as a work space, but also as a learning tool. Through the use of our working office, we can easily demonstrate to clients that a space which is sustainable can also be both cost effective and aesthetically pleasing for employees to work in.

Some additional sustainable features of this office include:

- Lighting design includes highly efficient fixtures and a sophisticated lighting controls system to reduce energy consumption
- Nearly all of the furniture in the office space is either salvaged or reused
- 100 percent of electrical energy purchased from renewable sources, demonstrating support for the development of renewable technologies in the community
- Increased outdoor air ventilation and open floor plan maximize natural daylight and contribute to a comfortable, pleasant indoor environment for the employees and visitors to the office space
- The 15,800-square-foot space was broken into 14 separate HVAC control zones to optimize the controllability and efficiency of each area of the office
- We worked with the building owner to upgrade some of the base building systems including the common bathrooms
- Urinal flush valves were replaced with more efficient fixtures, conserving 8,000 gallons of water per year at each urinal

Chicago, Illinois, USA

In Chicago, Illinois, USA, our office has achieved LEED Silver certification. Some sustainable features of the office include:

- All non-emergency lights are on motion sensors and shut off rooms and areas when not in use
- LED down lights and exit lighting
- Task lighting to reduce overall general lighting requirements
- Daylighting: all work spaces have direct access to windows or a building atrium, and no window view is blocked
- Low flow faucets
- Point-of-use domestic hot water heaters
- Internal recycling of cans, paper and more is managed by our building owner



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Denver, Colorado, USA

The Denver, Colorado, USA office is currently under review for LEED certification through the LEED Commercial Interiors Rating System 2009. The design team is currently awaiting the results of the USGBC review for determination of whether the project is awarded a Gold or Platinum rating. The downtown Denver office is the new 129,660-square-foot work space; the combined former offices of Golden, Colorado, and downtown Denver. With LEED Gold certification as a goal, emphasis was placed on providing daylight and views to every single employee, as well as providing a work environment that is environmentally responsible.

The open office design strategy that has been implemented for the office maximizes the daylight potential and takes advantage of the 360 degree views to the outside. This enables to maintain visual connection to the surrounding environment. Every workstation has a view to the outdoors. As a result, 96 percent of the regularly occupied spaces have been provided with natural light.

In addition to promoting daylight and views, the work stations have contributed to multiple LEED credits. The work stations contain wood based products that were certified in accordance with the Forest Stewardship Councils Principles and Criteria, which encourages environmentally responsible forest management. The workstations contain 15 to 30 percent recycled steel, 20 percent recycled content aluminum, and 100 percent recycled particleboard content. By providing products that contain recycled content the Denver office has reduced the negative impacts from extraction and processing of raw materials.

Some additional sustainable features of this office include:

- Office location adjacent to numerous bus routes and four light rail stops allows for public transportation to and from work for all employees
- Eco passes are offered to all employees to encourage the use of mass transit over driving personal vehicles
- The office building provides bicycle storage and men's and women's showers for

employees who bike to work

- High efficient water conserving toilets and sinks have been installed in the restrooms. Both toilets and faucets are equipped with motion sensors. Low flow toilets, sinks, and showers add to the water saving strategies that account for 31 percent water savings per year
- Lighting controls implemented in the design allow each occupant to adjust task lights as required at individual workstations. Occupancy sensors have also been installed to further control lighting levels. These measures are intended to promote productivity, comfort, and wellbeing of building occupants
- Jacobs has enrolled in a two year Green power Program by purchasing Renewable Energy Credits. Purchasing the credits helps channel fund to recently built renewable energy facilities such as wind farms and solar power generating stations
- During the construction process the construction team implemented and followed a construction waste management plan. The intent of this plan was to divert construction and demolition waste from landfills and redirect recyclables recovered resources back to the manufacturing process. They have met a diversion rate of 95 percent.



SUSTAINABILITY IN OUR WORLD

Energy Efficiency Awareness Through Real-Time Technology

Jacobs' Irvine, California, USA, office (LEED Platinum CI) recently launched our first Real-Time Energy Tracker Monitor for two sub-metered office floors. Benefits have been immediate and employees are modifying behaviors around energy efficiency habits.

As general education and awareness of energy consumption usage becomes more prevalent throughout Jacobs, the Irvine office has implemented an energy monitor that provides energy data. Tools like the Energy Monitor dashboard can effectively monitor on-demand energy consumption. The initiative could lead to implementing a Pilot Energy Monitoring Program where monitoring devices are placed in various offices company-wide, and actual energy usages are tracked over time.



Energy Tracker- Jacobs Irvine, CA office

Jacobs Irvine Office Awarded LEED® Platinum for Commercial Interiors

Jacobs' Irvine office at the Michelson Building has been awarded the Leadership in Energy and Environmental Design (LEED®) Platinum certification for Commercial Interiors. The Platinum rating is the highest achievable level of LEED certification by the U.S. Green Building Council.

As the designer and client, Jacobs had the unusual opportunity to implement our sustainable building practices in our business and office spaces. Throughout the design of the 50,000-square-foot Irvine office environment, we used an "open office" workplace strategy, including the use of full-height and transom glass, maximizing natural daylight. Additional sustainable highlights of the office include the purchase of Forest Stewardship Council (FSC) Certified Wood for the millwork and workstations; use of low-emitting paint, adhesives and carpet; implementation of Green Education elements, including real-time energy usage; and use of LED signage and lighting controls to minimize energy use.

The 19-story Michelson Building, located at 3161 Michelson Drive in Irvine, Calif., was designed by Richard Keating, Jacobs' Managing Principal of Architecture and Design. The building's floor plan is designed for optimum efficiency and flexibility, with floor-to-ceiling windows that offer 360-degree views of the outdoor environment.

"The Jacobs Irvine office's LEED certification demonstrates tremendous green building leadership," said Rick Fedrizzi, President, CEO & Founding Chair of the U.S. Green Building Council. **"The urgency of USGBC's mission has challenged the industry to move faster and reach further than ever before, and the Jacobs Irvine office serves as a prime example with just how much we can accomplish."**



SUSTAINABILITY IN OUR WORLD

Drive Less Initiative

Our Drive Less initiative focuses on improving safety, reducing and eliminating motor vehicle incidents, reducing our miles driven, and reducing many of the negative environmental impacts associated with driving. To avoid driving while on company business, we ask employees to evaluate all alternatives and options prior to driving a vehicle. Options include: conference calling, WebEx conferencing, video conferencing, public transportation, carpooling, taxi, walking, or bicycling.

When traveling, we recommend employees choose lodging that is close to their destination, and also suggest they consider nearby restaurants and other services. Staff are further encouraged to adopt the Drive Less philosophy through transportation fairs held in various offices. The fairs relay information about travel options to and from offices.

Drive Less plans are currently in place many of our offices across the country. Where plans are complete, program information is available on the local office's page on our intranet site. As plans are implemented in more of our offices, we anticipate a reduction in motor-vehicle incidents and a reduction of our carbon footprint.

Our Drive Less Plan Provides

- Easy access to public transportation information and links to pages on bus, train, light rail, and subway transit schedules on the local office pages of Jacobs' intranet site
- Information about local taxi services and shuttles, the nearest hotel and lodging options, medical facilities, and pharmacies
- Encouragement and support from local management, including coordination with the local work location to improve options, such as placement of a safe bicycle rack

Print Sustainability Statement 2012

Our print sustainability initiative continues to grow across the Jacobs world. In 2012 we have expanded the program to include offices in China, Australia, Mexico, Chile, Peru and South Africa while continuing to expand on existing regions in the United States, Canada, Asia and Europe.

By the Numbers

Our paper savings for 2012 reached 37 million pages, equating to 74,250 reams (206 tons and 4,455 trees saved) in production, which directly impacts CO₂ emissions and effluent output. Additionally, our paper supply is recycled or comes from sustainable sources.

The energy consumption of every new print device is only about 25 percent of the consumption of older devices, and the devices themselves all comply with international standards on materials and sustainability codes.

Expanding the Program: Clients Included

Every new office or acquisition is targeted by the print program along with exploring possibilities with project/client sites which will bring fiscal as well as sustainability gains across the globe. This continues to feed both our value-add program and the new sustainability plus initiative.

Our target methodology has continued in 2013 in that we have continued to reduce committed printed volumes by increasing duplex printing, removing inefficient devices, and moving to shared printing model.

We have also introduced scan to digital document to replace traditional copying which will reduce storage costs and further drive down paper reductions. Our duplex global average per month is now more than million on a print volume of 16 million pages.

- 37 million pages (74,250 reams)
- 4,455 trees
- 206 tons
- 25 percent energy



Jacobs College

Established in 1993, Jacobs College offers educational opportunities to our employees or targeted leadership and management development. By educating our employees and enhancing their

SUSTAINABILITY IN OUR WORLD

leadership and managerial skills, we enable them to represent our company in the best way possible. Jacobs College immerses participants in a learning atmosphere that leads to a better understanding of our core values and improves their ability to serve our clients, and to train and to lead others. Through a deeper understanding of our core values, these employees perpetuate our commitment to sustainable development.

Goals of Jacobs College

- Improve leadership talent
- Share our organization's culture and success factors
- Institutionalize success by passing on lessons learned
- Increase our ability to provide greater value to our clients

Jacobs Academy

Dr. Mostafa Terrab, Chairman and CEO of our joint venture partner OCP, has been a driving force in the creation of Jacobs Academy: an organization intended to educate participants in project and construction management fields focused on Morocco.

Curriculum emphasizes:

1. Safety Culture/Leadership
2. Project and Construction Management/Leadership Skills
3. Business Leadership

Classes commenced in May 2013 as a six-day workshop encompassing classroom sessions, interactive exercises, case studies, group discussion and information sharing. Sized for 25 participants per session, we plan to have 300 participants complete the curriculum during the academy's first year. Other courses in development include behavioral and soft skills training modules such as global dexterity, team-building, communication, building a career path, and personal interaction, as well as a training catalog of on-job and on-site how-to workshops.

The long-term vision of Jacobs Academy is for it to be an effective vehicle to leverage our capabilities and knowledge transfer in connecting trans-generational people while facilitating innovative development.

Amar Drissi, OCP Executive Vice President, Operations, is looking forward to the depth of knowledgeable personnel that is to be nurtured and cultivated at Jacobs Academy. "The best tools are currently not addressed in the local market," Drissi said. "With the creation of Jacobs Academy we have the opportunity to develop world-class players with world-class tools."

Health-Safety-Environment (HSE) Training

Another course offered by Jacobs Academy is the Health, Safety, and the Environment module with overall goals to reinforce our safety culture and further a safety revolution, where safety remains a top priority and is encompassed in all that a participant does.

Each participant experiences a full eight-hour day of training, including lessons on Safe Plans of Action, working at height, health and hygiene, and how to manage risks associated with other common construction tasks. Eventually, we expect to train 16,000–20,000 construction workers per year.



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Jacobs Foundation Scholarship

We introduced the Dr. Joseph J. Jacobs Global Scholarship Program in 2009 in memory of our founder, Dr. Joseph J. Jacobs. His vision, leadership, and commitment to our business helped make this company one of the world's largest and most diverse providers of technical, professional, and construction services. Over the last four years, the Jacobs Engineering Foundation has awarded 80 academic scholarships of \$3,000 each from more than 1,400 applications received. We are delighted to offer this opportunity again in 2013 and look forward to many more applicants.

The program is independently administered by Scholarship Management Services, a division of Scholarship America, the nonprofit educational support and student aid service organization.

Health-Safety-Environment (HSE) Training Organization

To date, Jacobs has excelled at changing the mindsets of both client and contractors in regards to safety. To further our commitment to safety at all levels, our Morocco office recently launched a new Health-Safety-Environment (HSE) Training Organization. A \$7.5 million investment, the overall goal of the HSE Training Organization is to reinforce our safety culture and further a safety revolution, where safety remains a top priority, and is encompassed in all that we do.

The HSE Training Organization has three segments: 1) General worker training, 2) a professional mentoring program for hundreds of safety professionals, and 3) a professional development program for the top 40-50 safety professionals. About 50 people are responsible for coaching, mentoring, and development at the Organization.

The first courses were held on our HSE Training Campus in Jorf Lasfar, Morocco, in early May 2013 and covered basic construction safety knowledge and skills. Each worker goes through a full eight-hour day of training, including lessons on Safe Plans of Action (SPAs), working at height, physical training, hazards, and risk reduction. Eventually, we expect to train 16,000 construction workers across the country.

Andy Barker, Jacobs HSE Director in Morocco, notes that the HSE Training Organization is a game changer at many levels. The organization

can provide life-long learning experiences to all participants, giving them knowledge and skills to carry with them not only on the job-site but in their daily lives. Through this passing on of information, we are giving something valuable back to the communities where we live and work.

Active for Life

We offer an array of programs to keep our employees and their families feeling their best, including health and fitness challenges, screening assessments, health coaching, a 24-hour access by phone to nurses, and more. This year, we took one of these programs, Active for Life, to the next level.

Active for Life is a team-based, 10-week voluntary program that encourages employees to get healthy through fun activities and friendly competition. In 2013, we took the Active for Life program global, making it available to employees around the world. For the first quarter of 2013, we had more than 50 teams from multiple regions, including the United States, Asia, India, Mexico, Ireland, Europe, the United Kingdom, and the Middle East.



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To help individuals find activities and exercises that work best for them, the program allows each participant to set their own goals and to join teams for support and motivation. Personal goals may range from moderate activity like walking, to more intense activities such as tennis or running.

To keep track of their progress, participants receive a point for each minute they are active daily and record the number of points they earn toward their total point goal. In addition to earning points for exercise, participants can also earn one-time bonus points. These points may be used only once during the 10-week period. Just a few examples of bonus-point activities include: getting a flu shot, attending a nutrition or weight management seminar, using a pedometer, or attending a smoking-cessation class.

At the end of the 10-week program, team points are reviewed and awards are made for goals met. Our Corporate Benefits department identifies regional and team winners based on the highest

What some Jacobs employees had to say about Active for Life:

Serving as a team captain has made me more disciplined in my exercise routine ... I've not only improved my health numbers, but also increased my energy level!"

~Nellie, Pasadena, CA, USA

I'm much more driven to exercise and my diet has changed to take in more healthy options for every meal. I've also seen a change in attitude across other team members as well, so it hasn't been just me reaping the benefits."

~ Mike, Northhallerton, United Kingdom

"With a goal of Health and Wellness, the campaign brought about bonding amongst team members and created a sense of accomplishment that keeps us fit and fresh in our work."

~ Sandip, Ahmedabad, India

"Knowing I could help my team succeed made me strive beyond what I thought I could fit into my schedule."

~Mary Kate, Boston, MA, USA

"I just went to my six-month checkup with my doctor. When I told him I typically exercise 300 to 450 minutes a week, his jaw dropped.

~Catherine, Washington, District of Columbia, USA

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percentage of goal met and percentage of participation. The top three teams are to be determined solely by highest percentage of goals met. Because we value every individual who strives to improve his or her health and fitness, all Active for Life Program participants — not just our challenge winners — will receive recognition for their efforts.

JHealth Celebrates Second Year

2013 marks the second anniversary of JHealth, the health and well-being program in our Australian offices. A key health-focused component of our BeyondZero® program across Jacobs' Australian operations, we launched JHealth with the purpose of helping our people live healthy lifestyles through support and education.

As part of JHealth, we invite trained health professionals to visit offices regularly, providing health assessments, advice, and information via short meetings, lunch-and-learn presentations, and materials available on the Internet. Confidential one-on-one sessions are available for employees on an ongoing basis.

In the past year, we've facilitated more than 903 one-on-one health sessions and conducted 28 "toolbox"-style health-awareness sessions across all Australian offices, covering topics such as sleep and fatigue, heart health, stress, anxiety and depression, men's health, bone health, and exercise. Throughout the country 245 ergonomic assessments and follow-ups have been completed. We have also initiated "warm up for work" protocols in our Perth office.

Many success stories have resulted from the JHealth program, including the outstanding accomplishment of four employees in one office whom have lost more than 100 kg among them. Improved sleep quality and quantity have also been reported by many JHealth participants.

Employee Charitable Donations for 2012

To make it easier for employees to give to the charitable organization of their choice, a few years ago we implemented our online charitable donation system, a solution that eliminated the

need for thousands of paper forms. With a few simple clicks, employees can give to their local United Way or to another non-profit organization of their choosing. Many employees in the United States choose to support their local communities through United Way, and the online system makes it possible to reach more communities each year. In 2012, employees donated to 66 different United Way organizations.

As Jacobs grows, so do the interests of our employees. In 2011 we added additional charitable federations America's Charities and Global Impact. In 2012, and continuing in 2013, we are spotlighting our wellness program partners the American Cancer Society and the American Heart and Stroke Associations. These groups represent thousands of non-profit organizations and communities. The additional options helped increase giving by U.S. employees to \$1.19 million, an almost a \$100,000 increase from the \$1.1 million donated in 2011.

Our expansion in online giving options continues in 2013 with Jacobs United Kingdom offices' launch of the Charities Aid Foundation's (CAF) "Give As You Earn" program. The system allows employees to give to more than 160,000 registered U.K. charities or to the charitable cause of their choice locally, nationally, or internationally. CAF reports that the Jacobs first quarter results of more than £18,260 exceeded expectations for an online-only campaign. ■



Unshakable Sustainability

Our core values are the unshakable foundation that furthers our growth as a business as well as our commitment to sustainable development. Sustainability is ingrained in our projects and business practices as well as in our people and our culture. The many and varied ways we help our clients attain their sustainable project goals allow you to see our philosophy in action.

We See Sustainability Differently.

GRI Index

GRI Criterion #	Description	Section
Strategy & Analysis		
1.1	Statement from the most senior decisionmaker of the organization.	Executive Letter
1.2	Description of key impacts, risks, and opportunities.	Executive Letter
Organizational Profile		
2.1	Name of the organization.	Appendix
2.2	Primary brands, products, and/or services.	Appendix
2.4	Location of organization's headquarters.	Appendix
2.5	Number of countries where the organization operates.	Appendix
2.6	Nature of ownership and legal form.	Appendix
2.7	Markets served (including geographic breakdowns, sectors served, and types of customers/beneficiaries).	Appendix
2.8	Scale of the reporting organization.	Appendix
2.9	Significant changes during the reporting period regarding size, structure, or ownership.	Appendix
2.10	Awards received in the reporting period.	Appendix
Report Parameters		
3.1	Reporting period (e.g., fiscal/calendar year) for information provided.	Appendix
3.2	Date of most recent previous report (if any).	Appendix
3.3	Reporting cycle (annual, biennial, etc.).	Appendix
3.4	Contact point for questions regarding the report or its concerns.	Appendix
3.5	Process for defining report content.	Appendix
3.6	Boundary of the report.	Appendix
3.7	State any specific limitations on the scope or boundary of the report.	Appendix
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period.	Appendix
3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report. Explain any decisions not to apply, or to substantially diverge from, the GRI Indicator Protocols.	Appendix

GRI INDEX

GRI Criterion #	Description	Section
3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g., mergers/acquisitions, change of base years/ periods, nature of business, measurement methods).	Not Applicable
3.11	Significant change from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	No changes
3.12	Table identifying the location of the Standard Disclosures in the report.	GRI Index
3.13	Policy and current practice with regard to seeking external assurance for the report.	Appendix
Governance, Commitments, and Engagement Governance		
4.1	Governance structure of the organization, including committees under the highest governance body responsible for specific tasks, such as setting strategy or organizational oversight.	Appendix; www.jacobs.com
4.2	Indicate whether the Chair of the highest governance body is also an executive officer.	Appendix; www.jacobs.com
4.3	For organizations that have a unitary board structure, state the number of members of the highest governance body that are independent and/or non-executive members.	Appendix; www.jacobs.com
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	Appendix; www.jacobs.com
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance).	Appendix
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided.	Appendix; www.jacobs.com
4.7	Process for determining the qualifications and experience of the highest governance body for guiding the organization's strategy on economic, environmental, and social topics.	Appendix; www.jacobs.com
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.	Appendix
4.9	Procedures for the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.	Appendix; www.jacobs.com
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	Appendix; www.jacobs.com
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	Appendix
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.	Appendix
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization: * Has positions in governance bodies; * Participates in projects or committees; * Provides substantive funding beyond routine membership dues; or * Views membership as strategic.	Appendix

GRI INDEX

GRI Criterion #	Description	Section
4.14	List of stakeholder groups engaged by the organization.	Appendix
4.15	Basis for identification and selection of stakeholders with whom to engage.	Appendix
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	Appendix
4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	Appendix
Economic		
Economic Performance		
EC1	Economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments. (Core)	Appendix
EC3	Coverage of the organization's defined benefit plan obligations. (Core)	Appendix
EC4	Significant financial assistance received from government. (Core)	\$0
Market Presence		
EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation. (Core)	Partial Report, Appendix
Indirect Economic Impacts		
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement. (Core)	Appendix
Environmental		
Materials		
EN1	Materials used by weight or volume. (Core)	Appendix
EN2	Percentage of materials used that are recycled input materials. (Core)	Appendix
Energy		
EN5	Energy saved due to conservation and efficiency improvements.	Appendix
EN6	Initiatives to provide energy-efficient or renewable energy-based products and services, and reductions in energy requirements as a result of these initiatives.	Our Processes & Tools; Appendix
EN7	Initiatives to reduce indirect energy consumption and reductions achieved. (Additional)	Our Processes & Tools; Appendix
Biodiversity		
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas. (Core)	None

GRI INDEX

GRI Criterion #	Description	Section
Emissions, Effluents, and Waste		
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	Our Processes & Tools; Appendix
Products and Services		
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation. (Core)	Our Processes & Tools; Appendix
Social Performance: Labor Practices & Decent Work		
Employment		
LA1	Total workforce by employment type, employment contract, and region. (Core)	Appendix
LA2	Total number and rate of employee turnover by age group, gender, and region. (Core)	Appendix
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations. (Additional)	Appendix
LA4	Percentage of employees covered by collective bargaining agreements. (Core)	Appendix
Occupational Health and Safety		
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs. (Additional)	Appendix
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region. (Core)	Injury Rate – 0.33; Occupational Disease Rate – 0.002; Lost Day Rate – 0.07; Days Lost – 1,795 Absenteeism: do not track
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases. (Core)	Appendix
Training and Education		
LA10	Average hours of training per year per employee by employee category. (Core)	Appendix Our Processes & Tools
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings. (Additional)	Sustainability in Our World
LA12	Percentage of employees receiving regular performance and career development reviews. (Additional)	Sustainability in Our World
Diversity and Equal Opportunity		
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity. (Core)	Partial Report; Appendix

GRI INDEX

GRI Criterion #	Description	Section
Social Performance: Human Rights		
Investment and Procurement Practices		
HR1	Percentage and total number of significant investment agreements that include human rights clauses or that have undergone human rights screening. (Core)	Appendix
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken. (Core)	Appendix
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained. (Additional)	Appendix
Child Labor		
HR6	Operations identified as having significant risk for incidents of child labor, and measures taken to contribute to the elimination of child labor. (Core)	Appendix
Forced and Compulsory Labor		
HR7	Operations identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of forced or compulsory labor. (Core)	Appendix
Social Performance: Society		
Corruption		
SO2	Percentage and total number of business units analyzed for risks related to corruption. (Core)	Appendix
SO3	Percentage of employees trained in organization's anti-corruption policies and procedures. (Core)	Appendix
SO4	Actions taken in response to incidents of corruption. (Core)	Appendix
Public Policy		
SO5	Public policy positions and participation in public policy development and lobbying. (Core)	Appendix
Anti-Competitive Behavior		
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes. (Additional)	None
Social Performance: Product Responsibility		
Products and Service Labeling		
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction. (Additional)	Appendix

GRI INDEX

GRI Criterion #	Description	Section
Marketing Communications		
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship. (Core)	Appendix
PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes. (Additional)	None
Customer Privacy		
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data. (Additional)	None
Compliance		
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services. (Core)	\$0

The following lists the GRI criterion that we have determined are either not material to our stakeholders, or we are not prepared to report on at this time:

EC2, EC5, EC6, EC9, EN3, EN4, EN8, EN9, EN10, EN12, EN13, EN14, EN15, EN16, EN17, EN19, EN20, EN21, EN22, EN23, EN24, EN25, EN27, EN28, EN29, EN30, LA5, LA9, LA14, HR4, HR5, HR8, HR9, SO1, SO6, SO8, PR1, PR2, PR3, PR4

Appendix

A. ORGANIZATIONAL PROFILE

Jacobs Engineering Group Inc. is one of the world's largest and most diverse providers of technical, professional, and construction services, including all aspects of architecture, engineering, and construction, operations and maintenance, as well as scientific and specialty consulting. We serve a broad range of companies and organizations, including industrial, commercial, and government clients across multiple markets and geographies.

Our global network includes more than 170 offices in more than 25 countries, with operations in North America, South America, Europe, the Middle East, India, Australia,

Africa, and Asia. We were founded in 1947 and our headquarters is in Pasadena, California.

Jacobs' common stock has been publicly held since 1970 and is currently listed on the New York Stock Exchange under the trading symbol JEC. Our 2011 revenue is 10.4 billion.

For more information about Jacobs' sustainable practices or to comment on this report, please contact us at: contactus@jacobs.com.

Countries Where We Have a Presence

Australia	India	Saudi Arabia
Belgium	Ireland	Scotland
Canada	Italy	Singapore
Chile	Mexico	South Africa
China	Morocco	Spain
Czech Republic	Netherlands	Sweden
England	Northern Ireland	United Arab Emirates
Finland	Oman	United States of America
France	Peru	Wales
Germany	Poland	
Greece	Puerto Rico	



Market Sectors

Aerospace & Defense	Environmental, Water & Wastewater	Mission-Critical & High-Tech Facilities	Power & Utilities
Automotive & Industrial	Food, Beverage, Forest & Consumer Products	Oil & Gas	Refining & Petrochemical
Buildings	Mining & Minerals	Pharmaceuticals & Biotechnology	Transportation
Chemicals			

B. SUSTAINABLE SERVICES

EPCM	Corporate Responsibility	Carbon Management	Public Sector	Climate Change
BREEAM / LEED	Verification	Carbon footprinting and accounting	Strategy and policy	Reporting
CEEQUAL	Auditing	Sustainable energy auditing	SD assessments	Design impacts on developments
Master planning	Management systems	Carbon strategy development	Environmental	Planning
Sustainability assessments	Waste minimization	Low and zero carbon technology	Impact studies	Risk assessments
Life cycle reviews		GHG certification and compliance	Reporting and measurement	Adaptation advice
Energy efficiencies			Procurement	Scenario planning
Materials selection (incl. carbon)			Community / stakeholder consultation	
Sustainable design				
Commissioning				

APPENDIX

C. REPORT PARAMETERS

Reporting Period/Most Recent Report/Report Cycle & Boundaries/Point of Contact

In this *Sustainability Report* we utilize the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines. We report only on the G3 indicators that were relevant and measurable for our business operations in 2012. The report is inclusive of data from Jacobs and all related entities, with no limitations. See our investor relations section at www.jacobs.com for more information. This report has not been audited by a third party (e.g., GRI, etc.). Prior to our 2013 report, our most recent report was published in 2012. We publish a Sustainability Report annually. Content for this report was defined based on GRI requirements and the needs of our stakeholders. For more information about Jacobs please contact: contactus@jacobs.com.

Data Measurement Techniques & the Basis of Calculations

Jacobs' data measurement techniques and basis of calculations vary according to the entity to which we report. We adhere to all rules and regulations for the various agencies and governing bodies to which we report on topics, including safety, earnings, and more. Additional data and calculation basis vary by specific tool, science, or methodology used, which is dependent on the client, the project, and the project requirements.

D. BUSINESS CONDUCT & ETHICS

Corporate Policy Concerning Business Conduct, Integrity, & Ethics

Our founder, Joseph J. Jacobs, once wrote that honesty has remained a constant driving force of our success. He believed our principles of business conduct sustain our company culture and are recognized and awarded by our clients and by the market system. As he wrote in our 50th anniversary booklet, "Our high standards provide the structure that will bridge past success with a bright future."

From the day they are hired, Jacobs employees are given the tools they need to understand and adhere to our ethical standards. New employee orientation includes foundation training for all employees on our Business Code of Conduct. Each year our staff employees are required to review the Business Code of Conduct and reaffirm their understanding. Additional supplemental training is required to be completed every other year by our supervisors/managers and other employees depending on their role in the company.

See our Business Conduct Policy on our investor relations page at www.jacobs.com for more information.

Training

Jacobs also established a Global Ethics and Compliance training initiative program to further help employees understand the legal and ethical standards that must be upheld. Our organization-wide program is designed to provide a strong learning foundation and supplemental training, such as those conducted through regional training efforts, at our Annual Business Meeting, and through Jacobs College. Since 2005, Jacobs College has offered senior leader-led training with modules dedicated to ethics. Training is highly interactive, leveraging actual company scenarios.

Due to our many geographic locations around the world, the majority of our training is delivered through on-line learning. The training is enhanced with in-person learning events.

The following concepts are woven throughout all on-line compliance courses:

- Observance of moral and ethical standards of society and fair dealing
- Reporting and resolving suspected irregularities
- Corporate governance
- Jacobs Integrity Hotline

Jacobs Integrity Hotline is a worldwide reporting line answered 24 hours a day, seven days a week by a professional independent contractor. Calls are confidential and can be anonymous.

We take ethics very seriously. Violation of company policies have severe consequences, including termination of employment.

All Jacobs employees and business partners are expected to be guided by the following principles as they carry out their responsibilities:

- Loyalty
- Compliance with applicable laws
- Observance of ethical standards
- Conflict of interest
- Communication

In addition to the Business Code of Conduct Reaffirmation, Jacobs offers additional ethics and compliance courses, including:

- Procurement Integrity
- Information Security
- Insider Trading
- Conflicts of Interest
- Global Bribery and
- Corruption Awareness

Jacobs and its affiliates and subsidiaries have always followed the highest principles of business conduct, integrity, and ethics. That is the reputation we now enjoy. We intend to keep it. Our corporate policy concerning business conduct, integrity, and ethics for the United States and internationally is available on our public web site: www.jacobs.com.

E. PUBLIC FILINGS

SEC Regulations

Jacobs is a publicly traded company on the New York Stock Exchange, (NYSE: JEC) and we are regulated by the U.S. Securities and Exchange Commission (SEC). For additional information about Jacobs, please see our *2012 Form 10-K* and other filings available on the investor relations section of our public website www.jacobs.com.

F. ORGANIZATIONAL PROFILE

Significant Changes in Size, Structure, & Ownership

Jacobs acquired Lend Lease Construction – Consulting Project Management Business, a 48-person firm serving the infrastructure market. The two offices are located in Sydney and Brisbane, Australia.

In June 2013, Jacobs also acquired Compass Technology Services, Inc. (Compass) which was headquartered in Atlanta, Georgia, USA.

During the course of the year, John Jumper resigned from the Board of Directors, and Tom Niles did not stand for re-election. Both made many significant contributions to our growth and performance during their tenure on the board.

During the course of the year, Ben Montoya retired and did not stand for re-election to our Board of Directors in Jan 2013.

New to Jacobs Board of Directors: Ralph "Ed" Eberhart (elected Oct. 2, 2012), Christopher Thompson (elected Nov. 19, 2012), and Juan Jose Suarez Coppel (elected March 29, 2013).

APPENDIX

G. GOVERNANCE, COMMITMENTS, & ENGAGEMENTS

Membership in Associations & Advocacy Organizations

Listed below are just some of the principal associations with which Jacobs is involved or holds membership:

- AACE International: The Authority for Total Cost Management
- Airport Consultants Council (ACC)
- Airport Ground Transportation Association (AGTA)
- Airports Council International, North America (ACI)
- Airport Minority Advisory Council (AMAC)
- American Association of Airport Executives (AAAE)
- American Concrete Institute (ACI)
- American Council of Engineering Companies
- American Institute of Architects (AIA)
- American Institute of Steel Construction (AISC)
- American Planning Association (APA)
- American Public Works Association (APWA)
- American Segmental Bridge Institute (ASBI)
- American Society of Civil Engineers (ASCE)
- American Society of Highway Engineers (ASHE)
- American Society of Landscape Architects (ASLA)
- American Water Works Association (AWWA)
- American Railway Engineering (AREMA)
- ASHRAE
- Asian American Architects and Engineers Association (AAa/e)
- Associated Builders and Contractors, Inc. (ABC)
- Construction Industry Advisory Council
- Construction Industry Round Table (CIRT)
- Construction Users Round Table (CURT)
- Corporate Executive Board (CEB)
- Federal Bar Association (FBA)
- International Association of Foundation Drilling (ADSC)
- International District Energy Association (IDEA)
- International Council of Shopping Centers (ICSC)
- National Groundwater Association (NGWA)
- National Society of Professional Engineers (NSPE)
- National Council for Public Private Partnerships (NCP3P)
- PCI International Inc.
- Procurement Executives
- Project Management Institute (PMI) Group
- Real Estate Council
- Retail Design Institute
- Risk Management Society (RIMS)
- Safety Council
- Society of American Military Engineers (SAME)
- The Urban Land Institute (ULI)
- United States Green Building Council (USGBC)
- Water Environment Federation (WEF)
- Water Reuse Association

List of Stakeholder Groups Engaged by the Organization

At Jacobs we are committed to being open and transparent for our stakeholders. Our stakeholders are, inclusively, our clients, employees, shareholders, subcontractors, suppliers, business associates, the communities where we work and live, and society at large.

Stakeholder Engagement

We engage in open and transparent communication with our stakeholders in various ways at many levels every day. As required by the GRI guidelines, the following information details the ways in which we engage with specific stakeholder groups. The basic tenets of our core values — people, relationships, growth — provide the structure for all of our engagements.

Our Clients — We are a relationship-based company. Our Client Expectation and Client Satisfaction Surveys are a formal process that allow us to go beyond the traditional expectations of safety, cost, and schedule, to truly understand our clients' expectations. The survey process creates a unique venue and opportunity for our employees to align with clients on sustainability issues, and to determine a course of action. We measure ourselves against meeting client expectations and pinpoint where we can improve. Our resulting improvements are not just words, but suggestions put into action. Over the years our Client Satisfaction Survey scores have increased, and we are currently more than 91 percent. We are proud of this accomplishment and driven to continue to improve these scores year after year.

Our Investors — We are committed to transparency, and communicate regularly with our shareholders and other contacts in the world financial arena. As a publicly traded company on the New York Stock Exchange, we are regulated by the U.S. Securities and Exchange Commission (SEC). More information on our responsibilities to our shareholders can be found on www.jacobs.com.

Our Employees — Due to the size and geographic diversity of our company, it is vital that we actively engage with our employees. We do this through a variety of methods, from face-to-face interaction, to a robust intranet site, to training programs and all-employee e-mails.

Examples of Specific Activities

Our People Metrics employee opinion survey, conducted bi-annually, gathers employees' perceptions about their work experience. In 2011, more than 29,000 employees participated in our People Metrics survey. We have found from our survey results that we have a highly engaged workforce and strong survey results as compared with other companies in the professional service area.

Our Annual Business Meeting brings together a mix of our top leaders at the beginning of each fiscal year. Fiscal results for the previous year and goals for the next 18 months are reviewed.

Creation of a CEO Annual Video, which is distributed throughout the company. Jacobs' Professional Women's Collaborative, created in 2006, provides women the opportunity to build multinational networks, develop leadership and technical skills, and enhance their careers at Jacobs. We also maintain a Women's Collaborative page on JNet, our internal Web site. This page includes an "Employee Spotlight," a "Women on the Move" highlight feature, and other resources.

Training: Average hours of training per employee = 11.76

Jacobs is currently implementing a Learning Management System (LMS) as a module within Oracle HR to track employee training. Using surveys of each operating unit, it is our estimate that employees complete an average of 11.76 hours of training internally per year.

APPENDIX

TRAINING & DEVELOPMENT RELATED EXPENSES FOR FY2012

EXPENSE	AMOUNT
Salaries (wages while attending training)	\$9,188,448
Employee Training (expense for training)	\$3,894,443
Tech & Management Conferences	\$3,825,854
Professional Dues & Memberships	\$3,771,263
Tuition Assistance	\$922,914
Corporate T&D Department	\$1,078,767
Total	\$22,681,689

- FY12 hours of training on human rights: 11,339 hours; 5,859 people (15% of staff employees)
- Preventing Workplace Harassment: 5,140 people (1 hour course)
- Preventing Workplace Violence: 5,083 hours completed by 5,083 individuals
- Creating an Inclusive Environment: 340 people (2 hour module of Management Leadership Course)
- Employees may receive life transition support through our Employee Assistance Program
- Ethics from a Cultural Perspective – 379 people (1 hour presentation at Annual Business Meeting)

In February 2012, through Towers Watson we conducted our People Metrics survey where employees share their perceptions regarding their working experience at Jacobs. One of the survey categories is “Career Development & Training” with four items:

- “I believe I have the opportunity to learn and grow at Jacobs”
- “Jacobs provides people with the necessary information and resources to manage their own careers effectively”
- “I think Jacobs is doing a good job of retaining its most talented people”
- “I am given sufficient access to training opportunities”

Note: Our next People Metrics survey is scheduled for 2015.

PEOPLE METRICS	2013	2011	2009	2007	2005	2003
Completed Surveys	34,655	28,672	29,786	24,360	13,752	14,067
Participant Rate	79%	73%	73%	74%	70%	71%
Average on Individual Items	80%	77%	78%	74%	66%	63%

We follow the laws, rules, and regulations of every place and country in which we work. Our core values reinforce our standards of ethical, humane treatment of all people. We take action every day to ensure a safe, inclusive, and engaging work environment for our employees, our clients, and our stakeholders. Therefore, we have developed programs and processes that help us track and improve our policies on diversity, safety, the environment, and human rights wherever we work around the globe.

Human Rights & Labor Laws

All employees are expected to comply with all laws, rules, and regulations of all U.S. and non-U.S. governmental entities, and other private and public regulatory agencies. Adhering to human rights and labor laws is of great importance to us and we expect the companies we associate with to do the same.

Human rights and labor are the most prominent prequalification criteria of our partner and subcontractor evaluation and selection process. We do not work with any company that does not respect the United Nations’ Universal Declaration of Human Rights. All partners and subcontractors must also adhere to the international labor conditions defined by the International Labor Organization (ILO). We screen 100 percent of prospective partner and subcontractor companies before entering into any contract. This includes a review of ethics, human rights regulations, labor conditions, safety standards, quality measures, environmental policy, cost, and schedule. If a company does not qualify on any of these terms, our policy deems we do not work with that company.

Our prequalification process for vendors and suppliers is the same as the process for partners and subcontractors. For qualified suppliers with whom we enter into a signed contract, a monitoring system goes into effect.

Our employees are trained in all applicable laws, and our inspectors and project personnel serve as our “ears on the ground,” to monitor all aspects of the vendor’s initial qualification.

Diversity

As a global industry leader, Jacobs employs a dynamic mix of people to create the strongest company possible. Jacobs’ policy forbids discrimination in employment on the basis of age, culture, disability, education, gender, region of national origin, sexual orientation, physical appearance, race, or religion. We are an inclusive and diverse company with people of all different backgrounds, experiences, cultures, styles, and talents. We enter into partnerships with various minority and women’s professional groups, including the Society of Women Engineers, the National Society of Black Engineers, the Society of Hispanic Professional Engineers, and the National Action Council for Minorities in Engineering.

Diversity is a key factor in the way we interact with our vendors, and is a required element in our procurement decision matrix. Our Jacobs Global Supplier Database (JGSD) of suppliers and contractors serves as a repository for all data and provides the information to manage our ongoing relationship development with small and diverse companies.

APPENDIX

Anti-Corruption

- Classroom Anti-Corruption Training led by Compliance Officer: 25 classes = 618 people
- On-line Anti-Corruption Policy Training: FY12 24,743 completed (95% of those assigned)
- Procurement Integrity (1-hour, on-line course): 3,395 completed (96% of those assigned)
- Global Bribery & Corruption Awareness (1-hour, on-line course): Last completed in 2010
Scheduled in 2012 for approximately 3,000 individuals
- Global Anti-Corruption – new course roll out scheduled in FY13 for approximately 3,500 people
- Global Competition (1-hour, on-line course): 3,395 (96% of those assigned) completed
- Ethics: 1,478 hours (943 people)
- Jacobs College, Ethics: 2.5 hours completed by 231 leaders
- Annual Business Meeting – keynote speaker – Ethics from a Cultural Perspective – 1 hour – 379 senior leaders
- Professional Women’s Conference, Ethics Workshop: 2 hours completed by 140 leaders
- Jacobs Future Network Weekend – Project Ethics – 75 minutes – 193 early career professional employees

H. ECONOMIC

Economic Performance

Economic Value Generated and Distributed, Including Revenues, Operating Costs, Employee Compensation, Donations and Other Community Investments, Retained Earnings, and Payments to Capital Providers and Governments

Please see our Annual Report (Form 10-K) at www.jacobs.com.

Market Presence

Procedures for Local Hiring & Proportion of Senior Management Hired from the Local Community at Significant Locations of Operation

While laws on discrimination may vary from country to country, it is the policy of the Company that there shall be no discrimination in employment on the basis of age, culture, disability, education, gender, regional or national origin, sexual orientation, physical appearance, race, or religion in any of its offices worldwide. The Company is committed to ensuring fair employment, including equal treatment in hiring, promotion, training, compensation, termination, and disciplinary action. In compliance with U.S. law, the Company also maintains a formal affirmative action program for all of its U.S. operations. Jacobs does place a high value on global diversity and has created a global recruitment campaign to encourage such diversity.

With fair employment and compliance with country and local law in mind, it is common practice to give preference to candidates in close proximity to the job location, particularly when resources may not be allocated or available for relocating the candidate to the job location.

Indirect Economic Impacts

Development and Impact of Infrastructure Investments and Services Provided Primarily for Public Benefit Through Commercial, In-Kind, or

TOTAL WORKFORCE BY EMPLOYMENT TYPE, CONTRACT, AND REGION

CONTINENT	STAFF Incl. contract/agency	CRAFT/SKILLED Incl. contract/agency
North America	28,283	14,313
South America	795	N/A
Europe	10,966	735
Asia (includes Middle East)	8,556	N/A
Australia	726	N/A
Africa	136	N/A
Antarctica	N/A	N/A
Totals	49,426	15,048

TOTAL WORKFORCE BY GENDER & AGE DISTRIBUTION

DEMOGRAPHIC		WORKFORCE
Gender	Female	24%
	Male	76%
Age Groups	Younger than 30 years old	14%
	30-50 years old	48%
	Older than 50 years old	38%

Pro Bono Engagement

Jacobs’ infrastructure business includes: transportation and rail, aviation, water infrastructure, and telecommunications services delivered worldwide. We have full life-cycle capabilities, including planning, environmental, design, consulting, engineering, design-build, construction, and program management services.

I. SOCIAL PERFORMANCE

Labor Practices and Decent Work

Voluntary Turnover Rate for the 2011 Fiscal Year was about 9.89 percent globally.

Percentage of Employees Covered by Collective Bargaining Agreements

In Canada, the United States, and the United Kingdom, approximately 8,180 employees (13.5 percent) are covered by a collective bargaining agreement.

In several other countries where we have operations, employees are covered by their respective national labor agreements.

J. SOCIAL PERFORMANCE: PRODUCT RESPONSIBILITY

Product Responsibility, Programs for Adherence to Laws, Standards, & Voluntary Codes Related to Marketing Communications, Including Advertising, Promotion, & Sponsorship

Jacobs is an international provider of professional services. The core of our business model is our relationship-based philosophy. We do very limited advertising and promotion. When we do engage in marketing activities, we adhere to the strict standards in our Business Code of Conduct. It is Jacobs’ policy that any marketing materials featuring our clients are fully reviewed and approved by the client. Usage rights of all materials are always verified and obtained.

APPENDIX

K. 2011 ZERO ACCIDENT AWARD WINNERS

The Global Executive Health, Safety and Environment Committee is pleased to recognize the projects and offices that completed calendar year 2012 without experiencing any injuries.

Forty-eight of our projects achieved this goal and the consecutive work hour threshold of 200,000 work hours without an E-1, representing over 34.7 million consecutive accident-free work hours in self perform and subcontract environments.

Twenty-three of our offices achieved this goal, with a consecutive work hour threshold of 1,650,000 work hours without an E-1, representing over 82 million consecutive accident-free work hours. Collectively, the winners of the 2011 Zero Accident Award worked nearly 117 million consecutive accident-free hours during calendar year 2012.

A list of the 2012 Zero Accident Award recipients is below:

Projects

- ADM – Cedar Rapids, Iowa
- Arkema AA Project – Clear Lake, Texas, USA
- ATA VKF Modernization Project – Arnold AFB, California, USA
- AWE Cygnus Construction Project – Reading, England, United Kingdom
- AWE Mensa Construction Project – Reading, England, United Kingdom
- Charleston Modular Facility – Goose Creek, South Carolina, USA
- Cristal Global – Grimsby, England, United Kingdom
- Denver FasTracks Program – Denver, Colorado, USA
- DuPont AL-2 Project – Altamira, Mexico
- East Los Angeles College – Monterey Park, California, USA
- EDF Alliance – Glasgow, Scotland, United Kingdom
- Electricity Alliance South West – *National Grid Electricity Transmission Plc (Framework 254) – Thornbury, England, United Kingdom
- Eli Lilly/Elanco Small Projects Group – Speke, England, United Kingdom
- ESSO Dartmouth – Dartmouth, Nova Scotia, Canada
- ESSO Sarnia – Sarnia, Ontario, Canada
- ExxonMobil Alliance Singapore CM Baseload Chemical – Singapore
- ExxonMobil Alliance Singapore CM Follow-on Project – Singapore
- ExxonMobil Baton Rouge Plastics Plant – Baton Rouge, Louisiana, USA
- GlaxoSmithKline Engineering Service Provider – Cork, Ireland
- GlaxoSmithKline Project Destiny – Sonepat, India
- Gobigas – Gotenborg, Sweden
- Greenergy Bio Fuels – Immingham, England, United Kingdom
- Huntsman Chemical – McIntosh, Alabama, USA
- Indian Oil Corporation Delayed Coker Unit – Paradeep, India
- INEOS Polypropylene LLC – Carson, California, USA
- Lawrence Livermore National Laboratory National Ignition Facility – Livermore, California, USA
- Mangalore Refinery and Petrochemicals Limited CDU/VDU, CFC LPG Treating and ATF Treating Units – Mangalore, India
- Merichem – Houston, Texas, USA
- Methanex Geismar 1 – Punta Arenas, Chile
- Mosaic Colonsay – Colonsay, Saskatchewan, Canada
- Novartis Grimsby – Grimsby, England, United Kingdom
- Phillips 66 Alliance Humberside – Humberside, England, United Kingdom
- Phillips 66 Humber Refinery – Humberside, England, United Kingdom
- Phillips 66 Whitegate Project – Whitegate, Ireland
- Project Artenius – Sines, Portugal
- Retrievals Project Sellafield – Cumbria, England, United Kingdom
- ROSS Group – Edwards AFB, California, USA
- Sadara Chemicals 1 Project – Jubail, Saudi Arabia
- Sadara Chloralklai – Saudi Arabia
- Shell Bacton Rejuvenation Project – Bacton, England, United Kingdom
- Shell Corrib Project – Bellanaboy Bridge, Ireland
- Shell Geismar Facility E02 Strategic Project
- SSE Aldborough Phase 1, Aldborough, England, United Kingdom
- TEIMS JTECH – Nellis AFB, Nevada, USA
- Tennessee Valley Authority, Kingston Ash Recovery Project – Kingston, Tennessee, USA
- Total LOR Humber Refinery – Grimsby, England, United Kingdom
- Unilever Industries Pvt. Ltd. Aero Asia Project – Khamgaon, India
- United Utilities – Cumbria, England, United Kingdom

Offices

- Baton Rouge, Louisiana, USA
- Canberra, Australia
- Cincinnati, Ohio, USA
- Cork, Ireland
- Coventry, Telford, Wolverhampton & Birmingham Sheldon, England, United Kingdom
- Croydon, England, United Kingdom
- Dublin & Belfast, Ireland
- Exeter, England, United Kingdom
- Glasgow, Scotland, United Kingdom
- Grangemouth (INEOS), Scotland, United Kingdom
- Greenville, South Carolina, USA
- Grimsby, England, United Kingdom
- Leeds, England, United Kingdom
- Leiden, The Netherlands
- Maidstone, England, United Kingdom
- Manchester, England, United Kingdom
- Mumbai Office – Mumbai, India
- Navi Mumbai, India
- Northallerton, Scarborough & Harrogate, England, United Kingdom
- Singapore
- Stockton, England, United Kingdom
- Tullahoma, Tennessee and Bingham Farms, Michigan, USA
- Tucson, Arizona, USA



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2013 SUSTAINABILITY REPORT

*Thank you for taking the time to read our
2013 Sustainability Report.*

To access the *2013 Sustainability Report*
on our Web site, visit

www.jacobs.com/sustainability.

For specifics on information included in the
2013 Sustainability Report, contact Jennifer
Malone at jennifer.malone@jacobs.com

Jacobs: We See Sustainability Differently

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