Line Rider
Global Employee eMagazine

Chevron

In this Issue...
January 2013

Thinking Big

Today's business realities require us to up our game in project management.

Our Project Resources Company (PRC) is transforming into a more sophisticated, rigorous and resilient organization and is rolling out the Chevron Project Management System to meet the multiple challenges of building bigger, costlier and more complex energy projects.

Read more ▸ 0 0

Left: Inspecting a completed project in Kazakhstan.

Thinking Big

Chairman John Watson (foreground, center) on a 2011 visit to one of Chevron's biggest projects in recent years, Angola LNG, which is also the country's largest-ever investment project.

"We've been working very hard to build out our system to deliver more predictable and competitive project results, including highly reliable facilities," says Mike Illanne, president of PRC, our in-house company providing expertise and support for Chevron's extensive lineup of projects worldwide.

World-class projects are a top priority for Chairman John Watson as we've been investing some $30 billion a year (in 2013 we'll invest over $36 billion) aiming to grow oil and gas output 20 percent by 2017. Indeed, we're committed to leading the energy industry in project performance.

PRC is rolling out the strengthened Chevron Project Management System (CPMS), which incorporates our highly regarded Chevron Project Development and Execution Process (CPDEP). We're getting more hands-on project control, systematic assurance, comprehensive talent management, a new Project Execution Center of Expertise and other improvements.

Multiple Projects Over $1 Billion in Size

The transition is perhaps PRC's biggest challenge ever, says Gary Fischer, general manager for Consulting Services. Yet our lineup of mega projects underscores the urgent need: Escravos Gas-to-Liquids in Nigeria, Chuandongbei in China, Wheatstone in Australia, Jack/St. Malo in the Gulf of Mexico, giant processing facilities in Kazakhstan, Canada and many other locations.

And there's no end in sight. Chevron today has multiple projects over $1 billion in size, several over $10 billion and some exceeding $25 billion. PRC has expanded its staff almost tenfold to nearly 800

Thinking Big

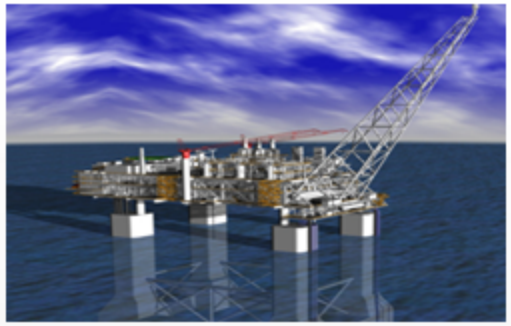
since it was established in 1997, but there's a bigger concern: "We've been using a project management approach designed for a different era," says Fischer.

Chevron spent 15 years building CPDEP. But starting around 2004, says Illanne, PRC's yearly lookbacks revealed a disturbing trend. The big engineering and construction companies – who actually design and build our projects – were becoming less dependable just when we needed the opposite for our complex projects.

No wonder. Almost overnight – with the Chevron-Texaco merger and surging energy demand and prices – we started developing more difficult reservoirs, deepwater fields and huge processing plants. Project sizes and price tags mushroomed. Also, Chevron's partner governments started requiring more in-country labor, materials and services in our projects, creating new complexities and tasks and requiring, in turn, more Chevron attention within valued relationships.

"The costs of underperformance became quite apparent, and so did the tremendous potential value of improving our system," says Illanne. "CPDEP will continue to effectively guide decisions at a high level. But we needed to take responsibility for new risks and get more involved in our contractors' business, setting standards, validating and directing work to make sure they deliver."

It will take time for people to grasp the scope of change at PRC, but several focus areas and bold improvements stand out, says Fischer.



Artist's rendering of the platform for the estimated $29 billion Wheatstone project, offshore Western Australia.

Thinking Big

Modules for Chevron's giant Jack/St. Malo project taking shape. Total project costs for the initial phase of the development are estimated at $7.5 billion, and first oil is expected in 2014.

Historically, PRC built its staff by bringing people in from business units. Soon, a new Project Management Organizational Capability (PMOC) program will start increasing local capability by training more project professionals among national employees worldwide, boosting diversity and distribution of talent.

Meanwhile, by the end of 2013, PRC will complete its handbooks documenting Chevron's standards and core project functions, an exhaustive, multi-year effort. Without these, PMOC would be impossible. Much of this knowledge lives mainly in the minds of PRC veterans, 65 percent of whom will depart by 2017. As we add younger staff and talent from outside, "we have to provide one playbook and teach everyone to use it," says Illanne.

Reviews to Keep Projects on Track

There's much more – like an expanding Project Management Academy and using PRC Consulting Service Advisors to ensure business units make the most efficient use of the CPMS. An Integrated Assurance Process specifies 10 core reviews to keep projects on track – plus another dozen to use as needed. Soon, we'll start tailoring the CPMS to guide teams executing our numerous, smaller projects (under $50 million) where PRC provides tools, guidance and some assistance, but business units lead the jobs.

One key to understanding the new PRC, says Fischer, is the "functional alignment" of its Project Execution Centers of Expertise. It combines seven groups, each supporting a core function and essential "job family" – Cost Engineering (estimating, tracking), Construction Management

Thinking Big

(supervising, staying ahead of needs), Project Assurance (rigorously checking progress along the way) and others.

Illanne is emphatic on the importance of how CPMS links different functions to collaborate throughout projects: "It's very important to understand that all of this ties together. Chevron must be the best in the industry at managing these interfaces."

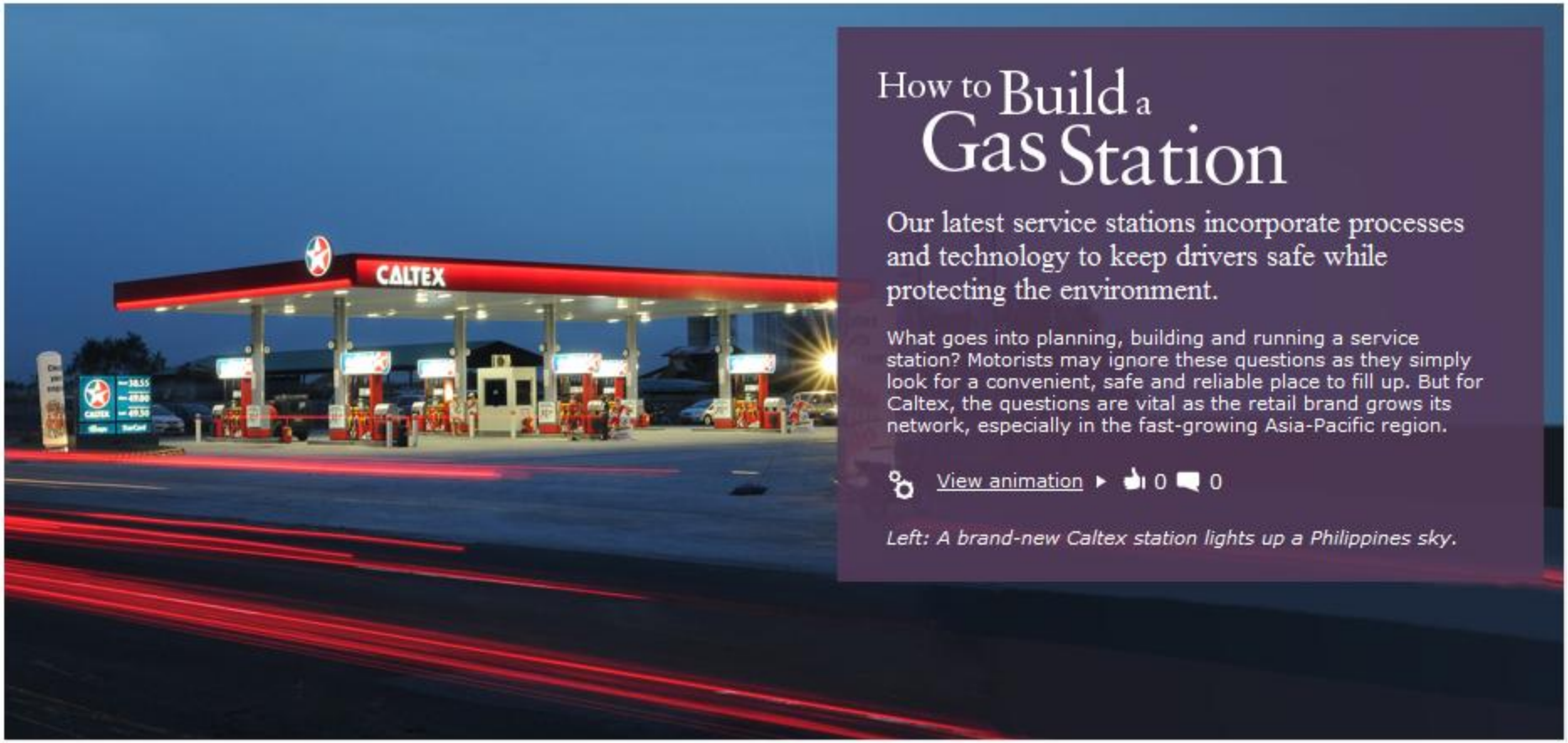
Just as important, he says, PRC has integrated expectations of Chevron's Operational Excellence Management System into CPMS. Similarly, PRC works in partnership with Global Procurement to competitively source high-quality equipment, supplies and services and leverage our spend across multiple developments.

Because the life cycle of our major projects is so long, we won't immediately be able to tally the rewards from the CPMS and the new PRC. But Illanne is willing to wait on a sure thing: "When we're finished, Chevron will have the top system in our industry and maybe the best in any industry."

The massive offshore facilities for Nigeria's Agbami oil field under construction in 2006.

Line Rider
Global Employee eMagazine

Chevron



How to Build a Gas Station

Our latest service stations incorporate processes and technology to keep drivers safe while protecting the environment.

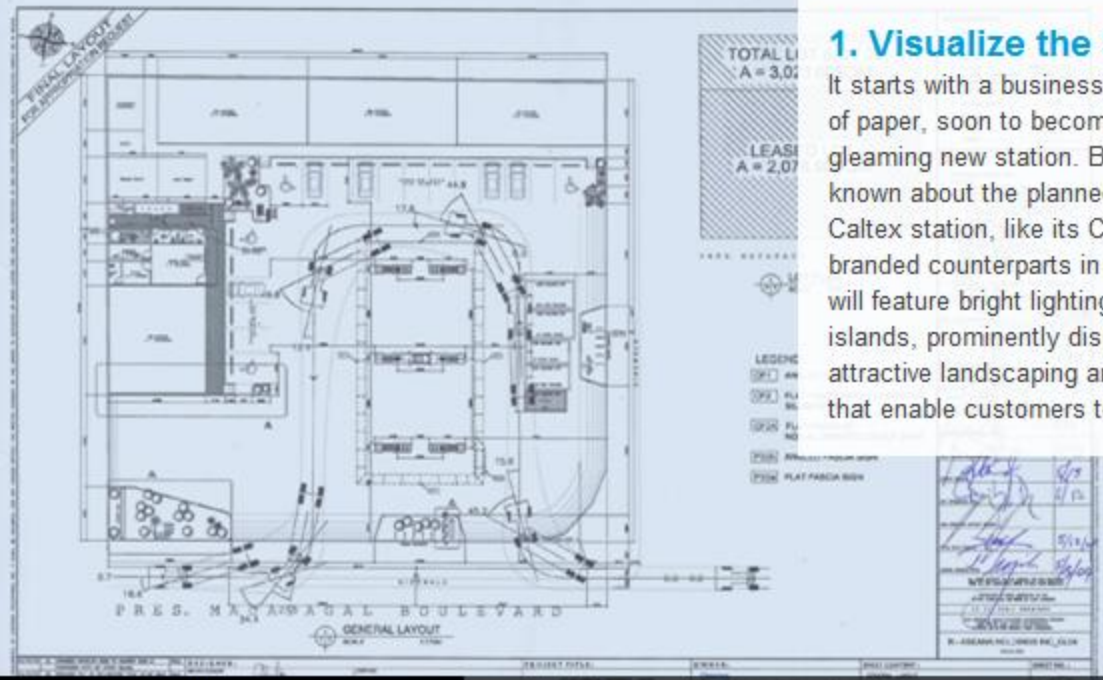
What goes into planning, building and running a service station? Motorists may ignore these questions as they simply look for a convenient, safe and reliable place to fill up. But for Caltex, the questions are vital as the retail brand grows its network, especially in the fast-growing Asia-Pacific region.

View animation ▸ 0 0

Left: A brand-new Caltex station lights up a Philippines sky.

Line Rider
Global Employee eMagazine

How to Build a Gas Station



1. Visualize the Scheme

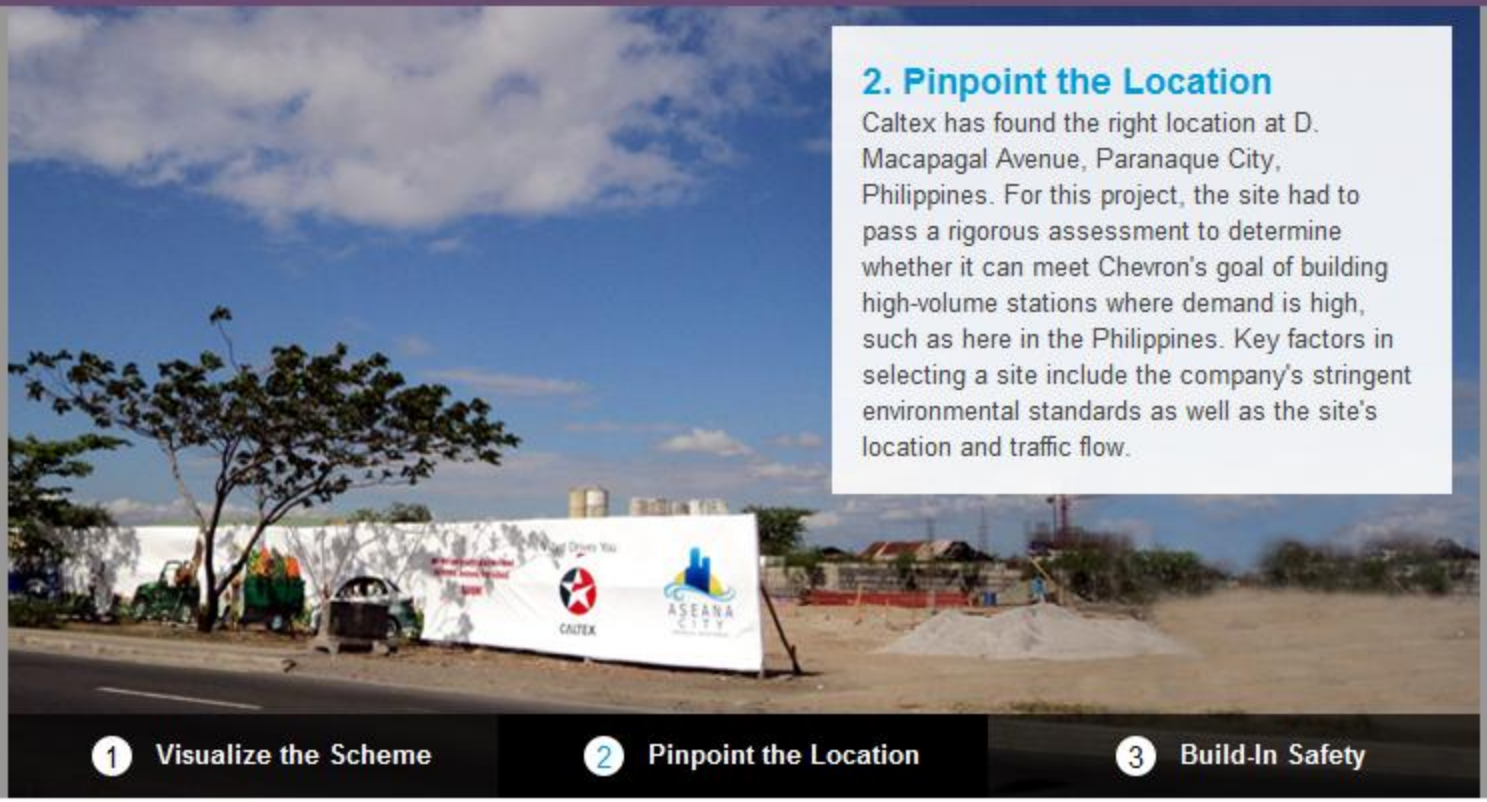
It starts with a business plan and a blank sheet of paper, soon to become the blueprint for a gleaming new station. But much is already known about the planned new facility. This Caltex station, like its Chevron- and Texaco-branded counterparts in other parts of the world, will feature bright lighting, efficient fueling islands, prominently displayed products, attractive landscaping and wide access areas that enable customers to fuel up safely.

1 Visualize the Scheme | 2 Pinpoint the Location | 3 Build-in Safety

Line Rider
Global Employee eMagazine

Chevron

How to Build a Gas Station



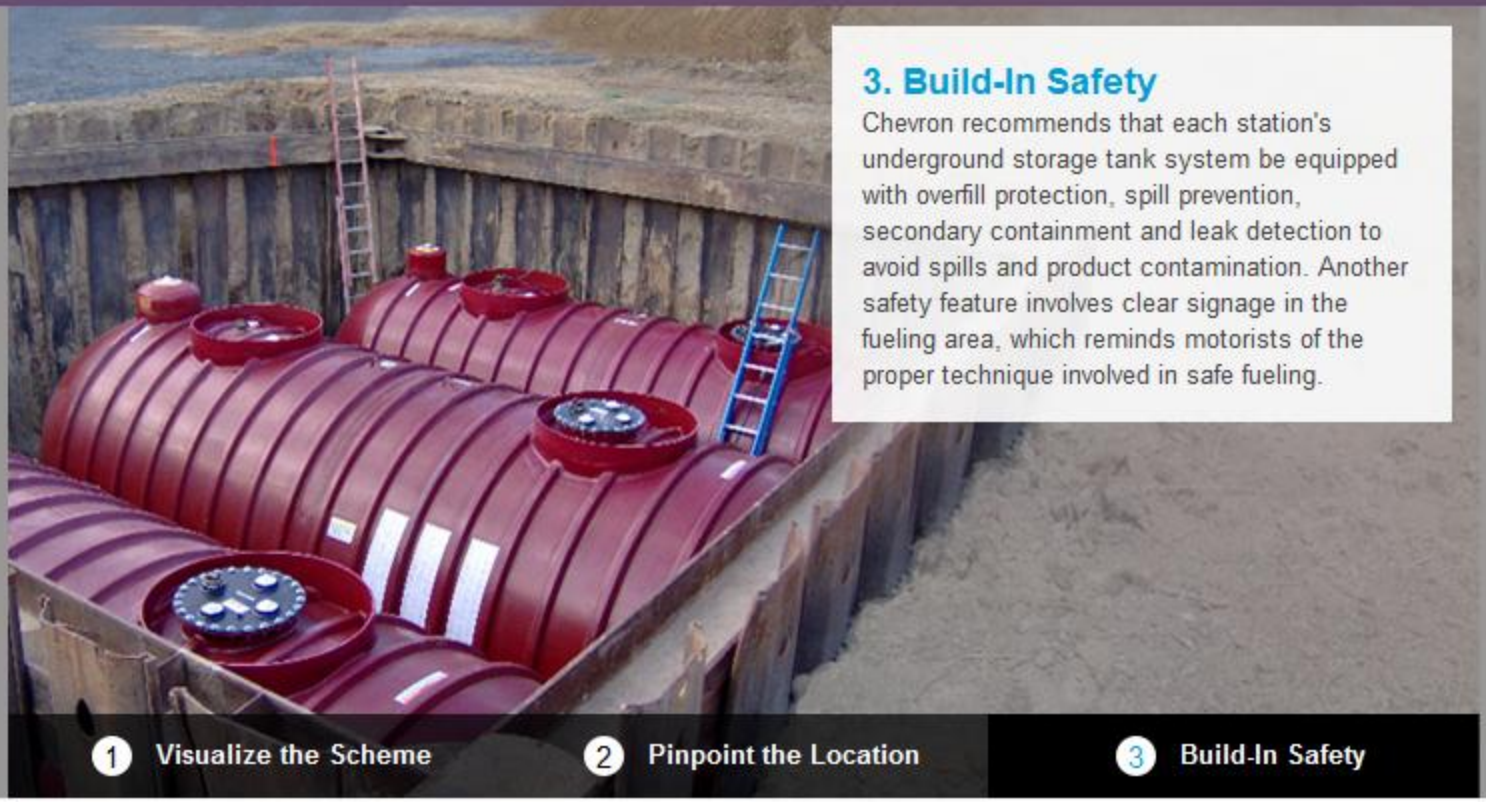
2. Pinpoint the Location

Caltex has found the right location at D. Macapagal Avenue, Paranaque City, Philippines. For this project, the site had to pass a rigorous assessment to determine whether it can meet Chevron's goal of building high-volume stations where demand is high, such as here in the Philippines. Key factors in selecting a site include the company's stringent environmental standards as well as the site's location and traffic flow.

1 Visualize the Scheme | 2 Pinpoint the Location | 3 Build-In Safety

Line Rider
Global Employee eMagazine

How to Build a Gas Station



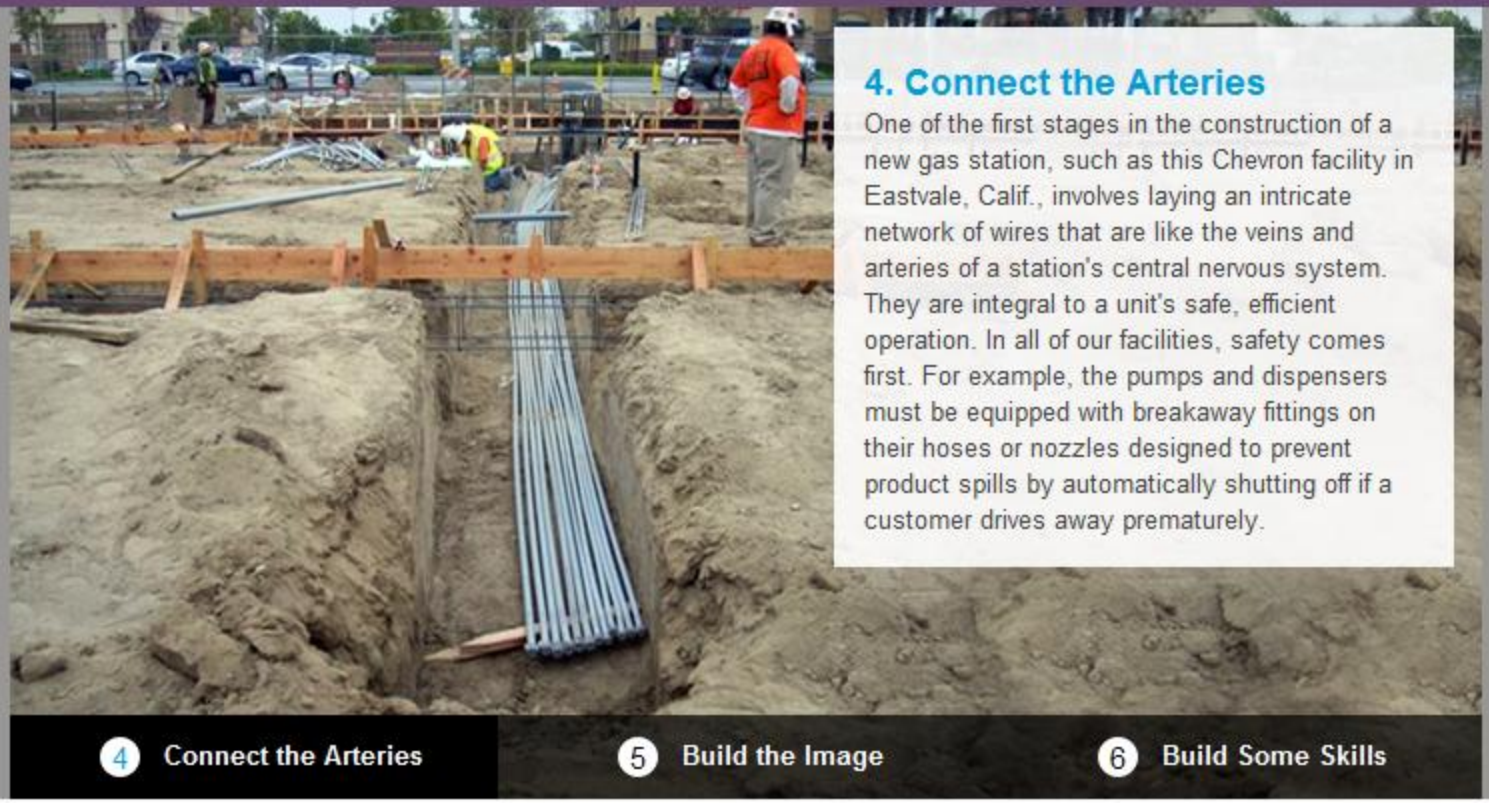
3. Build-In Safety

Chevron recommends that each station's underground storage tank system be equipped with overfill protection, spill prevention, secondary containment and leak detection to avoid spills and product contamination. Another safety feature involves clear signage in the fueling area, which reminds motorists of the proper technique involved in safe fueling.

1 Visualize the Scheme
2 Pinpoint the Location
3 Build-In Safety

Line Rider
Global Employee eMagazine

How to Build a Gas Station



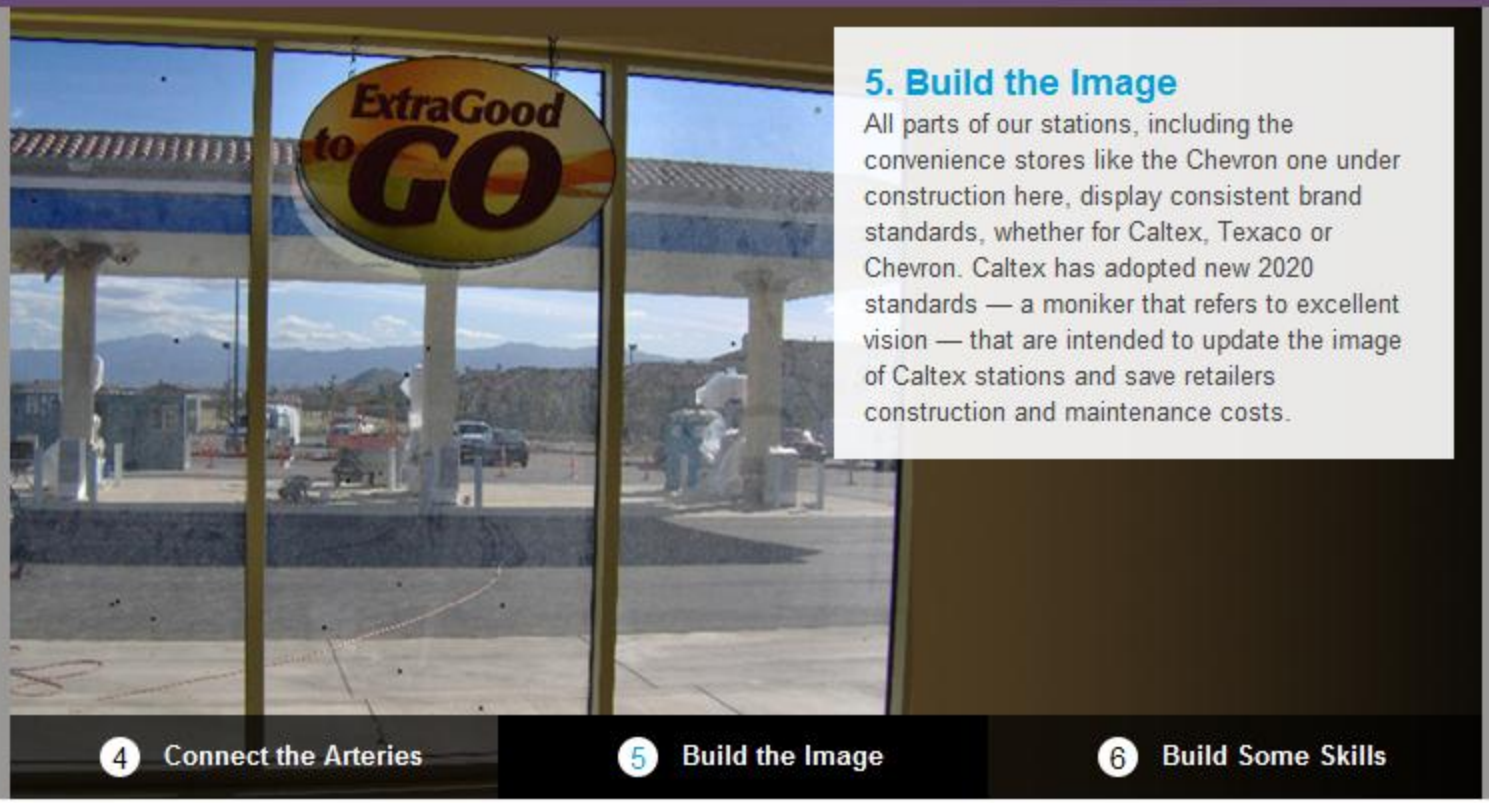
4. Connect the Arteries

One of the first stages in the construction of a new gas station, such as this Chevron facility in Eastvale, Calif., involves laying an intricate network of wires that are like the veins and arteries of a station's central nervous system. They are integral to a unit's safe, efficient operation. In all of our facilities, safety comes first. For example, the pumps and dispensers must be equipped with breakaway fittings on their hoses or nozzles designed to prevent product spills by automatically shutting off if a customer drives away prematurely.

4 Connect the Arteries
5 Build the Image
6 Build Some Skills

Line Rider
Global Employee eMagazine

How to Build a Gas Station



5. Build the Image

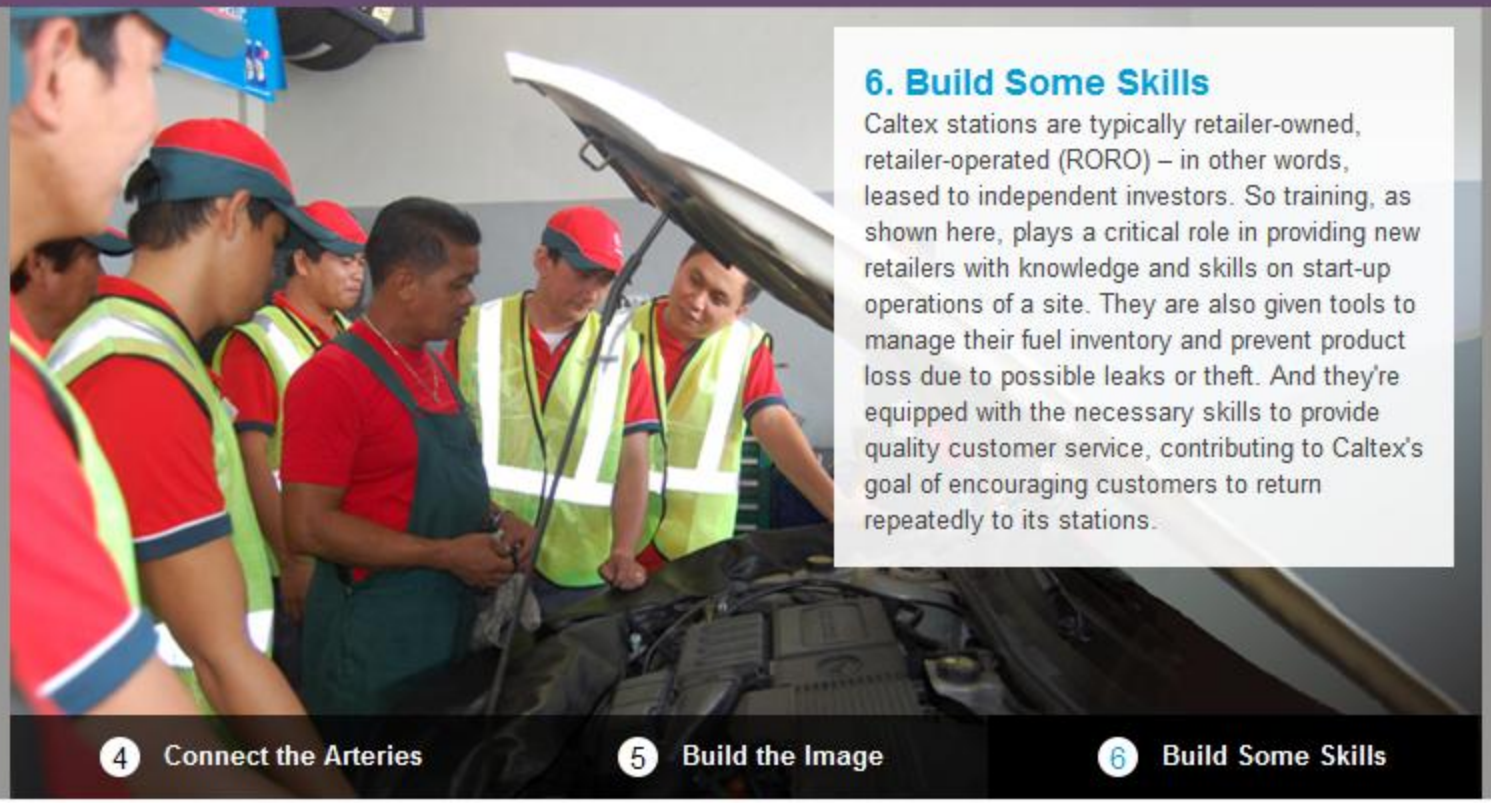
All parts of our stations, including the convenience stores like the Chevron one under construction here, display consistent brand standards, whether for Caltex, Texaco or Chevron. Caltex has adopted new 2020 standards — a moniker that refers to excellent vision — that are intended to update the image of Caltex stations and save retailers construction and maintenance costs.

4 Connect the Arteries
5 Build the Image
6 Build Some Skills

Line Rider
Global Employee eMagazine

Chevron

How to Build a Gas Station



6. Build Some Skills

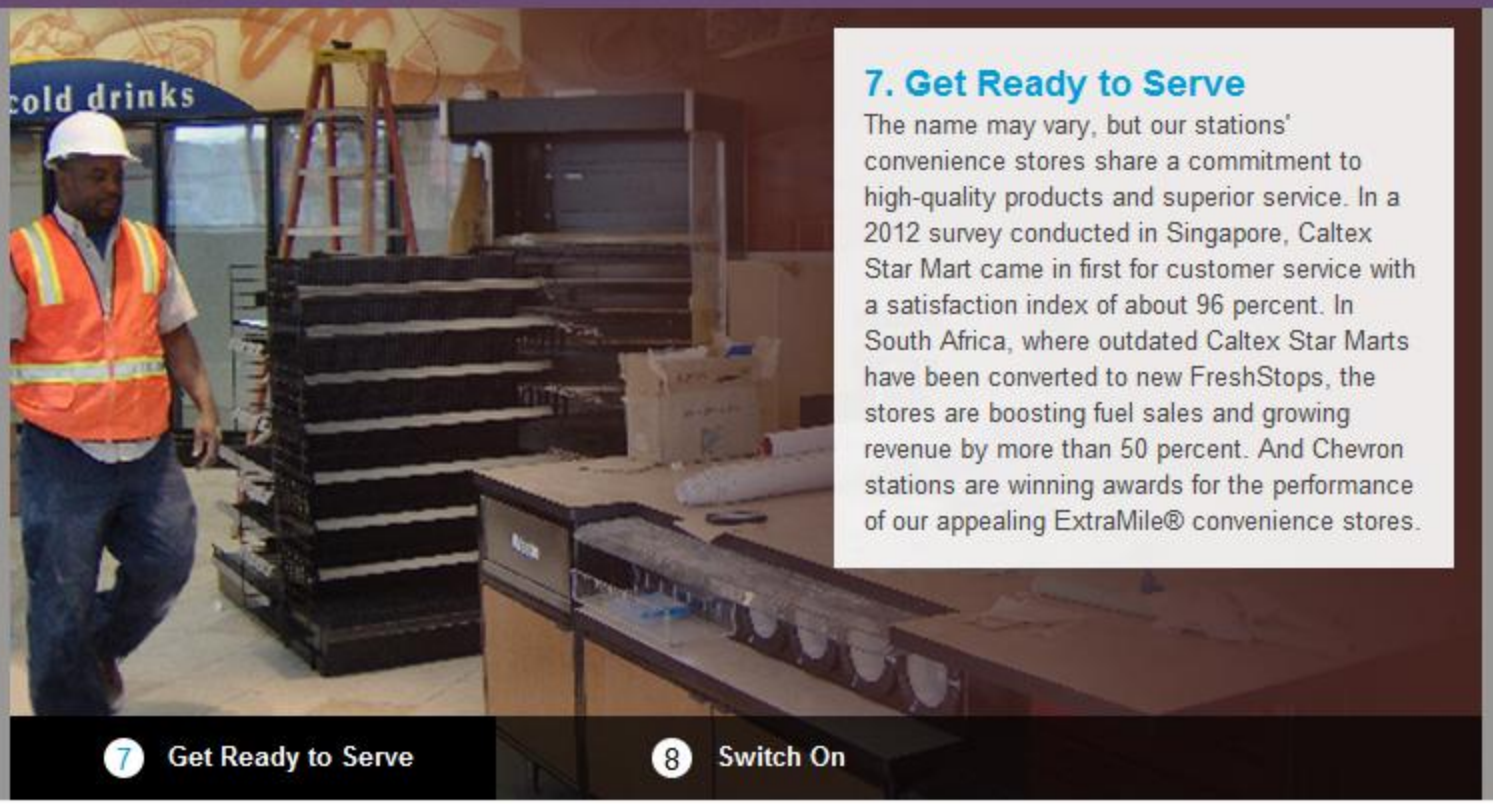
Caltex stations are typically retailer-owned, retailer-operated (RORO) – in other words, leased to independent investors. So training, as shown here, plays a critical role in providing new retailers with knowledge and skills on start-up operations of a site. They are also given tools to manage their fuel inventory and prevent product loss due to possible leaks or theft. And they're equipped with the necessary skills to provide quality customer service, contributing to Caltex's goal of encouraging customers to return repeatedly to its stations.

◄ ►

4 Connect the Arteries
5 Build the Image
6 Build Some Skills

Line Rider
Global Employee eMagazine

How to Build a Gas Station



7. Get Ready to Serve

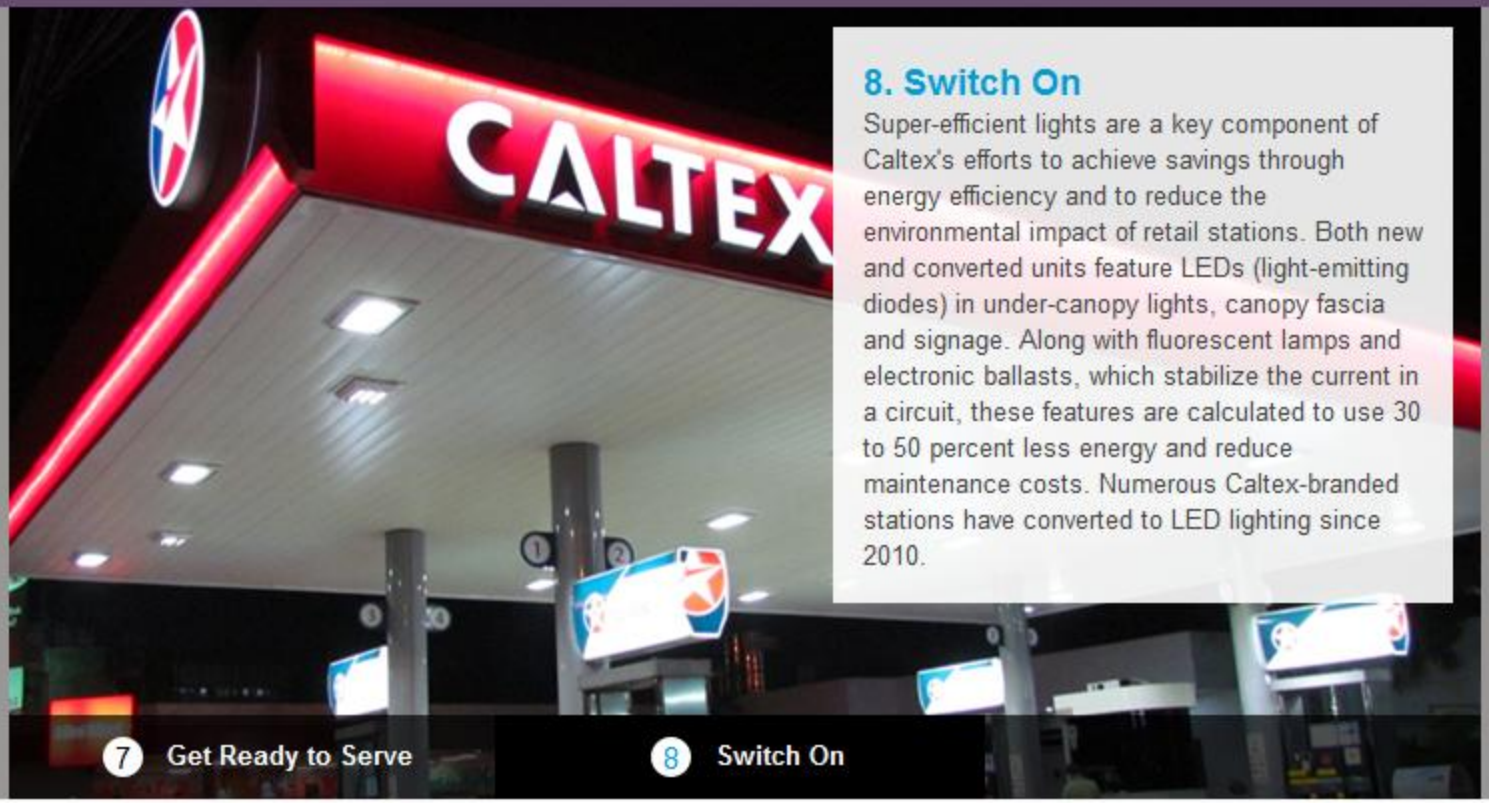
The name may vary, but our stations' convenience stores share a commitment to high-quality products and superior service. In a 2012 survey conducted in Singapore, Caltex Star Mart came in first for customer service with a satisfaction index of about 96 percent. In South Africa, where outdated Caltex Star Marts have been converted to new FreshStops, the stores are boosting fuel sales and growing revenue by more than 50 percent. And Chevron stations are winning awards for the performance of our appealing ExtraMile® convenience stores.

◀ ▶

7 Get Ready to Serve
8 Switch On

Line Rider
Global Employee eMagazine

How to Build a Gas Station



8. Switch On

Super-efficient lights are a key component of Caltex's efforts to achieve savings through energy efficiency and to reduce the environmental impact of retail stations. Both new and converted units feature LEDs (light-emitting diodes) in under-canopy lights, canopy fascia and signage. Along with fluorescent lamps and electronic ballasts, which stabilize the current in a circuit, these features are calculated to use 30 to 50 percent less energy and reduce maintenance costs. Numerous Caltex-branded stations have converted to LED lighting since 2010.

◀ ▶

7 Get Ready to Serve
8 Switch On

Line Rider
Global Employee eMagazine

Chevron

Beating the Gorgon Challenges

We're pioneering major engineering and environmental innovations to develop the Gorgon Project in Australia.

The Gorgon Project is one of the world's largest natural gas projects and the largest single-resource development in Australia's history. The unprecedented scale of the project has presented some unique challenges, requiring innovative solutions. Here are some of those challenges we have confronted and solved.

View photo essay ▸ 0 0

Left: Gorgon's restricted footprint on Barrow Island.

Line Rider
Global Employee eMagazine

Beating the Gorgon Challenges

1 of 7 photos ▶ Play Slideshow





THE CHALLENGE: Preserve the environmental integrity of Barrow Island
Barrow Island is an internationally important conservation estate as well as Australia's largest onshore operating oil field. Chevron, the operator of both the oil field and the Gorgon Project, is proud of its environmental performance on the island.

There are a number of unique species of flora and fauna on Barrow Island, including 378 species of native plants, 13 species of mammals – five listed as threatened with extinction – and four species of protected marine turtles.

THE SOLUTION: Establish a world-class quarantine management system
With more than 300 procedures, specifications, checklists and guidelines, the Gorgon Project's quarantine management system is the world's largest nongovernment quarantine initiative. To date, we have screened more than 1 million tons of freight, 4 million tons of food and beverages, and 200,000-plus air passenger visitors.

One recent innovation is the development of an acoustic sensor that is used to track the Asian house gecko and prevent it from hitchhiking on overseas deliveries destined for Barrow Island.

Click thumbnail photos to view the essay.

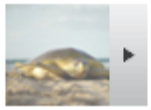
Line Rider
Global Employee eMagazine

Beating the Gorgon Challenges

2 of 7 photos | Play Slideshow ▶







THE CHALLENGE: Optimizing the gas pipeline route to Barrow Island
Large diameter, deepwater pipelines are a significant part of the project's cost, so optimizing the route for both the Gorgon and Jansz-Io fields' gas export pipelines was important.

One issue involved pipeline routing from the deepwater Jansz-Io Field to the liquefied natural gas (LNG) plant on Barrow Island. The large-diameter pipeline traverses both deep water and the continental shelf at depths of up to 4,416 feet (1,346 m). This includes crossing a 70-degree subsea escarpment – almost a sheer cliff.

THE SOLUTION: Create a 'Super Span' to bridge the continental shelf
A flatter, longer route was first considered. However, this option added 28 miles (45 km) to the pipeline length thus increasing pipeline backpressure, raising project costs and reducing recoverable reserves.

A more direct route down the steep escarpment was selected. This route required escarpment seabed contouring via subsea dredging in order to manage the pipeline free span within technical design limits.

The final Jansz-Io Field pipeline "Super Span" across the escarpment will be approximately 1,000 feet (300 m) long.

Click thumbnail photos to view the essay.

Line Rider
Global Employee eMagazine

Chevron

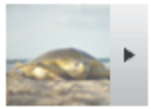
Beating the Gorgon Challenges

3 of 7 photos

Play Slideshow ▶







THE CHALLENGE: Minimize on-island work to reduce the construction footprint
While many LNG projects have unlimited space available for construction activities, the Gorgon Project's environmental approval conditions require the gas processing facilities to be constructed within a 1.2 square mile (300 hectare) ground disturbance limit. This represents 1.3 percent of Barrow Island's uncleared land area and is small for a project of this size.

THE SOLUTION: Take a modular approach to development
Completing much of the work at other locations before shipping to Barrow Island has enabled Gorgon to minimize work taking place on the island and reduce the construction footprint.

Currently, 51 equipment-based modules and 236 pre-assembled rack modules are being fabricated in China and Indonesia.

This year, approximately three shipments per month will bring these modules, some weighing up to 7,000 tons each, to the island for installation. Greeting them will be an on-island workforce of approximately 5,000 people.

Click thumbnail photos to view the essay.

Line Rider
Global Employee eMagazine

Beating the Gorgon Challenges

4 of 7 photos

Play Slideshow ▶





THE CHALLENGE: Coordinate supply chain requirements for a mega project
Because of the sheer scale, size and complexity of Gorgon – it is by nature a truly global project.

THE SOLUTION: Draw on a worldwide network of suppliers
For the supply chain and fabrication requirement, the project had three teams in fabrication yards in Korea, China and Batam, Indonesia, as well as contractor design teams in Paris, Oslo, Florence, Aberdeen, Dubai and Perth. They also have contractor fabrication sites in Aberdeen, Bangkok, Florence, and Perth and in Indonesia and Malaysia, as well as numerous manufacturing sites for equipment around the globe and right across Australia.

Currently, the major engineering, procurement, construction and management contractor (Kellogg Joint Venture Gorgon) has around 2,400 people in 18 locations in eight countries and manages about 9,000 contractors in six fabrication yards. There also are more than 9,000 Australians working on the Gorgon Project, including 5,000 people on Barrow Island.

In Perth, the Australian Marine Complex is playing a key role in supporting construction activities, from transportation to fabrication.

Click thumbnail photos to view the essay.

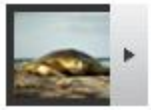
Beating the Gorgon Challenges

5 of 7 photos

Play Slideshow ▶







THE CHALLENGE: Protect the environment while constructing a major LNG plant
Chevron takes its custodianship of Barrow Island very seriously. From October through March each year, the island is an important nesting area for threatened species of green and flatback sea turtles. Nesting sea turtle beaches are potentially sensitive to construction and operational activities, vessel movements, seismic surveys, near-shore drilling and pipeline installations.

THE SOLUTION: Use proven engineering techniques to pioneer new ways to construct the project
Construction of the shore crossing on the west coast of the island to bring gas from the fields to the processing plant on the east coast required careful site selection, concept development, detailed planning and rigorous execution.

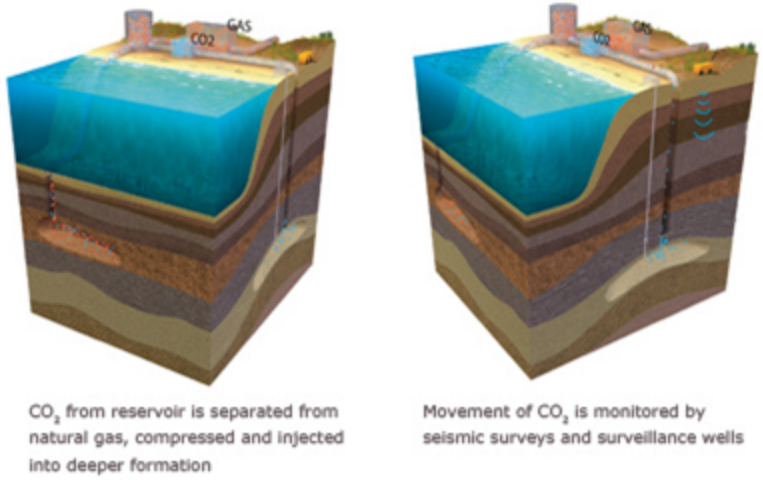
The shore crossing applied horizontal directional drilling, a proven engineering technique and trenchless solution to protect the marine environment. The underground pipeline, completed in early 2012, ensured that the environment was maintained and protected.

Click thumbnail photos to view the essay.

Line Rider
Global Employee eMagazine

Chevron

Beating the Gorgon Challenges



CO_2 from reservoir is separated from natural gas, compressed and injected into deeper formation

Movement of CO_2 is monitored by seismic surveys and surveillance wells

6 of 7 photos

Play Slideshow ▶

THE CHALLENGE: Reduce greenhouse gas emissions
The Gorgon Field gas reservoir contains around 14 percent naturally occurring carbon dioxide (CO2), and the Jansz-Io Field contains less than 1 percent of CO2. The CO2 will be separated from both natural gas inlet streams prior to gas processing and liquefaction.

THE SOLUTION: Build the world's largest commercial-scale CO2 injection facility
As an alternative to disposal via atmospheric venting, approximately $2 billion is being invested in the design and construction of the world's largest commercial-scale CO2 injection facility. This investment will reduce the project's overall greenhouse gas emissions by approximately 40 percent or 3.6 million tons per year. The Australian government has committed a $60 million grant to the Gorgon Carbon Dioxide Injection Project as part of its Low Emissions Technology Demonstration Fund.

Reservoir CO2 will be extracted from the feed gas, compressed and injected into the Dupuy Formation, more than 8,200 feet (2,500 m) beneath Barrow Island.

More than 100 million tonnes of CO2 will be safely injected underground during the life of the Gorgon Project – almost six times more than any other project in the world.

Click thumbnail photos to view the essay.

Line Rider
Global Employee eMagazine

Chevron

Beating the Gorgon Challenges

7 of 7 photos ▶ Play Slideshow





THE CHALLENGE: Foster a strong safety culture among a large transient workforce
With around 5,000 people from numerous contracting companies working on Barrow Island, different views on safe work practices can be expected that could hinder achieving an incident-free work environment.

THE SOLUTION: Work together to establish uniform safety standards
As operator, Chevron is committed to ensuring health, environment and safety (HES) are at the forefront of all our development plans. The HES teams work closely with the various project teams and primary contractors to develop and implement effective processes, plans and procedures.

One example was a two-day chief executive officer safety leadership forum held on Barrow Island in early 2012 and attended by senior management from key contractors worldwide. Participants signed a commitment statement entitled Step Change in Safety Leadership Accountability. Through this agreement, each of the companies represented at the forum have publically committed to working together to achieve outstanding performance on the project while striving for a new standard of construction safety in Australia.

Comment on this article