

Tradelanes

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ENERGY

Logistics in the low-price era

Modular refineries

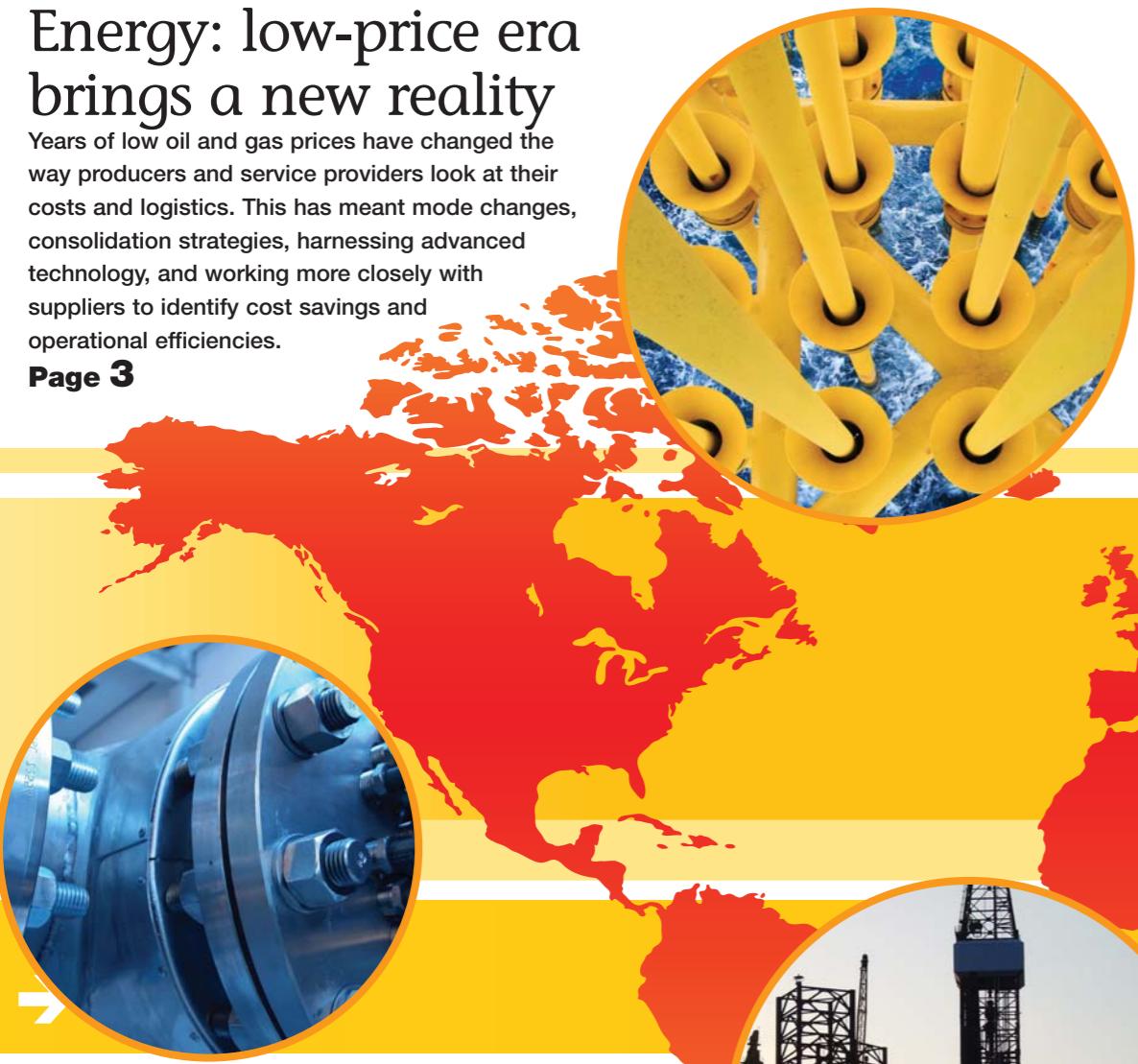
Serving remote locations

Mixed blessings for Africa

Energy: low-price era brings a new reality

Years of low oil and gas prices have changed the way producers and service providers look at their costs and logistics. This has meant mode changes, consolidation strategies, harnessing advanced technology, and working more closely with suppliers to identify cost savings and operational efficiencies.

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Modular vs stick built

A trend towards modularization in refinery construction using smaller, self-contained units fabricated and partially assembled offsite represents a new approach to downstream energy logistics.

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Africa: mixed blessings

The collapse of oil prices has affected African nations differently. Geoffrey White, CEO Agility Africa, takes a look at the sleeping giant with enormous oil & gas reserves waiting to be tapped.

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Page 16 Western Australia: Agility's expertise and capability.

Page 30 Delivering humanitarian aid to Peru and Yemen.



Agility Emerging Markets Mid-Year Review

A detailed look at the implications of Brexit for emerging markets, plus analysis of reforms intended to accelerate modernization of India's corporate sector.

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Remote locations

Agility has a strong track record of operating in out-of-the-way places and high-risk locations. A new logistics hub in Western Australia could deliver more than 30% cost savings to LNG operators, while Agility group company GCC provides site services in places such as Iraq, Darfur, Uganda. Another group company, Tristar, specializes in fuel logistics transport in emerging nations.

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Energy: Reality in the low-price era

Cost saving,
operational
efficiencies

After nearly four years of low oil and gas prices, energy producers have emerged battered but with stronger balance sheets, a better grasp of technology, and a new outlook on how to manage their portfolios.

Change was slow to come. Oil prices, at \$100 a barrel in 2014, plunged beneath \$30 in January 2016 and have traded in the \$40-\$55 a barrel range since then. Natural gas, at \$5.27 per thousand cubic feet in early 2014, fell below the \$4 mark and, as recently as August, was trading at \$2.95.

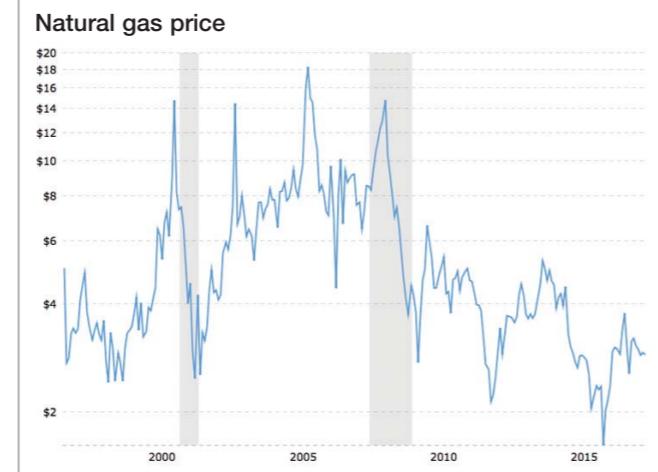
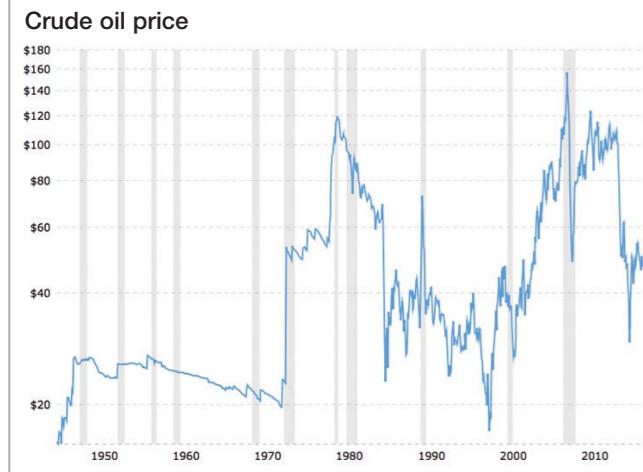
The industry's initial response to slumping prices was to revert to old habits: slashing headcount, mothballing new projects and squeezing suppliers. The idea was to ride out the storm until prices climbed back to comfortable levels.



The trigger for broader restructuring was the arrival of a second wave of low-cost shale production from the Permian Basin of Texas and New Mexico. North America's energy revival has effectively made the United States energy sufficient and reshaped global energy dynamics. With the renewed surge in U.S. shale production came the realization that the era of oversupply and low prices could persist — and that most in the industry couldn't survive without painful change.►

Grant Wattman, CEO of Agility Project Logistics.





These charts courtesy Macrotrends.net

The transformation has been dramatic. Energy majors reported encouraging first-half 2017 financial results, which “show how billions of dollars of cost cuts across the industry have begun to pay off, adding to optimism that even if prices don’t recover beyond their current levels in the near term, the companies have weathered the worst of the market rout,” said *The Wall Street Journal*.

Everyone in the industry “is trying to create a leaner, stronger, built-to-last company that can weather price cycles without boom-bust volatility,” says Grant Wattman, CEO of Agility Project Logistics.



over the coming 12-18 months. ... (and) an emphasis on cost management and efficiency,” says IHS Markit, the global research and analysis firm.

Globally, upstream oil and gas investment declined 44% from 2014 to 2016, and capital spending fell 38%, according to the International Energy Agency’s (IEA) World Energy Investment report. “The oil and gas industry is undertaking a major transformation in the way it operates, with an increased focus on activities delivering paybacks in a shorter period of time and the sanctioning of simplified and streamlined projects.”

Alessandro Blasi, Senior Programme Officer at the IEA, says: “Companies have significantly changed the way they pick projects and execute on them. Conventional onshore development has shifted towards brownfield and satellite fields to minimize capital spending. Meanwhile the offshore industry is experiencing even more rapid change as companies have scaled down projects, introduced strict standards for facilities and equipment and optimized project design.”

On the financial side, producers have been forced to improve capital efficiency and balance sheets, and to boost

free cash flow and EBITDA. They have sold off or divested themselves of unproductive assets and increased investments in technology. Eyeing lower capital expenditure commitments and quicker returns, they are prioritizing short-cycle projects that can generate returns in as little as six months.

As oil majors have offloaded investment-intensive assets, they also have set ambitious break-even targets — under \$50 a barrel in most cases and a breathtaking \$27 a barrel in the case of Norway’s Statoil. At the same time, they have begun investing in renewables and tried to envision a future for themselves in a low-carbon world.

Technology

The energy industry has been a slow technology adopter, capturing enormous amounts of data but making use of very little. At the annual spring CERAWeek conference in Houston, Big Data, cloud computing, machine learning ►



Energy consumption in 2035 is forecast to be one third higher than in 2014. Much of this will go toward power generation. Worldwide, fossil fuels are expected to provide 60% of the additional energy and remain 80% of total consumption.

and artificial intelligence were themes, and there was a sense among attendees that the industry is in catch-up mode.

Oil companies have begun plowing resources into data analytics that help them make sense of the enormous quantities of data they use to find oil and gas, and manage production. BP, for instance, now takes just a few weeks to process data that not long ago took a year to analyze. Algorithms also are employed for predictive maintenance that reduces costly, unplanned downtime. Cloud processing can generate millions of production scenarios, and “when firms can evaluate more options, production from fields can rise by five percent, with a 30 percent cut in the investment required to drill holes and begin producing oil,” according to David G. Victor and Kassia Yanosek, writing in *Foreign Affairs*.

New mobile apps allow users — including small operators — to control drills that are hundreds of miles away and thousands of feet beneath the ground or sea bed.

Sensors on drilling equipment transmit data to technicians who use the information to adjust the depth and direction of drills to maximize output and maintain stable flow.

“Advanced analytics and equipment are creating the digital oil field and gas field,” Wattman says. “Technology is

now a differentiator between companies that are competitive and those that aren’t. There is huge risk in leaving your supply chain to a provider that can’t keep pace with your technology and give you tailored IT answers that provide an edge.”

The *Foreign Affairs* authors say the industry is on the cusp of rolling out tools that will allow robots, controlled remotely from data rooms, to perform sensitive and sophisticated jobs on drilling rigs and along the ocean floor, tasks previously entrusted only to engineers, technicians and other skilled workers. One company, Schlumberger, says it has been working to develop the “rig of the future,” increasing the use of data and automation in a way that will reduce the size of drilling crews and change the nature of their work.

The Logistics Piece

Shifts in strategy, combined with new technology and lower raw materials costs have driven down production costs. But IHS Markit and others suggest that at least some of the reduction has come from “counter-cyclical cost declines” rather than lasting structural change. Indeed, researchers say overall deepwater costs are down more than 30% over the past two years, but they caution that much of the savings could be the result of lower supply chain expenditures and other costs that are likely to rise as prices increase.

“The fundamental question that the industry now faces is to what extent these cost reductions can be sustained in the future,” the IEA’s Blasi says. “Standardization of equipment and operations, improved design, efficiency in projects and corporate activities, integrated approaches in supply chains and increased use of digital technologies are all areas that have contributed to bringing costs down.”

The industry entered the current down cycle demanding sizeable across-the-board cuts and easier payment terms from logistics providers. As the slump wore on, more companies decided to engage in deeper discussions with providers, giving joint scrutiny to the supply chain.

Wattman says there’s a welcome new emphasis on pre-project planning. “We’re seeing more interest in figuring out integrated delivery across the whole supply chain, lean project management, and designs that use modular approaches. It would be a mistake to slip back into old habits.”

During development, logistics typically accounts for 3% to 10% of capital expenditure before shrinking as a percentage of operating expenses and downstream costs. But the complexity of the work means there are variables with cost risk and opportunity at every stage: purchase-order ►

**Better use of data
can cut by 30%
the cost of
bringing a new
field on line.**

Oil majors have begun investing in renewables and tried to envision a future in a low-carbon world.



management, pricing, packing, risk assessment, hub setup, rig transport, chartering, health and safety, and compliance.

Wattman points to the industry's shift to short-cycle project development as an example. The focus on quick-turn projects did little to address endemic weaknesses in planning and coordination that have huge costs attached.

"It's not just the length of projects that's a problem," he says. "Sixty-five percent of the industry's capital projects went 25% over budget and/or ran past their deadlines by 50%. Logistics cost is buried in every cost category of project scope."

What's Next

The Organization of Petroleum Exporting Countries and other big producing nations have tried to restrain production in an effort to cut about 2% out of global output and bring stability to prices. Even so, global oil supply exceeds demand by about 2 million barrels a day. And the reality, according to Victor and Yanosek, is that the world spends \$2 trillion less on the crude oil it consumes each year.

Most in the industry say an end to the low-price era is inevitable. Renewables and other alternatives can't supply enough to meet the demands of a growing global population. Other factors signal long-term supply pressure and increasing demand: declining reservoir production, expanded access ►



Technology in the Supply Chain

When oil and gas prices began falling in 2014, energy companies looked first to lower their freight costs and generate additional working capital by stretching out payment terms. Only after that, did most start to focus on operational efficiencies.

That's where technology is making a difference. Agility is working with customers to create customized dashboards that allow them to manage vendors, carriers and other suppliers more efficiently, measure performance, identify worrisome trends, and respond to problems.

For one energy major, Agility has created a dashboard with more than 40 critical milestones in the supply chain, says Franziska Inman, SVP of Global Business Development for Agility Project Logistics. "We're able to tell them, hey, the supplier you buy this part from in the UK is late delivering nine times out of

10, you might want to talk to them about their KPIs," she says. "If you can get to a point where you're helping them improve their suppliers' performance, that's very powerful."

By tracking and comparing estimated and actual arrival dates, companies can evaluate carrier performance and gain leverage in negotiations with their carriers. By configuring the dashboard to track unique serial numbers and RFID identifiers, they can follow individual parts from manufacturer to port of departure, port of destination, then to installation.

"It's better to focus on a strategy rather than tactics. There's only so much you can cut by pressuring your carrier or freight forwarder for cost cuts," Inman says. "You don't want a forwarder shifting your cargo to low-cost carriers with older vessels, older trucks, an inferior maintenance plan. You run the risk of accidents, cargo left behind, not finding suitable conveyance to get goods out on time."

Agility is able to model different scenarios that allow energy companies to compare costs and performance of different project options. That means looking at every single leg of transport and at variables in transport modes, vessel types, routes, sequences, and load sizes.

The fabricator closest to a new refinery site in Alberta,

CASE 1

An international oil major working in southern Iraq asked Agility to scrutinize its supply chain and look for savings. Agility looked at the company's purchase orders from all over the world. It found separate airfreight shipments from 25 different vendors. Agility worked with the customer to establish a consolidation schedule and hub in the Netherlands, dramatically reducing the number of shipments bound for the Middle East.

Canada might be in Mexico, but overall shipping costs might be lower for modules ordered from South Korean fabricators because the bulk of the trip is by ocean carrier rather than over roads. Shipping costs could change if the size of individual modules can be reduced.

Similarly, customers save by working with providers who have engineering, transport and marine expertise, particularly in chartering ocean freight, who take care to guard against unfavorable terms from carriers and bring an expert eye to lashing and securing plans and safety.

CASE 2

One of the world's largest oil and gas services companies recently purchased a competitor. One of the companies managed its supply chain in a centralized fashion; the other was decentralized with freight moves made by local decision makers. Both were Agility customers so Agility began examining their freight streams, then approached the customer to suggest savings through combined streams where possible.





to energy for existing populations, the transition to modern energy products by emerging markets countries, and the deferral of huge new projects.

Much of the growth in energy consumption will go toward power generation. Energy consumption in 2035 is forecast to be 34% higher than 2014 levels. Fossil fuels are expected to provide 60% of the additional energy and remain 80% of total consumption, despite a quadrupling of renewable supplies.

Will we return to the days of energy mega-projects that require massive spending and long planning cycles?

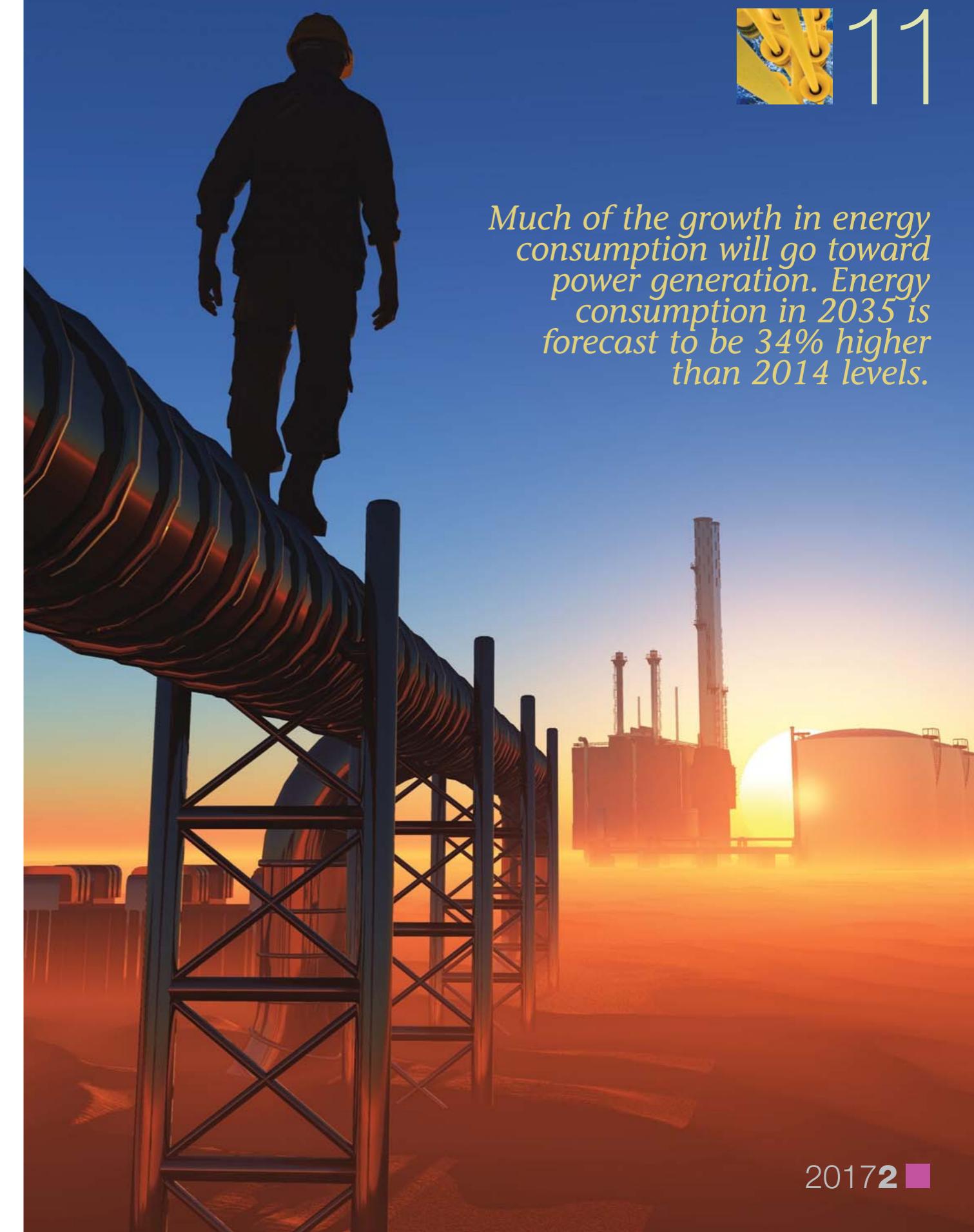
The IEA believes we will. It says the industry needs to invest \$600 billion in long-cycle projects in order to meet future needs. Production from conventional oil fields is dropping to its lowest level in more than 70 years, which could tighten supplies. Likewise in the gas industry, experts warn of the need to invest countercyclically or risk being unable to meet increasing demand in six to eight years. Near-term, southeast Africa and the eastern Mediterranean look to come on as sources of global gas supply, but momentum for new investment could be complicated by an apparent shift from secure, long-term purchase agreements to a more commoditized marketplace.

Keeping up on the logistics side "requires a global footprint, technical expertise, and standards and processes



IEA says the industry needs to invest \$600 billion in long-cycle projects to meet future demand.

that have been repeatedly stress tested, refined and improved," Wattman says. "In addition to 'best practices,' you have to identify the 'next practices' that you can use to keep your customers ahead of the competition."



Much of the growth in energy consumption will go toward power generation. Energy consumption in 2035 is forecast to be 34% higher than 2014 levels.





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Modular vs. stick-built

THE PROS AND CONS

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In recent years, modular refinery construction has become an alternative to conventional or “stick-built” construction. Pre-fabricated refinery modules can be designed just once, then assembled or reproduced in fabrication yards and pieced together at refinery sites all over the world.

The advantages are considerable. Modules can be scaled for individual projects. They require smaller work crews. They take less time to build.

“Modular refineries have a niche market and can be more cost-effective in some cases, such as in developing countries or areas that lack infrastructure,” says Mahmoud El-Halwagi, chemical engineering professor at Texas A&M University. “If there’s stranded gas located far away from large infrastructure, then it’s more cost-effective to put a modular unit at the source. That same unit can be moved if the supply runs out or there’s no demand for the product. These modular units offer more flexibility to keep pace with fluctuations in supply and demand.”

SCALABILITY

Stick-built Construction: Customizable, Sometimes Unpredictable

Because stick-built projects are designed individually from scratch, each is designed to the customer’s specifications in order to guarantee desired product output and quantity. But conventional construction requires more time and money upfront to secure a large tract of real estate and for engineering and design. Parts and materials are sourced and staged close to the construction site, where an on-site contractor manages the project construction. Once construction begins,

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Modular vs.stick-built

problems with work crews or inclement weather can affect schedules. The same factors can send construction costs soaring.

Modular Construction:

Big Efficiencies, Bold Logistics Maneuvers

Modular refineries are comprised of discrete pieces that are assembled off-site. There's less ramp-up time for construction because workers at fabrication yards are generally experienced at building the parts. Once modules are delivered to the refinery site, they are connected easily and quickly; there's little guesswork about the schedule since prefabricated designs are known entities in terms of assembly time.

The added wrinkle is the movement of the modules. Planning for a modular build necessitates planning for a modular move. To maximize the cost savings of prefabrication over on-site, stick-built construction, a customer needs to ship the fewest modules possible to the refinery site.

Module size is influenced by two major factors: the refinery output and the path to its location. A facility built to produce 5,000 units of refined product per day will be smaller than one cranking out tens of thousands of units. A refinery located near a port can be assembled from larger modules because the move involves fewer trips — assuming that a large enough vessel is available for transport. Getting modules from their fabrication point to an inland refinery site is a challenge. Will canals be wide enough? Roads? It can take months to secure an appropriate vessel and plan

MODULAR MINI-REFINERY

Modular mini-refineries are typically available in units producing from 4,000 to 30,000 bpd (barrels per day).

A wide variety of refining needs can be met by a modular configuration, including: propane, butane, petrochemical feedstock, gasolines (naphtha specialties, aviation gasoline and motor gasoline), distillates (jet fuel, diesel, kerosene, and intermediate fuel oil), and heavy fuel oil. Potential benefits:

- improves engineering quality
- faster construction
- close to markets
- low capital
- flexible to meet demand (add modules)



Modular vs.stick-built

Modular Move: Getting Refinery Components from China to Netherlands

Agility is managing one of its largest oil and gas module shipments ever, moving several giant modules and structural pipe racks weighing more than 6,500 tons from China to the Netherlands. The modules are to be integrated into a client's existing hydrocracker unit as an upgrade. The project, handled by Agility Project Logistics Rotterdam, shows the importance of collaboration among stakeholders.

Modular refinery construction is growing in popularity, but it requires movement of massive sea loads so entails considerable challenges. The appeal of modular construction is cost and time savings: Fabrication gets outsourced to regions with cheaper labor, and finished modules are joined together on-site at greater speed than conventional or "stick-built" construction. The challenge arises from the size of the modules.

The movements required one and a half years of preparation and countless conversations with the client, the engineering procurement construction management (EPCM), the fabricators in China, the ocean carrier, and the port at the receiving end.

Challenges emerged throughout the preparatory period. Because the client's refinery is active and inaccessible by water due to low draft, the cargo couldn't be discharged directly at the site. The engineering specifications for the modules have shifted frequently during planning. Every engineering change to a module (such as pieces being added or the center of gravity

being altered) affects how the cargo is to be transported — and when it will be ready for the voyage. Project timelines have remained in flux throughout.

To ensure compliance with sea-fastening specifications and safe roll-on operations, Agility has been deeply involved in detailed conversations with the fabricators. Working as the go-between for the carrier and the client, Agility is serving as freight forwarder and as project manager to keep the client apprised of all developments with engineering and cost implications.

The longest of the modules is the length of 1.3 basketball courts at 37.7 meters. The pieces are so large that Agility has arranged for use of semi-submersible vessels to assist with loading each shipment. Cargo must be sequenced to allow several days of loading time for each vessel in succession. The cargo will spend more than a month at sea before reaching the Netherlands. Once at port in Rotterdam, unloading requires four to five days for each vessel, using every means of discharge possible to lift the staggeringly heavy loads.

In many cases, refinery operators and EPCMs that have attempted such moves on their own are now



turning to specialists, realizing that mistakes are costly and that they lack the expertise and manpower to deal with vendors and intricate aspects of shipments. For the China-Netherlands move, Agility is adding value for the customer by managing all stakeholders in the project and running a seamless supply chain from the fabricator to delivery at port, including handling customs process to minimize duties.

"As a project logistics partner, we don't just offer the means to transport our client's equipment," said Michael Giling, Director, Global Business Development Oil & Gas for Agility Project Logistics. "We are there to protect its interest, making sure the logistics operation is run safely and on time, meeting project requirements and managing the process from inception to delivery."

The pieces are so large that Agility has arranged for use of semi-submersible vessels to assist with loading each shipment.



Western Australia

AGILITY'S COST-SAVING ONSLOW SUPPLY BASE

ONSLOW

Accessing offshore platforms in the energy-rich Carnarvon Basin off the coast of northwest Australia is critical for oil and gas producers. In September, Agility began operating a service hub and marine supply base for long-term maintenance, daily operations and future projects, one intended to offer significant cost savings and commercial benefits for companies conducting offshore drilling in the basin.

The \$125 million multi-user, supply base opened in Onslow, Australia, in September. Onslow is poised to become a bustling energy hub connecting industry, vessel owners and operators to the oil and gas fields extending within the Carnarvon Basin from the eastern side of Varanus Island to Exmouth. Onslow's proximity is particularly advantageous to customers with facilities at Barrow Island, Thevenard Island, the Gorgon platform and the Northern Exmouth sub-basin.

Agility's supply base operations will be creating new jobs in Onslow – potentially up 150 new, permanent positions.

Agility has extensive experience in marine services for oil and gas customers. Onslow offered a strategic location that encouraged the company to be bold: global energy prices remain stubbornly low, and port operations are not a core business for Agility, however Onslow is unique: the nearest port is Dampier 300 km further north via road and eight hours north by sea. Private and public sector parties had considered similar opportunities within Onslow and Exmouth but ultimately made no investments.



Agility became aware of the proposed Onslow base in 2014 and offered the developer a tour of the massive Gorgon Supply Base, which Agility manages in Henderson, Western Australia. The Gorgon Supply Base proved that Agility has the capability and expertise to operate a new facility at Onslow.

Onslow is a unique value proposition. Essa Al-Saleh, CEO of Agility Global Integrated Logistics, estimates that Onslow's services and value-added solutions could potentially save customers 30% to 40%. Customers will reduce fuel burn when accessing worksites closer to Onslow, effectively reducing labor hours on vessels and perhaps even reducing the number of vessels needed for each project. Because it is closer to offshore fields in the southern Carnarvon Basin, there is potential for work crews to be transferred via vessel rather than helicopter; and some customers have expressed interest in sharing vessels and deck space for further savings. Onshore, the main benefit is increased safety and time

saving because Onslow is 300 km closer to Fremantle than Dampier. A reduction in linehaul time means less time on the road, less risk for accidents.

At Onslow, Agility will provide standard marine support base services together with value-added services. In addition to wharf operations, such as fork lift, crane and landing craft tank ramps, Agility conducts pilotage, underwater inspections and more. Value-added services include mud, chemical and concrete management; offshore equipment hire and management; vessel maintenance, painting and fabrication; and response for emergencies and oil spills.

Customers will be able to use Agility's 24-hour online booking system for waterway and wharf slot times, providing reliable berth access. They'll also benefit from regular linehaul between Perth and Onslow.

Agility's supply base operations will be creating new jobs in Onslow — potentially up 150 new, permanent positions. An influx of new residents is a boon to local business growth, demonstrating that there is opportunity yet in an evolving industry.

GORGON

Agility managed domestic supply-base operations in Perth and Dampier for Australia's Greater Gorgon gas field, one of the world's largest natural gas projects.

The consortium of energy majors developing Gorgon was demanding: it needed general warehousing, long-term storage, staging areas for materials, quarantine-compliant facilities, domestic transportation and marine transport.

The Gorgon field, located 130 km to 200 km off the coast of Western Australia, contains an estimated 40 trillion cubic feet of gas and has a life expectancy of 60 years.

Agility operated four supply bases in addition to warehouses and laydown yards. Monthly TEU shipments on the project peaked at 8,900 as Agility trucks and trailers traveled the equivalent of 1,400 trips around the world to deliver more than 3.7 million tons of freight.

Because a new LNG plant site was located on Barrow Island, a grade 1 environmental heritage island, every piece of freight was subject to stringent quarantine. Each container, flatrack and trailer going to the island was

pressure washed and fumigated, while many items of freight were shrink wrapped to prevent the introduction of non-indigenous plant, insect and animal species.

Once out of metro areas in Western Australia, the "road trains" (a series of linked trailers — usually up to 3 — with a single prime mover) could be over 50 meters long and carry in excess of 125 tons per road train.

Agility's marine base operation supported two heavy lift vessels designed to carry containers and conventional cargoes, as well as six barges.

The principal consortium member awarded Agility an "A" rating for its performance on Gorgon.



Value Engineering

AGILITY'S APPROACH TO REMOTE SITES IN AFRICA & THE MIDDLE EAST.

Exploration and production are high-cost and high-risk in volatile areas of the Middle East and Africa. But oil and gas companies have scrutinized their activities in those regions, just as they have other parts of their portfolio. The result has been a reduction in capital allocation for Middle East and Africa projects, a shift to projects that offer quicker return, and more attention on expenses.

Agility group member, GCC Services, the Dubai-based remote site services specialist, has responded with a strategy that CEO Rashad Sinokrot calls "value engineering." The term connotes more pre-project research and planning to generate more options for energy companies — not an easy task in some of the most dangerous, inhospitable regions of the world.

GCC is a design-build contractor and a camp operations provider, so its project involvement can span years. "We look at how we can assist in reshaping their approach to engineering, design,

Oil and gas companies are trying to cut costs without sacrificing the health, safety and welfare of workers at remote sites.

construction and operation of accommodation facilities, and the services that support them," Sinokrot says.

Persistent low energy prices have changed the nature of collaboration between industry partners and remote services providers. "In the past, customers would come out with a full spectrum of requirements and ask for bids," Sinokrot says. "Now they realize that it isn't the wisest route to follow. They are saying: Here's what the goal is. How can you do this for us? How do you recommend we do it in stages or do it for less?"

Oil and gas companies are trying to cut costs without sacrificing the health, safety and welfare of workers at remote sites. They've asked providers like GCC to show them where there is flexibility across the full range of services: freight and transportation management, food procurement, catering, laundry and housekeeping, office and grounds maintenance, security, clinic support, IT, utilities and power supply, and local hiring.

For one GCC customer in Iraq, that meant different menus with more chicken and other alternatives to red meat as sources of protein. For another, it meant putting more staff on site at

the drilling operation and shuttling fewer in and out from high-cost Dubai. For yet another, it meant remote accommodations with double rooms for managers rather than single rooms.

"They want more options, and they want turn-on and shut-off options with minimal cost," Sinokrot says.

Iraq remains the toughest environment, Sinokrot says. "The government isn't able to provide security, and there is no reliable logistics or supply chain base available. Customers are trying to do business in an ethical way, but they confront corruption."

He argues that smart community investment is the best protection from corruption. GCC focuses on community welfare, bringing jobs, training and skills transfer. The company hires nearly 90% of its employees from the remote areas where it operates.

"Where we go — Iraq, Darfur, Uganda — you have to know the line between relationships and corruption. We invest in local communities and spend a lot on CSR activities aimed at those communities. During holidays, we provide meals in poor communities. We invest in schools, we help local municipalities with transportation. Those services go a long way when you go back to ask for local assistance and help battling corruption. In most cases, that's ultimately a more cost-efficient way for our customers to operate, too."

Tristar Q&A

Eugene Mayne is CEO of Tristar, Dubai-based provider of logistics for the petroleum and chemicals industries. He explains how specialty fuel transport logistics has weathered a prolonged period of low energy prices and cost-cutting pressure.

Q: Tristar is in surface fuel transport, you own oil tankers, you supply aviation fuel, you manage fuel farms, and you do turnkey fuel supplies for international organizations. Has the weak price environment hurt your business?

A: We aren't insulated from the pressure to cut costs. I've seen oil majors saying they've cut operating costs by 50% in various areas of their business. We have had to make some adjustments and sacrifice some margins, but we are selling operational excellence and a strong safety record. We've got a lot of loyalty from our customers, and that means they often give us the first right of refusal.

Q: Could the cost-cutting in other parts of the industry threaten safety?

A: Yes. And it is important to get the pricing right because there is not much ability to renegotiate pricing once the contract is awarded. There aren't a lot of companies that know how to price, build and operate remote fuel installations, that can deploy quickly with experts, that know how to work with different fuels in different environments.

where peacekeepers and international relief groups need support. The safety performance is critical and requires commitment at all levels. It involves training, maintenance, vehicle and equipment management, reporting and measurement tools, and constant evaluation.

Q: How many international missions do you support?

A: We're probably the only fuels company in the world operating seven fuel peacekeeping missions at the same time. We're in Mali, Central African Republic, Uganda, Somalia, South Sudan, Liberia and Haiti. Liberia and Haiti are winding down. Across Africa, Tristar has fuel operations in 16 locations, and we're looking at expanding in several more locations. That gives us the potential to serve more missions if they become necessary.

Q: Humanitarian missions tend to be fixed price contracts, correct?

A: Yes. And it is important to get the pricing right because there is not much ability to renegotiate pricing once the contract is awarded. There aren't a lot of companies that know how to price, build and operate remote fuel installations, that can deploy quickly with experts, that know how to work with different fuels in different environments.



Q: You also own oil tankers. Has there been cost pressure there?

A: We own and operate 22 ocean-going and coastal oil tankers. Our customers are oil majors and we know their focus since the drop in oil prices has been managing cost, especially the cost of production, but costs throughout other parts of the supply chain, as well. Our ships operate on long-term charters and fixed contracts, so things have been stable. At the same time, Tristar is looking to consolidate and diversify within the shipping industry by entering the dry bulk and gas transport segments of shipping to ensure that we are not unduly exposed to any segment in a cyclical environment. We will also be looking at in-house ship management to further optimize our cost while improving the quality of service to the customer. In a low-priced and very competitive environment, it is important to have low operating costs without compromising safety and security of operations.



Africa

MIXED BLESSINGS OF LOW PRICES



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Geffrey White, CEO of Agility Africa, looks at the impact of low oil and gas prices on Africa.



The collapse of oil prices in 2014 and the slow recovery to around a \$50-a-barrel level has had good and bad impacts on the African economy.

Two thirds of African countries are net energy importers and have benefitted from lower energy prices. Many of them have used the lower input costs to reduce or eliminate fuel subsidies that have historically burdened government, thus freeing up funds for economic growth and implementing infrastructure projects. As a result many of the non-energy exporting African countries, (with the exception of South Africa which has its own set of challenges) are delivering economic growth at rates that are amongst the highest in the world.



In contrast, the African oil exporting countries have experienced a very different scenario. Two of sub-Saharan Africa's largest oil exporters have been devastated by the fall in oil revenues. Nigeria and Angola, which produce 2 million and 1.8 million bpd respectively and whose economies are highly dependent on oil revenues, have seen government incomes halved. As emerging economies dependent on oil revenues (98% of Angola's economy is ►



oil related), the impact was substantial. Government infrastructure investment was curtailed or cancelled, creditors were extended and access to foreign exchange was restricted. Severe economic deterioration resulted and



economic growth fell from close to double figures to a mere 1 or 2 percent.

Having been through a torrid time for the past three years, both countries are managing to realign government spending and adjust to lower prices. As a result, investors are beginning to engage again and become more bullish about the future. These economies are still among the largest in Africa and have significant budgets to spend on development. With a population of 200 million, Nigeria is Africa's largest economy and a market hard for investors to ignore.

One of the most critical effects of the collapse of prices was the impact on foreign direct investment into oil and gas project development: Africa has more prospective exploration blocks than the rest of the world combined. Sector investment across Africa fell by 60% as projects were suspended or cancelled. Exploration budgets were curtailed, and the investment in existing, approved projects with proven reserves stalled as economic viability was reviewed. The market turmoil was compounded by an oversupply of product from the increased output of U.S. shale oil and gas.

Now there are signs of fresh interest in African energy, driven by the ongoing depletion in global supply as projects

There are signs of fresh interest in African energy, driven by the ongoing depletion in global supply as projects reach the end of their productive life and increasing global energy consumption.

Africa



ANGOLA

With close to total dependence on oil-related income Angola aims to become Africa's largest producer.



reach the end of their productive life and increasing global energy consumption. FDI has realigned to the new pricing levels, and in the past twelve months there has been a gradual momentum building for the major projects in Africa, many of which offer highly competitive production costs. Africa is back on track to become an increasingly important global supplier, especially for China, India and other parts of Asia.

One of the key opportunities is in Mozambique where proven reserves of 300 tcf of gas make it potentially one of the largest and most competitive LNG producers in the world.

In June, Italian multi-national ENI declared a final investment decision on its \$5.4 billion CORAL floating liquefied natural gas (FLNG) project, awarding contracts to the TechnipFMC/JGC/Samsung consortium. That ENI has been able to fund the project and BP has signed a 20-year off-take agreement was a major vote of confidence that the world-class gas reserves off Mozambique are viable. Over the next decade, ExxonMobil/ENI and Anadarko plan to develop up to ten LNG trains in northern Mozambique, along with a Shell GTL plant and Yara fertilizer project. Overall investment is forecast to be \$120 billion, with an estimated 13 million tonnes of project freight needing to be delivered.

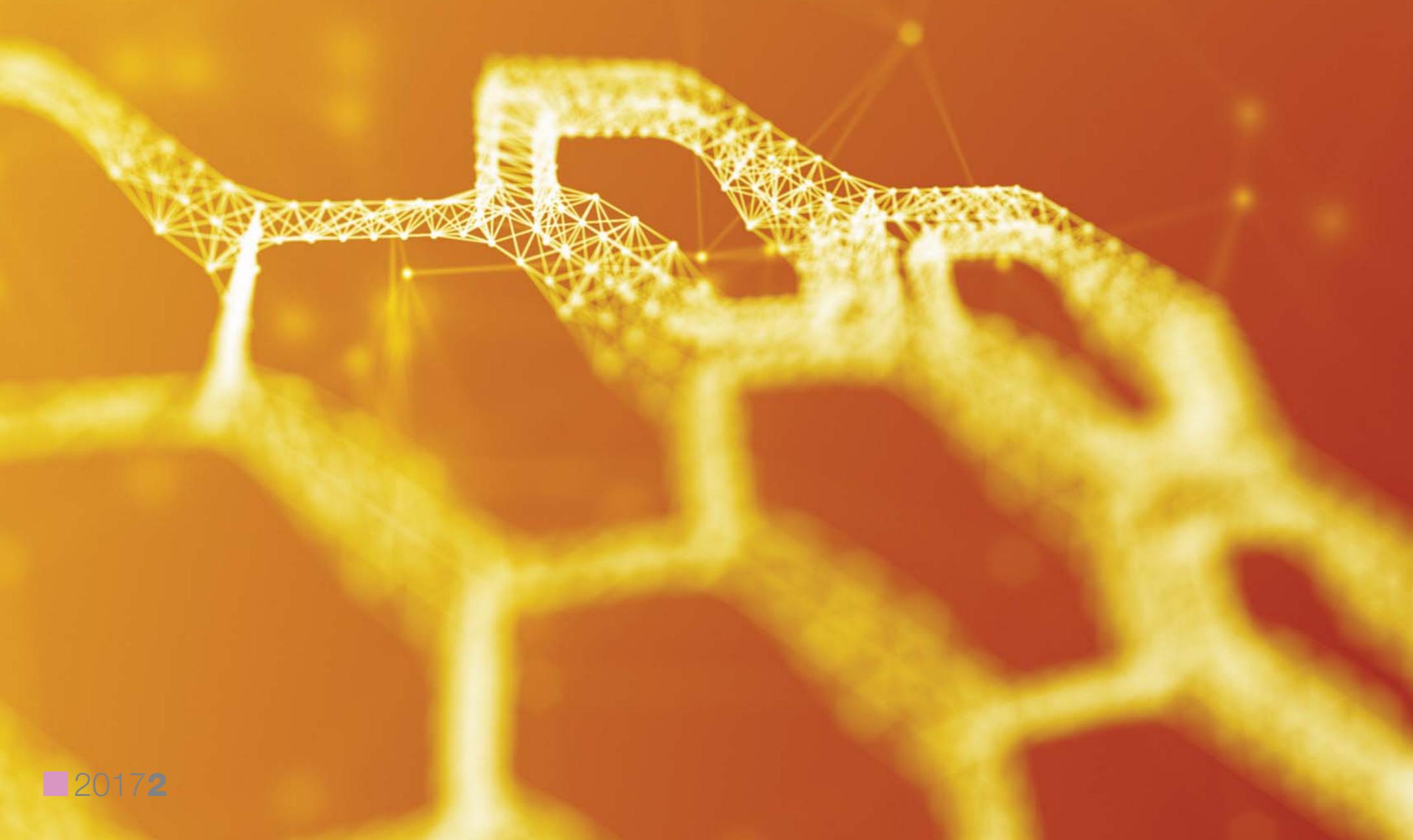
Renewed momentum for the industry is evident across Africa. In East Africa, Tanzania has 50 tcf of recoverable gas, whilst further north there are commercially viable reserves in Kenya, Uganda and South Sudan. South Africa is reporting positive results both offshore and potentially from shale reserves in the Karoo basin.

On the west coast, Angola is to significantly increase production to support its economic growth and aims to become Africa's largest producer. Nigeria has significant gas resources to develop. Ghana is in production and will reach 200,000 bpd whilst Cote D'Ivoire, Chad, Cameroon, Senegal and Mauritania all have new resources being developed. Equatorial Guinea has joined OPEC and commenced an FLNG project.

In Nigeria, the \$14.3 billion, 650,000 bpd Dangote refinery at Lekki is now progressing rapidly and will be one of the largest refineries in the world, gradually ending Nigeria's historic dependence on imported fuel. The project requires 100,000 TEU's of project cargo delivered.

Global unknowns

BREXIT & INDIA



25

Two of the biggest unknowns for global business in 2017 are economic reforms in India and the UK's exit from the European Union. In the recently published 2017 Agility Emerging Markets Mid-Year Review Agility and its partner, Transport Intelligence, looked at both.



Essa Al-Saleh,
CEO & President
Agility Global Integrated Logistics (GIL)

The Review examines the implications of the UK's Brexit for emerging markets and offers analysis of two important reforms in India: one, a unified "GST" tax to replace its baffling array of business taxes, and second, the surprise withdrawal of 500-rupee and 1,000-rupee bank notes from circulation in what has traditionally been a cash-driven economy. The goal of the Review — and of our annual Agility Emerging Markets Logistics Index — is to give businesses information that will help inform their decisions.



Brexit: Game changer or breaker?

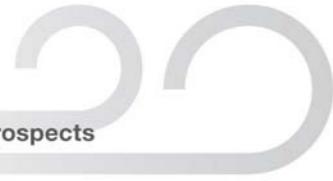
- Brexit has already **weakened the pound and is expected to slow UK economic growth**, likely resulting in at least a modest decline in demand for imports from emerging markets. If Brexit acts as a drag on the larger EU economy, that, too, could dampen demand for goods from emerging markets.
- The UK government has signaled that in the initial aftermath of Brexit, **it will attempt to take a copy-and->**



Global unknowns

State of Emerging Markets Logistics Mid-Year 2017

Tailwinds



Trade Growth Prospects

Improving



Strong trade growth in first half of 2017

Recovery in advanced economies

Rising commodity prices

To view the entire report please go to agility.com and click the link: Agility Emerging Markets Mid-Year Review 2017.

Headwinds



Trade Growth Prospects

Falling



Rising protectionism

Political problems

Weak investment threatens long-term growth

If the UK does not have any kind of customs union with the EU post-Brexit, the UK's role as a gateway for emerging markets to the EU will be damaged.



paste approach that will see it try and mimic EU tariffs. This would provide welcome stability for the UK's emerging markets trade partners. However, trade disputes may arise over tariffs on certain products (most likely agricultural goods) and tariff rate quota arrangements will also necessitate three-way negotiation between the UK, EU and third parties.

- If the UK does not have any kind of customs union with the EU post-Brexit, **the UK's role as a gateway for emerging markets to the EU will be damaged**. Even if

the UK manages to negotiate tariff-free trade with the EU, trade will not be as 'frictionless' due to the requirement of rules of origin checks, which add to the cost of exports.

- **Even a customs union between the UK and the EU would not guarantee frictionless trade in goods.** For example, Turkey - which has a customs union with the EU but is not in the single market — faces documentation checks and product sample tests where it does not follow EU rules for the production, labelling, movement and storage of certain goods. The UK needs to establish an appropriate ►

Brexit: Business as usual for EMs?

UK no longer a **gateway** to EU?

Can the UK 'copy and paste' EU's current trading arrangements?



New trade deals?

AGILITY'S TAKE

Emerging markets businesses and policy makers should keep a close eye on UK-EU Brexit negotiations. ... The EU's stance to date is that "frictionless trade" with the UK is not possible after Britain leaves if the UK maintains its negotiating "red lines." ... The UK's appetite to strike new trade agreements with emerging markets countries is tied directly to its negotiations with the EU: the tougher the terms offered by the EU, the greater the incentive for the UK to look elsewhere for trading partners and to be bold. ... A sharp break with the EU could prompt the UK to slash its corporate tax from 19% to 12% in addition to seeking bilateral deals that drop barriers and lower costs for emerging markets products entering the UK. ... New deals with China and India would probably be top priorities (Asia currently buys 21% of UK exports) but negotiations with both countries could be difficult. ... The UK government wants to maintain existing EU duty-free trade arrangements with emerging markets. For now though, British business's top priority is negotiations with the EU, which buys nearly 47% of UK exports.

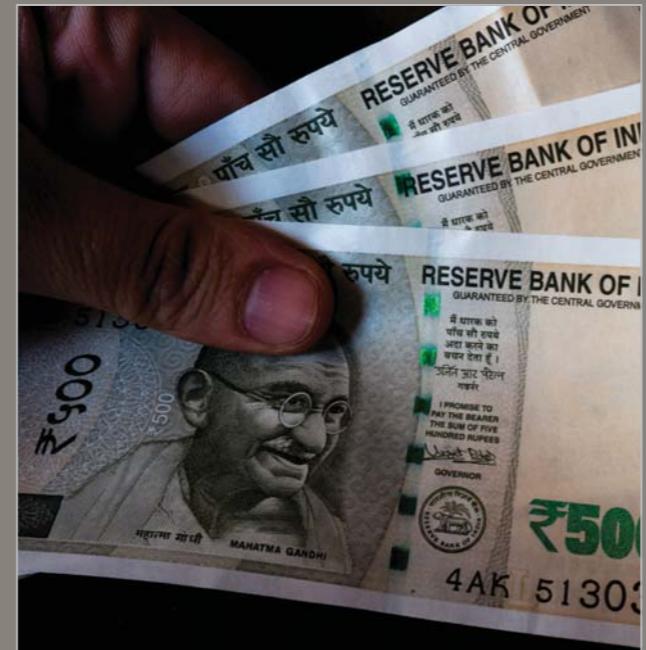
regulatory agreement with the EU or face border checks.

- Some emerging markets, such as GCC countries, Commonwealth countries and Brazil (through South America's trade bloc Mercosur) are likely to pursue new trade deals with the UK. A **mid-size Commonwealth market, such as Malaysia or Sri Lanka, could be the first emerging market to sign a new trade deal with the UK**. Heavyweights such as China and India have the muscle to press the UK for significant concessions. Smaller emerging economies lack the same leverage, though they may be able to punch above their weight if British politicians are desperate to sign deals to make Brexit appear a success.
- **The UK's ability to strike new trade deals with emerging markets countries may be constrained by the EU**, the largest, most important market for the UK and a number of emerging markets. The EU accounted for 47% of UK goods exports in 2016. So, for example, would the UK sweep away barriers to permit cheap North African citrus to the UK if the EU, which heavily protects its Mediterranean producers, might retaliate with duties on UK manufactured goods?

Global unknowns

India: no gain without pain

- The total impact of Goods and Services Tax (GST) reforms over the long run is expected to **increase Indian internal and external trade by 29% and 32% respectively**. These estimates should be seen as lower bounds.
- **GST will replace more than a dozen levies with a single tax regime**. The organized logistics sector (larger logistics companies) may benefit more than any other economic sector as GST will substantially cut the cost of moving goods across Indian state borders.



India has a history of demonetization. What occurred late 2016 was only the most recent. The 10,000 rupee note (the highest ever printed by the Reserve Bank of India and introduced in 1938) was demonetized in 1946 along with 500 and 1,000 notes. All the high denomination notes introduced in 1954 (1k, 5k, and 10k) were demonetized in 1978 and later reintroduced. India is not alone. France, US, Britain, Soviet Union, Australia and most recently Pakistan in 2015, have all demonetized at some time.

Global unknowns

India: Game-changing economic reforms?**Is GST the 'anti-Brexit'?**

- **Large companies will reshape their supply chain networks** as the new tax regime will no longer incentivize setting up one major warehouse in each state. Inventory will be centralized; national warehouse networks will consist of fewer but larger interconnected warehouses.
- **Demonetization has proved to be a short, sharp shock on the economy**, but its effects have largely died out. While jarring, this forced businesses and consumers to rapidly adopt modern cashless payment systems.

Demonetisation debacle?

Crack down on counterfeit cash and the shadow economy?

Critics call it a "major mistake", a "despotic action", "witless" and "anti-people".

- **Demonetization severely negatively impacted the informal logistics sector** (small, unorganized, often one-person operations) in the short run, but may prove to be a shot in the arm for the organized logistics sector in the long run, particularly if it dismantles corruption as some have suggested.
- Overall, **GST and demonetization** will provide the already surging Indian economy and logistics sector with **increased momentum**.

AGILITY'S TAKE

India finds itself simultaneously in the midst of its biggest-ever tax overhaul and one of the world's most ambitious monetary experiments. Neither has been without pain. ... Economic growth slowed following the surprise move to pull currency notes from circulation and the introduction of a unified national sales tax. ... By moving from a blizzard of state and local levies to a single GST tax, India will spur companies to retool supply chains and distribution networks. Instead of keeping inventory in small warehouses across 29 states to minimize their tax burden, producers will store goods and manage distribution where it is most efficient for them to serve multiple states. ... Logistics costs — warehousing, transportation and related services — could come down 20%, by some estimates. The sector will also benefit from changes that simplify investment

rules and allow for foreign investment in ports and other infrastructure. The move to withdraw banknotes, aimed at cracking down on corruption and tax cheats, created chaos. ... But both the GST and monetary reform will accelerate modernization in India's corporate sector. ... Companies will have to buy from GST-compliant suppliers or risk paying additional taxes on goods that have already been subject to taxation. They will need to adopt new systems and processes in order to come into compliance and lower their business costs. Businesses and consumers alike will need to transition to cashless payments, including credit cards, smartphone payments and other types of transactions. ... Facing the roughest adjustment are the poor and small-time shopkeepers and business operators who make up India's massive informal economy, which still employs an estimated three of every four workers.



Delivering humanitarian aid



PERU

Earlier this year, Agility Peru responded to the Peruvian government's special request for aid following massive flooding caused by an El Nino weather effect. More than 10 times the usual amount of rainfall hammered the region from December 2016 through April 2017 and caused Peru's worst floods in 30 years.

Agility is a member of the World Economic Forum's Logistics Emergency Teams (LET). LETs mobilizes when a country requests aid for humanitarian crises that are the result of a sudden natural disaster that affects more than 500,000 people. Even though Peru did not request international aid, Agility and two other members of LETs collaborated to donate assets and resources to the Peruvian government agencies that were organizing the disaster response operations.



The northwest regions of Peru, including Lambayeque and Piura, were struck hardest by flooding. Catastrophic conditions caused by rising water and mudslides destroyed more than 14,000 homes, 700 miles of road and 200 bridges. More than 150,000 people were left displaced and in need of humanitarian assistance. With the region's infrastructure crumbling beneath rain and mud, it was a challenge to get supplies to those who needed them.

Agility Peru coordinated with the Peruvian Ministry of Production to move food, water, shelter, medicine, clothing and other necessary supplies to the communities cut off from the economic center of Lima. Collecting more than 400 tons of aid material from Lima, Agility Peru transported supplies to the government's central consolidation warehouse where they could be palletized and prepared for shipment from nearby airports. Then the Peruvian military transported the goods to disaster zones for distribution.

Peruvian President Pedro Pablo Kuczynski estimated that repairs to affected regions will cost \$9 billion. That figure includes both immediate repairs as well as infrastructure planning to prevent future widespread damage from excessive rainfall. Recovering from a catastrophe that has resulted in more than 100 deaths and hundreds of thousands of displaced people takes time and careful planning; immediate logistical aid helps alleviate the current devastation so a nation can keep looking forward.

"When we received the request to assist with transporting supplies to the communities devastated by flooding, our Peru team was determined to help," said Thomas Otersen, Chief Executive Officer of Agility Chile/Peru. "Using our freight forwarding, warehousing and

The northwestern region of Piura was badly hit in Peru's flood crisis, devastating its farmers. For many Peruvians the 2017 floods have been the worst in living memory.

Delivering humanitarian aid



supply chain expertise to assist with disaster relief is a natural extension of our day-to-day business and reinforces Agility's core values. We were drawn to this challenge by a desire to aid our Peruvian neighbors, and we knew it was our responsibility as a locally positioned global provider."

YEMEN

When Yemen faced a massive cholera outbreak affecting more than 500,000 people, the UN-led Logistics Cluster*, acting as logistics coordinator for the international humanitarian community, asked Agility for support in the form of a 20-foot refrigerated shipping container.

The container would be used to transport cholera treatment medication — specifically, a lactate solution that combats the effects of dehydration — to affected populations in Yemen.

The Agility Dubai ocean freight team worked with four different container vendors to identify an appropriate model. Refrigerated containers (or reefers) are generally constructed with aluminium or steel panelling encasing about four inches of insulation. Inside, a motor runs a generator that supports on-board refrigeration. Agility procured the best reefer it could find and refurbished it for the mission in Yemen.

Before handing over the container, the Agility Dubai team tested its quality during a three-day trial. The container would need to reach and hold a steady temperature below 20 degrees Celsius, even in the steamy Gulf summer. Agility used temperature-monitoring equipment to observe conditions inside the container. Any

The donated container (left) aboard the WFP chartered VoS Apollo loaded with anti-cholera medicines. Photo courtesy Logistics Cluster.

increase in temperature is reported in real-time updates through this system, which ensures that temperature-sensitive cargo is delivered safely.

The refurbished reefer passed the temperature test, and Agility transported it on a vessel bound for the World Food Programme's (WFP) Djibouti hub. There, it was handed over to the Logistics Cluster and placed on a WFP-chartered cargo vessel, VoS Apollo, where it was used to keep cholera treatment medication refrigerated while in transport to Yemen.

The reefer will remain in the Port of Aden as permanent onsite cold storage, coordinated by the Logistics Cluster. The Logistics Cluster is currently supporting the humanitarian response of 42 NGOs and UN agencies in Yemen and acknowledges the importance of the reefer in the response with temperature sensitive medication and a challenging climate.

** The UN-led Logistics Cluster provides technical and logistical support to ensure delivery of relief and humanitarian assistance in the aftermath of emergencies and natural disasters. The World Food Programme, the UN's food agency, is lead agency for the Logistics Cluster.*

The container would need to reach and hold a steady temperature below 20 degrees Celsius, even in the steamy Gulf summer.



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About Agility

Agility brings efficiency to supply chains in some of the globe's most challenging environments, offering unmatched personal service, a global footprint and customized capabilities in developed and developing economies alike. Agility is one of the world's leading providers of integrated logistics. It is a publicly traded company with \$4.1 billion in revenue and more than 22,000 employees in 500 offices across 100 countries.

Agility's core commercial business, Global Integrated Logistics (GIL), provides supply chain solutions to meet traditional and complex customer needs. GIL offers air, ocean and road freight forwarding, warehousing, distribution, and specialized services in project logistics, fairs and events, and chemicals. Agility's Infrastructure group of companies manages industrial real estate and offers logistics-related services, including e-government customs optimization and consulting, waste management and recycling, aviation and ground-handling services, support to governments and ministries of defense, remote infrastructure and life support.



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