



THE INTERNATIONAL MAGAZINE OF THE BP GROUP

ISSUE 4 2011

BP MAGAZINE

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FIRST CLASS SERVICE

BP Magazine reports on one of the company's oldest businesses, learning more about Air BP's long-standing relationships and its plans for the future.



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BP director talks safety

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Next stage for Shah Deniz

48 TAKING THE LEAD

BP supports young leaders

Welcome. The founder of the US nuclear navy, Admiral Hyman G. Rickover, once said, "You don't get what you expect. You get what you inspect." According to Admiral Frank 'Skip' Bowman, a former director of the nuclear submarine and carrier fleets and now non-executive director of BP, it is a principle that BP is now implementing throughout its businesses. He talks about his 38-year career in the US Navy and its legendary reputation in the world of safety and risk management (page 8). He's not the only one with a long career behind him. On page 32, we find out why Air BP is still a giant in its field, 85 years after it first fuelled a de Havilland Tiger Moth flight from the UK to India. Elsewhere in the magazine, we review the actions BP has taken this year to implement its strategic priorities (page 15) and we visit Azerbaijan (page 22) to learn more about plans for the full field development of the giant Shah Deniz gas field. Teamwork features prominently in this issue, too, with BP's head of Production, Bob Fryar, and Olympic athlete Lizzie Armitstead sharing their thoughts on what it means to work as a group.

Lisa Davison > Editor

BP MAGAZINE

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managing editor

David Vigar
david.vigar@bp.com

editor

Lisa Davison
lisa.davison@uk.bp.com

distribution

Carolyn Copland
+44 (0) 20 7496 4340

design

Phil Steed – Steed Design
phil@steeddesign.com
www.steeddesign.com

print management

Williams Lea

image contributors

BP Imageshop
Action Images
Magic Torch
Heart Agency
Debut Art
Rex Features
Corbis

Cover image: Air BP's Michael Rodda replenishes a customer's Beechcraft King Air during the last light of the day, Brisbane, Australia. **Photograph by Aaron Tait**

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Tommy Seagull and three other young people talk about their experiences in the BP-supported Young Leaders programme.



For the record

Highlights from around the globe > Winter 2011



**the quarter
in numbers**

3

The number of gas discoveries BP has now made in the North El Burg offshore concession in Egypt's Nile Delta.

32,650 sq km

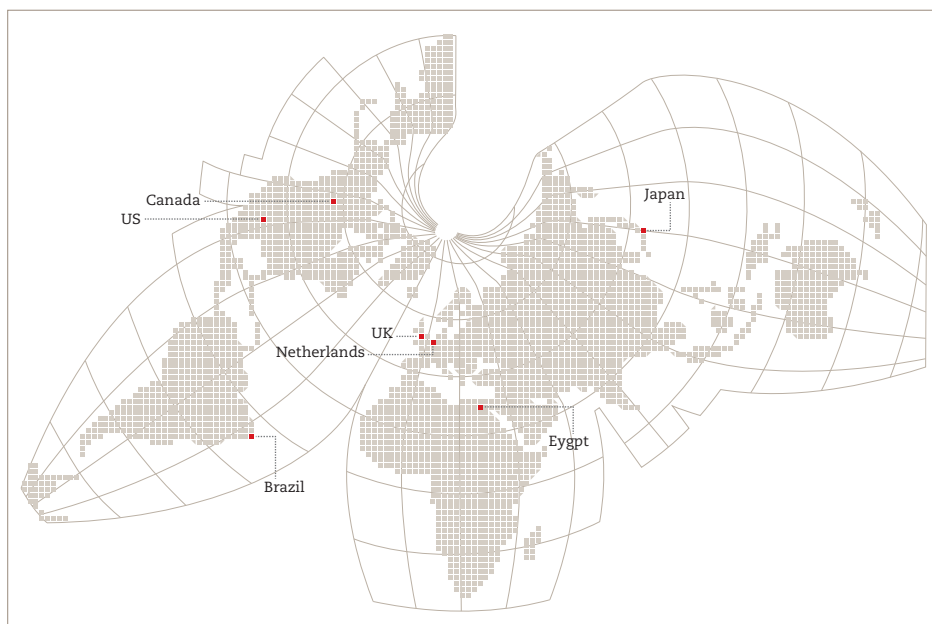
The total acreage that BP now has in Angola, following new access to five more deepwater exploration and production blocks.

\$1 million

The prize money for The Queen Elizabeth Prize for Engineering. BP is one of 12 companies backing the newly-created international award.

\$1.67 billion

The amount that Plains Midstream Canada is to pay BP for its Canadian natural gas liquids business.



UK: North Sea investment

BP and its partners are to develop four new oil and gas projects in the UK's oil industry that have a combined total investment of almost £10 billion. The work will take place over the next five years and will help maintain BP's production from the North Sea for decades to come. At

a press conference at BP's offices in Aberdeen, Scotland, the UK prime minister, David Cameron, announced that the UK government has granted BP and its partners – Shell, ConocoPhillips and Chevron – approval to proceed with the £4.5 billion Clair Ridge

project, the second phase of development of the giant Clair field, west of the Shetland Islands. "I am delighted to give the go-ahead for this project; this investment is great news for Aberdeen and the country, and provides a massive boost for jobs and growth."



Major investment: BP's Bob Dudley (centre left) and the British Prime Minister David Cameron (centre right) at BP's offices in Aberdeen, Scotland.

"I am delighted to give the go-ahead for this project; this investment is great news for Aberdeen and the country and provides a massive boost for jobs and growth."

David Cameron

US

Permit approval

BP has been awarded permits to resume plugging and abandonment activities in the Gulf of Mexico. It has also obtained a permit to drill a new appraisal well at the Kaskida prospect. Drilling began in November.



Global

Board appointment

Brian Gilvary (above) has joined the BP board and become the company's new chief financial officer (CFO). He succeeds Byron Grote, who first took the position in 2002. Gilvary had been BP's deputy group CFO and head of finance for almost two years. Grote, meanwhile, will take up a new role as executive vice president of corporate business activities. He will also continue as a member of the board.

US

Claims settlement

BP has reached agreement with Cameron International Corporation, the designer and manufacturer of the Deepwater Horizon blowout preventer, to settle all claims between the companies related to the Deepwater Horizon accident and spill. Under the settlement agreement, Cameron will pay BP \$250 million. BP will

immediately apply the payment to the \$20 billion trust it established to meet individual, business and government claims, as well as the cost of the natural resource damages. See page 15 for more on BP's activities throughout 2011.

US

Asset sale

BP has agreed to sell its interests in the Pompano and Mica fields in the deepwater Gulf of Mexico to Stone Energy Offshore. Under the agreement, Stone Energy will pay BP \$204 million in cash. The agreement includes the sale of BP's 75%-operated working interest (WI) in the Pompano field and assets, and 50% non-operated WI in the Mica field, together with a 51%-operated WI in Mississippi Canyon block 29 and interests in certain leases located in the vicinity of the Pompano field.

Japan

Dream partnership

Japan's largest airline, All Nippon Airways (ANA), is to use BP's turbine lubricants for the engines and auxiliary power units on its

new Boeing 787 Dreamliner aircraft. ANA is the world's first commercial customer for Boeing's new aircraft, having taken delivery in September 2011 of the first of 55 planes ordered.

Brazil

Appraisal success

BP has lodged a 'notification of discovery' with the Brazilian National Agency of Petroleum for the Itaipu-2 pre-salt appraisal well, located in the deepwater section of the Campos basin. The well, located approximately 130 kilometres (80 miles) offshore Brazil, was drilled to a total depth of 4,877 metres (16,000 feet) in 1,420 metres (4,660 feet) water depth.

UK

Cultural partnerships

BP has renewed and extended its long-standing partnership with four of the UK's major cultural institutions – the British Museum, the National Portrait Gallery, the Royal Opera House, and Tate Britain. In total, BP will invest almost £10 million in the four partnerships over the next five years.



US

Wind deal

BP Wind Energy has signed wind turbine supply and maintenance agreements totalling more than \$750 million to continue growing its wind portfolio in the US. A total of 350 wind turbine units will be delivered to BP projects. Once operational, the additional turbines will have a combined power generation of 560 megawatts (MW). Some 88 turbines will be delivered to BP's Mehoopany wind farm located on a 3,640-hectare site in Wyoming County, Pennsylvania.

Brazil

Air expansion

Air BP is expanding its Brazilian footprint with the purchase of aviation fuel assets at seven Brazilian airports from Shell Brasil Holding BV and Cosan SA Indústria e Comércio for around \$100 million. On completion, Air BP will be present at 18 Brazilian airports which together account for some 66% of aviation fuel demand in Brazil. For more on Air BP see page 32.



In formation

We use products made of oil and gas every day, but have you ever wondered how these hydrocarbons were formed in the first place? And what about how and where they are trapped underground? These are complex questions that have driven geologists for more than a century, in their ongoing search for new sources of energy.

Oil and gas are produced from organic matter that has been concentrated and preserved within specific layers of rock, referred to as 'source rocks'. The organic matter is commonly known as kerogen, which has many different forms, depending on the environment in which it was deposited. Most oils come from algal and marine planktonic remains that are deposited in anoxic conditions (see glossary), ensuring their preservation. Most gases are derived from terrestrial plant matter that has been decomposed by bacteria and fungi under suboxic conditions.

In order to generate oil and gas, the organic matter must then be 'cooked'. This process breaks down the kerogen into hydrocarbons. Cooking the material requires time and a rise in temperature, which is achieved by burying the sediments below the ground surface. Typically, the first oil is expelled from the source rocks at a temperature of 100°C (210°F). As the temperature rises, the fluids expelled evolve into progressively lighter oils, then gas.

As hydrocarbons are generated, they migrate out of the source rocks towards other rock layers. In general, they move uphill through porous and permeable rocks (reservoirs). In some instances, they will keep rising until they seep out onto the ground surface. Indeed, humans have used oil from these natural seepages for centuries. Many ancient religions, such as Zoroastrianism, incorporate the fires of naturally ignited seeps into their ceremonies and beliefs. More recently, BP's

first discoveries in Iran were made, in part, following investigations based on natural seeps in the Zagros Mountains.

Often, though, the hydrocarbons hit an impermeable rock layer, known as a 'seal', and sometimes the combined geometry of the seal and reservoir forms a trap (see glossary) – some form of upside-down bowl that prevents the hydrocarbons from rising further.

So, what does a reservoir look like? It is, in fact, rock with millions of tiny holes – or pores – that fill with oil and gas. These pores act as storage spaces. The type of rock in the reservoir will determine the rock's porosity and a reservoir can look like anything from a chunk of airport runway – in other words, extremely compacted, with microscopic pores – to coarse sandstone, with pores that are visible to the naked eye.

This variation is caused by the grain sizes within the rock and by the depth at which the reservoir rock is buried. The deeper the rock, the higher the temperature and pressure, causing the rock to compact, and cement to form between the grains.

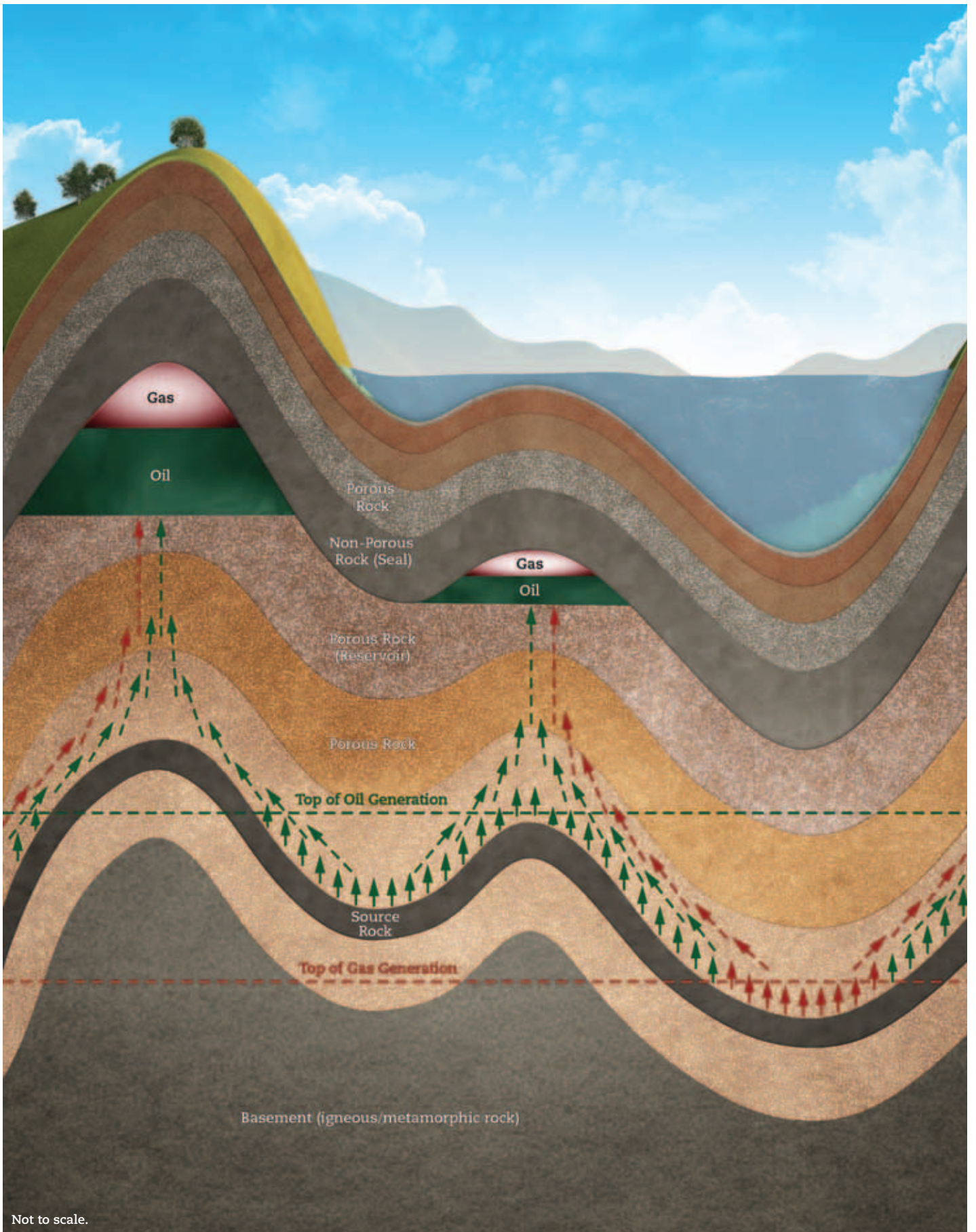
The nature of the reservoir's pores, or, more precisely, how connected they are – its permeability – is important when it comes to removing the hydrocarbons from the subsurface. The size of the pores determines the rock's ability to store oil and gas, while the permeability determines the rate at which oil and gas will flow from the rock into a wellbore.

A geologist's job is to create a picture of what is underground in order to make informed decisions on where the oil and

gas might lie, and where best to drill exploration wells. The trouble is, it can be a bit like sitting on the top floor of a high-rise building and trying to determine where someone is sitting several floors below. You may have an idea of the general floor plan, and you may predict that your target is more likely to be sitting at a desk than standing at the coffee machine, but without actually visiting the floor, you'll never know for sure. Technology has played a vital role in helping geologists, not least through seismic imaging, which transmits soundwaves into the earth and then uses the echoes to build an image (see *BP Magazine* Issue 1 2009 for more on advanced seismic techniques). Even today, though, with all the seismic techniques and other technology available, you very rarely know for sure whether there is oil and gas in the ground until you drill a well. ■

Glossary

- **Seal** – an impermeable layer of material, such as shale, salt, limestone or anhydrite, that traps oil and gas and stops it from continuing its vertical migration.
- **Trap** – a reservoir/seal geometry that prevents oil and gas from migrating to the ground surface. In its most basic form, a trap is a concave-downward shape (e.g. a fold or a dome).
- **Porosity** – a measure of the void (i.e. 'empty') spaces in a material. It is expressed as a fraction of the volume of voids over the total volume.
- **Permeability** – the capability of a porous rock or sediment to permit the flow of fluids through its pore spaces; basically, a measure of the size of the connections between pores.
- **Anoxic conditions** – water with no oxygen content, thus preventing organic matter from rotting. This often occurs in very restricted seaways, where there is little water circulation. The deep Black Sea is one modern example.
- **Suboxic conditions** – water that is low in oxygen content and, therefore, yields very slow decay rates.



Not to scale.



AN INTERVIEW WITH

FRANK BOWMAN

With 38 years in the US Navy – the past eight as the man responsible for overseeing the safe reactor operations of more than 80 nuclear-powered submarines and 12 nuclear-powered aircraft carriers – Admiral Frank ‘Skip’ Bowman knows a thing or two about keeping people safe. He talks to *BP Magazine* about his experiences and his new role on BP’s board, as one of its non-executive directors.



When Admiral Frank ‘Skip’ Bowman talks to BP’s leaders about safety, they listen very closely – and with good reason. Bowman spent 38 years in the US Navy, eight of them as director of naval reactors for both the nuclear submarine and carrier fleets, an organisation with a legendary reputation in the world of safety and risk management.



Since the 1960s, the US Navy’s nuclear subs have travelled 231 million kilometres (144 million miles) and clocked up 6,200 ‘reactor years’ without an accident, in an extreme, high-hazard environment.

Naval submarines are like three-storey buildings, just nine metres (30 feet) wide, but as long as one or two football pitches. They are powered by nuclear reactors, and some are armed with nuclear missiles. Each sub carries more than 100 people deep below the ocean’s surface, for months at a time. They are dependent on complex technology that has to be expertly operated around the clock.

As director of the US Naval Nuclear Propulsion Programme – known as naval reactors or ‘NR’ – Bowman was responsible for overseeing the safe reactor operations of more than 80 nuclear-powered submarines and 12 nuclear-powered aircraft carriers for eight years, up to 2004. This was the culmination of a naval career that included serving as director of political-military affairs and as the chief of naval personnel, as well as commanding a nuclear submarine, the *USS City of Corpus Christi*.

Given its record, it’s easy to see why the world’s most hazard-prone industries have

endeavoured to emulate NR’s process and procedures. NASA, for example, adopted an NR-type programme after the Columbia space shuttle accident. Admiral Bowman, in fact, testified before the US Congress on NR’s culture and procedures following that tragedy.

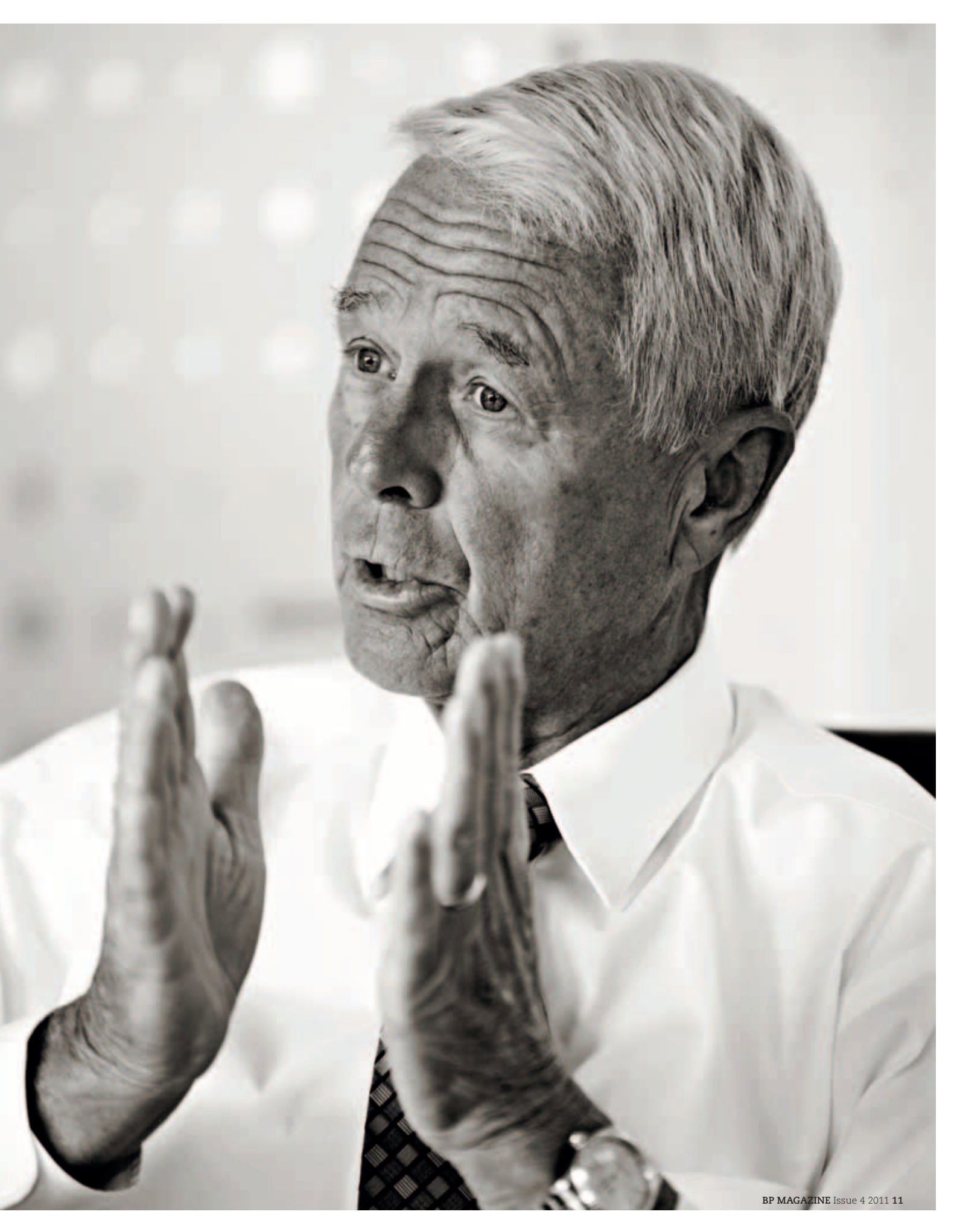
More recently, the nuclear navy’s ‘SUBSAFE’ system was held up as a role model of process safety in the report of the Presidential Commission into the Deepwater Horizon accident in 2010.

Largely through the link with Bowman, BP’s leaders have gained in-depth understanding of the processes, standards and attitudes underpinning NR’s multi-decade safety record. Bowman served on the panel that investigated BP’s US refineries after the Texas City explosion in 2005, led by former secretary of state James Baker. He then became a member of the company’s US advisory council; and in November 2010, he joined the main board as a non-executive director. He has visited all of BP’s US refineries, as well as two offshore platforms and the company’s Houston-based learning centre, designed to provide on-site learning and development for upstream staff. He has also led a session at BP’s Operations Academy at the Massachusetts Institute of Technology.

Much of the work now being done in BP by Bob Dudley’s team, particularly the safety and operational risk (S&OR) division under Mark Bly, has strong echoes of NR’s approach. Three concepts in particular stand out – standardised systems, third-party inspection, and developing the skills and attitudes of individuals.

Bowman says: “The submarine nuclear navy has a set of risk management systems »

“The overarching culture among submariners is one that involves a questioning attitude, a healthy scepticism about how things are. Nothing is taken for granted.”



“You need to respect even the smallest amount of risk and evaluate that risk constantly. Risk management is a process, not an event.”



– for reactors, for submarine integrity, for weapons, for navigation, and so on – and safety comes from verbatim compliance with the rigorous set of procedures that make up each system.” The SUBSAFE system praised by the Presidential Commission is designed to prevent flooding and to ensure operation of the systems to recover from flooding. The system contains procedures for design, materials, fabrication and testing, and for work controls throughout life. Bowman believes the framework is directly applicable to oil and gas facilities.

“But the systems and procedures alone are not enough,” he adds. “The overarching culture among submariners is one that involves a questioning attitude, a healthy scepticism about how things are. Nothing is taken for granted.”

The questioning attitude is backed up by formal processes of scrutiny and oversight. Submarines are overseen by an independent technical authority and an independent safety and quality assurance authority, focused on safety and compliance rather than operational mission concerns.

Bowman says: “You need to have a system of inspections without creating distrust. This

is not about distrust. It is simply separate sets of eyes looking at each process.”

BP is following similar principles, with S&OR professionals inspecting operations and external experts being brought in to certify critical equipment and processes, such as blowout preventers on drilling rigs. As Bowman observes, BP is implementing the principle articulated by the founder of the nuclear navy, Admiral Hyman G Rickover: “You don’t get what you expect. You get what you inspect.”

Bowman sees strong parallels between the submarine navy and the energy industry. “Admiral Rickover said that technology applied to nature creates its own discipline. The stronger the forces of nature being harnessed by a given technology, the more dire the potential consequences, the more discipline needed by those who design, operate and maintain that technology. That puts oil and gas near the top of the league in terms of the need for strong, rigorous discipline in designing, maintaining and operating our systems.”

And Bowman clearly believes BP can emulate the nuclear navy’s approach. “I have had a great deal of experience with BP over the past six years, and I think we have

a similar quality of people as the nuclear navy. And with the right degree of training, certification, qualification, inspection and oversight, BP and, indeed, the entire industry, can achieve the same sort of safe and successful outcomes that the nuclear navy has.”

Bowman has been impressed by the way the S&OR organisation and the upstream have taken decisions to suspend operations when necessary. “We’ve recently walked away from several jobs where our standards were not being met by our partners or a contractor. That sends a message heard around the world, and we should continue to do that.”

Turning to BP’s priorities for the future, Bowman stresses the need for continuous monitoring and improvement.

“You need to respect even the smallest amount of risk and evaluate that risk constantly. Risk management is a process, not an event. You may have put in place systems to manage risk associated with a particular operation, but you’re never done. What if the circumstances change? For example, what happens if the alarm system fails? What is the back-up plan? As a company, we must face facts and call it like



it is. Stop the operation if we become uncomfortable.

“When I was doing inspections, I would encourage people to think in terms of changes to the status quo or equilibrium. You’re in a situation where everything is ok, no alarms, no bells, no loss of integrity. So, before you take that next step in the operation that will disturb that equilibrium, by turning a valve or changing a switch position, think about what you expect. What do you expect to see? What do you expect to hear? Or smell? Then, if you don’t get the change you expect when you turn the valve or move the switch, you need to quickly return to the status quo ante. So many accidents occur because people don’t ask themselves, ‘What do I expect when I change the equilibrium? And if I don’t get that result, what am I going to do to return to the equilibrium state?’

“In any business dealing with an unforgiving environment, complacency is your worst enemy. You have to be very careful about what conclusion to draw from the absence of an accident. Even though we may have done things this year that make all the sense in the world, we must continue to go back over each area »

A LIFETIME OF SAFETY EXPERIENCE



Admiral Bowman is a native of Chattanooga, Tennessee, US. He graduated from Duke University in 1966, and then served more than 38 years in the US

Navy. At sea, Bowman commanded the nuclear submarine, *USS City of Corpus Christi* (SSN 705), and the submarine tender, *USS Holland* (AS 32). Admiral Bowman served on the Joint Staff as director of political-military affairs and as the chief of naval personnel. From 1996 to 2004, he was director of the Naval Nuclear Propulsion Programme, the third successor to Admiral Hyman G. Rickover, and was concurrently deputy administrator for naval reactors in the National Nuclear Security Administration at the US Department of Energy. Following his naval career, Bowman was president and chief executive officer of the Nuclear Energy Institute, which represents more than 300 domestic and international corporations and organisations involved in nuclear energy and related technologies. Bowman is a member of the National Academy of Engineering, and a recipient of the Robert S. Landauer Memorial Lecture Award for distinguished contributions to the field of radiological physics and radiation health protection. In 2005, he was appointed an honorary Knight Commander of the Most Excellent Order of the British Empire, by the Queen Elizabeth II. Bowman was also awarded the Officier de l’Ordre National du Mérite by the French Government, in 2007. Bowman serves on the boards of directors of Morgan Stanley Mutual Funds; BP; Naval and Nuclear Technologies; the Armed Services YMCA; and the American Shipbuilding Suppliers Association. He is a member of the American Lung Association’s President’s Council and a trustee of the Fairhaven United Methodist Church. Bowman married his high school sweetheart, Linda, in 1966. The Bowmans have two children and six grandchildren.

and re-evaluate. We must continue to display that healthy scepticism, that questioning attitude.

“BP has done a lot: establishing S&OR. Getting the operating management system (OMS) fully embedded. We have a new set of voluntary performance standards for deepwater drilling that tells the world BP is very serious. We are sharing lessons learned among ourselves and with governments and global partners. We have begun to have more field inspections. I was very happy to observe and participate in Bernard Looney’s [executive vice president for Developments] inspections and sessions with the Gulf of Mexico and North America Gas leadership teams. I was impressed with the conduct of that inspection.”

Bowman wants to see processes supported by questioning attitudes. “Right now, all over Washington DC, I’m seeing the US Department of Homeland Security’s bumper sticker asking people to be alert to potential terrorism saying, ‘If you see something, say something’. We should borrow that thought, and say to workers that if they see anything that

doesn’t seem quite right, they must say something. Empowering workers and contractors to speak out is a very important part of what we’re doing.”

Asked about leadership qualities, Bowman says his experience tells him both technical and personal characteristics are important.

“Admiral Rickover insisted on a high level of technical understanding and knowledge of the systems being operated. But leaders also need high ethical standards and high core values that are constantly transmitted. It is also about being a good listener. Leaders can’t always be in broadcast mode. They have to be able to mute themselves and go into listen mode – and accept criticism. They have to be willing to have people around who are prepared to say, ‘Boss, you forgot to put your pants on this morning.’”

“Culture is set by the collective behaviour of an organisation’s leaders and, therefore, it is vitally important that the message must originate at the top. The collective behaviour of BP’s leaders must consistently endorse safety as central to our very being.

“I think that Bob Dudley and his executive staff are doing just that... getting the message out that safety and operational risk management is endemic to what we do. They are also very good listeners, as I have witnessed on the board.”

Bowman sees his role at BP as having three strands: monitoring and scrutinising the executive team’s performance; supporting management in identifying and mitigating risk; and – his constant theme – asking the right questions.

“As Popeye the sailor man would say, ‘I’ve been doing this all me bloomin’ life.’ And what 38 years of nuclear submarine experience has taught me to do is always to ask questions. Show me why we should do things this way? How can we improve in this area? What did we learn from that incident? What have we done to be sure we have good up and down communication on that point?”

“We can’t be satisfied with meeting some given level of process safety achievement and say, ‘Ok, that’s that, let’s go on to something else.’ The way we got to the level of excellence we had in the Navy was to never, ever, be satisfied. I think BP can learn from that.” ■

“The way we got to the level of excellence we had in the Navy was to never, ever, be satisfied. I think BP can learn from that.”



BP'S TURNING POINT

Early in 2011, BP's chief executive, Bob Dudley, told investors that it would be a year of consolidation for the company. By the end of 2011, BP had reached what he described as a 'definite turning point', with momentum starting to return throughout the organisation. During the year, the company acted to implement three strategic priorities: putting safety and operational risk at the heart of BP; rebuilding trust; and pursuing growth in shareholder value. BP is now looking towards its future direction, unveiling a 10-point plan to build a stronger, safer company to create sustainable value. *BP Magazine* looks at some of the key events that have taken place within the company over the past 18 months, and outlines the 10-point plan.



2011 IN REVIEW

Safety and risk management



- > In March, BP's new safety and operational risk function begins work. The division is responsible for setting global standards for safety and operational risk management, and working with all of BP's operating businesses as they apply them day-by-day, worldwide.

Rebuilding trust



- > In February, BP joins Chevron, ConocoPhillips, ExxonMobil and Shell as a member of the US Marine Well Containment Company, bringing to the organisation its experience and equipment from the Deepwater Horizon response effort.
- > In April, BP commits up to \$1 billion to early restoration projects that will restore natural resources in the Gulf of Mexico at the earliest opportunity.

Growing value for shareholders



- > In February, BP reinstates the payment of quarterly dividends. The payments were suspended in June 2010, following the oil spill in the Gulf of Mexico.
- > By the end of the third quarter 2011, BP has announced asset sales totalling \$19 billion against its divestment programme. It plans to divest a further \$15 billion, which will include the sale of two US refineries – Texas City and Carson.

- > BP's upstream organisation implements one of the most significant restructuring processes in 18 years, with the creation of three new divisions – Exploration, Developments and Production. Each division has its own executive vice president, who reports to BP chief executive Bob Dudley.
- > The new global wells organisation gets to work. Headed by Richard Lynch, as part of the Developments division, this group is responsible for standardising the way wells are designed and drilled throughout the BP world.
- > In July, BP announces it will implement a new set of deepwater oil and gas drilling standards for its operations in the Gulf of Mexico. The voluntary performance standards go beyond existing regulatory obligations and reflect the company's determination to apply lessons learned from the Deepwater Horizon incident and subsequent oil spill.
- > Over the course of 2011, BP undertakes 48 major upstream turnarounds. A turnaround is a planned, periodic shutdown of a facility in order to perform maintenance and repairs, and to inspect, test and replace materials and equipment.
- > Throughout 2011, BP implements the lessons learned from the Deepwater Horizon accident, including the construction and deployment of a full-scale well capping stack in Angola. The company also creates a package of response tools, that are housed in Houston in climate-controlled facilities, to maintain the equipment's integrity, with plans in place so that it can be deployed anywhere in the world within 24 hours.

- > By the end of October, BP has contributed half of the \$20 billion it committed for the trust fund to meet the costs of the Deepwater Horizon accident.
- > By the beginning of December, individuals and businesses have received more than \$6.1 billion in payments for claims, while government entities have received around \$1.3 billion in payments for claims and advances.
- > During 2011, BP reaches a \$1 billion settlement with MOEX and a further \$4 billion settlement with Anadarko, both co-leaseholders of the Macondo well. It also reaches a settlement with Weatherford, which manufactured the well's float collar.
- > After 18 months of sustained effort to clean the shoreline of the Gulf of Mexico, following the Deepwater Horizon accident, the US Coast Guard's federal on-scene coordinator (FOOSC) approves the shoreline clean-up completion plan, paving the way for restoration work.
- > BP forms a new deepwater global response team. Reporting to head of Developments, Bernard Looney and president of BP America Lamar McKay, the group accepts invitations from governments, regulators and others around the world to share the lessons learned on relief well drilling, spill response and how to manage thousands of potential responders.

- > The year to October proves to be a record one for BP in new upstream exploration access, with awards in 11 countries for more than 60 new exploration licenses. These include deepwater licences in Brazil, Australia, China, and Trinidad & Tobago.
- > BP becomes the first company to reach its initial production target in Iraq, with output at the super-giant Rumaila field growing significantly.
- > Refining and Marketing continues to provide valuable cash flow to the group, with 2011 set to be one of the highest-ever years for downstream earnings.
- > BP announces plans to expand its Brazilian biofuels business. It will acquire the remaining 50% share in the Brazilian biofuels company Tropical BioEnergia, making it the 100% owner. The deal is worth approximately \$71 million. Meanwhile, it announces that it will acquire an additional 3% share in CNAA, for approximately \$25 million. Following the deal, BP will own 99.97% of the company.
- > BP completes an agreement with India's Reliance Industries to acquire a 30% stake in 21 oil and gas production sharing contracts that Reliance operates in India. The two companies will also form a 50:50 joint venture for the sourcing and marketing of gas in India.
- > BP and its partners announce the development of four new oil and gas projects that, together, will involve a total investment of almost £10 billion in the UK's North Sea oil industry over the next five years. The announcement includes approval from the UK government to proceed with the £4.5 billion Clair Ridge project, which will see a second phase of development at the giant Clair field, west of the Shetland Islands.
- > In the Gulf of Mexico, BP is awarded permits to resume plugging and abandonment activities and obtains a permit to drill a new appraisal well at the Kaskida prospect. Drilling begins in November 2011.

BP'S 10-POINT PLAN

BP's 10-point plan for the future consists of five things to expect and five things to measure.

1.

Relentless focus on safety and managing risk

BP's top priority remains to deliver world-class performance in safety, risk management and operational discipline. Group chief executive Bob Dudley says it will be a company that "systematically applies its global standards as a single, global team."



2.

Playing to strengths

BP plans to play to its key strengths. These include exploration, where it has a long history of achievement, as well as managing deepwater operations, giant fields and gas value chains. Over the years, BP has also built a world-class downstream business. Underpinning these strengths, are deep capabilities in building relationships and in developing leading-edge capability in its flagship technologies.

3.

Stronger and more focused

The work being carried out to reshape BP will make it a stronger, more focused company – with a base of assets that is high-graded and high-performing.



4.

Simpler and more standardised

BP has become more standardised. It now has a smaller footprint – with fewer assets and operations in fewer countries – and its internal reward and performance processes are more streamlined. All of which Dudley believes will "drive better and more sustainable performance in safety, quality and efficiency with less variation."

5.

More visibility and transparency to value

BP has pledged to improve transparency in the reporting of its business segments. In 2012, it will include separate numbers for certain parts of its businesses, such as lubricants and petrochemicals in the downstream.





6.

Active portfolio management

BP is managing its portfolio to focus on areas of strength and to deliver increased financial flexibility. Since starting the current disposal programme, it had announced transactions totalling around \$19 billion by the end of the third quarter of 2011. In addition to the original programme, it plans to divest a further \$15 billion of businesses by the end of 2013.

7.

New projects onstream with higher margins*

Over the next three years, BP has a strong list of upstream projects coming onstream and, by 2014, it expects unit cash margins on production from this new wave of projects to be around double its existing average.

*This assumes a constant \$100/bbl oil price and excludes TNK-BP operations.

8.

Operating cash flow to grow around 50% by 2014

By 2014, BP expects to generate an increase of around 50% in additional operating cash flow each year, compared with 2011, based on a constant \$100/bbl oil price.

Approximately half of the additional operating cash flow is expected to come from concluding BP's payments into the Deepwater Horizon Oil Spill Trust Fund, with around half coming from operations.



9.

Use of incremental cash flow – reinvestment and other purposes

That additional cash flow will be used prudently, says Dudley. “We want to use around half for increased investment in our project inventory for growth, and around half for other purposes.” These purposes may include increased distributions to shareholders through dividends, buybacks, or repayment of debt.

10.

Strong balance sheet

BP plans to enhance the strength of its balance sheet, moving into the lower half of the 10-20% gearing range.

Viewpoint>
Houston monitoring centre



Mission possible

Houston has a new mission control, only this one is not located at NASA's Johnson Space Centre, but up the road at BP's offices. And instead of voyages into space, it charts the course of oil and gas wells being drilled deep into the Earth's surface. BP's state-of-the-art Houston monitoring centre provides real-time information feeds and instant communications between its rigs in the Gulf of Mexico and its experts based onshore. It is a flagship example of what BP calls a collaborative real-time environment – or CoRE – and will be used to reduce risk by monitoring data from each rig on a 24/7 basis, and providing support to offshore teams. The largest part of the centre is pictured here, with its curved video wall, where 25 screens display data and imagery from a variety of sources, to provide dashboard views of current operations. And it's no surprise that it looks like the real Mission Control, as a former senior NASA manager was involved in its functionality. Wayne Hale, who served as space shuttle programme manager and flight director, helped to design the centre and the systems it uses. "Hale lived and breathed monitoring, data feed and analysis, measurement, and simulation training as a flight director for NASA," says BP's operations manager Chris Harder. "He has helped us develop a very rigorous onshore monitoring process for Gulf drilling activities and we certainly feel confident having had his significant input." ■



THE RISING FORTUNES OF THE CASPIAN

Anyone who has had the chance to visit Baku in the past few years can't have helped notice the sheer volume of construction taking place in Azerbaijan's capital. Much of this has been made possible by the renaissance in the country's oil industry, with revenues translating into new highways, hotels and skyscrapers. Now, with BP and its partners planning to fully develop the giant Shah Deniz gas field, the next stage of Azerbaijan's development will see it forge closer ties with its European neighbours.

High life: Baku's three giant Flame Towers dominate the city's skyline.

Report > Amanda Breen
Photography > Mehmet Binay/Stuart Conway





Old and new: the Gobustan carvings (above) are a UNESCO world heritage site. Below, an aerial view of the drilling floor on the Shah Deniz platform.



It's hard to look beyond the immediate surroundings at Gobustan, the UNESCO world heritage site in Azerbaijan's scorched semi-desert, an hour's drive southwest of the capital, Baku. There, on a barren hill-top, more than 20,000 years of human history is etched onto giant boulders, with thousands of carvings that depict how communities lived in the region through the ages. Wild animals, livestock, male and female figures, and even longboats feature on rock faces, today's remnants of caves once lapped by waters of the Caspian Sea.

Now sitting 108 metres (354 feet) above sea level, Gobustan's petroglyphs are about five kilometres (three miles) from the shoreline. While the fascinating, sometimes hard-to-decipher carvings demand visitors' attention, if you tear your eyes away from this art gallery of a landscape and turn a full 180 degrees, the sweeping view down to the blue Caspian waters is equally captivating.

In the distance, like small toys dropped in a bath, it's just possible to make out parts of man-made infrastructure that tell a story about this nation in modern times. For, just as Gobustan reveals a rich history through its archaeological findings and burial sites, the Caspian waters point to Azerbaijan's present and future, with images of the oil

and gas industry – rigs, platforms and vessels – lining the horizon.

Extracting hydrocarbons is not a new activity here; the country's first industrial oil well was drilled in 1848 and by 1901, Azerbaijan produced half the world's oil. More than a century later, driving along the highway that traces the coastline, there are constant reminders of the oil industry, past and present: narrow pipelines, disused nodding donkeys, and an enormous steel carcass of a platform jacket, waiting to be disassembled for parts.

The six-lane roadway itself is a result of the revival of Azerbaijan's oil production; in 1994, the late president Heydar Aliyev signed what became known as the 'contract of the century', a production sharing »

SOUTHERN ENERGY CORRIDOR: PIPELINE OPTIONS

On 1 October 2011, three bids for the construction and operation of a new pipeline were presented to the Shah Deniz consortium. At the time of going to press, the proposals were under consideration by the project team; the pipeline route will be selected on the basis of eight criteria, including commerciality, project deliverability, scaleability and engineering design.

- **Nabucco proposal:** maximum capacity of 31bcm/a, involves a 3,863 kilometre route from Turkey to the Baumgarten gas hub in Austria, the largest scale option.
- **Trans-Adriatic Pipeline:** designed to initially carry 10bcm/a, offers room for expansion at a later stage. Crosses Greece, Albania, the Adriatic Sea and comes ashore in southern Italy.
- **IGI-Poseidon proposal:** links the existing interconnection between Turkey and Greece to new onshore and offshore pipelines, before ending in Italy. Its capacity is tailored to Shah Deniz export quantities of 10bcm/a, with possible expansion through a new link to Bulgaria.

The Shah Deniz project team is also evaluating a fourth potential export option which would transport gas to markets in south-eastern Europe through a system of regional existing and future interconnector infrastructure.



Source: BP/The World Factbook

agreement (PSA) with 11 foreign oil companies, including BP, to develop offshore hydrocarbon resources. Less than 20 years later, oil revenues are bringing investment to the nation's infrastructure, and nowhere is the pace of change more evident than in Baku.

Alongside the renovated sandstone mansions of the first oil boom and the utilitarian blocks of the Soviet era, new skyscrapers, hotels, shopping malls and entertainment venues are springing up, thanks to the 21st century oil boom.

Dominating the city's skyline now are three Flame Towers, each 182 metres (600 feet) of curving steel, inspired by Azerbaijan's history of fire-worshipping. In ancient times, the Zoroastrians – for whom fire was an important symbol – built temples around burning gas vents in the ground. The towers are the country's tallest buildings, symbolising the significance of oil and gas.

If the first chapter of this latest hydrocarbon boom has been largely down to oil, with the giant BP-operated Azeri-Chirag-Gunashli (ACG) field yielding on average 757,500 barrels a day in the first nine months of 2011, the next chapter will

see a new order, thanks to the development of one of the world's largest ever natural gas discoveries.

Shah Deniz – meaning 'king of the sea' – lies offshore, 70 kilometres (40 miles) south east of Baku, and is thought to hold 1 trillion cubic metres of gas. With the first phase brought online in 2006, up to 8 billion cubic metres of gas a year (bcma) and 35,000 barrels of condensate per day (in the first nine months of 2011) supply markets in Azerbaijan, Georgia and Turkey, transported through the South Caucasus pipeline (SCP).

With a 25.5% interest in the field, and as operator, BP is now leading a consortium of seven partners who are working towards bringing the full field into production, in a \$20 billion project of unprecedented scale and complexity in the company's worldwide portfolio.

"I don't call Shah Deniz a project, I describe it as a programme, because it has at least four major projects within the whole," says Rashid Javanshir, BP's regional president for Azerbaijan, Georgia and Turkey. "They include subsea development, topsides offshore, an extension of Sangachal terminal to process the gas and

potential expansion of SCP for export to Turkey. There is also gas transit through Turkey to consider, as well as sales agreements for buyers there, and beyond."

Gas volumes held in the Shah Deniz reservoirs are so vast that they will not only meet the needs of Azerbaijan and its regional neighbours, but provide significant supplies to Europe. Of the incremental 16bcma of gas that the full field will produce, 10bcma will be transported to markets west of Turkey.

"We are part of an historic development to build the so-called 'southern energy corridor', to bring gas from the Caspian to western Europe," Javanshir continues. "This is an exciting opportunity for Shah Deniz and BP; it involves negotiations with multiple countries which have an interest in a new pipeline, as well as the different companies that have submitted route proposals." (see page 25)

As the European Union looks to diversify its energy supplies, the creation of a new southern corridor aims to provide increased energy security for the continent, bringing affordable gas supplies initially from Shah Deniz, and paving the way for future gas delivery from the wider Caspian

Commerce centre: shoppers go about their day in central Baku (below). Right, maintenance work on the Shah Deniz Alpha platform.



region and, potentially, the Middle East. With a five-year extension to the original PSA signed last year, Shah Deniz will produce natural gas until at least 2036.

Securing the long-term support of international stakeholders for the project is, therefore, crucial, as BP's vice president for Shah Deniz development, Al Cook, explains: "The gas will flow through many countries, so it's vital that we work together to address the strategic needs of all the nations involved, as well as the commercial needs of BP and its partners. We hold workshops on a quarterly basis to bring the consortium of companies together with governments and the European Commission; we're looking to create a project that will bring benefit for all."

Before the gas crosses any borders, Azerbaijan itself will be top of the list of benefactors. "Broadly speaking, Shah Deniz means energy independence for us," says Bahram Huseynov, deputy vice president for geology at SOCAR, the state oil company of Azerbaijan, a member of the Shah Deniz consortium and a key BP partner. "It will allow the country to be self-sufficient for gas and reap the benefit of selling to other markets." »



STATE OIL FUND

INVESTING IN AZERBAIJAN'S FUTURE

"We strongly believe that oil riches do not only belong to the current generation of Azerbaijanis, but to all those who will live in this land in future," Shahmar Movsumov, executive director of the State Oil Fund of Azerbaijan, tells *BP Magazine*.

To ensure that oil and gas revenues are managed efficiently, to benefit the country both today and tomorrow, Azerbaijan's sovereign wealth fund was established in 1999, as part of the national oil strategy of the former president Heydar Aliyev. In 12 years, start-up capital of \$270 million has grown into assets worth \$30 billion.

"There are three main objectives of the fund," says Movsumov, appointed to his role by the country's president, Ilham Aliyev, in 2006. "The first is to ensure inter-generational equality, for the Azerbaijani people through the accumulation of oil revenues.

"To date, our saving ratio is slightly above 50%, with the rest of the money invested in the country. According to our scenarios, we are expecting revenues of around \$200 billion in the coming 15 years, which means around half will be invested in the country and half saved."

The fund also aims to enhance macro-economic stability by stimulating the development of other sectors and decreasing dependence on oil revenues. Lastly, it finances major national infrastructure projects to support socio-economic progress. The largest expenditure for the fund is a contribution to the national budget, which in 2011 amounted to \$12 billion, for capital infrastructure development.

"Since the fund's creation, it has been extremely important to be transparent," continues Movsumov, "because we believe the constituency of the fund is the people of Azerbaijan; it is their money we are managing and, therefore, we need to be as transparent as possible."

International audits

To meet that goal, the fund discloses investment information on a quarterly basis, including details of the assets under management and their geographical location, and its annual report is approved by international auditors.

In 2009, Azerbaijan became the first country to be designated compliant with the Extractive Industries Transparency Initiative (EITI), a global standard for revenue transparency in the oil, gas and mining sectors. The EITI employs a methodology to monitor and reconcile company payments and government revenues at country level.

As the executive director of SOFAZ, Movsumov also chairs Azerbaijan's National Commission on EITI. "The initiative provides citizens access to information on revenue paid to the government – every single dollar, barrel of oil, cubic metre of gas or ounce of gold," he says. "The process is overseen by a multi-stakeholder group, consisting of participants from the government, extractive industries and civil society, represented by a coalition of non-governmental organisations.

"I believe the initiative has been extremely successful in this country, as it has removed any debate about revenue transparency from the agenda. Everyone can see how much income the government receives from these sectors."

BP plays a coordinating role among the oil and gas companies participating in the EITI in Azerbaijan and represents them at the multi-stakeholder group. It submitted its 13th EITI report last March. "BP has been very supportive since the beginning of the process," adds Movsumov. "At the same time, as a member of the EITI International Board, I have always felt the support from BP for the international initiative."

Projects supported directly by SOFAZ:

- Education – payment of tuition fees and living expenses for Azerbaijani citizens at 500 top foreign universities
- Baku-Tbilisi-Kars railway project
- Water pipeline from Oguz-Gabala region to Baku
- Samur-Absheron irrigation system
- Housing and temporary settlements for internally displaced people, due to the Nagorno Karabakh conflict
- Azerbaijan's equity share in the Baku-Tbilisi-Ceyhan export pipeline
- Formation of the statutory capital of Azerbaijan Investment Company

Azerbaijan in numbers

Land area

86,600 sq km

Population total (2010)

9,047,932

Gross domestic product (2010)

\$51.09 billion

Urban population

52%

Source: World Bank



On the horizon: a worker looks towards the Sangachal oil and gas terminal.



Q&A>

GÜNTHER OETTINGER
European Commissioner
for Energy

What is the Southern Energy Corridor and why is it significant?

This is an initiative to make the world's largest concentration of conventional gas reserves available to Europe, and to make Europe's huge market accessible to those resource-rich countries. It is the chance for partner countries to strengthen relations with the European Union (EU) and to become major energy trading partners. It also represents the opportunity for us to invest in them, allowing them to fully monetise their resources.

What role can Azerbaijan play in Europe's regional energy projects?

Azerbaijan is among the top countries that could potentially play a major role in Europe's energy security, not just because of its own resources but also as a gateway to the East of its territory. If this potential is explored, Azerbaijan and Europe's already strong relationship would be strengthened and further consolidated.

What difference will full field development of Shah Deniz make to Europe?

It depends. If Shah Deniz phase two is allocated a small pipeline option, then it will not make as much of a difference as it could; it would lose the value it has now. For Azerbaijan, that would mean it would not be the gateway to Europe it might be were the Southern Corridor to expand exponentially.

Once the Shah Deniz consortium takes a final decision on the project, including the preferred route for exporting the gas by pipeline, how will the EU support implementation?

If Shah Deniz opts for a strategic solution, the EU will do all it can to support the expansion of the route. Recently, all 27 member states put their unanimous effort behind the construction of a Trans-Caspian pipeline – that was a first and it should pave the way for interested companies to join the project.

How important is natural gas to Europe's energy supply, both today and for the future?

Gas will be important for the foreseeable future and I think it is a natural complement to renewables. Only when Europe can source 100% of its energy needs from renewables, will we be able to say we have reached a transition. Realistically, we are far from that point. So, I prefer to see gas as part of a trinity within the fuel mix, working alongside renewables and greater energy efficiency.



Q&A>

TANER YILDIZ
Turkish minister for energy and natural resources

What role does natural gas play in meeting Turkey's energy requirements?

Almost 50% of our gas consumption goes to produce electricity, which shows the importance of this resource to the country's energy needs and industrial development. Last year, we imported 38 billion cubic metres of gas, mostly through BOTAS [the state-owned oil and gas company] and five other market players. We have 12,000 kilometres (7,460 miles) of high pressure gas pipelines that transport gas throughout the country. Today, 70 cities are connected to the system and by 2013 we plan to reach all cities in Turkey.

Why was the signing of the gas sales and transit agreements between Turkey and Azerbaijan in October 2011 significant?

By signing these agreements, Turkey has demonstrated its strong will to transport Shah Deniz gas to Europe. They ensure the continued development of the Shah Deniz project and form the basis of the Southern Gas Corridor, along with other European projects. Shah Deniz gas will be essential in meeting Turkey's needs as a growing economy, as well as Europe's increasing gas demand. They also bring a concrete enhancement to Turkish-Azerbaijani relations.

The agreements complement the Memorandum of Understanding [signed in June 2010] and mean we will start importing 6 billion cubic meters of gas from phase two of the Shah Deniz field. For Turkey, this will mean diversification and greater security of natural gas supply.

What does the development of the southern energy corridor mean for Turkey?

Turkey sits between the countries that harbour 70% of the world's oil and gas reserves to its east, north and south, and one of the world's largest energy markets, to the west. The country is emerging as a major hub for energy transportation and plays an important role in linking gas producers in the Caspian and Middle East to consumers in south-eastern and central Europe.

The southern energy corridor is important in maintaining Turkey's

cooperation with its partners in projects such as Nabucco, IGI-Poseidon, the Trans-Adriatic pipeline and Shah Deniz. The pipelines could contribute significantly toward Europe's energy diversification strategy and reinforce Turkey's interdependence with Europe.

What are the factors that Turkey needs to consider as it invests in gas infrastructure?

Since the global economic crisis of 2008, Turkey's economy has rapidly recovered, and gas consumption is continuously rising, increasing the bill for imports. With our current reliance on natural gas for power generation and industry, more favourable prices are needed to keep the industry competitive. We also need diversification in our supply to reduce dependency on any single source. International projects of trade and transit will be important for such diversification. This is why our pipeline investments are so important; they would support us in achieving more favourable pricing regimes for natural gas. This, in turn, supports our industry and economy as a whole. Last, but not least, as we build this transit business, we need to develop the right conditions to provide a reasonable income and an operational system that will work in harmony with our existing domestic gas transport system and market.

How can Turkey help to provide energy security for Europe?

Energy security remains a high priority for Turkey and we have worked hard to establish new initiatives that take advantage of our geographical location and our historical and cultural ties with newly independent countries in the Caucasus and Central Asia. Turkey has been successful in developing and implementing policies with neighbouring regions, and will continue to contribute to Europe's energy security, by acting as a bridge between the resource-rich neighbours and Europe. Providing an uninterrupted flow of hydrocarbons from the Caspian and the Middle East to energy consuming markets is of particular importance for Turkey.



Next generation: visitors to the Caspian Energy Centre learn about oil and gas (above). Right, Azerbaijani boys skate along the Bulvar, situated on Baku's seafont.

» The first step towards making this a reality came in June 2010, when the governments of Azerbaijan and Turkey signed a Memorandum of Understanding to establish a framework for gas sales and transit terms for transportation through Turkey into Europe. Another major step was taken on 25 October last year, when the Shah Deniz consortium signed legally-binding sales and transit agreements with their Turkish counterparts. These agreements will allow the partners to proceed with the selection of a pipeline into Europe, to confirm gas sales agreements with potential customers and to move towards a final investment decision.

A common theme in conversations about Shah Deniz is the sheer scale of the development; for BP, the full field resources represent the largest single volume of gas ever sold by the company. Once commercial and bi-lateral agreements between buyer and transit countries are finalized, a final investment decision and project sanction is likely to come in 2013. Only then will construction of the offshore facilities and infrastructure get underway; that chapter will continue for 10 years, as 26 subsea wells will be brought online in different phases, generating up to 10,000 local jobs.

Huseynov continues: "If we add everything together, including construction of two platforms, subsea infrastructure and pipeline laying, the pace and scale of activity will be challenging, as it all needs to run in parallel to meet the target start-up date in 2017."

BP has experience of managing projects on such a scale. "This plays to BP's strengths, as we're able to draw on expertise from our regional and divisional structure, to bring together an immensely complex value



chain,” says Cook. “To make this successful, every part of a 4,000 kilometre [2,485 mile] chain has to work and we’ve formed an organisation to address those needs.”

Lessons from the ACG development also provide valuable knowledge, as Bruce Luberski, BP Azerbaijan’s vice president for developments, explains: “What we learned developing ACG was about offshore jackets and floatover topsides, the advantages of a production line and standardisation. Our biggest lesson was to build everything onshore, transport the complete facility to its offshore location, then set it in place – that’s the floatover concept that we’ll use again and again.”

As the Caspian Sea is landlocked, with access only by two canals that are narrow for industrial purposes and freeze in winter, there’s no question of shipping large facilities into the country. Instead, Azerbaijan’s four existing strategic marine installation vessels will be upgraded to meet the Shah Deniz specifications.

“We’ve used all the vessels before, so we’re playing to a known delivery system,” Luberski adds. “The Shah Deniz platforms will be numbers eight and nine in our repertoire, so this development will take the benefit of everything else we’ve done in the Caspian.”

With engineering studies ongoing, 2011 was a busy year for the project team. Milestones included the drilling of a third development well, geo-technical surveys in preparation for ground-clearing and construction of new access roads at Sangachal terminal for site extension, and a survey of the SCP route through Azerbaijan and Georgia for its expansion, as well. In the complex programme to bring the full field online, there are four separate, yet inter-dependent, projects and the key is to ensure each remains on track.

“Marine-subsea, offshore topsides, terminal extension and pipeline expansion are all huge projects in their own right,” says Cathal Kelly, project general manager for SD2, who is responsible for the integration, monitoring and alignment of wells, subsurface and projects in the development. “We need to make sure they all progress at the same rate and that one does not get ahead of another.”

There are 600 people currently at work on the Shah Deniz development in five UK offices, in addition to those dedicated to BP’s other Caspian developments, such as the Chirag Oil Project. In Azerbaijan, BP now employs around 2,300 national staff across the whole business, equating to 87% of the workforce. The company’s goal is to

achieve a nationalisation rate of 90%, to make certain that the future of the oil and gas industry in Azerbaijan lies in local hands. It is continued exploration of the Caspian that will drive growth for both country and company; with a new PSA ratified by the republic’s Parliament last May, BP and SOCAR will jointly explore and develop the Shafag-Asiman block, in a deepwater section of up to 900 metres (2,950 feet) below the water surface.

“We’re excited to begin exploration here again,” says Javanshir. “It means BP will have all upstream divisions present and I’m a strong believer that we’ll do more and more together with SOCAR. Partnerships are essential in Azerbaijan and I’m pleased to see our employees moving between the companies. I see this as positive, as a sign of trust and I hope it continues.”

As local talent emerges and new investment gets the green light, Azerbaijan is preparing to come forward as a major supplier for European energy. Last year’s victory in the Eurovision song contest may mean that Baku – and its brand new, specially-constructed stadium – has one night in the spotlight this May, but Azerbaijan’s imminent role as a long-term provider of natural gas to the rest of Europe will put this nation firmly on the map for years to come. ■

Safe delivery: while a Boeing 767 takes off in the background, Air BP's Pierre Fabre ensures the Royal Flying Doctor Service's Beechcraft King Air plane is ready to fly at a moment's notice, Brisbane Airport, Australia.



IN THE TOP FLIGHT

Air BP is one of the oldest, fastest-growing and most highly-respected fuel suppliers in the entire aviation industry. Far from resting on its laurels, however, the business wants to reinforce its already strong customer relationships as part of a focus on 'disciplined growth'.

Fast fuel: Air BP fuels more than 10,000 flights every day – the equivalent of one every eight seconds. Here, refuelling operations are carried out at Cardiff Airport, Wales.

Anyone who works in aviation could be forgiven for feeling somewhat beleaguered after events of the past 10 years. From the 9/11 terrorist attacks of 2001, to natural disasters such as the Icelandic ash cloud, to the economic downturn, the industry has been left battered and bruised.

Despite all this, the major airlines are in surprisingly good spirits. Why? Simply because air travel continues to grow on every continent, particularly in emerging markets. In fact, experts predict that global traffic will actually double over the next 15 years.

That's good news for Air BP, of course. It's a business that has a proud heritage, dating back to the mid-1920s, and one that is still growing by 2-3% each year. It currently has a global volume share of approximately 12%, not only serving the world's big commercial airlines, but also a broad spectrum of corporate and general aviation customers, and public sector bodies, such as humanitarian organisations and government defence departments.

As one of the world's largest suppliers of aviation fuels (jet kerosene and aviation gasoline), Air BP is currently represented at more than 600 airports in 50 countries, supplying more than 26 million tonnes (around 8 billion gallons) of products to customers annually. And it fuels more than 10,000 flights every day – that's one every eight seconds.

The technical strength of the business, along with the quality and reliability of its products, its logistical expertise and controls for safe delivery of fuel into each and every airplane, provides the platform for consistently impressive performance. But the figures alone don't tell the whole story.

Aviation is widely acknowledged as a 'people' industry, where fuel procurement directors and other key decision-makers

tend to stay in their jobs for long periods due to the specialised nature of their roles. That means strong relationships can be forged with suppliers. This is certainly a key success factor for Air BP: it has been dealing with the same customers at Lufthansa and American Airlines for 25 and 15 years respectively.

A recent survey of 185 commercial airlines by Harris Interactive also found that Air BP is the clear market leader in areas such as reputation and brand, as well as in service and the quality of its people. The recently-conferred title of 'best international fuel supplier' from customers offers further evidence that it is clearly doing something right. "It's a fairly small industry, so you get to meet the same people at all the conferences and other events," says Air BP chief executive Andy Holmes.

But it's not just about the relationships. An airline has to be sure that the company supplying the fuel has the right products in place, backed up with the highest process standards to meet their exacting requirements.

"We are meticulous about our product quality and understanding and managing our risks within our direct and joint venture operations," says Air BP technical director Justin Walker. "We also run rigorous training and independent audit programmes in order to maintain compliant operations. Our 'near-miss' reporting informs the way we plan our activity, so that we are continuously improving. And, we work hard to





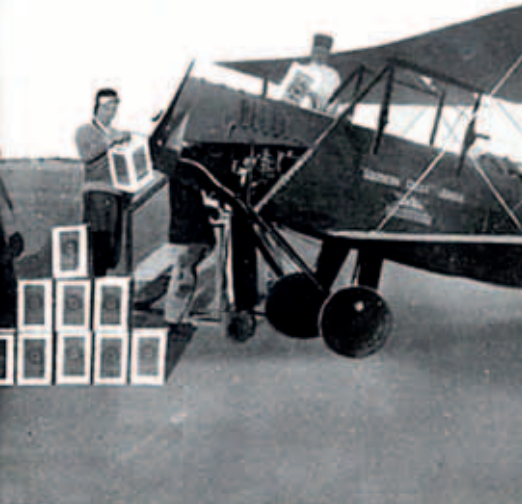
“Our aim is simple – for Air BP to be the aviation fuel business that everyone wants to work with. We don’t simply want to make money, but to add value to the customers we serve.”

Andy Holmes



On the move: an Air BP refuelling pump truck (above) en route to fill up its next customer, Brisbane airport, Australia. Below, refuelling operations take place at Cardiff Airport, Wales.





THE BIRTH OF A LEGEND

The history of Air BP practically mirrors the history of aviation in general.

It can effectively be traced back to 1926-27, when BP archives reveal that supplies were made to six long-distance flights at Persian Gulf ports. One of the flights was made by 'Messrs. Stack and Leete (de Havilland Tiger Moth flight) from UK to India': between 25 December 1926 and January 1927 they took on a total of 128 gallons of Anglo-Persian aviation spirit at Bushehr, Bandar Abbas and Charbar.

It was an inauspicious start. But it came after two decades in which the aeroplane had rapidly evolved from a fragile contraption of stick, wire and canvas, intended mainly for sport or military reconnaissance, into a fast, fighting machine. Civil aviation was still very much in its infancy.

With total sales having risen from 1,036 gallons in 1925-26 to 2,582 gallons the following year, Anglo-Persian's management clearly recognised the potential. "The off take of this product is at present small," the records show, "but owing to the fact that the Persian Coast of the Gulf has become part of the itinerary for long-distance flights from Europe to India, Australia and the Far East, we anticipate that sales will show a steady increase."

They were right, of course, but even the most optimistic and far-sighted executive could not have guessed that one day a single Boeing 747 would be capable of taking onboard 42,824 imperial gallons of fuel – more than 16 times the total amount supplied by the company during the 1926-27 financial year.

consistently increase the level of our support offerings. Our customer relationship skills are really important. We operate in a commodity market, after all, so it's one area where we can really differentiate ourselves."

It's not simply a case of getting on with people, of course. There needs to be a commercial reason for developing that depth of professional and often personal rapport. "We never forget that customers have choices," says global sales and marketing director Peter O'Callaghan an Air BP veteran of 27 years. "The effort we have put into our service, and the track record that we have developed, has earned us the right to have a wide breadth of global opportunities around which to structure specific deals. That's a good place to be."

This is good, but almost certainly not good enough by itself to stay competitive in a rapidly changing market where banks, traders and re-sellers are replacing the traditional oil companies as aviation fuel providers. That's why Air BP has spent the past couple of years implementing a strategy described by Holmes as 'disciplined growth', as well as playing an

active role in influencing and improving industry-wide standards.

"By disciplined, we mean staying safe and reliable, as well as growing our profitability in a smarter and more focused manner, not just increasing our geographical footprint," he explains. "Historically we moved into as many countries as possible, but it was clear that we were never going to make any money in some of them. So, we have pulled out of those and are now concentrating on penetrating deeper into markets where the real growth will come, specifically the emerging markets, such as the Middle East, China, India, Russia and Brazil."

Chief operating officer David Gilmour emphasises that being competitive is not just a case of dropping prices to grow volumes and share, either. "The aviation fuels business is a value game, not a share and volume game," he says. "The real skill is understanding the market dynamics and, within that, finding new and smarter ways to work with customers."

In particular, it means partnering with airlines, airport operators and other stakeholders in different ways – a focus on key account management, for example, structuring innovative new price deals, »

"We never forget that customers have choices. The effort we have put into our service, and the track record that we have developed, has earned us the right to have a wide breadth of global opportunities."

Peter O'Callaghan



Customer care: with the fuel now loaded on the aircraft, Air BP's Rick Lewis (left) has his paperwork signed off by the pilot.

providing customised offers, and leveraging skills and resources in innovative new ways at key airports.

The biggest part of Air BP's business is with the world's commercial airlines. It supplies aviation fuel from BP's own refineries, and from others sourced by the company's Integrated Supply & Trading (IST) division, directly to most of the industry's biggest names, through a worldwide network of locations. Its partnering services include transport and logistical support, while in Germany, and elsewhere, the company even partners in the ownership of airport fuelling facilities.

In the corporate/general aviation segment, customers include engine manufacturers, emergency services, flying clubs, helicopter operators, air taxis, charter and management companies, as well as thousands of corporate and private pilots. Additional services include training, equipment and professional advice, as well as account cards that give customers an easy and convenient way to buy fuel wherever they are in the world.

Within the public sector, Air BP has a number of long-standing relationships

with defence and humanitarian organisations. Its logistical, product and technical expertise, allied to its geographical presence and enduring partnerships with governmental defence departments in the US and UK, recently meant the company was instrumental in the rapid establishment of a fuelling depot in Italy to support the enforcement by NATO of a no-fly zone in North Africa.

During this year's floods in Australia, meanwhile, the Australian government publicly acknowledged Air BP's role in keeping relief flights flying, despite the challenging conditions.

"Our aim is simple – for Air BP to be the aviation fuel business that everyone wants to work with," Andy Holmes says. "We want them to know that we are ready to be their partner for the long term, that they can rely on us because we are conscientious, and that we are creative, that we know our stuff, and that we will constantly find new ways and products to meet their needs safely and to the highest standards. We are also an open-hearted business, we don't simply want to make money, but to add value to the customers that we serve." ■

Added value: Air BP's Pierre Fabre (below) prepares to start pumping fuel into the aircraft from the system of underground pipes at Brisbane Airport, Australia. Opposite: refuelling operations take place at Aberdeen Airport, UK.





“The aviation fuels business is a value game, not a share and volume game. The real skill is understanding the market dynamics and, within that, finding new and smarter ways to work with customers.”

David Gilmour

ALL FOR ONE

In the last of our series of interviews with each of BP's three upstream heads, executive vice president of Production Bob Fryar talks about his responsibilities for ensuring the company produces oil and gas in a safe, reliable manner and what BP's values mean to him.

Production platform: view from onboard the Central Azeri platform, located in the Caspian Sea, Azerbaijan.



Report > Lisa Davison
Photography > Simon Kreitem,
Chris Moyse, Richard Davies,
Marc Morrison, Stuart Conway
& Kjetil Alsvik

Bob Fryar is a man who likes to know what's on your mind. On more than one occasion throughout our meeting, he turns the tables on me, asking 'so, what do you think?'



Teamwork: Bob Fryar (above centre) with members of the offshore team onboard BP's Immortelle platform in Trinidad. Opposite top, staff at BP's liquefied natural gas plant in Tangguh, Indonesia. Opposite below, an aerial view of BP's Valhall platform in Norway.

Since being made head of BP's Production division 14 months ago, Fryar has travelled around the business, visiting numerous oil and gas platforms to learn as much as possible about each operation. Unsurprisingly, his easy-going, conversational style helps. "It's important to understand the current reality in BP," he says, "so I like to walk around an office or a platform and just have a conversation, ask people their opinion."

He has a slightly unusual approach to some of these conversations, often introducing himself by his first name only, because, he says, "when people find out who I am it either stops the conversation, or changes it. I don't want people to feel different when they're talking to me."

The visits to his operations reflect Fryar's determination to cultivate an environment where people feel more connected, to each other and the company's values. After months of consultation and deep consideration, CEO Bob Dudley and his executive team have articulated the company's values as: safety, respect, excellence, courage and one team. The choice of words highlights the qualities that BP's leadership believes represent the company at its best – and how they expect BP's people to work.

Fryar believes it's leadership commitment that makes all the difference. "Coming into this job, I made a commitment to myself that whenever time allows, I will stand up and talk about the company's values, because I think it's important for people to know what matters to BP. Take our new hires, for instance. I met a group of new graduate recruits in September last year and spent the first 30 minutes talking about values. I wanted them to know who we are, what really matters – that if they see something wrong, then they must speak up. That takes courage, but everyone needs to know it's okay."

Acting as 'one team' is picked out as one of the core values and again, Fryar believes BP's success in teamwork depends on people seeing the senior leadership putting it into practice. In the aftermath of the Gulf of Mexico response, one of Bob Dudley's first big decisions was to split Exploration & Production (E&P) into three divisions – Exploration, Developments and Production and the Strategy and Integration organisation – each with its own leader. It was one of the biggest changes to the way BP ran its upstream business since the early 1990s, when a series of semi-autonomous business units were put in place with just one head of E&P to oversee them.

Speaking of his interaction with his peers – Mike Daly heads up Exploration, while Bernard Looney is responsible for Developments and Andy Hopwood leads the strategy and integration – Fryar says their strength lies in their diverse approaches and experiences. "We couldn't be more different, but that's a good thing," he says. "We work very well together."

Understandably, since the restructuring, a lot of time has been devoted to clarifying who has responsibility for what, and that any activity is integrated and is a team effort. "If you want to drill an exploration well, you need all three divisions. Mike Daly's team will pick the prospect, my division is accountable for ensuring that any necessary seismic activity is successfully executed, while the global wells organisation [part of Bernard Looney's division] ensures the well gets drilled. We have to be integrated in order to be successful and the way to do that is through teamwork at all levels."

Since his part of the business is responsible for many of BP's major facilities and pipelines, it's unsurprising to learn that operational risk is a big consideration and Fryar and his team have spent a lot of time identifying and quantifying each one. "We know our risks one-by-one," he says. "I've reviewed the risk matrix in every region, walking through each of them." "The way I see our people owning our risk" »



“The way I see our people owning risk is phenomenal. People really value risk management. They know it matters and they are working hard to really reduce risk.”





Homeward bound: some of the crew onboard BP's platform in the Clair field, UK North Sea, prepare to return to shore, donning the personal protective equipment necessary for the helicopter flight home.

THE ROLE OF THE DIVISION

The Production division is responsible for the stewardship of BP's resources and for managing safe, reliable and compliant operations. The subsurface team advises on the quality and management of BP's resource base and portfolio decisions, with the aim of safely and efficiently developing resources into reserves, reserves into production, and eventually to produce hydrocarbons. The subsurface team is also accountable for resource and reserves estimation and reporting. The operations function is accountable for all day-to-day management and maintenance of hydrocarbon production above the wellhead. The team manages logistics and the activity planning process. In addition, regional presidents report to Bob Fryar and are responsible for integrating production activities in their area; setting regional strategy; managing the external relationships within their region; and providing leadership to their regional BP community.



is phenomenal. People really value risk management. They know it matters and they are working hard to really reduce risk. Fryar says he's been thoroughly impressed with the way that people have worked hard to make a difference.

"We also need to continue building the capability and capacity of the team," says Fryar. "This is a division that will grow in the future, so we'll need more key, skilled employees in areas such as subsurface, subsea maintenance and engineering. There's a lot of competition in the industry, especially in our key growth regions, such as Angola and the Gulf of Mexico, but we're taking a systematic approach to growing this capability."

Operational performance is also further enhanced thanks to the upstream's new structure. But, with the growth in BP's scale over the past decade, a new centralised, more functional model is now required

The impact of this functional organisation is already being felt across the

division and Fryar cites its turnaround performance as an example of significant improvement. Turnarounds, or TARs as they are known, are standard practice in the oil and gas industry and are planned, periodic shutdowns (either total or partial) of a facility in order to perform maintenance and repairs, and to inspect, test and replace materials and equipment. In 2011, BP carried out an expanded programme of 50 turnarounds as part of its drive on risk management and safety. Our TAR performance is improving all the time. In 2010, 35% of the production group's TARs were on time and on scope. In 2011, that had risen to 82%. "We have improved our readiness assessment process for TARs. This means that we have a rigorous process to complete the planning and prepare the resources in advance of a turnaround. This has tremendously improved our efficiency. In addition, he explains, "we now have one, systematic way of conducting a TAR."

BP's Operating Management System (OMS) is set to provide further consistency,

with each of the upstream's major, global functions – such as wells, operations, or projects – all implementing OMS that will be followed systematically everywhere in the world. Each of the Production regions, meanwhile, will have a tailored local OMS to ensure their day-to-day operations take into account any unique, local regulations. "OMS is the way we will run our business," says Fryar.

With all the focus on driving consistency to deliver long-term value, it's sometimes easy to forget that BP continues to produce oil and gas every day. The focus in the US remains on the company's response to the Deepwater Horizon accident, with clean-up operations continuing and BP working with industry groups to help shape future regulation. But at the same time, BP has eight installations out in the Gulf of Mexico that have continued to produce hydrocarbons since the incident. That production has declined, largely due to the



"There's a lot of competition in the industry, especially in our key growth areas, such as Angola and the Gulf of Mexico, but we're taking a systematic approach to growing [our] capability."

ban on drilling. “The problem with the nature of the reservoirs in the Gulf is that they decline very quickly if you don’t keep drilling wells. The production drops fast without that,” says Fryar who is optimistic that production levels will eventually grow again now that drilling has restarted.

Meanwhile, over in Angola, the Production division has faced a different set of challenges. For the past year, production at the Greater Plutonio field was reduced while integrity maintenance was carried out. Production eventually returned to normal levels last October, with the field now running at around 170,000 barrels a day. “That’s important for BP,” says Fryar, “because it is a material piece of business for us, with high margins and it’s an example of where we’re restoring value for shareholders.”

It’s also part of the company’s determination to restore trust. Stopping work is an important part of our operations strategy, and Fryar, like the rest of BP’s senior leaders, is adamant that it’s the only

option if there is a concern over safety. “BP has a much greater bias to operatorship than most of its peers. If we want to restore trust, people have to believe we’re safe to work with. You do that by operating safely and reliably. We have a big operational footprint and that’s a big responsibility.”

Ultimately, it comes back to those values, in particular, courage. “People have to speak up. Being a safe, compliant and reliable operator is not just a process, it needs to be a deep-held belief that every day you’re going to go and do what you can as an individual to make the company safer and, in turn, the business will benefit. BP is going to be around for a long time, so we need systems that help us manage our facilities that will still operate safely and reliably for years to come. Each of us is a steward of this company – we’re here to make it better for the long term. It’s not about being a hero, but about reducing defects and continuously improving our operations day-by-day.” ■

“Each of us is a steward of this company – we’re here to make it better. It’s not about being a hero, but about reducing defects and continuously improving our operations day-by-day.”



Joint effort: operators at work in the control room onboard BP’s Na Kika platform in the Gulf of Mexico (far left); crew members on the Deepwater Gunashli platform in the Caspian Sea, Azerbaijan (middle); operators onboard the Cassia platform in Trinidad and Tobago (left). Above, Bob Fryar speaking at the BP’s Global Operations Conference, 2011, in Florida, US.





LEADERS OF THE PACK

Over the past 18 months, a very special group of young people from across the UK have taken part in a BP-supported programme to help develop their interpersonal and leadership skills, while making a difference in their community in the run-up to the London 2012 Olympic and Paralympic Games. *BP Magazine* meets some of these Young Leaders to find out what drives them.



Young talent: clockwise from top left, Katie Slocombe, Tommy Seagull, Lauren MacLeod and Lewis Poskitt have all taken part in the Young Leaders programme.



When Sebastian Coe made the closing speech for the UK capital’s bid to host the Games of the XXX Olympiad in 2012, he told members of the International Olympic Committee that London’s vision was one of ‘inspiration and legacy’.

“Choose London today, and you send a clear message to the youth of the world: more than ever, the Olympic Games are for you,” Coe said at the Raffles City Convention Centre in Singapore, in July 2005. Six years later, that vision to put young people at the heart of the London 2012 Olympic and Paralympic Games is becoming a reality.

People of all ages from across the UK have been taking part in the selection process to become one of 70,000 Games Makers – or volunteers – who will help make the sporting showcase happen this summer. Some of the youngest hopefuls will be a group who have spent the past year taking part in a BP-supported intensive personal development initiative, the London 2012 Young Leaders Programme.

From the communities surrounding four of BP’s UK offices, the 100 teenagers who won places on the programme have been working in teams to make a difference in the areas where they live and to engage their peers in the activities. Some have renovated dilapidated community gardens, while others have hosted sports events for people who would not usually have an opportunity to participate.

All the projects have one thing in common: the ideas have been conceived and put into action by each young leader – with support from partner organisations, including the London Organising

Committee of the Olympic and Paralympic Games (LOCOG), BP, v – the national young volunteers service – and the Dame Kelly Holmes Legacy Trust. The programme offers 18 months of training, designed to improve interpersonal, communication and leadership skills, with BP staff acting as coaches to provide guidance to each individual.

The culmination of the programme comes with the chance to be part of the Olympics and Paralympic Games in volunteer roles, as all the teenagers are guaranteed a Games Maker interview. Those selected will be able to put their newly-acquired skills into practice in London later this year.

“You are all on a journey that will carry on until the Games and beyond,” Britain’s double Olympic champion Dame Kelly Holmes told the young leaders on the eve of their Games Maker interviews in east London, in August 2011. For many, it was the first time they had had to face a formal interview, and they were gathered for some final preparation to help them express why their experiences will make them an asset to the London 2012 Games.

“Every single thing you learn this year will help build you as a person, make you more confident and become a role model in your community,” said the two-time gold medal winner, whose legacy trust provides athlete mentors to work with the young leaders. “If you have been good already, be better. Make yourself feel proud and make

every person you meet at the Games think ‘they were great’ – you might make their day, but it will make your life forever.”

Dame Kelly later explained why she wanted her trust to be involved in the Young Leaders Programme. “What I like about it is the amazing opportunity it provides for them to change themselves, and to take part in something that is only likely to happen once in a lifetime.

“I’ve seen a huge change in the young leaders since the first residential event in April 2010; when I first met them, they were very quiet and for some, coming to London was a culture shock. Now, the difference is like night and day. This time, they’re together to reflect on what they’ve already learned and to hone their interview techniques.”

Following a day of activities designed to help them focus on their programme experiences and identify when and where they have put different skills into action, BP leadership coaches provided a final challenge, by staging mock interviews. Like the teenagers, staff say they have learned plenty from the programme.

“I’ve really enjoyed being involved, as it’s provided good insight into the mindset of the younger generation and people from very different backgrounds,” says Gareth Jones, of BP’s Integrated Supply and Trading business, at Canary Wharf in London, who coaches Tommy Seagull (see page 53).

“The highlight for me was attending Tommy’s project launch for his study corner at Royal Docks School, East London; it was great to see the programme come to life, with the young leaders creating the ‘legacy’ element that we hear about for London 2012.”

On the other side of the city, based at BP’s Sunbury-on-Thames offices, Tim Podesta, from the safety and operational

“Every single thing you learn this year will help build you as a person, make you more confident and become a role model in your community.”

Dame Kelly Holmes





Name: Lauren MacLeod
Age: 18
From: Stonehaven, Aberdeenshire
Community project: mental health awareness with secondary school pupils

Lauren lives in supported accommodation, after becoming homeless aged 16. She wanted to run a project to challenge some of the misconceptions around mental health. "It's something I've had experience of, but the subject is not usually addressed in schools. I've seen how people can be stigmatised by mental health issues; at the end of the day, we're all just people and have some problems."

She says the highlight of the programme is the opportunity to be involved in the Olympic Games. "We're the only Young Leaders team from Scotland, so we're representing the whole country. I feel like I'm part of something amazing, among a group of people who are passionate about the same thing."



Name: Katie Slocombe
Age: 18
From: Reigate, Surrey
Community project: 10-pin bowling for disadvantaged children with local YMCA

As a young carer to her autistic brother, Katie wanted to be part of the Young Leaders Programme to meet new people and share her experiences with others. "It's good to have a break and I've learned that you don't have to cope with things on your own," she says.

"It's been a great way to build confidence; mine still isn't the best, but it has improved through public speaking and appearing on camera for the London 2012 Open Weekend."

Her local Young Leaders team has run a Christmas alcohol awareness campaign for 1,800 college students and her own project gave 10- to 16-year-olds with learning difficulties the chance to have some fun at a bowling alley.

risk function, agrees that interaction with young people has been rewarding.

"It's quite inspiring to see how the young leaders are developing," says Tim, who works with university student Anjali Parshotam, from Hounslow. "The challenge has been making sure that the coaching is adding value and finding the right opportunities to support Anjali. We met for some interview practice and I set up a careers session with a BP education liaison officer. The one thing that struck me about Anjali is how quickly she has picked up on advice I've given her and then applied it."

Anjali recognises the benefits of having the mentoring support. "It's been really good in bringing out the best in me. Tim makes sure we are in regular contact and, as I'm considering a career in teaching, he's offered some help in finding out more."

As for why she wants to be a Games Maker, the 18-year-old says it's more than just about the sport. "I want to inspire other young people to look at the bigger picture and see that the Games are a great way to unite London, the whole country and the rest of the world."

The fact that all the young leaders have juggled, at the very least, school studies and extra-curricular activities with their community projects – and in many cases, other obligations, such as part-time jobs, youth clubs, or demanding family circumstances – signals their commitment, not only to London's hosting duties, but to improving their neighbourhoods.

Meeting only a matter of weeks after a minority of young people in cities across the UK made global headlines for all the wrong reasons last summer, many young leaders were aware that the programme also allows them to demonstrate how their generation can have a positive impact.

"There's a lot more young people doing good things in their communities than are recognised," says Matt Hutchings from Greenwich, London, who is also a scout leader and hockey coach. "Sometimes, we're not taken seriously because of our age, but once we break down barriers and get to know locals, it gets easier."

For Dame Kelly Holmes, initiatives such as the Young Leaders Programme can make a difference. "When most young people are given a good opportunity and some structure, they can really excel.

"Young people are our future and we want them to feel they have a purpose, whatever they do. Then, they can thrive on the knowledge that they've made an impact." ■

Name: Lewis Poskitt

Age: 18

From: Hull, Yorkshire

Community project: sports course to coach people with disabilities

Lewis admits that sport is the big thing in his life; "it's all I really do," he says. He played rugby from the age of six, and now concentrates on coaching children as a volunteer with Hull Football Club. He hopes his project will raise awareness about the Paralympic Games: "I want to give people a chance they wouldn't normally have, and put a smile on their faces."

Meeting a double Olympic champion like Dame Kelly Holmes has been "really inspiring," he adds. "She makes us feel like we are important, encourages us to work hard and reminds us that we have quite a bit of responsibility."

Improved self-confidence has been just one of the positive outcomes of the programme so far, Lewis believes, after giving a speech, along with another team member, to Bank of America staff and guests at a benefactors' evening in London's Canary Wharf.





Name: Tommy Seagull

Age: 18

From: London Borough of Newham

Community project: study corner and book collection in an inner-city school

“Our job is to break down barriers and highlight the importance of young people in their communities,” says Tommy, who has grown up virtually on the doorstep of the Olympic Park in east London, and can see the Aquatic Centre from his brother’s flat.

Tommy won a scholarship to the prestigious Eton College in 2010, but returned to Newham to run his project, where his efforts collected 96 second-hand books from pupils finishing their school exams for use by future students. He also ran revision seminars, by bringing other young leaders into the school to share advice.

“It’s been a journey and not all plain sailing, but that’s the whole point,” he says of the Young Leaders experience. “We started out somewhat less confident and my organisational skills weren’t exactly top notch, but we’ve come so far. The sense of satisfaction that comes from organising a project is really special.”

THE TRILLION DOLLAR TEAM

BP's treasury team moves around \$1 trillion every year, acting as the company's in-house global bank. Having come through the downturn of 2008 and the financial challenges of 2010, following the Deepwater Horizon incident, it is now preparing itself for further uncertainty in the global financial markets.



Report > Helen Campbell

Illustration > Alex Williamson

B

P's treasury team has been compared to a marathon runner, highly trained, highly focused – but facing numerous obstacles along the way. Instead of tight bends, twisted ankles and the need for sheer stamina, the treasury team faces the challenges posed by changing economic conditions and events affecting business.

And, just as the marathon runner needs to be ready for a downpour or a heatwave, BP needs a treasury for all seasons, prepared for the everyday challenges, as well as the low-risk, high-impact events.

Over the past couple of years, BP has faced both the 2008 global economic crisis and the financial challenges presented by the Deepwater Horizon incident in 2010. Since then, it has strengthened its balance sheet by building significant liquidity, and regained considerable market confidence. Once again, the external financial world is facing turmoil, but this is very different from 2008. However, says BP's group treasurer from 2007 to 2011, Dev Sanyal, the company is well-prepared.

“What tipped things over in 2008 was [the collapse of] Lehman Brothers. This time, it is not one defining event, but multiple signals, linked to sovereign states,” says Sanyal, who is now BP's executive vice president and group chief of staff. “The financial world is adjusting to what I call the ‘new normal’, with a far greater degree of market volatility. The bandwidth of possible outcomes is substantially wider now, and this brings into sharp contrast the consequences of over-achievement and under-achievement in decision-making.”

Volatility is what drives trading on almost any market. It can bring both risk and opportunity. The ability to assess the risks, take proportionate action to mitigate them, and be able to spot and take advantage of opportunities, when they arise, is central to effective, efficient and successful financial management. The centralised position of BP Treasury gives it clear line of sight to the financial exposures of the whole group, something that has become even more important in the current uncertainty.

“In a volatile environment, actions can cause exaggerated reactions,” Sanyal says. “You have to have a clear idea of their intended and unintended consequences. I spend most of my time thinking of the latter. There is a need to be nimble and agile, prudent but not conservative, if you are not to get caught out, or be left behind. This is the challenge right now.” »

“There is a need to be nimble and agile, prudent but not conservative, if you are not to get caught out, or be left behind. This is the challenge right now.”

Dev Sanyal

PARTNERS FOR ALL SEASONS

BP has a group of more than 20 'relationship banks', including most of the large international banks and a handful of niche institutions. Nurturing these important relationships is an essential part of BP Treasury's activity, and some of those relationships go back decades.

"We believe that it is important to have a set of banks that you have long-term relationships with, and you build that over a period of time," says Giles Horner, banking relationship manager, who has now moved into structured finance. "The group includes US, European, Chinese and Japanese banks, and was selected to ensure we have excellent coverage wherever we are in the world. Emerging markets where BP is potentially looking to forge new banking relationships and additional sources of liquidity include the Middle East and India."

Ensuring the banks are well-informed about BP's plans, and positioned to bid competitively for business, is essential for both parties to optimise the relationship. Having partners for all seasons in the banking world was never more crucial than in 2010, when, in the aftermath of the Deepwater Horizon incident, BP Treasury helped raise \$17 billion of standby facilities.

"We invest in our relationships. Because they knew BP well, our core relationship banks were able to take much more considered risks than the financial markets, and they recognised opportunities, too," says Sanyal. "They were very willing to support BP with very substantial amounts, at an extraordinarily challenging time."

BP Treasury has multiple short- and long-term financial functions, including raising debt through bonds, managing corporate risk by hedging the group's foreign exchange exposure, providing insurance and managing the group's pensions fund. But its primary remit is to act as BP's in-house global bank, ensuring it has the right funding, liquidity and currency in the right amount on the right day, and in the right place.

This centralisation is key to the way that BP's treasury team interacts with the outside world, according to deputy group treasurer, Nick Bamfield. "The typical model that we use, wherever we can, is to fund ourselves centrally," he explains. "This allows us to use the strength of the group's balance sheet and credit rating, so that we can issue directly into the global direct capital market. Banks tend to have higher costs of borrowing, so this allows us to go directly to investors issuing bonds."

BP Treasury moves around \$1 trillion a year, roughly the equivalent of the Russian economy; issues an annual \$10-15 billion of debt in a variety of different markets; and manages some \$40 billion in pension funds. Dim sum (China), Samurai (Japan), Yankee (US), Maple (Canada) and even Kangaroo (where else but Australia?) are the financial world's nicknames for some of the bonds it has issued on behalf of the group.

"We have two goals when issuing into the bond market," Bamfield continues. "First, we want to be seen as an issuer of choice, not need, and second, we want to maximise our opportunities, so we diversify the markets we issue into."

BP's global asset base requires global capability. Its centralised treasury function has around 200 people in London, Singapore, Houston and Chicago. This structure enables it to think globally, but react very locally in the markets. Keeping BP's treasury leadership informed, at the right time and to the right depth, of what is happening across world financial markets is key to determining the right action. As well as executing BP's financial trading

needs and decisions, the 30-strong treasury trading team keeps abreast of world economic news, whether it's the latest statement by Germany's chancellor, or the imminent collapse of a bank, and their implications, if any, for BP.

Nick Slater, vice president, treasury trading says: "Our primary responsibility is to execute the corporation's orders and to give advice. We know exactly where the group's cash is at any time and, therefore, should developments take place that could affect debt markets, we are there to inform straight away on whether we need to make any interventions."

To make those fine judgments requires professional financial capability of the highest standard. There was no textbook for Deepwater Horizon, an event that saw BP viewed for a time as a distressed company. At one point, BP's credit default swaps (CDS) – a key barometer of the perceived risk surrounding a company (the higher the CDS, the higher the risk) – was trading at 1,100 basis points, when a so-called 'junk stock' would be around only 400. Recovering from that was a phenomenal achievement, brought about by capability, not luck, Sanyal acknowledges.

"Coming back from that event, as we did," he says, "required profound understanding of the group and markets, coupled with the deep confidence that comes from having in-house capability. A crisis is not the time to be bringing in new technologies or capability."

"At the time, we already had deep, real-time understanding of our exposures," Sanyal says. "We raised capital very quickly, and were able to demonstrate BP's robustness and regain the confidence of financial markets. We had to act quickly, decisively, but also appropriately and proportionately."

Looking at the challenges experienced since 2010, Brian Smith, vice president, structured finance western hemisphere, says: "Obviously, what is being witnessed in Europe currently has created a certain amount of angst in the financial system. We are ultimately trying to match global capital



“First, we want to be seen as [a bond] issuer of choice, not need, and second, we want to maximise our opportunities, so we diversify the markets we issue into.”

Nick Bamfield

with our funding requirements, and understand the composition of that may change from year to year. We must be in tune with where the money is moving. Change is not always bad, as it brings new lenders who are willing to invest. We need to continue to be nimble, and we are doing just that.”

Natalie Costello, Smith’s eastern hemisphere counterpart, says a key development in the past-year-and-a-half has been a significant increase in the committed trade finance facilities, in the form of letters, available to BP.

“Letters of Credit are critical to the way we do business with counterparties, as they provide some certainty of payment,” Costello says. “We now have a substantial portfolio of committed facilities, 10 times the levels we had before the Deepwater Horizon incident.”

Some of the greatest potential opportunities to capitalise on burgeoning economies are in Asia. BP’s finance teams are always looking out for the right investment opportunities, but decisions are always appropriate to the situation and always solidly underpinned by the ‘guardrails’ of the group’s financial framework.

“We also issued our first Renminbi bond [in China] this past September,” says Costello. “Asia is a big growth area for BP and broadening our ability to access funding globally is very important to us. We have built capability in how we approach these new markets, in ensuring solid understanding of matching funding sources with BP’s funding needs, and in flawless execution.”

BP Treasury’s insurance arm also plays a key part in managing the company’s exposures. With few exceptions, BP’s global insurance strategy is not to buy insurance on the external market unless required to by law or contract, and, instead, to self-insure.

David Anderson, vice president, insurance risk solutions, explains why: “For the types of risk a company such as BP has, including offshore platforms, major refining complexes, a lot of the supply chain, there is not enough insurance

capacity in the market. More and more oil companies are taking on insurance risk themselves. BP has been doing this since 1991, so we have the experience. We believe this is an efficient way of doing things.”

BP annually underwrites as much insurance risk as one of the three biggest UK property and casualty insurance companies, through its own insurance companies, Guernsey-based Jupiter Ltd, and Saturn Insurance Inc., a more recent addition to the insurance capability, located in Vermont, US.

“BP Treasury is a logical place for insurance risk to sit as it manages the financial exposures of the group,” explains Anderson. “We have 12 people in London and four in Chicago, who are responsible for all insurance purchases worldwide for BP.”

BP buys insurance for the thousands of contractors that might be working on a project or development at many of BP’s refineries, giving it enhanced sight of any incidents, claims and areas for improvement. BP Treasury is also working on putting into place insurance risk vehicles for platform decommissioning, to further enhance the group’s understanding and mitigation of all its exposures.

“We have firm financial policies, the global oversight, the professional capability and the liquidity needed to weather the different kinds of crises that we could face, and also to chase opportunities that may arise,” says Sanyal. “It’s about having the right balance of pessimism and optimism, and being really clear about allocation of risk as you drive opportunities and reward.”

Marathon running is all about preparation, training, focus and pace; knowing when to keep something in reserve and recognising the right time to speed up and grasp opportunities, to get ahead of the field. Market windows, by definition, open and close. Whatever the exact nature of the course as the current economic downturn continues, BP is well-placed to manage the financial bends and twists and the dips in the road. ■

THE IN-HOUSE GLOBAL BANK

Every day, BP Treasury pulls in cash generated – usually worth many billions of dollars – by BP’s various businesses around the world and, then, manages the redistribution of that funding, according to business needs. This is something that other companies’ treasury operations tend not to do, and this centralisation gives BP an edge in terms of constant oversight of its global cash situation.

“We bring into Treasury as much of the group’s cash as we can, and every day we fund the businesses that need cash,” says Barry White, cash management and banking projects manager. “Every day, we produce information on how much cash BP has, and we also forecast how much cash BP is going to receive [from its businesses], and, therefore, the group’s liquidity. This is an important part of how BP can respond to changing market conditions.”

The team works daily with the cash and banking managers in each individual country in which BP operates. This is the daily operation of BP’s ‘in-house global bank’, and is supported by the treasury management system, Wall Street. With markets becoming evermore sophisticated, BP has recently updated the operating system underpinning Wall Street through Project Damascus.

“We have used Wall Street since the early 1990s, and it has provided us with an excellent base on which to operate,” White says. “Project Damascus was a massive undertaking and replaced aging technology with up-to-date technology, re-engineering the interfaces we have with various other systems, and provides the platform for Wall Street to continue to support the in-house bank going forward.”

Digital solutions:
Chief technology office

SHARING THE SECRET SAUCE

A TV reality show where entrepreneurs pitch their inventions to multi-millionaires is a worldwide hit. The investors are called Dragons in the UK, Sharks in the US and Tigers in Japan. BP's own version is a different animal altogether. The company's chief technology office has no TV outlet and a small budget. But, like the stars of the shows, this 12-person team is famous for bringing a raft of digital technologies to prominence, including the Wave Glider that helped support last year's Deepwater Horizon response. Its success has left competitors and business gurus keen to capture the team's 'secret sauce'.

Report> Jaclyn Clarabut
Photography> Harrison McClary/
Richard Davies/Marc Morrison





Track and trace: Roger Hine (left), of Liquid Robotics, discusses his company's Wave Glider technology with BP's Mike Utsler, who is head of the Gulf Coast Restoration Organization, during last year's oil spill response in the Gulf of Mexico. The device is used to track oil and was identified by BP's chief technology office.



The North Slope in Alaska sees some of the harshest weather on Earth, with temperatures in winter falling to a lethal -50°F (-46°C), and blizzards in this remote location reducing roads to a grey outline.

These polar conditions are home to BP's Prudhoe Bay facility; the largest oilfield in North America, supplying a significant proportion of the country's domestic oil production.

The facility covers an area of 48 by 32 kilometres (30 by 20 miles), and workers rely on 4x4 pick-up trucks for transport around this major oil field, which is the size of the smallest US state, Rhode Island. With conditions this harsh, it's vital to keep track of the movements and location of every vehicle on the Slope.

Prudhoe Bay's fleet maintenance lead, Ken Lyman, says: "We had a system, but we needed something more reliable and much more accurate. Finding the right kind of digital device was way outside of our expertise."

That's where BP's chief technology office (CTO) comes in. Made up of just 12 people, it seeks to match the needs of BP's businesses with the latest cutting-edge digital technology that has practical application. Its mission, in this case, was to hunt down a technology that could act as the eye in the sky, monitoring vehicles in far-flung locations, where you can't always count on a mobile phone signal and usual tracking solutions would freeze.

However, a tragic twist of events two years ago extended the CTO's mission to find a device that would not only track vehicles, but also alert drivers to dangerous situations.

CTO technology director Curt Smith worked on the project. He explains: "Workers on the Slope keep their trucks running when parked on a job site to keep them from

freezing. Occasionally, they forget to put the vehicle in park mode, or they have a faulty indicator reading. One worker went out to mark an inspection location on the pipeline and, inadvertently, left his vehicle in gear. His truck idled to keep warm, rolled forward, and crushed him against the pipeline."

Smith talked to Faria WatchDog, the supplier he had found for vehicle tracking on the rugged Slope, and asked them to modify their system to address this new safety problem. Now, if a driver opens the doors while the vehicle is not in park, the horn starts beeping. The only way to shut it off is to sit back in the seat, put the car in park and close the door. This makes it virtually impossible for the driver to get out with the car in gear and the motor running. There have been no 'runaway vehicle' incidents since the programme was installed.

With vehicles and drivers tracked and traced, the project was expanded again to keep tabs on rented equipment, such as air compressors, heaters and tanks that are



Harsh terrain: vehicles out on Alaska's North Slope, home to BP's Prudhoe Bay facilities. Track and trace technology identified by CTO is helping keep an eye on teams in this remote location.

used on the Slope for maintenance and construction jobs. The equipment services group spends around \$120 million each year on rentals. Making sure the equipment is available for every job, used efficiently and returned to the hire shop on time can save \$6million a year.

The technical challenge, here, was different from the driver safety project, and this time, CTO found a Geoforce GPS and radio frequency identification system (RFID) from its vast pool of technology connections. Now, a satellite tracking device is magnetically attached to the metal equipment. "Dispatchers can see where every piece of equipment is and retrieve and return it exactly when they need to," Smith explains.

Lyman is quick to praise the solution. "The CTO added a lot of value because technology is something they deal with on a daily basis," he says. "We're really just in the equipment business, so don't have access to tech advances. It's good BP has an outlet that can provide that service to us."

In the warmer climes of Northern

California is Silicon Valley, home to many of the world's largest technology corporations. It's here that a booming community of venture capitalists provided the inspiration behind the CTO team model that chief technology officer Phiroz Darukhanavala ('Daru') set up a decade ago. Since then, the small team has had a big impact by matchmaking new digital technologies with particular BP business needs. Solutions have ranged from predictive analytics that prevent equipment failures in refineries, to immersive 3D training on baking doughnuts and cooking hamburgers for *ampm* mini-market employees.

"When we speak to external audiences, the first question is always, 'what is your secret sauce?'" says Darukhanavala.

Some of those asking the question, he adds, are people who have large in-house innovation teams. "Very large in-house capability was not going to work for us. The pace of change in digital technology is too fast for that. If you build a big group, people become experts and enamoured

"It is our role to get solutions developed by engaging the extremely bright people out in the wider world. When you engage the best minds on a challenging problem, amazing things emerge that once seemed impossible."

Phiroz Darukhanavala

with a particular technology and, meanwhile, the technology moves on. Suddenly, you can have a stranded base of people who are now fighting change rather than making it happen. They become the problem rather than the solution."

The structure that appealed most was the venture capital model, where a team might have six partners, but a network of hundreds or thousands who keep them informed on emerging technologies. Adopting this approach, Darukhanavala says: "We are the first to declare that it is not our role to invent solutions. It is our role to get solutions developed by engaging the extremely bright people out in the wider world, and when you engage the best minds on a challenging problem, amazing things emerge that once seemed impossible."

A small team connected to a large ecosystem of external expertise is the heart of the CTO model. Another aspect is the team's lack of formal authority. "It sounds strange," Darukhanavala concedes, "but that »



helps us be more effective. The businesses accept new technology opportunities strictly on their own terms. They are completely free to tell you to go away and, so, what we have created is an internal market, where only the best ideas survive.”

BP’s group vice president and chief information officer, Dana Deasy, explains the team’s success: “I have to admit I’ve marvelled at CTO’s model. It’s been described in books, hailed as best practice, and other companies have tried to replicate it.

“So, what it is that makes the model work so well? The team is made up of a small number of very connected, very senior people who know digital technology really well, but who can also go to a refinery or an oil platform and talk the language.”

The team has developed two sides to its service. The ‘intelligent technology push’, where the team brings new technologies to BP, and the ‘technology pull’ from the business, where the team searches for a

solution to a particular business challenge.

“People are not going to ask for things they do not know exist, so we have to bring those new possibilities to the table through intelligent push,” says Darukhanavala.

CTO member Harry Cassar, who was responsible for introducing a revolutionary wireless sensing system to monitor equipment for BP Shipping, says: “Technology push has had a bad reputation in many companies, because people are just trying to sell technology for technology’s sake. We understand that, and we try not to do that. But if you are not fully aware of what can be done today, you will only articulate problems that you think can be solved. Once you understand what’s really possible, you can then say, ‘we can build that into our business plans because it is feasible.’ That is why we do technology push.”

The other side of the coin is the pull process, where a business, such as the North Slope example above, partners with the CTO. Senior leadership members share some of their most pressing business

problems, and the CTO plies its ecosystem of leading thinkers and practitioners for potential solutions from emerging digital technology. “We find solutions sometimes from large companies, sometimes from small organisations, and sometimes by joining large and small companies together, to integrate and deliver brand-new technology solutions,” says Cassar, who was instrumental in establishing a business partnership with BP’s Castrol Lubricants business unit.

Whether push or pull, CTO always aims to act as a catalyst and bridge builder, introducing solutions from the outside world.

From their experience in Alaska, the team had developed extensive knowledge and contacts in the area of ‘track and trace’, and determined it could be what they call a ‘game changer’. A game changer is a digital technology that the CTO believes can have a wide and important impact on many areas across BP, and becomes the subject of an intelligent technology push.

The push was kick-started during the



Team effort: members of the small CTO team during a recent meeting (left). Opposite, BP has now installed wireless sensors at its refineries that can measure the thickness of a pipe to a resolution of 0.1 millimetres, helping in the fight against corrosion. The sensors were another technology identified by CTO.

response to the Deepwater Horizon accident. CTO's 'track and trace' expertise was called into action during the spill response, when the company had to demonstrate that it had critical assets – oil skimmers and beach cleaners – in the right place at the right time.

CTO technology director Dave Truch was called in to provide help in the crisis. He says: "This was about providing confidence to the federal and state government and regulators in the US."

Quickly, the team was able to combine technology to deliver a system that used GPS, RFID and software to track the location of skimmers and beach cleaners for effective utilisation and deployment. It was a system that tagged thousands of assets across approximately 30 storage yards in Alabama, Mississippi, Louisiana and Florida.

There are instances when the CTO team is aware of technologies for some time before the right application emerges. Two years prior to the incident, the team was looking at technology in the field of autonomous unmanned vehicles or, put simply, robots. It was then that Truch came across the Wave Glider, developed by a company called Liquid Robotics. Originally developed to listen to humpback whales, the glider looks like a surfboard, around two metres (six feet) long, and is powered by harnessing wave energy.

Travelling at around 1.5 to 2.5 knots on average, these gliders are capable of carrying out unmanned sorties for a period of 60 days. When Truch first saw the glider, it was highlighted as a possible technology for monitoring the environment around oil platforms and in currents, which can disrupt operations.

But it never captured serious business attention at the time. Now, with the world watching, the glider was ready to meet a critical need. "When the Deepwater Horizon accident happened, one of the key elements

we recognised was the importance of understanding the water quality. Then, when the well was sealed, it was understanding what measures could be taken to prove it was truly sealed. We wanted to do constant monitoring for that," says Truch.

Liquid Robotics adapted the Wave Glider to take fluorometer readings at various depths to detect hydrocarbons and algae, and added acoustic modems to detect mammalian life. Now, there are five units operating in the Gulf.

Small, emerging technology companies, such as Liquid Robotics, often have a hard time getting the attention of a company of BP's size, no matter how great their product is. Tim Richardson, founder of Liquid Robotics, appreciates the matchmaking role CTO performed. He says: "BP is the best model I've seen over the years. The CTO is set up to be very approachable and to give outreach and support, and they are very good at that. They understand technology, but are experts in the needs of the company and its broader environment. Hands down, they are the best."

While the Wave Glider is undoubtedly a futuristic piece of kit, the team is adamant that they never get seduced by the latest impressive digital technology.

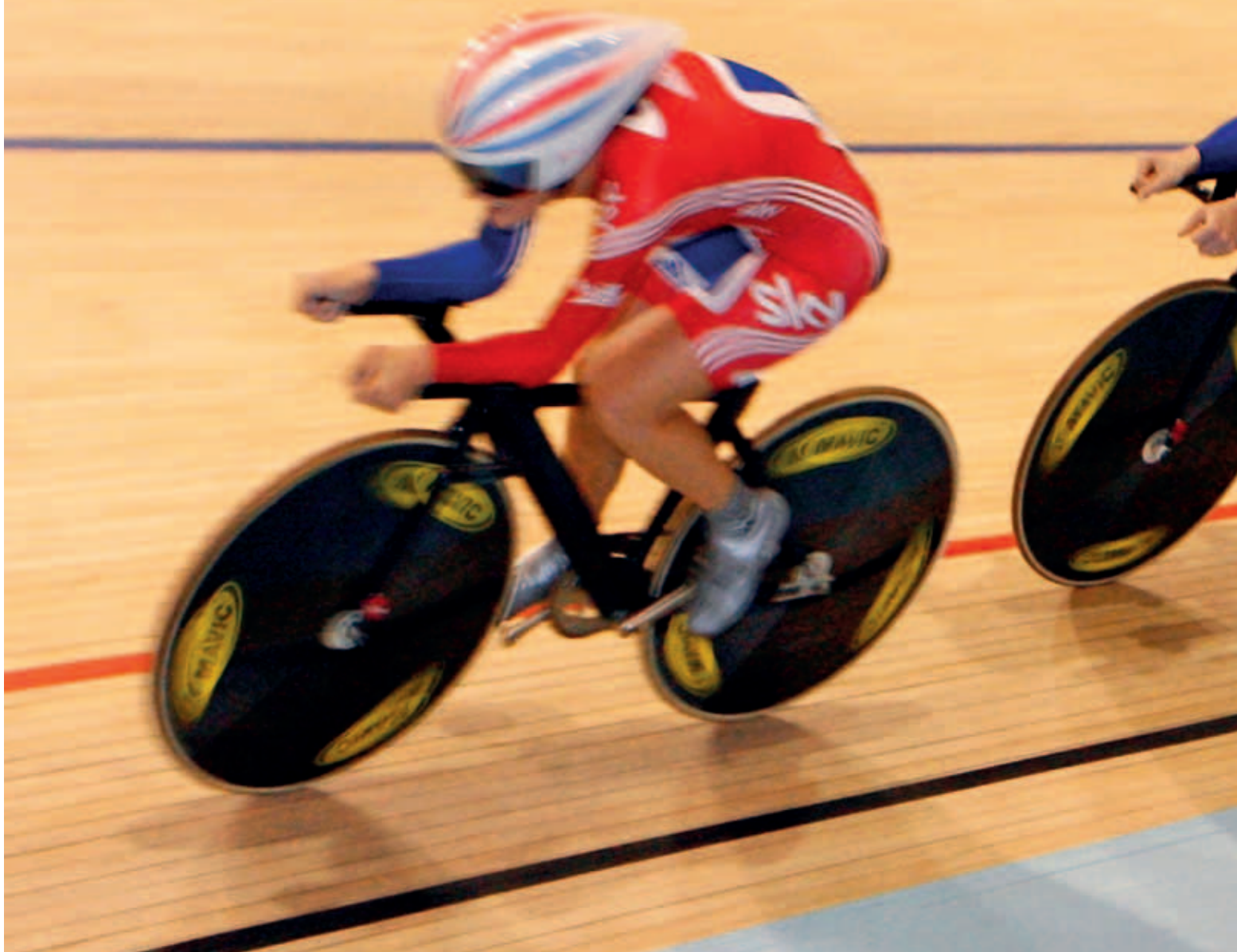
And even though the team sees up to 150 new pieces of digital technologies a year, sometimes in *Dragons' Den*-style forums, they are no geek squad. Smith says: "I'm not particularly interested in technology for its own sake."

Darukhanavala adds: "I'm not a gadget freak, and our role is not to play with gadgets; the common joke is that when I travel, while most people are fiddling with their smartphones trying to find things, I have a little piece of paper in my pocket, which takes me to the next appointment."

And there's enthusiasm for that next appointment, because the team just might see a new digital technology BP doesn't yet know it needs. As Truch says: "It is so good to be able to find something that will make a difference to the company." ■

"The team is made up of a small number of very connected, very senior people who know digital technology really well, but who can also go to a refinery or an oil platform, and talk the language."

Dana Deasy



THE PURSUIT OF EXCELLENCE

BP is supporting six British athletes as they prepare for the London 2012 Olympic and Paralympic Games. Road and track cyclist Lizzie Armitstead was still at school in 2005, when the UK capital was named the host city for the Games of the XXX Olympiad. Her natural ability for pedal power was spotted during a talent identification programme, and she swiftly progressed through junior and under 23 ranks.



London 2012
Olympic & Paralympic Games

Report > Amanda Breen
Photography > Action Images



LIZZIE ARMITSTEAD

Sport: cycling

Event: road race

Age: 23

Main achievements: 2009 Track World Champion in team pursuit; silver medal for scratch race and bronze for points race; three gold medals in the 2009 Track World Cup series; 2010 Tour de l'Ardèche three stage wins and Tour de l'Aude one stage win; Commonwealth Games silver medallist for road race; 2011 UK national champion in points and scratch races; British road race national champion; stage one winner Tour of Chongming Island; and stage six and points classification winner, Thüringen Rundfahrt.

Hot pursuit: British cyclists Lizzie Armitstead (left), Wendy Houvenaghel (centre) and Joanna Rowsell compete in the women's team pursuit qualifications at the UCI Track Cycling World Championships, in Copenhagen, Denmark, March 2010.

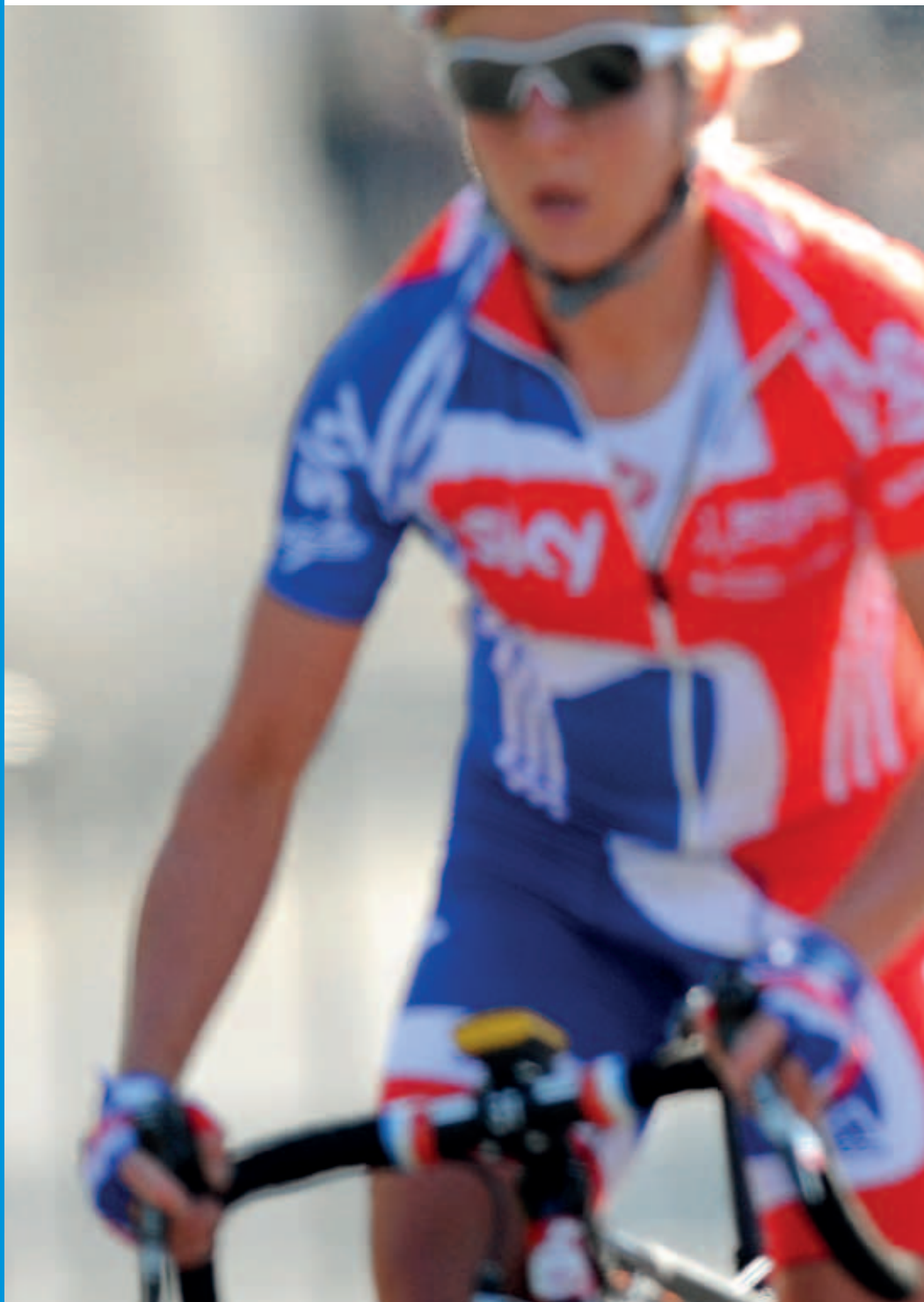
On working as a team to support an individual rider...

In road cycling, there are different types of riders, such as sprinters, climbers or 'engines', as we call them – those who are very good on flat, long, hard races. A team sits down before a race to look at the course, to decide which athlete is best suited to that route and who could produce a winning effort at the finish line.

At the Road World Championships in Copenhagen last September, it was a flat course and we knew it would come down to a sprint, so the GB team decided to work for me. That means it's usually someone's role to chase down any breakaways and a couple of other cyclists position themselves around the sprinter in the bunch. Those riders basically protect you from the wind, as it can be 30% harder out in front than sat in a wheel.

I'm really disappointed about what happened in Copenhagen [Lizzie was held up behind a crash in the last kilometre of the race and finished seventh]. It's such a shame to lose a race that way, when I was feeling so good, and was in the nice position to have the team committed to working for me. The experience in Copenhagen is going to be good motivation for me during the horrible winter training sessions.

She's now considered one of Britain's best young endurance cycling stars and is among a rare group of riders who competes both inside a velodrome and on the road. Having turned professional in 2009, Lizzie has spent the past two years riding for the Garmin Cervélo Pro Women's team. After being forced to make the choice between the velodrome and road for London this summer, Lizzie, with advice from the British Cycling coaches, chose the road as her slightly stronger discipline.





London 2012
Olympic & Paralympic Games



Team spirit: Joanna Rowsell, Wendy Houvenaghel and Lizzie win silver in the women's team pursuit at the 2011 UCI Track Cycling World Championships, in Copenhagen, Denmark, March 2010 (left). Below, Lizzie competing in the Road World Championships, October 2010.



On trying out a bike to escape classes at school...

Cycling was never a hobby when I was younger. I've got a very active family and summer holidays would always involve taking bikes with us, but only as a means of getting from one place to another.

I was 16 when London won the Olympic and Paralympic Games bid. At the time, British Cycling, the sport's governing body, set up the Olympic Talent Team Programme, which involved a trailer full of bikes visiting schools and testing out students on their playing fields. I did it just to get out of lessons basically! I got through all the rounds of testing and at the final stage, you were given a bike and a coach.

I'd always done every kind of sport and I was in all the school teams, but never the best at anything. It was nice to find the sport that I excelled at.



On the renaissance in British cycling...

I'm really lucky that I came into cycling at a time when the sport here was on the up, after the GB team won so many medals in Beijing. I've always been supported by British Cycling, and I learned everything I know from them. It's also been easier to explain to friends and family what I do for a living because the sport has more exposure on television and in the media.

When I first started out, it was difficult to find people to train with, but that's definitely changed over the past few years. I've always got training partners now, and it's great to see so many cyclists out on the roads. This summer, I'm looking forward to having the home-crowd support in London. I think it will bring people together in their excitement for sport.

Medal winner: Lizzie (left) at the women's British National Championship road races, which she won, June 2011. Right, as part of BP's Olympic and Paralympic Games advertising campaign.

TRACK ENDURANCE EVENTS EXPLAINED

Team pursuit: Two teams of three riders compete over 12 laps (four riders in men's event over 16 laps), starting on opposite sides of the velodrome. The goal is to cover the distance in the shortest time, or to catch the other team.

Points race: Mass-start, long-distance race of 100 or more laps, with a sprint every 10 laps. Points awarded for top finishers in each sprint, winner holds most points by end.

Scratch race: Over various distances, up to 20 kilometres (12 miles), riders start on equal terms and places are based upon the final order across the finishing line.

Omnium: new to the Olympic programme, replacing the points and scratch races. This event features riders competing across six disciplines – points are awarded in each race, according to position: the winner gets one point, the second-placed finisher scores two, and so on. After all six disciplines, the rider with the fewest points wins gold.





London 2012
Olympic & Paralympic Games

Race leader: Lizzie leads the pack in the women's omnium points race at the UCI Track Cycling World Cup in Manchester, UK, February 2011.



On being a BP London 2012 athlete ambassador...

I've really enjoyed getting involved in some of BP's programmes related to London 2012. I've worked with a group of young people who were looking at the most sustainable way to travel to the Olympic and Paralympic Games, as part of BP's Target Neutral initiative. I was on the judging panel for that, although I didn't like having to pick a winner, as they were all brilliant.

It's really nice to have the opportunity to work together with BP on projects like that, as it takes me out of what I'm doing in cycling and makes me realise how lucky I am to be part of the Olympic Games.

On living out of a suitcase...

There's so much travelling for cycling, but because the competitions we do are so hard, we just need to rest in between races. Often, I'll arrive in a country and just see the airport, velodrome and hotel room, so living out of a suitcase the whole time isn't that much fun. It's a bit different with the road cycling, as, obviously, you get to see the course that you're racing on, and that can be amazing.

Last year, I think I caught around 60 flights – but I live in Belgium during the road racing season. Not only is cycling the national sport there, and the level of competition so high, but the country is central in Europe, so it means I don't need to fly to every race destination.

BP AND LONDON 2012

As the Official Oil and Gas Partner for the London 2012 Olympic and Paralympic Games, BP will provide fuels and engine oils for more than 5,000 official vehicles, as well as bottled gas for catering facilities at venues. BP is also a Sustainability Partner, with a key role in creating a lasting legacy after the Games end. Advanced fuel options will help power the Games' fleets and as the Official Carbon Offset Partner with Target Neutral, BP's goal is to make sure that the carbon emitted from vehicles will be offset, helping to make London the most sustainable Games yet. London 2012 ticketholders can offset the carbon emitted as they travel to and from the Games by registering at www.bptargetneutral.com

Arts, culture and education have played important parts in the Olympic movement since its foundation in ancient Greece. In BP's role as a Premier Partner of the London 2012 Cultural Olympiad, it continues the long-time support of these areas, during events such as the London 2012 Open Weekend and the *Tate Movie Project*.

• Further details of BP's London 2012 activities can be found at www.bp.com/2012

**Petroleum Exploration
Society of Great Britain**

NEW TALENT IN EXPERIENCED HANDS

The Petroleum Exploration Society of Great Britain is as old as the North Sea oil industry itself. It was founded in 1964 to promote education in the 'scientific and technical aspects of petroleum exploration'. Now, thanks to a new branch, the sector's recent entrants are benefiting from the PESGB's networking and learning opportunities that have been so valuable over the years.



North Sea fields are not the only elements of the UK oil and gas industry receiving an injection of new life. As enhanced oil recovery techniques squeeze additional energy out of more mature, complex fields, the industry's human resource demographic is also seeing its own reinvention.

The 'Great Crew Change' – the looming retirement of many of the sector's experienced personnel – means that the development of the industry's geoscientific talent has never been more pressing. Societies such as the Petroleum Exploration Society of Great Britain (PESGB), created as the North Sea industry was starting up, play a vital role, particularly in providing a bridge between the industry's old hands and the new talent coming in.

"In the 1980s and early 1990s, the UK industry had something of a boom on the back of the North Sea," says Neville Jones, BP's director of geology. "BP's North Sea business recruited large numbers who were able to develop together over the years. Then, there was a protracted period of contraction, and the industry as a whole lost a lot of people.

"We also changed our recruitment and our sponsoring of universities around this time. The industry sponsored a lot of Ph.D students in the UK system, but this mainly stopped in the mid-1990s, across the sector, owing to the economic climate."

In addition, changing investment strategies by the majors mean 'UK Oil plc' is also now characterised by a greater number of smaller companies, making effective networking even more important. While the UK has a lot of fantastic young scientific talent, the 'new breed' does not have the same organic networks, and that valuable bridge to the old guard, that they need to pick up the ropes and continue to drive the future of the North Sea.

Spotting this gap, James Thompson, a former BP geoscientist, approached the PESGB and his then-employer with a view to establishing a new branch. The resulting PESGB Young Professionals committee, or

'YPs', co-chaired by Thompson, has held a number of events since its inception in January 2010, the highest-profile being at the British House of Commons.

"We found that the PESGB had great established events, but it didn't really cater for all the newer industry entrants," says Thompson. "I started thinking about a young professionals sector, as a way of recognising the young development in the society and the industry, so we made a presentation to the council. They'd seen nothing like this before and they said they'd been waiting for us for five or 10 years."

Thompson, together with Jessica Hill, an employee of North Sea gas producer Centrica, pitched the idea to BP, which put up seed-funding of \$11,700 annually, as did Centrica. The high-profile speakers at the March 2011 House of Commons event included Charles Hendry, minister of state for the department of energy and climate

"I started thinking about a young professionals sector, as a way of recognising the young development in the society and the industry, so we made a presentation to the council. They'd seen nothing like this before and they said they'd been waiting for us for five or 10 years."

James Thompson



change; Malcolm Webb, chief executive of Oil and Gas UK, and Mike Weir, Scottish National Party member of parliament.

"We went up cold to some of the speakers at a law firm event about the oil industry's future, and said we'd like to do this for a younger audience," says Thompson. "They were all very interested, and agreed to participate. It was a challenge logistically, but the event was very well-received, and it was great to see that the politicians stayed around afterwards to network."

As well as a growing number of talks and lectures in London, Aberdeen and Edinburgh, the YPs are also offering financial support to university students' geological mapping expeditions. These are becoming increasingly hard for students to fund and yet are a vital part of their studies.

The YPs' success is already evident in PESGB membership. In 2008, just 202 members, 4% of the total, were aged under 30. By 2010, that figure had grown to 7%, and current figures show members aged under 30 now represent 10% of the society's membership.

Andy Leonard, vice president at the BP Institute at the University of Cambridge and former director of the PESGB's Aberdeen branch, says this kind of network has huge benefits for the industry at large.

"The North Sea has a lot of life in it yet," he says. "There are some great geologists coming out of UK universities today, and

"The North Sea has a lot of life in it yet. There are some great geologists coming out of UK universities today, and this gives you confidence they can do what we did 30 years ago."

Andy Leonard

this gives you confidence they can do what we did 30 years ago.

"We feel we have a responsibility for the wider health of the science, for the wider health of the discipline in the UK, and it is in our interests that the skills base is at a high level. The success of this kind of organisation feeds back into maintenance of the quality of the people we recruit, creates a real community, and fosters knowledge sharing and learning about what others in the industry are doing."

The PESGB's president elect, Mike Bowman, who retired in March 2011 after 30 years at BP, his last role being chief geoscientist, says the links societies such as the PESGB provide are invaluable. As well as his new role's traditional functions, supporting the YPs is a clear focus for his forthcoming term in office.

"The YP side has been incredibly successful," he says. "Almost 50% who attended the society's AGM in June were what you would call YPs, a very different

scale from what we had before. Their success is such that, in 2012, we will be having a formal YP position on the council, which is very important and reflects just how significant we feel the YPs are.

"I will also be focusing on our MSc funding allocation. We fund, or partially-fund, the masters programmes of 10-15 students a year, which is of increasing importance in the current climate of government cuts. We will also be continuing to look to more effectively link all the industry's small companies and help them use their collective power.

"We will also be further strengthening our schools programme, where we reach out to schools, deliver talks and materials, and work to enhance public awareness of the industry."

While the future of the oil sector is in the hands of those who may have fairly recently joined the industry, the PESGB won't be taking its eye off the ball with its traditional membership, Bowman assures.

"PESGB meetings are meetings of old friends," he says. "There is a whole suite of people who worked together, and that sense of social camaraderie and knowledge exchange really distinguishes PESGB from all of the other groups that exist, and we must maintain that."

BP, meanwhile, is set to continue funding the YPs for the foreseeable future. "The key reason we support this is that, as an industry, we need to send a very clear message to young talent that this industry has a future," says Neville Jones. "Organisations such as this promote effective networking, a skill that is not straightforward, and working remotely with colleagues in the industry is going to become increasingly important. This is a small amount of money for BP, but this is a highly-effective use of that money." ■



For more information, visit: www.pesgb.org.uk



HIGH SPIRITS

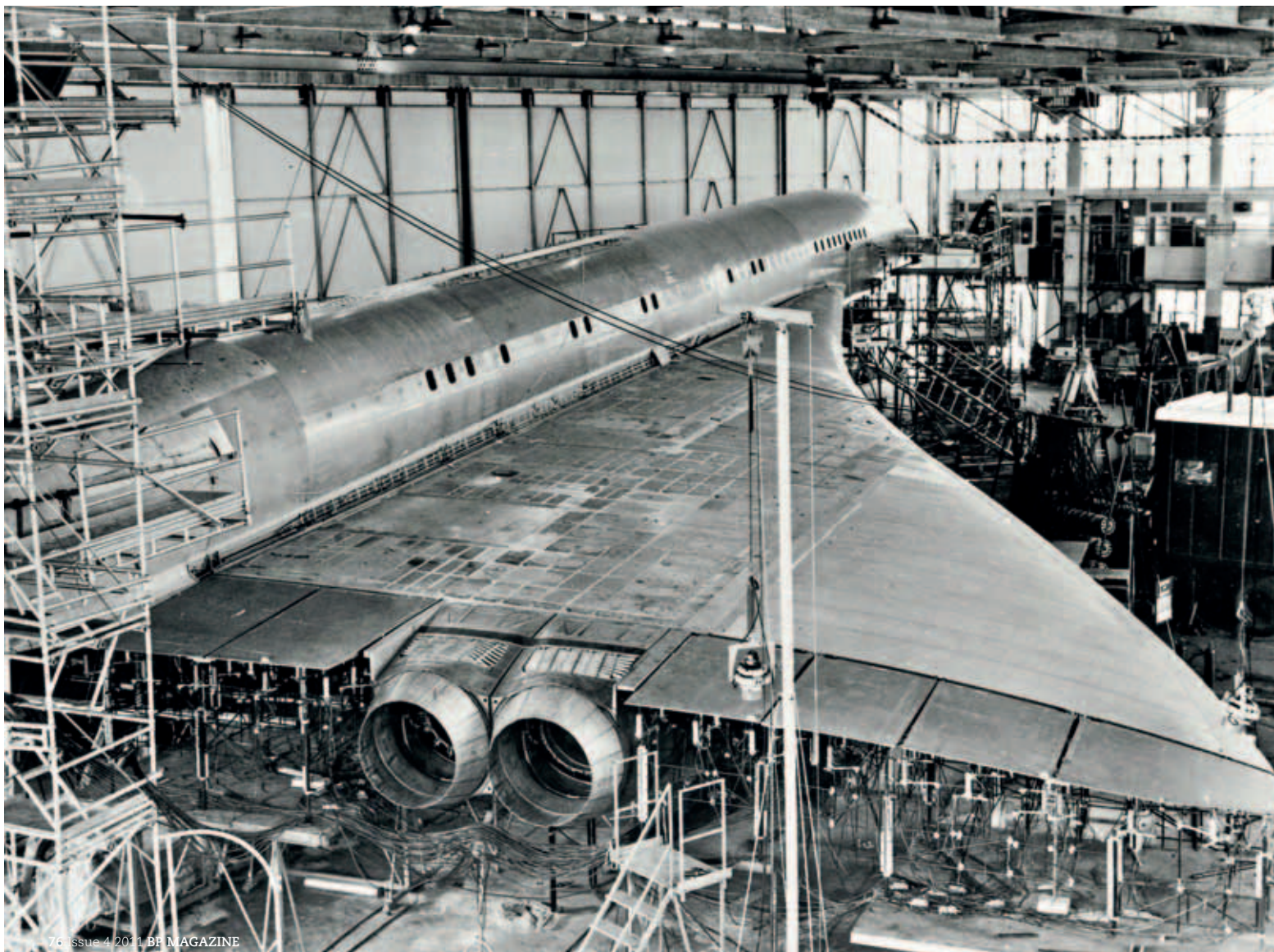
Air BP has been around almost as long as its parent company. Its roots date back to the late 1920s, when its product was known as Anglo-Persian aviation spirit. Since then, Air BP has been at the forefront of all the major developments in air travel, providing fuel to adventurers and major airlines, alike. We open up the archive to share some of its key moments in history (for more on Air BP today, see page 32).



Opposite: One of the first flights fuelled by Anglo-Persian aviation spirit a precursor to Air BP was made by 'Messrs. Stack and Leete (de Havilland Tiger Moth flight), from UK to India, pictured here. **Above and left:** Air BP fuels Operation Deep Freeze – the codename for a series of missions to Antarctica, co-ordinated by the US military in 1956.



Above: in 1960, Air BP provided fuel for special aircraft in Australia, used for rain making experiments. Also known as 'cloud seeding', these experiments were a form of intentional weather modification that used chemicals such as silver iodine to try and change the amount of precipitation that falls from clouds. **Right:** fuelling a Qantas Boeing 707B, which flew the British team to Perth in order to take part in the British Empire and Commonwealth Games in 1962. **Below:** construction of the Concorde 0022, Bristol, UK. Throughout the 1950s and 1960s, BP supplied both lubricants and fuel for the development of the iconic aircraft.





Far left: BP chairman and chief executive Sir Eric Drake is photographed with the 1970 Queen's Award to the industry. BP was presented with the award for two technical achievements, one of which was its supersonic lubricant, BP Enerjet. **Left and above:** the front cover of Air BP's house journal, which won a major British award in industrial journalism in 1956 for best design. **Below:** the NASA Boeing 747 carries the prototype space shuttle Enterprise in 1983. Air BP provided fuel for the aircraft at both Stansted Airport, UK, and Cologne Bonn Airport, Germany.





Traditional trade

Iraq-based BP employee Ian McGregor took these photographs of a traditional reed house, known as a mudhif. The construction is located at BP's compound at the giant Rumaila field, and took nine men and six days to build by hand, without levels or tape measures. This 5,000-year-old trade is practiced by the Madan people, who traditionally live in the marshes of southern Iraq. BP's mudhif has become something of a talking point, with the Iraqi oil minister paying it a visit. It will be used as an area to hold meetings and gatherings among staff.



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BP p.l.c
Chertsey Road
Sunbury-on-Thames
Middlesex
TW16 7LN
United Kingdom
www.bp.com/bpmagazine



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Hurdler*

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