



Horizon, Issue Two 2008

Editor's Letter

STRATEGY ADDS A NOTE OF URGENCY

There was a note of urgency in the strategy update presented to investors and employees recently: the performance gap between BP and its main competitors needs to be closed—and soon.

“Whichever way you slice it, BP’s performance has not held pace with our major peers,” said group chief executive Tony Hayward.

On page 10, Hayward talks to Horizon about the measures put in place to address this performance gap in the short term, as well as the successes of BP’s established long term strategy that will ensure the group’s prosperity in years to come.

A key part of the strategy involves the refining and marketing (R&M) segment and the creation of fuels value chains to bring about regional integration. It is described as the biggest organizational and cultural change in R&M for the last 15 years. Nick Reed talks to Tony Fountain, group vice president, fuels value chains, about the strategy’s benefits to the fuels business.

The forward agenda and its focus on safety, people and performance is the main strategy element aimed at closing the performance gap. David Baldry, group vice president and chief executive of BP shipping, talks about the importance of safety in business on page 20.

Another key element of the forward agenda is an emphasis on silent running: high performance teams that rarely ‘make the headlines’. One such team is implementing a new system that allows the integrated supply and trading function to track BP cargoes around the world. Their work is profiled on page 28.

Exploration is an aspect of BP’s strategy that remains unchanged. Accessing major basins is a key part of that strategy and on page 32 Helen Campbell looks at Skarv, an important new offshore development in Norway, a key basin for BP, which will further extend the company’s production plateau. Happy reading.

Greg Goodale, Editor



Horizon, Issue Two 2008

In the Papers

Dividends boosted

BP reported weaker-than-expected earnings due to a “very disappointing” performance from its refining business, though a sharp increase in dividend payouts helped boost its shares. While the earnings disappointed, strong dividend growth, rising production and tight cost controls all helped boost the group’s shares,

which rose 1.9% in early London trading.

Dow Jones

BP’s payout was raised 31% to 13.5 cents a share, representing an annual dividend yield of 4.9%. Net income advanced to \$4.4 billion, or 23 cents a share, from \$2.88 billion, or 15 cents, a year earlier, the London-based company said in a statement. Chief executive officer Tony Hayward is offering the highest dividend among the world’s biggest oil companies.

Bloomberg

BP delivered disappointing earnings in the fourth quarter, reflecting losses in the refining business and increased taxes, outweighing gains from higher oil and gas output and prices, but the UK oil giant still raised dividends at a rate better than what analysts expected. Analysts remained upbeat about the future, particularly with the progress of the group’s restructuring programme and efforts to revive its flagging refining operations in the US.

AFX

Biofuels future

The world is facing a glut of biodiesel as demand fails to grow in step with government-mandated capacity. This was the picture that emerged in Beijing at the China Biodiesel 2008 conference, held in late February. By 2010, global biodiesel production capacity is expected to outstrip demand by 8.3 million metric tonnes a year (2.5 billion gallons a year), which amounts to a whopping 38% of demand said a presenter at the conference.

Platts

The case for biobutanol as a biofuel source got a boost from results of a new uptake study on the alternative fuel conducted by DuPont and BP. Test results show that biobutanol could be safely blended at a 16% concentration without compromising performance and without alteration to conventional vehicle engines.

Octane Week

Argentina shortages

The presidents of Argentina, Brazil and Bolivia met in late February in Buenos Aires, Argentina to discuss ways to share the natural gas Bolivia has available for export. Bolivia produces around 40 million cubic meters a day of gas and has 33 million cubic metres a day available for export. It wants the supplies to go to the market that needs it most at any given time and has said it is willing to shift more gas to Argentina to meet winter demand there.

Platts

BP-controlled Pan American Energy (PAE) is drawing up plans for a 3D seismic shoot off Argentina in the Gulf of San Jorge basin, although the exploration programme is unlikely to get to the drilling phase before the second half of 2009. PAE’s onshore Cerro Dragon field is one of the rare success stories in the Argentine upstream sector. Aided by new 3D seismic in the field PAE has doubled production and tripled reserves over the past five years.

Upstream



Horizon, Issue Two 2008

Exploring Iraq

More than 70 international firms have registered to compete for tenders to help develop Iraq's oil reserves, seen as vital to providing the funds to rebuild the country, Iraq's oil ministry said. Iraq currently produces only a fraction of its vast reserves, the third-largest in the world and among the cheapest to produce, and international oil firms have been positioning for years to gain access. Big oil firms such as Shell and BP are among firms that have said they have registered or intended to do so.

Reuters

An Iraqi oil ministry delegation has resumed talks in the Jordanian capital, Amman, with top executives from Shell, BP, ExxonMobil and Chevron to discuss the development of the country's major oil fields, people close to the ministry said. A new consortium has been added to the list of firms that Baghdad is holding talks with to sign technical support agreements.

Dow Jones

Iraq's cabinet has given the green light to its oil ministry to sign agreements with international oil companies to help increase the nation's crude output, a ministry official said. The two-year deals, known as technical support agreements, or TSAs, are designed to develop five producing fields to add 500,000 barrels per day to the country's 2.4 million barrels per day output. Iraq is in dire need of expertise from international oil companies to achieve Iraq's target of three million barrels per day by the end of 2008.

Associated Press

Haunting Exxon

In 1989, the nation woke up to news of the biggest oil spill in North American history. A supertanker owned by Exxon had run aground. Nineteen years later, the US Supreme Court is tackling the legal mess. Exxon's lawyer, Walter Dellinger, will tell the justices that punishments for oil spills like this were set out in the Clean Water Act and preempt punitive damages in a private lawsuit. The Alaskans dismiss that argument.

National Public Radio

Exxon made its final appeal in February to the US Supreme Court to throw out a \$2.5 billion verdict against the oil giant for its role in the 1989 spill (11 million gallons) of crude oil in Alaska's Prince William Sound. The company argued that maritime law has little precedent for levying punitive damages against a company for the actions of its agent at sea.

Anchorage Daily News

Arguing for the Alaskans and urging the Supreme Court justices to reject Exxon's appeal, lawyer Jeffrey Fisher said nothing in longstanding maritime law prevented a jury from punishing Exxon for the reckless acts of the vessel's captain. Evidence during an 83-day trial in 1994 showed that supertanker Exxon Valdez captain Joseph Hazelwood had been drinking and left his post on the bridge of the supertanker. The jury awarded \$5 billion in punitive damages. A federal appeals court cut that amount in half.

USA Today

Alternatives accelerate

Worldwide investment in renewables reached an estimated \$71 billion in 2007. A new study prepared by the Renewable Energy Network paints an encouraging picture. In 2007 global wind generating capacity is estimated to have increased by 28%, while grid-connected solar photovoltaic capacity rose 52%.

International Oil Daily

BP said recently that its alternative energy business was worth as much as \$7 billion, but hinted it could be put up for sale to take advantage of rising values in the renewable sector. In a strategy update, Hayward said BP would invest \$1.5 billion in wind and solar operations over the next 12 months to speed further growth.

Guardian

"BP wants to grow alternative energy. We want to generate growth options for the company," Vivienne Cox, executive vice president of BP Alternative Energy (AE), said. Consumers are looking for alternatives to carbon and develop a broader energy mix.

CNBC



Horizon, Issue Two 2008

BP said it will maintain a stable output until 2020 and boost spending on alternative energy, but said it didn't intend to divest it. The statements were made at the first strategy presentation by new chief executive Tony Hayward. The announcement will ease concerns that it is dropping the green energy commitment.

Dow Jones

BP said it expects to spend some \$1.5 billion in alternative energy this year, an acceleration of its longer-term \$8 billion plan to build the business. It added \$1.5 billion had already been spent since BP started its alternative energy business. As the company is investing significantly into the alternative energy unit, "we want to give our investors line of sight on this investment". The BP executive reiterated "the company had no plans to divest the alternative energy unit, as it is a fundamental part of our growth going forward. We want transparency and we want people to be able to value this business".

Dow Jones

Cox stated that BP looks at its Alternative Energy business as a growth business which is valued differently than the business of oil and gas. Alternative Energy is assessed based on equity value. Cox said: "While it will be some time before we see profitable returns on this, the market understands that this business is about equity value growth." Cox noted that the wind and solar businesses are already profitable in part because of technology advancements in place and the regulatory framework support at the federal level. "Next generation biofuels, however, will take longer," said Cox.

CNBC

For alternative energy to develop, states Cox, we must put a price on carbon in order to find the "best energy mix". Consumers could begin demanding alternative energy availability which would make a strong market driver. In addition, notes Cox, BP is pushing to get a clear regulatory framework supporting alternative energy among world governments. These are in place for wind and solar. Clarity is critical in order to make big investments in AE's long-term projects.

Climate Change Channel

Officials at the Washington International Renewable Energy Conference said the time has arrived to put in place a system that facilitates greater use of renewables. Hayward said it would require a "sound policy framework" from governments around the world. BP was the first big oil company to face up to climate change followed by other oil companies.

Oil Daily

Stealing Petrobras

A huge natural gas field has been found a short distance off Rio de Janeiro's coastline, Petrobras, Brazil's state-controlled oil firm, says. The company believes the field, Jupiter, could match the recently discovered Tupi oil field in size. Tupi is thought to be one of the largest fields discovered in the past 20 years. But Petrobras officials say further work needs to be done to establish Jupiter's exact dimensions.

BBC News

When computers with information about newly discovered, massive oil fields off Brazil's eastern coast vanished earlier this year, allegedly in transit from an offshore rig, it jolted the oil industry and alarmed even the nation's president. On 28 February, however, police said it was petty theft, not corporate espionage, that led to the disappearance of information about the Tupi fields, an oil discovery so large that Brazilian officials have said the country may join Oil Producing Exporting Countries.

Associated Press

Pump prices

As crude-oil prices climb to historic highs, steep gasoline prices and the weak economy are beginning to curb Americans' gas-guzzling ways. In the past six weeks, US gasoline consumption has fallen by an average 1.1% from year-earlier levels, according to weekly government data. There is evidence that Americans are changing their driving habits and lifestyles.

Wall Street Journal

US gasoline prices, which for months lagged behind the big run-up in the price of oil, are suddenly rising quickly, with some experts saying they could approach \$4 a gallon by spring. With growth slowing, energy increases that were once easily absorbed by consumers are now more likely to act as a drag on household



Horizon, Issue Two 2008

budgets.

New York Times

The US average retail gasoline price increased 3.2 cents to \$3.162 a gallon in March, according to data released by the Energy Information Administration (EIA). The national gasoline average was 65.7 cents higher than one year ago, EIA said. The steepest weekly incline among regions was the West Coast.

Platts



Horizon, Issue Two 2008

Upfront

LETTERS

BP's decision to buy into Canadian tar sands will have upset and angered those of us concerned about climate change and unsustainable levels of consumption who have managed hitherto to identify with BP, just, but this decision threatens our support.

Tar sands extraction is known to require destruction of forest, wetland and peat bog on a vast scale with consequent harm to wildlife and carbon emissions. It also requires a high ratio of energy in to energy out, further exacerbating the carbon footprint.

John Bannister,
pensioner and shareholder, UK

Editor writes: As a company, BP's continues to search for innovative and responsible ways of meeting society's need for heat, light and mobility. It is clear that fossil fuels will continue to meet those needs well into the future, even in scenarios which radically limit carbon dioxide emissions. We are striving to produce fossil fuels more efficiently and to begin the transition into a lower carbon future. Our recent investments in oil and gas projects, including the joint venture with Husky Energy—which will utilize steam assisted gravity draining, and not mining— have been made within this context. This is a more sensitive approach to the physical environment as it recycles large amounts of water. While it may currently use more energy than 'conventional' oils, BP intends to use its technology, in conjunction with Husky, to improve this comparatively immature method. The joint venture, which will be managed by Husky, aims to produce this source of oil as efficiently as possible to minimize emissions and to keep the environmental footprint to a minimum.

I read the Confronting Carbon article (Horizon, Issue 1, February 2008) with interest. The graphs suggest a pretty conclusive link between global temperature and carbon dioxide in the atmosphere. However, see <http://longrangeweather.com/images/GTEMP5.gif>. This is a graph produced by a couple of very well respected climatologists showing global temperatures over the last 4,500 years. As you can see, the big picture is much, much more complex than your simple short term graphs suggest.

Kenneth Laing, Aberdeen, UK

Steve Koonin, BP group chief scientist, writes: There are many factors that contribute to a changing climate. Because many of these influences are of comparable magnitude, disentangling them is not easy. This is discussed in the Intergovernmental Panel on Climate Change's Fourth Assessment report in which it stated that human activities were responsible for most of the warming in recent decades. Going forward, the anthropogenic signal is expected to become more robust. Meanwhile, the climate will continue to vary because of all of the other factors mentioned. Understanding all of this sets the agenda for climate science for several decades.

READER NOTICE

To help reduce the environmental impact and shipping cost of distributing Horizon we are making the magazine available on the internet (www.bp.com/horizon).

Readers who receive Horizon by post were sent a postcard asking them to confirm their continued interest in receiving the print version of the magazine by 1 April.

Those who did not receive the postcard, but would like to continue to receive the magazine, should email their name and address to: BP distribution services at: bpdistributionervices@bp.com.

UNIVERSITY PACT TO PASS ON EXPERT KNOWLEDGE

WHEN BP employees retire, a wealth of knowledge leaves the company, but efforts are now under way to pass on expertise to other BP employees around the world.



Horizon, Issue Two 2008

Five colleges and universities, highly-ranked for their teaching and education proficiency, will comprise a consortium with BP to enhance the transfer of petro-technical knowledge and skills.

Led by Houston-based Rice University, the consortium has a five-year plan to investigate and develop training techniques that increase effective transfer of knowledge and technical skills among BP employees. Three UK-based education and research institutions—Heriot-Watt University, Imperial College London and the University of Manchester—plus Baylor College of Medicine in Houston, US, have joined Rice in adding their particular expertise to the programme.

“Our partnership with these leading academic institutions is further evidence of BP’s use of learning and technological innovation to underpin its exploration and production [E&P] growth strategy,” explains Andy Inglis, chief executive of BP’s E&P segment.

BP chose Rice to lead the project because of the university’s extensive record in collaborative research in the field of business and academia. Rice is consistently ranked one of the best teaching and research universities in the US and it is unique in its undergraduate student-to-faculty ratio of 5:1, and its collaborative culture which crosses disciplines and integrates teaching with research.

“This venture provides Rice and the consortium with opportunities to advance our development of progressive teaching methods,” says Rice provost, Eugene Levy. “We are excited about helping to expand learning and development for emerging and established energy industry professionals and to influence teaching in science, engineering and other technical subjects.”

DUTCH FORECOURTS SHINE IN CLEANLINESS STAKES

DUTCH television presenters with a penchant for cleaning visited a BP forecourt in the Netherlands to ask ‘How Clean is Your Forecourt?’

In a spin-off of their television show *How Clean Is Your House?*, Gitte Sørensen and Anna Høgberg were filmed visiting and cleaning a gas station forecourt to demonstrate the importance of cleanliness to BP.

The event acted as further publicity for the ‘a little better’ marketing campaign—part of the Helios Power project—which was launched in the Netherlands in October.

Site staff have attended workshops to learn how to improve customer experience and publicity has featured on television, radio, in print and online.

Customer satisfaction surveys have also shown significant improvement, particularly in the areas of friendliness and cleanliness. Dealer and partner satisfaction scores have also improved, as have fuel and shop sales, which have risen above industry averages.

The Customer Satisfaction Index also shows that BP brand awareness greatly improved between the third and fourth quarters of 2007.

This was, in part, due to a ‘win a car’ promotion which prompted more than 600,000 people to visit the campaign website.

Three lucky winners were handed the keys to their new vehicles at the BP site in Zwart, Amsterdam, by Netherlands’ marketing manager, Jan van de Wouw.

To learn more about the innovative Helios Power campaign, visit the dedicated website www.alittlebettergasstation.com.

AWARDS WILL REFLECT FIRM’S NEW FORWARD AGENDA

The 2008 helios awards, BP’s internal employee recognition programme, will be launched by group chief executive Tony Hayward on 14 April.

This year the judges will be looking for entries that support BP’s forward agenda. The entry period runs from 14 April to 23 May. The helios awards welcome entries from employees, partners and contractors worldwide.



Horizon, Issue Two 2008

Entrants submit their stories under one of four categories mirroring BP's brand attributes: green, innovation, progressive and performance. The shortlist for the partnership and human energy awards is selected from among the finalists.

In June, judges from across BP's global operations will select the entries to go through to the commended stage.

In September, the global judges (BP senior leaders) will review the commended entries and select the 16 finalist teams. The executive team will announce the winners at the global awards ceremony in London, UK, on 3 December.

Last year's helios awards received 1,649 entries from 63 countries and more than 100 businesses and functions.

Last year's event saw four winners come from the exploration and production segment (progressive, performance, innovation, and human energy categories), and one each from the then gas, power and renewables segment (green), and refining and marketing (partnership).

For more details and to enter, see the dedicated helios awards intranet site <http://heliosawards.bpweb.bp.com>

UKRAINE HAILS TNK-BP MOST INNOVATIVE FIRM

TNK-BP has been named the most innovative company in the Ukrainian 'Guardia' awards. The award, announced on 29 February, is welcomed by Dmitry Logvinenko, executive director of TNK-BP commerce.

He explains: "Being chosen for this award is great. After seven years of working in Ukraine, the company has become a leader of the fuel market owing, first and foremost, to non-standard and innovative solutions in the technologies of management, oil refining and trading."

He goes on to say that spring will see the country's first BP-branded service station open. "We have serious plans aimed at development of the Lisichansk refinery, wholesale trade of oil products, and expansion of our retail network," he continues. "We are going to keep ourselves and our rivals busy."

The Lisichansk refinery is the main oil refining asset of TNK-BP in Ukraine and, to date, the company has pumped more than \$200 million into it as well as building five new refining facilities. In retail, TNK-BP uses the latest technologies available to run its gas stations and installs modern fuel dispensers and double-walled tanks to minimize the risk of soil contamination with oil products.

Logvinenko also stresses that the company will continue to invest in major projects to meet trade and service requirements.

SENIOR EXECUTIVE ANSWER STRATEGY QUESTIONS

BP's senior executive team took part in a question and answer session on 27 February to answer employee questions on the latest group strategy presentation and the forward agenda to restore performance in the short term.

The London event gave around 300 employees, representing a cross section of BP businesses, the opportunity to pose questions to a panel comprising group chief executive Tony Hayward; Andy Inglis, chief executive of exploration and production; Iain Conn, chief executive, refining and marketing and Vivienne Cox, executive vice president and chief executive officer of Alternative Energy.

In his presentation, Hayward explained the impact of the external environment in shaping group strategy, which aims to restore short-term performance and secure long term growth potential.

"We have a very powerful asset base, we have a very powerful upstream business, and we actually have a very powerful downstream business," said Hayward. "We have great assets-it's about making them work." He went on to say BP expects oil prices to range between perhaps \$60 and \$90 a barrel (bbl), and will use



Horizon, Issue Two 2008

\$60/bbl to plan the financial frame of the company.

The forward agenda, announced in October 2007, is the group's main strategic tool for restoring short-term performance by focusing on safety, people and performance.

The question and answer session was filmed as part of the Strategy in perspective programme and is now available for viewing in English on the OneBP intranet site.

BIOFUELS VENTURE LOOKS TO PUSH BLEND LIMITS

BP and science and healthcare company, DuPont are continuing to develop and commercialize biobutanol as an efficient biofuel, and are in the process of developing biocatalysts to produce 1- and 2- biobutanol and higher octane biobutanol.

Recent tests reveal these advanced biofuels can increase blending levels with gasoline beyond the 10% limit for ethanol and without reducing engine performance.

"DuPont and BP were the first players in the area of advanced biofuels to announce the intent to not only improve the bio-process to produce commercial volumes of biobutanol, but also to pursue an integrated commercialization strategy that incorporates building pilot and commercial scale facilities, a complete fuel evaluation, and a full environmental life cycle analysis," says David Anton, DuPont's biofuels manager.

Anton, along with Ian Dobson, BP's biofuels technical manager, says the partnership's recent developments are of increased interest and utility from a biofuels perspective.

In addition, BP's fuel testing over the last year demonstrates that high octane biofuel can deliver exceptional performance characteristics.

Dobson says new BP engine and vehicle testing data demonstrated high octane biobutanol at concentrations of 16% compared to the current 10% ethanol blend. This means butanol can help achieve higher biofuel penetration without compromising fuel performance.

BP has completed a testing programme of 16% high octane butanol covering fuel formulation, short-term engine performance impacts and long-term, no engine harm and durability vehicle fleet trials. The next step in development begins with the commissioning of a full environmental life cycle analysis of the process utilizing actual manufacturing design models.

CASTROL INDIA REPORTS 'EXCEPTIONAL' NET PROFIT

CASTROL INDIA has announced an annual net profit of \$53 million for 2007—an increase of 41% from the previous year. The results reflect an outstanding all-round performance in line with the business's growth agenda.

Gross turnover for last year was \$541 million—an increase of 9% on 2006, and operating margin increased to 17%.

Earnings per share increased to \$0.43 from \$0.31 on the previous year, and return on net worth increased to 52%.

Naveen Kshatriya, managing director, Castrol India Limited, said: "This is an exceptional result which reflects the strength of the Castrol brand, customer loyalty and performance of our team.

"The company has recorded a remarkable increase in profits through the twin approach of growth in the top line and effective cost management. The operating margin has improved to 17% with a combination of judicious pricing, improved sales mix and some reduction in the cost of materials. This reduction was achieved through an effective procurement strategy which gave us a competitive advantage. We have continued to enjoy patronage of our discerning customers who recognize the superior products and services we offer."



Horizon, Issue Two 2008

Kshatriya adds that the company's core lubricants business is driven more by value than volume and that it focussed on the advanced formulations required for modern automobiles and machines.

He explains: "While these [modern] machines use a lower quantum of lubes, they require higher specification lubricants which are premium in nature. Castrol, as always, has shaped the market with superior technology, and contemporary products.

"On the cost front, the total expenditure in 2007 grew by just two per cent through effective raw material procurement and efficient cost management. We continue to invest strongly in good costs—pertaining to people, technology and marketing. We continue to recover investment costs through better pricing from consumers who are willing to pay the premium for Castrol value."

EVENT OPENS UP A GALAXY OF NEW CAREERS

Students from high schools in Houston, US, learned how their textbook-based lessons relate to real-world careers in maths and science at the BP Physics Challenge

The event, which was held at the city's Johnson Space Center, brought together 1,500 students and teachers for two days of hands-on science experiments.

Employee volunteers from BP, NASA, Boeing and United Space Alliance, spoke on subjects from rocket launching to calculating the Earth's mass. The students also had a chance to ask Canadian astronaut Bjarni Tryggvason about his experience aboard the Discovery space shuttle.

Kenny Lang, BP's executive sponsor for the event, appealed to students to consider engineering as a career. "The average age of our workforce is around 45, so we're counting on future geologists, geophysicists and engineers to lead the way towards new discoveries."

VISITORS MONKEY AROUND ON RAT'S BIG NIGHT

BP HELPED get the Chinese New Year off to a bang by supporting a major free event at the British Museum in London, UK.

The day-long event on 9 February was free to visitors and included a spectacular programme of performing arts, informative displays, workshops, music and story-telling to welcome in the Year of the Rat.

The centrepiece of the day was also a first for the city of London as the museum presented Monkey Suite, a medley of chamber music and visual excerpts from the contemporary opera Monkey: Journey to the West. Penned by Blur and Gorillaz musician, Damon Albarn, the opera is based on the 16th century Chinese classic tales of the Monkey King retold for a modern audience.

The event also included performances of folk tales by the Beijing Bailing Shadow puppet troupe and the RDFZ dance troupe, as well as hands-on activities such as making terracotta warriors and paper lanterns.

Guest speakers at the event included author Jung Chang, historian and broadcaster Dan Snow, actor Hugh Quarshie, and filmmaker Xiaolu Guo.

For the less energetic or academically-minded, Chinese food stalls and tea and beer tasting stands provided a welcome distraction.

PAST TIMES APRIL 1958

Weather foils explorer's mountain bid

Finding a corner of the earth where explorers' feet have yet to tread is becoming harder and harder, but only 50 years ago being an explorer and charting new territory was still a viable way to make a living.

The April 1958 edition of BP Magazine looks at an expedition to one of the last specks of uncharted territory, Mount Dhaulagiri, which at 8,000 metres (27,000 feet) is the world's seventh tallest mountain, although it was thought to be the tallest until 1838.



Horizon, Issue Two 2008

Nestled in the west central part of Nepal, its name comes from the Sanskrit 'dhavali giri', meaning White Mountain. The Swiss-Himalayan expedition, led by Werner Straubli, was only the sixth attempt at the mountain—challenging because access to its peak is restricted by two faces with sheer drops of 4,000 metres (13,500 feet).

On its 12,000km (7,500 miles) journey from Switzerland to Nepal the expedition's jeeps were supplied free fuel at BP service stations.

"About the middle of March the expedition set out from Pokhara in Nepal for a three week journey on foot to their base camp. They will have two months for the actual ascent of Dhaulagiri," the magazine reports, and while it does not say whether the expedition was successful, a quick check revealed that Straubli's team was foiled by bad weather.

But all was not in vein—on the way, team member Max Eiselin discovered the optimum route for the ascent and went on to conquer the peak with his own expedition in 1960.



Horizon, Issue Two 2008

Group

BUILDING STRATEGIC MOMENTUM

Armed with a set of forward agenda actions to be delivered over the next year, the executive team is confident that BP can close the performance gap with its competitors by focusing on safety, people and performance

IT WAS a year of disappointing operational performance, with refineries out of action at a time of high margins, delays to upstream projects, litigation issues in the US, and an earlier-than-expected leadership transition. It's hardly surprising that Tony Hayward, BP group chief executive, says the company was glad to see the back of 2007.

But BP was glad to see the back of 2006 too, with a pipeline leak at Prudhoe Bay in Alaska, and the back of 2005 following the explosion and fire at Texas City. Why, then, are Hayward and his management team confident that their strategy will make things better in 2008 and beyond?

The answer is quite simple. "This time we know what the problems are, so we know how to fix them," Hayward says. "We have great assets and great people. Our challenge is to improve how they operate, so that they all deliver their potential, and to make those improvements as quickly as possible."

BP's strategy to achieve this ambition has two strands. The most urgent strategic issue facing the company in the short term is to close the performance gap to its competitors, with the forward agenda serving as the main vehicle to achieve this goal. It's built around the three central pillars of safety, people and performance and aims for rigorous cost control, reduction of complexity and restoration of revenues in the short term. The second strand of the strategy is to secure BP's long term future on a sustainable basis, restoring its competitiveness in the process.

In the exploration and production (E&P) Segment, this means continuing to focus on the world's most prolific hydrocarbon fields, building leadership in key areas and growing production, while also increasing the focus on technology and managing the decline of key assets.

In the refining and marketing (R&M) segment it means closing the present performance gap, with strategy evolving to focus on manufacturing and growth markets. And in Alternative Energy it means growing the equity value of the organization by investing in lower carbon opportunities.

Delivery is key: "It's not the strategy, but the execution of that strategy that will get us to where we want to be," Hayward says. "We have to acknowledge that today's performance is just not good enough. Things have to change, and change quickly."

The transformation will need to take place against a background of continuing high costs. BP now believes that oil prices will remain above \$60 per barrel (bbl) for the next few years—most likely in the range \$60–\$90/bbl. While that will lead to increased revenues, it will also mean higher capital costs, higher taxes and greater competition for resources.

In E&P BP's long term renewal strategy has been one of the company's major success stories and will remain unchanged. The company recently announced that it had the capacity to pump at least four million barrels of oil or oil-equivalent every day until 2020, even if it made no new discoveries—a production rate that exceeds most members of the Organization of Petroleum Exporting Countries.

It's a figure that doesn't assume any future exploration success from BP's existing portfolio or new access. It is sustained by the company's extensive portfolio of major projects and ongoing development of existing operations.

An increasing proportion of these projects will develop unconventional resources such as the oil sands joint venture with Husky Energy in Alberta, Canada, and coal bed methane development in the US. By offering longer production plateaus than conventional oil and gas, these projects will play a major role in securing BP's



Horizon, Issue Two 2008

production in the long term.

Restoring revenues is a key strategic goal when it comes to closing the competitive gap, of course. In E&P, two deepwater projects in the US Gulf of Mexico (GoM) will provide a revenue boost: Atlantis, which is already on stream, and Thunder Horse, which will come on line by the end of 2008. Five other projects are now under way: King Subsea Pump in the GoM, Angola's Greater Plutonio, as well as Mango, Cashima and Denise in Trinidad and Tobago.

But it is the R&M segment that is to play the biggest role in bringing back revenues, with both the Whiting and Texas City refineries returning to more or less full margin capability by the middle of the year. BP has also evolved its strategy in R&M, moving the emphasis back to manufacturing from retailing, and introducing integrated fuels value chains (see article on page 22).

The number of downstream business units will be reduced from 40 to 15. It is planned that lubricants will move to third-party distributors in around 20 countries, Air BP will no longer operate in 20 of its present 100 markets, and in Europe the intention is to reduce the number of business service centres from 80 to just one. In the US, 9,500 staff east of the Rocky Mountains will transfer to franchisees operating as BP-branded outlets. In Alternative Energy, an additional \$1.5 billion of investment is to be made in this newly autonomous business in 2008, on top of the \$1.5 billion already spent since it was established in 2005. It represents an acceleration of the longer term \$8 billion plan to build an alternative energy business that offers significant growth potential as demand rises for low carbon or non-carbon energy.

Then there's the continued confidence in Russia, where the TNK-BP joint venture continues to successfully deliver on the promise of production growth made to the Russian government. TNK-BP is preparing to increase its capital expenditure to around \$4 billion with an increasing focus on 10 major upstream projects.

Underpinning the strategy is the ongoing effort to reduce complexity and control costs throughout the organization. The company has said that 5,000 jobs will be lost worldwide over the next 18 months, but already significant efforts have been made at the highest levels.

To help reduce corporate overheads by 15-20%, the number of executive directors has been trimmed from six to four, and the next tier of management by more than 10%. Across wider management roles, numbers will be reduced by 12 to 13%.

In short, it means progress has been made on the forward agenda quietly and without fuss over the past five months, resetting essential context, establishing sound, practical objectives, and beginning to deliver benefits. The process of reducing complexity and overhead costs will continue, with employees given clear aims and accountabilities, so that the operational momentum already evident in the first half of 2008 is translated into steadily improving financial returns later this year and into 2009.

THE FORWARD AGENDA SIX MONTHS ON

BP's forward agenda represents a fundamental shift in how BP works. It is designed to simplify the organization, improve productivity, enable consistent execution, and focus the organization on performance. The priorities, however, remain unchanged—safety, people and performance.

As regards safety, the recommendations of the Baker panel, set up to examine safety culture at BP after the explosion and fire at the Texas City refinery in 2005, are systematically being addressed, and the organization has begun implementing a new operating management system to ensure that operations look, feel and perform the same anywhere in the world.

On almost every safety measure BP now benchmarks near the top of the industry.

When it comes to people, an operations academy has been established that builds on the company's successful projects academy. This is beginning to redefine operations leadership in BP—to date, almost 80 senior operations managers have begun their courses.

BP has also developed a new leadership model which focuses on four areas—valuing technical and professional excellence, energizing people, taking decisions, and delivering results.

There is now a much stronger link between performance and reward, too, with a greater focus on individual



Horizon, Issue Two 2008

performance.

But BP's executive team recognizes that it is the area of performance where more action is still needed. BP's inconsistency and complexity has seen its performance trail its peer group over the past three years, and new behaviours are required to effect a material change—improving listening, particularly to front line workers; holding on to the great teamwork that characterizes BP, while making individuals fully accountable for things they control; and respecting professionalism and excellence as key values that determine business success.

It also means keeping an entrepreneurial spirit, while recognizing that there are times and places where standardization is necessary. And it means being more pragmatic and businesslike when taking and implementing decisions; being clear on accountabilities and emphasizing continuous improvement as the key lever to drive performance; and placing even greater emphasis on both silent running and, in particular, finishing what has been started.

HOW GREEN IS THE VALLEY NOW?

The former site of Britain's first refinery at Llandarcy in Wales UK, is coming back to life with the help of BP's remediation management team. Helen Campbell surveys the landscape

EVERYONE WANTS to leave a legacy, but there are good legacies and not-so-good legacies. Now, thanks to a unique and innovative undertaking by BP, the former site of Britain's first crude oil refinery is poised to become Wales' first 'urban village'. The achievement is a major step towards the global remediation management (RM) team's aim to build a zero environmental liability company.

In a first for BP and the biggest urban regeneration project of its kind, BP will transfer the 405 hectare (1,000 acre) site of its Llandarcy refinery in Neath Port Talbot, South Wales, to UK property developer St Modwen in late May. The Coed D'Arcy urban village will include more than 4,000 homes, four schools and a number of new businesses.

Not only will it responsibly release BP from its environmental liabilities associated with the 85-year-old site, the deal will also bring \$2.3 billion in economic benefit to an area hit hard by local job losses. Designated an area of outstanding natural beauty, it will eventually appear as if the plant had never existed.

The deal is of benefit all round, says Joan Wales, head of RM function: "Llandarcy [was closed in the 1990s because it] was no longer an economically viable refinery and, when RM became involved, all that was left was a site that had to be closed. It was an asset but we needed to decide what to do with it. We are not property developers and the Llandarcy deal is about making the best use for the community of an otherwise non-productive asset on BP's balance sheet."

Sabine Dietrich, RM's vice president for operations, Europe, Middle East, Africa and Asia Pacific, says the approach is very different from anything BP has done before. As well as Neath Port Talbot County Borough Council, the Welsh Assembly Government, the Prince's Foundation for the Built Environment, and local interest groups, preparation required extensive assistance from BP's finance, legal and tax teams. The result is an innovative and complex legal structure.

"We have really tried to push the limits of people's imaginations here," says Dietrich. "This will be the first such project outside the US on this scale and will set a precedent in Europe. There are a number of other projects where we will use the lessons and experiences learned with Llandarcy."

David Toman, Llandarcy transition general manager, says BP's agreement with the developer sets in place some of the strictest monitoring standards around, to ensure the site is, and remains, safe for domestic dwellings. Given its age and the industry-wide regulatory transformation since construction, a number of challenges were met on site during decommissioning, which was largely carried out between 1998 and 1999. "Llandarcy was built on fractured limestone, so this has presented some real issues," Toman says. "Working out how to deal with hydrocarbon contamination has been a challenge. The scale of risk is potentially high, with some 10,000 people living here in the future, so the clean-up operation and the monitoring we have put in place are of the highest standard. In development terms there is a lot still to do, and the site developer has taken on the remediation responsibility and the challenge of developing the exemplar urban village. The bottom line is that transferring the liabilities is good business for BP."



Horizon, Issue Two 2008

Liability transfer covers all existing environmental problems that BP knows it has, or could have. These problems are a major source of value leakage from the businesses. Group environmental liabilities have been brought down by \$386 million over the past four to five years, from about \$2.4 billion to about \$2.1 billion, and RM's aim is to eventually reduce that to nothing.

"The Llandarcy agreement has enormous value internally and externally, and financially we can walk away in a responsible manner," says Peter Mather, UK head of country. There are also reputational benefits for us, in that we want to be associated with great projects and this is innovative, ground breaking, creative and good for the region.

"We have shown that it can be done, and I am very proud that we have been able to achieve this."

REBUILDING LANDSCAPE AND COMMUNITY

Llandarcy was one of three major local employers 30 years ago. As the other industries declined and the refinery also became largely redundant, the loss of jobs was devastating.

In addition to housing, the Coed D'Arcy development will create 3,200 permanent jobs, 400 construction jobs, \$895 million of private sector investment, and 80,000 square metres (860,000 square feet) of new commercial space. Will Watson, director of environment for Neath Port Talbot County Borough Council, says it will have massive economic benefit.

"Llandarcy's closure had a major impact on employment in the area over an extended period," he says. "Throughout the period, BP has tried hard to mitigate that impact, including encouraging small businesses to set up on a business park on the site.

"Over the last five to 10 years, we have talked to BP about a longer lasting legacy. The company and the council came together with the Prince's Foundation and the Welsh Assembly Government to work towards the idea of an urban village. The result will have a huge positive impact on the area, and will completely change part of the borough for the better."

LLANDARCY REFINERY 1921-1999

The first oil refinery in the UK was built in South Wales. The decision to construct a refinery so far from the source of crude oil was made in 1914, when the British government became the major shareholder in the Anglo-Persian Oil Company (APOC), to secure supplies of oil for the Royal Navy.

The location chosen for the refinery was named Llandarcy, 'Llan' meaning the consecrated ground around a church, 'D'Arcy' being the surname of the founder of APOC, William Knox D'Arcy. The site was chosen because it was close to Swansea Docks but sufficiently far from the coastline to be protected from naval attack. Construction on the refinery complex began in 1917 but stalled when the First World War caused a shortage of labour and materials. Construction resumed in February 1919 and was completed two years later.

Many of the staff came from Scotland, having worked in the shale oil industry, and were accommodated in a modern estate, 'Llandarcy Village', modelled on company towns such as Port Sunlight in Cheshire (Unilever), and Bourneville near Birmingham (Cadbury).

Operations at Llandarcy began on 21 June 1921, although the official opening did not take place until June the following year. Llandarcy refinery was built to provide a domestic source of refined products at a time when markets—particularly in the motor vehicle sector—were growing, and technology provided new means of making them.

In 1921, Llandarcy was a state-of-the-art refinery, but the cautious policy of the company meant that the simple distillation technique for converting crude oil to products was maintained until 1927, when thermal crackers from the US were introduced. Although the more versatile catalytic cracking method was started in the US in the 1930s, it was not until the early 1950s that this was introduced at Llandarcy.

Initially safe from naval bombardment, Llandarcy was attacked by air during the Second World War. In the worst incident, in July 1941 a sulphur dioxide plant was destroyed, killing three and injuring six.



Horizon, Issue Two 2008

Supplies ran out in October 1941 and no major production took place until February 1942 when lubricating oils were made. In the meantime Llandarcy was turned into a factory, filling cans of petrol for the armed services. Post-war expansion at Llandarcy was propelled by demand for new and more versatile refined products in Britain and Europe, and by the growth of motorized transport by road and air.

Although capacity had been lower than at BP's refinery at Abadan, production in Wales in the 1950s compensated for the closure of the Iranian refinery in 1951. Indeed, throughout the period from the mid-1950s to the early 1970s Llandarcy expanded, with a new deepwater port at Angle Bay opening in 1957, and a petrochemicals extension at Baglan Bay opening in 1963.

However, as the Middle Eastern states nationalized their oil industry in the 1970s, so the premier source of supply declined. Excess refining capacity worldwide meant that by the mid-1980s, rationalization was inevitable.

In 1985 the bulk chemicals division at Llandarcy was closed with the loss of 700 jobs. In the mid-1990s a joint venture with Mobil offered temporary respite, but further rationalization followed the mergers with Amoco, ARCO, Burmah-Castrol and Veba. In 1999 the greater part of Llandarcy's production came to an end, leaving only the small bitumen plant.

HOW SAFE IS YOUR DATA?

Loss of company data is a greater danger than ever, putting jobs and company earnings at risk. Ian Valentine reports

FEW NEWS stories highlight the importance of data security better than the recent tale of Brazilian oil company Petrobras.

Just days after the company had announced a major gas discovery in January this year, news broke that commercially sensitive details of the field and an earlier oil discovery had been stolen.

The Brazilian government treated the case as the theft of state secrets. The hunt for the four laptops and two hard drives containing the information, which were stolen from a subcontractor during a transfer to an offshore oil rig, involved the police and the Brazilian Intelligence Agency.

Fortunately, a few days later, when the police apprehended the port security guards who had stolen the equipment, it turned out that the men had no idea of the value of the information on the laptops, and had done nothing with it.

"This near-miss only emphasizes the potential risks involved in carrying confidential information," says Lynne Davies, BP's director of security operations, Eastern Hemisphere. "Loss of confidential data can seriously damage a business, costing millions of dollars, potentially harming reputation and putting employees' jobs at risk."

Information brokers, journalists, competitors, and even state sponsored agents are all on the look-out for snippets of useful data that could be of considerable value to the right clients, says BP's group security team. In December last year, a five-year plan regarding safety and operations in the company was leaked to the media. In the report, BP revealed internal criticism and mitigation plans for high profile set-backs in the Gulf of Mexico and Alaska, prompting group chief executive Tony Hayward to circulate a brief warning against the repercussions of information loss.

At the same time BP's group security and digital security teams were developing a comprehensive and far reaching information security campaign which is being rolled out globally, urging employees to think about the value of the information they hold and the impact of its loss or compromise. This campaign is currently being rolled out across all of BP's businesses. Its aim is to build awareness and understanding of the risks. In many areas workshops will also be held to take a closer and more thoughtful look at how to manage those risks. "It was impossible to know how that document arrived in the hands of a journalist," explains Karen Gadd, BP's regional security adviser for Western Europe, "but we have to assume that the file was leaked by someone with legitimate access. We have found that employees can be very blasé about the importance of the information that they hold and fail to consider how this information could be exploited."



Horizon, Issue Two 2008

In recent years, BP has been the target of a number of information security incidents, which could have serious consequences for employees as well as the financial state of the business. A training contractor stole employee identity cards to secure mobile phones, bank loans and utilities. In a restaurant near a BP office, a laptop was pinched that contained salary details of top executives. A counterfeiter bought blueprints for a patented lubricants product and began undercutting the original; while inflammatory documents leaked to a potential client almost brought about the collapse of a multi-million dollar deal.

“This goes much further than implementing a ‘clear desk policy’ or regularly changing passwords,” stresses Derek Porter, regional security adviser for the Middle East and South Asia. “It transcends information in written documents or sent digitally by computer to include what you are saying in an airport lounge or restaurant. It is not an exaggeration to say that there are people who are employed to snoop in business lounges or popular social venues. It may sound sinister, but competitors or even nation states with a vested interest are prepared to go to any measure to gather information. For deals worth millions of dollars at a time, it can be worth their while.

“But aside from the company’s reputation, this can have an effect on employees too. The case of the stolen identity cards resulted in the potential for 15,000 people’s identity being compromised. It is not a laughing matter to be defrauded in this way, and it can take years to regain a decent credit rating.”

Karen previously worked with the food giants Heinz, who were on constant guard against competitors trying to steal their secret recipes, innovative food packaging designs and marketing campaigns. She is well aware, however, that group security and digital security will not be able to nag and nanny BP employees into being more aware of their security obligations. “Our ultimate goal is to embed a culture of awareness in the company, so that employees are aware of the threat to information and take personal responsibility for the protection of the information they are handling using appropriate means,” she said.

“We ask people to think about how important their information could be in the hands of competitors, the press, business analysts and other third parties seeking to engage in business with BP. We would be naïve to think that these groups would not like to find out our information to give them the competitive edge. Whether it is a case of actively targeting information through theft or exploiting a trickle of leaked data; the consequences can be far reaching, something which has been acknowledged by many business leaders during last year’s ‘getting security right’ risk assessments.”

DATA LOSS HALL-OF-FAME

Famous examples of data loss through incompetence or criminality are numerous. Of course these are likely the tip of the iceberg, given the sensitive nature of such cases.

In November 2007, the UK government lost two discs containing the personal details of every family in the country with a child under the age of 16. The discs were mailed in unregistered packages, which opposition parties decried as institutional complacency. However, the disks have not so far appeared in the public domain. The ministers concerned, including premier Gordon Brown, have since reportedly suffered from a lack of public confidence.

During the Cold War, the Soviets flew the first supersonic passenger jet called the Tupolev TU-144, just two months before the Anglo-French Concorde’s maiden flight. Nicknamed the Konkordski, on account of its marked similarity with the Western model, the designers were accused of blatant industrial espionage. Staying with aviation, in June 2003, US rivals Lockheed Martin and Boeing were involved in legal proceedings after Lockheed sued Boeing for stealing documents. The Pentagon agreed that a previous employee had passed on information regarding military tenders and stripped Boeing of \$1 billion worth of existing contracts.

EXTERNAL WEBSITES: ENGINEERING WEBSITES

WHEN WORKING in a global industry, it is essential that engineers can refer to resources that allow them to keep up to date with news and product developments from around the world. Thankfully, there are numerous internet resources providing information about everything from new drilling techniques to international energy policy.

Cambridge Energy Research Associates (CERA) is an advisory company working with international energy companies, governments, financial institutions, and technology providers. Operating in all major energy sectors, including oil and refined products and natural gas, CERA delivers information and independent



Horizon, Issue Two 2008

analysis on energy markets, geopolitics, industry trends and strategy—details of which may be found at www.cera.com. The site also contains summaries of speeches by figures such as Abdallah Jum'ah, president, chief executive, and director of Saudi Aramco—and Alan Greenspan, former chairman of the US Federal Reserve.

The website of the Institute of Mechanical Engineers, whose president John Baxter is head of BP's engineering division, can be found at <http://www.imeche.org>. Established in 1847, the IMechE is the leading body for professional mechanical engineers, and its website is tailored to the needs of its global membership. Its website includes a rolling news feature with information on topics ranging from new technologies to regulatory concerns and forthcoming workshops.

For the most up-to-date information about new research, the Massachusetts Institute of Technology's Technology Review <http://www.technologyreview.com/Energy> has a dedicated energy page that is a good resource on topics such as biofuels and includes an RSS feed option.

A more general, though country-specific, view on new technologies and policy is provided by Canadian website EnergyINet <http://www.energyinet.com>, a network that brings governments, research organizations and industry together to share ideas and develop collaborative solutions on topics such as enhanced oil recovery. Finally, the website of the Society of Petroleum Engineers (SPE), www.spe.org is an excellent source of data on most petroleum related engineering topics. It includes video technical sessions dealing with wellbore stability, special drilling applications and new drilling technologies, as presented at the 2007 SPE annual meeting. It also contains a technical resources page with a range of interactive calculators and conversion tables.

SHAREWATCH

"2007 WAS a year some of us were pleased to leave behind," were the words used by group chief executive Tony Hayward at the time of BP's fourth-quarter results. Indeed 2007 proved to be another tough year for BP's shareholders. BP shares closed the year at £6.15 in London and \$73.17 per American depository receipt in New York, a rise of eight and nine per cent respectively. During the same period Shell and ExxonMobil rose 17% and 22% respectively. Since the start of 2006 BP has now underperformed ExxonMobil by nearly 60%.

Meanwhile, 2007 saw the price of oil end the year some 60% higher than at the start of the year. The first few months of 2008 have given no respite for consumers of oil, with prices continuing to hit all-time highs. This has been driven by threats from Venezuela to halt exports to the US and indications that the Organization of Petroleum Exporting Countries plans to hold or even cut current production levels. On 20 February West Texas Intermediate (WTI) closed above \$100 a barrel for the first time in history, some \$28 higher than the average for 2007. At the time of writing WTI was over \$102, with few signs of downward pressure.

Natural gas prices have risen in both the US and Europe, driven by cold weather and a shortage of supply in the Far East. In the UK the wholesale gas price has averaged over 50p per therm so far in 2008, resulting in many consumers feeling the pinch from higher gas bills. After a strong 2007, refining margins have started 2008 much lower, particularly in the US where Gulf Coast margins have moved into negative territory for much of the quarter.

The period also saw BP and its competitors report fourth-quarter and full-year 2007 results. BP's quarterly replacement cost profit of \$3.0billion (including non-operating charges which reduced the result by over \$1 billion) was around eight per cent below analyst forecasts.

More encouragingly BP reported the 14th consecutive year it has delivered reserves replacement in excess of 100%. And perhaps the most welcome news was a large hike in the dividend, 31% higher than a year earlier, reflecting BP's increasingly robust view of the future environment and greater confidence in its ability to deliver. On 27 February BP's strategy presentation to the financial community took place in London. The event was the first since Tony Hayward was appointed chief executive in May of last year.

Alongside his senior colleagues, Hayward set out BP's plans for the future, including closing the performance gap in refining and marketing; sustainable production of more than four million barrels per day in exploration and production; and helping investors put a value on the Alternative Energy business. Response from the analysts was generally positive, although for many the proof of the pudding will be in the eating. For BP to succeed in 2008, delivery of operational and project targets is key to restoring investor confidence.



MILESTONES

LAYING THE FOUNDATIONS OF KUWAIT'S OIL INDUSTRY

Seventy years ago BP explorers discovered Burgan, the world's second largest oil field

IT MIGHT seem surprising that BP was the first company to discover and develop the oil resources of the Middle East, given the company's view on the oil prospects of Arabia in the first quarter of the 20th century. The Anglo-Persian Oil Company (APOC) sent geological missions into Kuwait: twice in 1917, again in 1926, and between December 1931 and April 1932. Although company geologist George Lees viewed Kuwait more favourably than Saudi Arabia, in an April 1932 report he said: "The conclusion from earlier surveys of Kuwait Territory was that the oil prospects are of an extremely low order. We have reviewed this evidence... and the result has been to confirm and strengthen the earlier view of the prospects." Also in April 1932, when asked about the interest that US companies were taking in Kuwait, APOC's chairman, Sir John Cadman told the Foreign Office "the Americans are welcome to what they can find there!" Weeks later, in May, oil was discovered in nearby Bahrain and everyone went rushing back into Kuwait, where they knew a geological arch extended from the Bahrain area into the Arab Peninsula.

In addition, the geologists knew that bitumen deposits existed at Burgan, that there were gas seepages at Magwa, and oil seepages at Bahra. Even though they knew the rock formations in the substructure were favourable to oil accumulation, expert opinion was that the source rock was not thick enough to hold it, and that the cap rock overlaying it had not formed an effective seal. They were proved spectacularly wrong. APOC raced to obtain an oil concession ahead of its main rival, Gulf Oil of Pittsburgh, but the company's attempts to gain an oil concession were complicated by a tangle of international agreements. Their competitor for the favour of the Sheikh of Kuwait, Ahmad al-Jaber al-Sabah, was Frank Holmes, a retired army officer originally from New Zealand with a nose for oil. Holmes represented the UK-registered Eastern and General Syndicate, aware that a 'nationality clause' in the 1899 agreement between Britain and Kuwait, which guaranteed Kuwait's security in the Gulf, excluded the granting of concessions to non-British firms. In the early 1930s, Britain, under pressure from the US, relaxed this provision, but that weakened APOC's position and strengthened the bargaining power of the Sheikh.

Cadman, however, managed to outflank Holmes. APOC reached a deal with Gulf Oil through which the two companies agreed to create a new firm, the Kuwait Oil Company, each party holding 50% of the shares. The deal was acceptable to the Sheikh who had not wanted his concession to be controlled by just one company.

Following new geological and seismic reconnaissance of Kuwait in 1935, drilling began at Bahra on the north shore of Kuwait Bay in 1936, but no oil was found. Further geological and seismic work suggested a promising structure at Burgan, 45km (28 miles) south of the Bay and 23km (14 miles) inland. Here, on the night of 23 February 1938, oil was struck at 1,100 metres (3,600 feet), while a second strike in April confirmed the mammoth size of the discovery: 66–72 billion barrels, the second largest oil field ever discovered.

Oil from this Middle Cretaceous reservoir, came bursting out of the ground with extreme ferocity—geophysicists later realizing that an uncommonly strong water drive would maintain the pressure in the field for decades to come. The Second World War delayed the development of Burgan until 1945. Production began in 1946 and saw oil piped to the coast at Mina al-Ahmadi where it was first lifted aboard the British Fusilier in June 1946 en route to Grangemouth, UK.



Horizon, Issue Two 2008

PROFILE

AT THE HELM OF A TRUE 'SILENT RUNNER'

Group vice president and chief executive of BP Shipping David Baldry is passionate about his business, its people, and safe operations. He tells Horizon about the continuing safety journey

The less people hear about BP Shipping the better—because if you do hear about it, it is likely to be for the wrong reasons,” says David Baldry.

It is this typically grounded assessment by the group vice president and chief executive of BP Shipping that epitomises the company's 'silent running' approach. Baldry's view is, of course, industry-wide. Every day thousands of ships transport hydrocarbons around the world without incident—it is usually only the spills and collisions you hear about.

He explains: “We have a simple mission statement which is 'safe ships, clean seas, and commercial success', and those three things are what BP Shipping folk get out of bed for in the morning.”

In many facets of what it does, BP Shipping is today seen as being at the cutting edge of the shipping industry. “People watch what we do because they believe that it is likely to become the norm in due course, although this reputation across the shipping industry is something that is not necessarily that well known across the BP group,” Baldry, who has been in the GVP's chair since September 2006, asserts.

But he is reluctant to make a big noise about BP Shipping's impressive safety and environmental record, preferring instead to attribute the stability and success of the business to a robust strategy and deep-rooted expertise and capability on board the company's vessels.

He continues: “The current strategy was put in place around 2000/01, at a time when the world was all too well aware of the risks of transporting hydrocarbons after the very public Prestige and Erika incidents which followed in the wake of the infamous Exxon Valdez.

“At the time BP found itself in a position where it was growing very fast with all the merger and acquisition activity, but the vast majority—around 80%—of our hydrocarbons were transported by spot chartered vessels that we didn't own or operate and thus had limited control over.”

The strategy established at that time had two key thrusts. The first was to grow the operated and time chartered (fixed term contract) fleet to cover around 50% of the company's hydrocarbon movements and, in so doing, have greater influence over the standards to which they were operated.

The second was to establish an industry leading vetting activity to ensure that the remaining 50% of spot chartered vessels were the very best available for the job. The ambition to have 50% of vessels on an operated and time chartered (OTC) basis was actually achieved a year earlier than targeted, in the fourth quarter of 2007, while the vetting side of the operation has been widely recognized as industry leading for quite some time.

Baldry adds: “The fundamental tenet of the strategy at the time—in today's jargon our objective function—was and still is, about risk mitigation, and the drive for safe, environmentally-responsible marine and shipping solutions in support of the group's strategy.

“Our role in life is not to be a shipping company that is solely out to make as much money as it possibly can. Yes, we are very proud of our commercial teams and the way in which we operate and the money that we make—we have done very, very well recently—but that is not our prime role. Our prime role is to minimize marine risk on behalf of the BP group.”

Today's strategy was devised at a time when BP Shipping had less than 20 operated vessels across all classes. Today BP Shipping boasts one of the most modern fleets in the world with around 80 operated vessels and an OTC fleet of around 120.



Horizon, Issue Two 2008

Baldry continues: "Safety has always been our number one priority. There is nobody that walks into one of our offices or gets on board one of our vessels who isn't 100% clear on that. I have worked for 30 years across many different parts of BP and I don't think I have found any other part of BP that walks the talk on safety as much as BP Shipping does. That's not to say there isn't more to do, but it is a very well grounded and long-standing culture."

The need to do more and continue the safety journey of the business is something that is at the forefront of Baldry's mind. "One element of the 'what next?' was handed to us in some senses by the Thunder Horse incident [listing] in the upstream," he continues. "We clearly have a lot of marine expertise in and around BP Shipping's activities, and the wider sharing of this capability across the BP group has now been embedded with the recently approved Group Marine Standard."

"This has become ever more relevant as the upstream in particular looks further and further offshore and into deeper and deeper water for its future renewal prospects."

But it can't be easy staying at the pinnacle of industry safety. And for Baldry and his team, it's important to keep everyone motivated to avoid complacency.

He adds: "Staying at the leading edge of safety in shipping has its challenges simply because the vast majority of our people are on board vessels that are literally out of sight over the horizon for much of the time. This is especially challenging given the very large number of new recruits who have entered our ranks over recent years."

"Don't misunderstand me—these folk are very, very good and capable people but many of them haven't worked for BP for long enough to fully appreciate the cultural expectations on board our vessels."

"So, there is a huge challenge to bring everybody up to a common level of understanding and expectation on our vessels. This is simply to recognize that while different companies do things in different ways, we must have one consistent and standardized way of doing things across our fleet."

Seven years on from the pledge to have 50% of its fleet on OTC, Baldry and his leadership team are now reflecting on how BP Shipping can look to continuously improve their health, safety, security and environment performance, while always seeking to be efficient and effective in their key function for the BP group.

He concludes: "We've been growing very, very fast as an organization, and when you're growing that fast, you don't always have time to stand back and take a break to consider all you are doing."

"But we have now entered something of a natural time-out in terms of our fleet growth, which allows us to look back over the last five or six years and ask, if we had our time again, and if we hadn't been so busy, might we have done things differently at all?"

"I think, to be honest, there are bound to be areas of BP Shipping where we can look for ways to be even more effective. If we think about our role in the group's forward agenda, then this fits very nicely—to stepback and ask, can we further optimize what we are doing—but most critically without increasing the risk of our core activity." n



REFINING AND MARKETING

JOINED UP THINKING

The creation of fuels value chains is BP's boldest step yet in its efforts to regain a competitive edge. But what are they, and how will they improve the fuels business?

Tony Hayward's assessment of the move to BP's new fuels value chain (FVC) structure is unambiguous: the group chief executive describes it as BP's biggest organizational and cultural change of the last 15 years. There is certainly no doubt that it represents a significant difference to previous ways of working in downstream, with all parts of the business—from 'crude in' to 'product out'—now joined on a regional basis in a truly integrated way for the first time.

But the change is evolution rather than revolution. "I see this as a radical step in the same direction we've already been taking," says Tony Fountain, group vice president for FVCs and principal architect of the new structure. "We've got great refineries, great brands, a solid infrastructure and brilliant people, but there's been no framework to allow them to work together, and too much complexity in the way each part of the fuels business interfaces with another."

Maintaining the status quo is not an option, Fountain explains. While BP's underlying post-tax income for refining and marketing (R&M) was broadly flat between 2004 and 2006, its competitors were posting increases ranging from 15% to 70%. "Our competitors have left us behind," he admits. "We need a more unified and simpler approach to the way we manage our fuels business if we are to get back our competitive edge and significantly improve our performance."

This simpler and more unified approach recognizes the importance of integrated supply and trading (IST) and refining to the FVCs. "IST has built an outstanding capability in trading and supply management," explains Tim Bullock, group vice president, IST global oil. "There's also been significant progress in terms of our fuel marketing and the commercial performance of our refineries. But our previous business model held us back from looking at integrated strategy and performance in our markets."

So what exactly are FVCs and how will the new model help BP achieve its goals? An FVC is a geographically bounded portfolio of assets, linked by infrastructure, customers and product flows, with a distinct competitive structure. For BP, this is manifested in two forms—the integrated refiner marketer (IRM) value chain and the supply and marketing value chain (SAM).

The IRMs are: the west coast of the US, the mid-west of the US, the Rhine, Australia and New Zealand, Southern Africa and Iberia. The SAM has five performance units in the UK, France, Greece, Turkey and the US East and Gulf Coast.

The objective of each FVC is simple—to maximize and sustain competitive integrated returns for BP—but the potential benefits to the organization are much broader than that.

"For a start, they will give us a relentless external focus that will help us become more competitive in the marketplace," says Fountain. "We have to understand that customers have a choice, and that we need offers that are compelling to them if we want to grow our business."

"It will also help us build a culture of working together, where everyone has a clear understanding of the direction of the business, and knows the impact their actions will have on the whole value chain. And we will have a truly joined-up regional strategy, which leads to the best possible long term decisions and allocation of resources."

Bullock agrees: "In line with BP's forward agenda, this is a business model designed for simplicity, with a cost structure that allows us to compete better and have clear accountabilities, delegations and decision rights across the business."



Horizon, Issue Two 2008

The new structure recognizes that each region is different—different market characteristics, different supply chains, different competitors, even different transportation systems. Consequently, the FVCs mean authority moves to the regions, empowering them to make the decisions that will create the most value from their refineries, terminals, pipelines and service stations, and enabling them to build the best customer relationships locally.

“We know this will work,” Fountain confidently predicts. “The likes of ARCO and Veba owe their success to integrated regional structures, while BP Australia and New Zealand has produced compound and sustainable profits growth across its business by taking an integrated approach to the entire fuels value chain, from strategy to execution. Some other regions have informally been taking a similar path, despite the group’s existing architecture, and we’ve listened to everything these teams have told us. “Perhaps most importantly, we know our competition. They are local, and we have watched them grow market share by taking a more integrated regional approach and eroding our position through their ability to co-ordinate actions and investments across their value chains.”

The shape of the FVCs, as well as the appointment of the principal leadership team and their direct reports, is already complete. It is expected that this will provide the horsepower to ensure that the new operating models, interfaces and other detailed design changes are complete by the middle of 2008, but it will be up to each region exactly when they ‘go live’ after certain key criteria are assessed by a central governance team.

Things are moving fast, not only to ensure there is clarity, but also to realize the benefits as quickly as possible. Fountain is acutely aware that for many people this will mean significant change over a short period of time, while there will also be an inevitable headcount reduction as the new systems roll out. “The new structure will impact just about everybody in R&M,” he says. “Even if you are not in an FVC directly, and are in one of the global businesses such as liquefied petroleum gas, air, marine or lubricants, your regional FVC will be your single backbone of support in areas such as finance, human resources (HR), and health, safety, security and environment. “Tough decisions will need to be made as we go forward, and we will need to reduce the number of people in our business, but we remain committed to managing the consequences of this using fair and consistent HR processes.”

The key message, of course, remains the same: these changes are necessary if BP is to be competitive once more. “FVCs are the beginning of a step change to a new future,” Fountain concludes. “A future where we can be more responsive to customer needs, where we can take faster decisions, where we integrate activities under one local leader, and where we work together in ways that are simpler and more efficient.”

CHAINS EXPLAINED

FVC structure brings material benefits

There are two types of fuels value chains within BP—integrated refiner marketer (IRM) and supply and marketing (SAM).

The six IRMs cover refining, supply acquisition, pipelines, logistics and marketing activities, while the one SAM comprises supply acquisition, pipelines, logistics and marketing.

All refineries will be within an IRM except Texas City (pictured), which operates in a highly specific product market.

The IRMs and the SAM will all be strategic performance units (SPUs).

“The FVCs will bring a number of material benefits to BP,” says Tony Fountain, group vice president, FVCs. “By delivering one integrated strategy and plan for each FVC, we will be able to make better strategic and resource allocation decisions. Our margin management will be significantly improved, because we will be making clearer, integrated decisions that take

into account the impact across all links in the value chain.

“We will also have a much simpler and lower cost organization. Finally, the benefit of greater standardization will allow us to introduce the right support systems cost-effectively and invest in people through bespoke training programmes to help build capabilities.”



Horizon, Issue Two 2008

The new structure modifies and sharpens the role of integrated supply and trading (IST), consistent with IST's own 'distinctive performance' initiative. Certain supply activities come out of IST and into the FVCs on a regional basis. And IST will now have separate global

oil and global gas SPUs, with the former providing a trading service to the FVCs, as well as generating value in its own right through discretionary trading.

IST will continue to provide functional expertise in trading control, risk management and compliance.

AIR BP HELPS MAKE AVIATION HISTORY

The world's first commercial flight to be powered partly by biofuel travelled from London to Amsterdam. Lucy Harvey learns how a team from Air BP helped make it possible

AIR BP has furthered its position in aviation history after assisting the first commercial flight to be powered partly by biofuel.

A Virgin Atlantic jumbo jet was flown between London's Heathrow airport and Amsterdam using fuel derived from a mixture of Brazilian babassu nuts and coconuts. A team from Air BP was responsible for decanting the fuel from its drums and re-fuelling the plane.

In order to make the flight possible, one of the four engines on the Boeing 747 was connected to an independent biofuel tank that could provide 20% of the engine's power. The three other engines, which could power the plane on their own if necessary, were powered using conventional fuel.

Virgin chief executive Sir Richard Branson said the flight marked a 'vital breakthrough' for the entire airline industry. "This pioneering flight will enable those of us who are serious about reducing our carbon emissions to go on developing the fuels of the future," he said.

His company's initial request for assistance from Air BP was made to the business' sales department last year, and several meetings were held to assess the viability of the operation. Air BP's primary concern was the safety of staff members who would be handling the biofuel product, and the level of assistance the team would be given to re-fuel the plane. Barry Chant, general aviation operations co-ordinator, explains: "We made it clear that if at any point our procedures were not met, or our refuelling truck operator felt there was any unsafe practice, we would halt the operation."

Virgin Atlantic, being equally safety conscious, met Air BP's stringent safety standards and the event was scheduled for the end of February.

Careful testing: On the day before the flight, Chant and two of his colleagues from operations, Mick Nosworthy and Len Maton, travelled with Garry Norris and Amie Clark from the UK fuels quality team to Perry Oaks, a fuel storage terminal at Heathrow to sample the drummed product. Once the team was satisfied with the results, the biofuel was decanted into an Air BP tanker which was also loaded with Jet A-1 aviation fuel using a 1:4 ratio.

Once the fuels had been combined, samples were sent to BP's Sunbury laboratory for testing to ensure the product met all the requirements of Boeing and GEC. After positive results were received, the tanker was driven to the Virgin Atlantic hangar at Heathrow where it remained overnight. The next day more careful checks were made of the temperature and density of the fuel to ensure the product had not separated.

Once all parties were satisfied, the vehicle was positioned to carry out the re-fuel, and approximately seven tonnes of biofuel was pumped into the independent biofuel tank. The ensuing flight was a success and afterwards the team received high praise from Virgin Atlantic staff who commended their professional assistance in what they described as one of their most high profile operations to date.

Jonathan Pardoe, head of fuel management for Virgin Atlantic, says: "Virgin Atlantic strongly believes in the need to encourage the development of environmentally friendly sustainable fuel for the future, and prove that it can be implemented using the existing aircraft and infrastructure.

"It was wonderful to find such enthusiasm within Air BP to provide so much advice and assistance to ensure this test was



Horizon, Issue Two 2008

successful, and help raise the profile of biofuel for aviation.”

Chant adds: “We were all extremely proud to play a part in the world’s first commercial biofuel flight.” n

SPECIALIST BP FORECOURT OPENS AT UK RACETRACK

Gas stations across the globe stock BP Ultimate products, but a new UK forecourt is the first to sell the specialist range of fuels exclusively, as Paul Whitehouse reports

THE opening of a new filling station would be a routine development in normal circumstances, but the forecourt recently introduced at UK racetrack Silverstone has a unique distinction—it is the first in the UK to stock only BP’s advanced range of Ultimate fuels, including the unique 102 octane formulation.

The 102 blend was devised specifically for the highly specialist market of racing enthusiasts and those highly tuned thoroughbred performance cars which have the potential to exploit more powerful fuels than the regular unleaded grade available in the UK.

While BP Ultimate fuels are available at most BP gas stations across the UK, the 102 blend is only on sale at a dozen outlets nationwide. It is accepted that the fuel will never be as widely available as conventional options, although a decision has yet to be made on exactly how far its network of distributors will eventually spread.

Silverstone was a natural choice for an exclusive Ultimate forecourt as the fuel is used by many drivers who compete in motorsport events or take part in ‘track days’ with their road vehicles.

The Ultimate 102 fuel has the highest octane rating allowed for use in Formula One and the World Rally Championship, and is also legal for road use in the UK. It was developed by BP to fill a gap in a highly specialized market. While the fuel is highly powerful, it is also designed to be less harmful to the environment than ordinary fuels—an indication of the skill of the technicians who developed it.

Ruth Sanderson, spokeswoman for UK fuels marketing, says: “Ultimate 102 will never be a massive seller because it is a niche market, but Silverstone is a perfect fit for us. It generally works better where sites are located close to racing circuits and it is working very well at Silverstone. We are offering greater choice.”

She adds: “The feedback we have been getting has been very positive and we are receiving requests from people wanting to know when it will arrive in different areas of the country. We need to look at where we go next and what opportunities we have got.”

Although Ultimate 102 is expensive by conventional fuel standards—typically more than double the standard unleaded price—it may be considered good value for money by those who have previously had to seek out fuels with similar octane ratings from mail-order distributors.

Others have been known to blend their own fuels in makeshift workshops, sometimes using a combination of aviation gasoline and normal road fuel to try and obtain the desired results. In both cases the performance and quality of the end product is notoriously variable and, because aviation gasoline contains lead, this approach also has obvious additional environmental concerns.

Classic cars: BP Ultimate 102 can also be a much-needed solution for those classic vehicles that were designed to operate on high octane fuels in the days of leaded petrol. Provided a classic car or motorbike can run on unleaded petrol, it can run on Ultimate 102, and in the case of engines with soft cast-iron valve seats, a lead substitute can be added.

Ultimate 102 is named after its research octane number (RON), which is significantly higher than the 95 RON specified for regular unleaded. The consequences of that can be dramatic, resulting in levels of performance gains that could otherwise cost several thousands of pounds to achieve through engine tuning modifications.

This point is underlined by a Porsche GT2 used by BP to demonstrate the fuel’s performance advantages. Tests show it can achieve power gains of up to 100 brake horsepower—the equivalent of a modest family car’s entire engine output—with nothing more than Ultimate 102 and changes to the engine management software to allow the engine to ‘unlock’ the benefits of the fuel.



Horizon, Issue Two 2008

In other high performance cars the difference can also be immediately apparent, but the most dramatic results are achieved when changes are made to advance an engine's ignition timing and increase turbo boost pressure where applicable, as ignition and boost maps are normally calibrated to conventional lower octane fuels.

The technology behind 102 is exceptional. It is made in small batches using a tightly controlled recipe, resulting in an extremely pure fuel, which has a 'crystal clear' appearance. Its benzene content is ultra low at less than 0.1 per cent, meaning it is safer to handle than ordinary fuels, but it also includes an oxygen containing bio-component, which can result in a reduction of overall greenhouse gas emissions compared to ordinary fuels.

BP was able to utilize expertise which already existed within the company to develop the fuel. The organization has been involved in developing Formula One fuels for the last two decades, albeit often working discreetly behind the scenes.

Linda Rainbow, technical communications manager for fuels value chain marketing, expects the new Silverstone fuelling station to thrive. She says: "Our intended customers are those who use their performance vehicles on track days, on private circuits where the car or bike has been tuned for maximum performance, as well as the enthusiasts who simply want the best for their machines.

"What's more, not only does BP Ultimate 102 meet the maximum performance specifications allowed in Formula One and the World Rally Championship, it also fully complies with the UK specification for unleaded gasoline [BS EN 228] which means that it can be legally used on the road; for example, when travelling to and from circuits."

Richard Phillips, managing director for Silverstone, says: "The BP Ultimate-only forecourt offers Silverstone customers the convenience of filling up with this high performance racing fuel, with the quality assurance that comes with the BP brand, straight from the pump."

ADVANCED NEW GLOBAL TRACKING SYSTEM FOR BP PRODUCTS

Canadian software will allow more careful monitoring of BP's crude oil and refined products as they are moved around the globe, writes Julia Pierce

BP's INTEGRATED supply and trading (IST) business generates billions of dollars of income annually, so you might expect its London, UK, trading floor in Canary Wharf—one of three worldwide—to be a scene of frantic activity. Yet it is surprisingly calm.

Amid a sea of computer screens, operators work closely with traders to ensure operational needs, such as chartering ships, are completed in order to fulfil traders' commitments to buy and sell.

Such calm relies, in part, on the smooth operation of the software upon which the operators depend. Tracking crude oil or refined products in transit across the world—within ships, storage tanks or pipelines—is complex, and reliable monitoring software is essential. If just one per cent of a ship's million-barrel cargo of crude oil is left on board at discharge, through human or computer error, close to \$1 million dollars would be lost at today's rates.

For the past eight years, staff on the trading floors have monitored the quality and quantity of crude and refined products using the Inspector Data Entry System (IDES), a tool inherited from Amoco. But as the system reached the end of its operational life, a difficult decision had to be made.

"In order to progress, three options became clear: upgrade and continue using IDES until its point of failure; build a new system internally at a probable high cost with the risk of running over budget, or buy in an existing system," says Ian King, oil Europe and finance (OEF) operations services manager. "BP's philosophy is that if you can buy a quality system off the shelf, then you should give it paramount consideration."

With that in mind the purchase of a new system was approved by Andy Milnes, head of supply and trading, oil Americas (OA), with the absolute remit: "deliver on time and within budget".

Regional cargo assurance team leaders Kin Mun Chan (Eastern Hemisphere), Bruce Nicholls (OEF), Randy Hill (OA, enhanced oil recovery) and Karen Lewin (OA, West of Rockies) worked with project analysts Merryn Kolker and Todd Asmussen to summarize BP's needs, and four vendors were approached.



Horizon, Issue Two 2008

Criteria for the new system included ease of use, increased operator involvement, shortcuts, and to be tight on compliance—reducing the numbers of calls or emails to staff working in frontline inspection companies.

It also needed to provide for future BP digital communications technology requirements using standard interfaces and data exchange systems to transfer data to and from other BP systems.

There had to be no limit on the number of users or the numbers of instructions given to inspection companies—known as nominations—and it was essential that the system could handle complex voyages including multi-port, multi-cargo, and multi-barge nominations, and support over 50 inspection companies worldwide—who work on the ground on behalf of BP providing inspection, testing, certification and verification services.

Canadian software company Navarik won the contract after presenting the Global Cargo Assurance System (GCAS).

In November 2007 GCAS was installed for crude oil operations, and four months on from its introduction you would not believe that anything else had ever been used.

The second phase of the global roll-out—for refined products and other commodities—was due to go live as Horizon went to press.

“In general, GCAS has given the operators a way to track their jobs ‘cradle to grave’. It gives them the ability to take ownership of their jobs and track their progress through to completion,” says Randy Hill, scheduling team lead, OA. “It also provides a central repository for business critical information such as inspection reports.”

Operator Mike Nierengarten, based in Cantera, adds: “I think that one great thing about GCAS is that we, as operators, are more hands-on in the process. We never used to pay invoices or even log into IDES. By having full access and accountability in GCAS, we are more familiar with invoices, testing methods, and whether our nomination went out correctly to the inspections companies.”

Using GCAS, the operators work closely with the cargo assurance teams, and external inspection companies. “It is an attempt to standardize the cargo assurance process and be an industry leader,” says project manager Shiva Sadasivam. “Other peripheral systems might take advantage of the GCAS platform. It can also be made to report to the Environmental Protection Agency, and similar agencies, to provide data on emissions of substances such as sulfur.”

Positive attitudes: One of the key factors in allowing the system to be rolled out with ease has been the positive global attitude of all those involved. “The relationship between supplier and vendor has created an environment of confidence and collaboration that is difficult to achieve in a project being developed in a far away country and being delivered to users and offices all around the world,” says Bill Dobie, Navarik’s founder.

Kin Mun Chan, cargo assurance team leader for IST, Eastern Hemisphere, says: “GCAS gave us the opportunity to streamline some of our processes but, at the same time, was flexible enough to allow for regional differences.”

The IST business is already pleased with its investment. The GCAS system has been installed quietly, functionally, to budget and on time. And its increased capability means that in the case of any oil unaccounted for in transit above 0.2% an automatic alert is issued to the cargo assurance team, and so they expect the system will have paid for itself within a year.

“Its technical platform is versatile, so it will adapt to our needs now and into the future including automatic links to other systems,” says James Foster, head of trading, oil Europe and finance.

“It’s a part of ‘silent running’ that we need, delivering the ability to manage inspection needs, recognizing where we might incur potential loss of BP cargo and allowing us to be more efficient in recognizing savings.

“It’s a system everyone bought into globally at the core of our business—from operators to cargo assurance and others.”



Horizon, Issue Two 2008

BJ Emerson, delivery manager, OA, says: "GCAS got the basics right by forming a true partnership between our business, the vendor, and the project delivery team.

This allowed us to quickly resolve issues as they arose in regards to scope, timeline, and budget." More benefits will be felt over the next 18 months, says King: "We expect to improve and embellish GCAS into the foreseeable future, including interfacing with front

and back office systems and exchanging data electronically with other internal and external systems. We hope to work with our partners internally and externally to present solutions that provide efficiency all around."

Already, feedback from both internal users and external suppliers is positive. Wynn Ulman, an operator based in Cantera, says: "It's helped me get more in touch with the invoice payment process and what kind of costs we're actually incurring. It has also helped me have more of a personal connection with the inspectors."

Nick Brunero of inspection company Société Générale de Surveillance, says: "Having been quite at ease with IDES for a few years, SGS staff were somewhat reluctant to leave the comfort zone and try the new system. Careful planning and a very well executed sequence of introduction, education, roll out and problem resolution sessions means GCAS has been implemented with a minimum of fuss and an almost unsettling lack of problems."

Marcelo Remoti of Camin Cargo Inspection adds: "It is a very useful tool for those who provide services to BP—a major improvement on older systems."



Horizon, Issue Two 2008

News in brief

RUSSIA

Newstation

The first multifunctional fuelling station under the BP brand name has been opened in Saint Petersburg by TNK-BP. The station—BP's 50th auto-fuelling station in Russia—includes a 24-hour convenience store, BP Connect and a Wild Bean Café. TNK-BP chief operating officer Tim Summers, says: "We are glad that BP's fiftieth auto-fuelling station in Russia has opened in the city of Saint Petersburg, a city with which our company has positive partnership relations. I'm certain that the retail network being created here will affirm TNK-BP's reputation as a successful producer, reliable supplier of high-quality fuel, and a responsible corporate citizen." Downstream executive vice president Antony Considine adds: "The Saint Petersburg retail fuel market is one of the most attractive in Russia, and a key priority for TNK-BP along with Moscow."

CHINA

Most Innovative

Castrol Automotive was named 'Most Competitive Lubricant Brand' at the 2007 PCauto awards held in China. To decide the awards PCauto, a professional automotive internet portal, carried out a survey attracting millions of consumers. Yancan Yang, sales manager for south China, received the award on behalf of Castrol.

South Africa

Show success

BP Ultimate sponsored the successful MPH 2008 motorshow in South Africa. National rally driver Hergen Fekken provided entertainment at the event, named after the abbreviation for 'miles per hour', and popular attractions included a 6.0 litre twin-turbo V12 Bentley Continental GT Speed. BP Ultimate has signed a deal to sponsor MPH events until 2011. Brand and advertising manager Rui Jardim says: "We are proud to align our globally acclaimed performance fuel brand, BP Ultimate, with MPH as it is synonymous with motor technology, performance and innovation, which is exactly what the show is all about."

US

Guitar heroes

BP's convenience brand ampm has challenged customers' musical skills by organizing a month-long competition of popular simulation game Guitar Hero III: Legends of Rock. Twelve sites in Chicago participated in the competition during March, with the highest scoring contestants taking part in a final on 14 April. Prizes on offer include concert tickets, computers and a guitar. Fiona MacLeod, president of BP US convenience retail, says: "The ampm Guitar Hero III Championship is a perfect fit with ampm's high energy and a great way for ampm to say hello to Chicago."

US

New colours

MazdaSpeed, Mazda's official racing support program in North America, has unveiled new racing colours for 2008 to reflect the addition of two new partners—Yokohama Tire Corporation and BP. The new look was unveiled at the American Le Mans Series (ALMS) winter test. Both new partners will be key contributors to the team's overall program with both technical and marketing collaboration. Senior vice president of marketing and cards Kevin Phelan says: "BP's fundamental values are to be performance driven, innovative, progressive and green and we're excited to be a partner."

GLOBAL

Marine milestone

Castrol Marine has reached a milestone in its roll-out of the world's first comprehensive range of biodegradable marine lubricant after receiving its first customer order. Turkish chemical tanker operator Chemmariner Shipping will initially use Castrol Marine's Biostat 220 stem tube oil on its fleet of vessels and in the future will deploy the full range of biodegradable products on its entire new-build programme as part of its ongoing commitment to the environment. BP-Castrol Marine sales director David Gilmour says: "We are delighted to



Horizon, Issue Two 2008

successfully complete our first customer order for biodegradable lubricant. We are extremely encouraged by the high levels of enthusiasm that bio oil has generated among our customers.”

GERMANY

Driving skills

BP's German brand Aral has helped launch an eco-trophy competition to encourage fuel economy in driving, and ultimately to find the country's most economic driver. The Aral team has joined forces with car magazine Auto Zeitung, insurers Allianz and car manufacturer Volkswagen for the promotion. Twenty finalists will have their economic driving skills tested across a 350km track and the winner will take home a Volkswagen Golf BlueMotion car.

UK

Cards improved

BP has significantly upgraded the functionality of its BP Plus fuel cards, handing fleet managers greater freedom, security and control of their fuel purchasing and consumption. Online services have been improved, including new, rigorous control and security measures to counteract fraud. BP Plus fuel cards are also the first in the UK to include an alerts service, allowing managers to monitor all aspects of individual or collective use including the date, time, location and total spend. All 340,000 BP Plus fuel cards have been PIN-enabled and can be used at any of the 1,200 retail stations in the national network.



Horizon, Issue Two 2008

Exploration and production

OUR FRIEND IN THE NORTH

Having just been granted parliamentary approval, the Skarv oil and gas project will be BP Norway's first subsea development, designed to last for at least 25 years

"Sølv er nederlag," Norwegian Olympic speed skater and world record-breaker Knut 'Kuppern' Johannesen once said. In other words: 'A silver medal is defeat.'

Johannesen knew that preparation, dedication and hard work pay off. Striving for second best is also not an option for the teams working on bringing BP Norway's first subsea development onstream in three-and-a-half years. Having received the green light to develop its Skarv field from the notoriously stringent Norwegian parliament in December 2007, this year is crucial.

Skarv, an oil and gas condensates field located off the coast of Nordland, in water 300m to 450m (985 to 1,475 feet) deep, was discovered by BP in 1998.

Production of 85,000 barrels of oil and 530 million cubic feet of gas per day will contribute a quarter of BP's North Sea output over the next decade. The project received internal sanction in July 2007 and has now entered the 'execute' phase. First production is scheduled for 2011.

Not only does Skarv call for the world's largest ever harshwater floating production, storage and offloading (FPSO) vessel, the team believes it to be the most northerly of all BP's global developments. Six-metre (20 feet) vessel heave and 30-metre (100 feet) high waves are common. It is also BP's first completely greenfield project in Norway since its Gyda field came onstream in 1990.

Skarv involves a complex subsea system of several huge, heavy and critical pieces of equipment, many of them being constructed around the world and requiring lengthy journeys to Norway. Execution will be a tall order, but one that the team, currently around 100 people based in Oslo, is relishing.

"The main objective is to deliver gas from 2011, within budget and with a very good safety record," says Pat McHugh, Skarv project director. "Skarv is a very big field with expected capital expenditure of just over \$5 billion, and it is probably fair to say that it will be the biggest and most expensive oil and gas project in Norway to date. We have achieved a lot but there is still much to do before start-up."

Norway is not a low-cost province. Costly Skarv may be, but it is key to BP's North Sea strategy. "The North Sea is a mature area and we are now past our peak in the region, so anything we can do to increase production here is good," says Terry Hughes, performance unit leader, North Sea major projects. "Skarv will provide 20% to 25% of our North Sea oil and gas output over the next decade and is very important to the strategic performance unit."

Skarv is also key to Norway's efforts to maintain gas exports. As the first development in the Haltenbanken area, Skarv is laying foundations for other developments, BP's or those of other operators, that may one day use its infrastructure.

"Early results from recent drilling activity there are encouraging," Hughes says. "We are designing Skarv to last for 25 years, and we would hope there will be surrounding satellites to fill in the back end of that timescale. It may even be that we would extend the field life beyond that."

BP will develop Skarv with 16 wells at three to 14km (2 miles to 9 miles) away from the FPSO. An 80km (50 miles) spur line will carry gas from the FPSO vessel to Norway's existing Åsgard pipeline, while shuttle tankers will collect the oil every 10 days.

Before anything is installed, however, 1.4 million tonnes of rock, carefully mined and crushed to exacting dimensions, will be used to fill numerous deep troughs and gullies scored into the seabed by icebergs. 'Rock dumping', as it is known, will start in May, and the smoother seabed will be vital to ensure stability and



Horizon, Issue Two 2008

protection for the pipeline and the field's nine flowlines.

The subsea production system comprises five sets of subsea templates, together with manifolds and protective structures. Each part weighs 150 to 200 tonnes and will be installed in 2009. It will be a delicate operation in difficult conditions, avoiding the harsh winter period between 1 October and 1 April, and will mean a demanding schedule.

"This is BP's first subsea development in Norway, and that has brought some challenges," acknowledges Doug Wood, subsea, umbilicals, risers and flowlines (SURF) manager. "We have had to build up the team and this has been quite a challenge over the past 18 to 24 months. We now have a lot of experienced people from projects around the world, but with Skarv what we have is all the biggest challenges from other teams' experiences combined in one project."

Transportation and installation of all the subsea elements, and the FPSO vessel tow, are complex operations. For Geir Edvardsen, head of marine operations for Skarv, the best place to begin planning is at start-up, working backwards. "With operations of this magnitude, it is important to do everything right, to be proactive, to always think ahead, and to always think of the unthinkable," he explains.

"So, we start with the first gas and work back. The priority is safety: no health, safety, security and environment incidents, no injuries, no damage to equipment, environment or to BP's reputation. The next main challenge is keeping to schedule."

Generators weighing 200 tonnes are being made in Norway, 100-tonne compressors are coming from France, and the up to 3,000-tonne turret components for the FPSO vessel are being made in Singapore. While the lighter pieces will be transported to the FPSO construction yard in South Korea by sea freighter, the turret will be moved by barge and tug. It will be a nail-biting time for all concerned, and not least for Edvardsen.

"We have 10 equipment packages and one turret," he says. "If we lose one part of the puzzle, then we are really in trouble."

Preparation will be everything, for all stages of the development, but the team leaders believe the personnel they have put in place are up to it. "BP has shown its confidence in the Skarv teams, sanctioned the project and given them the \$5 billion to do it," says Hughes.

"Over the next three to four years, we will demonstrate that we have done the preparation. We will face challenges, but I am pretty confident that, in 2011, this group will stand back and look at a producing Skarv, be able to look at an excellent safety and efficiency record, and be looking forward to 25 years of sustained production performance."

SKARV: LOCAL CONTRACTORS Norwegian companies secure big contracts

Close to 40% of the contracts for Skarv have gone to Norwegian suppliers. The largest contractor is Aker Kvaerner Engineering & Technology, working from its Lysaker base just outside Oslo. Having come on board in 2005, Aker has concluded the front-end design engineering (FEED) of the floating production, storage and offloading (FPSO) vessel's hull and topsides and is now in the process of executing detailed designs for the topsides and the procurement of equipment and materials.

VetcoGray Scandinavia clinched the \$265 million contracts for the design and supply of the offshore production system, including the five subsea templates and 'Christmas trees', and for subsequent operational support up until first production. The contracts involve VetcoGray's sites in Haugesund, Billingstad and Dusavik, Stavanger.

Although headquartered in Aberdeen, UK, Subsea 7, BP's chosen subsea installation contractor, will use its Norwegian office to carry out \$330 million worth of work to install the flowlines, well templates, tiebacks and other subsea structures.

The FEED contract for subsea system engineering and the detailed design for the flowlines and gas export pipeline was awarded to Reinertsen Engineering, based in Trondheim. Although the risers will be made in France, the contract for them, awarded to Technip, will be managed in of Norway. The rock for the seabed is coming from Aqua Rock Company in Sandnessjøen, and the contract for that alone is expected to generate



Horizon, Issue Two 2008

around 90 new jobs.

“Norway has a leading position in subsea capabilities and we are pleased to have been able to call on the experience available so close to the project,” says Kjell-Magne Madsen, in charge of procurement and supply chain management. “For me personally, this is the first time I’ve been associated with such a large project and it is a good place to be.”

SHIP-SHAPE: FABRICATING SKARV’S NEW PRODUCTION VESSEL Vessel’s long journey to first oil begins in South Korea

Detailed design of all main components of the \$1.4 billion floating production, storage and offloading (FPSO) vessel is under way.

As well as fabricating the 45,000-tonne hull, South Korea’s Samsung Heavy Industries (SHI) will fabricate the 17,000-tonne topsides modules. First steel cutting for these will be in late 2008, with the hull completed in January 2010.

Integration of the topsides modules and turret will take place in the SHI yard, with the fully commissioned vessel sailing away in December 2010. The tow to Norway will take about three months. The vessel will have around 25 people on board during the tow, will later accommodate a maximum of 126 people during the hook-up phase, and under normal operating conditions has a bed capacity of 100.

“The tow for the FPSO from South Korea to final location will be round South Africa rather than through the Suez Canal, in order for all thrusters and the flare boom to be fitted prior to departure,” explains Simon Coleman, Skarv FPSO project manager. “Hook-up to the mooring system will take place early in the second quarter of 2011, followed by hook-up of the subsea riser and production system.”

The 875,000 barrel capacity Skarv FPSO vessel is the world’s biggest harshwater FPSO to be fabricated globally and, at 298 metres (980 feet) long and 50 metres (165 feet) wide, is comparable in size to BP’s Greater Plutonio in offshore Angola. It is designed to be located on station for the whole of field life without disconnecting to return to dry dock for maintenance.

The vessel will be moored by 15 chain and steel wire mooring lines and suction anchors attached to a geostationary turret, designed and fabricated by Single Buoy Moorings of Monaco. The vessel’s hull rotates around the moored turret, and has five 3.5 megawatt thrusters that will ensure the FPSO remains safely on station, even in a “hundred year storm”, says Coleman, adding that this is an industry first.

“Delivering a completed FPSO on schedule and ready for offshore installation with no fabrication or commissioning carry-over to the offshore phase is a challenge, but it is achievable,” he says.

“We need to do all this while ensuring quality and without hurting anybody. This is nothing new in itself, but is nevertheless a considerable challenge for this huge FPSO project.”

CLOSING THE GULF OF AQUATIC MYSTIQUE

BP’s remotely operated underwater machines are being used by scientists to understand deepwater life, as Stella Danker reports

Big oil companies like BP are giving scientists the chance to turn snapshots of life in the little known, darkest depths of the oceans into detailed portraits of species.

So far, such pictures have revealed a mystery squid with two tentacles, a huge jellyfish with six-metre (20 feet) long tentacles, and a polar shark living in the Gulf of Mexico (GoM). This bigger picture comes courtesy of the Scientific and Environmental ROV Partnership using Existing Industrial Technology (Serpent) project, of which BP is a partner. Serpent’s aim is to make remotely operated vehicles (ROVs) available to the academic community for deepwater research. It is hoped Serpent will also help scientists better understand the role of the oceans in absorbing carbon dioxide (CO₂) from the atmosphere and how organisms pump it down into deep water.

Oil companies can do this because they have a comprehensive global network of offshore deepwater sites and are the largest users of deepsea ROVs which go to depths of more than 3,000 metres (9,800 feet) to check for hazards in the seabed before laying pipelines. They already own more than 500 ROVs, with more being built



Horizon, Issue Two 2008

every month. North American academics, however, have a fleet of just eight ROVs—and they are limited to depths of around 1,000 metres (3,300 feet)—hence the importance of the knowledge-sharing pact.

“ROVs are very expensive to use and consequently, when we do have a chance to visit these deepwater regions, we get at best, a snapshot of what is present,” explains Mark Benfield, associate professor in the department of oceanography at Louisiana State University, and director of the GoM Serpent project.

BP is in partnership with the university to explore deepwater GoM. When the ROVs are freed up from their oil work, BP operators take them down to do scientific research. “This is pure science,” adds Terry Rooney, BP’s environmental adviser in Houston, US. “The beauty of it is that it is being done at very little cost to us. We’re already paying for the equipment and the ROV operators and the programme is designed to have no impact on our operations.”

Serpent was set up in 2001 with BP as a founding member. It is based at the National Oceanographic Centre in Southampton, UK, with projects in almost every deepwater exploration and production site—from the North Sea to West Africa to Australia.

“It is a fortunate coincidence that the locations where the oil industry is seeking new reserves are also areas where we need to conduct more research,” adds Benfield, a biological oceanographer.

He says: “You get a glimpse of what’s there at that particular time of day and you might not return to that place for two years, if at all. It’s difficult to build up a picture of what that community looks like. You couldn’t ask for a better observation network than what the oil companies have out there. There’s no other system like that in the world—it’s unique.”

Animal instincts: The purpose of Serpent is to study animals that drift, like jellyfish, and those that swim, like squid, through the water column. There are at least three environmental reasons to do so, says Benfield. Not only to understand CO₂ absorption better, but also marine communities are good indicators of climate change, with smaller tropical species replacing larger, cold-water species as the system warms. Finally, studying the movements and patterns of these organisms could influence offshore facilities and the siting of apparatus at depths where they have minimum impact on these organisms.

Rooney explains the company line: “Our positions and policies at BP with regard to the environment are leading edge. We are driven to minimize our impact on the environment. Clearly without the enthusiastic support of the guys out in the field, their technical capabilities and the leadership in the GoM, this would not happen. This is something in addition to their required activities that they are graciously taking on.”

The current three-year programme, which runs until 2010, is being funded with \$180,000 from the Minerals Management Service, a primary regulatory agency of the US Department of the Interior that ensures, among other things, offshore energy production is done in an environmentally sound manner. In terms of ROV time, BP’s contribution to the programme is worth some \$160,000, adds Benfield.

He says that BP is also equipping him with a high-resolution digital camera system that will be put on the ROVs to produce top-grade, publication-quality graphics which he hopes to make accessible to the public.

He concludes: “When people see some of the amazing life it gets them interested in the oceans. And when they find out that those images were collected by an oil company, it’s an unexpected discovery about what oil companies are doing out there.”

BEHIND THE VEIL

Ultra-deepwater in the Gulf of Mexico and Caspian Sea holds a cache of oil and gas. Paula Kolmar reports on the hidden hydrocarbons and how BP is exploring their potential

Some of the world’s richest oil and gas deposits are hidden from seismic imaging beneath salt domes and in ultra-deepwater at record-breaking pressures. But BP continues to explore these enduring hydrocarbon hotspots in the South Caspian Sea and the Gulf of Mexico with advancing seismic and drilling technology.

Dave Rainey, BP’s vice president of Gulf of Mexico (GoM) exploration, discussed BP’s pursuit of the enduring hydrocarbon hotspots at the industry-wide Cambridge Energy Research Associates (CERA) Week 2008, in Houston, US.



Horizon, Issue Two 2008

Rainey says: “The South Caspian and Gulf of Mexico have been explored for decades and still have the potential to attract our attention today. Both have world-class hydrocarbon systems, challenging subsurface complexity and need technology to address complexity and unlock the prize.”

Features that make the South Caspian one of the best oil and gas systems in the world also make it one of the most difficult to understand.

“Complex subsurface pressure arrangements cause oil and gas to become trapped in high-quality reservoir sands—this presents significant challenges when it comes to understanding the hydrocarbon distribution and predicting which structures actually contain the oil and gas,” adds Rainey.

Locating the hydrocarbons is only the first challenge, with Rainey also citing ‘overpressure’ as another drilling hurdle and keen to point out that BP overcame both in its Shah Deniz project.

The deepest well in the Caspian, SDX-4, was drilled 7,300 metres (24,000 feet) into reservoirs pressurized to a record-breaking 21,000 pounds per square inch. Significant volumes of oil and condensate were the rewards.

On the opposite side of the world lie the rich hydrocarbon deposits in the GoM. As with the South Caspian, BP is finding large amounts of oil and gas decades after the initial discoveries. And just like in the Caspian, innovative leaps in technology have allowed BP to drill in deeper waters and deal with challenging subsurface complexities.

Today’s generation of imaging and drilling has moved exploration deeper—and new technology will move BP deeper still to the ultra-deepwater, over 3,000 metres (10,000 feet). “The deepwater has for 20 years followed a very similar discovery trajectory to that of the shelf—an observation

which leads BP to conclude the deepwater has plenty of running room remaining,” asserts Rainey. In the late 1980s, development of fourth generation floating rigs kicked off the first round of deepwater exploration out to about 1,500 metres (5,000 feet).

The next advancement in floating rig technology came in the mid 1990s and allowed industry to step out into the ultra-deepwater. Vertical drilling reached depths of over 9,000 metres (30,000 feet). So, in addition to the new geography of the ultra-deepwater, new geology has also been exposed through ultra-deep drilling.

Going deeper has also allowed BP and others to explore beneath the salt canopies—and this has only become possible due to advances in seismic technology. “About 65% of the deepwater Gulf of Mexico is underlain by shallow salt canopies,” explains Rainey.

“Unfortunately, this shallow salt relates to a seismic wave in the same way a frosted glass window relates to a light wave—severely limiting our ability to image traps beneath the salt. So, the evolution of seismic technology has been as critical to continuing resource delivery in the deepwater GoM as has the evolution of the drilling rig.”

Competition in the deepwater GoM and Caspian region is fierce as technology advances and knowledge of the basin secrets continue to unfold. “Rich in resources, these two hotspots yield the treasure reluctantly and only to the most advanced technology of the day,” concludes Rainey. n



Horizon, Issue Two 2008

News in brief

UK

Field anniversary

BP has announced a new oil discovery in Block 204/23 following drilling in the southwest Foinaven prospect, some 190km (118 miles) west of the Shetland Islands. The announcement was made with Marathon Petroleum, BP's partner, and the pair are now evaluating the discovery and the potential for a two-well subsea development tied back to the Foinaven floating production, storage and offloading vessel (FPSO). The well, which is 11km (seven miles) south west of the FPSO, reached a depth of 2,528 metres (8,293 feet).

ANGOLA

Portia success

BP Angola and partner Sonangol have discovered oil in ultra-deepwater block 31. Portia is the 15th discovery that BP has drilled in the block, this well being located around seven kilometres (4.3 miles) to the north of the Titania discovery and 10.5km (6.5 miles) south west of the Plutao field. Portia was drilled in a water depth of 2,012 metres (6,600 feet), some 386km (240 miles) northwest of Luanda, and reached a total of 5,678 metres (18,630 feet) true vertical depth below sea level. Well test results confirmed the capacity of the reservoir to flow in excess of 5,000 barrels of oil a day under production conditions.

EGYPT

Gas record

BP Egypt has made a gas discovery at record depths in the Nile Delta. Satis is located in the North El Burg offshore concession, around 50km (31 miles) north of Damietta. The well was drilled to 6,500 metres (21,325 feet) and is the first significant high-pressure, high-temperature, offshore Oligocene discovery. Andy Inglis, BP's exploration and production chief executive, says: "This is a significant discovery which will underscore our position as a major producer in the growing Egyptian gas market for many years to come."

EGYPT

Crude discovery

BP has made an important crude oil discovery in the North Shadwan concession in the southern part of the Gulf of Suez. The discovery is the first in the south-eastern area of the gulf and the first drilled by BP using recently acquired, modern and high-quality ocean-bottom cable seismic data. The concession itself is jointly held by BP, which is also the operator, and TriOcean Energy, a subsidiary of the Egypt Kuwait Holding Company. The NS394-1A exploration well was drilled in shallow water just seven kilometres (4.3 miles) from the Hilal field.

OMAN

Local targets

BP says it is on track to achieve 50% Omanization at its newly established operations in the Sultanate by the end of the year. BP, which has also inaugurated its new office in Muscat (pictured), is preparing for seismic operations at the Khazzan and Makarem gas fields and initial associated recruiting has been successful with 15 Omani nationals being taken on in finance, engineering, supply chain management, health and safety, and human resources roles. "BP in Oman aims as much as possible to be a local energy company," says Michael Townshend, BP Oman president.

RUSSIA

Thermal agreement

TNK-BP and wholesale energy generation company and subsidiary of Enel, OGC-1 OAO have signed a shareholders' agreement to implement an investment project to build a new power unit at the Nizhnevartovskaya thermal power plant (NTPP). The agreement, which was announced on 18 February, provides for the formation of a joint venture between the two companies. According to the deal, OGC-1 will



Horizon, Issue Two 2008

contribute 100% of the shares of Nizhneartovskaya GRES, which owns two existing power units at NTPP with installed capacity of 1,600 megawatts. TNK-BP will contribute around \$320 million to the joint venture. Under the agreement, OGK-1 will form a private limited company—NVGRES Holding—owned 100% by OGK-1. TNK-BP will then acquire newly-issued shares in the new company and get 25% plus one share of the total shares.

US

Safety award

BP's deepwater Gulf of Mexico platform project team for Mad Dog will receive the 2007 Houma District Safety Award for Excellence (SAFE) from the Minerals Management Service (MMS). The award, based on 2007 MMS inspections, is in recognition of an exceptional performance record in relation to the industry average for production operations in the Houma district of Louisiana. The Mad Dog project team also won the 2006 SAFE award.

US

Emergency drill

The US Coast Guard joined BP's pipeline group in conducting an emergency response drill at the company's Tampa, Florida, distribution terminal. The drill simulated a catastrophic failure of a tank and the release of 98,000 barrels of gasoline into a nearby harbour. The simulation also included contractors deploying actual boom and the activation and involvement of the business support team.



Alternative energy

RURAL INDIA UNDER THE SPOTLIGHT

By working with local people and a non-governmental organization, a BP joint venture has transformed the way people live in India's most remote villages

WITH seven very distinct climatic regions, and many villages so remote that connecting them to the national electricity grid is not only impractical but impossible, solar energy seems to offer India a reasonable solution to some of its energy needs as one of the world's fastest-growing economies.

And the country's emergence as an easy place for Western companies to do business in a sustainable manner also helped make it an attractive proposition as far as BP was concerned.

BP's route into the Indian solar market has come via a joint venture (JV) partnership with the Tata power company to create what will ultimately be a \$300 million solar cell manufacturing plant in Bangalore.

The plant, which will eventually produce 300 megawatts (MW) of photovoltaic cells a year, is a big export hope for the JV, Tata BP Solar, as well as one which will go some significant way to satisfying domestic demand.

For Ashok Jhawar, BP country head, the JV sums up the best way to get a business off the ground in India.

"Partnerships can be a great way to do business in India—especially where we can work with a company which shares values with us," he says. "We started the discussions with Tata in the mid-1980s and the partnership has gone from strength to strength.

"Tata is a fantastic organization with values very similar to ours, very strong corporate governance, and very good as far as corporate responsibility and social investment goes. So, this is a good way to get started in India."

BP has a 51% stake in the JV, which began commercial operations in 1991, with Tata holding the balance. The business not only meets around 25% of BP group demand for photovoltaics (PV), but it also currently sells more than \$200 million worth of products, of which a good percentage are made for export.

"We are committed to developing sustainable clean energy activities in India, under-pinned by world-class manufacturing," explains Syamal Gupta, chairman of Tata BP Solar. "We have already established solid manufacturing, design, delivery and marketing capabilities, and we will continue to meet the demands of Indian and global PV markets."

And with the company offering customized solar solutions to individuals as well as other businesses, non-governmental organizations (NGOs) and state governments, Lee Edwards, BP Solar chief executive, is confident the business can deliver in the long-term, and with sustainability.

He says: "We are confident that Tata BP Solar will continue to deliver high quality products and services to diverse markets in both rural and urban areas. The talent and dedication of the Bangalore team will help us realize our vision of offering customers PV-generated electricity at prices on par with conventional electricity supply."

Nowhere is Edwards's faith in delivering in rural India more apparent than in the tiny villages of rural Chhattisgarh.

Either way, the state's terrain is extremely demanding—dense forests, mountainous landscapes, and regularly flooded roads means grid connectivity is, for the most part, impossible.

But, operating in what is one of India's most under-developed states, the Chhattisgarh Renewable Energy Development Authority (CREDA) had a vision to electrify 113 remote villages around four hours southeast of the city of Raipur, and in 2002 it approached the JV with its ambitious plan.



Horizon, Issue Two 2008

Eventually, a tender was concluded and, following a successful pilot project, the villages got their first ever electricity courtesy of their own 2 to 6 kilowatt solar power plants.

To date, CREDA's work with the JV and others has electrified 628 rural villages, providing carefully rationed electricity to around 180,000 people.

SK Shukla, director of CREDA and special secretary for the Chhattisgarh government, says electrification of the villages has had a significant impact on people's lives.

He explains: "There has been a big social impact. Before this there was no television in the villages, meaning exposure to everyday things like names was very poor—families only gave their children local names. But after watching television they gave names like Sanjiv or Priyanka.

"And now people can also watch things like cricket and you can actually see an improvement in the villagers' playing ability and technique thanks to the things they have picked up on the television."

It took around eight months after commissioning to get all the villages hooked up with electricity. During this time solar modules were mounted, cables laid, control panels installed and specific local power plants commissioned.

Two people were then identified in each village to be operators of the power plant and given basic maintenance training and tips on how to make minor repairs and topping up the storage batteries, ensuring the villages were not only self-sufficient in terms of their needs but also that local employment was created. Roaming technicians, out-sourced by CREDA, then take care of any trickier technical problems across a cluster of 10 to 15 sites.

"Some social engineering is required if the electrification of these villages is to be a complete success," adds Shukla. "But this is something we are doing. This system has been working for four years in these villages, and every year we have some training camps to educate the people. It is important we continue to do this and show them that we have the most advanced power plant and technology."

And the villagers of Adgadi and Torenga haven't looked back since their community was lit up for the first time. The most dramatic change is that the local economy can continue to operate beyond daylight hours. Rationed electricity in the evenings means farmers can spend all day in their fields, safe in the knowledge they will return in the evening to artificial light by which to eat.

Pardesi Ram, a 90-year-old Adgadi rice farmer, explains: "Normally we would have to come back from the farms early if the light is not there, but now with the light being available in the evenings, I can come home later and work longer."

Likewise, children can now help with local agriculture during daylight hours and study in the evenings, meaning there are more people working longer hours to drive local commerce. And in a state where the prime industry is agriculture, there is also an obvious knock-on benefit to the people the farmers sell to.

Rajendra Tewari, who has run a small shop in Adgadi for the last nine years, says his business too is seeing an upturn thanks to solar energy.

He adds: "Solar power gives good visibility, using a kerosene lamp would make it very dark to trade. The solar lamps provide much more light, which means my business is better lit and attracts more customers later in the evening. I used to only open until about 6pm or 6.30pm, but now I can open right up to 8.30pm—two hours longer trade. Things are much easier for us all now."

ALMIGHTY IMPROVEMENT

A competition run by BP Solar and a Hollywood film studio to win solar panels for the home has transformed the life of one Californian family, as Stephanie Johnson reports

Sunny California in the US was anything but on the afternoon of 13 February when workers arrived to install solar panels on the roof of Stacey and Bryan Watson's home in Tracy.

Randomly selected from 13,000 entrants in BP Solar's Evan Almighty sweepstake—a competition run in conjunction with the producers of the movie Evan Almighty—



Horizon, Issue Two 2008

winner Stacey Watson watched workers grapple with her new BP Solar 'home solution' in cold, strong winds. The lightweight black solar panels billowed like sails as employees of Manteca-based 1st Light Energy, a BP Solar-trained and certified installer of solar electric systems, carried out the installation. The five-kilowatt solar system is expected

to generate approximately 76% of the Watson's annual electricity requirements. Their current electricity bills sometimes reach \$300 a month in the hot, arid Central Valley town located halfway between Sacramento and San Francisco.

Stacey Watson, a former call centre employee, says she and her husband were already environmentally aware and wise to the benefits of solar energy but couldn't afford such an electricity system. The family carpools and recycles, but their household budget recently dropped by half when Stacey opted to stay home with 21-month-old son Chance Dallas.

"It's just amazing," she says. "We've talked about solar power but it is something we couldn't afford on our own, even with the rebates. It's nice to know you don't have to burn hydrocarbons to create energy."

The BP system includes a meter which 'runs backwards', banking excess wattage generated by the panels. A remote controlled device allows the family to keep track of how much energy their system makes.

The Watsons will never receive a bill from their electricity company for this extra energy, but high electric bills will be history, even in 38°C (100°F) summers and freezing winters.

Watson says winning the Evan Almighty competition is especially poignant for her. Seventeen years ago, she was diagnosed with multiple sclerosis and is extremely "heat sensitive", as she puts it. Thanks to the BP Solar system, she can now afford to cool her house comfortably without worrying about the expense.

"I'm just so thankful that BP did this for me. This is a big deal—it has changed my life." Stacey entered the contest after spotting an online advertisement which pictured a man sitting in a chair. Entering contests is a hobby she picked up from her mother, a serial competition entrant. Although she recently won a games console in a different competition, Watson says she was stunned to learn her name was picked from 13,000 entrants.

Geoff Slevin, vice president of sales and marketing of BP Solar North America, says BP received a response to the competition that exceeded expectations.

He says: "It demonstrates that more and more people are interested in shepherding new, clean technologies like solar power onto their homes and into their lives."

Evan Almighty is Universal's continuance of Bruce Almighty. Actor Steve Carell, reprised his role as the polished, preening newscaster Evan Baxter, anointed by God to accomplish a holy mission to build an ark.

The contest, called a solar sweepstake, was launched in June last year in homage to Evan Almighty, the first major motion picture comedy to have a neutral carbon footprint. The green production is part of Universal Studios' Get On Board campaign.

Universal says it was eager to work with BP Solar for promotional purposes. Syd Smith, senior vice president of Universal Studios Partnerships, says the firm was eager to partner with BP because their messages are well aligned.

He explains: "We believe the messages associate with the film's production and the business objectives of BP Solar are very well-aligned, and together we can reach and educate a broad audience."

BEST SUPPORTING PROJECT

BP Solar and Hollywood superstars are working together to help the homeless and low-income homeowners in the US. Joe Strebel finds out how the programme works



Horizon, Issue Two 2008

The separate and often sharply different worlds of business, government, entertainment, environmentalism and social services came together for a common purpose in California, US, earlier this year.

The occasion was the dedication of a multi-unit residence for formerly homeless people in the renovated St George Hotel, located in Los Angeles's 'Skid Row' area. The residence is powered by a solar electricity system supplied by BP Solar in conjunction with Enterprise, a non-profit provider of affordable housing.

The Skid Row Housing Trust owns and operates the historic hotel and several other buildings that also provide accommodation for needy people. In addition to the value of the solar power system, the 'Skid Row' Housing Trust expects to save around \$2,000 a year in utilities costs through the use of alternative energy.

"The St George project is a perfect example of the great things that happen when government, community organizations, business and philanthropy work together," says Los Angeles mayor, Antonio Villaraigosa.

The project is the first multi-unit building on the West Coast to participate in the Solar Neighbours Programme, a joint effort by BP Solar and Enterprise, an organization that helps build affordable houses for the community. It follows a project launched last year in New York—the Fordham Bedford Housing Alliance's 64-unit Jacob's Place project.

Since 2004, BP Solar and Enterprise have provided solar systems for more than 40 private homes occupied by low-income people as part of the Solar Neighbours Programme. Under the programme, Enterprise enlists celebrities and other high-profile people to install solar systems in their homes or offices. For every six-kilowatt system these participants have installed, BP Solar donates a system for low-income homeowners.

Celebrities taking part include actors Brad Pitt, Reese Witherspoon, Tom Hanks and Danny DeVito. It was actor and comedian Will Ferrell and actor Owen Wilson, who both installed larger systems, that made the Los Angeles and New York multi-family installations possible, respectively.

Representing Enterprise at the dedication ceremonies for the renovated St George Hotel, Jeff Schaffer, Southern California director, noted his organization has helped "develop architecturally realized residences that provide not only critical supportive services but a sense of pride and dignity that restores confidence and sustains recovery for people who are formerly homeless".

Enterprise was founded by James Rouse, a developer famous for such successful projects as Boston's Faneuil Hall, Baltimore's Inner Harbor and New York's South Street Seaport. His grandson, Edward Norton, an actor twice nominated for an Academy Award (Oscar) for his roles in the films *Primal Fear* and *American History X*, serves as a trustee of Enterprise.

The organization is also a proponent of green building and it was Norton who originally proposed partnering with BP on the Solar Neighbours Programme.

"I literally rang them up out of the blue one day and said 'Listen I've got this idea'," he explained during the dedication ceremonies. "And within less than a couple of weeks of discussion, they said 'we're in'. And they committed an enormous amount of money to basically a totally half-baked idea on my part and made it a reality."

Besides providing affordable shelter for the homeless and low-income families, the Solar Neighbours Programme, through the St George Hotel and other projects, demonstrates the benefits of solar technology, including its contributions to cleaner air. Geoff Slevin, vice president of sales and marketing of BP Solar, explains: "Through the BP Solar Neighbours Programme we are able to help low-income families reduce their energy bills and their impact on the environment through the use of solar power."

"We thank Will Ferrell for his commitment to a cleaner environment and for making possible the donation of the solar system to the St George Hotel."



Horizon, Issue Two 2008

News in brief

EAST CARIBBEAN

Overseas developments

The first joint solar power projects in the French overseas departments of Apex-BP Solar, a subsidiary of BP France, and Aerowatt, a French wind and photovoltaic energy firm, have been unveiled. The projects, located in Guadeloupe and Martinique, have a combined capacity of 1.5 megawatt peak (MWp) and are due to begin service in the early part of the year. By the end of 2008, the firms will launch other projects with a total capacity of 3MWp in Réunion, in the Indian Ocean, as well as Guadeloupe and Martinique. The initial agreement will see Apex-BP Solar provide turnkey installations which, once installed, will be taken over by Aerowatt.

Australia

Solar thirst

BP Solar has installed the largest rooftop solar system in New South Wales as part of the Blacktown Solar Cities project. The 100 kilowatt system on the roof of Cadbury Schweppes's soft drink manufacturing facility in western Sydney was launched on 1 February by Peter Garrett, Australia's federal minister for the environment, heritage and the arts. The system comprises 640 solar panels—all of which were made at BP Solar's Sydney Olympic Park site.

US

Fowler update

Representatives of BP's US fuels marketing team met the Indiana agriculture commissioner, representatives of the governor's office, the Indiana Economic Development Authority and the Office of Energy and Defense Development to provide an update on the status of biofuels development and its future prospects. Around 100 local landowners attended an 'open house' meeting to get an update on the Fowler Ridge Wind Farm project in Indiana. BP officials told the supportive audience that the project is on schedule to be operating by the end of the year.

GLOBAL

Hayward address

Tony Hayward, BP's group chief executive (pictured), has told the Washington International Renewable Energy Conference: "If we act now, we will be able to smooth the transition to a lower carbon economy of the future." Giving a keynote address and citing International Energy Agency figures, Hayward told delegates that in 20 years' time the world is going to require 50% more primary energy than is used today. He also outlined the efforts of BP's Alternative Energy businesses. The annual event attracts government, business and civil society representatives.

US

Sherbino ramp-up

BP Alternative Energy has moved into full construction of phase one of the Sherbino wind farm in Texas. The first phase of the project—which is located east of Fort Stockton in Pecos County—will have a capacity of 150 megawatts (MW) and is being built through a 50-50 joint venture agreement with Padoma Wind Power, a subsidiary of electricity firm NRG Energy. Expected to come online in the second half of the year, the first phase will use 50 Vestas V-90 wind turbines, each with a rated capacity of 3MW. The entire wind farm has a potential total capacity of 750MW.

US

Colorado events

The Energy Office of Colorado has established a state carbon fund which will be a voluntary offset programme to serve as a funding source for community-based clean energy and climate change mitigation projects. The fund will also be a source of direct investment money for other state projects. Meanwhile, Darrel Thorson, BP



Horizon, Issue Two 2008

Alternative Energy director, spoke during a panel discussion on clean energy sources at the Sustainable Opportunities Summit in Denver. The event brought together alternative energy entrepreneurs, developers, academics and venture capital organizations to discuss economic opportunities in renewable and other low carbon energy sources.

US

Ethanol mandate

The US will not be able to produce enough ethanol to meet Congress' mandate for US, according to the government's Energy Information Administration (EIA). Currently, output of renewable fuels needs to reach 36 billion gallons per year by 2022. Today, US ethanol is mostly made from corn but a new energy law calls for a bigger share of future ethanol supplies to be made from cheaper cellulosic sources, such as wood chips, switchgrass and other agricultural and forest waste. The EIA says only 32.5 billion gallons of the renewable fuels standard will be met by the target date, requiring the government to issue waivers on the mandate.

US

Education agreement

BP Solar and Frederick County Public Schools have signed a partnership agreement to deepen their relationship to support education in the Frederick community. The partnership provides the organizations with common objectives such as providing educational materials on alternative energy, and connecting industry experts with students and teachers.



21st CENTURY

CRYSTAL CLEAR CHOICE FOR BIOFUELS

BP research into zeolite crystals promises to boost biofuel output

WITH EMISSIONS from various forms of transport accounting for around 20% of global carbon output, the development of cleaner fuels is at the heart of BP's renewable energy agenda. A technology that has been under research by the company for over 20 years now promises to have a major impact on emissions.

The word zeolite is taken from the Greek term for 'stone that boils'. Zeolites are crystalline solids with microscopic pores and well-defined structures. Generally they contain silicon, aluminium and oxygen in their framework, and cations, water or other molecules within their pores. Many occur naturally as minerals, but others are synthetic and are designed for specific uses—an area in which BP has focused much attention.

Their unique porous properties allow zeolites to filter out very specific molecules, making them useful for hydrocarbon cracking, ion exchange for water softening and purification, and separation and removal of gases and solvents.

Zeolite pores confine molecules in a small space, which causes changes in their structure and capacity to enter chemical reactions. In their hydrogen form, prepared by ion-exchange, zeolites are powerful solid-state acids, and can facilitate a host of acid-catalyzed reactions, such as isomerization, alkylation, and cracking.

BP's long history of research and innovation in the field took off in the 1980s with the development of one of the world's foremost zeolite synthesis teams. This team worked on inventing and patenting many novel zeolites and their applications.

Several of the innovations discovered in this period are now being actively developed. Examples include zeolites used for separations, such as zeolite membranes for dewatering biofuels, carbon dioxide separations and selective reactions for new fuels and chemical intermediates.

Zeolites are an important class of materials for BP. They feature in all of the company's refineries at the heart of the fluidized catalytic cracking (FCC) process, which is used to make gasoline from crude oil refining—the process is responsible for around 60% of the company's gasoline output.

"The process has been optimized in recent decades and continuous innovation with catalyst manufacturers has led to improvements in profitability through added value products," says Martin Atkins, BP's chief scientist, China. "An example of this is combining two types of zeolite into one which makes more light olefins used in the polymer and chemicals industry, maximizing the synergy between petrochemicals and refinery operations—it maximizes the profit per barrel out of our crude oil conversion process," he explains. "This option has been exercised in BP refineries for more than a decade now."

Zeolites are also widely used in separations for the dehydration and recycling of solvents. Two examples include pressure swing adsorption technology to dewater aqueous ethanol and separation of xylene isomers used in the production of large-scale polyester intermediates.

The use of zeolites in producing biofuels shows great promise for the future. In October 2007, BP, Hyflux (Singapore), and BP's partners at the Dalian Institute of Chemical Physics in China announced plans to jointly develop and commercialize the use of zeolite dewatering membranes in the production of bioethanol.

Bioethanol is produced by fermenting sugars derived from starchy plants such as corn or potatoes, sugar-rich plants such as beets, or other plant materials. However, dewatering of this alcohol is an energy intensive and costly process. Zeolite membranes will improve the process efficiency as a replacement for, or aid to, the energy intensive azeotropic distillation step.

Pilot-scale tests have already shown that the durability of zeolite membrane systems is excellent, and long-term tests—greater than 3,000 hours—are now in progress to support commercial demonstration. If all goes



Horizon, Issue Two 2008

well, the research done over the past 20 years by BP could yield additional bounty, reducing transportation pollution and helping to meet global carbon reduction goals.



PEOPLE

HEART PATIENT'S INSPIRATIONAL TRACK RECORD

After undergoing a full heart transplant John Fisher now runs marathons to raise funds and awareness of the procedure, and prove there is life after surgery

MANY seasoned athletes would look with envy at marathon runner John Fisher's competition record. But it is not only John's history of competing in events across the globe which is surprising, it is the fact that the 45-year-old father of four has done so following a heart transplant.

His participation in demanding sporting events, often many thousands of miles away from his home in England, is in direct defiance of the official medical advice given to prospective transplant patients and those starting a new life after an operation.

His objective, in addition to preserving his own new lease of good health, is to demonstrate to others that life after a transplant does not have to be restrictive, and he has created his own charity to provide the 'real world' advice and help which he says is not available through the British National Health Service (NHS). He is also keen to encourage others to join an organ donor register.

John raises money through sponsorship to help pay for his charity's work and those sums are matched equally through BP's matched-funding programme. His link with BP is his wife Jan, who works in the UK finance department and who joins her husband in some of his running events—though after conquering the challenge of a marathon, Jan restricts herself to half-marathon events.

John says: "People are told they will be lucky to have two years to live after a transplant and that they should avoid people with coughs and colds when it is not like that, though I can see why the NHS does what it does.

"I want to show people that they really can live as they want to. It is satisfying to see people who expect their lives won't really be worth living after a transplant to realize it doesn't have to be like that."

So far this year, John has already taken part in events in Hong Kong and South Africa, where the marathon concept was stretched to a 56km (35 miles) event named the ultra-marathon. That race, in Cape Town, was of particular significance to John, not just because of the challenge of the increased distance, but because it is the location where the first heart transplant operation was conducted 40 years ago. It seemed a fitting tribute from a man who has dedicated much of his life to helping others in a similar position to go and race there. John's visit to South Africa was made possible by support from sponsors outside of his charity, and he was joined by Jan, who financed her own trip.

Over the past seven years John has also completed six London marathons and races in Athens, Snowdonia, Sydney, Venice, China and Shanghai. He has also taken part in several half-marathons, triathlons and bike rides.

Declining health: John's health problems were first discovered in his 30s, when it emerged that a childhood illness had left undetected damage to his heart which resulted in a leaking valve. The defect was discovered during a routine health check-up and that led to surgery to replace the heart valve in 1995.

By 1999 John was told he needed a heart transplant and he was placed on the transplant register. His operation was performed the following summer when a suitable organ became available. However, in the months between his diagnosis and the operation, John's health had deteriorated to the point where he now believes he would have only had weeks to live. "When I went on the list I wasn't too bad, I didn't feel like I needed a heart transplant and I was still able to jog," he says. "But by the time I got the call, I wasn't even able to walk upstairs. I was on oxygen constantly through the night and I must have had only two or three weeks left to live.

"I wasn't living, I was just existing, I was exhausted all the time but within five or six days of the operation I felt fantastic." It was at that point when John had the idea of inspiring other transplant candidates, as he



Horizon, Issue Two 2008

remembered how negative all the official information had appeared.

The statistics are stark—with half of all potential transplant patients dying before an organ becomes available and a success rate of 80% for the operations. “That figure sounds good, until you are back at home with a cup of coffee and start thinking about it,” he explains.

John’s solution was to start work on a website, which he was able to do from a laptop computer while still in hospital recovering from surgery. He was also given access to a video camera in the hospital which provided the footage he needed.

His website led to the creation of his own charity—To Transplant and Beyond. It has since become a registered organization, allowing it to function in the way John intended.

John’s marathon running was a progression of the charity’s objective, to prove to patients that their lives need not be restrained in the way official, cautionary medical advice would suggest. He began running marathons alongside friend David Nagel, now BP’s vice president and global head of finance transformation, who joined him for his first three events in London. John’s most recent marathon companion has been BP’s Peter Russell, a finance, control and accounting manager for China lubricants, who is based in Shanghai and joined John at events in Hong Kong and the Great Wall in China.

John’s record now features more than a dozen marathons across the globe, including Australia. His average time is below four hours and 30 minutes, better than what might be expected from a competitor of similar age without his severe medical history. And in defiance of his advancing age John’s time is improving as he recently recorded a time barely in excess of four hours.

He says: “I wanted to make the point that if I could travel to Australia and run in a marathon, other people could fly to Spain for a family holiday or play a round of golf.

“I go to the extreme so other people will realize they can go out for a walk or even a jog.” John’s outlook was shaped by Derek Morris, an early transplant patient from the UK who spoke to him two decades after his own operation.

“He said the secret was to take your pills on time and to exercise to the extreme,” says John. “Stress is something you don’t need to worry about, because nothing will worry you after a transplant. Exercise is the main thing,” he adds.

John is also inspired by the knowledge that Britain’s longest surviving heart transplant patient went on for more than 25 years after his operation, only to succumb to an unrelated condition at the age of 79.

For more information about John and his charity visit www.heart-transplants.co.uk Image title: Fight in the river

COMMENDED PHOTOGRAPHS REVEALED

Following the announcement of our 2007 photo competition winners we proudly present the best of the rest

AT HORIZON we are happy to report that our annual photo competition is attracting an increasingly strong following from BP staff, retirees, their spouses and families across the world.

We were delighted with the response to last year’s contest, and enjoyed immensely the various interpretations of our four categories—environment, emotion, horizons and imagination.

In the February issue of the magazine we revealed our category runners-up and winners, and the overall winner. Now we are proud to showcase more images which deserve recognition.

In addition to eight prize-winning images, we asked competition judge, professional photographer Graham Trott, to select a further four images from each category to be highly commended.

One from each category appears on these pages. All 16 choices can be viewed on the Horizon website, available via the BP intranet, together with details of the photographers.



Horizon, Issue Two 2008

All commended entries will be displayed alongside the prize-winning photographs at an exhibition to be held in Sunbury, UK, during the summer which will co-incide with the launch of the 2008 competition.

Horizon Greg Goodale says: "We would like this photo competition to be about encouraging casual camera owners to discover creative photography, rather than simply highlighting BP's most talented photographers. It was great to see such a large number of memorable images from relative novices, and I look forward to seeing many more in the future."

Jacob said: "The score line was flattering. Had it not been for the heroic UK goalkeeper Jean-Baptiste Renard (regional group vice president, Europe) who made several outstanding saves from strong French attacks, the score would have been much closer."

The goal scorers for the UK were Nick Deane (two goals), Daniel Sabathie and Nicholas Robertson. The goalscorer for France was Vincent Jeanjean.

Both teams and their supporters celebrated the game at an awards ceremony and dinner in Paris hosted by country president Patrick Haas who says: "This is a great opportunity for the businesses to come together—to play competitively, but fairly, and to share in a great weekend. We have players representing different business units, and players from several nationalities. It's a truly integrated event, long may it continue—and may France win next time!"

ENVIRONMENT

Photographer: Alexandre Camargo
Occupation: Safety and operations manager, South America
Image title: A light through the darkness

HORIZONS

Photographer: Munir Misbachul
Occupation: Technician, Indonesia
Image title: Go home

EMOTION

Photographer: Manuela Fritzsche
Occupation: Marketing manager, Austria, fuels marketing
Image title: Croatia

IMAGINATION

Photographer: Ian McGregor
Occupation: Business support manager, BP Exploration, Libya
Image title: Riding in Libya

FOUR GENERATIONS WORK AT WHITING

The Duffala family has a 108 year history of working at the Whiting refinery, Indiana. Matt Davis talks to past and present employees, and discovers the tradition may continue

When Stoe Duffala started work at BP's Whiting refinery last October, he followed three previous generations of Duffalas to have worked at and retired from the Indiana plant.

"There has been a Duffala working at the refinery for more than 108 consecutive years," says his mother, Judy. Although several families have had multiple generations who have worked at the plant, Judy thinks her family is unique in having four father-to-son generations at Whiting, three of whom all worked there until they retired.

"It's an honour to work there," says Stoe. "During entry level training I've been walking around the refinery with my last name on a hard hat, and I've had several people stop me to say 'I know your dad'."

Similar experiences run in the family. Stoe's father, Robert, says: "When I started at Whiting in the early seventies, they said 'your dad's locker is still open', so I inherited it."



Horizon, Issue Two 2008

Whiting changed hands from Standard Oil of Indiana to Amoco in 1981, and to BP following the companies' merger in 1998.

Robert's father Emil Duffala worked at Whiting's greaseworks between 1941 and 1978, and is still an active member of a Standard Oil retirees group.

Emil's father, John Duffala, emigrated to the US from the former Czechoslovakia before World War I and gained citizenship after fighting for the US Army in Panama. The family says John was so proud to be a US citizen he insisted his children speak English in the home, although he occasionally spoke Slovak so they could understand their relatives. Emil says: "He'd say 'we're Americans now'."

John retired from Whiting in 1959 after 43 years of service, and died in the 1970s.

Tom Keilman, BP's director of government and public affairs for the state of Indiana, says: "There are a number of families of our employees with somewhat of a similar history, including my own. Although not many as extensive and distinguished as the Duffalas.

"It's really a great thing that the employees are so dedicated to the refinery and the tradition of Standard, then Amoco, and now BP. We're really proud of that tradition."

And it seems the Duffala family tradition may well continue in years to come. Current employee Stoe, a process operator, is married with two children aged nine and 10. He feels his job at the refinery has secured their future, and says he hopes they follow in his footsteps. "I hope my children will work for BP, too," he says.

.



Endgame

Across

- 1 He wrote 'The Grapes of Wrath' (4,9)
- 10 The son of Uranus and Gaia (7)
- 11 The capital of Estonia (7)
- 12 Became less intense (6)
- 15 Former proposed alternative name for South Africa (6)
- 16 Planet discovered in 1846 (7)
- 17 "A bear of very little brain" (4)
- 18 Its atomic number is 30 (4)
- 19 This empire reached its zenith under Suleiman (7)
- 20 2008 is such a year (4)
- 22 A steep high cliff or rock outcrop (4)
- 24 Reading this scale might well make you quake! (7)
- 26 A satellite of 16 across (6)
- 27 Painter associated with pointillism (6)
- 30 Malaysian port on the Sarawak river (7)
- 31 Tony, the high-pitched Boss of the family (7)
- 32 The Amadeus, for example (6,7)

Down

- 2 A culinary herb (7)
- 3 Norwegian Arctic explorer (6)
- 4 1979 film based on a Thomas Hardy novel (4)
- 5 An extremely small Greek letter (4)
- 6 Its capital is Belmopan (6)
- 7 Dry red Italian wine (7)
- 8 He directed 4 down (5,8)
- 9 Imprisonment (13)
- 13 Thick triangular muscle (7)
- 14 Waste away or become vestigial (7)
- 15 The brightest star in the constellation Scorpius (7)
- 21 Juicy orange-yellow soft fruit (7)
- 23 It's worn pinned to a woman's clothes (7)
- 24 Port and resort in NE Italy (6)
- 25 'There is a whose name is Death' (Longfellow) (6)
- 28 Very eager or curious to hear or learn something (4)
- 29 He sold his birthright to his brother (4)

Solutions for issue one 2008:

Across: 1 Vladimir Putin; 10 Rhombus; 11 Satchel; 12 Neisse; 15 Triage; 16 Elision; 17 Shed; 18 Clio; 19 Arsenic; 20 Hope; 22 Icon; 24 Acquire; 26 Bolero; 27 Yamaha; 30 Richard; 31 Omicron; 32 In Where Angels. Down: 2 Leonine; 3 Debase; 4,5 Musk Rose; 6 Upturn; 7 Ishmael; 8 Franz Schubert; 9 Blue Mountains; 13 El Greco; 14 Osseous; 15 Topiary; 21 Pelican; 23 Chabrol; 24 Armagh; 25 Ealing; 28 Oder; 29 Zola. The winner was Phil Kent, Hertfordshire, UK.

Editor Greg Goodale (group), tel +44 (0)1932 767 025 Deputy editor Adam Smith (exploration and production; gas, power and renewables/IST), tel +44 (0)1932 767021 Associate editor Lucy Harvey (refining and marketing; people), tel +44 (0)1932 767026 Americas editor Paula Kolmar, tel +1 281 366 3702 Contributors Vartan Amadouy, Frank Baker, Helen Campbell, Allison Conte, Hugh Fort, Vicki Hammond, Julia Pierce, Jenny Rammage, Nick Reed, Christi Serrao, David Shariatmadari, Joe Strebels, Julia Pierce, Nick Reed, Ian Valentine Design Beetroot Publishing Print Managed by Williams Lea Change of address, subscriptions and distribution Carolyn Copland, BP, 1 St James's Square, London SW1Y 4PD. tel +44 (0)20 7496 4340, fax +44 (0)20 7496 4574, email: carolyn.copland@bp.com Other enquiries By email to horizon@bp.com or tel +44 (0)1932 767 021 Horizon Online editor Paula Kolmar, tel: +1 281 366 3702 Intranet address: horizononline.bpweb.bp.com