Opec rejects talk of supply crisis; US policy driving price

By Derek Brower

THE PRESIDENT of Opec took aim at the cartel’s critics yesterday, blaming US monetary and foreign policy for record-busting oil prices.

In an interview with WPC News in Madrid, Chakib Khelil said Opec is doing enough to meet demand for oil and reiterated his claim that the falling dollar could help drive the oil price to $170 a barrel by the end of the summer.

“Everyone agrees that oil prices are too high,” Khelil said. But “we don’t have an energy crisis, we have a pricing problem.” He added: “The US needs to stabilise the dollar.” Opec now considers a 1% fall in the dollar versus the euro results in a $4/b rise in oil prices.

Tension in Iran and a jump in seasonal demand could push prices even higher, he said. But falling US interest rates in the wake of the sub-prime crisis and speculation by financial investors are the main factors driving prices higher, he said.

Opec’s explanations for the recent surge in oil prices differ markedly from those coming from consumer governments and their agencies.

The IEA said yesterday that a tight supply/demand balance is behind the recent bull run in the oil market (see p2). And Western politicians, including US president George Bush and UK prime minister Gordon Brown, have called on Opec to open its production taps.

But Saudi Arabia’s decision earlier this month to pump more oil onto global markets had failed to stem the rise in crude prices, said Khelil, showing supply is not driving the market.

And he said that the onus put on Opec by Western governments to increase supply is unfair. “We’re only 40% of the market. How about focusing on non-Opec [suppliers]? They meet 60% of demand. The US needs to open offshore Florida and offshore Alaska.”

But his sharpest criticism related to Western policy in the Middle East, where the US-led war in Iraq in 2003 triggered a drop in oil output from that country. “Iraq is closed because of war. It is producing 2.2m b/d right now. At one time it was 6m b/d, so imagine what Iraq could bring in [to supply].”

On Monday, Iraq invited international oil firms to bid for contracts to raise the country’s oil production.

Meanwhile, Khelil also rejected suggestions that the rise in oil prices could trigger a recession in the world economy. The Chinese and Indian economies are still growing quickly, he said, and while inflation in the Middle East is a concern, economic growth in the region remains robust.

“We’re only 40% of the market. How about focusing on non-Opec?”

Earlier on Tuesday, the IEA said the “third oil price shock” was a threat to the global economy and would erode demand for oil in the OECD. But Khelil said forecast global demand growth for oil of 1m b/d this year remained healthy.

As high prices have bitten into state budgets, several Asian governments, including China, have moved to cut fuel subsidies. Khelil said he expected the move to affect demand “in the long term”. But he added that developing countries “cannot afford to penalise poor people” by passing on the rising cost of oil.

Given its relatively optimistic outlook for the world economy, Opec will increase production by 4m b/d by 2012 at a cost of $120bn, Khelil told journalists here yesterday. It will also spend $60bn to expand refining capacity, which is another factor behind oil prices, Khelil said. In New York, front month oil prices traded up to $143.33/b yesterday before softening in afternoon trade.
Russia not interested in gas Opec

By Derek Brower

RuSSIA is not interested in creating a cartel of natural gas exporters to set prices, deputy energy minister Anatoly Yanovsky told delegates in Madrid yesterday.

“We aren’t speaking about a gas Opec structure,” he said. Yes, we are creating a forum of gas exporters. We have a common view. But we don’t want to speak about a cartel that would set prices absolutely not,” Yanovsky said a new forum would look at issues of demand, new technologies, liquefied natural gas and infrastructure. He added that Russia had recently held “good discussions” in Qatar about the forum.

With nearly 45 trillion cubic metres, Russia holds a third of global natural gas reserves. Its state-controlled gas company, Gazprom, has spent the past two years setting up upstream contracts in North Africa, prompting worries in the European Union (EU) that the company could combine with other suppliers to squeeze consumers in the EU.

On a visit to Qatar in 2007, Russia’s then-president Vladimir Putin declared the gas Opec to be an “interesting idea.”

Yanovsky was worried by an alliance between Russia and Algeria, which control 35% of European natural gas supplies, EU energy security. Russia is also responding by saying consumers would switch demand to other sources of energy if a cartel emerged.

However, Yanovsky told delegates yesterday that Russia would remain a reliable supplier to Europe.

And referring to previous spats between the EU and Russia, especially following a cut in Gazprom’s supply through Ukraine in 2006, Yanovsky added: “Consumers in western Europe aren’t the problem – the transit countries are a problem.”

IEA: “Oil burden” threat to global slow-down

By Alex Forbes

OIL-PRICE inflation is in danger of triggering a global economic slow-down, with China and India at particular risk, the IEA’s executive director said yesterday.

“We could see a global slow-down,” Nobuo Tanaka told WPC News after the launch of the agency’s latest five-year projection. He claimed the economic burden of oil prices – the ratio of oil expenditure to GDP – is approaching the record set during the second oil shock of the early 1980s.

“We are in deep trouble,” he said, describing the recent surge in oil prices as the “third oil shock” and calling for a “dramatic” change in energy consumption and policy.

Although signs of a slow-down in demand are yet to emerge in the statistics, the IEA is particularly worried about the ability of China and India to continue to grow in the face of the pressure high oil prices are putting on their economies.

Achieving a healthier balance between supply and demand will require efforts from consuming and producing countries, he said.

“What we agreed in Jeddah [at the recent oil summit convened by Saudi Arabia] is that to improve the fundamentals the producing countries must invest more in their supply-side facilities, and the consuming countries must invest more in conservation – energy efficiency.”

The “energy revolution” that the IEA has called for in the fight against climate change – a 50% reduction in CO2 emissions by 2050 – is also the answer to energy security, he added.

“If we achieve that reduction we will reduce energy demand by 27% by 2050.”

Meanwhile, Tanaka also claimed market fundamentals, rather than speculation or market weaknesses, are the main underlying factors behind high oil prices. “Opec production is at record highs and non-Opec producers are working at full throttle, but stocks show no unusual build. These factors demonstrate that it is mainly fundamentals pushing up the price.”

The new IEA oil report suggests tightness in the market will ease over the coming year or so as new supply comes on stream and as consumers gradually respond to high prices, particularly in markets where consumers are not shielded by subsidies.

However, beyond the near term, market tightness will return, driven partly by production declines at existing fields and delays in bringing new projects on stream.

The IEA reckons that over 3.5m b/d of new production will be needed each year just to hold production steady. Global demand for refined oil products is projected to grow by an average of 1.6% a year to 2013, from 86.9m b/d in 2008 to 94.1m b/d.

Asia, the Middle East and Latin America are expected to account for close to 90% of demand growth over the five-year forecast period. New refining capacity of 8.8 m b/d should cover supply increases and help ease refinery tightness.

Energy firms urged to join UN Global Compact

By NJ Watson

MORE OIL and gas firms must join the UN Global Compact, Georg Kell, the organisation’s executive head said yesterday. Speaking at Tuesday’s Chevron-sponsored Social Responsibility lunch, Kell said that of the 5,600 participants and 4,300 businesses that had signed up to the initiative, 120 companies were involved in the oil and gas sector. “This is a solid number, but it’s not enough,” he said.

There are more than 280 exhibitors at the WPC alone.

The world’s largest voluntary corporate responsibility initiative, the Global Compact aims to provide a framework for businesses aiming to make their operations meet 10 universally accepted principles in the areas of human rights, labour, the environment and anti-corruption.

Kell said that while the moral case for engaging in the Global Compact is clear, the business case is only now beginning to be understood. Eight years ago, when the UN formulated the initiative, many firms doubted the value of meeting such obligations, but today many more recognise that environmental, social and governance issues are material to their financial performance, he claimed.

The proof of that, he added, lies in the fact that some 340 institutional investment firms, managing over $13 trillion, have joined the compact’s sister initiative, the Principles for Responsible Investment, as a way to develop tools to analyse companies’ governance, social and environmental risks.

“More and more investors are recognising that risk management and opportunity management can no longer be separated form corporations’ ability to proactively secure their futures. Those corporations that have proactive human-rights policies, that treat their workers well and have an environment policy, on average, are better equipped to mitigate risk and seize opportunities.”

First LNG for Adriatic terminal – First deliveries to the soon-to-completed Adriatic LNG terminal are set for August, ExxonMobil’s chief executive, Rex Tillerson, told delegates yesterday. The project, offshore Italy, will have sufficient capacity to deliver 10% of Europe’s gas demand, Tillerson said. Sponsored by ExxonMobil and Qatar Terminal, Adriatic LNG is the world’s first offshore gravity-based regasification terminal.

News in brief

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Russia defends consolidation strategy

By Derek Brower

RUSSIA yesterday defended its strategy of the last five years to capture the commanding heights of its economy, telling Western investors that “everyone should understand there are rules to the game”.

Anatoly Yanovsky, the country’s deputy minister of energy, rejected claims that the policy amounted to renationalisation of the energy sector, saying the assets “belonged to the government originally”. He added: “That doesn’t mean anything is closed.”

Rosneft boss Sergei Bogdanchikov echoed that, saying Russia wanted more cooperation with foreign investors, who can take stakes in upstream developments alongside Russian firms. “Yesterday I had talks with the heads of BP, Shell, and ExxonMobil,” he said. “None of them uttered any complaints that they have difficulties in their work in Russia.

Bogdanchikov added that although there is “no limit” to the potential involvement of the state in Russia’s strategic sectors, investors can also buy into Kremlin-controlled companies such as Rosneft and Gazprom.

Meanwhile, he blamed “companies with their own agenda” for the negative image of Moscow’s state consolidation strategy in recent years and claimed that Russia’s period of instability has “long passed. We had problems, but we are more stable now and our production is growing.”

Rosneft’s main producing assets were as a free-flowing liquid from crude oil storage tanks. Cuts tank down.

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E-mail: svb@saxontech.com
www.petromaxtechnologies.com

NIGERIA'S Escravos gas-to-liquids (EGLT) project is on track to meet the new start-up date and will be economic even after cost overruns, project developer Chevron said yesterday.

Chevron is a proud sponsor of the 19th World Petroleum Congress.

Ali Moshiishi

By Alex Forbes

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By N.J. Watson

NIGERIA’s target to double the country’s oil production to 4m barrels a day (b/d) by 2010 remains realistic, a senior government official has claimed.

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Nigeria insists 4m b/d target is realistic

By N.J. Watson

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A 200,000 b/d deep-water oil development project that’s ever been built in Angola.”

But analysts doubt Nigeria’s ability to bring the violence that has afflicted the Niger Delta under control.

Earlier this month, militants attacked Shell’s deep-water Borgez FPSO – 120 km away from the coast – using speedboats. They also blew up an onshore Chevron pipeline.

But despite this recent upsurge in violent attacks, Trimipre Sylva, governor of the Bayelsa Niger Delta region, which includes Bonga, claimed attacks in the region are falling from a peak in December 2006. “Like a major tanker, the Niger Delta crisis is turning the right bend, slowly,” he told delegates yesterday.

Even so, the attacks have prompted some oil companies, including Total, to voice concern about Aguham’s operations in the country. Chief executive Christophe de Margerie told a French parliamentary committee earlier this month that he was assessing the firm’s presence in Nigeria following the attacks on Niger Delta facilities.

“Those people who work over there, who are unfortunately more and more often subjected to major aggressions or kidnappings. We are asking ourselves the questions about staying,” de Margerie told the committee.

But a Nigerian member of Total, Charles Ngoka, robustly insisted that his company had problems, but we are still economic with that capital expenditure.”

Elsewhere in Africa, Moshiishi said the Angola LNG project, a joint venture between Chevron, Sonangol, BP, Total and Eni, is 20% built and on track for completion by early 2012. “We are working very hard to keep it on track. We’re getting tremendous support from Sonangol and we are being optimistic about this project,” he said. “This is the largest infrastructure project that’s ever been built in Angola.”

Angola LNG is expected to receive 1bn cfd of associated gas from offshore producing blocks and produce 5.2 tonnes a year of LNG.
Lukoil’s Caspian risk paying off

By NJ Watson

The markets can be unforgiving, so when Lukoil’s first-quarter revenues fell short of analysts’ expectations, its shares took a substantial fall. Q1 revenues at Russia’s largest privately owned oil company were up by 59% on the year to $25bn, but about 8% below the consensus forecast. Lukoil’s stock fell by 6% on the day the results were published. But many analysts believe the shares are undervalued at around $100. The prospect of tax reform and new production from fields in Timan-Pechora and the Caspian are reasons for optimism. Some say shares should trade up to $125-150.

Lukoil fell short of the market’s revenue target because of a disappointing upstream performance. Q1 oil output was down by 4.5% to 1.92m barrels a day (b/d), with production in western Siberia, where the company produces 62% of its crude, declining by 5.5%. Fields there are “maturing”, Lukoil said ominously. The company missed its own Q1 output target by 3% and its performance is likely to be the single most important factor in defining its fortunes over the rest of the year.

The problem is shared by many other Russian oil firms. In April, government data showed that Russian production had declined for the fourth month in a row, falling by 0.4% from the March total and by 1.0% from the level of April 2007. The figures showed a 4.1% drop in western Siberia, suggesting Lukoil’s decline in the region is likely to continue.

Lukoil blamed a significant amount of the fall in western Siberian production to its inability to provide enough power to its operations there, something Alexander Burgansky, an analyst at Renaissance Capital, says will not be fixed for another two or three quarters.

Even so, the company says it is still aiming for a 2.3% increase in hydrocarbons production this year. It refused to differentiate between oil and gas, but Deutsche Bank says that given their assumption of 20% growth in gas production in 2008, such a total growth figure suggests oil output will be flat or may even decline.

A pessimistic view

That may be too pessimistic a view. Deutsche Bank also points out that the expected start-up of the 150,000 b/d South Khylchuyu oilfield in Timan-Pechora, in mid-July, should boost output in the near term. Indeed, in late May, Standard & Poor’s raised its outlook for Lukoil to positive from stable, based on the increasingly strong cash-flow generation it expects from new regions such as Timan-Pechora.

In addition, a Lukoil joint venture with Gazprom has discovered a large oil and gas field in the Russian sector of the Caspian Sea – near the Russian-Kazakhstani maritime border. A few days later, chief executive, Vagit Alekperov, said the newly discovered field contains an estimated 2.2bn barrels of oil equivalent. This find provides more proof, if any were needed, of Lukoil’s far-sighted decision to invest heavily in the Caspian. That is how Alekperov sees it: “We took a risk, invested in the north Caspian and discovered a new oil and gas province.”

Lukoil will invest more than $2bn by 2012 to build onshore facilities as part of north Caspian development, where combined reserves at six discoveries exceed 2bn barrels of oil and 0.71 trillion cubic metres (cm) of gas. Another 10 prospects have been identified in the north and central Caspian, the drilling of which will make it possible to increase Caspian resources to over 7bn barrels of oil and 0.8 trillion cm of gas, says Lukoil.

Bringing all of its Caspian oil resources on stream, including expected discoveries, will make it possible to raise regional oil production to up to 0.6bn b/d by 2023. And the outlook for gas is more positive. Lukoil plans to become Russia’s second-largest producer, after Gazprom, with a target of lifting output from 16bn cm/y to 70bn cm/y. In Q1, gas production was up by 19.8% to 4.3bn cm.

The downstream business has also been helping the bottom line, with high refinery margins and increased throughput behind the rise in Q1 profits. Runs at the group’s refineries rose by 9.8% to 1.1bn b/d. But the rate of investment in domestic exploration and production depends to a large extent on the government’s ability to make good on its promise to reform the punitive tax regime, which takes 75-80% of oil firms’ profits in the form of taxes and tariffs.

Lukoil says “its – and the whole sector’s – ability to grow is heavily dependent on the scale of the continuing oil taxation reform”, according to Deutsche Bank.

In May, prime minister Vladimir Putin surprised the markets by declaring his intention to reduce the tax burden “to encourage production”.

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Success is relative: size matters

Life has become tougher for Aim-listed oil and gas companies, especially smaller ones

By Derek Brower

With oil prices breaking records by the week, the market fundamentals ought to be positive for companies – large and small – that have access to oil. For the 91 oil and gas firms listed on the Alternative Investment Market (Aim), the London Stock Exchange’s (LSE) junior board, that is proving, broadly, to be true.

But the success is relative. Accountancy firm Ernst & Young’s (E&Y) most recent quarterly report shows the value of Aim’s oil and gas index gained just 0.4% during the first quarter (Q1). That may be modest growth, but compared with the performance of the FTSE oil and gas sector and the Aim all-share indices, it looks like a solid performance. Those two indices fell by 14% and 9%, respectively, while the FTSE 100 fell by 12% in Q1.

Amid turmoil in the equity and debt markets, the buoyancy of commodities has largely offset the effect of the credit crunch for Aim’s oil and gas companies. “While tightening credit conditions have affected the amount of capital raised across the rest of the market, the oil and gas sector accounted for nearly a quarter of all funds raised on Aim in Q1 2008,” says Alec Carstairs, an oil and gas partner at E&Y. “The sector also managed to remain attractive to increasingly risk-averse investors with companies raising £253m ($495m) in funding from primary and secondary issuers.”

But all is not well, Carstairs points out that the number and value of new issues across all of the board’s sectors was the lowest since 2004, “highlighting the volatile landscape oil and gas companies are operating in”.

There are devils in other details, too. Size clearly matters, with the bigger Aim firms performing far better than the smaller ones. Broader market volatility affected E&Y’s index of oil and gas companies on Aim (which totals 119, compared with Aim’s own list, based on a narrower definition, of 93); in January, the value of the sector’s shares fell by 14% to 1726.0, before recovering to quarter highs of 2050.0 in March.

Winners …

Within the index, fortunes were mixed. Shares in Bankers Petroleum, a Canadian firm with heavy-oil assets in Alberta and shale gas in the US, rose by 91.7%. Yet, the value of Sterling Energy, with assets in west Africa and the US, fell by 43.9%

The market has not lost its ability to act as a launch pad to the bigger board or as a shop window for acquisitive majors. Hardy Oil and Gas graduated to the LSE in February, securing a spot in the FTSE 250. The company’s value on Aim had quadrupled since it joined in 2005. And Malaysia’s Petronas bought Star Energy, whose stakes in the UK’s highly prized gas storage business was the source of its appeal – Petronas is eager to sell liquefied natural gas to the country.

Other winners on Aim, says Carstairs, “will be those that demonstrate progress in the development of their asset base”. Aften hopes to produce up to 20,000 barrels a day in west Africa and recently bought Devon Energy’s assets in Angola and Ghana. It is likely to be one of the sector’s winners. So are Volga Gas and Desire Petroleum: better-than-expected drilling results from assets in Russia boosted the former and progress towards drilling off the Falkland Islands has lifted Desire.

…and losers

Losers will continue to be “junior companies with few or no producing assets”, says Carstairs. While they struggle to stay afloat, sector consolidation could wipe out many of them.

But Aim’s problem companies are not just those without the immediate promise of turning risky exploration plays into profitable production. Management is increasingly an issue. “There are 100 or so oil and gas companies on Aim,” says one analyst. “But there aren’t 100 or so good management teams.”

One problem for Aim is that what was once its main advantage – the liberal rules governing company reporting – now lack like a liability to some potential investors. Firms such as Regal Petroleum, which has assets in Ukraine, remains dogged by a scandal in Greece of the previous management’s making. It has recovered, to some extent, but the stain on Aim’s reputation has taken longer to clear.

In 2007, Roel Campos, the US securities regulator, described the market as a “casino”. “People aren’t as keen on risk now,” says one analyst. “Aim still looks risky to some investors.”

Aim has responded to the criticism by increasing the burden of regulation on its companies (notably by issuing new rules for the Nomads – regulated non-nominated advisers, which are responsible for guiding firms to their listing and advising them once they are on the board). And the LSE will also soon unveil a website giving financial and other information on all Aim-listed companies.

But the valuations themselves are part of a bigger problem. While the stock of some of Aim’s larger companies is regularly traded, the market’s oil and gas sector, in general, lacks liquidity. With the stock of many held by management with strong – even emotional – ties to their assets, determining true valuations can be difficult. The share structures of some can often seem more opaque than the official register suggests.

Moreover, the lack of liquidity puts off many investors, exacerbating the problem. “Institutional investors don’t like that,” says Zarko Stefanovski, an analyst at Millennium Global Investment. “If you hold a few million pounds in stock, it can be hard to get it out because there aren’t enough buyers. Or, if you try to get it out, you move the share price, regardless of the valuation.”

The majority of the firms remain small, their share prices often depend almost entirely on positive or negative “newsflow” – in industry jargon. And with no half of Aim’s oil and gas companies holding less than £10m in cash, paying for developments is a problem. Hiring a rig costs $0.5m-0.6m a day, points out Marc Hammerson, a energy partner at law firm Stephenson Harwood, “quickly eating up capital”. And amid wider tightening of lending, Hammerson says the outlook for raising more cash is “bleak”.

The lack of liquidity could be a long-term problem for Aim, if it means companies look elsewhere to list. One advantage remains the investor profile in London, which understands emerging markets – the bedrock for many Aim companies – better than investors in North America, says Stefanovski.

Nonetheless, the liquidity on rival boards, such as the Toronto Stock Exchange, and its junior, TSX Venture, is attractive. Between them, they have more oil and gas firms listed than any other board in the world (424 at the end of 2007). Stefanovski says some that have listed both on TSX and Aim have seen the liquidity remain in Toronto but not materialise in London. With Alberta’s oil sands providing a solid asset source, a Canadian listing also has other natural advantages. “If you want liquidity, you’re obviously not going to list on Aim,” says Hammerson.

If these issues help separate some of the wheat from the chaff on Aim, that will only help the board’s credibility, says one analyst. Companies with good management and sound assets will continue to thrive. But the tighter credit climate and a heightened awareness of risk among investors could make the latest phase of the market’s evolution a painful one.
Refining margins holding up, but pressure is rising

By Martin Quinlan and Anne Feltus

Evidence from the products market is that the spread between the prices of gasoline and leading crudes closed in the first week of May in northwest Europe, but was little changed in the US and Singapore. For diesel, the spread remained robust, although supply losses in Europe – a strike at the UK’s Grangemouth refinery and long-running engineering problems at Finland’s Forvo refinery – were contributing factors.

With the US having imported over 1.1m b/d of motor gasoline and blending components in May, and an average of over 1.0m b/d in the first five months of the year, it is clear that the outlook for the country’s gasoline market will affect refining margins far beyond its borders.

Long-term forecasts are for refining margins to trend downwards because of the large volume of new capacity under construction worldwide.

Some forecast that US gasoline spreads are set to fall, in response to three main pressures: there is said to be a fall in US consumption this year (although it is not yet shown in the Energy Information Agency’s monthly statistics for the volume of gasoline supplied to the US market); there has been a very substantial increase in the volume of ethanol used in US gasoline, which effectively adds to gasoline-making capacity at refineries; and imports of rapidly rising crude costs and weakening downstream returns.

US refiners struggling.

Some refiners are still performing, but pressure on margins is increasing. In northwest Europe and the US, earnings for the best refineries usually peak in May or June when transport fuels demand is at its highest.

Pressure increasing.

Refiners are starting to feel pressure on margins. In northwest Europe and the US, earnings for the best refineries usually peak in May or June when transport fuels demand is at its highest.

But according to the IEA, margins for both regions dipped sharply in the first week of May: the northwest Europe Brent cracking margin fell to $4.26/b (35% below the April average); the USGC West Texas Sour coking margin fell to $14.34/b (7% below the April average); and the USGC LLS cracking margin fell to $1.58/b (55% below the April average).

Whether rising pump-prices for gasoline and diesel have, at last, taken the edge off world oil demand is still not clear. Evidence from the products market is that the spread between the prices of gasoline and leading crudes closed in the first week of May in northwest Europe, but was little changed in the US and Singapore. For diesel, the spread remained robust, although supply losses in Europe – a strike at the UK’s Grangemouth refinery and long-running engineering problems at Finland’s Forvo refinery – were contributing factors.

With the US having imported over 1.1m b/d of motor gasoline and blending components in May, and an average of over 1.0m b/d in the first five months of the year, it is clear that the outlook for the country’s gasoline market will affect refining margins far beyond its borders.

Long-term forecasts are for refining margins to trend downwards because of the large volume of new capacity under construction worldwide.
Technology is its middle name

By Darius Snieckus

Deep water and subsea are the lodestars in the offshore oil and gas industry’s technology-development programmes. Between them, they represent markets worth some $130bn over the next three or four years.

Fourteen exhibits were shortlisted for special recognition as part of the annual Spotlight on New Technology programme, at this year’s Offshore Technology Conference in Houston, all of them relevant to deep water and/or subsea exploration and production.

FMC Technologies played a prominent role; the contractor had a guiding hand in one of the most significant subsea developments in recent offshore sector history – the first full-field, subsea separation and boosting system, on the Tordis field off Norway. It was also contracted to deliver a record-setting 49 subsea trees for the Pazflor development off Angola, which is on track to become the world’s first full-scale, greenfield, subsea separation and boosting system.

Jostling for space on its booth this year was its subsea gas-compression station, a system FMC reckons to be “the next game-changer in subsea”. Together with Siemens Industrial Turbomachinery, FMC is developing an electrically driven, centrifugal gas compressor for operation with Siemens Industrial Turbomachinery, “the next game-changer in subsea”. Together with Siemens Industrial Turbomachinery, FMC is developing an electrically driven, centrifugal gas compressor for operation in water depths of up to 3,000 metres.

It will, say FMC and Siemens, be able to run for several years without maintenance, which will give it appeal across two markets. First, deep water, where water depths make servicing or repairing equipment installed on the seabed time-consuming and costly. Second, increased oil recovery (IOR), where subsea gas-compression technology will aid operators in boosting ultimate recovery from maturing fields at a lower cost. On top of the benefits to recovery levels, FMC says subsea gas compression “could save 30-40% over the cost of platform-based developments”.

Spotlight winners

Schlumberger had two Spotlight winners among the latest additions to its downhole technology armoury: the Futur and ResInject. Futur is an active set-cement technology that automatically “self-heals” in the presence of hydrocarbon leaks coming through cracks or microannuli created when there are changes in the regional stress field after completion of a well.

Pumped and placed using standard equipment during well cementing, Futur, according to Schlumberger, promises to eliminate downhole intervention from surface by addressing situations “where cyclical pressure or temperature regimes can cause changes in casing stress that damage the hydraulic integrity of well cement, even years into production”. If leaks recur, the cement is designed to “reactivate” itself to stanch flow “time after time over the life of the well”.

Its ResInject injection-control device uses “an innovative application of fluid dynamic principles” to tailor the injection flowrate to the permeability of the reservoir zone, with a view to boosting recovery levels during production from an oil and gas field. Using configurable ceramic nozzles to control injection fluid flow rate, the technology makes it possible for a lower cost. On top of the benefits to recovery levels, FMC says subsea gas compression “could save 30-40% over the cost of platform-based developments”.

MCS’ ThruLife software tool allows operators and regulatory authorities to check the status of a subsea system at a glance.

The pressure drop across the system to be adapted to the zone to be treated, explains Schlumberger: “As a result, low-permeability zones receive more injection fluid than those treated using a normal screen configuration, which increases oil recovery.”

Irish subsea engineering consultancy MCS rolled out a comprehensive integrity-management package for flexible and fixed risers, umbilicals, manifolds, pipelines, trees, controls, valves and mooring systems that is aimed at operators complying with new US Minerals Management Service GOM regulations. Targeting “a pro-active approach to integrity management, involving inspection, predictive engineering, data collection and analysis, as well as reporting”, MCS has developed a software tool called ThruLife that allows operators and regulatory authorities to check the status of a subsea system at a glance.

Meanwhile, the Netherlands’ Vryhof launched its Stevtrack anchor data-acquisition system, a technology designed to “monitor and visualise” the behaviour of anchors during installation and transmit orientation and load data in real-time during embedment through to final penetration.

A spin-off from the testing and development of the company’s Stevpris Mk6 anchor, the Stevtrack is expected to be particularly useful in deep water, where, as the company puts it, “you might have a $0.5bn asset where everything in the project can be measured and monitored, but for the mooring system that has to keep it in place there is no real-time, on-site data from the anchor point available.”

Vryhof builds on experience gained with the Mk6, which could only download data acquired once the anchor was recovered. “The most challenging part of our new system is the real-time aspect,” says Vryhof. “Data transmission becomes more challenging in increasing water depth, and even more difficult when the transmitter is deeply embedded in the seabed.” Transmission from seabed-to-surface and surface-to-vessel was “less of a challenge and a matter of choosing the right components available on the market today”.

Platform tow-away for the deep-water Perdido development in the GOM
Talking a good game

The European Commission proclaims world leadership on fighting climate change and liberalising energy markets. But is anyone listening?

By Derek Brower

It was a full house, with energy ministers from the EU’s 27 member states gathering to meet senior executives, captains of industry and experts from the continent’s oil, gas and power sectors. Grandly titled Towards an EU External Energy Policy to Assure a High Level of Supply Security the meeting in Brussels in November 2006 promised to deal with Gazprom, whose decision earlier that year briefly to halt gas supplies to Ukraine had sent the EU into a tizzy.

After a day of speeches by ministers from each of the member states consensus had emerged. The EU must press on with energy-market liberalisation, adopting an “integrated policy that maintains Europe’s competitiveness, safeguards environmental objectives and ensures security of supply”; and, above all, the EU must “speak with one voice on energy”.

And then Alexander Medvedev, the outspoken boss of Gazprom’s export division took to the podium. Five minutes of brutal clarity later, the rhetoric of the meeting had been pierced by the kind of home truths that have long characterised the Russian company’s declarations to Europe.

The unbundling of integrated energy companies – an essential tenet of the liberalisation drive – would bring “speculators” to the market and undermine energy security, Medvedev said. Gazprom and “not liberalisation is the guarantor of supply”.

Twenty months later and that meeting looks like an emblem of the problems the Commission faces in its attempts to deliver its three-pronged programme of promises: energy security, market liberalisation and drastically reduced emissions. Visionary and ideological in its commitment to market principles and eager to proclaim world leadership in the area of climate change, the Commission’s main problem is how to translate its headline-making initiatives into reality.

On each of its main policy proposals that hasn’t been easy. In energy security, the Commission’s wish to see companies and member states “speak with one voice” to Russia and other suppliers is a fine ambition. Yet with each bilateral contract or memorandum of understanding between Gazprom and an EU partner it looks less realistic. Since 2006, when the worries about Gazprom’s reliability as a supplier were at their peak, it has signed bilateral contracts or agreements with Italy’s Eni, Hungary’s Mol, Austria’s OMV, and the Netherlands’ Gasunie, among others. Although the Commission would like to co-ordinate position, Gazprom can offer something Brussels cannot: long-term gas supplies.

In the pursuit of liberalisation, the Commission’s most important tactic is the unbundling of integrated energy companies – meaning firms owning generation assets should divest their distribution assets. The liberalisation drive has been under way for more than a decade, but beyond the UK and the Nordic countries, the Commission acknowledges it has hardly taken hold.

One problem is that the Commission promised liberalisation would deliver cheap energy. Yet in the last few years, UK prices have periodically soared beyond continental prices. And, by attaching the new clause to the unbundling proposals, the Commission may lack true power, but it has a political position of the Commission is unimportant in energy sector integration. Jose Manuel Barroso, president of the Commission, energy commissioner Andris Piebalgs and Neelie Kroes, competition commissioner, have successfully put the unbundling drive. The problem is how to translate its headline-making initiatives into reality.

Meanwhile, the Commission’s stand on energy mergers has also seemed confusing. In its efforts to prevent “energy nationalism” trampling a free internal market, Brussels supported the bid by Germany’s E.On for Spain’s Endesa in 2006. The merger failed, much to the Commission’s anger, partly because of Spanish political interference. The affair showed that the Commission was eager to see trans-national energy mergers has also seemed confusing.

Confusing stance

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Then there’s climate change. The rhetorical position of the Commission is unmatched by any other international institution. It wants Europe to lead the way in fighting global warming by cutting emissions across the EU by 20% (against 1990 levels) by 2020.

But, says experts, such reciprocity would have no basis in international law. More importantly, the idea infuriated Gazprom. And, by attaching the new clause to the unbundling proposals, the Commission conflated its Gazprom problem with its liberalisation one. It has left Russia, France and Germany unity to derail the entire energy package, say analysts.

Yet despite the tortuous way it operates, the Commission seems sometimes to be the only institution in Europe truly interested in energy sector integration. Jose Manuel Barroso, president of the Commission, energy commissioner Andris Piebalgs and Neelie Kroes, competition commissioner, have successfully put the unbundling drive.
By Ian Lewis

SPAIN’S renewable energy sector is world class and it is rapidly expanding in solar energy. However, much of the momentum has been generated by a subsidised tariff regime that even the government now admits was too generous.

Thanks to the generous investment environment, Spain is likely to achieve its target of generating 40-45% of total electricity from renewable sources such as wind, solar, biomass, and small-scale hydropower by 2020, according to estimates by New Energy Finance, a consultancy.

The surge in new solar generating capacity, while good for renewable-electricity output, has been costly for the government

The Spanish wind sector has benefited not only from subsidies, but also from the availability of swathes of thinly populated land on which to build onshore turbine farms. As a result, the country is in second place globally in terms of capacity built in 2007, according to data from the Global Wind Energy Council. The 3.5 gigawatts (GW) of new capacity built in Spain compares with 5.2 GW installed in the US, in first place.

Germany – a more mature market also founded on generous subsidies – remains the world leader in terms of overall capacity, with 22 GW, but Spain, with 15 GW, is catching up. Local turbine manufacturers and wind-farm operators, including Iberdrola and Acciona, have also benefited from Spain’s wind-power boom and are in a position to become global players.

However, companies operating in Spain will now reach the government’s 20 GW limit for subsidised wind-power capacity, as laid out in its 2005-10 renewable energy plan. This prospect has prompted a reappraisal of the ceiling and the tariff structure, with the aim of allowing the industry to continue to flourish, albeit at a more manageable rate and at a lower cost to customers, who are paying for the subsidies through higher power prices.

One proposal being considered by the government is to increase the ceiling to 30 GW by 2016 and to 40 GW by 2030. But the Spanish wind industry claims it could reach 40 GW as soon as 2020 and is seeking a higher limit to avoid its building programme grinding to a halt at that point – or having to carry on with out subsidies.

A new tariff structure, imposing a regime better reflecting the economic viability of wind power itself, which is improving rapidly, was introduced in 2007. The previous structure relied on a complex formula related to the average price of all energy sources, including hydrocarbons – the high price of which, together with the lack of a clearly defined price ceiling, had the effect of pushing up tariffs for wind power to higher levels than the government had envisaged.

The solar power sector has also been taking advantage of an even more heavily subsidised tariff environment to race ahead, albeit from my a much lower starting point than wind, as the high cost and low efficiency of photovoltaic (PV) cells to date have hindered efforts to achieve affordable industrial-scale output.

Grid-connected PV capacity stood at 451 megawatts (MW) by end-2007, of which 310 MW was added during that year alone. This surpassed the existing 371 MW subsidy ceiling for the sector, which had been meant to last until 2010. By the time the legislation is due for renewal in October 2008, cumulative capacity is expected to reach more than 600 MW.

This capacity surge, while good for renewable-electricity output, has been costly for the government, which was committed to putting state finance into the scheme for a 12-month grace period after the ceiling was reached. The government originally planned to spend £9.5bn (S$0.8bn) on support in the 2005-10 period, but will end up providing that amount in 2008 alone, according to ASIF, a Spanish PV Industry Association.

A rise in the subsidy ceiling for PV solar to 1.2 GW or possibly 2.0 GW is now in the offing, providing plenty of upside for the industry, even allowing for the lower subsidies likely to be imposed later in 2008. The shortcomings of PV cells caused by recent high demand is also likely to dissipate in coming months.

An 11 MW solar thermal power project near Seville. The solar sector has been taking advantage of a heavily subsidised tariff environment

INTERVIEW with Eve Sprunt, university partnership and recruitment manager, Chevron.

Q How are attitudes among young people to the petroleum industry changing?

A Young people are very interested in renewable energy, sustainability and the environment. We are obviously going to need fossil fuels for some time, but there is a drive to introduce the principles of greener energy into what we are doing – for example, saving energy while we produce oil is an important priority for Chevron.

Q What more needs to be done to get the industry’s message across?

A We expected a lot of trouble fulfilling our hiring needs, but we’ve not been encountering that. We filled many of our student enrolments this year much earlier than expected. Petroleum engineering has picked up significantly; students see the excellent salaries available.

But the balance in the US is in the geosciences is flat. Petroleum engineering students have – at the point of declaring a major – already expressed an interest in a petroleum industry role. But that is not necessarily the case for geosciences, which are critical for our industries – whether it’s finding new resources or enhancing production.

The industry should look long and hard at whether we are providing sufficient funds for research in the earth sciences on the topics of importance to petroleum production.

If students are enjoying the work they’re doing, that’s what they often want to continue doing. If the faculty members are finding it easier to secure funding for climate-related work or earth-systems work in general, that’s what those students will want to work on. Education and research are intertwined and the oil industry needs to take that into consideration when thinking about research budgets for universities.

Q Is Chevron experiencing an increase in interest among young graduates?

A Yes, as I mentioned, petroleum engineering enrolment is up sharply and we are doing very well recruiting in other engineering disciplines as well. Business is best in science and engineering is much greater in developing countries than in developed countries. In the developed countries, only a small proportion of the population tends to study engineering.

For example, as you will hear in Forum 22 on attracting and retaining future energy professionals, just 16% of Norway’s high-school graduates apply for science and technical studies. But jobs in developing countries, such as India or Brazil, are highly sought after. For instance, Petrobras receives 1,000 applications for every opening.

Q What are the attractions of a career at an oil company such as Chevron?

A The range of things you can do in your career. The industry has the image of being all manual labour: when someone thinks of the oilfield, there’s an assumption they will be working on a rig. We obviously need people to work on rigs, but there are many different careers within the industry and people can switch during the course of a career.

I’ve certainly done it: I started in upstream research – working on everything from hydraulic fracturing, core analysis, coreting and drilling fluids and formation damage. Then I moved to upstream new business ventures, global climate-change policy, venture capital, alternative energy and now university relations.

Also, I don’t think students always understand the technical challenges we’re facing. We’re using cutting-edge technology. I compare working in ultra-deep water, where you can’t use divers, to work on another planet: everything must be done robotically in an environment that is very alien and hostile – high pressure, cold and wet. When people see the tremendous challenges we are facing and the resources they can use to solve those challenges, it’s very appealing for them.

Q What qualities does Chevron look for in its new recruits?

A We look for critical thinking. We want people who can think for themselves, make independent judgments and be receptive to new technologies.

We want people who can think for themselves, make independent judgments and be receptive to new technologies.
Encouraging diversity in the workforce

 CCS will make a crucial contribution to controlling man-made CO₂ emissions says Hannah Chalmers

By Tom Nicholls

Can you give an overview of the project you are working on, its importance and what you hope to achieve?

I’ve been working on carbon capture and storage (CCS) technologies for about five years. CCS is a family of approaches that can be utilised to ensure carbon dioxide (CO₂) produced when fossil fuels are used doesn’t end up in the atmosphere. In particular, I’m looking at how these technologies could be operated at scale to capture CO₂ from power plants.

I want to understand how a whole project would work from CO₂ capture, through transport to safe storage – in a saline aquifer, for example. I hope that this work will be useful for engineers designing real projects and also for informing the debate about how CCS should be regulated. More generally, I think that many parts of the world will want to keep using fossil fuels for many decades to come. I work on CCS because I think it will have a crucial contribution to make in controlling man-made CO₂ emissions.

Hannah Chalmers has been working on CCS since May 2003. Her first degree was in mechanical engineering and she is now funded as a UK Energy Research Centre multidisciplinary student focusing on technical and economic aspects of CO₂ capture for power plants and the potential impacts of flexible operation on CCS project performance.

What can the oil industry do to make itself more appealing to young people and attract the best minds?

Energy seems to be coming up the agenda in a big way around the world at the moment, so now is a perfect opportunity to show young people they can have a stimulating and rewarding career in the industry. Young engineers and scientists enjoy the challenge of solving significant problems – and being recognised and rewarded for their contribution.

If the industry wants to attract the best minds, then it is absolutely crucial that professionals (from newly qualified trainees through to senior project managers – and beyond) share their enthusiasm with students in schools and universities. I remember speaking to people already in the industry when I was deciding what I wanted to do at university. Their advice and commitment to what they do affected the choices which have led me to where I am today.

How can the petroleum industry reach out to women and why is this important?

In the next few decades, the petroleum industry will need to maintain its standards as a world-class developer and deployer of innovative solutions. For me, encouraging women to play an active role is an obvious way to encourage diversity in the workforce, leading to creativity in problem solving and drawing on a deeper pool of ideas and experience.

I think that encouraging women to join (and stay in) the industry should flow naturally from policies that are already in place in many companies to recognise and respect the contributions of all team members and encourage employees to balance life and work. Perhaps most important to me is recognising that committed people may want to have a career break (or the opportunity to work reduced hours) for a few years while they start a family and should not be penalised for that.

The World Petroleum Congress is one of the most important events in the energy industry’s calendar in terms of providing a platform for discussion on the future of the oil and gas industry. What, in your view, should the industry be addressing and why?

The industry has continually evolved and adapted to meet changing requirements and constraints on its products and activities. I hope that this Congress and beyond will rise to the challenge of identifying new approaches and business models that could be suitable for a future where CO₂ emissions must be reduced, helping to shape a diverse and committed workforce to develop innovative solutions for energy companies of the future, including those operating in the oil and gas sector today.

As the industry continues to take on the responsibility for managing its activities, it must consider what the energy companies of the future should look like.

The in-Salah gas project in Algeria is storing 1m t/y of CO₂.

Photograph Øyvind Hagen/StatoilHydro
Research findings suggest biofuels’ environmental benefits may not be as great as suggested

By Ian Lewis

CAN biofuels achieve the desired cuts in carbon dioxide (CO₂) emissions? It is a question that is being asked with increasing frequency by scientifc and research organisations, politicians and energy companies. In mid-January, the UK’s Royal Society said the country’s Renewable Transport Fuel Obligation (RTFO) – a response to EU biofuels requirements – did not encourage using the types of biofuels with the best greenhouse gas emissions (GHG) savings.

Similar sentiments were expressed by the UK parliamentary Environmental Audit Committee (EAC), which called for a moratorium on increased biofuel use until more was known about their overall effects. “Biofuels can reduce GHG emissions from road transport – but most biofuels have a detrimental effect on the environment overall,” the committee found.

Further cautionary words came from a leaked unpublished report by the European Commission’s in-house scientific unit, the Joint Research Centre (JRC). According to EurActiv, a web-based news company, the report said uncertainty was too great to say whether or not the 10% biofuels target would save GHG emissions. The most often-repeated criticism of biofuels use in the transport sector is that extra GHG emissions resulting from the production and transportation of biofuel feedstocks may outweigh emissions saved as running vehicles on a reduced proportion of fossil fuels.

The Royal Society’s findings noted the big variation in environmental impact across the biofuels supply chain, ranging from: ethanol derived from Brazilian sugarcane, which results in GHG emissions cuts of around 80% compared with gasoline; to US maize-based ethanol, which delivers around a 10% emissions cut. Despite the concerns, in late January, the European Commission proposed a directive promoting sustainable development, including a reiteration of its existing aim that biofuels should comprise at least 10% of fuels used in transport in all EU member states by 2020. The directive calls for overall GHG savings from biofuels production to be at least 35% compared with oil use for cultivation to be deemed sustainable. Analy sis of the land on which biofuel feedstocks are grown will also play a greater role in assessing their environmental effect. The Royal Society report said: “Concerns about the environmental impact of biofuels are not necessarily fully enforced. Since the EU directive was proposed, there seem to have been attempts to tighten the regulations, talk of sending soldiers and inspectors to ensure they gain access to land. The timing is quite telling,” says Matt Drinkwater, senior analyst at New Energy Finance, a consultancy.

If these proposals were adopted, the onus would be on the biofuels producers to provide auditable proof of the provenance of their feedstocks, which would be expensive for the companies. But the need for this expensive paper trail could be waived if the EU was happy that environmental-protection mechanisms were being enforced generally in an exporting country and signed an agreement to that effect. With the need for costly auditing by the producers, the overall cost of biofuel imports from that country would be reduced – a goal that could make tightening up environmental regimes in exporting countries to satisfy the EU an attractive proposition.

“Is this the sort of carrot the EU is waving in front of countries such as Brazil and Argentina? They are saying: ‘we are prepared to give what is essentially preferential access to our markets so long as you put your house in order,’” says Drinkwater.

The prospect of tighter certification requirements may already be having a tangible effect on some feedstock projects. The withdrawal of Malaysia-registered VitroSun Energy from a controversial plan to develop a palm-oil plantation on an ecologically sensitive island in New Guinea may have been influenced by doubts over whether such a project would meet tougher EU regulations on feedstock origins, as well as by environmental protests.

Certainty for investors

The EU insists in its directive proposal that the main purpose of setting a 10% binding target for biofuels usage by 2020 is to provide certainty for investors. But analysts say the rising costs of some feedstocks, the debate over the environmental benefits of biofuels and concerns over how sustainability monitoring across the supply chain is performed are doing little to create such certainty.

Now all eyes are on the rate at which the next generation of biofuels can be commercialised. The viability of long-term strategies in the biofuels sector is dependent on the success of these new technologies, which offer the prospect of larger yields by processing vegetable matter more efficiently, or growing biofuel crops on marginal land where they do not compete with food crops.

Biofuels proponents on the defensive

By Anne Feltus

THE ENERGY Independence and Security Act of 2007 did not come a moment too soon for ethanol producers. By significantly increasing biofuels requirements in gasoline and introducing investment incentives for biofuels production and infrastructure, this landmark legislation has taken some pressure off an industry whose margins have been squeezed by rising feedstock costs and falling product prices.

Legislation in the late 1970s and in 2005 had already given ethanol a boost. But by August 2007 a glut of production – to 4.88bn US gallons (USG) – had caused a slump in prices, to about $1.70/USG, according to the Federal Trade Commission.

The ethanol-plant construction boom – a response to EU biofuels requirements – did not encourage using the types of biofuels with the best greenhouse gas emissions (GHG) savings. Similar sentiments were expressed by the UK parliamentary Environmental Audit Committee (EAC), which called for a moratorium on increased biofuel use until more was known about their overall effects. “Biofuels can reduce GHG emissions from road transport – but most biofuels have a detrimental effect on the environment overall,” the committee found.

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US ethanol producers not out of the woods yet

By Anne Feltus

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The prospect of tighter certification requirements may already be having a tangible effect on some feedstock projects. The withdrawal of Malaysia-registered VitroSun Energy from a controversial plan to develop a palm-oil plantation on an ecologically sensitive island in New Guinea may have been influenced by doubts over whether such a project would meet tougher EU regulations on feedstock origins, as well as by environmental protests.

Certainty for investors

The EU insists in its directive proposal that the main purpose of setting a 10% binding target for biofuels usage by 2020 is to provide certainty for investors. But analysts say the rising costs of some feedstocks, the debate over the environmental benefits of biofuels and concerns over how sustainability monitoring across the supply chain is performed are doing little to create such certainty.

Now all eyes are on the rate at which the next generation of biofuels can be commercialised. The viability of long-term strategies in the biofuels sector is dependent on the success of these new technologies, which offer the prospect of larger yields by processing vegetable matter more efficiently, or growing biofuel crops on marginal land where they do not compete with food crops.
The Spanish Organising Committee would like to extend a “Thank you” to the Sponsors of the 19th World Petroleum Congress for their support and commitment to this prestigious event.
CCS technology can deliver a significant portion of the CO₂ emissions cuts needed in the next 50 years

By Tom Nichols

THERE IS still time to avert the worst effects of climate change – but not much. The Intergovernmental Panel on Climate Change (IPCC) estimates greenhouse-gas emissions (GHG) must peak in the next 10-20 years to limit global temperature increases to 2.0-2.4°C above pre-industrial levels – generally regarded as the threshold at which the most extreme effects of climate change will begin. It recommends measures are taken to reduce carbon dioxide (CO₂) emissions by 60-80% by 2050.

But the world will remain overwhelmingly reliant on fossil fuels for several decades and certainly over the next two. Global primary energy demand may grow by as much as a half by 2030 and most of this will have to be met using fossil fuels.

Carbon capture and storage (CCS) – the process of separating CO₂ from industrial and energy-related sources, transporting it to a storage location and isolating it from the atmosphere – offers a way of continuing to use fossil fuels without intensifying the atmospheric concentration of CO₂.

Much of the problem lies in the power sector. Power plants are the biggest emitters of CO₂ and energy-related sources, generating around 40% – about twice as much as transport.

The IEA predicts 3,000 coal-fired power plants will be built between now and 2030, leading to cumulative emissions of 0.75 trillion tonnes of CO₂ – 30% greater than all previous human use of coal. If business were to continue as usual, it is projected that CO₂ emissions would rise from 26.9bn tonnes in 2004 to 33.9bn tonnes in 2015 and 42.9bn tonnes in 2030.

To make matters worse, not only are the world’s energy needs set to grow, but much of the incremental power capacity will be fuelled by coal – the dirtiest fossil fuel, but a strategically attractive energy source because it is cheap, abundant and can be sourced from a large number of countries.

As a result, the next generation of CCS projects will be based around the electricity industry, and in particular coal, which, although carbon-intensive, conveniently offers rich pickings for emissions cuts because the majority of CO₂ are emitted from a single, fixed point.

According to Gardiner Hill, director of CCS technology at BP, CCS could make up a quarter of the emissions reductions required to stabilise the atmospheric concentration of CO₂ at 550 parts per million (ppm) and limit temperature rises to 2°C above pre-industrial levels. The IPCC estimates CCS could contribute 15-55% to the cumulative mitigation effort worldwide until 2100.

Fortunately, given the short time-frame for governments to take action on climate change, most of the steps in the CCS process are well established. CO₂ is already captured from power plants and industrial facilities to supply the food industry and is routinely stripped out from natural gas. In the US, over 3,500 km of pipelines transport more than 40m tonnes a year (ty) of CO₂, mainly to support enhanced oil-recovery (EOR) operations.

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The final stage – storing CO₂ permanently in geological formations – is a relatively new area. Some projects are under way – Sleipner in Norway, In Salah in Algeria and Weyburn in Canada – providing a valuable platform for the industry’s expansion. But, says Princeton University’s Robert Socolow, several more full-scale projects are urgently needed. The test facing governments and industry is to demonstrate that CCS can function at a reasonable cost and on a big enough scale to make a meaningful dent in global CO₂ emissions.

“The only thing that stands in the way of progress at the moment is policy,” says environmental think-tank World Resources Institute. “The capital exists and the technologies exist; what is required is a regulatory framework that allows financial intermediaries to earn a sufficient return on their investment.”

For example, says Socolow, no licensing regime is in place to allow companies to receive public funds for managing their CO₂ output. “Society is giving value to CO₂ not getting into the atmosphere, but CCS is still in a world where the permitting step – the endowment of value to the operation – is still not accomplished. That is a critical step.”

Political support for CCS is building, led by the European Union (EU), which says CCS can reduce CO₂ emissions on a “massive scale”. Guided by the Technology Platform on Zero Emission Fossil Fuel Power Plants – a research programme uniting governments, industry and NGOs – the EU is planning 10-12 industrial-scale demonstration projects, costing some $1bn each. By 2020, Brussel’s hopes, all new EU power plants will be emissions-free.

Extensive research

In the US, extensive research, led by the Department of Energy and various academic institutions, is under way. The US has also built up valuable experience of CO₂ injection for EOR, injecting some 33t/y at 74 projects. Yet political support remains less focused than in the EU.

Some individual states are introducing emissions caps, but there is no federal climate policy limiting CO₂ output. There is also no regulatory and liability framework for CO₂ storage, insufficient information on the country’s geological storage potential and a lack of public understanding of CCS. “In this atmosphere of uncertainty, the private sector finds it difficult to commit to or time large investments,” says George Peridas, a climate scientist at the Natural Resources Defense Council, an environmental NGO.

Although EOR may sometimes offset costs arising from CCS, the technological inescapably carries a premium. CCS, widely applied, is likely to increase electricity costs by 20-60%. Eventually, it is hoped that carbon prices – set by carbon-trading markets such as the EU’s Emissions Trading Scheme – will be high enough to provide incentives to invest in low-carbon schemes, but, in the interim, other incentives will be required. Policy options include tax credits and moratoria on coal plants without CCS.

Efforts are also under way to link CCS to ETS and the Kyoto Protocol’s Clean Development Mechanism, which would give the sector a boost by making funds under those schemes available to CCS projects.

Economies of scale, operating experience and technological advances will, meanwhile, gradually improve project economics. Officials at the IEA’s Greenhouse Gas R&D Programme says CCS costs at present are estimated at around $40-50 a tonne, but that, in time, there is “every possibility” that $20/t could be attained.

The IEA’s Technology Perspectives suggests a $25/t cost of CO₂ applied across all sectors would reduce annual emissions in 2050 to around 2003 levels.

Winning public acceptance is another stumbling block that must be carefully negotiated. Demonstrating that CCS can be accomplished safely is essential. “An accident in early development or opposition by strong civil-society groups could conceivably make CCS as hard to implement as radioactive waste disposal,” says WRI.

Encouragingly, the evidence is that the risk of leakage would be extremely low. According to the IPCC, “the fraction retained in appropriately selected and managed geological reservoirs is very likely to exceed 99% over 100 years and is likely to exceed 99% over 1,000 years.” However, such assumptions need to be demonstrated in order to secure public acceptance and to shape rules governing underground storage and long-term liability.

Yet the prize for companies that can overcome such difficulties is considerable. By 2050, says Hill, the CCS industry could be handling the equivalent of 120m barrels of CO₂ a day – half as big again as today’s oil industry. “People can see how much that’s worth in 50 years time if you project a carbon price of $30/t,” he says. “It’s a big opportunity. You will need a lot of windmills to make mega reductions, but you can achieve material reductions from CCS.”

The energy industry’s knowledge of oil and gas reservoirs and its experience of EOR and natural-gas storage make it ideally qualified to lead the development of the CCS industry with minimal risk. What is required first is for governments move quickly to support its endeavours.
Advancing transparency

By Sasha Lezhnev

If revenue transparency is to make a real impact on reversing the resource curse of corruption, poverty and the squandering of oil wealth by governments, it is time to move the agenda forward.

Revenue transparency has steadily gained ground as a global issue for energy companies since the launch of the Extractive Industries Transparency Initiative (EITI). The EITI itself, which promotes the disclosure of companies’ revenue payments to governments, is making headway: most of the leading multinationals and governments have reached the status of EITI candidate.

A four-part transparency agenda presents a low-cost, high-impact opportunity for both international energy companies and governments. Adopting the agenda would not only combat corruption, but would also improve investment climates and contribute to the development of poor nations. Energy-revenue transparency depends on the following four principles:

• Publish what you pay – oil, gas, and mining companies disclose revenue payments made to and contracts signed with governments;
• Publish what you earn – governments disclose revenues received from extractive companies;
• Publish what you bid – companies and governments make concession licensing processes open and publicly transparent; and
• Publish what you spend – governments publish budget expenditures.

Together, these steps form a package that enables citizens to hold their governments to account for the use of energy revenues, thereby increasing a government’s legitimacy and credibility.

Initiatives such as EITI must now be expanded into a roadmap that will help countries to manage natural-resources revenues better and more fairly. This roadmap should have four main components:

• Extractive-industry companies have participated in the EITI process for five years. These companies, together with the G8 governments, should now take their EITI agenda forward to deepen the initiative and include important energy-exporting nations, including the Opec nations – Nigeria is the only member country to have joined the EITI process. The US’ Millennium Challenge Corporation’s (MCC) aid programmes for countries with good and transparent governance records is a good initiative to build on, providing meaningful incentives for revenue transparency. (The MCC’s diplomatic endeavours towards Yemen helped spur that country to become the first in the Middle East to join EITI.)

Furthermore, both companies and governments should work to involve increasingly important global players such as China, India, Russia and Brazil in the EITI process. EITI must become a truly global phenomenon if it is to have a strong effect in combating corruption.

• A new multilateral initiative should be launched to introduce transparency in the critical area of the awarding of oil concessions. As competition between Western energy companies is increasingly joined by those from China, India and Russia, there is a need for the industry to agree common standards of transparency rather than be dragged into a race to the bottom.

Important components of such an initiative are already clear: fair and transparent bidding procedures, with a firm basis in law and genuine public oversight, and strict pre-qualification rules that ensure only legitimate companies take part.

*US Congress has a significant role to play in promoting good government over natural resources. By enacting a stock-market listing requirement under which extractive-industry companies listed with the Securities and Exchange Commission publicly report all payments made to foreign governments on a country-by-country basis, the US would pave the way for significant worldwide transparency. The US Congress has a significant role to play in promoting good government over natural resources.

US must also work with stock-exchange regulators in Europe to ensure a level playing field on transparency for all corporations and governments; and

• The drawing up of transparent and publicly available national budgets should move up in importance on the policy agendas of both Western and governments. Public budgets are an important source of corruption, with white-elephant project contracts going out to relatives of rulers. The G8 countries and international financial institutions should devise an action plan for ensuring greater accountability in this area.

The provision in the Fiscal Year 2008 Appropriations Bill for US aid to be conditioned on budget expenditure transparency, and for the US to prepare a report on project contracts going out to relatives of rulers, is a positive step in the right direction.

Sasha Lezhnev is policy adviser to Global Witness, the UK-based pressure-group that campaigns for the proper use of wealth from natural resources.
What’s happening today?

The Positive Energy Luncheon takes place today at 12.30. For information, visit Ernst & Young, on stand 9275 (Pavilion 9), or Petroleum Economist on stand 9100.

Delegates under 35 years of age are invited to come by the Nexen Youth Centre (Pavilion 7) before 1600 on Wednesday to pick up their invitations to the Youth Party this evening. The invitation is required for entry to the event.

Around the exhibition

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