Our challenge at OPEC
- El-Badri

Angola takes seat in the boardroom

OPEC–IEA: a maturing relationship
Public perceptions are often at variance with behind-the-scenes reality. History can also have a part to play — as can people’s inability, or even unwillingness, to move on.

Nobody would pretend that OPEC and the International Energy Agency see eye-to-eye on every issue.

They were, in essence, set up according to contrasting agendas. OPEC was established in 1960 to reflect the concerns of oil-producing developing countries, while the IEA was formed 14 years later to represent the interests of oil-consuming advanced economies.

But their patterns of development have not been restricted by the moulds in which they were created. Those moulds reflected contemporary values and concerns.

The oil industry has moved on since then, so much so that some people might say that the only thing in common between now and three or four decades ago has been the task of extracting crude oil from the ground, processing it and getting it to the consumer!

A visit to the OPEC Secretariat by IEA Executive Director, Claude Mandil on January 12 — featured in this issue — highlighted the convergence that has taken place between the two intergovernmental groups in many important areas in recent years.

As Mandil said during his visit, there was an increasing similarity in goals, “with both organisations striving to enhance the predictability, reliability and stability of the oil market.”

This has manifested itself in clearcut practical actions, reflecting the growing harmony between the two sides in handling issues affecting the world oil industry at large. All parties have benefited from this.

Timely high-level discussions, for example, greatly reduced the impact of Hurricane Katrina on already jittery international oil markets in 2005. Annual joint workshops provide important insights into key topical issues, such as investment and demand. Both sides have been active in the establishment and development of the influential producer/consumer dialogue body, the International Energy Forum, as well as of the groundbreaking associated Joint Oil Data Initiative.

On the environmental front, OPEC and the IEA agree that, since fossil fuels will continue to dominate the energy mix in the foreseeable future, clean fuel technologies must be better developed to address environmental concerns. Among these technologies is the considerable potential offered by carbon capture and storage. On top of this, OPEC is a member of the forward-looking IEA Greenhouse Gas R&D Programme.

Generally, informal exchanges of information on a wide range of energy and related issues facilitate the day-to-day activities of each group, in often unheralded but significant ways.

The enhanced relations between the two groups and the positive outcome of this are hardly surprising, bearing in mind the challenges they share in ensuring that consumers receive energy in a timely, sufficient and satisfactory manner in the future. Reputable forecasters agree that world energy demand will continue to rise for years to come, sharpening up these challenges and underlining the need for a sound, sustained process of dialogue and cooperation, involving all responsible parties.

As OPEC Secretary General Abdalla Salem El-Badri said at last month’s meeting in Vienna: “At the end of the day, there is no way we can reach our objectives unless we cooperate with each other.” He couldn’t have said it any better!
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Membership and aims
OPEC is a permanent, intergovernmental Organization, established in Baghdad, September 10–14, 1960, by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective is to co-ordinate and unify petroleum policies among Member Countries, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry. The Organization now comprises 12 Members: Qatar joined in 1961; Indonesia and Libyan Aj (1962); United Arab Emirates (Abu Dhabi, 1967); Algeria (1969); Nigeria (1971); and Angola (2007). Ecuador joined the Organization in 1973 and left in 1992; Gabon joined in 1975 and left in 1995.

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Contributions
The OPEC Bulletin welcomes original contributions on the technical, financial and environmental aspects of all stages of the energy industry, including letters for publication, research reports and project descriptions with supporting illustrations and photographs.

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When the race for the high-profile post of OPEC Secretary General started in 2003, oil technocrat, Abdalla Salem El-Badri, was fully engrossed in the huge task of governance in his home country, Libya, where, as Deputy Prime Minister, his preoccupation was how to help make the lives of ordinary Libyans more comfortable. It never occurred to El-Badri that three years on, he would be called upon to assume that position.

Yet, that was exactly what happened when the OPEC Conference of Ministers, who for three years were searching for a candidate with unanimous acceptance of its Member Countries, found in El-Badri that person. For some of the Ministers, El-Badri is a colleague whose Presidency and Secretary-Generalship of OPEC in the 1990s are recalled with nostalgia.
While the headline-grabbing Organization of the Petroleum Exporting Countries (OPEC), is responsible for meeting about 40 per cent of the world’s oil demand, Abdalla Salem El-Badri, its Libyan-born Secretary General, is the man on whose shoulders are placed the running of the day-to-day affairs of the Secretariat of the Organization, which also coordinates the petroleum policies of its Member Countries.

El-Badri was chosen by OPEC Ministers at the Organization’s 143rd Meeting of the Conference held in the Nigerian capital, Abuja on December 14, 2006. Though he had held the same position for six months in 1994, when he served as the OPEC Conference President, his choice was still unexpected but, indeed, welcome.

Speaking on the unexpectedness of his appointment to the OPEC Bulletin in his office in Vienna, El-Badri attributed everything to God, not discounting, of course, his many years in the energy and oil sector in his native Libya. This is what he had to say on how he received the news:

“I felt normal. I was NOC Chairman, Chairman of many oil companies in Libya; I was a Minister and Deputy Prime Minister for many years. I felt happy but normal. The only thing I said to myself when I received the news was to ask God to help me meet the challenges that face OPEC and its Member Countries and as well, implement its objectives. I think this Organization is great, but there are a lot of challenges ahead.”

Wealth of experience

El-Badri is not just a cool and calm technocrat, he also has a humble disposition, easily noticed, the many exalted positions he had occupied in the past notwithstanding. These include three times as Chairman of the Libyan National Oil Corporation (1983–90; 2000 and 2004–2006), as well as Secretary of the People’s Committee for Oil and Secretary for the People’s Committee for Energy.

And so, talking about the past, it is this wealth of experience he has garnered that he is going to draw heavily from as he enters the second month of his three-year tenure at the OPEC Secretariat in Vienna.

The expectation is that El-Badri would draw from such experience to the extent that it would impact positively on OPEC. However, the new SG is not unmindful of the fact that, to make a real impact, he has to, not only draw substantially from the experience, but also, from the goodwill of others. This is why his watchword resonates as “team work”:

“Whatever experience a human being has, he or she cannot improve or lift any organization without team work.
It doesn’t matter the position of that person, whether small or big. Let every individual, from the doorman to the top, feel a part of the team, feel that they belong to the organization, that they are attached to it. Because all my past experience was oil and energy-oriented, especially oil and gas, I have associated myself with OPEC and this Secretariat and I feel at home. I will try to have my colleagues in the Secretariat face the challenges of tomorrow, to ensure continuity, planning and progress monitoring. We have to prepare and organize ourselves very well in the future by becoming more efficient and effective.

Project OPEC

That is not to discountenance his role as the pilot of “Project OPEC” for the next three years. In this regard, therefore, El-Badri will have to lead the way for others to follow and, in doing that, he would need to have a clear cut agenda and objectives. It is based on these challenges that his stay at OPEC, at this very critical moment, will be judged and rated years after.

Having also been two times Deputy Prime Minister in his country (2000–2002; and 2002–2004), he is, no doubt, used to challenges and, right now, OPEC has a lot of challenges on its plate and for El-Badri, why set new ones when they already exist?

“In my hands now are very important issues”, he told the OPEC Bulletin. “There is the OPEC Long-Term Strategy (LTS), which was adopted by the 137th Meeting of the Conference, held on OPEC’s 45th anniversary. The LTS provides a coherent and consistent vision for the Organization and the framework for reaching it; we have the project to strengthen the OPEC Secretariat. In addition, we have plans to relocate the headquarters building to a bigger and more spacious edifice which would allow for the Secretariat’s expansion to meet current and future challenges. With Angola coming on board this year, other countries may be knocking on our door, who knows? We need to be ready at all times. These are some of the challenges. But on top of all these, the Conference, being the supreme authority of the Organization, and the Board of Governors (BoG) and Economic Commission Board (ECB) could give the Secretariat other tasks which we will have to implement efficiently. So, if I and my colleagues in the Secretariat are able, of course with the support of the Conference, the BoG and National Representatives, to implement the directives of our governing bodies, especially implementing the LTS, completing the project on strengthening the Secretariat, and moving the headquarters to the new location, these by themselves, will be considered great achievements. And again, team work is very important, for without it, I cannot do much by myself. Fortunately, our governing bodies have recognized the need to strengthen the Secretariat, which is the executive arm of the Organization, in order to meet the current and future challenges of the industry. I am committed to this project, because I believe it will make OPEC excel.”

Since its founding on September 14, 1960, in the city of Baghdad, OPEC has become almost a household name worldwide. This is not unconnected with its role in international oil market stabilization and its ability to reach out to all, especially the consuming public.

Tracing the history and success of the 47-year old Organization, El-Badri noted that OPEC is the oldest surviving inter-governmental organization composed wholly of developing countries. Also, it has a membership that cuts across the African, Asian and American continents.

While there is no doubting that, indeed, OPEC has survived a lot of difficulties in the past and will survive even more challenges in the future, for now, he can only say that the 12 Member Organization “is still waxing strong”. And, he continued: “The reason for this could be found in Article 2C of the Organization’s Statute, which clearly shows OPEC as an Organization looking out for the rest of the world and not just its Member Countries.” Said El-Badri: “You can see how wise and concerned the founders of OPEC were. You can also see this concern for world oil market stability right from the founding of OPEC. While working to promote the interest of their Member Countries, they were also working to enhance global economic prosperity by their commitment to an efficient economic and regular supply of oil to consuming nations. This is a position OPEC has adhered to since it was founded.”
The dynamism of the oil market, is no doubt, witnessed in the many changes it has gone through since oil was first discovered, moving from total control by international oil companies to control by producers. Sixty-six-year-old El-Badri has played key roles in the industry, as an employer, a policy-maker, and as a marketer. Therefore, as someone who understands the industry, the OB sought his opinion on the growth of the industry so far and this is what he had to say: “It has been changing. It was a buyers’ market and then changed to a sellers’ market after OPEC was founded. Now it has changed again to a buyers’ market, but with different players on the scene. Now we have international financial markets, international funds and hedging. So, the market has really evolved a lot from when OPEC was founded way back in the 1960s, throwing up new challenges which the Organization must be prepared at all times to meet. We have to prepare ourselves, recognize that we have to meet these challenges and advise our Member Countries appropriately.”

One way of meeting this growing challenge is through investment in the sector, especially with growing uncertainty in the oil sector and increasing environmental concerns. “OPEC has to invest and, as well, have excess capacity, but we do not want to create idle capacity that would work against us. There must be a way that we, the producers, can work with the consumers, sharing information and data about these demands in the future, so that we can plan our investment more appropriately. We

“Whatever experience a human being has, he or she cannot improve or lift any organization without team work. It doesn't matter the position of that person, whether small or big.”
have to know the demand side and, as well, the policies of the consumers. We all have to cooperate; we want also to compete in the field of technology.”

One very important area, where the world is looking for cooperation is the environment. According to a United Nations study that was recently released, the environment is going through some changes due primarily to its unsustainable use by man.

This is also an area that OPEC is greatly concerned about. As an Organization, made up of developing countries, Member Countries are living with the issue of climate change, sometimes completely unrelated to oil exploration and exploitation, and the negative impact it has on them. So, naturally, they are concerned. However, they are worried by the constant singling out of oil as the cause of environmental degradation.

“We don’t think it is fair to single out oil as the main cause of environmental damage. It should not be singled out and treated separately from the other elements that also affect the environment. We are worried because the media presents it as if we, the oil producers, are the ones to blame. They are not talking about the other causes of this problem. I am not defending the oil producers, but we are not to blame. We are selling oil, true, but we are not using much of it. There are a lot of other factors that contribute to environmental damage. Let us talk about them. Generally, I think OPEC, compared to other organizations, is doing an excellent job. Not really because it’s different from other organizations but because it is dealing with the wealth of its people.”
them, just as we are talking about oil. There are other factors like coal, other sources of energy used around the world that contribute to the environment problem. So, let us not single out oil as the major contributor to this problem. Also, since oil and gas will continue to supply the world’s major energy needs in the foreseeable future, the transfer of appropriate and advanced fossil fuel technologies for extraction, refining, distribution and consumption, including the technologies related to reduction of gas flaring and carbon capture and storage (CCS), is wise and appropriate.

“Yes, from the report that was released, it is a dangerous problem for the world alright and so everybody should be concerned. We are concerned and OPEC is doing a lot of work to combat climate change.

Cooperation

“I should like to state here that OPEC and its Member Countries have been doing so much towards enhancing efforts to deal with climate change concerns. Although we do not have the technology, we have been working with the more technologically-advanced countries on such programmes as CCS, enhanced oil recovery (EOR) mechanism, and the clean development mechanism (CDM), with a view to finding some lasting solutions to climate change concerns. OPEC, in collaboration with the EU, held an important workshop on these issues in Riyadh late last year. Also, only last year, an OPEC Member Country announced its preparedness to establish a technology centre, in cooperation with the major oil-consuming countries who have the technological know-how, to further research on energy issues of mutual concern.”

Again, that is where the kind of cooperation El-Badri spoke about comes in. He would want a situation whereby research would focus more on new technology that would increase the recovery rate of oil, without causing much damage to the environment. “Imagine how much reserve the Member Countries have at this time and the recovery rate is not even exceeding 50 per cent. So, if we have a new technology to increase the recovery rate and, at the same time, reduce emissions, the world would have an abundance of oil for years and years to come.”

El-Badri also spoke on the role of the Secretariat in achieving the set objectives of the Organization and how it has evolved over the years.

“When I look at the Secretariat and look at when our founders met in Baghdad in 1960, they had an objective to have a stable international oil market, a fair income for the people and to supply the world with an adequate quantity of oil, as well, cooperate with international oil companies. That really is still valid. But I just wonder what would have happened if OPEC was not established and we did not have this Secretariat. This Secretariat has played a very important role towards achieving all these. The oil industry has changed a lot since the 1960s, and we have to study every one of the changes and prepare ourselves to meet the challenges that face this Organization. You need to follow up the world demand and this, by itself, has now become a very sophisticated task.

“Generally, I think OPEC, compared with other organizations, is doing an excellent job. Not really because it’s different from other organizations, but because it is dealing with the wealth of its people. The Ministers, Governors and National Representatives know they have to stay together, work hard to achieve the goal which the founding fathers set in 1960 and any decision taken for the future must be based on very solid information and data. These would be supplied by the Secretariat and it would have to be as accurate as possible, taking into consideration the surrounding environment.”

Born in May 1940, in Ghamminis, Libya, El-Badri obtained a BSc in Accounting and Business Administration from Florida Southern University, in the United States and advanced courses in Finance and Management also from the US and Libya.

For 12 years (1965–77), he worked with Esso Standard (now ExxonMobil) as Assistant Accountant and Coordinator and later, Assistant Controller, Management Information Systems and from 1977–83, he was member, Board of Directors, Umm Al Jawabi Oil Company and from 1980–83, he was Chairman, Waha Oil Company.

Married with five children, El-Badri also held the position of President, Organization of Arab Petroleum Exporting Countries (OAPEC) in 1998; Chairman, Board of Directors, Arab Petroleum Services Company; Member and later, Chairman, Board of Libyan Oil Investment.
The International Energy Agency (IEA) recently released its World Energy Outlook for 2006. In it, the Paris-based OECD energy watchdog, depicts a predominant “fossil fuel future” for the planet’s energy system in the years ahead. It also highlights the growing role OPEC Member Countries will play in supplying the world’s energy needs as the output capability of other producers begins to wane.

The IEA’s Chief Economist, Fatih Birol (pictured), formerly an OPEC statistician, gave a comprehensive overview of the Agency’s forecasts at the OPEC Secretariat in January. He was accompanying IEA Executive Director, Claude Mandil (see interview on p.20), on a courtesy visit to OPEC’s new Secretary General, Abdalla Salem El-Badri. The OPEC Bulletin’s Jerry Haylins was at Birol’s presentation, and reports that...
a “fossil fuel future” is being mapped out for the planet over the next quarter of a century with OPEC expected to take on an increasingly important role in supplying the extra oil global economies will require as their thirst for energy continues to rise.

That is the opinion of the International Energy Agency (IEA), the Paris-based energy watchdog of the Organization for Economic Cooperation and Development (OECD).

“The share of OPEC in global oil supply, which is about 40 per cent today, will rise to almost 50 per cent by 2030,” commented Fatih Birol, the Agency’s Chief Economist and Head of its Economic Analysis Division.

“We think that non-OPEC conventional oil production will reach a plateau in the next ten years and the bulk of future growth will need to come from OPEC Member Countries, which hold a substantial portion of global oil reserves,” he said in a presentation made at the OPEC Secretariat.

Birol, who worked at OPEC headquarters as a statistician in the Data Services Department for five years, from 1990, was accompanying IEA Executive Director, Claude Mandil, and other Agency officials on a courtesy visit to the Secretariat, where they met with OPEC’s new Secretary General, Abdalla Salem El-Badri.

In outlining the IEA’s World Energy Outlook for 2006, Birol gave an overview of the Agency’s expectations for the global energy industry up to 2030.

“We are going to see a fossil fuel future in the next 25 years,” he stated, adding that the world’s energy system would be based on oil, gas and also coal, which was forecast to make a “strong comeback”.

However, Birol stressed that with the current policies in place, it was a future facing two categoric risks — concern over energy security and environmental problems, which were set to increase considerably unless checked.

“We think that with the current policies in place, we are heading into a world that is vulnerable in terms of energy security, dirty in terms of the amount of emissions, and expensive. This is a trend that needs to be addressed and changed,” professed Birol.

The Agency’s Chief Economist pointed out that this outlook was based on figures available today and represented the IEA’s Reference Scenario for the years ahead.

However, under an Alternative Policy Scenario drawn up by the IEA, and based on policy initiatives that could well come to fruition, the picture is a good deal more favourable, in terms of both energy efficiency and the welfare of the planet.

With regard to the Reference Scenario, the IEA has changed its price assumptions significantly upwards for oil, gas and coal.

“Oil demand will come mainly from the transportation sector, driven primarily by China and India,” said Birol.

“Coal is growing very strongly. Gas is growing for the power generation sector, but demand expectations in 2006 will be smaller than previously thought, mainly because of high natural gas prices,” he noted.

Turning to other energy sources, Birol said nuclear power would lose significant market share in the future as the OECD reduced its reliance on this source of power. Renewables, including wind and solar, were growing very strongly, but from a very small base. As in previous years, biomass would still be important for developing countries.

**Increased Dependency**

Birol said that global oil demand was set to rise from 84 million barrels/day in 2005 to 99m b/d in 2015 and then to 116m b/d in 2030. This represents an annual average growth of 1.3 per cent.

“Where will the supply come from? Three countries are especially important for bringing oil to the markets,” said Birol. These comprised Saudi Arabia, Iran and Iraq.

“We also expect some non-conventional oil to come to the markets, where Canada will be a key supplier. However, the investment framework will be very important for these non-conventional oils,” he said.

Turning to natural gas, Birol said the IEA saw this fuel growing significantly with both Europe and the United States needing to import increasing amounts of the fuel in the years ahead as their dependency increased.

“Liquefied natural gas (LNG) will be the main driver of gas trade, mainly as a result of lower production and transportation costs, as well as the difficulties inherent in laying pipelines between regions,” he said.

With coal, Birol said the trend was for it to make a comeback. Its popularity was very strong in both China and India, and this was in reaction to the present high natural gas prices.

“It is especially popular for power generation plants, although there are question marks over the environmental effects. But the growth in coal use between 2003 and 2005 has been equal to the expansion seen over the previous 23 years,” he noted.
Birol pointed out that a “serious concern” of the IEA with the forecast increase in coal use was the effect it would have on the environment worldwide.

“We think that carbon dioxide (CO$_2$) emissions will increase by around 55 per cent by 2030 — higher than energy growth. It is also important to understand that it is not only CO$_2$ emissions increasing, but also the carbon intensity of energy — that is also rising.”

**Substantial investment**

Birol explained that the overall energy set to be consumed in the years ahead would include more carbon than in the past. “The main reason for this is the declining share of nuclear power in the energy mix and the increasing use of coal,” he said.

Birol stressed that China and India were two countries that were responsible for a significant amount of CO$_2$ emissions.

“Up to 2020, the amount of CO$_2$ emissions that will come from China alone will be twice those coming from the OECD nations put together. And India will contribute about one half of that coming from OECD states. This is a significant worry for us,” he affirmed.

Birol told the meeting that it would require substantial investment for all this forecast energy to reach global markets.

“We earlier estimated that $16 trillion would be required to bring all this energy to market. But now we have looked at all the investment numbers and inflation throughout the energy chain and this figure has increased to over $20trn between now and 2030,” he said.

In terms of oil, said Birol, the bulk of investment would go to exploration and development, followed by the refining sector.

He said that, from a theoretical point of view, there appeared to be no problems to raising the level of investment capital required, although there were “tremendous barriers” to securing the financing required, bearing in mind investment frameworks and geopolitical considerations.

Birol said the Agency was very happy to see that between 2000 and 2005, there appeared to have been a huge increase in upstream investment.

“However, when we looked more closely at the numbers through some 40 selected international and national oil companies on a project-by-project basis, we saw that the bulk of the increase in investment was mainly as a result of cost inflation — an increase in costs throughout the industry — so, in real terms, the investment increase was not significant at all,” he said.

Birol maintained that the investments made over the next ten years were extremely important to the future of the energy industry.

“In fact, they will determine what happens over the next 60 years. For example, the Chinese and Indian economies are booming and in the next decade they will reach the peak of their growth. This expansion will be fuelled by more energy. They will need a lot of power plants, but what technologies will they choose? This has great implications for the future of the energy industry. So the next ten years will be crucial for deciding energy’s future with many decisions having to be made.”

Similarly, said Birol, some power plants in the OECD region, which were built after the Second World War, would be coming to the end of their lifetime and decisions would have to be made as to what future fuels to use — gas, nuclear, renewables, or coal.

Regarding the future for oil production, he said if all the sanctioned projects that the IEA had analyzed with the 40 selected companies saw the light of day, there would be a modest increase in spare output capacity to just below five per cent of global production in 2010.

“Of course, these are very sensitive numbers and many countries might change their minds as a result of this or that reason,” he added.

**Energy poverty**

Birol noted that many countries seeking to boost their production capacities had the financing to do this without having to seek foreign investment. However it was the right of each country to decide on what type of investment framework they would have, whether with or without foreign assistance.

Turning to developing countries, Birol highlighted how energy poverty was proving to be an ever-increasing problem.

“Today, some 2.5 billion people — that is about 40 per cent of the global population — rely on traditional biomass — wood, agricultural waste, animal waste — for their energy purposes,” he observed.

These biomass sources were used extensively for cooking in Asia, sub-Saharan Africa, and Latin America. “In most cases, primitive stoves are used for cooking, something which has serious effects on the health of mostly women and children. Each year, because of respiratory diseases developed from the burning of biomass fuels, 1.3 million women and children die prematurely,” declared Birol.
“So, if we do not change our policies, this 2.5 billion people using non-commercial energy sources, will reach 2.7 billion in the future. We think this is an unacceptable trend that needs to be addressed,” he added.

Birol said that, in addition, a woman in Africa, on average, had to walk about eight km to go to the forest and collect wood for burning.

“She has to carry perhaps 20 kilograms of wood on her head. This is another consequence of energy poverty which should also be addressed,” he said.

The IEA, he noted, had calculated that it would cost “virtually peanuts” to supply just half of these 2.5 billion people with supplies of liquefied petroleum gas (LPG) by 2015, so that they could switch from biomass.

He said that one other disturbing trend that the Agency had pinpointed was in connection with skilled manpower in the petroleum industry.

“We have observed that over the short to medium term, the industry is facing a lack of skilled labour. This is a problem that is growing significantly.”

Birol explained that there was a big age gap between senior engineers and those entering the industry.

“This is a serious issue for many companies in their bid to hire skilled labour and engineers, especially medium-level decision-makers. There is as strong decline in the enrollment level at universities for courses related to the petroleum industry,” he stated.

Birol then went on to outline the major differences one could expect if the Agency’s Alternative Policy Scenario came into being.

“We actually built the Alternative Policy Scenario in response to a G8 request. Many countries are looking to put new policies in place to secure their energy futures, in order to attain energy security and help with climate change,” he affirmed. However, these policies were not yet legally binding and were still under consideration.

**Dependence on OPEC**

“What we have done at the IEA is to look at more than 1,400 policies and measures being considered in all countries of the world. We are assuming that they will be implemented — what would the result be?”

Birol said that from oil’s point of view, if all the policies were introduced, there would be a change in the level of oil imports of the OECD countries.

“By 2030, OECD imports might be 5m b/d less than what we think in the Reference Scenario, or in 2015, they would be 1.8m b/d less,” he said.

However, he said that the good news for OPEC Countries was that in both scenarios, dependence on the Organization’s crude oil would continue to grow.

OPEC’s share in the Reference Scenario would go
from 40 per cent today to 49 per cent by 2030, but in the Alternative Scenario, there would still be an increase in the call on OPEC oil.

**Increased Gas Imports**
Birol said that gas imports in many countries would also decline under the Alternative Scenario. This was mainly as a result of energy savings on the demand side.

“Less electricity will mean fewer power plants fuelled by gas. There would also be more efficiency, more renewables and more nuclear power,” he said.

However, even though the level of gas imports against the Reference Scenario would drop, the gas imports of OECD countries would increase substantially.

“In the case of the European Union, even in the Alternative Scenario, gas imports will double between now and 2030 if all the policies we have pinpointed see the light of day,” said Birol.

Concerning CO₂ emissions in the Alternative Scenario, he said they would be brought to a stable level by 2030.

“There will be a big saving compared with the Reference Scenario. There will be better efficiency on the demand side, in transportation, and efficiency in power generation,” he explained.

Birol said there would also be policies covering renewables and nuclear power, which would also help reduce CO₂ emissions.

“Out of the 1,400 policies, we have chosen just 12 policies that if implemented, would make a major difference in global CO₂ emission levels,” he said.

“For example, in the United States, the vehicle efficiency rate in 2030 would reach the level of Europe today. There is about a 20 per cent difference now between the two. And in 2020, we expect the fuel efficiency of the coal-fired plants in the US to approach the same level as in the OECD.

“These two policies are being discussed in the countries concerned and we think that if they were to be introduced they would make a considerable difference to the current situation.”

Birol said that the level of investment required for the future energy system was also lower in the Alternative Scenario.

“The Alternative Scenario has the advantages of saving energy and better energy security and a reduction in CO₂ emissions. Another advantage is that these are all cost-effective. No additional money will be needed to improve energy security or to make the environment better,” he said.

Birol said the latest IEA report also carried special chapters on nuclear power and biofuels.

He stated that many governments were keen to build nuclear power plants, or to extend the lifetimes of existing plants. These discussions had followed concerns over gas security, gas prices and increasing CO₂ emissions.

“Nuclear power provides energy without emitting a significant amount of CO₂. We have made a cost analysis of nuclear power and it makes perfect sense,” he said.
However, even though nuclear power enhanced energy security, helped in controlling emissions, many countries had difficulties in getting their people to go for the nuclear option, explained Birol.

“We think that if nuclear power is to play an essential role in the global energy system, the governments of interested countries will first have to address the concerns of the public,” he said.

Regarding biofuels, said Birol, their development was growing in many countries, both in IEA states and developing nations. Of note, Brazil was the leader.

“We see an increase in the biofuels market, mainly as a result of high oil prices. Both the US and Europe are very interested. It offers additional energy security for countries involved in such projects,” he noted.

Biofuels challenge
The biggest problem with biofuels, said Birol, was the need for extensive arable land. Biofuels today satisfied just under one per cent of road transportation fuels.

“They need considerable amounts of arable land. According to our projections, in 2030 if all the biofuel projects currently on the table are implemented, the share of biofuels will come to only about seven per cent of the road transportation fuel consumption.

“For that to occur, you will also need an area of land equivalent to the arable land found in Australia, New Zealand, Japan and Korea put together. This will be a major challenge,” commented Birol.

He said the IEA was therefore very much looking forward to seeing second-generation biofuels coming into the picture.

“This might improve the cost picture and the need for arable land will be much less. We feel that biofuels can play a significant role in the future, but not at all as an alternative to oil in the transportation sector,” stressed Birol.

In concluding his presentation, Birol pointed out that under the Agency’s Alternative Scenario, three major aspects — energy efficiency, renewables and nuclear power — had the capability of giving the planet a cleaner, clearer and more competitive energy future.

“However, in all this, there is a need for governments to be more active to put these policies in place. In the IEA, we feel that market instruments are the best way to answer the energy sector questions. But sometimes there may be a need for governments to put in place policies that can correct market failures and to put investments in place to ensure security of supply and a cleaner environment,” he added.
PEC and the International Energy Agency (IEA) might be positioned on opposite sides of the petroleum industry, being representative of producers and consumers, but they both firmly agree on one thing — that oil will remain a major force in fuelling the global economy in the years ahead.

Today, the importance both organizations attach to each other, can very much be viewed as a double-side coin. For the 12 Members of OPEC (Angola joined on January 1, 2007), the IEA represents a group of 26 advanced countries that, with a combined population of 1.16 billion, some 18 per cent of the global total, take around two-thirds of their daily oil exports worldwide. Apart from the obvious commercial benefits the OECD region brings to global trade, for OPEC producers, it is the region’s insatiable thirst for energy that is striking.

Today, the OECD countries require around 50 million...
barrels/day of crude oil, which is well over half the world figure of 84m b/d. OECD countries themselves are currently able to satisfy about 20m b/d of that demand, meaning that some 30m b/d of crude has to be imported.

Enter OPEC. According to figures drawn up by the OPEC Secretariat in Vienna, its Members currently account for about 54 per cent of all OECD imports, amounting to over 16m b/d. Saudi Arabia is the region’s main crude oil supplier, with over 14.5 per cent of total imports, followed closely by non-OPEC Russia with 14 per cent. Other leading OPEC suppliers are Nigeria and Venezuela (both with around five per cent shares), Iran, Libya and the United Arab Emirates (four per cent each), and Algeria, Iraq and Kuwait (around three per cent each). Smaller amounts are supplied by Angola, Indonesia and Qatar.

**Vital energy source**

The added good news for OPEC is that as the years progress, its Members will be expected to supply most of the extra oil the world will require, as supplies from other sources reach a plateau and then decline. Admittedly, much of that demand growth will be from the developing world, but the Organization’s supplies to the OECD will remain a vital source of energy to the region — and an equally important source of revenue for its Members.

So what of the IEA? As is often highlighted in oil industry literature, the Agency, like OPEC, was born out of crisis. The crisis in question for the IEA was the Arab-Israeli conflict, which occurred in 1973. An Arab oil embargo, a political measure taken in support of the war effort against Israel, resulted in oil prices on international markets surging. This price hike sparked alarm in the oil-dependent nations of the industrialized world, who, in realizing their vulnerability to such supply disruptions, took action to safeguard their future position. The IEA was established to fulfill that role.

The Agency moved quickly to set up a supply failsafe and, under its International Energy Programme (IEP), stipulated that IEA countries should work towards holding oil stocks equivalent to at least 90 days of net oil imports. In the ensuing years, it was also agreed to restrain demand, increase domestic production, share available oil in the event of a major oil supply disruption, and look for ways to switch to other fuels. Today, the OECD has total stocks of around 4.3 billion barrels, which can give 85 days of forward consumption. This represents a healthy cushion in the event of any emergency, as was shown in 2005 when the IEA responded to the devastating effects of the hurricanes in the Americas with the release of its stocks.

**Improved relations**

IEA members have also agreed to cooperate in the development of cleaner, more efficient energy technologies and, importantly for OPEC, have sought to improve relations between oil-producing and consuming countries. At the time of the IEA’s inception, such ties between producers and consumers were virtually non-existent. It was simply not politically correct for the oil and energy ministers of consuming and producing countries to sit down and discuss the ins and outs of petroleum supply and demand. OPEC has played a big part in dismantling these barriers with its unrelenting pursuit of the establishment of meaningful cooperation with consuming governments.

It has taken many years for the taboos to be broken, and today, the era of mistrust and confrontation has been removed. Now, in a world of growing interdependency, there is broad recognition that individual countries — whether producers or consumers — have to create a better understanding of global energy matters if the industry is to prosper. This, as has already been proved, can be achieved in a variety of ways as all market players acquire a heightened awareness of the long-term common interests involved. Cooperation lies at the heart of it all.

Over the years, just as the petroleum industry has evolved, then so too have IEA countries grown to recognize the significance of increasing global energy interdependence. They are now actively seeking to promote the effective operation of international energy markets and encourage dialogue with all participants. And with around half of the world’s energy consumption now taking place outside the IEA region, and growth in world
energy demand, particularly in the Asia-Pacific countries, expected to accelerate, this acceptance of the importance of energy interdependence has prompted the IEA to establish relations with non-member countries and other international organizations.

**Concerted cooperation**

OPEC’s relations with the IEA began to evolve in the 1990s, but it was not until the turn of the century that ties really began to strengthen. It was a gradual process, but eventually accepted as the natural course of action for the two complementary sides to take. The realization finally dawned — OPEC represented the key oil producers; the IEA the most important group of consumers, so it logically followed that exchange of information and concerted cooperation between the two could only serve the interests of both parties, especially in terms of security of supply and security of demand.

Looking ahead, considerable uncertainties remain, particularly in view of the ever-increasing environmental pressures being exerted on the global energy industry in the 21st century. It will therefore be paramount for the cooperation and dialogue already established with some of the main players to be consolidated and expanded to help cope with the new demands. One area of particular note is the level of oil demand the world can expect in the future, coupled with the availability of sufficient financial resources for the timely development of the necessary energy capacity to meet the increased demand, in both upstream and downstream activities. Therefore, it is vitally important for organizations such as OPEC and the IEA to continue to work together to ensure a sustained future energy supply that is adequate for supporting world economic growth.

Understandably, from a producer and consumer standpoint, the views of OPEC and the IEA will always likely differ on a number of issues. However, there is today convergence on a growing number of important topics, chief of which is that security of supply and security of demand go hand-in-hand, are equally important, and are mutually supportive.

The two sides also agree that extreme prices at both ends of the spectrum are undesirable, not beneficial to either producer or consumer and should be avoided at all costs. More recently, there has also been an emerging consensus on actual levels of a desirable price. In fact, the IEA’s World Energy Outlook for 2006 stipulates that stronger prices are indeed required from both the demand and supply point of view, namely to mobilize investment, promote alternative sources in the energy mix and impose a moderating impact on demand.

In addition, OPEC and the IEA agree that fossil fuels will continue to dominate the energy mix in the foreseeable future, but that clean fuel technologies will have to be better developed to address environmental concerns. One of these initiatives involves carbon capture and storage (CCS), which OPEC Members are greatly in favour of and in which the Organization is encompassing in the Energy Dialogue it established with the European Union in 2005.

Even on environmental issues, OPEC and the IEA are coming together, with OPEC participating in the Agency’s Greenhouse Gas Programme. This is in line with the OPEC Secretariat’s objective of promoting research and devel-
development activities to facilitate the development of technologies to reduce greenhouse gas emissions. The key aim of the IEA is to offer, through this programme, an objective source of information on technologies capable of making large reductions in greenhouse gas emissions from power generation, fossil fuel-intensive industries, and other sources, such as agriculture. Since its inception, the programme has focused much effort on CCS. Following the approval of the OPEC Board of Governors, the OPEC Secretariat officially joined this IEA programme in 2006.

Series of workshops

This subject is typical of the kind of topics that are being discussed in a series of workshops organized under the OPEC-IEA initiative. The gatherings represent an important platform for evaluating future growth patterns of supply and demand. They also discuss and evaluate what policies and actions will be required that can best support the future welfare of the oil and gas industry, as well as the development and economic prosperity of both the producing and consuming countries.

This year will see the fifth workshop convened. It will concentrate on demand for energy in China and India, two of the fastest-growing economies in the world today and huge energy consumers. Previous OPEC-IEA workshops have dealt with both supply and demand issues.

The first workshop, held in Vienna in 2003, looked at oil investment prospects and the needs of the oil sector, while the second event, staged in Paris in 2004, focused on the challenges involved in making the necessary investments available. It also studied the key supply drivers, uncertainties and their implications. Then in Kuwait in 2005, the third workshop covered the energy outlook and economic prospects for the Middle East and North Africa (MENA) region. The fourth workshop, held last year in Norway, took a close look at the key issues and prospects for world oil demand, pinpointing the challenges and uncertainties, both in the near and long term.

All these workshops reflect just how the spirit of cooperation and dialogue has continued to gather pace in a relatively short period of time. It is testament to the desire and commitment both OPEC and the IEA have to supporting a forum that can improve bilateral relations between producers and consumers and promote a better understanding on a range of important issues that will impact on both sides today and in the years ahead.

OPEC and the IEA are also involved with five other international organizations in the ground-breaking Joint Oil Data Initiative (JODI), whose world database is striving to offer better quality and more reliable data, delivered in a more timely fashion. Both sides are committed to improving this function.

Future joint studies between OPEC and the IEA will continue to centre on issues of common interest, such as energy poverty, CCS, policy scenarios on alternative fuels, downstream bottlenecks, and human resource shortages.

There is every indication that the energy dialogues set up between OPEC and the IEA, as well as the EU, will expand in the coming years. This not only spells good news for the aspirations of the inter-linked organizations, but also for the welfare of the producer-consumer movement in particular and the global economy in general.
OPEC—IEA: A maturing relationship

The OPEC-IEA dialogue has cemented itself as an established forum to enhance cooperation on a range of important energy industry issues. This cordial relationship was further advanced by the January visit to OPEC of the International Energy Agency officials. James Griffin, who was at the get together, used the opportunity to talk to Claude Mandil, Executive Director of the IEA.
Going forward in 2007, there is little doubt that energy will continue to be at the forefront of both political and business landscapes. The objective for all is an energy market where every party plays a role and which in turn leads to the evolution of the industry in an orderly and stable manner. With this to the fore, it is easy to appreciate the increasing need to widen and deepen dialogue and cooperation between all stakeholders.

It is a path OPEC has adhered to for many years and one of the most fruitful outcomes of this has been the enhanced relationship between the Organization and the International Energy Agency (IEA). This has been borne out in recent years by an escalation in collaboration at both the senior executive level and between research staff of the two organizations, as well as in the advancement of OPEC-IEA Workshops, the most recent of which took place in Oslo in May last year.

From the IEA's perspective, many such developments have taken place during the watch of Claude Mandil, Executive Director of the IEA, since February 2003. His commitment to improved relations with OPEC has been equally reciprocated by OPEC Secretary Generals during this period: Dr Álvaro Silva Calderón, Dr Maizar Rahman (Acting for), Dr Adnan Shihab-Eldin (Acting for) and Mohammed Barkindo (Acting for).

In fact, Mandil’s first ever external engagement after being made Executive Director was to the OPEC Secretariat. This he reflected on as he and colleagues from the IEA visited the OPEC Secretariat to present findings from the IEA’s World Energy Outlook 2006 (WEO-2006) in early January 2007. The comment was fitting given that this visit was the first from outside the Secretariat for OPEC’s new Secretary General, Abdalla Salem El-Badri. The ‘firsts’ are coincidental, but it does offer an interesting pointer to the relationship between OPEC and the IEA. It is an extremely important association for both organizations and the global energy industry as a whole.

That is not to say that the two organizations do not differ on a number of their objectives, but as El-Badri said in his welcoming remarks to the IEA group, “at the end of the day, there is no way we can reach our objectives unless we cooperate with each other.” Mandil agreed, but did add that he believed there was an increasing similarity in goals, “with both organizations striving to enhance the predictability, reliability and stability of the oil market.”

With this background in mind, the OPEC Bulletin took the opportunity to talk further with Mandil about his thoughts on the past, present and future development of the OPEC-IEA relationship.

Working together

When talk turns to the OPEC-IEA relationship, Mandil is keen to iterate that the “good relations” between the two did not start with him taking up his position at the IEA. He pays tribute to his predecessor, Robert Priddle, “who understood (with OPEC’s Dr Álvaro Silva Calderón) that there was a need for improving the relationship, which had previously been viewed as a relationship between foes.”

Mandil’s tenure, however, has seen interaction increase and relations improve further. He stresses that all the recent work conducted together is “extremely pleasing”. One significant display of this collaboration is the regular joint workshops. The most recent, hosted by the Norwegian Ministry of Petroleum and Energy last year, focused on ‘Global oil demand: outlook and uncertainties’. Previous workshops had covered such issues as the economic prospects for the MENA region, including its energy supply and demand prospects, and oil investment prospects, particularly in relation to the oil outlook, investment challenges, drivers and uncertainties. The next workshop, to be held later this year, will spotlight on the rising importance of China and India in global energy markets.

The Oslo workshop was a notable event as it conveyed appreciation of the importance of understanding global oil demand. While it is accepted that global demand for oil will continue to rise, the exact rate of growth is subject to considerable uncertainties. At the workshop, Mandil stressed that the IEA understood the importance of accurately forecasting demand and that
in today’s rapidly evolving markets the industry must strive to continue to make the best possible projections using the best available data, as this will improve investment confidence.

This type of collaboration, Mandil underlines, not only helps each organization and its Member Countries, but also benefits the market as a whole. “The very fact that the market knows we are working together collaboratively on varying issues is extremely positive. It reduces the jitteriness of the market. It makes the market more predictable.”

**Advancing data exchange**

Mandil is keen to elaborate further on the importance of exchanging data as a means to enhance global energy security. This is carried out between the two organizations in terms of regular database sharing, as well as during seminars and workshops. This has certainly proved beneficial, but Mandil also underscores the significance of broadening this exchange. In this regard he is quick to draw attention to the Joint Oil Data Initiative (JODI). This is currently managed by the International Energy Forum (IEF) Secretariat in Riyadh, Saudi Arabia, but Mandil emphasises that “the parents of this initiative, and still the driving forces, are OPEC and the IEA.”

The JODI World Database, as a permanent reporting mechanism, was borne out of the 8th IEF Meeting in Osaka in 2002 and the JODI Database was opened on the occasion of the inauguration of the IEF Secretariat in Riyadh in November 2005. Today, the database consists of seven product categories: crude oil, liquefied petroleum gas, gasoline, kerosene, diesel oil, fuel oil and total oil; five flows: production, demand, closing stock levels and changes, refinery intake/output; has more than 90 participating countries; and monthly data is available from January 2002 to the past month.

Mandil is extremely positive about the development of JODI to date and adds that this major achievement goes far beyond OPEC and IEA Member Countries, thanks to the leadership of those involved. “For example”, he says, “it is now possible to obtain far more data from China, which is a tremendous accomplishment.” Global challenges require a strong commitment from all parties and this is paying dividends in the JODI initiative.

**Crisis management**

Mandil also touches on the issue of crisis management, which he stresses, came to the fore during the Gulf of Mexico hurricanes in 2005. “We worked very closely with
OPEC and when we decided we needed to release strategic stocks, I think the first call I made was to Dr Shihab-Eldin at OPEC," he says.

During the call, the two discussed the IEA’s and OPEC’s assessment of the situation and the fact that the IEA’s decision to release stocks was not directed against OPEC producers, says Mandil. He underlines that Shihab-Eldin totally understood the IEA’s decision. “This was known publicly, so the market knew we were collaborating,” he adds. OPEC also moved to make available to the market spare capacity of around 2 million barrels/day, should it be called for, though this was not required. This collective action in response to the interruption in oil supplies in the Gulf of Mexico meant the global market witnessed little impact.

Yet, Mandil believes that the market quickly forgets this kind of cooperation, citing the past few months where the main market noise has been the repeated utterances that the IEA is not happy with OPEC’s supply cuts. Mandil stresses that whilst this is true, it does not mean that the two have stopped their collaborative efforts. “From time-to-time we have to remind the market, particularly journalists and analysts, that we are working together,” he adds.

Deepening the understanding

Mandil does believe, however, that there is still much room for improvement. Since initial talks were started in 1991, there have been some significant achievements, but “perhaps more in behaviour than substance”, he says. Elaborating, he adds that now is the time to “broaden the dialogue and go deeper on substance. It is particularly important that we address the topics where we disagree and go as far as we possibly can towards a better understanding.”

For example, some divergences play out in the investments being made today and on some of the depicted scenarios for investment going forward. “The IEA’s World Energy Outlook (WEO) 2006 identifies under-investment in new energy supply as a real risk”, says Mandil. However, OPEC stresses that from its perspective its Members have increased production by around 4m b/d since 2002, and more increases in capacity are also planned — and being implemented — for the rest of the decade. OPEC capacity growth is underpinned by more than 100 exploration and production projects totalling in excess of $100 billion.

Going forward, the two IEA scenarios — Reference and Alternative — in the WEO 2006, also show significant differences in the requirements for oil demand/consumption in 2030, with the Alternative Scenario being much lower. Given these figures, it is easy to appreciate the difficulties producers face in making investment decisions. However, Mandil says that the decisions to invest right now are looking to meet the 2015 demand, not 2030. And in 2015, the difference between the two scenarios is small — less than 2m b/d. With oil demand in mind, he also outlined that it was extremely important to keep abreast of other uncertainties that he stresses, pose a much greater risk, such as GDP growth.

Overall, he adds, the IEA believes that “a sound energy policy requires what we call the three Es. One is for energy security, one for economic growth and one for environmental protection. We say that these are the three pillars of energy policy — you cannot jettison any of them.” The IEA’s aim is to find policies that can achieve the three goals at the same time. Mandil talks specifically of energy efficiency improvements, but is also keen to stress the potential role of Carbon Capture & Storage (CCS) technology, particularly in the longer term, in helping meet the stated goals. This area also provides an opportunity for further collaboration between OPEC and IEA Member Countries. OPEC has been a strong advocate of CCS technology and has called for the promotion of large-scale demonstration projects.

Going forward

Looking to the future, Mandil underlines the importance of continuing to extend the dialogue beyond the OPEC-IEA relationship to major consumers like China and India, and large producers such as Russia and Brazil. Mandil uses the phrase “global dialogue” and cites the importance of OPEC and IEA Member Countries understanding the issues and challenges outside of their own borders. He agrees this dialogue extension is already taking place — from both the IEA’s and OPEC’s perspective — but it is important the spirit of cooperation and dialogue continues it momentum.

As for Mandil, September this year sees him leave the IEA to “enjoy more time with my wife, children and grandchildren.” That does mean, however, that he will not keep engaged in what he describes as “a fascinating industry to be involved in.” There are certainly plenty of energy industry challenges and opportunities and the OPEC-IEA relationship will remain a key facet in the industry meeting a number of these. It is a relationship that Mandil hopes will continue to mature and strengthen in the years ahead.
On January 1, 2007, OPEC’s Membership increased from 11 to 12. The new Member, unanimously accepted at the 143rd (Extraordinary) Meeting of the OPEC Conference in Abuja, Nigeria, in December 2006, is Angola. Situated in the south-east of the African continent, the country has, in recent years, made remarkable progress in its oil industry operations following almost three decades of civil war. Today, it is looking to secure a better and more prosperous future. In this article, the OPEC Bulletin’s James Griffin looks at Angola’s move to full OPEC Membership and explores its oil industry history.
Southeast African oil producer is first new Member in over 30 years

Population: 14.5 million (UN, 2005)
Capital: Luanda
Area: 1.25m sq km (481,354 sq miles)
Major languages: Portuguese (official), Umbundu, Kimbundu, Kikongo
Monetary unit: 1 kwanza = 100 lwei
Main exports: Oil, diamonds, minerals, coffee, fish, timber
GNI per capita: $1,350 (World Bank, 2006)

A five-platform complex pumps crude off the coast of Cabinda, Angola’s most prolific oil field.
After much talk and press speculation, it was announced at the 143rd (Extraordinary) Meeting of the OPEC Conference in December 2006, in Abuja, Nigeria, that Angola had won the backing of existing OPEC Members to join the Organization. A statement from the conference said: “In accordance with the provisions of Article 7 of the OPEC Statute, the Conference unanimously admitted the Republic of Angola as the 12th Full Member of the Organization, with effect from January 1, 2007.” The country has been an official Observer to OPEC Ministerial Meetings for many years.

The decision marks the first time in over 30 years that a new Member has joined OPEC. The last country was Gabon, which became a Member in 1975, but left in 1994. The last existing Member to join was Nigeria in 1971.

Angola is sub-Saharan Africa’s second biggest oil producer, after Nigeria, with a daily production of 1.5 million barrels/day, double the level of 2000. It aims to raise this output figure to 2m b/d by the end of 2007.

To fully appreciate the role of the Angolan oil industry, at home, regionally and globally, it is important to trace its origins.

The Angolan oil industry was founded in 1955 when oil was discovered in the onshore Kwanza (Cuanza) Valley by Petrofina, which, together with the Angolan Government, established the jointly-owned company, Fina Petroleos de Angola (Petrangol) and constructed a refinery at Luanda to process the oil.

However, the main expansion of the country’s upstream oil industry came in the late 1960s when the Cabinda Gulf Oil Company (CABGOC) discovered oil offshore in the coastal enclave of Cabinda.

In 1973, oil became Angola’s principal export and numerous subsequent discoveries made in the Cabinda area and in the Angolan offshore region have ensured that the country has seen its regional and international role significantly expand.

In 1976, following independence from Portugal, two companies were formed — Sonangol UEE and Direcção Nacional de Petróleos — with the former set up to manage hydrocarbon resource exploration in Angola.
In terms of industry structure, the Petroleum Ministry regulates the state oil company, Sonangol, as well as the other companies operating in the country. Sonangol is the sole concessionnaire, whilst international companies operate under petroleum sharing contracts, in which the state company is the license holder and multinationals operate the licences as contractors.

In 1978, the government authorised Sonangol to acquire a 51 per cent interest in all oil companies operating in Angola, although the management of operations remained under the control of foreign concerns. Some of the major international oil companies operating in Angola today are US-based Chevron and ExxonMobil, France’s Total, BP of United Kingdom, Royal/Dutch Shell of the Netherlands, and Italy’s Eni.

Since then, Angola and Sonangol have expanded the oil business rapidly, with the main source of growth in recent years coming from the country’s vast deepwater resources (Figure 1).

By 2005, over 20 billion barrels of oil had been discovered in the country (proven and probable), of which six billion had been produced. Significant discoveries have been made, particularly in deepwater, and this also represents the largest potential for undiscovered oil.

In fact, by 2005, all of the deepwater production (1.13m b/d) in West Africa — excluding Nigeria — came from eight large projects, with more than half located in Angola. Angola’s five onstream deepwater projects were: Xikomba, Kizomba A and B, Girassol and Jasmin. This number has since increased.

The importance of Angolan deepwater projects was further emphasised in a recent release from Chevron, which announced in November 2006 that its CABGOC subsidiary had commenced crude oil production from the Landana North reservoir in the Tombua-Landana development area.

John Watson, President of Chevron International Exploration and Production, said: “The exploration and production assets in Chevron’s Angola portfolio are of great importance to the company’s growth strategy. Tombua-Landana is among more than a dozen major capital projects the company is developing in the nation.”

As mentioned earlier, oil production is expected to rise further in Angola, underpinned principally by its deepwater developments. It is anticipated that deepwater production will move from its current level of 800,000 b/d to reach 1.7m b/d by the end of 2012. There are several discoveries in ultra-deepwater that are expected to support new developments by 2012.
Above: ChevronTexaco rig workers on an oil platform at Takula, one of Angola’s richest oil fields.

A technician at work onboard a sophisticated drilling ship (pictured below) offshore Angola.
Angola produces crude oil of predominately medium to light quality (28–38° API) with a low sulphur content (0.12–0.71 per cent).

In terms of exports, the key destinations are Asia, mainly China, and North America, primarily the United States. The typical cargo size is one million barrels, handled from deepwater Blocks 15 and 17, and more than 600,000 barrels for cargoes departing from the Malongo terminal.

Generally, principal exports include the Cabinda, Girassol, Hungo, Kuito, Xikomba, Nemba, Palanca and Kissanje crude blends. All of these tend to trade at a discount to dated Brent. Most of the oil produced is exported as crude; only a small refinery with 39,000 b/d of capacity is needed to meet all of the country’s domestic requirements.

Sonangol has also focused on diversifying its business activities, developing joint ventures and establishing companies that promote both the social development of Angola and the expansion of Sonangol.

Prioritising the management of hydrocarbons, environmental protection and industrial safety, Sonangol has created a diversified business with more than 30 subsidiaries and numerous joint-venture companies are now part of the Sonangol Group, which has its headquarters in the capital Luanda and offices throughout the country. It also has international offices in Brazzaville, Congo; Hong Kong, China; Houston; London and Singapore.

Angola has come a long way since oil was first found there just over 50 years ago and since Sonangol was formed almost 30 years ago. It is very much part of an ever-expanding oil industry in the West African region, which forms one of the most exciting and enticing regions for the oil industry and one that will become ever more important in the 21st century.

OPEC now has 12 Members and the Organization very much welcomes Angola, a desire the country has nursed since its independence in 1975, according to its Petroleum Minister, Desiderio da Gracia Verissimo e Costa. The challenge for OPEC remains the same, however, with the Organization and other stakeholders continuing to advance and promote market stability for producers and consumers alike.
A selection of news stories on OPEC Member Countries taken from international media services

Indonesia hit by flash floods

Jakarta – Material losses from the floods that hit the Indonesian capital and suburban areas at the end of January/beginning of February, have so far been estimated at around 8 trillion rupiah. Lucky Eko Wuryanto, Director for Urban, Spatial and Rural Affairs, at the National Development Planning Agency (Bappenas), said the earlier losses estimate had been put at around 4.3 trillion rupiah, but with the inclusion of “opportunity loss”, the total had now increased to 8 trillion rupiah.

Emergency relief supplies, including food, drinking water, tents, sanitation facilities, and public kitchens were provided. The police deployed 7,000 extra personnel to assist with evacuation efforts across Jakarta, where water levels reached rooftops in some areas. The National Coordinating Board for the Management of Disasters (Bakornas PB) also made four helicopters available to distribute relief items to locations where the displaced gathered.

Jakarta was paralyzed for several days as a result of the floods, resulting in heavy rains, which left many areas inundated, causing a breakdown in the telecommunications network and widespread power cuts.

Some 80 people died, while over 300,000 others had to evacuate their homes. The floods hit north-western Java island, 38 sub-districts of Jakarta province, as well as 11 sub-districts in West Java’s Bekasi district and seven sub-districts in the Tangerang district of Banten province. In some areas, water levels were as high as two metres.

The floods forced the closure of several main roads across Jakarta, while at least two hospitals had to move patients to upper floors. The distribution of fuel and basic commodities was disrupted, and parts of the communications and transportation infrastructure were submerged. The supply of clean water was cut off in many of the affected areas, raising fears that water-borne diseases could spread, due to contaminated supplies.

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Members of the Indonesian Red Cross and other volunteers delivered food to thousands of people stranded in their flooded homes, or sheltering on roadsides. Mosques, schools and other public buildings in dry areas across the city were used as makeshift shelters for the homeless, television reports showed.

Several countries and international non-governmental organizations provided or offered assistance for the relief effort, including the United States, Australia, France, Denmark, Norway, Sweden, Italy, and the United Kingdom.

The floods prompted foreign governments and aid organizations to send a total of $3 million worth of humanitarian assistance to the country. Meanwhile, United Nations agen-
cies said they stood ready to support the Indonesian government in helping with the flood relief effort. Flash floods that hit Aceh province in December 2006 destroyed 24 school buildings causing total material losses totaling 201 billion rupiah. Around 300 other school buildings were seriously or slightly damaged by the floods with around 130,000 students unable to go to school. The floods killed at least 19 people in Tamiang District alone. AntaraNews

Sonangol, BP Angola find more oil in Block 31
Luanda — The National Fuel Society of Angola (Sonangol) and BP Angola have made a 12th oil discovery in the ultra-deep waters of Block 31, offshore the country. According to Sonangol, a new oil well — Terra-1 — located some 30 kilometres to the north-east of the Titânia oil field, was drilled to a water depth of 2,328 metres. Situated 411 km north-east of the capital, Luanda, the well reached a total depth of 6,118 m below sea level. This is the third discovery made in Block 31, in which salt layers were penetrated to reach the oil deposits. AngolaPress

Chevron to build new headquarters in Luanda
Luanda — The Chevron Oil Company has announced the construction of a new headquarters in the Angolan capital, Luanda. The move comes as a result of the considerable investments the US firm has made in the country in the exploration, prospecting and production of oil and natural gas. In a press release, the company said it was expecting a substantial increase in its operations in Angola and was consequently recruiting new employees, for which it needed more office accommodation. AngolaPress

Indonesian economy predicted to perform better in 2007
Jakarta — Indonesia’s Ministry of Finance has expressed optimism that the country’s economy will perform better this year than in 2006, due to an improvement in economic fundamentals, which became evident from the third quarter of 2006. Anggito Abimanyu, Acting Head of the Ministry’s Fiscal Policy, said the improving trend in the investment climate and infrastructure would continue in 2007. Early monitoring of the country’s leading financial indicators showed improving macro-economic stability and increasing economic activity. AntaraNews

Indonesian 2006 oil, gas revenue up by 17 per cent
Lembang, West Java — Indonesian state revenue from the oil and gas sector in 2006 reached $22.54 billion, an increase of 17.17 per cent compared with 2005 figures. Oil and gas income over the past three years has now surged by 89 per cent — from $9.6bn in 2002 to $22.54bn in 2006. The Head of the Indonesian Upstream Oil/Gas Business Division, Kardaya Warnika, told a press conference here that the revenue split in 2006 was $14.64bn for crude oil and $7.9bn for natural gas. AntaraNews

Iran’s Khamenei calls for ‘gas OPEC’
Tehran — Iran’s Supreme Leader Ayatollah Ali Khamenei has called on Russia, the world’s biggest holder of gas reserves, to help create an organization of natural gas-producing countries. “The two countries (Iran and Russia), through mutual cooperation, can establish an organization of gas-exporting countries, like OPEC,” he was quoted as saying. Iran has the world’s second largest gas reserves. The comments were made after Khamenei met with Russia’s National Security Adviser, Igor Ivanov, who said during his visit to the Iranian capital that Moscow was determined to expand its ties with Iran in all fields. IRNA

Iran plans $260 billion investment in gas activities
Tehran — Iran’s Deputy Petroleum Minister Reza Kasaieizadeh has said that $260 billion in investment was required for the country’s gas industry in the national 20-year Development Vision Plan (2005–25). Kasaieizadeh, who is also Managing Director of the National Iranian Gas Company, revealed that the figure included $120bn investment in downstream activities and a $140bn for upstream industries. He added that it was planned to invest $5.8bn in the domestic gas industry in the next Iranian year (to start on March 21, 2007). IRNA

Iran offers new oil blocks for foreign development
Tehran — Iran has formally offered 17 new onshore and offshore oil blocks for development by foreign investors. A two-day meeting, held in Vienna and attended by over 200 representatives of various international oil companies, invited prospective firms to
Iran, Iraq to set up joint shipping company
Tehran — The Managing Director of the Val Fajr Shipping Company, Lotfollah Saeedi, has said that Iran and Iraq had signed a letter of understanding on the establishment of a joint shipping company. The protocol was signed during a recent visit to Tehran by Iraq’s Acting Minister of Transport. Saeedi said the company’s constitution would be drawn up during an upcoming meeting of the two parties. IRNA

Kuwaiti firm to set up oil refinery in Syria
Damascus — The Syrian Oil Ministry is in talks with the Kuwait-based Nour Financial Investment Company (NFIC) to establish an oil refinery in Syria costing $1.5 billion. Economic studies regarding the plant, to be built in Deir al-Zour, in the east of the country, have already been carried out. The plant will have a production capacity of 140,000 barrels/day, a source at the Syrian oil ministry said. The Syrian government is keen to establish new refineries and develop existing plants, in order to secure oil product supplies for the domestic market, limiting imports as much as possible. Some 13 oil companies have expressed a keen interest in developing and setting up oil facilities in Syria, including firms from Syria, Iran, China and Venezuela. KUNA

Stability and peace needed to strengthen African unity — El Qaddafi
Sert — Libyan Leader, Moammer El Qaddafi, has said that overcoming backwardness in Africa and solving its problems required stability and peace on the continent. Speaking at the signing of a peace agreement between the governments of the Central African Republic and the Democratic Front for the Peoples of Central Africa (FDPC), he said such an environment was required to enable the formulation of a road map for the establishment of the United States of Africa. In this way, he added, a united and strong Africa could contribute to world peace, development and cooperation. “As long as we solve our internal problems by force and arms, this means we are backward. Arms are taken up against an external enemy, but internal problems cannot be solved by arms. These are political problems solved by political means. People are the ones who solve problems by peaceful and democratic means,” he stated. Jana

NOC announces Libyan oil exports
Tripoli — The Libyan National Oil Corporation (NOC) has reported that its crude oil exports between January 26 and February 1, 2007 totalled just over 14 million barrels. In its weekly bulletin, it added that the average price paid for a barrel of the crude was $53.37. Jana

Libyan Oil and Gas Council approves oil drilling results
Tripoli — The Oil and Gas Affairs Council in the Great Jamahiryia has approved the results of the third round of oil and gas exploration and drilling contracts, and the sharing of production at five marine and terrestrial blocks, conducted by the National Oil Corporation (NOC) in December 2006. During a recent meeting, the Council studied taking part in investments in the development of the country’s petrochemical and fertilizer industries. It approved the principle of partnership in developing the petrochemical complex at Ras Lanuf, the Al-Bragha complex and the gas liquidation plant. The Council also agreed on a mechanism and means of funding for the development of domestic oil fields. Jana

Nigerian gas flaring reduced by 28 per cent
Abuja — Nigerian President, Olusegun Obasanjo, has announced that gas flaring in the country has been reduced by 28 per cent over a period of seven years to the current level of 40 per cent, the same level recorded between 1958 and 1999. Speaking after a presentation by Minister of the Environment and Housing, Helen Esuene, he said his Administration’s programme of stopping gas flaring altogether by 2008 was on course. NigeriaDirect

Africa needs global assistance on climate change — Obasanjo
Accra — Nigerian President, Olusegun Obasanjo, has called for international assistance to enable African nations develop their adaptive capacities to cope with the challenges of climate change. Speaking at the Second German-African Forum, he said many African nations did not contribute to environmental degradation through emissions, but suffered debilitating implications due to the activities of other nations. Obasanjo
urged strict adherence by all nations to existing international protocols on environmental and bio-diversity preservation. The African Union’s ‘Green Wall Sahara’ initiative, launched in Abuja in December 2006, aims to safeguard the African environment, conserve the ecosystem, and check and reverse the desertification process. *NigeriaDirect*

**Saudi Arabian bank to open 50 branches in Malaysia**

*Kuala Lumpur* — Saudi Arabia’s Al Rajhi Bank, the world’s largest Islamic banking group, has unveiled an aggressive plan to expand its operations in Malaysia to 50 branches by 2010. Al Rajhi had set up 12 branches since it opened for business in Malaysia in October, commented its Chairman, Abdullah Sulaiman Al-Rajhi. “We look at Malaysia as a platform to do more business in this region. But we are not going to open branches in other countries. We believe growth in the region is there and Malaysia is in a good position because it is a leader in Islamic banking,” he added. *SPA*

**Work progressing on Al-Qurayyah seawater project**

*Riyadh* — The Al-Qurayyah Seawater Plant (QSWP) expansion project is forging ahead with a team of Saudi Aramco engineers working closely with contractor personnel. “We are proud to have a 100 per cent Saudi task force leading the engineering, procurement and construction, who will complete the project on schedule, meeting the highest quality standards,” said Project Manager, Amin F Ghazzawi. With the project’s completion, the plant will have a treatment capacity of 14 million b/d, making QSWP the world’s largest seawater treatment plant intended for oil recovery, according to a report carried on the Saudi Aramco Website. *SPA*

**UAE needs diversification of energy sources — expert**

*Abu Dhabi* — Increasing current and future demand for energy in the United Arab Emirates (UAE) requires diversification of energy resources to include renewable energies, a British energy expert has said. In a lecture at the Information Affairs Office of Sheikh Sultan Bin Zayed Al Nahyani, Deputy Prime Minister, Neil Walker said: “Keeping pace with high demand for energy in the region will require massive investment to build and upgrade power plants.” He put total investments needed in the energy sector at around $200 billion over the next 15 years. Over the next six years, he stated, the Middle East and North Africa (MENA) region was predicted to spend $57bn on the installation of new capacity alone. “While power generation from renewable energy sources is still a fringe activity in the Middle East, the number of pilot projects, hybrid plants and renewable energy research areas are on the increase. But coal and natural gas industries are among the activities recently being developed for power generation,” he added. *WAM*

**Abu Dhabi firm to acquire CMS Generation**

*Abu Dhabi* — The Abu Dhabi National Energy Company (TAQA) has announced the purchase of CMS Generation, a subsidiary of the United States integrated energy firm, CMS Energy. When finalized, the deal will provide TAQA with an additional 4,300 megawatts of generation capacity and further deepen its skills as a best-in-class independent water and power plant (IWPP) developer and operator. TAQA said it intends to further develop its asset base as an upstream, midstream, and downstream energy company. *WAM*

**Latin American integration needs to be put into practice — Chavez**

*Quito* — Venezuela’s President, Hugo Chávez, stated during the swearing-in of new Ecuadorean President, Rafael Correa, the need for “putting Latin American integration into practice”. After hearing the speech of President Correa, Chávez said: “The Ecuadorean people have the will and strength to put Correa’s speech into practice and transform it in a national project of integration. The future of Ecuador is the future of Venezuela, or Colombia. We have the same future,” stated Chávez. *ABN*

**Great Pipeline of the South to benefit regional communities**

*Rio de Janeiro* — Venezuela’s Minister of Energy and Petroleum, Rafael Ramírez, has said that Venezuela and Brazil were working together for the benefit of the communities bordering the first section of the Great Gas Pipeline of the South. He was speaking at a press conference after the signing of an agreement by Venezuelan President, Hugo Chávez, and his Brazilian counterpart, Luiz Inácio Lula Da Silva, in Rio de Janeiro, to build the first section of the pipeline, which will stretch 5,000 km from Guiria to Recife. According to Ramírez, both Presidents were worried about the impact of the pipeline on the communities in the region. “For this reason, both presidents are looking for a parallel mechanism to generate benefits for these communities,” he added. *ABN*
Water resource management: making every drop count

Around 70 per cent of the Earth’s surface is covered with water, yet, by the middle of this century, at least two billion people — maybe as many as seven billion — could be short of the precious resource. According to the United Nations, 1.1 billion people are currently without safe drinking water, while 2.6 billion lack access to basic sanitation. Water-related incidents, such as floods and droughts, kill more people than any other natural disaster, and water-borne diseases continue to cause the deaths of thousands of children across the world, every day. For some, the crisis means having to walk long distances every day to fetch enough drinking water — clean or unclean — just to get by. For others, it means suffering from avoidable malnutrition or disease caused by drought, floods or inadequate sanitation.

This critical situation prompted Koichiro Matsuura, Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO), to say: “Of all the social and natural crises we humans face, the water crisis is the one that lies at the heart of our survival and that of our planet.” In a UNESCO press release, issued in March 2003, he went on to state that no region would be spared from the impact of the crisis, which touched every facet of life,
from the health of children to the ability of nations to secure food for their citizens. The fact is that only 2.5 per cent of the planet’s water is fresh and, regionally, the distribution of that water is far from equitable. Asia is particularly hard hit, with just 36 per cent of the world’s water resources supporting 60 per cent of the global population.

Africa tends to have a better balance on paper — it has just 11 per cent of the world’s available fresh water, and 13 per cent of the planet’s population.

Ironically, UNESCO’s Second World Water Development Report entitled *Water, a shared responsibility*, and issued in 2006, stresses that there is actually enough water for everyone — the problem today is largely one of governance: equitably sharing the water, while ensuring sustainability of natural ecosystems. In the following article taken from the OPEC Fund for International Development (OFID) publication, *Making a difference — OFID and the fight against poverty*, also published in 2006, we hear how the institution is helping the fight against water shortage.
Since the dawn of time, water has been shaping the Earth’s face. Not only geologically, carving valleys and canyons and sculpting rock formations, but also geopolitically, enabling settlements to grow into cities and tribal territories to develop into great civilizations. The first major civilizations arose on the banks of great rivers — the Nile in Egypt, the Tigris-Euphrates of Mesopotamia, the Indus in Pakistan, and the Hwang Ho of China. All of these civilizations built extensive irrigation systems that made the land far more productive.

But by the same token, civilizations collapsed when water supplies failed or were improperly managed. The decline of the Sumerian civilization of Mesopotamia, for example, is believed to have been due to prolonged droughts and poor irrigation practices resulting in salt build-up in the soil. Similarly, the abandonment of Roman aqueducts, canals and reservoirs in North Africa helped return the region to desert.

Throughout history, water has sustained human life, our environment and our cultures. But now, global demand for water is increasing at such a pace that we face the very real threat of running out of this precious resource. We simply cannot afford the vast social upheaval that global water shortages would inevitably lead to. In the 21st century, allowing our civilization to simply sink back into the sands is not an option. Fortunately, some solutions are emerging, but there is little time to be lost in their implementation.

While world water use has increased six-fold since the beginning of the 20th century, only ten per cent of all the water that is withdrawn from rivers or from underground sources is used for residential purposes. Twenty per cent is used by industry, and the rest — 70 per cent — is used for irrigation. Quite simply, irrigated land now plays an enormous role in the world food economy, accounting for 40 per cent of our food supply. But as irrigation tends to be very inefficient and much of the water is simply wasted, the potential benefit from helping farmers develop more efficient irrigation methods is enormous.

The OPEC Fund is supporting projects to aid the sustainable management of scarce water resources in some of the driest parts of the planet.

The countries of West Asia and North Africa (WANA) have always been short of water. In recent years, however, heavy demand from agriculture and growing populations has led to a crisis situation. With virtually no untapped water sources left, the countries in this region have no choice but to better manage the limited water they have.

**Sustainable management**

A project co-financed by OFID to the tune of $500,000 is intended to help them do just this. Spearheaded by the International Centre for Agricultural Research in Dry Areas (ICARDA), in cooperation with the International Fund for Agricultural Development (IFAD), the multi-faceted research scheme aims to enhance the productivity of agriculture through the efficient and sustainable management of water resources, with the full participation of rural communities.

*Irrigation equipment being used to water a corn field.*
At present, agriculture accounts for over 75 per cent of the total water consumption in the WANA region, but the pressure from other sectors is increasing to the point that farmers now have to optimize every drop they use.

With three significantly diverse agricultural zones, the region has to develop a range of strategies when it comes to water management and conservation. The rain-fed areas depend on low and variable rainfall, resulting in minimal yields — a problem exacerbated by frequent drought. The badia, or drier environments, are home to a substantial proportion of the region’s poorest rural populations.

Rainfall occurs in the form of intense and unpredictable storms and, as a result, the crusting soils are unable to absorb the moisture, which rapidly becomes lost through evaporation or runoff. Irrigated areas utilize rivers and ground-water sources, which are becoming depleted from over-use.

In cooperation with National Agricultural Research Systems (NARS) in the WANA countries, ICARDA has established benchmark sites in each of these three agricultural zones and linked them to NARS satellite sites in other WANA countries. Research is being conducted with farming communities at each site.

The rain-fed benchmark site, with research focus on supplemental irrigation, is located in Morocco, while complementary research activities are conducted at satellite sites in Algeria, Syria and Tunisia. Jordan is hosting the badia site, with satellite sites in Libya and Saudi Arabia. For the irrigated areas, the benchmark site is located in Egypt.

Using a multi-disciplinary approach, researchers at these sites are studying water use at the household and community levels, as well as the watershed and policy levels. Issues specific to each WANA country, such as
water quality, special soil conditions and local water-related policies, are being taken into consideration.

In each of the three zones, efficient water-use strategies will be developed and tested under farm conditions. This project is based on community participation in research, and the development and adaptation of improved water management options at the farm level. Involving the farmers is likely to give them a greater sense of ownership of the project, and will hopefully lead to their adoption of the new conservation measures as a result.

Ideas that are being tested by the project include the use of supplemental irrigation in rain-fed cropping areas. This involves applying a limited and controlled amount of water to rain-fed crops in years when rainfall fails to provide the moisture essential for normal crop growth.

In the badia, or steppe areas, which are the driest areas of the WANA states outside of the desert areas, the focus will be on promoting water harvesting. Although water has been harvested in these areas for centuries, the traditional water capture and storage systems have fallen into disrepair in many places. This trend has to be reversed, and the people have to be encouraged and empowered to save every drop when it rains.

Capacity-building will take the form of regional training programmes and workshops among researchers, extension workers, farmers and decision-makers. In addition, meetings will be held among specialists and decision-makers and representatives of the three agro-ecologies

Children carrying plastic containers full of water.

Pumps are sometimes essential for getting water to the crops.
Increasing public awareness of efficient water use
Part of ensuring that every drop of water counts, is getting every member of society to understand the importance of using water efficiently and of conserving it wherever possible. The Arab Organization for Agricultural Development (AOAD) is running a major project in 21 Arab countries to increase public awareness of water scarcity and to encourage more sustainable use of this ever-depleting resource.

OfID has contributed a grant of $400,000 in support of the project, which could not be more timely, considering the acute water crisis faced by the region. The project commenced in June 2005 and will run until June 2007.

While the worldwide per capita water share averages out at 7,650 cubic metres per annum, this compares with just 940 cu m per annum per person in the Arab world. In cooperation with the national authorities of each participating country, AOAD will implement an intensive information campaign, using a wide range of media, to inform the public about the critical water situation and the need to use resources sparingly.

The project will target consumers in all sectors — agriculture, industrial and domestic. Campaigns will be tailored to the specific needs of each sub-region (Mashreq, Maghreb, Arab Peninsula and Central), as identified by specialist technical teams.

And, as almost 90 per cent of water consumed in the region is used for agriculture, the awareness campaign will focus heavily on this sector. Therefore, a second thrust of the project will concentrate on the agriculture sector and involve training programmes for rural women and farmers on optimizing the use of limited water resources. The OFID grant will support this part of the project.

This is the sixth grant OFID has extended to the AOAD. Previous assistance has focused on activities for the control of agricultural pests and livestock disease.

Improving access to clean water
More than one billion of the world’s people live in dry areas and, of these, more than half depend on agricultural practice for their livelihood. If the problem of water scarcity is not addressed in time, water shortages have the potential to be this century’s greatest threat to human health, food security and the environment. But just as important as securing an adequate overall supply of water is ensuring that everyone has access to clean water and modern sanitation.

One-third of the world’s population does not have access to potable water and modern sanitation facilities. Much of the disease and premature death in these countries is caused by polluted water sources. Installing safe, clean sources of water and efficient sewerage removal facilities is thus an extremely important precursor to effective social and economic development.

In fact, one of the Millennium Development Goals is to reduce by half, the proportion of people without access to safe drinking water and basic sanitation. This means that by 2015, 1.6 billion people must have safe drinking water and two billion people access to basic sanitation.

Since its inception, OFID has been involved in dozens of projects relating to water supply and sanitation, in countries all over Africa, Asia, Latin America and the Caribbean. In fact, in 2005, OFID extended public sector project loans of $42.6 million for water supply and sewerage projects, nearly 15 per cent of OFID’s total public sector lending in that year.
This section includes highlights from the OPEC Monthly Oil Market Report (MOMR) for January published by the Research Division of the Secretariat, containing up-to-date analysis, additional information, graphs and tables. The publication may be downloaded in PDF format from our Web site (www.opec.org), provided OPEC is credited as the source for any usage.

Crude oil price movements

**OPEC Reference Basket**

The market began December on a stronger note on the expectation of normal winter demand and the prospect of a second output cut by OPEC. The OPEC Reference Basket (ORB) followed up a price surge of nearly five per cent in the last week of November with a further gain of 2.6 per cent in the first week of December to reach $59.06 a barrel, the highest level since mid-September. Although weak European refining margins brought some softness to the marketplace, tight North Sea supply sustained the bullishness.

In the second week of the month, the ORB eased by a similar amount on lower demand for winter fuels as forecasters predicted warmer weather in the Northern Hemisphere. Uncertainty over an oil supply cut by OPEC at its Abuja Ministerial Conference lent support to price eamement and the ORB lost $1.47, or less than one per cent, to close at $57.59/b.

In the final week of the year, the ORB resumed its downward movement amid the planned start-up of the new Buzzard oil field in the North Sea and the prolonged outlook for warm weather. In the third week of the month, the ORB’s average inched up by a marginal 42¢, or less than one per cent, to close at $58.01/b. Nevertheless, OPEC’s announcement of a second production cut for February 2007 stemmed the downward movement amid the planned start-up of the new Buzzard oil field in the North Sea and the prolonged outlook for warm weather. In the third week of the month, the ORB’s average inched up by a marginal 42¢, or less than one per cent, to close at $58.01/b.

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In monthly terms, the ORB averaged $2.53, or 4.6 per cent higher, at $57.95/b, the highest level in three months. The second cut in OPEC crude output, amid tight North Sea supply, helped maintain a bullish market sentiment. Yet, the mild winter prevented prices from rallying further and prompted the potential for ample supplies in the marketplace. However, with the start of the New Year, the ORB experienced sharp losses, dropping by more than 14 per cent to stand at $48.23/b on January 18.

**US market**

The US domestic market also began December on a stronger note as refineries returned from seasonal turnaround and began stockpiling light-end products for winter demand. Thus, in the first week of the month the average WTI/WTS spread narrowed from November highs of well above $6 to drop to $4.11/b. In the second week, tight supply of light sweet crude from the North Sea was poised by tight output from Canada’s synthetic crude. Hence, the weekly WTI/WTS average was a marginal 4¢ wider at $4.15/b. In the third week, fog disrupted tanker traffic on the US Gulf Coast, leading to concerns about a supply shortfall. The WTI/WTS spread widened by $1.10 to $5.25/b, the highest level in four weeks. Low activities in the final week of the year, amid the holiday season, combined with some buyers extracting liquidity from the market, saw the WTI/WTS spread narrow by 75¢ to $4.50/b. The monthly average for WTI was $3.02/b, or over five per cent higher, with the premium to WTS

1. An average of Saharan Blend (Algeria), Minas (Indonesia), Iran Heavy (IR Iran), Basra Light (Iraq), Kuwait Export (Kuwait), Es Sider (SP Libyan AJ), Bonny Light (Nigeria), Qatar Marine (Qatar), Arab Light (Saudi Arabia), Murban (United Arab Emirates) and BCF-17 (Bachaquero, Venezuela).
North Sea market

North Sea crude prices firmed early in the month on bullish sentiment for winter fuels. However, this sentiment was short-lived amid weak refining margins, while some December barrels were still available, forcing sellers to reduce differential offers. However, later in the first week of the month, a decline in Brent supply to 139,000 b/d from 268,000 b/d contributed to the weak market sentiment. However, persistent poor refining margins in the second week kept a cap on differential strength amid the new Buzzard oil field boosting Forties supply. While the lower quality of the newer grade was expected to weaken Forties crude values, differentials softened as refiners reduced runs amid soaring freight rates.

The market bearishness continued into the last week of the month amid warmer weather, while poor margins kept buying interest to a minimum in the final days of the year. Brent’s monthly average was $3.41, or nearly six percent, higher at $62.33/b.

Mediterranean market

Urals crude came under pressure in the Mediterranean, as well as in northern Europe, on weak refining margins in the first week of the month. Thus, refinners reduced run rates. The Urals discount to Brent widened by 27¢ to stand at $4.73/b, pressured by the lower sour Middle East crude; however, an improved crack spread lent support to the grade. In the second week, the prospect of higher demand for December barrels, amid disruptions to shipping through the Turkish Strait, supported the sour crude market. OPEC’s decision to cut output also lent support, whereas the Brent/Urals weekly average spread narrowed by 59¢ to 4.14/b.

Tight supply from the North Sea pressured the discount for sour grades to deepen further amid weakening refining margins, prompting some refinners to run at minimum throughput. Hence, Urals was again valued at an average of $4.77/b under Brent in the third week. In the last week of December, with the market digesting OPEC’s second output cut, and delays due to shipping disruptions, conditions for Urals crude improved. In the last week, the Brent/Urals average was $1.20 firmer at $3.57/b. In monthly terms, the Urals outright price averaged $57.95/b for a gain of $2 with the spread under Brent expanding by $1.41 to $4.38/b, the widest since August.

Middle Eastern market

Middle East crude was under pressure as Oman ORC shut its refinery in January for three months amid capacity expansion, leaving additional barrels on the market. January Oman was valued at a 10¢ discount to MOG with weak Asian refining margins adding to the bearishness. The forecast for cold weather in Japan lent some support to the market.

Abu Dhabi’s Murban was valued at a 15-20¢ premium to ADNOC’s OSP, while the Brent/Dubai spread narrowed to $3.83/b. In the second week, the prospect of lower OPEC output amid emerging winter demand revived some bullishness in the Asian market. February Oman was assessed at a 10-13¢ discount to MOG amid an improving fuel oil crack spread. Abu Dhabi’s Murban was firming at a 20–30¢ premium to ADNOC’s OSP. Thus, the Brent/Dubai spread widened to $4.26/b.

In the third week, February Oman, for the first time since August, was assessed at a premium, amid OPEC’s output cut, with February Murban assessed at the highest level in 14 months at a premium of around 50¢ to OSP. The Brent/Dubai spread narrowed to $3.80/b. The firm sentiment continued in the final days of the year in anticipation of tight OPEC supply in February.

The Brent/Dubai spread narrowed further to $2.16/b in the fourth week. Nonetheless, the monthly average of the Brent/Dubai spread widened by $1.44 to $3.64/b.
Product markets and refinery operations

Unseasonably warm weather across the board adversely affected seasonal product demand and exerted further downward pressure on product prices and refining margins in various markets. With the continuation of unusually warm weather, the current crack spread for distillates — which usually leads the market in the winter — may narrow further in the next months and continue to exert pressure on the persistently weak refining margins.

The refining margin for benchmark WTI crude fell by 25¢ to $3.95/b in December from $4.20/b in November. Refining margins in Europe also dropped sharply to minus 21¢ from $1.14/b the previous month. In Asia, refining margins improved slightly and rose to $2.67/b from $1.57/b in November. A cold spell over the next few weeks may provide some support for product prices and refining margins, but contra-seasonal product stock-builds over the last few weeks have undermined any bullishness in the product markets, with heating oil almost losing its traditional role of market leader during the first quarter of the year. The present situation of the product market is not likely to be able to lift crude oil prices in the near future.

Typically, refinery utilization rates surge to their maximum level in December and January, but this year mild weather and low margins have adversely affected refinery throughputs across the globe and most plants have curbed their throughput levels compared with the traditional level in December of each year. In December, the US refinery utilization rate rose to 89.4 per cent from 87.6 per cent the previous month, whereas, under normal circumstances, the US refinery throughput level normally exceeds 95 per cent of its nominal capacity in the latter part of the year. In Europe, low refining margins have led to the trimming of refinery operation levels and the refinery utilization rate fell to 86 per cent in December from 86.7 per cent the previous month. In Asia, Japanese refineries, which usually increase their throughput level to nearly 93 per cent in the latter part of the year, hardly recorded 90 per cent in December. Looking ahead, amid the warm winter and low refining margins, the utilization rate is not expected to rise over the next two months.

US market

When a product stock-draw occurred at the beginning of December, many analysts expected product market sentiment to improve and heating oil to take the lead in the market and provide support for crude prices. Instead, the unusually warm weather led to contra-seasonal product stock-builds and a further deterioration of the crack spreads of different product components versus the benchmark WTI crude oil in the US market.

In line with these developments, the premium gasoline spread against WTI fell to $10.16/b in the last week of December from $15.69/b in the same period of November. Due to falling gasoline demand in January and higher European imports, the US gasoline market may lose further ground over the next few weeks. The recent distillate stock-build in the US has also weakened the bearish sentiment of the futures and physical markets further and resulted in technical sell-offs across the board, especially in the Nymex market. Such a technical sell-off in the product market has eroded the crack spreads of different cuts of distillate components, especially gasoil against benchmark WTI crude, which slipped to $12.85/b at the end of December from $16.95/b in the latter part of the previous month. A potential cold snap over the next few weeks may provide support for distillate prices and the spread.

The bottom of the barrel complex was also negatively affected by the mild weather and slack utility demand. Additionally, high stocks and low prices of natural gas have also weighed on low-sulphur fuel oil demand and prices, and given these circumstances the currently weak US fuel oil market is not expected to change positively over the next few weeks.

European market

The unseasonably warm weather has adversely affected European futures and physical product markets and resulted in negative refining margins for benchmark Brent crude oil in the Rotterdam market. Such developments in refinery economics surprisingly forced European refiners to reduce their throughput level in December, and there is a risk that it might be trimmed further in January.

Among the light components of the barrel, the diesel portion continued to be undermined relative to other light products. The gasoil crack spread plummeted from above $15/b in November to around $12.50/b in December. The continuation of the current mild weather may exert more downward pressure.

The gasoline market in Europe was relatively stable in December, and even its crack spread versus the corresponding benchmark crude in the Rotterdam market improved by about $1.5/b to reach around $11.30/b from nearly $9.80/b in late November. Due to narrowing arbitrage opportunities to the US, the European gasoline market may lose ground over the next weeks.

The persisting mild weather has also negatively affected the fuel oil market and led to high stocks in December. Many traders are looking for proper outlets to dispose of both low-sulphur and high-sulphur fuel oil, but due to the absence of the arbitrage opportunity, the European fuel market is expected to remain under pressure.

Asian market

Lower Chinese and Singaporean gasoline exports, along with Australia’s higher seasonal demand, have given support to the Asian gasoline market and boosted its crack spread against benchmark Dubai crude oil to above $8.30/b from $4.80/b in November. With new refinery capacity in India and China, the current strength of the Asian gasoline market may ease in the next few weeks. Apart from gasoline, the Asian naphtha market was also strong in December, as the switch to naphtha fuel by Indian utility plants, due to a domestic gas shortage, has given support to naphtha prices.

With regard to distillates, the mild weather has kept the gasoil crack spread relatively weak, dropping to $15.30/b in late December from above $16/b earlier in the month. However, a cold spell, along with the booming Chinese
aviation sector, could lift distillate prices, although, due to high kerosene stocks in Japan, it is not expected that distillates will take their traditional leading role over the next months.

As far as the fuel oil market is concerned, sluggish regional demand and higher Russian exports to China put more pressure on fuel oil prices in the earlier part of last month, as the crack spread against benchmark Dubai crude oil slid to minus $18.28/b on December 8. However, over the last two weeks, lower exports from South Korea, due to a potential natural gas shortage and relatively higher Chinese demand, have changed Asian fuel oil market sentiment and lifted prices in the physical and swap markets. In the second week of January, the high-sulphur fuel oil crack spread in Singapore versus Dubai crude narrowed to around minus $8.30/b from above $18/b in early December. With the arrival of arbitrage cargoes from the west, Asian fuel oil may lose its recent strength in the next weeks.

The oil futures market

The oil futures market saw bullish momentum early in the month; however, this was short-lived. According to the CFTC report, non-commercial increased net long positions by 7,200 to 19,000 contracts as short positions fell sharply and at a faster pace than longs. Nonetheless, open interest rose a considerable 46,200 to stand at 1,219,000 lots with most of the increase coming from shorts on the commercials side. Including options, open interest contracts rose by a hefty 50,300 lots, nearing the two million mark at 1,938,000. Over the same weekly period, concern over the expected onset of winter weather and a possible additional OPEC output cut amid falling gasoline and heating oil stocks in the US, boosted prices. In the first weekly period, Nymex WTI closed at $62.43/b to average $62.78/b, representing a rise of $2.6/b, or well over four per cent, from the previous week.

In the second week, WTI closed at $61.02/b to average $61.79/b, moving lower on expectations over OPEC output, as well as persistent mild weather and profit-taking. Non-commercial reduced long exposure, while increasing short positions significantly. Hence, net long positions fell by nearly 6,500 contracts to 12,500 lots, while open interest inch ed up by a marginal 3,800 lots to 1,223,000. With options included, open interest was up by 14,400 to 1,952,000 lots, the highest level in five-weeks.

In the third week, a series of bullish factors, including the closure of the US Gulf Coast ship channel due to fog, as well as the announcement of a second output cut by OPEC, resulted in WTI registering a gain, closing at $63.46/b to average $62.60/b for the week. Over the same week, non-commercials sharply reduced short positions at a higher rate than longs, resulting in a net change of 6,400 lots, boosting net longs to 18,900. Moreover, open interest was deflated a considerable 60,600 lots to 1,162,000, mostly due to reduced commercial positions. With options included, open interest saw a further fall, dropping by 126,000 lots to close at 1,086,000.

In the final week, the CFTC report revealed that non-commercials increased long positions at a slightly faster rate than shorts. Hence, net longs saw a marginal gain of 1,000 lots to stand at 19,900 contracts. Furthermore, open interest was inflated by a significant 18,000 lots to 1,180,000. With options included, open interest rose by 41,000 to 1,887,000 contracts, with commercials contributing most of the increase. Nonetheless, WTI closed lower at $61.10/b, with the weekly average falling to $62.47/b.

In monthly terms, front-month Nymex WTI averaged $61.99/b in December, 4.4 per cent higher than the previous month. The CFTC revealed that the weekly average for net positions was 17,000 lots, or 8,300 contracts wider. Open interest averaged the highest level ever at 1,826,000. The tanker market

After showing declines for the previous two months, OPEC spot fixtures increased in December by 450,000 b/d to average 12.0m b/d.

The forward structure

The forward structure improved as US crude oil inventories declined in December. The contango spread was 43¢ firmer at $1.35/b for the 1st/2nd month. The structure improved in the further forward months with the 1st/6th, 12th and 18th month spreads at $4.47, $6.51 and $7.12/b, a narrowing of 89¢, $1.24 and $1.55, respectively. The average for US weekly crude oil stocks averaged 1,196,000 lots over the previous year, while net long positions stood at 64,900, or 8,800 lots wider.
December, with the eastbound share at around 700,000 b/d and the westbound increase at 500,000 b/d. Despite the increase in OPEC December spot fixtures, the 2006 average settled at around 13.0m b/d, down 200,000 b/d from 2005, and 1.0m b/d lower than in 2004. Compared with a year earlier, both Middle East/eastbound and westbound fixtures were higher by 1.2m b/d and 400,000 b/d, respectively. The share of Middle East spot fixtures in total spot fixtures remained stable at around 35 per cent with eastbound at 26 per cent and westbound at nine per cent.

OPEC sailings continued to move downward, dropping a further 400,000 b/d to reach 22.74m b/d, the lowest level since December 2003 and indicating a y-o-y decline of around 11 per cent. Similarly, Middle East sailings fell by 1.12m b/d to average 16.37m b/d, another three-year low. High inventory levels, coupled with weak demand, triggered by relatively warm weather, along with the OPEC cut, were the main reasons for such low sailing figures. Preliminary data shows that arrivals at the US Gulf and East Coast and the Caribbean dropped to 9.1m b/d in December — the lowest level since September 2005, right after Hurricane Katrina — bringing the 2006 average to 9.57m b/d, around 410,000 b/d lower than the average of the previous year.

In December, spot freight rates showed a mixed pattern as most shipping route rates picked up at various magnitudes, except for the major shipping destinations from the Middle East. The VLCC market continued its steady decline, while both the Suezmax and the Aframax markets gained, with the latter strengthening sharply. VLCCs trading on the Middle East/eastbound long-haul route fell four points to average Worldscale 68, the lowest rate since April 2006, bringing the yearly average to W101, almost the same average as in 2005. Similarly, VLCC rates trading Middle East/westbound fell nine points to average W59, the lowest rate in 2006.

The declines in VLCC spot freight rates in December for the Middle East/eastbound and westbound long-haul routes followed an unusual pattern in the fourth quarter with vessel earnings averaging W72. This is basically contrary to the norm of the fourth quarter, which is usually one of the best months in terms of earnings for owners. When compared with a year earlier, the yearly average freight rate for VLCCs sailing from the Middle East in 2006 fell by around 47 per cent. Ample VLCC availability, coupled with weak demand for tonnage, can be attributed as the major contributors to the rates reached in December, as well as in the fourth quarter as a whole. December VLCC availability for loading in the next 30 days averaged around 80 vessels, almost 25 per cent higher than in July. The reduction of oil in transit, together with OPEC’s cut, and the VLCC fleet growth, are the main factors influencing VLCC availability.

In contrast to the VLCC market, the Suezmax market rebounded in December with an average increase of W14 points on major routes in the month. The increased activities in NW Europe and the Mediterranean created a tight market with vessel availability shrinking, boosting rates. The West Africa/US Gulf Coast route experienced an increase of W13 points to average W135, with freight rates averaging W147, around W10 points less than the previous year. The NW Europe/US East Coast and US Gulf Coast routes increased W14 points to average W125, indicating a y-o-y loss of more than W100 points, or 46 per cent. The fourth-quarter average of spot freight rates on major routes for the Suezmax sector came to W133, or around W83 points lower than last year, which only added to the peculiarity of 2006, in terms of vessel earnings.

The Aframax sector showed a mixed pattern with freight rates on the Indonesia/US West Coast route continuing their downward trend and decreasing for the third consecutive month to average W148, the lowest level since May. On the other hand, market tightness helped freight rates on tonnage sailing from the Mediterranean to rebound sharply, reaching the top of the gainers’ list in December. Rates for inter-Mediterranean shipping routes rose by W110 points to average W222, an increase of around 100 per cent from the previous month and around 63 per cent less than during the previous year. Correspondingly, on the Mediterranean/NW Europe route, freight rates soared by W114 points to average W224, indicating a y-o-y drop of 19 per cent. The various delays in different parts of the world, mainly in the Bosporus Strait in Turkey, and the closure of some ports as a result of bad weather, prolonged voyages, creating tightness in tonnage availability.

In the clean market, December was a long-awaited month for ship-owners with rebounds in freight rates after three consecutive months of decline. East of Suez routes led the rally with an increase of around 55 per cent from the previous month. Freight rates for 30,000–35,000 dwt tankers moving from the Middle East and Singapore to the East gained W57 and W123 points, reaching an average of W213 and W291, respectively, mainly due to a lack of tonnage and charterers rushing to cover their positions prior to the holiday season.

Additionally, the strong naphtha demand for both gasoline and petrochemical use lent further support to the activities. Similarly, West of Suez rates for moving clean products experienced increases with rates from NW Europe to transatlantic destinations receiving support from increased gasoline demand in the US and

<table>
<thead>
<tr>
<th>Year</th>
<th>1Q</th>
<th>2Q</th>
<th>3Q</th>
<th>4Q</th>
<th>Average</th>
<th>Growth y-o-y</th>
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<tbody>
<tr>
<td>2003</td>
<td>5.87</td>
<td>6.75</td>
<td>6.72</td>
<td>6.61</td>
<td>6.49</td>
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<td>2004</td>
<td>7.17</td>
<td>7.30</td>
<td>7.38</td>
<td>7.37</td>
<td>7.31</td>
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<td>2005</td>
<td>7.45</td>
<td>7.69</td>
<td>7.76</td>
<td>7.85</td>
<td>7.69</td>
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<td>7.98</td>
<td>8.41</td>
<td>8.31</td>
<td>8.27</td>
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<td>2007</td>
<td>8.68</td>
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<td>9.00</td>
<td>8.86</td>
<td>8.92</td>
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1. Forecast.

Table B: FSU net oil exports m b/d

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<th>Year</th>
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<th>2005</th>
<th>2006</th>
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<td>3Q</td>
<td>4.06</td>
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<tr>
<td>4Q</td>
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<tr>
<td>Average</td>
<td>W125</td>
<td>W122</td>
<td>W148</td>
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<tr>
<td>Growth y-o-y</td>
<td>W100</td>
<td>W122</td>
<td>W148</td>
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</table>

Table C: OPEC NGL production, 2004–07 m b/d
Table D: OPEC crude oil production, based on secondary sources  

<table>
<thead>
<tr>
<th>Country</th>
<th>2004</th>
<th>2005</th>
<th>4Q05</th>
<th>1Q06</th>
<th>2Q06</th>
<th>Oct 06</th>
<th>Nov 06</th>
<th>Dec 06</th>
<th>Dec/Nov</th>
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<td>1,349</td>
<td>1,374</td>
<td>1,376</td>
<td>1,368</td>
<td>1,380</td>
<td>1,354</td>
<td>1,354</td>
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</tr>
<tr>
<td>Angola</td>
<td>1,019</td>
<td>1,256</td>
<td>1,392</td>
<td>1,426</td>
<td>1,355</td>
<td>1,408</td>
<td>1,477</td>
<td>1,474</td>
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</tr>
<tr>
<td>Indonesia</td>
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<td>942</td>
<td>935</td>
<td>922</td>
<td>914</td>
<td>870</td>
<td>868</td>
<td>868</td>
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<tr>
<td>IR Iran</td>
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<td>3,924</td>
<td>3,911</td>
<td>3,849</td>
<td>3,800</td>
<td>3,842</td>
<td>3,797</td>
<td>3,766</td>
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<tr>
<td>Iraq</td>
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<td>1,675</td>
<td>2,001</td>
<td>2,026</td>
<td>1,923</td>
<td>1,905</td>
<td>1,905</td>
<td>-18.2</td>
</tr>
<tr>
<td>Kuwait</td>
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<td>2,504</td>
<td>2,548</td>
<td>2,532</td>
<td>2,513</td>
<td>2,498</td>
<td>2,440</td>
<td>2,427</td>
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</tr>
<tr>
<td>SP Libyan AJ</td>
<td>1,537</td>
<td>1,642</td>
<td>1,665</td>
<td>1,680</td>
<td>1,699</td>
<td>1,728</td>
<td>1,700</td>
<td>1,689</td>
<td>-11.0</td>
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<tr>
<td>Nigeria</td>
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<td>2,257</td>
<td>2,212</td>
<td>2,249</td>
<td>2,227</td>
<td>2,252</td>
<td>25.0</td>
</tr>
<tr>
<td>Qatar</td>
<td>771</td>
<td>792</td>
<td>808</td>
<td>816</td>
<td>820</td>
<td>831</td>
<td>809</td>
<td>808</td>
<td>-1.2</td>
</tr>
<tr>
<td>Saudi Arabia</td>
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<td>9,390</td>
<td>9,426</td>
<td>9,416</td>
<td>9,133</td>
<td>8,922</td>
<td>8,750</td>
<td>8,710</td>
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</tr>
<tr>
<td>UAE</td>
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<td>2,447</td>
<td>2,518</td>
<td>2,528</td>
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<td>2,578</td>
<td>2,496</td>
<td>2,483</td>
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</tr>
<tr>
<td>Venezuela</td>
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<td>2,633</td>
<td>2,584</td>
<td>2,595</td>
<td>2,574</td>
<td>2,523</td>
<td>2,456</td>
<td>2,471</td>
<td>-15.2</td>
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<tr>
<td>OPEC excl Iraq</td>
<td>28,008</td>
<td>29,291</td>
<td>29,629</td>
<td>29,398</td>
<td>28,925</td>
<td>28,830</td>
<td>28,373</td>
<td>28,259</td>
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<tr>
<td>OPEC excl Angola &amp; Iraq</td>
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<td>28,035</td>
<td>28,237</td>
<td>27,972</td>
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<td>27,422</td>
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<td>Total OPEC</td>
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<td>31,121</td>
<td>31,304</td>
<td>31,109</td>
<td>30,926</td>
<td>30,856</td>
<td>30,296</td>
<td>30,164</td>
<td>-132.8</td>
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</table>

Totals may not add, due to independent rounding.

Mexico. December rates for tankers moving clean products of 33,000-37,000 dwt on the NW Europe/US East Coast and US Gulf Coast routes averaged W313, around W105 points higher than the previous month. The delays in various locations also provided support to the clean market, the inter-Mediterranean routes experienced an increase of W21 points to average W242 and W252 for Mediterranean and NW Europe destinations, respectively.

World oil demand

World oil demand in 2006

The warm winter weather is once again denting demand for oil in its usual upward winter cycle. Although demand for transport fuel picked up, it was not enough to offset the decline in heating oil demand, especially in the OECD countries. Furthermore, warm winter weather has alleviated the pressure on natural gas prices which has encouraged power plants to switch from fuel oil to gas. As a result, world oil demand growth for 2006 was revised down by 100,000 b/d to 800,000 b/d, or by 1.0 per cent.

Estimated regional oil demand

**OECD**

The warm December hurt oil demand in North America, which was unable to maintain its usual upward winter cycle. According to the EIA weekly report, US oil demand declined by 600,000 b/d, or by 2.7 per cent, in December y-o-y. The main decline of 43 per cent occurred in fuel oil consumption. As a result of the late winter, fourth-quarter oil demand growth in North America was revised down by 500,000 b/d y-o-y to register growth of only 50,000 b/d. Oil demand changes in the US in 2006 were in the red, showing a y-o-y decline of 200,000 b/d, or 0.8 per cent. Motor gasoline, which in a normal year grows by 1.6 per cent, in 2006 saw growth of only 0.9 per cent, or 81,000 b/d.

**OECD Europe**

Europe experienced the same warm winter effect. The mild weather, and to some extent the high oil prices, pushed down Germany’s oil imports in 2006 by 1.4 per cent in comparison with the previous year. Furthermore, the high utilization rate of nuclear power plants, along with fuel-switching, affected oil demand negatively in Europe. As a result, OECD Europe’s oil demand in the fourth quarter did not follow the normal upward cycle growth, but rather was estimated to show a minor increase of 20,000 b/d y-o-y to average 15.7m b/d.

**OECD Pacific**

As was the case in North America, the OECD Pacific is also not immune to the decline in oil demand caused by the warm winter. Again, fuel-switching among power plants and low transport fuel demand are the main reasons behind the sluggish demand in this region. Furthermore, the high utilization rate of Japanese nuclear power plants has further reduced consumption of fuel oil. Recent data showed that November total product sales in Japan were down by 1.5 per cent y-o-y. Motor gasoline and kerosene showed a major decline in November by 2.5 per cent and 4.1 per cent, respectively, from November 2005. OECD Pacific fourth quarter y-o-y oil demand is estimated to be down by 30,000 b/d. In total, OECD countries’ y-o-y fourth-quarter oil demand growth was revised down by 600,000 b/d to show minor growth of 40,000 b/d.
Developing countries

The low natural gas price, caused by the warm weather worldwide, made gas a more economical fuel than fuel oil for power plants in Taiwan as well. As a result of low demand for fuel oil and weak transport fuel consumption, Taiwan’s November oil product consumption was down by almost seven per cent y-o-y. In contrast, high demand for diesel and kerosene supported oil demand growth in India, which increased by 3.5 per cent y-o-y to average 2.5m b/d, twice as much as October demand. India’s 2006 oil demand growth reached 2.4 per cent y-o-y to average 2.6m b/d.

Strong oil demand growth in the Middle Eastern countries came in as expected. Oil demand growth in the fourth quarter in the Middle East is estimated at 300,000 b/d y-o-y to average 6.1m b/d. For total developing countries, the fourth quarter turned out as expected, with demand growing by 700,000 b/d y-o-y to average 23.0m b/d.

Other regions

In an effort to take advantage of a recent tax cut, Chinese refiners imported 146,000 tonnes of diesel in November. Diesel imports grew by 16 per cent y-o-y in the first 11 months of last year, while crude oil imports jumped by 40 per cent y-o-y to reach 3.2m b/d. After the end of the summer season, demand for electricity eased; hence Chinese fuel oil demand showed a decline. New auto sales exceeded 6.45 million units in 2006, a y-o-y increase of 25 per cent.

According to recent data, China’s apparent demand for petroleum products for November grew by the same strong rate as in the first ten months of last year. The main growth came from gasoil and gasoline. China’s y-o-y fourth-quarter oil demand growth is not expected to be as extreme as the third quarter, growing by 350,000 b/d to average 7.0m b/d. Major improvements in the power generation sector played an important role in reducing demand for diesel as the country saw a 14 per cent increase in electricity generation capacity. It should be noted that preliminary data suggests that apparent demand in December was lower than expected, which may be reflected in next month’s data.

Forecast for 2007 oil demand

Warm winter weather has continued into the New Year, affecting not only oil demand, but also natural gas prices. As a result, declines are expected in both heating oil and fuel oil consumption. World oil demand growth for 2007 has been revised down by 70,000 b/d to show growth of 1.3m b/d, or 1.5 per cent, slightly lower than the estimate contained in the last report.

OECD

In North America, oil demand is not maintaining its customary winter upward cycle. As seen in December, the decline in US oil demand is expected to continue into January. The main decline of 40 per cent was in fuel oil consumption. As a result of the late winter, North America’s first-quarter 2007 oil demand has been revised down by 200,000 b/d to show y-o-y growth of only 200,000 b/d to average 25.3m b/d.

Lower oil prices are expected to moderately help oil demand in North America; however, the warm weather in the first part of January and slowing economic activities have curbed oil demand growth.

The mild winter in North America brought down natural gas prices. Reduced gas prices have encouraged power plants to switch from liquid fuel to gas, which can already be seen negatively impacting on oil demand in the US. It is worth mentioning here that some meteorologists are forecasting that the weather could get colder in the second part of this winter.

A similar weather-related trend has affected the OECD Europe and Pacific regions. Oil demand growth in the OECD region in the first quarter was moderately revised down by 50,000 b/d. In total, OECD oil demand growth in the first quarter is forecast at 100,000 b/d y-o-y to average 50.3m b/d.

Developing countries

In contrast, developing countries are expected to maintain their oil demand strength. Developing countries will account for 90 per cent of world oil demand growth in the first quarter. Led by China and the Middle East, non-OECD first-quarter oil demand growth is estimated at 1.0m b/d y-o-y.

Thailand’s new natural gas fields are expected to be ready for peak summer electricity demand in June. The peak demand period forces Thailand to import around 1.0 million tonnes of fuel oil per year for its power generation, and with the new source of gas allowing for fuel substitution, the country is expected to reduce imports to only 100,000 tonnes, a drop of 90 per cent. The construction of India’s new strategic oil storage, with a capacity of 37m b, will start in mid-2007.

The Indian economy is expected to continue its robust growth from last year, expanding by 7.8 per cent in 2007. As a result of fuel-switching and fuel efficiency, India’s oil demand this year will grow at a moderate rate similar to last year. Oil demand growth in the Middle East is expected to be strong; however, it will be a little lower than last year. Despite Saudi Arabia’s new gasoline price reduction of more than 45 per cent, total oil demand growth in the Middle East is forecast to be 40,000 b/d, 11.5 per cent lower than the growth estimated in 2006. For 2007, oil demand growth in the Middle East is expected to reach 300,000 b/d y-o-y to an average of 6.5m b/d.
to ethanol, China has delayed approval of the new corn-based ethanol projects and ordered local governments to conduct further analysis before issuing new licences. As a result of higher demand by utilities and petrochemical plants in China, fuel oil imports in January are estimated to increase by 12.5 per cent from the previous month. As a result of the robust economic activities and the filling of the new strategic storage in China, first-quarter oil demand growth has been revised up by 50,000 b/d y-o-y to show growth of 400,000 b/d.

In an effort to reduce energy consumption, the Chinese government has applied an additional import tax on all energy-intensive equipment. Although China reduced domestic gasoline and jet fuel prices in January, it is considering increasing prices of most energy products; however, this decision is dependent on international oil prices. This is considered one of the main targets in China’s new five-year plan, which aims at conserving energy. Finally, the new price increase of 0.15 yuan for household gas per cubic metre may increase demand for liquid energy, such as kerosene.

**World oil supply**

**Non-OPEC**

**Estimate for 2006**

Non-OPEC oil supply is expected to average 49.6 m b/d in 2006, representing an increase of 600,000 b/d over 2005, and a downward revision of 79,000 b/d over the last assessment. Non-OPEC figures are adjusted retroactively to exclude Angola. The revisions to the full year estimate are concentrated around 4Q06. Downward revisions in Mexico, Norway, the UK and Brazil account for the bulk, and are partly offset by upward revisions in the US, Canada and Russia.

November total non-OPEC supply averaged 50.2 m b/d, up by 300,000 b/d from October. Preliminary data for the month of December puts non-OPEC supply at 50.5 m b/d, slightly lower than previously estimated, but still a record high.

In 2006, the strongest performance came from the Former Soviet Union (FSU) region, followed by Latin America, North America, Africa and China. All other regions remained flat or saw a drop. The FSU showed growth of 480,000 b/d, Azerbaijan posted a strong performance, which exceeded original expectations, while Kazakhstan performed as expected. Russia’s growth was soft in the first part of 2006, but was followed by a recovery in the second half.

Oil supply in the Latin American region increased by 180,000 b/d, mainly driven by Brazil. Brazil’s performance was slightly poorer than expected. However, all Latin American countries posted modest gains in production versus 2005. North America’s production increased by 180,000 b/d, driven by Canada and the recovery in the US Gulf of Mexico (GoM), while Mexico saw its production drop for the second consecutive year.

The African region (excluding Angola) posted an increase of 130,000 b/d. Most of the increase came from Sudan and Tunisia. Angola posted a strong increase, but its production is now recorded under OPEC statistics. China showed a modest increase, driven by a strong performance in the first part of 2006.

The OECD Pacific, other Asia and the Middle East remained broadly flat. OECD Europe dropped 400,000 b/d, the UK saw a fall of 200,000 b/d, due to field declines and extensive maintenance. Norway showed a loss of 200,000 b/d as a result of a combination of field decline at the largest crude fields, maintenance and unplanned shutdowns.

**Revisions to the 2006 estimate, other historical**

Historical revisions going as far back as 2004 to the production data of countries, including Peru, Thailand, Syria, and Yemen, have been implemented. Additional adjustments have been made to the 4Q06 estimate to reflect the most recent data, which has resulted in an overall downward adjustment. The estimate for 4Q06 for the US has been adjusted upwards by 23,000 b/d and Canada by 29,000 b/d. In Mexico, November and December production data came in lower than expected. As a result the estimate for 4Q06 has been revised down by 140,000 b/d. The sharp drop from 3.79 m b/d in 1Q06 to 3.57 m b/d in 4Q06 is partly due to the decline of the Cantarell field, but also to a reduction in supplies to the US market as a result of soft demand.

In the North Sea, 4Q06 oil production in Norway averaged 49,000 b/d lower than expected and in the UK it was 70,000 b/d down. Unplanned shutdowns, bad weather, field delays, and field declines are responsi-

**Non-OPEC oil supply is expected to average 50.9 m b/d in 2007, representing an increase of 1.3 m b/d over 2006.**
Non-OPEC figures have been adjusted retroactively to exclude Angola. Non-OPEC supply is expected to average 50.4 m b/d, 50.5 m b/d, 50.7 m b/d, and 51.8 m b/d in the first, second, third and fourth quarters, respectively. The revision to the outlook is principally due to lower supply expectations for Mexico and Norway. Additionally, the temporary reduction in production at the Hibernia field, offshore Canada, and from the tar sands has also been implemented. The outlook for Brazil has also been revised slightly downwards. Upward revisions are concentrated in the US, Russia, Azerbaijan, and Kazakhstan.

**OECD**

Total OECD oil supply is expected to average 20.5 m b/d, 200,000 b/d lower than the last assessment, but an increase of 250,000 b/d versus 2006. Total oil supply is expected to average 20.5 m b/d, 20.5 m b/d, 20.2 m b/d, and 20.8 m b/d in the first, second, third and fourth quarters, respectively. Preliminary data for the month of December puts US oil supply at 7.68 m b/d, the highest since 2005.

**Western Europe**

Oil supply in OECD Europe is expected to average 5.2 m b/d in 2007, representing a drop of 150,000 b/d from 2005 and a downward revision of 240,000 b/d, compared with last month. Total oil supply is expected to average 5.3 m b/d, 5.2 m b/d, 5.0 m b/d, and 5.3 m b/d in the first, second, third and fourth quarters, respectively. Total oil supply in November and December 2006 is assessed at 5.4 m b/d.

Norwegian oil supply is expected to average 2.6 m b/d in 2007, 100,000 b/d less than last year and a downward revision of 180,000 b/d versus last month. A poor performance in 4Q06, when production was supposed to hit its highest, has led to a sharp downward revision to the base, as well as a re-assessment of the expected output of large fields in 2007. Additionally, a temporary reduction in production at Kvitebjorn has also been factored in. The MOMR had originally projected in previous publications that Norway’s production level would average around 2.8 m b/d in 2007, showing a recovery towards 3.0 m b/d by year-end.

There are a number of projects expected to start through 2007, totaling some 300,000 b/d of crude and condensate, which is expected to offset a decline of around 140,000 b/d, as well as the impact of maintenance (another 130,000 b/d), but phasing of new field ramp-ups, slightly higher field declines and reduced output at some fields are all contributing to a larger drop in production in 2007. Having said that, Norway’s production is characterized by high volatility and variable maintenance levels could well change this forecast. Data for the month of December shows that production was 2.81 m b/d.

UK oil supply is expected to average 1.6 m b/d this year, a drop of 30,000 b/d versus 2006 and a slight downward revision of 46,000 b/d.

**Mexico and Canada**

The outlook for Mexico has been revised down following lower-than-expected output in 4Q06 and stronger expectations that production will remain near current levels over the next few months. Total Mexican oil supply is expected to average 3.6 m b/d in 2007. Supply will be particularly soft at around 3.5 to 3.6 m b/d in the first half of 2007, rising slightly thereafter when a new FPSO (20,000 b/d) at the extra-heavy KMZ oil field is brought onstream and assuming US oil demand recovers towards 4Q07. Mexico exports nearly 1.8 m b/d of its production, or 50 per cent of total liquids to the US. Its exports are also facing strong competition. As indicated in the previous report, the outlook for 2007 will largely depend on these factors, as well as underlying decline rates. This report maintains the view that Mexico’s production will not collapse. December output is estimated at 3.58 m b/d.

Canadian oil supply is expected to average 3.3 m b/d in 2007, representing an increase of 100,000 b/d versus 2006 and broadly unchanged from last month’s assessment. Modest revisions have been made to reflect lower volumes from the Syncrude upgrader and production from the Hibernia field in 1Q07. However, these negative adjustments have been offset by positive revisions in the underlying production of conventional crude. December output is estimated at 3.4 m b/d.

**Oil supply in the United States is expected to average 7.63 m b/d in 2007, representing an increase of 220,000 b/d versus last year.**

For the month of December puts total oil supply in OECD countries at 20.7 m b/d.

**United States**

Oil supply in the US is expected to average 7.63 m b/d in 2007, representing an increase of 220,000 b/d versus last year and an upward revision of 80,000 b/d over last month. Recent trends point to a slightly stronger US supply base than previously expected. Additionally, a string of new projects (+20 including small satellites and Atlantis, Neptune) totaling 300,000 b/d of new gross oil are set to start in the GoM in 2007, while US onshore crude production appears to be performing fairly well and posting gains for the first time in many years. Alaska continues to drop, but the declines appear to be contained and in some cases partly offset by the continued development of satellites and heavy oil accumulations. In 2007, Alaska’s oil production is expected to drop again, but much of this will depend on the performance of Prudhoe Bay. For the US as whole, it is worth pointing out that soft oil prices could have an adverse impact on mature onshore production sourced from stripper wells, enhanced oil recovery, and high-cost marginal wells. In 1998, US onshore crude production dropped by 450,000 b/d, just in response to lower investment. Early atmospheric indicators suggest that 2007 may not be a strong year for hurricane activity in the Atlantic Basin. Preliminary data for the month of December puts US oil supply at 7.68 m b/d, the highest since 2005.
Oil production in New Zealand should also see new projects account for the bulk of the increase. Total oil supply in the developing countries is expected to average 320,000 b/d in 2007, around 30,000 b/d less than in 2006. One new project is expected in 2007 (Bo/Valdemar – 19,000 b/d).

Asia Pacific
Oil supply in the OECD Asia Pacific region is expected to average 680,000 b/d in 2007, representing growth of 100,000 b/d compared with last year and unchanged versus last month’s assessment. Total oil supply is expected to average 640,000 b/d, 700,000 b/d, and 700,000 b/d in the first, second, third and fourth quarters, respectively. Australia, the region’s largest producer, is expected to see production of 580,000 b/d, 70,000 b/d higher than last year. Preliminary data for the months of December puts total Australian oil supply at 600,000 b/d.

Oil production in New Zealand should also edge higher with the start of the Tui field, doubling the country’s oil production.

Developing countries
Oil supply in the developing countries is expected to average 11.9 m b/d in 2007, representing an increase of 300,000 b/d over 2006 and 82,000 b/d lower compared with last month’s report. Angola is no longer part of developing countries. Total oil supply in the developing countries is expected to average 11.7 m b/d, 11.9 m b/d, 11.9 m b/d and 12.2 m b/d in the first, second, third and fourth quarters, respectively. Historical revisions to the base and slight adjustments to new projects account for the bulk of the revision. Total oil supply in December is estimated at 11.7 m b/d. Upward revisions have been made to the outlook of Malaysia (+50,000 b/d) and Sudan (+25,000 b/d). The adjustments in Malaysia reflect higher-than-expected output from mature fields and in Sudan from ongoing new developments. The large deepwater Kikeh field in Malaysia is still expected to start in 4Q07. Malaysia’s oil supply is likely to average 790,000 b/d. Sudan’s oil production is above 500,000 b/d and heading upwards from existing projects, despite reported technical difficulties. This report assumes that Sudan’s production will edge closer to 600,000 b/d in 2007, although risks remain.

On the other hand, the outlook for Brazil and Egypt has been reduced. Brazil’s oil supply is expected to average 2.24 m b/d in 2007, which is 130,000 b/d less than previously thought. Revisions to the base, a poorer-than-expected performance at mature deepwater fields and new project phasing have led to the downward revision. Still, over 500,000 b/d of new crude oil is expected to start in 2007, but the impact of this will be more evident in 2008 than in 2007, due to timing. Egypt’s oil supply is expected to average 640,000 b/d in 2007, down 23,000 b/d from last month’s estimate. The base at year-end 2006 appears to be lower and this has led to a readjustment of the decline rate assumption for some of its fields. Elsewhere, it should be pointed out that the outlook for Ecuador remains unchanged with an expected drop of 10,000 b/d to 530,000 b/d in 2007. However, recent events suggest that Ecuador’s production may drop even more, driven by losses in PetroEcuador-operated fields.

FSU, other regions
Oil supply in the FSU is expected to average 12.7 m b/d in 2007, representing an increase of 700,000 b/d versus 2006, slightly higher than last month. The estimate for other regions (China and other Europe) remains broadly unchanged at 3.8 m b/d in 2007, 20,000 b/d higher than in 2006. Total oil supply in the FSU is expected to average 12.5 m b/d, 12.6 m b/d, 12.7 m b/d and 13 m b/d in the first, second, third and fourth quarters, respectively. December FSU oil supply is assessed at 12.3 m b/d.

Russia
Russian oil supply is expected to average 9.9 m b/d in 2007, an increase of 250,000 b/d versus 2006 and slightly higher than last month’s estimate. The first quarter has been revised up significantly (150,000 b/d) based on recent trends and the expectation that a cold winter will not affect oil production (as last year), resulting in a higher estimate. The latest data shows that supply averaged 9.84 m b/d in December, which would be a new post-FSU record. Russian oil supply performed better than expected in November and December, due to warmer temperatures, which allowed producers that depend on river barging to continue to operate. The situation was also helped by increases from ExxonMobil’s Sakhalin I project. Looking ahead, growth will be driven by a handful of important projects, including Sakhalin, Salym and Priazlomnoye. Crude export tariffs are expected to drop in February to $24.66/b for two months because of the recent decline in Urals prices.

Pressure on private domestic and foreign oil companies, combined with an uncertain regulatory climate, continue to affect near-term supply expectations. According to some government agencies, important reforms, such as taking a more flexible approach to extending licences, is still pending. This year will be the third consecutive year in which Russian oil supply is expected to increase by around 200,000 b/d, despite having a large industry. However, as in the case of the US, there is a portion of production that is considered relatively high-cost and may show some volatility with soft oil prices. Tax reforms (for depleted fields) and investment allowances have been expected to make a difference on mature production in the country, affecting positively over 1.0 m b/d of supply. But all of this remains unclear. This report maintains a conservative outlook for Russia over the medium-term, with short-term fluctuations. A flat to slight y-o-y decrease are all within the possibilities.
Caspian

Azeri oil supply is expected to average 900,000 b/d in 2007, representing an increase of 270,000 b/d over last year. The outlook for 2007 and 2008 has been revised up slightly. The latest production estimate suggests that total oil supply averaged 700,000 b/d in December. The partial shutdown of the giant ACG field proved to be short-lived. This report expects a strong performance in 2007 from the ACG field.

Kazak oil production is expected to average 1.45m b/d in 2007, representing an increase of 100,000 b/d versus last year and unchanged from last month. Data for the month of December puts Kazak oil supply at 1.38m b/d — a record-high for the country. Increases are expected to come primarily from the expansion of the Tengiz field. However, it is unclear if this field will be delayed, or if its contribution will be material before 3Q07. A lack of agreement over the expansion of the CPC pipeline is unlikely to affect production growth in 2007.

Risks

The new forecast reflects more risks than previous reports for those countries where these have increased. However, much remains unquantifiable, such as the impact of hurricane activity in the US and Asia, unplanned shutdowns, material project changes, demand trends, and political instability. Tightness in the oil service sector poses some risks, particularly when specialized service is suddenly required. Rising underlying costs also pose a risk for small marginal projects, EOR and stripper wells. However, it should be noted that current oil prices are several times higher than the average costs of most producing regions. Finally, but of equal importance, sharp downward fluctuations in energy prices could affect investment plans and as a direct consequence mature oil production, thereby reducing growth. Preliminary reports suggest that the global exploration and production capex is expected to rise to $300bn in 2007, up by nine per cent from 2006. However, the surveys also show that many companies are keeping investment flat, or even decreasing it.

OPEC NGLs and non-conventional oils

In 2006, output of OPEC NGLs and non-conventional oils averaged 4.3m b/d, representing an increase of 200,000 b/d over the previous year. In 2007, expected growth for OPEC NGLs remains unchanged at 200,000 b/d to an average of 4.4m b/d.

Oil trade

OECD

Preliminary estimated data shows that OECD crude oil imports increased by around...
200,000 b/d, or 0.6 per cent, to average 30.5m b/d in November, driven mostly by non-US and Japanese crude oil imports. Compared with the same month last year, imports fell by four per cent y-o-y. Product imports continued their downward movement for the third consecutive month, dropping by 164,000 b/d, or 1.3 per cent, to average 12.5m b/d, the lowest level so far in 2006. Compared with the previous year, product imports were around 500,000 b/d, or four per cent, lower.

On the export side, crude oil exports remained steady in November, averaging 6.7mb/d, a decrease of 50,000 b/d, or 0.7 per cent, over the previous month. However, when compared with the same month last year, crude exports increased by around 270,000 b/d. After two months of decline, product exports saw gains, averaging 10.1m b/d, around 200,000 b/d, or two per cent, more than in the previous month. Trading patterns and arbitrage opportunities, such as naphtha movement to the Asian market, were among the reasons for the increase in exports, which represented seven per cent growth, or 600,000 b/d y-o-y. The combination of imports and exports pushed November OECD net crude oil imports at 26.01mb/d, the lowest level so far in 2006 and around 113,000 b/d less than in the previous month.

In terms of suppliers, Saudi Arabia and the FSU remained the main source for both crude oil and products.

**United States**

US crude oil imports continued to decline for the third consecutive month, falling a further 540,000 b/d to average around 9.4mb/d in December, the lowest level since September 2005, according to preliminary data. The decline corresponds to a 550,000 b/d, or 5.5 per cent, y-o-y drop. This significant decrease brought the yearly average to around 10.0mb/d, or close to 2005. The drop in US crude oil imports, coupled with healthier refinery runs in December, pushed US crude oil stocks some 20mb lower, compared with the previous month, yet overall stock levels were relatively high, close to the same month the previous year. Additionally, weather-related weak demand and the OPEC cut negatively influenced US crude oil imports. On the other hand, product imports were steady during December, experiencing a minor increase of around 30,000 b/d, or one per cent, to average 3.0m b/d, with a slight rise in product imports after three months of decline.

Product imports averaged 3.5m b/d in 2006, around 122,000 b/d less than the 2005 average. Both distillates and jet fuel led the increase in product imports, with the inflow of jet fuel triggered by technical supply issues on the West Coast.

Crude oil and product exports remained steady with only a minor 63,000 b/d, or five per cent, decline in products, to average around 1.3mb/d. Accordingly, US net oil imports averaged around 11.2mb/d in December, a low for the year and a decline of 450,000 b/d from the previous month. Net crude oil imports fell 5.5 per cent in both monthly and annual terms to average 9.4mb/d.

Mexico and Canada remained the largest suppliers of US crude oil imports with shares of around 16–17 per cent each, ahead of Saudi Arabia and Venezuela with 12 per cent each. Nigeria, with 11 per cent, was the top US crude supplier from Africa, ahead of Algeria and Angola with four per cent each. Iraq continued to supply around five per cent. On the product side, Canada, the Virgin Islands and Algeria remained the largest suppliers.

**Japan**

Preliminary data shows that Japan’s crude oil imports continued their downward movement in December, falling a further 171,000 b/d, or five per cent, from the previous month to average 3.6mb/d, a low for the year. The December drop in crude oil imports dragged down the fourth-quarter average to 3.7mb/d, representing a y-o-y decline of 14 per cent from the same quarter the previous year and the lowest quarter in 2006.

High inventory levels and weak demand, driven mainly by weather-related factors, coupled with the OPEC cut, were among the main reasons for the decline in imports. Similarly, total product imports experienced a drop of 17,000 b/d, or three per cent, from the previous month to average around 652,000 b/d. December product import figures indicate y-o-y growth of around 13 per cent, closing the yearly average at 618,000 b/d, almost similar to the previous year.

**Middle Eastern countries remained the main suppliers of Japan’s crude oil in 2006, with Saudi Arabia accounting for 31 per cent and the UAE 25 per cent.**

On the other hand, Japan’s product exports experienced an increase of 22,000 b/d, or eight per cent, in December from the previous month to average 305,000 b/d, causing the yearly average to reach 365,000 b/d, almost identical to the 2005 figure. Consequently, Japan’s net oil imports reached 3.9mb/d, around 200,000 b/d less than the previous month, causing the yearly average to reach around 4.4mb/d, three per cent lower than in 2005.

Middle Eastern countries remained the main suppliers of Japan’s crude oil in 2006, with Saudi Arabia accounting for 31 per cent, the UAE 25 per cent, Iran ten per cent, Qatar ten per cent, Kuwait eight per cent and Oman two per cent. In December, Saudi Arabia’s share reached 31 per cent, while Persian Gulf supplies to Japan were around 50,000 b/d. Similar to crude oil, the UAE and Saudi Arabia remained Japan’s main product suppliers in December with 14 per cent and ten per cent, respectively followed by Korea and the US with six per cent each.

**China**

China’s crude oil imports increased by almost 750,000 b/d, or 30 per cent, in November to average 3.3mb/d, offsetting...
a drop of nearly the same size displayed in October, according to preliminary data. The leap in crude oil imports resulted in y-o-y growth of 31 per cent, or around 800,000 b/d. In contrast, lower fuel oil imports, coupled with increased refinery runs that reached an all-time high of around 6.39m b/d, according to the latest estimates, depressed product imports to 600,000 b/d, marking their lowest level so far in 2006. While fuel oil represented the bulk of China’s product imports, gasoil imports increased to around 36,000 b/d, yet the gain did not offset the decline in fuel oil imports.

China’s total oil exports were steady, averaging 460,000 b/d, with crude oil exports dropping by 100,000 b/d from the previous month to average 84,000 b/d, while product exports increased by 110,000 b/d, or 42 per cent, to average 377,000 b/d. The increase in product exports came mainly from gasoline and kerosene, driven by the strong market for gasoline in Asia. As a result, total net imports of crude oil to China were 1.2 per cent below the year-ago level, but six per cent above the five-year average and only 1.9 per cent below the five-year average. The build in middle distillate stocks was due to an increase in imports of 22.2m b, or 720,000 b/d, to around 317.5m b on a monthly basis. Nevertheless, crude inventories still remained 8.2 per cent above the five-year average and only 1.9 per cent below the year-ago level. The trend in forward cover was similar and at 20.6 days was four per cent below the same month last year, but six per cent above the five-year average. A decline in crude oil imports of 540,000 b/d in December month-on-month, together with a slight increase in refinery throughput, which went up from 15.1m b/d in November to 15.5m b/d in December, offset an 110,000 b/d increase in production. The significant monthly stock-draw may also be explained by year-end tax considerations.

Concerning gasoline, the previous month’s draw on inventories turned into a substantial build of 9.5m b to reach 209.5m b, some 1.2 per cent higher than the same month last year, but 0.3 per cent below the five-year average. At 22.4 days forward cover, the figure was two per cent above the year-ago level, but three per cent below the five-year average. The build in gasoline inventories can be attributed to higher production, which inched up by 163,000 b/d to 9.3m b/d, which was consistent with the recovery in refinery runs. These variables offset the downward impact of lower imports, which declined by a slight 20,000 b/d in December from the previous month. Although forward cover was low, it is expected that, given the low demand for heating oil, US refiners will change to higher gasoline yields early this year, erasing any worries about gasoline stocks.

Middle distillate stocks ended the month at 137.9m b as a result of a 5.5m b rise in December from the previous month, which represented a cushion of 1.5 per cent and 1.8 per cent over the year-ago level and the five-year average, respectively. Forward cover for middle distillates was estimated at 31.7 days, seven per cent higher than the year-ago level and one per cent above the five-year average. The build in middle distillate inventories was due to an increase in imports of 177,000 b/d (EIA four-week average), together with higher production, which rose by 130,000 b/d (EIA four-week average) in December from the previous month, as well as sluggish demand, due to warm winter weather.

Diesel inventories inched up by 3.0m b to 77.8m b in December, compared with the previous month, representing a cushion of four per cent against the year-ago level and the five-year average. The stock-build took place despite greater demand and is attributed to higher imports and production. A slight increase of 200,000 b left heating oil stocks at 57.8m b, seven per cent above the year-ago level and the five-year average. Warmer-than-normal weather in the major consuming regions of the United States contributed to the rise in heating oil stocks.
the US led to declining demand for heating oil, which, together with a slight increase in imports and production, explained the month-on-month build in stocks in December.

In the week ending January 12, US total commercial oil stocks increased by 9.1m b to 1,040.3m b versus the previous week. Crude oil stocks rose a hefty 6.8m b week-on-week to stand at very healthy levels, both in terms of volume and forward cover. This development was due to lower refinery runs, which declined by 3.5 per cent, and significantly greater imports, which were 1.6m b above the previous week, despite OPEC’s recent output cut. This may also imply that part of the draw on crude oil stocks which occurred last December can be attributed to end-of-year tax-related considerations. On the product side, gasoline stocks continued moving up by 3.5m b to stand at 216.8m b week-on-week, with the forward cover of 23.6 days standing two per cent above last year’s level, but still three per cent below the five-year average.

Middle distillate inventories displayed a more moderate 900,000 b build, compared with the previous week, which was due to the smaller growth in heating oil and diesel stocks. Heating oil increased by 400,000 b week-on-week, compared with a build of 2.3m b in the week ending January 5. Nevertheless, inventories remained seven per cent and 11 per cent above the preceding year and five-year average, respectively. This was attributed to the persistent warmer-than-normal weather in the US Northeast, the major product-consuming region. Forward cover for heating oil increased from 52.7 to 55.4 days.

Western Europe

Total commercial oil stocks in EU-16 (Europe excluding Norway) were 5.7m b lower at the end of December versus the previous month. This left inventories almost one per cent above the year-ago level, but represented a seven per cent cushion against the five-year average. The stock-draw was entirely due to a significant 11m b decline in crude stocks as total product inventories rose by 6.5m b, compared with the previous month.

Despite a cut in European refinery throughputs, crude oil stocks declined a further 11m b in December from the previous month, but at 484.2m b inventories were more than healthy, standing 3.7 per cent and 7.3 per cent above the same month last year and the five-year average, respectively. The 6.5m b build in product stocks left the level at 632.6m b, 39 per cent higher than the five-year average, but 1.6 per cent lower than the previous year. Middle distillates contributed the most to the draw in product inventories in December, edging up by 3.7m b to 385.4m b from the previous month.

Stocks were on a par with year-ago levels and around ten per cent above the five-year average. The major reason for the increase in middle distillate stocks was the reduced heating demand, owing to the unusually warm weather. Gasoline stocks increased by 1.5m b to 131.3m b in December over the previous month, but this level was well below the year-ago level and the five-year average. This outcome was related to lower EU exports to the US, encouraged by the narrower transatlantic arbitrage window caused by higher US throughputs and rising freight rates.

Japan

Total commercial oil stocks in Japan inched down by 5.0m b to 195.6m b in November, but remained 1.5 per cent and 3.8 per cent above the year-ago level and the five-year average, respectively. The draw was due to a decline in both crude oil and product stocks.

A decline of 1.8m b from the previous month left crude oil inventories at 114.9m b in November, 3.5 per cent and 4.1 per cent above the year-ago level and the five-year average. A 9.8 per cent increase in crude oil throughput at Japanese refineries explains this draw, which was partly ameliorated by a 3.3 per cent expansion in imports.

Total product inventories declined a further 3.2m b to 80.8m b, hovering 1.3 per cent below the year-ago level, but still 3.3 per cent higher than the five-year average. A decline in imports of 7.8 per cent and 1.6 per cent rise in domestic sales from the previous month accounted for the draw, as production rose by 7.1 per cent month-on-month, due to a recovery in refinery runs. The decline in product stocks was driven by naphtha, kerosene, gasoil and fuel oil. Domestic sales of kerosene, which grew by 90 per cent compared with the previous month, partly explain the stock-draw of over six per cent in this product. Gasoline inventories experienced only a slight decline.

Balance of supply/demand

Estimate for 2006

Demand for OPEC crude in 2006 is expected to average 30.1m b/d, representing a drop of 200,000 b/d versus 2005. The new forecast shows that demand for OPEC crude was 31.3m b/d, 29.6m b/d, 30m b/d, and 30.4m b/d in the first, second, third, and fourth quarters, respectively. According to secondary sources, average total OPEC crude capacity averaged 33.8m b/d in 2006, up from 33.2m b/d in 2005.

Forecast for 2007

Demand for OPEC crude in 2007 is expected to average 30.1m b/d, representing a drop of 200,000 b/d versus 2006. The forecast shows that demand for OPEC crude is expected at 31.1m b/d, 29.1m b/d, 30.1m b/d, and 30.1m b/d in the first, second, third, and fourth quarters, respectively.
Table E: World crude oil demand/supply balance

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<td>22.4</td>
<td>22.7</td>
<td>23.2</td>
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<td>3.8</td>
<td>3.8</td>
<td>3.7</td>
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<td>0.8</td>
<td>0.9</td>
<td>0.9</td>
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<tr>
<td>China</td>
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<td>6.5</td>
<td>6.5</td>
<td>7.1</td>
<td>7.3</td>
</tr>
<tr>
<td>(a) Total world demand</td>
<td>77.8</td>
<td>79.4</td>
<td>82.3</td>
<td>83.3</td>
<td>84.7</td>
<td>83.0</td>
</tr>
</tbody>
</table>

Non-OPEC supply

| OECD         | 21.9 | 21.7 | 21.3 | 20.5 | 20.3 | 20.0 |
| North America| 14.5 | 14.6 | 14.6 | 14.1 | 14.2 | 14.2 |
| Western Europe| 6.7  | 6.4  | 6.2  | 5.8  | 5.7  | 5.3  |
| Pacific      | 0.8  | 0.7  | 0.6  | 0.6  | 0.5  | 0.5  |
| Developing countries | 10.6 | 10.7 | 11.0 | 11.3 | 11.4 | 11.5 |
| FSU          | 9.3  | 10.3 | 11.1 | 11.5 | 11.7 | 12.0 |
| Other Europe | 0.2  | 0.2  | 0.2  | 0.2  | 0.1  | 0.1  |
| China        | 3.4  | 3.4  | 3.5  | 3.6  | 3.7  | 3.7  |
| Processing gains | 1.7  | 1.8  | 1.8  | 1.9  | 1.9  | 1.9  |
| Total non-OPEC supply | 47.2 | 48.1 | 49.0 | 48.9 | 49.2 | 49.2 |
| OPEC NGLS and non-conventionals | 3.6  | 3.7  | 4.0  | 4.0  | 4.2  | 4.2  |
| (b) Total non-OPEC supply and OPEC NGLS | 50.8 | 51.8 | 53.0 | 53.0 | 53.4 | 53.4 |

OPEC crude supply and balance

| OPEC crude oil production | 26.2 | 27.8 | 30.0 | 31.1 | 31.1 | 30.9 |
| Total supply             | 77.0 | 79.6 | 83.0 | 84.1 | 84.5 | 84.3 |
| Balance                  | -0.8 | 0.3  | 0.7  | 0.8  | -0.2 | 1.4  |

Stocks

| OECD closing stock level m b/d | 2478 | 2517 | 2547 | 2595 | 2596 | 2654 |
| Commercial SPR | 1347 | 1411 | 1450 | 1487 | 1487 | 1493 |
| Total Oil-on-water | 3825 | 3928 | 3998 | 4082 | 4083 | 4148 |
| Days of forward consumption in OECD | 816  | 883 | 906 | 961 | 964 | 975 |
| Commercial onland stocks | 51  | 51  | 51  | 53  | 54  | 54  |
| SPR | 28  | 29  | 29  | 30  | 31  | 31  |
| Total | 79  | 80  | 81  | 83  | 85  | 85  |

Memo Items

| FSU net exports | 5.6  | 6.5  | 7.3  | 7.7  | 8.0  | 8.4  |
| (a) — (b)       | 27.0 | 27.6 | 29.3 | 30.3 | 31.3 | 29.6 |

1. Secondary sources.
2. Stock change and miscellaneous.
Note: Totals may not add up due to independent rounding.

Table E above, prepared by the Secretariat’s Energy Studies Department, shows OPEC’s current forecast of world supply and demand for oil and natural gas liquids.

The monthly evolution of spot prices for selected OPEC and non-OPEC crudes is presented in Tables One and Two on page 55 while Graphs One and Two (on page 56 show the evolution on a weekly basis. Tables Three to Eight, and the corresponding graphs on pages 57–58, show the evolution of monthly average spot prices for important products in six major markets. (Data for Tables 1–8 is provided by courtesy of Platt’s Energy Services).
Table 1: OPEC Reference Basket crude oil prices, 2005–2006

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<tr>
<th>Crude/Member Country</th>
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<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2006 Weeks 48–52 (week ending)</th>
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<td>65.03</td>
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<td>68.76</td>
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<td>62.32</td>
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<td>56.62</td>
<td>55.01</td>
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<td>71.80</td>
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<tr>
<td>Es Sider — SP Libyan Aj</td>
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<td>61.54</td>
<td>56.20</td>
<td>57.32</td>
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<tr>
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Table 2: Selected OPEC and non-OPEC spot crude oil prices, 2005–2006

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<td>55.42</td>
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<td>64.82</td>
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<td>58.94</td>
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Note: As of January 2006, monthly averages are based on daily quotations (as approved by the 105th Meeting of the Economic Commission Board). As of June 16, 2005 (ie 3W June), the OPEC Reference Basket has been calculated according to the new methodology as agreed by the 136th (Extrordinary) Meeting of the Conference.

1. Tia Juana Light spot price = (TJL netback/Isthmus netback) x Isthmus spot price.

Sources: The netback values for T/L price calculations are taken from RVM; Platt’s; Reuters; Secretariat’s assessments.
Note: As of January 2006, monthly averages are based on daily quotations (as approved by the 105th Meeting of the Economic Commission Board). As of June 16, 2005 (ie 3W June), the OPEC Reference Basket has been calculated according to the new methodology as agreed by the 136th (Extraordinary) Meeting of the Conference.
### Table and Graph 3: North European market — spot barges, fob Rotterdam

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<th></th>
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<th>regular gasoline 85</th>
<th>premium gasoline 50ppm</th>
<th>diesel ultra light</th>
<th>jet kero</th>
<th>fuel oil 1%S</th>
<th>fuel oil 3.5%S</th>
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</thead>
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<td>2005 December</td>
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<td>69.25</td>
<td>70.20</td>
<td>41.75</td>
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<td>2006 January</td>
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<td>42.21</td>
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<td>44.61</td>
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### Table and Graph 4: South European market — spot cargoes, fob Italy

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<td>39.72</td>
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<td>73.68</td>
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### Table and Graph 5: US East Coast market — spot cargoes, New York

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<th>gasoil</th>
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<th>fuel oil 0.3%S</th>
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**Source:** Platts. Prices are average of available days.
**Table and Graph 6: Caribbean market — spot cargoes, fob**

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**Table and Graph 7: Singapore market — spot cargoes, fob**

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<th>jet kero</th>
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**Table and Graph 8: Middle East Gulf market — spot cargoes, fob**

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*na not available.  
Source: Platts. Prices are average of available days.
Relaunch of OPEC’s quarterly academic journal

Chairman, Editorial Board
Dr Hasan M Qabazard, Director, Research Division, OPEC

General Academic Editor
Professor Sadek Boussena

After three decades of publication, the OPEC Review will be relaunched as the OPEC Energy Review in 2008. Since its introduction in 1976, the quarterly OPEC Review has established itself as a respected scholarly publication, offering its global readership high-quality papers on energy economics, and these have provided informed perspectives, across foreseeable time-horizons, on the oil and gas sectors, other energy sources, economic development, the environment and related issues.

In order to enhance its effectiveness as a publication for promoting academic discourse on energy and related matters, the journal is to be relaunched in 2008 with a new name, the OPEC Energy Review. Accompanying this will be changes to its administrative structure and the referee-based procedure for selecting papers, to ensure the highest academic standard. Spearheading the selection procedure will be a newly designated General Academic Editor (GAE), a renowned energy economist of many years’ standing. He will be supported by a reconstituted Editorial Board under the Chairmanship of OPEC’s Director of Research. This will consist of international energy experts of many years’ standing, and will meet regularly, to set goals and review policy and performance.

The OPEC Energy Review is a forum for the promotion of academic and professional debate on significant energy issues.

Consequently, it invites specialists to submit research articles of high academic quality on topics in the fields of energy economics, law, policy, the environment and international relations.

The purpose is to broaden awareness of these issues and encourage debate and scholarship among a global readership.

The UK-based company, Blackwell Publishing, will continue to publish and market the journal.
It has been a busy first few weeks for Abdalla Salem El-Badri, the former Libyan Energy Secretary, who was appointed OPEC Secretary General by the 143rd (Extraordinary) Meeting of the Conference in Abuja, Nigeria, in December 2006. Since taking up his three-year post on January 1, 2007, he has met with numerous dignitaries and officials, some of which are highlighted here.

Above: El-Badri paid a courtesy call on the President of the Federal Republic of Austria, Dr Heinz Fischer.

Right: El-Badri with the Iraqi Ambassador in Vienna, Tariq Aqrawi.

El-Badri attended celebrations marking Iran’s National Day, here pictured with Dr Ali Asghar Soltanieh, Ambassador, Permanent Representative to the United Nations (Vienna) and UNIDO for the Islamic Republic of Iran.

Dr Fidelino Loy de Jesus Figueiredo, Angola’s Ambassador to Austria, who visited the OPEC Secretariat.
Above: El-Badri with Suleiman Jasir Al-Herbish, Director-General of the OPEC Fund for International Development.

Left: Japan’s Ambassador to Austria, Itaru Umezu, who held talks with El-Badri.

Below: Bidding farewell to outgoing Acting for the OPEC Secretary General, Mohammed S Barkindo.

Left: El-Badri visited the United National Industrial Development Organization (UNIDO) in Vienna, where he met with the Director-General, Kandeh Yumkella.

Left (centre picture): Andre Mernier, Secretary General, Energy Charter Secretariat, on a visit to OPEC headquarters in Vienna.
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Obere Donaustraße 93, A-1020 Vienna, Austria.
E-mail: hrs@opec.org

Please make specific references to the job code ED/PR.

The deadline for receiving applications is February 28, 2007. Acknowledgements will only be sent to short-listed candidates.

Forthcoming events

European LNG developments forum 2007, February 19–20, 2007, Rome, Italy. Details: Marcus Evans Conferences, 11 Connaught Place, London W2 2ET, UK. Tel: +44 203 002 3002; fax: +44 203 002 3003; e-mail: flaminia@marcusesvansuk.com; website: www.meeenergy.com.

World LNG shipping summit: Qatar 2007, February 19–20, 2007, Doha, Qatar. Details: IQPC, Block 16, Office #T08, Knowledge Village, Dubai, UAE. Tel: +971 4 360 2800; fax: +971 4 363 1925; e-mail: enquiry@iqpc.ae; website: www.oilandgasiq.com.


The energy challenge, February 22, 2007, Aberdeen, UK. Details: Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK. Tel: +44 207 467 7116; fax: +44 207 580 2230; e-mail: jwarner@energyinst.org.uk; website: www.ipweek.co.uk.

Drill Tech 2007, February 26–28, 2007, Dubai, UAE. Details: IQPC Middle East, Block 16, 3rd Floor, Knowledge Village, Dubai, UAE. Tel: +971 4 360 2800; fax: +971 4 360 1938; e-mail: enquiry@iqpc.ae; website: www.drriltech07.com.


2nd Annual conquering new frontiers in oil and gas exploration, March 1–2, 2007, Amsterdam, The Netherlands. Details: Marcus Evans Conferences, 11 Connaught Place, London W2 2ET, UK. Tel: +44 203 002 3002; fax: +44 203 002 3003; e-mail: flaminia@marcusesvansuk.com; website: www.meeenergy.com.

CERI 2007 natural gas conference, March 5–6, 2007, Calgary, Canada. Details: Canadian Energy Research Institute, #150, 3512–33 Street NW. Calgary T2L 2A6, Canada. Tel: +1 403 282 1231; fax: +1 403 284 4181; e-mail: sjohnsgaard@ceri.ca; website: www.ceri.ca.

Gas Arabia 2007, March 5–7, 2007, Abu Dhabi, UAE. Details: The Energy Exchange Ltd, 5th Floor, 86 Hatton Garden, London EC1N 8QX, UK. Tel: +44 207 067 1800; fax: +44 207 242 2673; e-mail: marketing@theenergyexchange.co.uk; website: www.theenergyexchange.co.uk.

Refining economics, March 8–9, 2007, Bangkok, Thailand. Details: The Conference Connection Administrators Pte Ltd, 105 Cecil Street #07-02 The Octagon, 069534 Singapore. Tel: +65 622 202 30; fax: +65 622 201 21; e-mail: info@cconnection.org; website: www.cconnection.org.

International industrial control automation technology exhibition and conference, March 8–11, 2007, Cairo, Egypt. Details: Sama Marketing Business SMB Co. Tel: +201 10 727 4969; fax: +202 35 39 456; e-mail: info@smmbegypt.com; website: www.smmbegypt.com/automation.htm.

Middle East oil & gas show and conference, March 11–14, 2007, Kingdom of Bahrain. Details: Society of Petroleum Engineers, Dubai Knowledge Village, Block 17, Offices S07-S09, PO Box 502217, Dubai, UAE. Tel: +971 4 390 3540; fax: +971 4 366 4648; e-mail: spedub@spe.org; website: www.spe.org.

Offshore/onshore heavy oil operations, March 11–14, 2007, Veracruz, Mexico. Details: Society of Petroleum Engineers, PO Box 833836, Richardson 75083-3836, USA. Tel: +1 972 952 9393; fax: +1 972 952 9435; e-mail: spedal@spe.org; website: www.spe.org.

Canada’s oil sands industry, March 12–13, 2007, Edmonton, Canada. Details: Canadian Energy Research Institute, #150, 3512–33 Street NW, Calgary T2L 2A6, Canada. Tel: +1 403 282 1231; fax: +1 403 284 4181; e-mail: sjohnsgaard@ceri.ca; website: www.ceri.ca.

13th Annual flame 2007, March 13–15, 2007, Amsterdam, The Netherlands. Details: ICBI, 8th Floor, 29 Bressenden Place, London SW1E 5DR, UK. Tel: +44207 915 5103; fax: +44 207 915 5101; e-mail: info@icbi.co.uk; website: www.icbi-flame.com.

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