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February 2004

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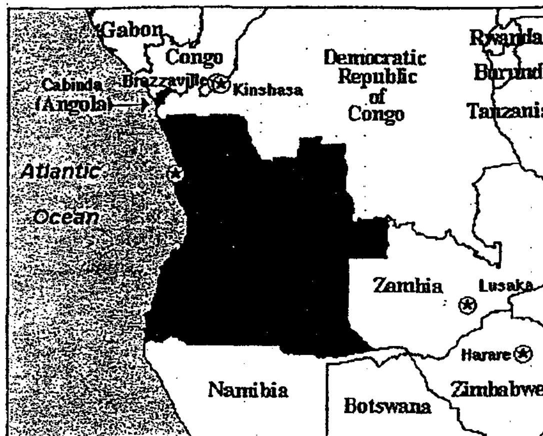
Angola

Angola is sub-Saharan Africa's second largest oil producer and production is expected to reach 2 million barrels per day by 2008. Major offshore oil finds have made Angola a leading area for hydrocarbon exploration in sub-Saharan Africa.

Information contained in this report is the best available as of February 2004 and is subject to change.



GENERAL BACKGROUND

Angola is beginning its recovery from a devastating 28 year civil war that began shortly before the nation achieved independence from Portugal in 1975. Angola's civil war ravaged the non-mineral sectors of the country's economy, destroyed much of its infrastructure, and displaced an estimated 4 million people. After the failure of several previous attempts to find peace, an agreement was finally signed in April 2002 following the violent death of the long-time leader of the rebel National Union for the Total Independence of Angola (UNITA), Jonas Savimbi. Despite the new agreement, as the year 2004 began, the crucial disarmament and demobilization provisions of the agreement had not yet been fully implemented. Foreign governments and non-governmental organizations continue to provide large amounts of humanitarian aid, although some western governments, citing Angola's considerable oil revenues, began to call on the Angolan government to finance its own recovery.

The Angolan economy is highly dependent on its oil sector, which accounts for nearly half of the country's Gross Domestic Product (GDP) and about 90% of the government's revenues and export earnings. Angola's real GDP grew by 15.3% in 2002, due mainly to a sharp increase in oil production, and continued to grow at an estimated 4.4% annual rate during 2003. Angola is a member of the African Union (AU), the Southern African Development Community (SADC), and the Common Market for Eastern and Southern Africa (COMESA).

In spite of Angola's expanding economy, the majority of Angola's 13.9 million people live in poverty, and the country's external debt is estimated to have been $9.9 billion at the end of 2002. In 2003, inflation reached an estimated 106%, a continuing improvement over the 152.5% inflation rate in 2001 and the 325% inflation rate in 2000. In April 2000, Angola signed a nine-month economic monitoring program agreement with the International Monetary Fund (IMF) that requires the country to undertake a sustained program of economic reforms before it is considered for a formal loan agreement. Under the agreement with the IMF, Angola has promised to allow outside auditors to examine the way it spends oil money. In July 2001, the

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IMF stated that, although several economic targets were not met, the Angolan government has made progress in several areas including price liberalization, exchange rate stability and reductions in inflation. In July 2002, the international auditing and accounting firm KPMG began an Oil Sector Diagnostic Analysis to better help the IMF and the World Bank determine the Angolan government's oil sector earnings, expenditures and whether or not any revenue diversion was able to take place.

Under Angolan law, oil revenues are to be deposited with the Angolan National Bank; KPMG determined that those revenues, were instead channelled directly through the State Oil Company, Sonangol or through the Presidency. In January 2004 Human Rights Watch Report alleged that between 1997 and 2002, nearly $4.22 billion of Angola's estimated $17.8 billion in oil revenues was "unaccounted" for by the Angolan government. The Angolan Finance Ministry strongly disputed the missing funds report. Despite the denials, however, outside groups continue to accuse the Angolan government of using missing oil revenues to support the fight against UNITA and of depositing the funds in private offshore accounts. Due to continuing questions posed by the IMF over the transperancy of Angolan Oil and Financial Sectors and the resulting delay in any new loan negotiations, the Angolan government has over the past year, actively tried to obtain over $1 billion in additional high interest, short-term private loans. Despite the recommendations of the IMF and the various NGOs to the contrary, the government has continued to use expected future oil production earnings as a means of collateral for the loans requested.

OIL

Angola is sub-Saharan Africa's second largest oil producer behind Nigeria, with the majority of its crude oil production located offshore in the shallow waters of Block 0, in its northern Cabinda province. Crude reserves also are located onshore around the city of Soyo, offshore in the Kwanza Basin north of Luanda, and offshore of the northern coast. Angola's crude oil generally is of high quality, with an API gravity ranging from 32° to 39.5° and sulfur content from 0.12% to 0.14%.

The Angolan province of Cabinda faces a situation similar to the Niger Delta states in Nigeria. Cabinda produces more than half of Angola's oil and accounts for nearly all of its foreign exchange earnings. Political tensions are high in some areas of Cabinda as separatist groups demand a greater share of oil revenue for the province's population. The separatist groups often kidnap foreign nationals in an attempt to draw attention to their independence claims. The province receives about 10% of the taxes paid by ChevronTexaco and its partners operating offshore Cabinda. Despite the September 2002 announcement by the Angolan government of its willingness to open talks with Cabindan separatist groups and offer the province some measure of autonomy, a new round of military operations in the province indicate that peace talks are still sometime away. Meanwhile the government has also categorically ruled out the prospect of complete independence for the oil-rich, but poverty-stricken province.

Older shallow-water production in Cabinda, and onshore output near Soyo and Luanda, are governed by joint-venture (JV) contracts. Most new production is developed under production-sharing agreements (PSAs), which are now common worldwide. Under PSAs, foreign companies, acting as contractors to Sonangol, finance investment costs in full and bear the risks of exploration. When production begins, companies recoup their investments quickly through cost oil, while sharing excess profit oil on a sliding scale. The government's share of production then rises in later years once capital investment has been paid off. Other state revenue streams from oil include royalty payments and signature bonuses paid when exploration blocks are auctioned to foreign companies.

PSAs also commit partners to drilling a set number of wells in a certain period and to developing commercial discoveries. More recently awarded licenses, including those for all

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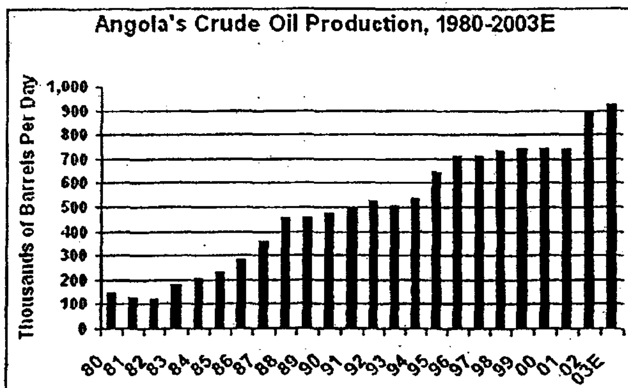
current deepwater blocks, no longer use cumulative production to calculate profit splits, but instead use the internal rate of return of a field. This has encouraged the search for bigger fields. Angola currently receives 45%-50% of export sales as revenue, although this share will fall in the medium term as huge investment costs in deepwater fields take a bigger share of sales, before rising again in the next decade. Sonangol generally funds its share of the joint venture operations through oil-backed borrowing, although at times of low oil prices a lack of cash has occassionally delayed investment.

Angola's national oil company, Sonangol, was established in 1976. A hydrocarbon law passed in 1978 made Sonangol sole concessionaire for exploration and production. Associations with foreign companies are in the form of joint ventures (JVs) and production sharing agreements (PSAs). The top foreign oil companies operating in Angola are US-based ChevronTexaco and ExxonMobil, France's Total (formerly known as TotalFinaElf), UK's BP, UK/Dutch Shell and the Italian Agip/Eni Oil Company.

Production

Angola's crude oil production has increased by nearly 600% since 1980. Crude oil production averaged 923,000 barrels per day (bbl/d) in 2003, and is predicted to double by 2008, as new deep-water production sites are expected to begin operating in earnest. Block 0 (Area A, Area B, and Area C), located offshore the enclave of Cabinda, accounts for the majority of Angola's crude oil production. Its estimated share is around 550,000 bbl/d. In the last few years large new reserves have also been discovered offshore mainland Angola. The ChevronTexaco subsidiary, Cabinda Gulf Oil Company (CABGOC), is the operator of the Block 0 fields, with a 39.2% share in the JV, since 1955. Other partners include Sonangol (41%), Total (10%) and Agip/ENI (Agip 9.8%). Angola's largest producing oil fields are Takula (Area A), Numbi (Area A), and Kokongo (Area B). ChevronTexaco made it known in October 2003 its desire to continue pumping oil from Angola's lucrative Block 0 beyond the current agreement that lasts until 2010. The extenstion, already given the go-ahead by Sonangol, is awaiting final government approval.



It is anticipated that production levels on Block 0 will be maintained or possibly raised to 600,000 bbl/d, by the implementation of further field development and enhanced oil recovery. CABGOC plans to invest nearly $4 billion in field development activities over the next few years.

ChevronTexaco's Sanha oil field in Block 0 is expected to come on stream in December 2004 with output reaching 100,000 bbl/d by 2007. A facility to produce liquified petroleum gas (LPG) is slated to start production in 2005. Taking oil, condensate, and LPG into account, the field is expected to reach a combined annual average production rate of 34,700 bbl/d in 2005.

In late December 2002, the Angolan government fined ChevronTexaco $2 million for environmental damage from oil spills in its offshore Cabinda oil field - the first such fine against an oil company operating in its waters. A company investigation claimed "obsolete tubing" was the cause of the spills that shut down a major pipeline for two weeks. Oil dirtied beaches and damaged the local fishing industry in the impoverished province of Cabinda.

Three new oilfields - Exxon/Mobil's 80,000 bbl/d Xikomba field, Total's 50,000 bbl/d Jasmin

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field and ExxonMobil's new Kizomba A development, adding as much as 250,000 bbl/d - will be in operation by the end of 2004.

Construction of the Xikomba deepwater development in Block 15 was begun by ExxonMobil's subsidiary Esso in August 2002. Discovered in 1999, the Xikomba field is located 230 miles northwest of Luanda, at depths of up to 4,856 feet, and is estimated to have recoverable reserves of around 100 million barrels of oil, with the target production of 80,000 bbl/d. Sonangol is concessionaire of the block, while Esso holds a 40% interest, BP Exploration Angola Ltd has a 26.67% share, Italy's Agip Angola Exploration B.V. holds a 20% interest, and Norway's Den Norske Stats Oljeselskap has the remaining 13.33%. In early December 2003, ExxonMobil announced the production from its Xikomba deepwater oil field in Block 15. Xikomba is the company's first production on Block 15 and represents the first of several anticipated operated production facilities offshore in Angola.

Early December 2003 also witnessed Sonangol and Total's joint announcement in Luanda of the first production from the offshore Block 17 Jasmin Oil Field. The field, discovered in April 2000 is one of the 15 located on the Block 17. Jasmin will be the second oil field in production after oil began to flow from the neighboring Girassol oil field in December 2001. The new field is situated 4,593 feet deep and about 93 miles off the Angolan coast. Sonangol is the franchiase holder of Block 17, while Total is the operator with a 40% share. Its associates are Esso Exploration Angola (Block 17) Limited with 20%, BP Exploration (Angola) Limited with 16.67%, Statoil Angola Block 17 AS, with 13.33% and Norway's Norsk Hydro with 10%.

CABGOC is the operator of Angola's first producing deep-water block. In January 2000, CABGOC announced that full production had begun on the Kuito field in Block 14. First oil from the Kuito field, discovered in 1997 at 1,263 feet depths, was achieved only 15 months after the award of the contract, making it the fastest cycle time of any project of its kind in sub-Saharan Africa. The Kuito field had initial production of 80,000 bbl/d, and averaged around 61,000 bbl/d by 2001. The peak production level target of 100,000 bbl/d, failed to materialize. Other discoveries on the block are Landana from the end of 1997, Benguela and Belize in 1998, Tomboco and Lobito in 2000, Tombua in 2001, Gabela in early 2002 and the latest at Negage in December of 2002. Belize, Benguela, Tomboco, and most recently Tombua, are being developed jointly, and are expected to come onstream in 2005-06 period. Initial output should flow at about 140,000 bbl/d and increase to 200,000 bbl/d when all fields are onstream. CABGOC has a 31% interest on Block 14, and is joined by Sonangol (20%), Agip (20%), Total (20%), and Petrogal (9%).

The year 2003 saw the discovery of eight more commercial areas, in the exploration blocks 15, 17, 31 and 32. Block 15, whose exploration began in November 2003, began producing 80,000 bbl/d and Block 17, an average of 15,000 bbl/d. The increase in Angolan production is being led by Exxon, which is expected to invest around $4 billion in Angola on six new deepwater projects over the next four years. ChevronTexaco, which is the biggest operator in the country with its Cabinda offshore operations, is also developing the Beguela/Belize field on Block 14. Chevron will account for 15% of production when Angola reaches the 2 million bbl/d mark, with Exxon following at some 11% - outpacing developments by Angola's leading European producers Total, BP and Eni. Other US firms that are boosting their role in the country's offshore include Marathon, which has a stake in the development of Angola's ultra-deep waters.

Exports

In 2003, the United States imported more than 350,000 bbl/d of Angolan crude, representing around 4%-5% of US total petroleum imports. Angolan crude is also exported to growing markets in Europe, Latin America and especially Asia. On December 30th, 2003, as a further sign of the growing importance attached to the Angolan exports by the US government, Angola was named one of the countries newly eligible to share the benefits of the African Growth and

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Opportunity Act (AGOA), thus providing it with a more favorable position when entering the US market. Angola became an eligible participant of AGOA while still in the midst of its post-war political transition to a democractic government.

Exploration

The success in offshore discoveries in Angola has sparked interest in Angola's exploration blocks. In March 2003, Angola and the Republic of the Congo announced the creation of the Zone d'Interet Commun (ZIC, Common Interest Zone). The ZIC, a joint development area similar to the one established between Nigeria and Sao Tome and Principe, will be based in Brazzaville, and each country will receive half of all revenues generated from it. The ZIC includes portions of Block 14 (Angola), which is operated by ChevronTexaco, and the Haute Mer Block (Congo) operated by Total.

In addition to the Girassol and Jasmim finds, several other significant discoveries have been made on deepwater offshore Block 17, located northwest of Luanda. In April 2003, Total announced the results of two new discoveries on Block 17. Acacia, the first of the two discoveries, was drilled in a water depth of 1,030 meters and tested at a combined 13,712 bbl/d of oil from two separate zones. The second find, Hortensia, was spudded 10 kilometers north of Acacia in a water depth of 830 meters and tested at 5,092 bbl/d of oil. Both finds are located in the eastern section of Block 17, near the Perpetua (discovered in 2000). The two new discoveries open the possibility of a new development hub with the Perpetua and Zinia (2002) discoveries. Additional discoveries on Block 17 include Dalia (1997), Rosa (1998), Lirio (1998), Tulipa (1999), Orquidea (1999), Cravo (1999), Camelia (1999), Violetta (2001), and Anturio (2001). In May 2003, Total announced that it had gained approval for the start of development on the Dalia field. Total said the development of Dalia, which is located 84 miles (135 kilometers) offshore, is to include 34 production wells, 30 water and three gas injection wells. The wells would be tied back to an FPSO, the second on Block 17, with the capacity to process 240,000 bbl/d of oil. The Dalia FPSO would also have storage capacity of two million barrels of oil. Dalia's reserves are estimated at 1 billion barrels of recoverable oil. Dalia is due on-stream during the second half of 2006 at an estimated development cost of $3.4 billion. Total also has completed engineering studies and selected a scheme that will connect the Rosa, Lirio and Cravo discoveries to the Girassol FPSO.

Total's first exploration well on Block 32 was a success. Gindungo was drilled in 1,445 meters of water and tested at rates of 7,400 bbl/d and 5,700 bbl/d from two separate zones. The discovery lies 40 miles from Block 17's Girassol. Total plans to drill a second test well on Block 32 in early 2004. Total's (operator with a 30% interest) partners on Block 32 are Marathon Oil (30%), Sonangol (20%), ExxonMobil (15%), and Petrogal (5%).

In October 2003, ExxonMobil announced results of two deepwater oil discoveries, Kakocha and Tchihumba, the fifteenth and sixteenth oil finds on Block 15. Kakocha was drilled in 3,376 feet (1,030 meters) of water to a total depth of 9,140 feet (2,786 meters). The discovery well tested at flowrates of 4,500 bbl/d of oil. Tchihumba was drilled in 3,904 feet (1,190 meters) of water to a total depth of 13,684 feet (4,171 meters). The discovery well tested at flowrates of 7,470 bbl/d of oil. Other discoveries on Block 15 include: Kissanje (Feb., 1998), Marimba (Apr., 1998), Hungo (Jul., 1998), Dikanza (1998), Chocalho (Jul., 1999), Xikomba (Sep., 1999), Mondo (Jun., 2000), Saxi (Aug., 2000), Botuque (Nov., 2000), Mbulumbumba (Apr., 2001) Vicango (May, 2001), Mavacola (May, 2001), Reco Reco (Sep., 2002), and Clochas (Jul., 2003). Block 15 contains an estimated recoverable hydrocarbon potential of over 4 billion barrels of oil equivalent. Plans for multiple oil production projects on Block 15 are being developed. The Kizomba-A project will develop the Hungo and Chocalho discoveries. An FPSO vessel will be utilized for the Kizomba-A project, with production scheduled to start before the end of 2004. Production is targeted to eventually reach 250,000 bbl/d. The Kizomba-B project, also projected to have a production capacity of 250,000 bbl/d, will develop the Kissanje, Marimba, and

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Dikanza discoveries. First oil from Kizomba-B is not expected before the end of 2005. The Kizomba-C project will also encompass multiple fields, though it is still in the planning stages. So far, the $3.5 billion project is expected to develop the Botuque, Saxi, and Mondo fields, and may begin producing oil in 2006 or 2007.

In February 2003, Devon Energy (Devon, formerly Ocean Energy) added to its Angolan acreage by acquiring a 25% stake in Block 24 from ExxonMobil and agreeing to assume the role of operator on the block. Devon's share on Block 24 rises from 15% to 40%, while ExxonMobil retains a 20% share. Other Block 24 partners are Sonangol (25%), and Malaysia's Petronas (15%). Block 24 is due west of shallow-water Block 10, in which Devon holds a 35% stake, and also is operator. Both blocks are offshore the port of Lobito, in the Kwanza Basin. In June 2001, ExxonMobil reported the first oil discovery on Block 24. The well, Semba-1, was the first well on the block and flowed in excess of 3,000 bbl/d from two oil-bearing reservoirs. ExxonMobil later declared the find non-commercial.

BP is waiting for approval from the Angolan government to proceed with the development of the Greater Plutonio project on Block 18. The total investment cost of the project, estimated at between $2 and $3 billion, will include an FPSO with a two million barrel storage capacity. First oil is probable in late 2007 and production at maturity is expected to be 220,000 bbl/d. The FPSO is intended to have a 25-year life and handle crude oil from six fields (Plutonio, Cobalto, Paladio, Cromio, Galio and Platina) through sub sea tiebacks. BP's (50% interest and operator) partner on Block 18 is Shell. In December 2003, Shell announced plans to divest its interest in Block 18. India's state-owned ONGC is in talks with Shell to acquire its share of Block 18. The Indian government's Committee on Economic Affairs has approved ONGC's proposal to acquire Shell's 50% stake for a price between $700 million to $1.1 billion. Petronas is also believed to be interested in acquiring Shell's stake.

In December 2003, BP announced its third discovery on Block 31. Marte, located at about 118 miles off the coast, was drilled to a depth of 13,756 feet (2,000 meters) and tested at 5,200 bbl/d. Marte is the fourth exploration well BP has drilled on Block 31, and the third successful following the Plutao and Saturno discoveries. BP plans to drill one further exploration well, Venus, in early 2004. BP is currently exploring various development concepts for Block 31. Marte's proximity to Plutao and Saturno, some 20 to 25 kilometers away, makes joint development likely. The results of the Saturno discovery were announced in July 2003. The discovery was drilled in 5,900 feet (1,800 meters) of water to a total depth of 15,440 feet (4,707 meters). Saturno tested at a rate of 5,000 bbl/d. BP made their first oil discovery on Block 31 in September 2002. The well tested at a maximum rate of 5,357 bbl/d, although the full extent of the Plutao discovery is still being evaluated. This is the second well BP has drilled in Block 31, the first, Jupiter, being a dry hole. BP has a 26.7% stake in the block, ExxonMobil holds a 25% stake, 20% is held by Sonangol, 13.3% is held by Statoil, 10% by Marathon, and 5% by Total.

In September 2002, Canadian Natural Resources (CNR) signed a 4-year PSA with Sonangol, which will allow the Calgary-based firm to explore for oil in the deep waters of Block 16 off the coast of Angola. The 1.2 million acre block is located 72 miles offshore, and water depths in the area range from 300 to 1,500 meters. CNR will be the operator and will retain a 50% working interest in the block. Brazil's Odebrecht will have a 30% working interest, while Sonangol will retain the remaining 20%. In December 2003, CNR announced that drilling had been completed on the first of several potential exploration targets on Block 16. The well, Zenza-1, was drilled in 1,300 meters of water, and reached a total depth of 3,998 meters. The well encountered shows of hydrocarbons, but they were not of sufficient amounts to be commercial. CNR plans to drill a second exploratory well in late 2004 or early 2005.

Sonangol (20% and operator) and its partners on Block 34, Norsk Hydro (30%), ConocoPhillips (20%), Petrobras (15%), and Shell (15%), plan to drill a second exploratory well in early 2004.

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The first well drilled on the block, N'Dembe was unsuccessful.

Australia's Roc Oil plans to soon begin exploration activities at the Cabinda South onshore block. Roc Oil bought into the Cabinda South Block in 2001, when it acquired Total's 45% holding. Sonangol holds 20%, Force Petroleum 20%, and Lacula Oil and Gas 15%. On 15 July 2003, Roc Oil announced that it had agreed to acquire Lacula's 15% interest in the Cabinda South Block. Roc Oil now has a 60% interest in, and is operator of, the Cabinda South Block.

It should be noted that not all exploration efforts have been successful. In May 2002, ChevronTexaco and its partners relinquished Block 9 after three-and-a-half years of disappointing exploration activity. Block 9 is located in the Kwanza Basin, where a number of dry holes have been drilled. Unsuccessful wells include ExxonMobil's Eova-1 (Block 24) and Funje (Block 33), Total's Mariposa (Block 19), BHP's Iona and Kangandala (Block 21), CABGOC's Gabela (Block 14), Agip's Leao (Block 25), BP's Jupiter (Block 31) and Sonangol's N'Dembe (Block 34). Having spent, in some instances, more than $1 billion in signature bonuses; the dry holes have been a major disappointment for firms operating in Angola.

Refining and Downstream

The Fina Petroleos de Angola refinery in Luanda has a crude oil processing capacity of 39,000 bbl/d. The refinery is a joint venture between Sonangol (36%), Total (61%) and private investors (3%). Total, operator of the Luanda refinery, plans to raise capacity to 60,000 bbl/d by 2004. Two processing units will be enlarged and a third scrapped to boost efficiency. The refinery needs to adapt by 2005 to meet product specifications and deadlines set by SADC. These include phasing out lead and increasing the octane content in gasoline. The refinery produces almost all of Angola's domestic requirements of gasoline, kerosene and jet fuel, as well as a small amount of products for export.

Angola is developing plans for a new 200,000-bbl/d refinery, to be located in the central coastal city of Lobito. The majority of products refined at the new facility (80%) would be exported regionally. Following several years of delay, it is anticipated that construction will commence sometime in 2004, with the refinery coming onstream by 2007 at the earliest. Equity in the refinery has not been finalized, but Sonangol will likely retain a 50% share, with 20% going to a foreign technical partner, 20% to a foreign financial partner, and the remaining 10% to entities in the South Africa Development Community. Sonangol is investing between $3 and $5 billion in the refinery. Diesel and gasoline produced in the refinery will meet technical and environmental specifications required in targeted markets such as the United States, Western Europe and South Africa.

Following the end of armed hostilities in Angola, the domestic demand for oil products is rising and Sonangol is turning its attention to the long-neglected downstream sector. Currently, the industry is in dire straits. The retail sector, which once boasted more than 450 filling stations, has shrunk to 100 outlets. Angola's single refinery, a conventional hydro-skimming unit, is in better shape after Total upgraded the plant to a capacity of 57,000 bbl/d, although the country still imports some diesel and jet fuel. But a 2003 study on storage capacity revealed that it had shrunk to 7 million cubic feet, just enough for one month's sales, and left nothing for strategic reserves. Moves to rehabilitate the sector have already begun with construction of 120 retail stationed planned over the course of the next several years. Sonangol also wants to build two new logistics facilities and a new lubricants plant. The main possible stumbling block to potential new construction are the more than $300 million expected costs and the lack of considerable foreign investments by either Sonangol or foreign firms. Three firms, Sonangol (through its subsidiary Sonangol Distribution), Total, and Sonangalp, a joint venture between Sonangol (51%) and Petrogal (49%), provide product distribution and marketing in Angola so far.

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NATURAL GAS
Angola has estimated natural gas reserves of 1.6 trillion cubic feet (Tcf). New discoveries could push Angola's proven gas reserves to 9.5 Tcf, and possibly as high as 25 Tcf. The majority (approximately 85%) of natural gas produced in Angola is flared, the remainder is reinjected to aid in oil recovery and processed in the production of LPG. World Bank studies estimate that Angola accounts for 30% of the natural gas flared in Africa. The government is developing strategies to reduce natural gas flaring and increase commercial usage of natural gas. CABGOC has initiated two zero-flare fields, Nemba and Lomba, and plans to make Kuito the third.

ChevronTexaco and Sonangol have signed an agreement to develop an LNG (liquefied natural gas) project that would convert natural gas from offshore oil fields to LNG for export. The facility will process natural gas from offshore Blocks 1, 2, 3, 4, 15, 16, 17, and 18. The facility, which was originally planned for Luanda, adjacent to the existing refinery, will now be located at Soyo in Angola's northern Zaire province. The project will initially consist of one LNG train with a capacity to process 4 million tons per year of LNG. The site is sufficiently sized for the plant to expand to additional LNG trains. ChevronTexaco, and its partners plan to begin a detailed Front End Engineering Design (FEED) study early in 2004. The group will make a final decision after the FEED study is completed, a process expected to take 18 months. ChevronTexaco holds a 36.4% share in the project and is the operator of Blocks 2 and 17; Sonangol retains 22.8% interest and is the operator of Block 3; BP, ExxonMobil and Total each have a 13.6% share, with ExxonMobile being the operator of Block 15 and BP, of Block 18. The LNG project could spur development of other gas-related projects including: gas-fired generation facilities in the Luanda area; industrial usage of gas as a fuel (plans call for the Luanda cement plant to convert to using natural gas); and expansion of the domestic market for LPG.

ELECTRICITY
Angola's electricity generating capacity as of January 1, 2001 stood at 586 megawatts (MW). Although capacity is split evenly between thermal (oil & gas-fired) and hydroelectric units, hydroelectric facilities generate more than two-thirds of Angola's electricity. It is estimated that only 15% of Angola's population has access to electric power.

Angola has announced plans for the major rehabilitation of its power sector infrastructure. Significant portions of the country's generation and transmission facilities were damaged during the country's civil war. Angola intends to recover the productive capacity of the Empresa Nacional de Electricidade (ENE), the state-owned electric utility, by rehabilitating its hydropower stations. Of the six stations, only three, Cambambe , Biopo, and Matala, are functioning. The other dams (Mabubas, Lumaun, and Gove) have been severely damaged. Gove, however is expected to be rebuilt following the agreement to jointly rehabilitate the dam reached in February of 2003 between Namibia and Angola. The government plans to create a national grid by linking the three regional electricity grids and establishing linkages with neighboring countries. This project, coupled with the power plant rehabilitation, could provide the basis for Angola becoming a regional exporter of electricity.

The Matala dam on the Cunene river is the main source of electricity in the southwest. The 51-MW plant started operations there in late 2001. The Cambambe dam (180 MW) on the Kwanza river, the Mabubas dam (17.8 MW) on the Dande river and diesel generators are the main sources of electricity in the north of the country. A 24-MW dam is being built by a diamond company, Catoca, on the Tchicapa river in northeastern Angola, but plans to build a new dam on the southern border with Namibia continue to be delayed due to environmental concerns.

The Brazilian construction company Odebrecht, completed construction of a new hydroelectric facility at Capanda on the Kwanza River. The reported total cost of the project is estimated to be $2.95 billion. In August 2002, the Office of Middle Kwanza Exploitation began filling up the

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new dam's reservoir in preparation for electricity production. Preliminary tests for the production of electricity from the Capanda Hydroelectric Dam in Northern Malanje province began in December 2003. Work on the 520-MW plant began in the mid-1980's, but was suspended due to the civil war. When fully operational, the Capanda project will nearly double Angola's electricity generating capacity.

Russia's largest diamond-producing firm, Alrosa, has plans to build a 16-MW dam on the Tchicapa River in the Lunda Sul Province to provide energy for its prospecting operations. The new dam will be constructed in partnership with ENE, Angola's state-run electricity company. At a cost of $45 million, the dam is expected to provide energy for the second phase of Alrosa's diamond prospecting project at Catoca. The dam will also supply energy to Lunda Sul. Angola's Lunda Sul and Lunda Norte provinces are said to be important diamond-producing regions that have enormous hydropower potential.

Sources for this report include: Africa Confidential; Africa Energy and Mining; Africa Oil and Gas; Agence France Presse; AllAfrica.com; Angop; AP Worldstream; BBC World News; Central Intelligence Agency Country Reports; Economist Intelligence Unit (EIU) Viewswire; Energy Intelligence Group, Inc.; Factiva Inc.; Global Insight; Global Witness; Petronas; Human Rights Watch; International Crisis Group; International Monetary Fund Country Reports; Petroleum Economist Limited; Reuters News Corporation; Sonangol; United Nations Integrated Regional Information Networks - OCHA IRIN; U.S. Department of State Country Briefings;

COUNTRY OVERVIEW
President: Jose Eduardo dos Santos (since September 21, 1979)
Independence: November 11, 1975 (from Portugal)
Population (2002E): 13.9 million
Location/Size of the Country and the Border: Southern Africa, bordering the Atlantic Ocean (on the west), the Democratic Republic of the Congo for 1,560 miles, of which 140 miles is the boundary of discontiguous Cabinda Province (on the north and east); Republic of the Congo for 137 miles (on the north of Cabinda), Zambia for 690 miles (on the east); and Namibia for 855 miles (on the south). Total area of Angola is: 481,354 square miles, slightly less than twice the size of Texas
Major Cities: Luanda (capital), Huambo, Lobito, Benguela, Lubango, Namibe, Soyo, Cabinda City
Languages: Portuguese (official), over 60 local languages including Umbundu, Kimbundu, Kikongo, Tchokwe and Ovambo of the Bantu language group
Ethnic Groups: Ovimbundu 37%, Kimbundu 25%, Bakongo 13%, mestico (mixed European and Native African) 2%, European 1%, other 22%
Religion (1998E): Traditional beliefs 47%, Roman Catholic 38%, Protestant 15%

ECONOMIC OVERVIEW
Minister of Finance: Jose Pedro de Morais
Governor of Banco Nacional de Angola (BNA; the central bank): Amadeum Mauricio
Currency: New Kwanza (NKz)
Exchange Rate (02/09/04): US$1 = 80.13 NKz
Gross Domestic Product (GDP) (2002E): $10 billion
GDP Growth Rate (2002E): 15.3%; **(2003E):** 4.4%
Inflation Rate (2003E): 106%
Current Account Balance (2002E): $150 million
Major Trading Partners: United States, South Korea, Japan, Belgium-Luxembourg, Portugal, China, France, Taiwan, South Africa
Major Export Products: Crude oil, diamonds, refined petroleum products
Major Import Products: Consumer goods, military and capital goods, machinery, vehicles and spare parts

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Total External Debt (2002E): $9.9 billion

ENERGY OVERVIEW
Minister of Petroleum: Desiderio da Costa
Minister of Energy and Water: Jose Botelho de Vasconcelos
Proven Oil Reserves (1/1/04E): 5.4 billion barrels
Oil Production (2002E): 896,000 barrels per day (bbl/d), all of which is crude oil; **(2003E):** 923,000 bbl/d, all of which is crude oil
Oil Consumption (2002E): 32,000 bbl/d; **(2003E):** 33,000 bbl/d
Net Oil Exports (2002E): 864,000 bbl/d; **(2003E):** 890,000 bbl/d
Refining Capacity (1/1/04E): 39,000 bbl/d
Natural Gas Reserves (1/1/04E): 1.6 trillion cubic feet
Natural Gas Production (2001E): 18.7 billion cubic feet (bcf)
Natural Gas Consumption (2001E): 18.7 bcf
Electric Generation Capacity (1/1/01E): 586 megawatts
Electricity Generation (2001E): 1.450 billion kilowatthours (59.7% hydroelectric, 40.3% thermal)

ENVIRONMENTAL OVERVIEW
Minister of Environment and Urban Development: Virgilio Fontes Pereira
Total Energy Consumption (2001E): 0.09 quadrillion Btu* (0.03% of world total energy consumption)
Energy-Related Carbon Emissions (2001E): 3.59 million metric tons of carbon (0.1% of world carbon emissions)
Per Capita Energy Consumption (2001E): 6.9 million Btu (vs. U.S. value of 338.0 million Btu)
Per Capita Carbon Emissions (2001E): 0.27 metric tons of carbon (vs. U.S. value of 5.5 metric tons of carbon)
Energy Intensity (2001E): 3,247 Btu/$1995 (vs. U.S. value of 10,810 Btu/$1995)**
Carbon Intensity (2001E): 0.0001 metric tons of carbon/thousand $1995 (vs. U.S. value of 0.17 metric tons of carbon/$1995)**
Fuel Share of Energy Consumption (2001E): Oil (67.2%), Natural Gas (23.0%), Coal (0.0%)
Fuel Share of Carbon Emissions (2001E): Natural Gas (64.4%), Oil (32.8%), Coal (0.0%)
Status in Climate Change Negotiations: Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified May 17, 2000). Not a signatory to the Kyoto Protocol.
Major Environmental Issues: Overuse of pastures and subsequent soil erosion attributable to population pressures; desertification; deforestation of tropical rain forest (in response to both international demand for tropical timber and to domestic use as fuel), loss of biodiversity; soil erosion contributing to water pollution and siltation of rivers and dams; inadequate supplies of potable water.
Major International Environmental Agreements: A party to Conventions on Biodiversity, Desertification and Law of the Sea.

** The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar and wind electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes.*
***GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.*

OIL AND GAS INDUSTRIES
Organization: State-owned Sociedade Nacional de Combustiveis de Angola (*Sonangol*) oversees offshore and onshore oil operations in Angola.

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Major Oil Fields: Takula (Block Zero), Nemba (Block Zero), Kokongo (Block Zero), Pacassa (Block 3), Cobo/Pambi (Block 3)
Major Refineries (1/1/04E Capacity): Fina Petroleos De Angola - Luanda (39,000 bbl/d); a new 200,000 bbl/d refinery at Lobito is scheduled to begin construction in 2004.
Major Oil Terminals: Luanda, Malango (Cabinda), Palanca, Quinfuquena
Foreign Oil Company Involvement: Ajoco, BHP, BP, Canadian Natural Resources, ChevronTexaco, Daewoo, Engen, ENI-Agip, ExxonMobil, Falcon Oil, Fortum, Gulf Energy Resources, INA-Naftaplin, Lacula Oil, Marathon Oil, Mitsubishi, Naftgas, Naphta-Israel, Norsk Hydro/Saga, Occidental, Ocean Energy, Pedco, Petrobras, Petrofina, Petrogal, Petro-Inett, Petronas, Phillips, Prodev, Shell, Statoil, Teikoku, Total

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LINKS

For more information on Angola, see these other sources on the EIA web site:
EIA - Country Information on Angola

Links to other sites:
CIA World Factbook - Angola
U.S. Department of Energy's Office of Fossil Energy's International section - Angola
U.S. State Department's Consular Information Sheet - Angola
U.S. State Department: 2002 Human Rights Report: Angola
U.S. Agency for International Development: Angola
U.S. Department of Treasury Office of Foreign Assets Control: UNITA Sanctions (PDF file)
Library of Congress Country Study on Angola - 1989
U.S. Trade with Angola
U.S. Geological Survey - Africa and Middle East Mineral Information: Angola

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Official Angola Website
National Bank of Angola (in Portuguese)
U.S.-Angola Chamber of Commerce
International Monetary Fund (IMF): Angola
World Bank: Angola
MBendi Information Service - Angola's oil and gas industry
All Africa News Service: Angola
Washington Post World Reference: Angola
University of Pennsylvania African Studies: Angola
Stanford University African Studies: Angola
African Development Bank: Angola
Strategic Road: Angola
Human Rights Watch January 2004 Report on Angola
International Energy Agency (IEA): Key Energy Indicators for Angola
Common Market for Eastern and Southern Africa (COMESA)
Southern African Development Community (SADC) 2001
SADC Central Banks Website
Development Bank of Southern Africa
African Union (formerly Organization of African Unity)

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File last modified: March 2, 2004

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