
Summary

Angola gained its independence from Portugal in 1975 and continues to rebuild after the end of a 27-year civil war in 2002. Fighting was between the Popular Movement for the Liberation of Angola (MPLA), led by Jose Eduardo Dos Santos, and the National Union for the Total Independence of Angola (UNITA), led by Jonas Savimbi. Peace seemed imminent in 1992 when Angola held national elections, but UNITA renewed fighting after being beaten by the MPLA at the polls. Up to 1.5 million lives may have been lost, and 4 million people displaced in the 27 years of fighting. Savimbi's death in 2002 ended UNITA's insurgency and strengthened the MPLA's hold on power. President Dos Santos has announced that legislative elections will be held in September 2008, with presidential elections planned for sometime in 2009.

Angola's high growth rate is driven by its oil sector, with record oil prices and rising petroleum production. Oil production and its supporting activities contribute about 85 per cent of GDP. Increased oil production supported growth averaging more than 15 per cent per year from 2004 to 2007. A postwar reconstruction boom and resettlement of displaced persons has led to high rates of growth in construction and agriculture as well. Much of the country's infrastructure is still damaged or undeveloped from the civil war. Remnants of the conflict such as widespread land mines still mar the countryside. In 2005, the government started using a \$2 billion line of credit, since increased to \$7 billion, from China to rebuild Angola's public infrastructure, and several large-scale projects were completed in 2006.

Sonagol (Sociedade Nacional de Combustíveis de Angola) was created in 1976. The state company's activities include exploration, research, development, sales, production, transportation and refining of hydrocarbons and their derivatives. These activities are performed autonomously or in conjunction with foreign companies. Sonangol is the exclusive concessionary for hydrocarbon exploration in Angola.

Even though Sonangol is the exclusive oil lease grantor in Angola, until recently it was not an oil company — it had no industry expertise in exploration or production operations. Thus, all prior concessions were granted to foreign companies. To fill this void, Sonangol established the subsidiary Pesquisa & Produção (P&P) in 1992. As P&P grew and gained experience, Sonangol established Sonangol SGPS, a drilling company to support P&P. A joint-venture with SBM (Single Buoy Mooring) Production created Sonasing to prepare and store crude for export. Currently P&P produces about 10,000 barrels per day (10 Mbd) on areas of Block 2, and roughly 93 Mbd in shallow waters of Block 3.

In addition, SonaRef was created to provide value to some of Angola's acidic, heavy crude by producing high quality transportation fuel while reducing imports of products such as gasoline and diesel. SonaRef also aims to control 50% of regional markets and to increase international exports.

SonaRef's first project began in 2007 with engineering work for a refining facility about five miles north of Lobito, Benguela. Construction is scheduled to start in 2008, peak in 2009 and be completed in 2012. Facilities will include the latest technology for processing the difficult crude. Input crude, from both onshore and offshore fields, will be transported by tanker to a bridged platform located east of Lobito's bay, then proceed by pipeline to the refinery. The 200 Mbd crude capacity refinery will produce unleaded gasoline, diesel, jet fuel, heating oil, LPG and limited quantities of sulfur and coke.

Sonagas was created in 2004 to explore, evaluate and develop Angola's natural gas reserves. The Angola LNG Project is the company's primary focus. Although not well documented, natural gas reserves in Angola are estimated to exceed 11 Tcf, the majority being associated gas. The absence of more accurate data results from a prior lack of a market for the gas and no legal contractual framework that defines terms for exploration and development of natural gas in the scope of the production sharing agreements (PSAs). As a result, discovered non-associated natural gas wells had been abandoned by PSA operators in the past.

To determine natural gas reserves in Angola, Sonagas plans to intensely explore and evaluate all the existing Angolan sedimentary basins, on and offshore. This will entail a review of existing seismic, magnetic, gravimetric and petrophysical data, well reports, and the drilling of exploration and evaluation wells.

Figure 1 presents a forecast of oil production (which includes condensate and natural gas liquids) as an extension of history beginning in 1973. By type, the history and forecast of production is as follows:

Summary (Continued)

	Thousand Barrels Per Day (Mbpd)			
	Crude Oil	Condensate	Natural Gas	
			Liquids	Total
1973	161.4	-	-	161.4
1978	125.9	-	-	125.9
1986	281.2	-	7.0	288.2
1994	544.3	-	6.0	550.3
1995	605.9	-	5.7	611.6
1996	692.8	-	4.4	697.2
1997	708.9	-	4.6	713.5
1998	733.1	-	4.4	737.5
1999	741.4	-	4.9	746.3
2000	735.1	-	5.4	740.5
2001	816.7	-	5.4	822.1
2002	913.3	-	5.8	919.1
2003	877.2	-	3.1	880.3
2004	982.5	-	4.6	987.1
2005	1,221.1	6.0	11.0	1,238.1
2006	1,361.5	18.9	29.6	1,410.0
2007	1,674.5	21.0	37.2	1,732.7
<u>Forecast</u>				
2008	2,106.9	21.0	36.8	2,164.7
2009	2,487.0	21.0	36.3	2,544.3
2010	2,631.2	21.0	36.1	2,688.3
2011	2,701.1	21.0	35.9	2,758.0
2012	2,977.1	21.0	35.8	3,033.9
2013	2,936.6	21.0	35.7	2,993.3
2014	2,810.1	21.0	35.6	2,866.7
2015	2,585.5	21.0	35.5	2,642.0
2016	2,363.0	21.0	35.4	2,419.4
2017	2,128.5	21.0	35.3	2,184.8
2018	1,891.0	21.0	35.3	1,947.3
2019	1,608.6	21.0	35.3	1,664.9
2020	1,351.2	21.0	35.2	1,407.4

Million Barrels	
Ultimate Recovery 12-31-1978	1,602
<u>Reserve Additions</u>	
1979 - 1994	3,212
1995 - 2004	9,476
2005 - 2015	3,879
2015 - 2020	3,216
Ultimate Recovery 12-31-2020	21,385
Cumulative Production 12-31-1978	487
1979 - 1994 Production	1,916
1995 - 2004 Production	2,852
2008 - 2020 Production	
2005	446
2006	497
Estimated 2007	611
Forecast 2008 - 2020	11,169
Subtotal	12,723
Cumulative Production 12-31-2020	17,978
Proved reserves 12-31-2020	3,407
Ultimate Recovery 12-31-2020.	21,385

The success of several deep-water developments has produced dramatic increases in the country's production rates. However, many of these projects are extremely high production rate operations, and therefore, are expected to experience short production plateau periods before entering into steep declines. The peak year for production is forecast to be 2012 when total liquids output just exceeds three million barrels per day.

We have included forecasts for yet-to-be-developed reserves, but these do not include currently unexplored deep- and ultra-deep-water blocks. However, as can be seen in Figure 2, there are numerous untouched blocks near established production that may offer promise in the extended future.

Forecast production and ultimate recovery of crude and condensate compare with history as follows: