ANGOSTURA DEVELOPMENT TRINIDAD AND TOBAGO



OVERVIEW

- BHP Billiton has committed to the development of the first phase of the Angostura integrated oil and gas development located in Block 2 (c) offshore Trinidad and Tobago.
- In the first phase of the development, oil will be produced from three wellhead protector platforms (WPPs) via flowlines to a steel jacket central production platform (CPP). Associated gas will be reinjected. Water depths are approximately 40 metres (130 feet) and the development utilises proven shallow-water technology.
- Gas commercialisation (Phase 2) will commence approximately three to nine years after first oil, depending on reservoir performance.
- The Angostura development is consistent with BHP Billiton Petroleum's strategy of pursuing growth through oil exploration and production that can provide good returns.
 - BHP Billiton is the first company to successfully pursue an oil and gas exploration program in this under- explored area.
 - Entry was secured at modest cost in an area with attractive fiscal terms.
 - There is further exploration potential in the area, and opportunities exist to build a material energy business with ready access to significant oil and gas markets.
 - BHP Billiton is positioning the gas resource in the growing gas market to further unlock value.
- Capital expenditure for the first phase of the Angostura integrated development will be around US\$726 million (gross), US\$327 million net to BHP Billiton.
- The gross resource (mid-case volumes) is estimated at 450 million barrels of oil equivalent.
- First oil production is scheduled for December 2004.
- BHP Billiton is the Operator of the Greater Angostura development. The joint venture participants are BHP Billiton Petroleum, 45%; TotalFinaElf, 30%; Talisman Energy, 25%.

KEY DATA

- P50 resource: approximately 450 million barrels of oil equivalent (160 million barrels of oil; 1.75 trillion cubic feet of natural gas).
- Field life: Angostura's production life, for both oil and gas, is estimated at 19-24 years.
- Capex (Phase 1): US\$726 million (US\$327 million net to BHP Billiton).



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STRATEGIC CONTEXT

The Angostura Project is consistent with BHP Billiton Petroleum's strategy of pursuing growth through oil exploration and production that can provide good margins. Trinidad and Tobago's location also allows access to the high-demand US crude oil markets, as well as Latin American and European markets.

The Angostura field discovery opens a new productive play fairway off Trinidad's eastern coast. BHP Billiton is well positioned to grow reserves and production in this fairway through its Operatorship of the Block 2(c) production area, Block 2(c) remaining exploration area, and the adjacent Block 3(a). Additionally, the location of the production and transportation facilities will be well positioned to serve any BHP Billiton or third-party discoveries in the area.

BACKGROUND: BLOCK 2(c)

BHP Billiton began exploring in Trinidad and Tobago in 1996, signing the country's first Production Sharing Contract under a new fiscal regime. Since that time we have been the only company to successfully pursue a new oil play in the region.

In 1999, BHP Billiton made a natural gas discovery on Block 2(c) with the Angostura-1 well. In 2000, the Aripo-1 well also encountered a thick interval of gas pay and a thin oil reservoir.

The Kairi-1 well discovered oil and gas in August 2001. In subsequent testing, Kairi-1 flowed at rates up to 3,000 barrels of oil per day (bbl/d) on a 38/64-inch choke, indicating the commercial oil potential of the accumulation. Following the oil discovery at Kairi, a project development team was assembled to initiate an appraisal drilling program and to begin assessing development options.

Drilling of Canteen-1 began in October 2001. Located on a separate fault block approximately 1.6 km north of Kairi-1, Canteen-1 demonstrated a lateral extension of the oil accumulation, encountering approximately 213 metres (700 feet) of gross hydrocarbon-bearing sands that included 61 metres (200 feet) of net oil pay and 54.5 metres (179 feet) of net gas pay. The well tested at a rate of approximately 3,700 barrels of oil per day through a 72/64-inch choke. The Kairi-2 (ST2) appraisal well drilled in early 2002 encountered a 98 metre (322 feet) gas column, and more importantly, an oil column of 71.6 metres (235 feet).

Over the next six months, the Block 2(c) partnership drilled the Angostura-2 and Canteen-2 appraisal wells to further delineate the earlier discoveries.

THE GREATER ANGOSTURA FIELD

Block 2(c) is located approximately 38.5 kilometres (24 miles) east of the island of Trinidad. During the six year exploration phase of the PSC, four exploration and three appraisal wells were drilled, discovering significant oil and gas resources within a large faulted structure known as the Greater Angostura Structure.

Angostura-1, drilled in 1999, was the discovery well for the field, intersecting some 950 feet (gross) of gas pay within Early Oligocene sands. The hydrocarbon potential of the structure was confirmed by the drilling of Aripo-1, Kairi-1, Canteen-1, Kairi-2, Angostura-2, and Canteen-2. Each of these exploration/appraisal wells intersected oil and gas in Oligocene sands.

The Kairi and Canteen fault blocks contain most of the oil thus far. Aripo has a thin oil rim overlain by a significant gas cap.

RESERVES

The gross recoverable oil reserves are estimated between 90 and 300 million stock tank barrels (stb), with a mid case or P50 volumes of 160 million stb. The range of gross recoverable gas volumes is 1 to 2.3 trillion cubic feet (Tcf), with a mid-case volume of 1.75 Tcf. On an oil equivalence basis, the mid-case resource is estimated at approximately 450 million barrels of oil equivalent.

DEVELOPMENT CONCEPT

The Angostura development will be an integrated oil and gas development.

Oil will be produced from three unmanned steel jacket wellhead protector platforms (WPPs) and sent via flowlines to a central steel jacket production platform (CPP) located in water depths of approximately 40 metres. The produced fluids will be stabilised at the CPP to separate gas and any produced water. The oil will be transported via an 18 inch pipeline from the CPP to an onshore storage and marine loading facility located at Guayaguayare Bay for export to market.

Produced gas will be treated to recover liquids, then reinjected to maintain reservoir pressure and enhance oil recovery. Gas commercialisation will commence between three to nine years after first oil production, depending on reservoir performance. The production facility will have a nameplate capacity of 100,000 barrels of oil per day. All production facilities are of conventional design.

First oil production is scheduled for December 2004.





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CONTRACTUAL REGIME

The Production Sharing Contract

Foreign participation in the Trinidad and Tobago oil sector is governed by a model Production Sharing Contract (PSC). The critical biddable terms of such PSCs include the work programs, cost recovery percentages, profit splits for both crude oil and natural gas and production and signing bonuses. The balance of the model PSC terms is negotiated on a project-by-project basis and vary to some degree. The PSC provides for an initial six-year exploration period, typically divided into three phases, only the first of which is obligatory. In the event of a commercial discovery, the contract has a total duration of 25 years. Further five year extensions are available, subject to negotiation with the Ministry of Energy and Energy Industries. The entitlements of the foreign partner (Contractor) in Block 2(c) include the following:

Cost Recovery

The PSC defines the maximum portion of production available for recovery of capital and operating expenses on an annual basis. If the portion of production available for recovery of costs is insufficient in any calendar year, the unrecovered costs are carried forward to the next year for the life of the contract. If the portion of production available exceeds that required for cost recovery, then the excess becomes part of the profit share.

Profit Share

The portion of production left after cost recovery becomes the available profit share. A percentage of this pool is made available to the Contractor as its profit. The percentage varies on a sliding scale basis: for oil, it is based on a combination of production rates and price; for natural gas the sliding scale is based on production rates only.

Allocation of Entitlement

The process detailed above means the Contractor's share of annual production varies from year to year as a function of costs, price and production volumes.

HYDROCARBONS IN TRINIDAD AND TOBAGO

Trinidad and Tobago has a long history of hydrocarbon exploration and production, with some of the earliest wells drilled in the western hemisphere having been spudded there during the middle of the 19th century.

Since the mid 1970s, the country has steadily expanded its local natural gas industry as part of a deliberate strategy to boost industrialisation. Gas resources have been monetised through the development of joint ventures for various gas industry and infrastructure projects. The twin-island country boasts some of the most sophisticated petroleum infrastructure in the world today and is a leading manufacturer of methanol, LNG, and other gas products.

Following a continuous and significant drop in the country's daily oil production (from a peak of 240,000 bbl/d in 1978) throughout the 1980s and into the early 1990s, the Government of Trinidad and Tobago endeavored to generate more foreign company interest in its offshore acreage by revising its contractual regime to more internationally accepted standards. BHP Billiton revisited the country in 1995 to renew old friendships and to strengthen the relationship it had developed previously with the country's energy personnel.

Trinidad and Tobago's political stability and attractive petroleum geology (Eastern Venezuela Basin), together with its improved contract terms, make it one of the most attractive exploration areas for BHP Billiton to pursue in the Latin American and Caribbean region.

FUTURE GROWTH PROSPECTS

BHP Billiton and its partners are in a strong position to potentially add value through utilising the Angostura facilities as a regional production hub for any potential discoveries in adjacent Block 3(a) (BHP Billiton operator) and other potential third-party discoveries in the area. An exploration drilling program is scheduled on Block 3 (a) for calendar 2003.

Gas commercialisation (Phase 2 of the Angostura development) could be accelerated through proximity to a robust gas market and the use of existing Angostura facilities. Potential markets for Angostura gas include: LNG export, the local petrochemical industry, pipeline export to nearby islands, and CNG export.

HEALTH, SAFETY, ENVIRONMENT

BHP Billiton and its partners believe that outstanding performance in the areas of health, safety, environment and community affairs is critical to the success of the development. The Greater Angostura field project will be designed, constructed, installed, commissioned and operated in compliance with the BHP Billiton Global HSE Management Standards. Reviews and audits will be held periodically throughout the life of the project to establish conformance. Although not required under Trinidad and Tobago law, BHP Billiton will produce a Safety Case document for the Angostura Development. This Safety Case will be aligned to the *Australian Guide to Safety Cases*.

BHP Billiton has a stated goal of achieving ISO 14001 certification for environmental management for the Greater Angostura project.

COMMUNITY AFFAIRS

BHP Billiton and its partners in Block 2 (c) propose a multi-faceted community affairs program focused on sustainable development initiatives, including contributions that support sustainable development efforts and foster empowerment among the people who benefit from them.

An important goal is to improve the capabilities of the people affected by the community programs, either by maintaining and growing a project after an initial launch period or by acquiring the skills and expertise that can be used in other projects or professional endeavours.

LOCAL CONTENT

As the Operator of the Block 2(c) joint venture, BHP Billiton is committed to maximising local involvement of the field development where practical. There will be significant local content opportunities during the execution and operation phases to ensure that sustainable support infrastructure is further developed in Trinidad and Tobago.

To assist in the upgrading of the supplier capability, BHP Billiton has actively encouraged the establishment of joint ventures and collaborations between international suppliers and local organisations.

In the Operations phase of the project we expect that 85% of the operations support positions will be filled by Trinidad and Tobago nationals.

OTHER EXPLORATION ACREAGE IN TRINIDAD AND TOBAGO: BLOCK 3(a)

In October 2001, Trinidad and Tobago's Ministry of Energy and Energy Industries announced the award of exploration Block 3(a) to a consortium of BHP Billiton, Talisman Energy, BG International, and TotalFinaElf. The PSC was signed on 22 April 2002.

Block 3(a) is located 40 km off the east coast of Trinidad in water depths ranging from 30 to 91 metres and is located adjacent to Block 2(c). The joint venture will carry out a work program comprising 3-D seismic surveys and six wells in the first three-year phase of the PSC's exploration period.

BHP Billiton has a 30% interest in Block 3(a) and is the Operator. Other participants are Talisman Energy, 30%; BG International, 30%; TotalFinaElf S.A, 10%.

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