

ENERGY COUNTRY REVIEW

Bangladesh

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Country Review Bangladesh

Bangladesh (the People's Republic of Bangladesh) lies at the top of the Bay of Bengal, surrounded by India and bordering Myanmar (east). It is separated from Nepal and Bhutan by the narrow Siliguri Corridor.

Migrants from Asia lived in Bengal for over 20,000 years with urban settlements developing from 500 BC. Ruled by the Mauryan (300 BC) and Gupta (320 AD) empires, it divided into kingdoms after 520. As a transit point to China, Islam arrived in 1000 and it was ruled by the Delhi Sultanate from 1204 and an independent Bengal Sultanate from 1352. From 1608 the Mughal Empire took over this now prosperous region, run from 1717 by the local Nawab principality until the UK invaded and set up the Bengal Presidency in 1765, run from Calcutta.

After 1857 rebellions against British rule culminated in partition in 1905 into East Bengal and Assam. The Muslim League, formed in 1906, sought Indian independence but opted for separate Muslim states in 1940, and in 1947 the Dominion of Pakistan was created. Renamed East Pakistan in 1955, discrimination led to the 1971 Liberation War and Bangladesh seceded as a new republic. The country remains poor but has natural resources and a large textile industry. It is challenged by unstable politics, flooding and religious extremism.

Source: GlobalShift

Oil & Gas

Bangladesh produces a small amount of condensate from the Surma basin in the northeast, which commenced in 1961. A little oil was produced from one well between 1987 and 1994 but this field is now depleted. Conversely condensate production has

Country Key Facts

Official name:	People's Republic of Bangladesh
Capital:	Dhaka
Population:	163 900 501 (2016)
Area:	147,570 square kms (56,977 square miles)
Form of government:	Parliamentary Republic
Language:	Bangla (Bengali), English
Religion:	Muslim, Hindu
Currency:	Taka
Calling code:	+880
Natural resources:	Arable land, timber, coal and natural gas

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Government

Bangladesh is a multi-party parliamentary representative democracy. The President, elected by parliament for a 5-year term, is head of state with ceremonial duties only.

Appointed by the President, the Prime Minister is head of government and leader of the Cabinet. The unicameral Parliament comprises the 350-seat elected Jatiyo Sangshad headed by a Speaker, second in line to the presidency.

The industry is overseen by the Ministry of Power, Energy & Mineral Resources (MPEMR). The Energy and Mineral Resources Division directly deals with oil and gas.

The Bangladesh Petroleum Corporation (BPC), established in 1976 is the NOC which supervises, coordinates and controls all activities related to oil and gas.

Source: *GlobalShift*

grown substantially, reaching a peak around 2009, after which the Surma basin gas fields went into decline.

Gas production in Bangladesh has grown rapidly but may be near a peak onshore. Offshore production began in 1998 from the Sangu field in the Bay of Bengal which is now in serious decline. However there are considerable opportunities for new gas output from identified and new prospects, especially offshore once markets and infrastructure have been established.

Overview

Bangladesh is a net importer of crude oil and other liquids. In 2014, the country produced 4,800 barrels per day (bbl/d) of petroleum and other liquids and consumed more than 124,000 bbl/d. Because oil consumption has been increasing after 2010 to make up for the shortage of natural gas especially in the power sector, Bangladesh continues to increase its crude oil and oil product imports. Bangladesh processes crude oil at its 28,000-bbl/d-refinery owned by Eastern Refinery Limited (ERL), a subsidiary of Bangladesh Petroleum Corporation. Bangladesh Petroleum Corporation initially planned to triple the refinery's capacity by 2016, although little progress has been made thus far.

Bangladesh, the eighth largest natural gas producer in the Asia Pacific region in 2014, produced 833 billion cubic feet (Bcf/y), all of which was domestically consumed. Natural gas production in Bangladesh has steadily increased by an annual average of 6% from 2004 to 2014. However, Bangladesh still faces acute natural gas supply shortages especially in the electricity sector. These shortages, in turn, have led to rolling blackouts of electricity.

Onshore fields currently supply all of the country's natural gas supply, although production of these mature fields is expected to plateau in the next few years. Bangladesh is seeking greater investment in its offshore area.

According to Petrobangla, the total proved hydrocarbon reserves of Bangladesh are estimated at over 15 trillion cubic feet (over 400 billion cubic meters). The volume of natural gas produced annually in the country is almost 27 billion cubic meters, while existing demand exceeds 30 billion cubic meters.

A total of 26 gas fields have been discovered in Bangladesh, two of which are located on the shelf of the Bay of Bengal. Both independently and together with international partners, BAPEX discovered 7 of those fields: Saldanadi, Fenchuganj, Shahbazpur, Semutang, Sundalpur, Srikail and Rupganj.

Source: *Energyfiles.com, Energy Information Administration, National Geographic*

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History of Oil and Gas Industry In Bangladesh

The beginning: up to 1947:

The search for oil and gas in the area constituting Bangladesh began in the later part of the 19th century through some isolated geological mapping. The first serious attempt to find oil and gas was undertaken in Sitakund in 1908 by the Indian Petroleum Prospecting Company, 18 years after the first oil discovery in Digboi, Assam. During 1923-31 Burmah Oil Company (BOC) drilled 2 shallow wells in Patharia. The wells were abandoned though there was a reported show of oil. A total of 6 exploratory wells were drilled, the deepest being 1047 meters. There was, however, no discovery and the Second World War disrupted further activities.

The interim: 1948 to 1971:

The promulgation of Petroleum Act in 1948 generated a lot of interest in oil and gas exploration by international oil companies. The Standard Vacuum Oil Company (STANVAC) of USA, Pakistan Petroleum Ltd. (PPL), Burmah Oil Company affiliate and Pakistan Shell Oil Company (PSOC) carried out exploration till the end of the sixties. STANVAC drilled 3 wells at Hazipur, Bogra and Kuchma in the north-western part of the country without success. PPL drilled wells in Haripur, Patharia, Chhatak, Fenchuganj, Patiya and Lalmai and made the first gas discovery in Haripur in 1955, followed by Chattak in 1959. PSOC was the most successful company and discovered 5 gas fields named Titas, Habiganj, Rashidpur, Kailashtila and Bakhrabad. They also drilled the first offshore well Cox's Bazar-1, which was dry.

Oil and Gas Development Corporation (OGDC) was established in 1961 providing an institutional foundation for exploration of oil and gas in the country. OGDC carried out geological and geophysical surveys including gravity, magnetic and seismic types and drilled wells in Jaldi and Semutang, discovering gas in Semutang in 1970.

The way forward: 1972 to 1979:

After the independence of Bangladesh, exploration activities by both national and international companies gathered pace. Bangladesh Oil, Gas and Mineral Corporation (Petrobangla) continued its exploration efforts while the Bangladesh Petroleum Act was passed in 1974 to facilitate international participation under Production Sharing Contract (PSC). The offshore area of Bangladesh was divided into 6 blocks, which were taken up by Ashland, ARCO, BODC (Japex), Union Oil, Canadian Superior Oil

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and Ina Naftaplin under PSCs. These companies carried out gravity, magnetic and seismic surveys (about 32,000 km) and drilled 7 wells. Of them, only Union Oil Company discovered an offshore gas field Kutubdia in 1977. This phase of PSC ended in relinquishment of the blocks by the PSC operators in 1978. On 9 August, 1975, Government led by the Father of the Nation Bangabandhu Sheikh Mujibur Rahman purchased 5 gas fields, namely Titas, British company, Shell Petroleum Company Limited, for a nominal amount of 4.5 million pound sterling. This landmark decision taken by the then Government laid the foundation of energy security of the country by introducing sole ownership of the state over these major gas fields.

Gathering momentum : 1980 onwards

The 1980s saw accelerated exploration activities by Petrobangla. During the time, 12 exploration wells were drilled at Muladi, Begumganj, Singra, Beanibazar, Atgram, Feni, Fenchuganj, Sitakund, Bogra, Kamta, Marichakandi (Meghna) and Belabo (Narshindi); and 7 gas fields were discovered at Begumganj, Beanibazar, Feni, Fenchuganj, Kamta, Marichakandi (Meghna) and Belabo (Narshindi). Among these, Fenchuganj no. 2 well remains the deepest one drilled so far in Bangladesh (4,977m). Meanwhile, a new milestone was achieved when Petrobangla discovered the first commercial oil pool in Sylhet no. 7 on 23 December, 1986. Since 1989, after the formation of BAPEX as the national exploration company and thereafter exploration and production company, the company has continued exploration and production activities and drilled 4 exploratory wells discovering gas at Shahbazpur, Saldanadi, Srikail and Sundalpur.

In 1981 Shell Oil Company (Shell) was awarded the Chittagong Hill Tracts for petroleum exploration under PSC. Shell conducted geological and seismic survey and drilled the Sitapahar well which was dry. Subsequently Shell undertook exploration in the extreme north west of the country and drilled the first well in the area - the Salbanhat well which was also dry. In 1988 Scimitar Exploration Limited was awarded another PSC of what is now block no. 13 in the Surma basin. They failed to prove the extent of the oil discovery at Sylhet structure but discovered the Jalalabad gas field.

Formulation of National Energy Policy, 1996 and adoption of a model Production Sharing Contract (PSC) document together with redefining the whole of Bangladesh territory into 23 exploration blocks ushered in a new phase of exploration and development of oil and gas in the country.

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In the first stage under the new arrangement, 8 blocks were awarded to 4 companies under PSC. Exploration and development activities in these blocks were rather limited and most of the blocks were moderately covered by seismic surveys. A total of 11 exploration wells were drilled and 3 gas fields were discovered in these blocks. These fields are Moulvibazar, Sangu (offshore) and Bibiyana. These 3 fields along with Jalalabad gas field discovered by Scimitar Exploration Ltd. were developed under PSC and are currently in production. The first 3D seismic survey of the country took place in Bibiyana during its appraisal. Bibiyana came under production in March, 2007. Another PSC bidding round during the late nineties culminated in awarding 4 more blocks. These were SHELL/CAIRN/BAPEX in blocks no. 5 and 10, UNOCAL/BAPEX in block no. 7 and TULLOW/CHEVRON/TAXACO/BAPEX in block no. 9. Exploration activity was conducted in these blocks. Substantial activities were undertaken in block no. 9 only where 5 exploration wells were drilled on the basis of seismic survey including 3D seismic discovering Bangura Gas Field.

The Offshore Bidding Round 2008 being limited to newly-formed deep water blocks, attracted some bids. However, the ensuing maritime boundary dispute in most of the blocks created a stalemate. In this backdrop, two blocks were negotiated with Conoco Phillips and a PSC for 2 blocks were signed in 2011. Conoco Phillips completed the initial seismic survey in the blocks. They relinquished these blocks in 2014 without drilling any exploratory well.

After the resolution of the Maritime boundary dispute with Myanmar by virtue of the judgment awarded on 14 March, 2012 by International Tribunal For The Law Of The Sea (ITLOS), the deep water blocks on the eastern part were rearranged. This is a widely acclaimed achievement of the Government led by Hon`ble Prime Minister Sheikh Hasina. The Bangladesh Offshore Bid Round 2012 was announced in December, 2012 and substantial initial response was received. Under this bid round, 3 shallow water PSCs have been signed with ONGC Videsh, Oil India & BAPEX for blocks SS-04 and SS-09.

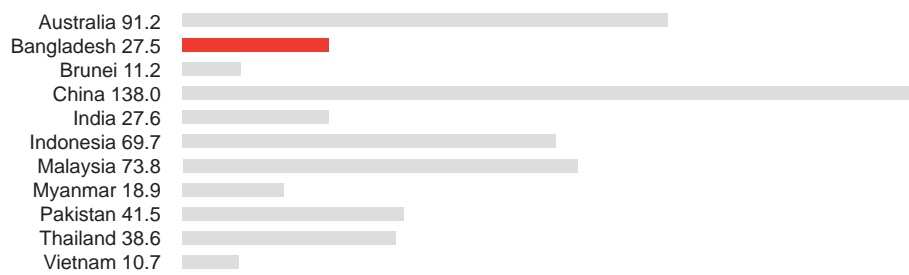
Even though exploration history of oil and gas in Bangladesh goes back almost a century, exploration density could not be enhanced as much it is required to convert domestic oil and gas resources into proven reserves. However, the exploration success ratio is high as of about 1 in 3 wells. PSC explorations were also contributing to the enhancement of gas production. As of December, 2015 out

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Proved natural gas reserves at 2016 year end (Trillion cubic feet)



2016 Natural gas production (Billion cubic metres)



Source: BP Statistical Review