



# Live Webinar

## Issues Facing Natural Gas Development in Asia – A Press Roundtable

Hosted by the U.S. Energy Association (USEA) through the U.S. Agency for International Development's  
U.S - Asia Gas Partnership

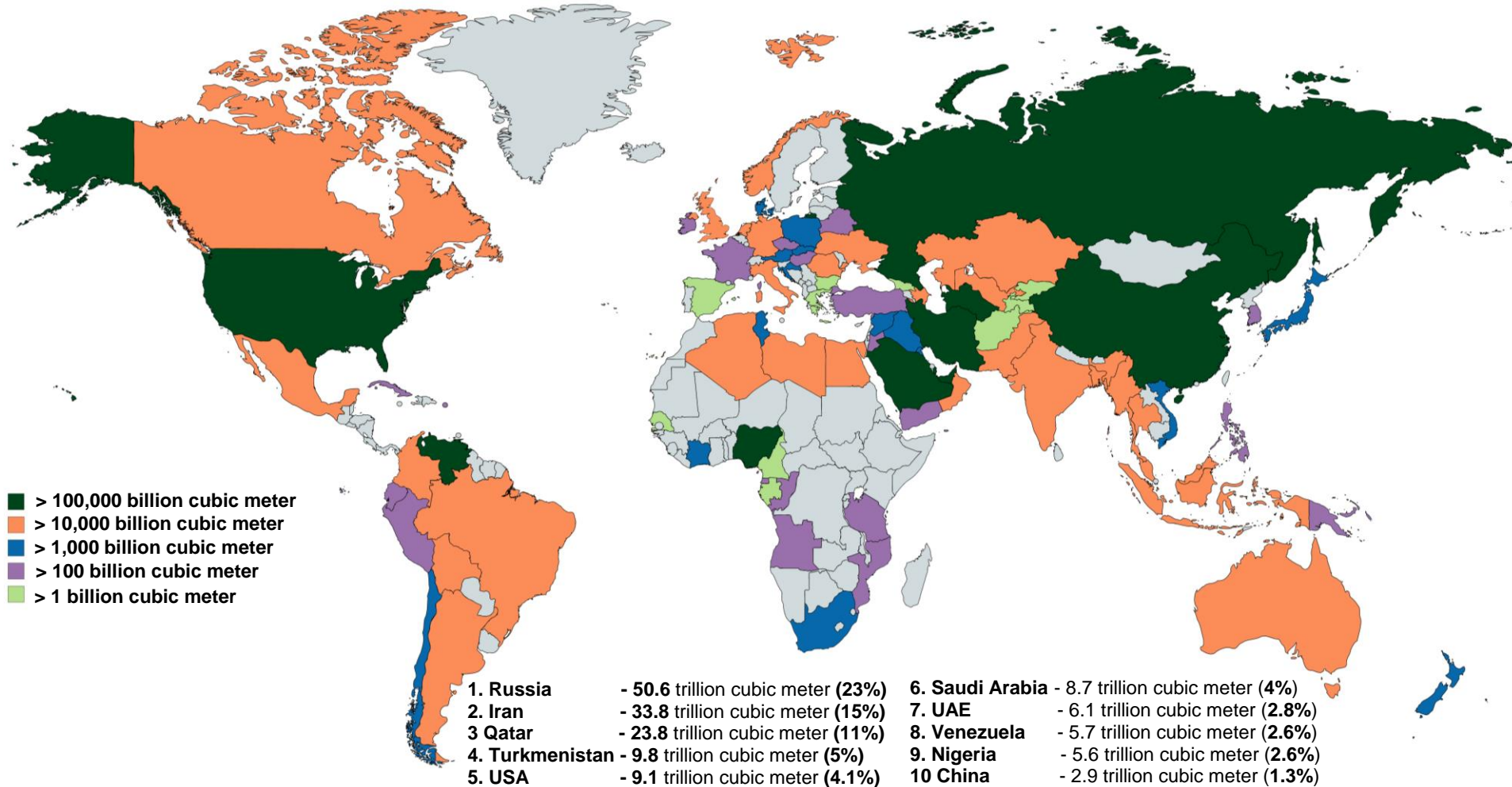
# Bangladesh Gas Sector

By

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# World's Natural Gas Resources (over 220 trillion m<sup>3</sup>)



**Note:** Russia, Iran & Qatar together have nearly half of World's gas reserves.

Nigeria – 5.5 TCM, Indonesia 2.7 TCM, India – 1.3 TCM, Egypt – 2.2 TCM, Oman – 0.7 TCM, Pakistan – 0.6 TCM, Bangladesh – 0.2 TCM

Adapted from Reinisfischer, EIA 2019 & Mapchart

TCM – Trillion Cubic Meter

# Summary of Exploration Drilling in Bangladesh

Phase	Number of Wells	Discovery	Success Ratio
<b>Phase-I (1910-1947)</b> During British Rule	6 (Onshore)	None	Nil
<b>Phase-II (1948 -1971)</b> During Pakistan Rule	22 Onshore (21), Offshore (1)	8 Gas fields	2.8 : 1
<b>Phase-III (1972- 2020)</b> Independent Bangladesh	60 Onshore (40), Offshore (20)	20 Gas fields (including one oil field) Onshore (18), Offshore (2)	3 : 1
<b>Total</b>	<b>88</b>	<b>28 Gas fields</b> (Including one oil field)	<b>3.1 : 1</b>

Exploration works carried out by state owned exploration company and IOCs

## Oil Discovery:

- In December 1986, oil discovered in Sylhet Gas Field while drilling in Sylhet # 7 for increasing gas production.
- Oil production started from 1987 and continued up to mid of 1994.
- Total Production: 450 thousand bbls only.

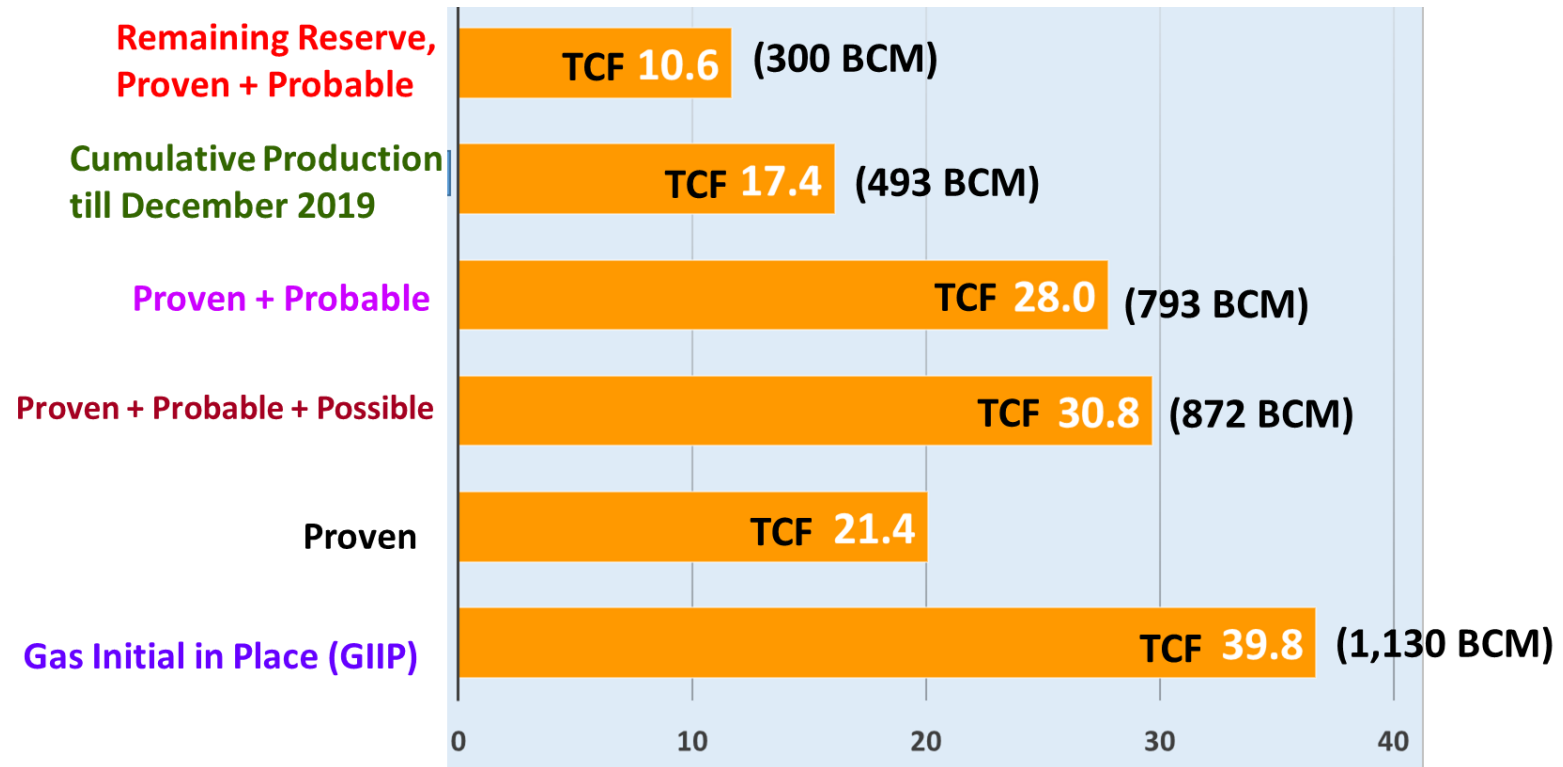
# Operators of Exploration Drilling

Nos.	Operator	Period	No of Wells Drilled	No. of Discovery (Gas Field)	Success Ratio
1	BAPEX/Petrobangla/ Taila Sandhani / OGDC (State owned)	1962 ~ 2020	29	15	1.9 : 1
2	Occidental, USA	1997 ~ 1999	5	2	2.5 : 1
3	Union/Unocal/Chevron, USA	1975~77 & 1998~2019	4	1	4 : 1
4	Shell Oil of UK / Netherland	1960 ~ 2003	9	5	1.8 : 1
5	Cairn Energy /Shell/Santos	1996 ~ 2017	12	1	12 : 1
6	Tullow, UK/ Kris Energy	2004 ~ 2019	3	1	3 : 1
7	Pakistan Petroleum Ltd	1951 ~ 1960	8	2	4 : 1
8	Scimitar Oil Company, UAE	1989 ~ 1990	1	1	1 : 1
9	Other Oil Companies	1910 ~ 2000	17	Nil	Nil
	<b>Grand Total</b>		<b>88</b>	<b>28</b>	<b>3.1 : 1</b>

## Other Companies:

- Indian Petroleum Prospecting Co.
- Bengal Oil Development Co.
- Ashland Oil
- Burmah Oil Company
- Atlantic Richfield Co.
- Standard Vacuum Oil Co.
- Okland
- BODC (JNOC/JAPEX)
- Ina-Naftaolin
- Canadian Superior

# Gas Reserves and Resource in Bangladesh

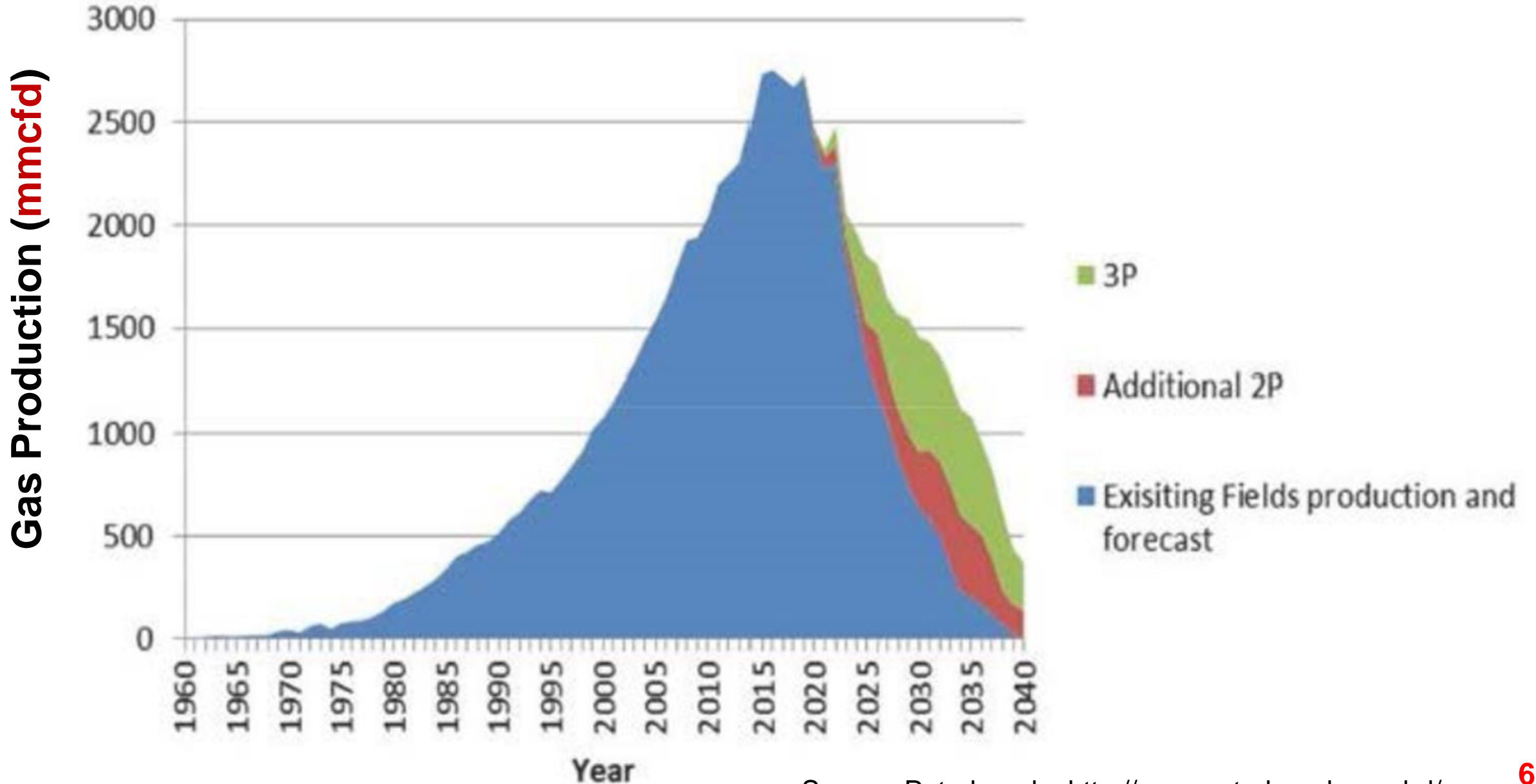


Figures in TCF

Gas Resource Study By	P 90	P 50	P 10
USGS-Petrobangla (2000)	9	31	71
HCU-NPD (2001)	19	42	64

[HCU- Hydrocarbon Unit, NPD - Norwegian Petroleum Directorate]

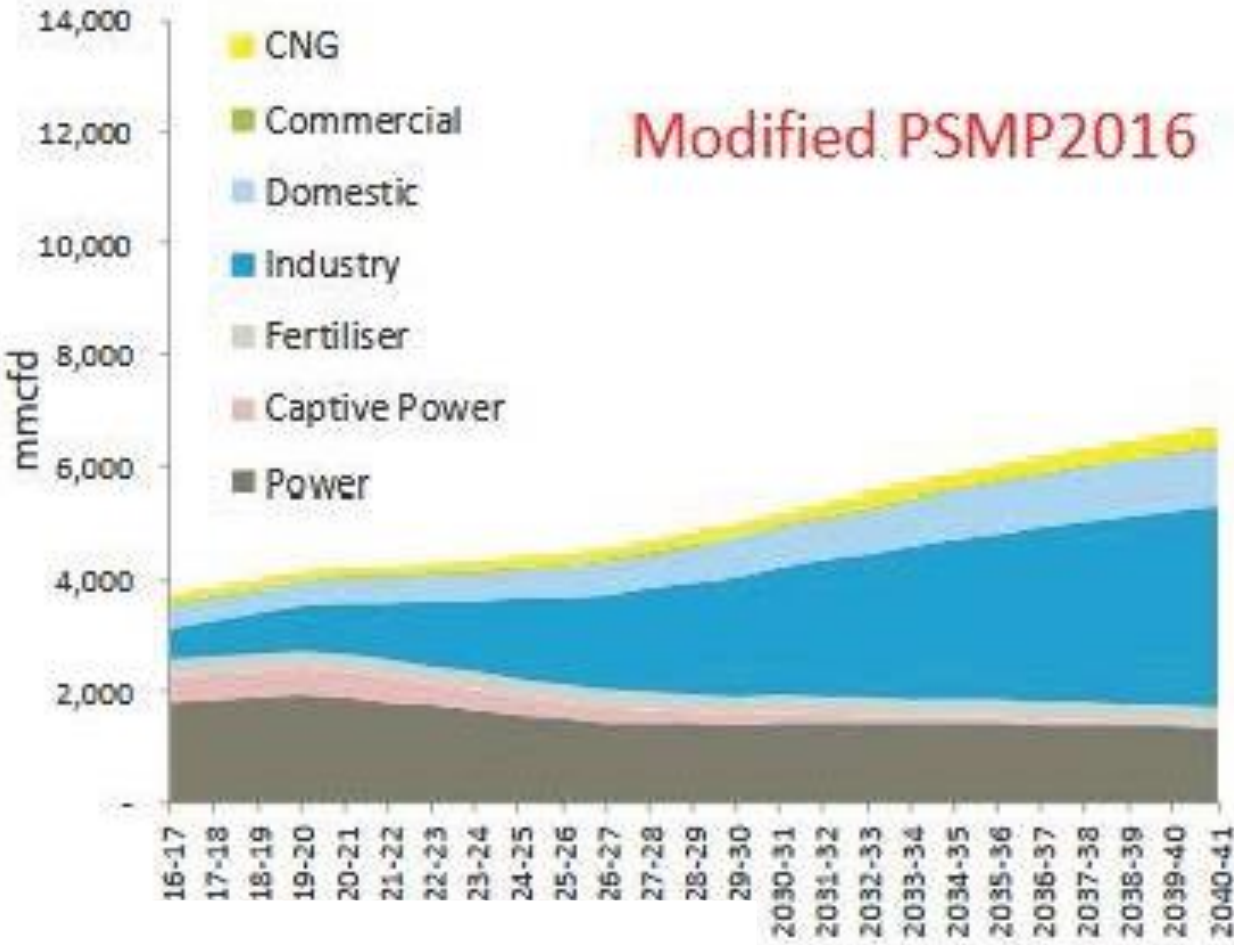
# Historical Daily Gas Production and Forecast



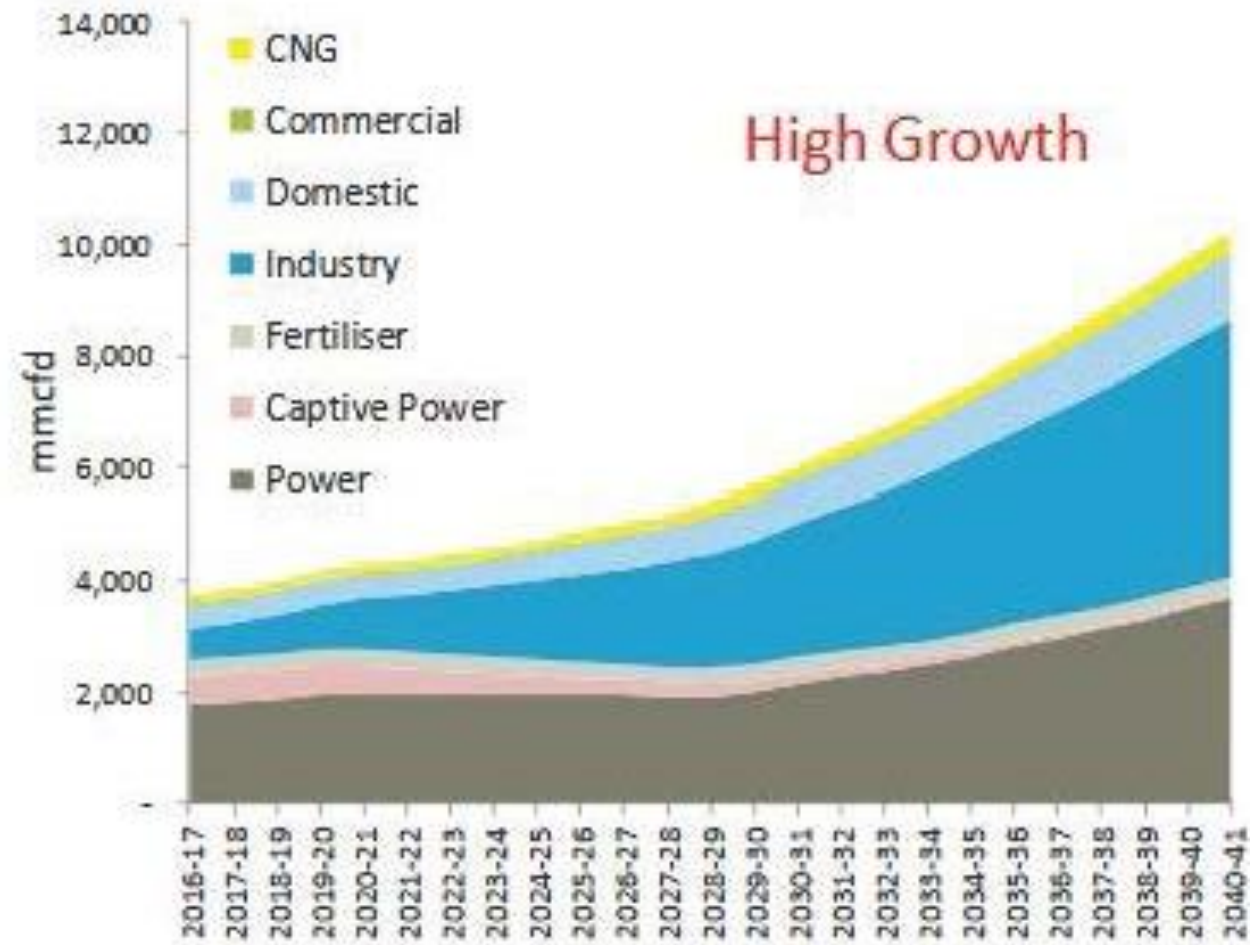
Source: Petrobangla, <http://www.petrobangla.org.bd/>

# Gas Demand Scenario

Bangladesh Gas Demand Forecast by Sector - Scenario A

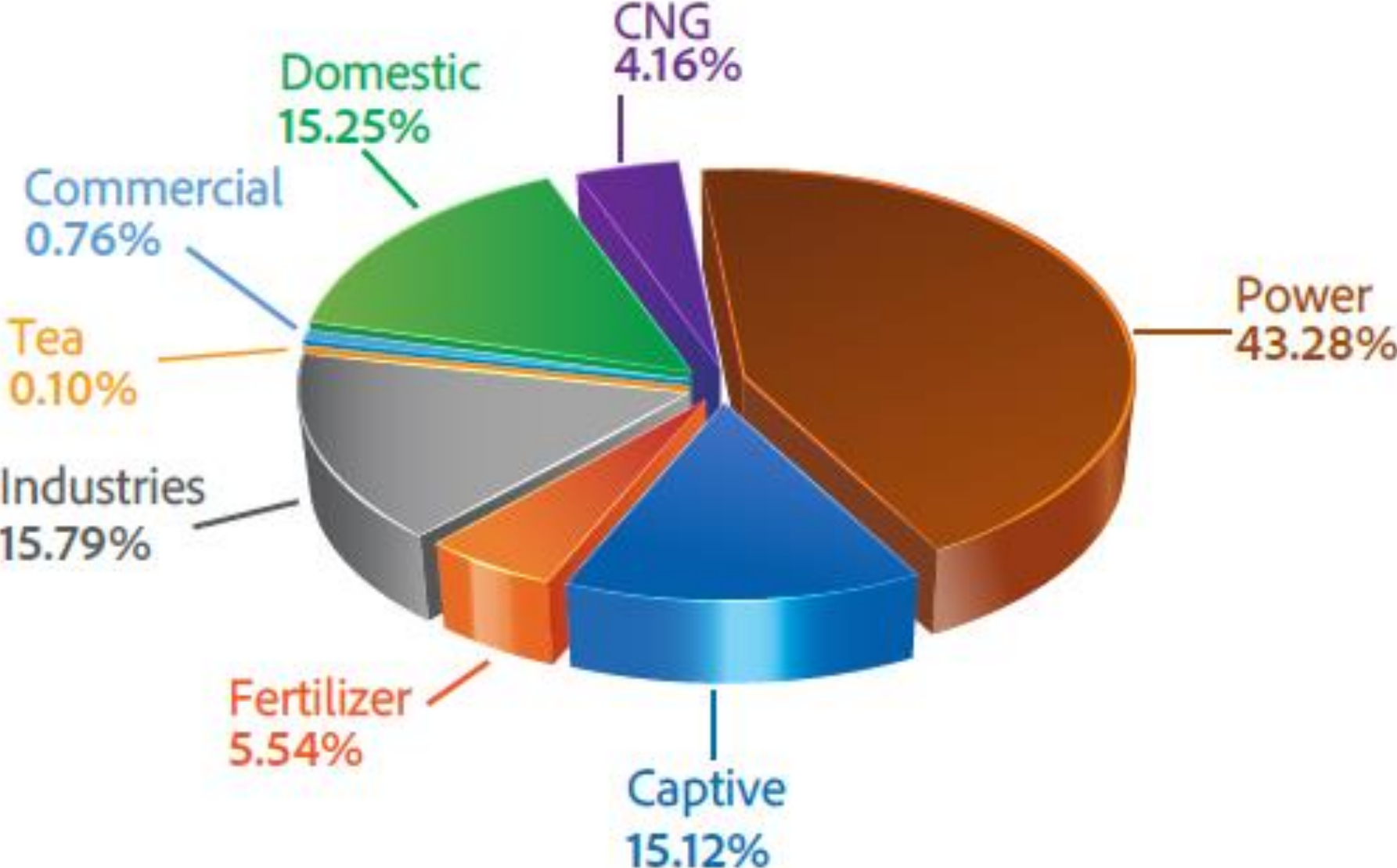


Bangladesh Gas Demand Forecast by Sector - Scenario B



Source: Ramboll

# Sector-wise Gas Uses (2019-20)





# PSC Bidding Round

Continued

- **Offshore:** In 1974, 1<sup>st</sup> Offshore Bidding Round was invited, and 7 offshore blocks were signed with six IOCs. Drilled 7 wells and discovered Kutubdia Gas Field in 1977.
- **Onshore:** During 1980s two PSCs were signed with Shell Oil Company for Chittagong Hill Tracts and Northwest Bangladesh. Drilled 2 wells without any success, and relinquished.
  - One PSC was signed with Scimitar Exploration for oil exploration in Sylhet areas. Discovered Jalalabad Gas Field and later relinquished this field.
- **Bidding Round 1993:** 23 onshore and offshore Blocks were offered. Of these, 8 blocks (Onshore-5, Offshore-3) were awarded to:
  - a) Occidental, b) Cairn Energy, c) Oakland-Rexwood, and d) United Meridian Corporation.
  - Discovered 3 onshore gas fields by Occidental/Unocal and one offshore gas field by Cairn.
- **Bidding Round 1997:** Four onshore blocks were awarded to Tullow, Shell/Cairn and Unocal. Discovered one gas field by Tullow.
- **Offshore Bidding Round 2008:** ConocoPhillips Signed PSC for two Deep Sea Blocks in 2011. Conducted 2D seismic survey and identified few prospects. Relinquished blocks considering their investment not feasible.

# PSC Bidding Round

**Offshore Bidding Round 2012:** 3 shallow water PSC Blocks have been signed with ONGC Videsh Ltd for 2 Blocks and with Santos for one Block. Carried out seismic survey only and not yet drilled any well. Recently Santos left and relinquished their Block.

**Deep Sea Block DS-12:** A PSC was signed for Deep Sea Block DS-12 with POSCO-DAEWOO Corporation in 2017 under “Quick Enhancement of Electricity and Energy Supply Act, 2010”

- Carried out 2D seismic survey.
- Some leads have been identified. Planned to carry out 3D seismic but not done and left Bangladesh in 2020 and relinquished the Block.

**Ongoing PSCs:** At present 6 PSCs are active in 6 Blocks

IOC	Block Number
Chevron, USA	12,13 & 14
Kris Energy, Singapore	9
ONGC Videsh Ltd, India	SS-04 and SS-09

# Future Exploration by State Owned Company BAPEX

Activity	Description
Geophysical Survey	<b>2D Seismic: Out Sourcing-</b> 2000 line km, coastal and hill tract areas. <b>By BAPEX</b> - 1000 line km. <b>3D Seismic by BAPEX:</b> Chattak Structure - 400 sq km.
Exploration well (10 Wells)	<b>By BAPEX:</b> 5 Wells <b>Out Sourcing:</b> 5 Wells for deep drilling

## Upcoming Projects: Outsourcing and JVA

<b>Outsourcing:</b> Drilling of 3 wells in Bhola Island by Gazprom.	Submitted proposal and approved. Drilling will start soon and to be completed within 2022.
<b>Drilling of abandoned wells under JVA with BAPEX: 5 wells</b> BAPEX invited proposals to select JV partner for oil/gas exploration and development.	Submitted proposal which is under evaluation
<b>Re-visit of dry &amp; abandoned wells under JVA</b>	<b>9 wells</b>
<b>Joint Exploration Proposal Submitted by Mitsui Oil Exploration Co. Ltd. (MOECO), Japan for onshore Block 8 &amp; 11</b>	MOU signed between BAPEX and MOECO during January 2021.

# LNG Utilisation and Sourcing

**FSRU at Moheshkhali:** Two separate FSRU terminal use agreements have been signed with Excelerate Energy of USA and Summit LNG Terminal Co. (Pvt.) Ltd. of Bangladesh for supplying 500 mmcf/d of RLNG each.

- The first FSRU was commissioned in August, 2018 by Excelerate Energy.
- The second FSRU was commissioned in April, 2019 by Summit.
- Present Capacity of LNG Import: 8 million tonnes/year
- Present Capacity of LNG use: 1000 mmcf/d

**Land Based LNG Terminal at Matarbari :** Planned to construct a LNG terminal at Matarbari within 2024. Handling capacity: 7.5 MTPA of LNG which is equivalent to 1,000 mmcf/d of RLNG.

In addition, there is a plan to construct another two land based LNG terminals at Payra and Matarbari in near future.

## LNG Sourcing

Two long-term sale and purchase agreements were signed for supplying LNG with:

- ❑ Ras-Laffan Liquefied Natural Gas Company Limited of Qatar.
- ❑ Oman Trading International.

In addition, master sale and purchase agreement were signed with 14 suppliers/ traders to purchase LNG from spot market.

# Cross Border Gas Pipeline

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## Myanmar-Bangladesh-India Tri-nation Pipeline Project

- Mohona Holdings of Bangladesh proposed the construction of a tri-nation pipeline for transporting natural gas from the gas fields of Myanmar into India traversing through Bangladesh in 1997.
- Following negotiations with Bangladesh and Myanmar in early 2005, an agreement between all three countries for constructing the pipeline was reached.
- The expected cost to be mostly borne by India and private sector partners, whereas Bangladesh would receive US \$125 million in annual transit fees.
- While gas would mostly be fed to the Indian market, Bangladesh had provision to purchase gas if facing indigenous gas shortage.
- India-Bangladesh bilateral negotiations fell through in 2005. Additional conditions laid down by the then Bangladesh government which were unacceptable to India.
- Myanmar later entered into negotiations with China and signed contract and constructed Myanmar-China gas pipeline for exporting gas to China.

# Cross Border Gas Pipeline

## Myanmar-Bangladesh bilateral Gas Pipeline Project

- Recently Mahar Gas Field and Thalin Gas Field were discovered in offshore areas of Myanmar which are adjacent to Bangladesh Offshore areas and only 90 to 110 km from Bangladesh's coastal land.
- Bangladesh has some concerns to construct Myanmar-Bangladesh offshore gas pipeline and importing piped gas from Myanmar.
- Depending on political stability between Myanmar and Bangladesh, the project may come up in the near future.

# Gas Sector Challenges

- Accelerate exploration activities in onshore and offshore:
  - Onshore (including deeper prospects) by BAPEX and IOCs
  - Offshore under PSC by IOCs
  - Chattogram Hill Tracts under PSC or by JV between IOC and BAPEX
- Address gas demand and supply balance
- Augment gas production and evacuation
- Strengthen BAPEX
- Import LNG and construct Land based LNG Terminal.
- Connect with regional gas pipelines (including TAPI- Turkmenistan, Afghanistan, Pakistan and India) and to construct Myanmar-Bangladesh gas pipeline for enhancing energy security.



**THANKS**