

ENERGY & POWER

Confronting Crisis With Own Resource

- The Present State Of Energy Security
- Time Is With Hasina, In Development and Diplomacy
- Explore Gas, Mine Coal Resources On A Priority Basis



Bangladesh-China Power Company (Pvt.) Limited

(A joint venture of NWPGL & CMC)



**Grand Opening Ceremony
of**

Payra 1320 MW Thermal Power Plant (1st Phase)

Salient Features of Payra 1320MW TPP (1st Phase)

Plant capacity	1320 MW (2 x 660 MW)
Boiler Technology	Ultra Supercritical (26.25 mpa/600/610°C)
Turbine Heat Rate	7522 KJ/KWh
Primary Fuel	Sub – Bituminous / Bituminous Coal
Coal Sourcing	P.T. Bayan Resources Tbk, Indonesia
Coal Transportation	Oldendorff, Germany
Commercial Operation Date	15 May, 2020 (Unit - 1) 8 Dec, 2020 (Unit - 2)
Shareholding Structure of BCPCL	NWPGL : 50% CMC : 50%



1st Ultra-Supercritical Power Plant of Bangladesh

Payra 1320 MW Thermal Power Plant (1st Phase)



Resettlement Area "Swapner Thikana" of Payra 1320MW TPP

Facilities at Resettlement Area:

- Technical School with a big playground
- Mosque
- Cemetery
- Tube-well- 48 (Forty-Eight) nos.
- Pond- 02 (Two) nos.
- Community Centre & Health Clinic



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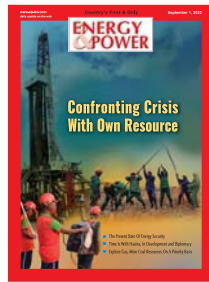
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There is no option but to ensure the supply of electricity and fuel at affordable prices for facilitating industrialization and achieving the vision of developing the economy. It cannot be achieved through exclusive reliance on imported primary fuel. The government should adopt an exploration project of Tk 20,000 crore for assessing the possible reserves of petroleum onshore on a priority basis... Engr. Ali Iqbal Md. Nurullah tells EP

Individual's opinion does not necessarily reflect editorial policy of Energy & Power



EDITORIAL

The energy sector is passing through one of its toughest times since the country's independence. Households to industries are struggling to get uninterrupted supplies. The growing reliance on imported natural gas has become a pressing issue due to a significant drop in domestic reserves since 2017. Even though the government tried to cut back on gas usage last year, it ended up depending on imported fuels for a whopping 60% of the energy needs. To make matters worse, it has unpaid bills to International Oil Companies (IOCs) for gas and Independent Power Producers (IPPs) for electricity – it's like having mounting debts and overdue bills piling up. Up until 2020, the government managed to pay the bills easily thanks to a stable Bangladeshi Taka and record-low global fuel prices during the COVID-19 pandemic. But then, things took a turn for the worse in February 2022 when the Russia-Ukraine war led to a 25% drop in the value of the BDT against the USD. Experts repeatedly suggested focusing on domestic coal and natural gas resources. However, the government seems like it has a hidden treasure in its backyard that it has not tapped into.

By prioritizing a comprehensive exploration campaign, Bangladesh can reduce its reliance on unpredictable global fuel markets and keep its economy going. It's time for policymakers to make wise decisions for a better energy future. This is like a lifeline for the country to graduate into a developed economy.

h i g h l i g h t s



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Under short-term contingency measures, the rental and quick rental plants comforted the situation by 2013-14. However, the government kept on neglecting the exploration and development of its fuel resources. For political dilemmas, coal mining was kept in suspended animation. The bureaucratization of the energy sector completely decapitated Petrobangla and its companies. The gas crisis started badly impacting the economy....More in Article

COVER



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The energy sector is now suffering from the most severe stress since the independence of Bangladesh. Its reliance on natural gas imports is growing as domestic reserves witnessed significant depletion after 2017. Despite initiatives to cut gas usage, the total reliance on imported fuel reached 60%. Besides, there are payment obligations to IOCs for gas and IPPs for buying electricity.

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Encouraged by the readers and patrons, the EP would continue bringing out Green Pages to contribute to the country's efforts in its journey towards environment-friendly energy.



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Siemens Profit Surges Despite Energy Woes



German industrial giant Siemens recently said large orders for trains boosted earnings in the third quarter, helping to offset problems in its troubled wind energy business.

Between April and June, the group said it booked a net profit of 1.4 billion euros (\$1.5 billion), compared with a 1.5-billion-euro loss over the same period a year earlier.

Last year's loss was mainly down to a hefty impairment of its stake in Siemens Energy.

The same subsidiary reported a record loss on Monday as it counts the costs of fixing technical issues affecting its onshore wind turbines. The Siemens group however said it had benefited from strong growth in other divisions in its third fiscal quarter, including major contracts for trains in Germany and a high-speed rail line in Egypt.

The conglomerate's smart infrastructure and digital industries units also performed well, lifting Siemens' overall revenues by 10 percent year-on-year to 18.9 billion euros.

"We again achieved profitable growth and showed our competitive strength across all our businesses," CEO Roland Busch said in a statement.

The group confirmed its full-year target of achieving comparable revenue growth in the range of 9-11 percent.

ONGC Proves Gas in Pukhraj Prospect Offshore India



ONGC has discovered gas with an exploratory well in the Mid-South Tapti license in the Mumbai Offshore area offshore western India.

The Pukhraj discovery well ST-6 flowed gas from the

Mahuva and Daman formations and was the first well drilled on the license since it was re-issued to the company in July 2021. It has opened a new prospective area beyond the established limits of the Mid Tapti - South Tapti fields, ONGC added.

In June the company connected the Panna process platform to subsea pipelines close to 70 km offshore in a water depth of about 65 m.

The facilities, part of the Bassein & Satellite asset, should cut costs and minimize the production downtime that was previously associated with tanker changeovers, ONGC said.

bp Lets Contract for Work Offshore Egypt

bp has let a contract with drilling waste management specialist TWMA for large-scale oil and gas projects in Egypt.



TWMA will use its RotoMill drill cuttings

processing technology to process all drilling waste generated from bp's West Nile Delta (WND) and East Nile Delta (END) exploration and development projects in the Mediterranean Sea, the service provider said in a release Aug. 14.

WND is a multi-stage project that encompasses five fields in the North Alexandria and West Mediterranean Deepwater offshore concession blocks. END is in the North Damietta Offshore concession. bp has an 82.75% operating stake in WND and 100% equity in END.

RotoMill uses thermal desorption to separate drill cuttings and associated materials into oil, water, and solids for recycling and reuse. The recovered base oil can be reused in the drilling mud system.

Work will start in October 2023 and is expected to last up to 5 years. The contract is worth \$15 million.

EU Reaches 90% Gas Storage Target Ahead of Winter

The EU has reached its target of filling gas storage facilities to 90% of capacity roughly 2 months ahead of the November 1 deadline, according to the latest figures released by Gas Infrastructure Europe.



Aimed at optimizing EU preparation for the coming winter, the gas storage regulation of June 2022 set a binding EU target of 90% filling storage facilities by 1 November each year, with interim targets for EU countries.

Gas storage is key for the security of supply in Europe as it can cover up to one-third of the EU's gas demand in winter. The figures published show that gas storage levels have reached 1024 TWh or 90.12% of storage capacity (equivalent to just over 93 billion cubic meters (bcm) of natural gas).

EU Commissioner for Energy, Kadri Simson said: The EU has taken a wide range of measures following the energy crisis triggered by Russia's invasion of Ukraine to be better prepared for the winter.

Bangabandhu Showed Prudence Through Purchasing 5 Gas Fields: Nasrul Hamid



State Minister for Power, Energy and Mineral Resources Nasrul Hamid said on Monday that the political wisdom and prudence of Bangabandhu Sheikh Mujibur Rahman were the key foundation of development in Bangladesh.

“The Father of the Nation had shown his prudence through purchasing five gas fields from a Shell BV at a cost of 4.5 million pounds”, he said while addressing a discussion meeting and prayer ceremony on the occasion of the 48th martyrdom anniversary of Father of the Nation Bangabandhu and National Mourning Day at Bidyut Bhaban on Monday.

Bangabandhu Engineers Council organized the program.

Nasrul Hamid mentioned that the country so far produced gas from the fields worth of Tk 6,21,000 crores while the value of remaining gas will be Tk 3,17,000 crores.

Another landmark decision of Bangabandhu was to send officers and students abroad for training to develop skilled human resource, he added.

Former Minister and Member of Parliament Asaduzzaman Noor was the keynote speaker while Chairman of Bangladesh Power Development Board (BPDB) Mahbubur Rahman presided over the event.

President of IEB Engineer Md. Abdus Sabur, General Secretary of Bangabandhu Engineers Council Central Committee Engineer Md. Nuruzzaman also spoke on the occasion.

Nasrul Hamid said an anti-Bangladesh force killed him under whose far-sighted, prudent and correct leadership Bangladesh became independent.

The same circle and their successors tried to kill Sheikh Hasina 19 times.

Some 24 people were killed in a grenade attack on 21 August 2004 in a similar attempt on her.

The State Minister said Bangladesh’s development and democracy are not safe from the anti-independence cliques who create the politics of murder. “They must be resisted unitedly”.

Nurul Alam Joins Energy Division as New Secretary

Md Nurul Alam has joined the Energy and Mineral Resources Division of the Ministry of Power, Energy and Mineral Resources as its new secretary.



Replacing Dr M Khairuzzaman Majumder, Alam, an officer of 13th batch of BCS (Administration) cadre, took charge of the office on Monday.

Dr Khairuzzaman Majumder will take over as Finance Secretary and transferred him from the Energy and Mineral Resources Division. The Energy and Mineral Resources Division arranged a simple ceremony on the occasion of getting its new secretary to celebrate both the bureaucrats.

Addressing the function, State Minister for Power, Energy and Mineral Resources Nasrul Hamid urged all to continue their efforts to maintain the current pace of development.

“The next three-four months will be a very crucial and transitional period. So, decisions have to be taken promptly keeping in mind the local and global economic situation,” he told the function.

Ashuganj Power Station to Use DPDC Software

Ashuganj Power Station Company Limited signed a memorandum of understanding for the use of e-auction software developed by Dhaka Power Distribution Company Limited at the conference room of DPDC on Sunday.



DPDC managing director Bikash Dewan presided over the ceremony where Power Division senior secretary Md Habibur Rahman was present as chief guest and AMM Sazzadur Rahman, managing director, Ashuganj Power Station Company Limited was the special guest.

E-auction system is an online auction process. Bidders interested in the auction can participate in the auction through the website. As the process is automated, there is no scope for any kind of unwanted intervention. Updates are provided to bidders through email notifications at each stage of the auction.

The entire process is transparent and accountable. DPDC developed the e-auction system in 2016 and won the BASIS National ICT Award in 2018 in recognition of the innovation.

DPDC executive director, chief engineer, general manager and senior officials were present on the occasion.



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মানসম্পন্ন বিদ্যুৎ নিরবচ্ছিন্নভাবে দেশের সকল মানুষের নিকট পৌঁছে দেয়াই আমাদের অঙ্গীকার

- * গ্রিড উপকেন্দ্র, গ্রিড লাইন ও টাওয়ার জাতীয় সম্পদ, তা রক্ষা করা সকলের দায়িত্ব।
- * গ্রিড উপকেন্দ্র, সঞ্চালন লাইন ও বৈদ্যুতিক টাওয়ারের গুরুত্বপূর্ণ যন্ত্রাংশ চুরি প্রতিরোধে সহায়তা করুন, বিদ্যুৎ বিপর্যয় থেকে দেশকে বাঁচান।
- * উচ্চ ভোল্টেজের বৈদ্যুতিক টাওয়ার ও লাইন হতে নিরাপদ দূরত্ব বজায় রাখুন।
- * বিদ্যুতের গ্রিড লাইন ও টাওয়ার হতে নিরাপদ দূরত্বে স্থাপনা নির্মাণ করুন।
- * বৃক্ষ রোপনে গ্রিড লাইন ও টাওয়ার হতে নিরাপদ দূরত্বে স্থান নির্বাচন করুন।
- * বিদ্যুৎ ব্যবহারে সাশ্রয়ী হোন। আপনি বিদ্যুৎ সাশ্রয় করলে তা অন্য একজন ব্যবহার করতে পারে। এমনকি সাশ্রয়কৃত বিদ্যুৎ গুরুতর অসুস্থ কারও জীবন বাঁচানোর কাজে লাগতে পারে।
- * বিদ্যুৎ অপচয় রোধে সচেতনভাবে ফ্যান, বাতি ও অন্যান্য বৈদ্যুতিক যন্ত্রপাতি ব্যবহার করুন।
- * বিদ্যুৎ সাশ্রয়ী (LED/CFL/T5) বাল্ব ব্যবহার করুন।
- * যথাসম্ভব দিনের আলো ব্যবহার করুন।
- * বিকাল ৫:০০ টা হতে রাত ১১:০০ টা পর্যন্ত সময়ে বিদ্যুতের চাহিদা বেশী থাকে। এ সময় দোকান, শপিংমল, বাসা-বাড়ীতে আলোকসজ্জা হতে বিরত থাকুন।



Rooppur NPP: Crane installed at Unit 1 for loading- unloading of fuel and heavy equipment



A trestle crane has been installed at unit 1 under construction at Rooppur Nuclear Power Plant recently (on August 16, 2023). It was installed at an elevation of +47.50 meters.

The trestle crane was manufactured in Russia and delivered to the Rooppur NPP construction site in a disassembled state. The weight of the assembled equipment is 225 tons with a lifting capacity of 360 tons.

“The equipment is necessary for reloading super-heavy equipment and transporting fresh and spent fuel during the NPP operation,” said Alexei Deriy, Atomstroyexport Vice President and Director of the Rooppur NPP construction project.

Rooppur NPP is under construction at Ishwardi upazila of Pabna district. Two units of the project with a total capacity of 2,400MWe are being constructed under Russian design. Each unit will be equipped with Generation 3+ VVER-1200 reactor that fully complies with all the international safety requirements. Fresh nuclear fuel for unit-1 of the plant is expected to arrive in Bangladesh by the end of September 2023. The Engineering Division of Rosatom State Corporation is implementing the project as the General Contractor.

Tiger New Energy introduces Battery Swapping technology



Tiger New Energy, a local battery manufacturer with more than 30 years of global experience, has launched Bangladesh's first Battery Swapping

Network earlier this afternoon.

Tiger New Energy exhibited its latest innovation, Battery Swapping Station, during the exclusive launch event held at their office premises in Gulshan-1. By introducing the Swapping Technology, Tiger New Energy announced itself as the pioneer of Battery Swapping Networks for clean and affordable mobility in Bangladesh, says a press release.

Nicole Mao and Yiwei Zhu, Chief Executive Officer and Chief Operating Officer respectively of Tiger New Energy, expressed their delight following the successful launch of the Swapping Stations consisting of GPS-embedded lithium batteries that fit all models of 2-wheelers and 3-wheelers.

Khairuzzaman Mozumder Made New Secretary of Finance

The government has appointed Dr. Md. Khairuzzaman Mozumder as new secretary of the Finance Division who will take charge from incumbent secretary of the Ministry of Finance Fatima Yasmin. Report UNB



Currently, Khairuzzaman is serving as the secretary of Energy and Mineral Resources Division. Fatima has already been appointed as the Vice President of the Asian Development Bank (ADB).

This decision was announced in a notification of the Ministry of Public Administration on Wednesday.

Fatima is going to retire from government service from August 28 as per her wish. The Ministry of Public Administration has issued another notification separately in this regard.

Fatima is the first Bangladeshi to be appointed to this post. She will be the vice president for 'Sectors and Themes' of the global lending agency for three years.

Khairuzzaman served as additional secretary in the Macroeconomics Division of the Finance Division prior to joining energy division. He started career as officer of 11th BCS administration cadre in 1993. Later, he served as BCS (Customs and Excise) Officer in different posts in National Board of Revenue.

Khairuzzaman holds a PhD in government (Political Economy) from the University of Essex, UK. Apart from this, he completed his MA degree in Political Economy from McGill University, Canada. Prior to this, he obtained an MSS degree from Dhaka University.

“Our unique battery-swapping stations will be revolutionizing the way drivers power their 2-wheelers or 3-wheelers. With a simple less than 1-minute swap, drivers can instantly exchange their worn-out batteries with fully charged ones, which eliminates downtime, increasing their daily earnings,” said Nicole during the event.

Tiger New Energy is not only providing the drivers with quick 1-minute swapping opportunities but also partnering up with local communities to create a positive social impact in the process.

Mohsina Yasmin, an executive member of Bangladesh Investment Development Authority (BIDA), participated in the launch event as the Chief Guest and appreciated Tiger New Energy's timely placement of Swapping Stations to help the country expedite electrifying mobility with affordable and eco-friendly solutions.

The Chairman of Nitol Niloy Group, Abdul Matlub Ahmad was also present as one of the invited guests, along with other distinguished high officials from the different automobile and other relevant industries of the country.



It is very much possible to get out of the present chaotic situation in the energy sector in 3-4 years through a planned exploration campaign. The government must give top priority to a massive exploration campaign for oil and gas exploration. That will enable the government to get out of the immediate requirement of LNG imports from the volatile global market. This is essential now for Bangladesh to graduate into a developed economy.

Confronting Crisis With Own Resource

Mollah Amzad Hossain



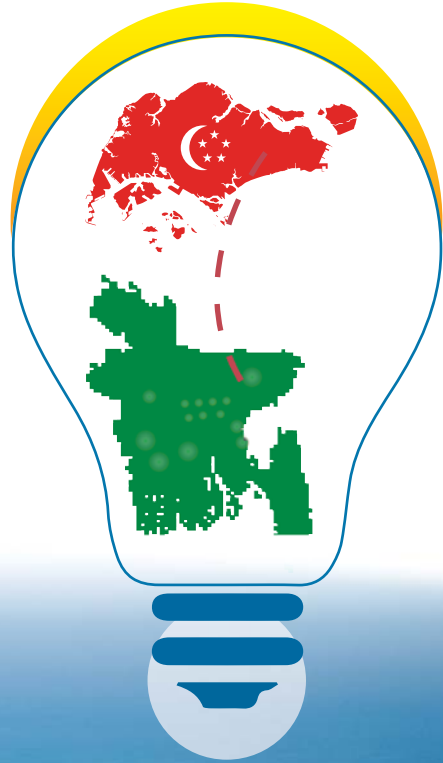
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The power and energy sector of Bangladesh is now suffering from the most severe stress since independence. Its reliance on natural gas imports is growing as domestic reserves witnessed significant depletion after 2017. Despite different initiatives to cut gas usage in the last financial year, the total reliance on imported fuel – coal, LNG, liquid petroleum oil, and LPG – reached 60%. Besides, there are payment obligations to IOCs for gas and IPPs for buying electricity. Till 2020, the devaluation of the Bangladeshi Taka against the US Dollar was not required. Moreover, the fuel prices in the global market depleted to an all-time low during the COVID-19 pandemic. Consequently, there was no issue in meeting the payment obligations for imported fuel. However, the global situation started changing in February 2022 after the imposition of a Western embargo following the start of the Russia-Ukraine war. Since then, the BDT has been devalued by over 25% against USD. At the same time, the domestic gas production depleted further, increasing the import reliance. Severe stress has been created on the government to meet the payment obligations for fuel and electricity. Relevant experts strongly believe the utilization of local coal and natural gas can still confront the situation if an appropriate decision for exploring and exploiting those is made. As a result, the requirement for increasing fuel imports can be delayed while the pace of economic development can be maintained. Experts believe that even

launching an extraordinary drive for exploring gas resources alone can facilitate maintaining gas production at the present level and increase it substantially in the next three to four years.

At present, 113 wells in 27 gas fields of the country are under production. From the Petrobangla daily report on 28-29 August 2023, it appears that 806 MMCFD of gas is being produced from 70 wells of the National Oil Companies (NOCs). Of these, 44 wells of 5 BGFL gas fields (Titas, Habiganj, Bakhrabad,

Norshingdi and Meghna) produce 569.3 MMCFD, SGFL from 11 wells of 4 gas fields (Sylhet, Koillashtilla, Beanibazar and Rashidpur) produce 92.2 MMCFD, BAPEX from 15 wells of 7 gas fields (Fenchuganj, Salda, Shabazpur, Sundalpur, Srikail and Begumganj) produce 144.5 MMCFD. On the other hand, IOCs from 43 wells of 4 gas fields (Jalalabad, Maulavibazar, Bibiyana, and Bhangura) produce 1615 MMCFD. Of these, Tullow from 5 wells of Bhangura gas field produces 103 MMCFD, while Chevron from 38 wells of Bibiyana, Jalalabad, and Maulavibazar gas fields produces 1512 MMCFD. RPGCL at the same time imports 767.7 MMCFD equivalent RLNG. The total gas supply during this period is 2899.6 MMCFD. Petrobangla in a report claimed that its total capacity of supply is 3760 MMCFD.

On the other hand, gas demand is unofficially estimated at 4200 MMCFD. The government states it to be 3700 MMCFD. As per official information, the present gas deficit is 800 MMCFD. At times it increases to 1000 MMCFD. According to Petrobangla, the gas demand for the grid and non-grid power plants is 2175 MMCFD. Against that, on 28-29 August 2023, the supply was 1176 MMCFD – about 41% of the total gas supply. At this time about 142 MMMCFD can be supplied to Fertilizer plants against their demand of 316 MMCFD. Supply on the above 24 hours for captive, industries, CNG, and domestic users together was 1563 MMCFD.

Daily Gas Production Report

Company	Gas Fields	No. of Producing Wells	Capacity	Gas
BGFL	Titas	26	542	384.7
	Habiganj	8	225	124.0
	Bakhrabad	7	43	31.7
	Narsingdi	2	30	25.5
	Meghna	1	11	3.4
	Sub-Total	44	851	569.3
SGFL	Sylhet	1	6	5.5
	Kailashtila	1	13	0.0
	Kailashtila	3	55	24.9
	Rashidpur	5	60	46.3
	Beanibazar	1	15	15.5
	Sub-Total	11	149	92.2
BAPEX	Salda	2	3	3.4
	Fenchuganj	2	26	11.9
	Shahbazpur	4	50	82.2
	Semutung	2	3	0.9
	Sundalpur	1	5	7.8
	Srikail	3	40	30.1
	Begumganj	1	10	8.2
	Rupganj	0	8	0.0
	Sub-Total	15	145	144.5
Sub-Total	70	1145	806.0	
IOCs	Jalalabad	7	270	174.9
CHEVRON	Maulavibazar	5	42	16.5
	Bibiyana	26	1200	1091.2
TULLOW	Bangora	5	103	43.3
	Sub-Total	43	1615	1325.9
RPGCL (R-LNG)			1000	767.7
Sub-Total	0	1000	767.7	
Grand Total		113	3760	2899.6

Source: Petrobangla

According to Petrobangla, captive power and industries each consumes about 17% of the gas. FBCCI claims that industries suffer from a 5-40% cut in production depending on their categories for gas deficits. On the other hand, gas-based power plants are forced to operate at below 50% of their capacity.

Gas Reserve Vs Daily Production

Gas Fields	Remaining Reserve (BCF)	Daily Production (MMCF)
Titas (BGFCL)	1294	398
Bakhrabad (BGFCL)	363	35
Kailashtia (SGFL)	2014	25
Rashidpur (SGFL)	1757	45
Bangura (KRIS)	198	142
Bibiyana (Chevron)*	763	1190

Source: Petrobangla

To meet the gas deficit, Petrobangla imports about 800 MMCFD LNG under long-term contracts and from the spot market. The two FSRUs operated by the private sectors anchored off the coast of Maheshkhali have 1000 MMCFD capacity. For the depletion of its production, Petrobangla has signed long-term supply agreements with Qatar Gas and Oman Trading. Long-term supply agreements have also been signed with Summit Energy and Excelebrate Energy. Supply from them will be available from 2026. Besides, talks are ongoing with some other countries and companies for concluding contracts for LNG supply. To increase the capability of LNG supply, the government also selected Summit Energy and Excelebrate Energy to set up two more FSRUs. Approval has also been given for increasing the capacity of the existing FSRU of Excelebrate Energy by 25%. Energy and

Mineral Resources Division (EMRD) expects that by 2025 LNG import capacity will increase to 2115 MMCFD. When the land-based terminal being constructed at Matarbari becomes operational, the capacity is expected to increase to 3125 MMCFD. But Engr. Ali Iqbal Md Nurullah, former Director of Petrobangla, believes that the two new FSRUs may not come into operation before 2026. He also apprehended that unless a top priority initiative is taken, the land-based LNG terminal may not come into operation before 2030.

Talking to EP, Md. Maqbul-E-Elahi Chowdhury, a former member of the Bangladesh Energy Regulatory Commission, observed that confronting the gas supply deficit through importing LNG alone is not the appropriate strategy. Rather, the government adopting an appropriate contingency plan and executing it professionally can increase gas production by 300-400

MMCFD in 12-15 months. If necessary, based on the Schlumberger report, the gas production can be increased from the existing producing wells of Titas, Habiganj, and Rashidpur gas fields. If necessary, Petrobangla can seek technology support from PSC partner Chevron for the work. Mr. Maqbul said Chevron from its 763 bcf proven reserve of Bibiyana

gas field is producing at the rate of 1190 MMCFD. On the other hand, Titas Gas field from 1294 bcf proven reserve produces 398 MMCFD, Koillashtilla from 2014 bcf proven reserve produces 25 MMCFD, and Rashidpur from 1757 bcf proven reserve produces 45 MMCFD only. This means the three Petrobangla-owned gas fields have a total proven reserve of 5065 bcf, i.e. 5.065 tcf, producing 468 MMCFD only. Mr. Maqbul believes that by implementing a project of Tk 2,000-2,500 crore, it is possible to double the production of these fields in 12-15 months. If this can be done, there will be no requirement for increasing LNG import immediately. Engr. Nurullah, however, believes that if the ongoing 46 wells drilling program can be completed, at least 400 MMCFD new gas can be added by the end of 2025. Adding the increase from under-operation gas fields, the total new gas addition maybe 800 MMCFD by the end of 2025 or early 2026. Some 100-150 MMCFD gas will come from Bhola. This stranded gas must be evacuated by constructing a pipeline to the national grid. This may take up to 2030 as a detailed reservoir study of the gas fields needs to be carried out before taking up a pipeline project from Bhola.

According to Petrobangla, the total proven recoverable reserve of 27 discovered gas fields is 28.59 Tcf. Till 30 June 2023, 20.50 Tcf gas has been consumed. The remaining recoverable reserve is a little over 8 Tcf. The present rate of annual gas use is 1.0 Tcf. Now the million-dollar question is whether it is possible to discover new gas from the



ongoing works of Petrobangla.

BAPEX, SGFL, and BGFCL are currently working on the exploration, development, and work over projects in their respective areas. About two years from now, three companies took up a project for 46 wells drilling program which included 17 exploration wells. By now, only 7 wells have been completed. According to the original plan, the entire project is supposed to be completed by December 2025. However, EMRD has issued new directives to complete the work by the end of 2024. Engr. Nurullah observed that there is no possibility of completing the project before the end of 2025.

BAPEX intends to complete the drilling of 49 wells by 2024. It has already completed works of 7 wells inclusive of 3 exploration wells. There are four deep wells to be drilled at high-pressure zones. Contractor(s) will be hired for these. Preparation of RFP for engaging a consultant is at the final stage. It is expected that within three months RFP will be ready. The drilling contractor can be engaged within the following 6 months. BAPEX is optimistic that four deep wells drilling can be completed by the end of 2024. Besides, deep drilling works of 19 more wells will be outsourced. But the approval of projects of all companies including BAPEX is being extraordinarily delayed. Further delays will happen if EMRD does not take a special initiative. As per present capacity, BAPEX is capable of drilling two exploration wells each year. The initiative has been taken to procure a new rig. This will increase the exploration capacity of BAPEX. Besides, BAPEX will then attain the capacity for completing at least 6-7 development wells and workovers. BAPEX is also working with the exploration works of blocks 22A and 22B in the Chittagong Hill Tracts region. Three companies have already

been shortlisted based on the responses to the RFP. BAPEX is now waiting for approval of a guideline for the formulation of a joint venture. One Petrobangla source informed the EP that EMRD is not interested in approving the guideline. Hence the initiative for exploration at CHT by BAPEX may die its natural death soon.

Md. Shoyeb, Managing Director of BAPEX, claimed that BAPEX is capable of drilling three exploration wells every year. Initiatives for works have already been taken at CHT. He said that the progress will be visible next year. 30 leads have been found in block 8 there. BAPEX made notable achievements in seismic surveys over the past 10 years. Based on that significant numbers of lead have been found. 3000-line kilometers of 2D surveys have been completed. The interpretation reports will be available within the next two months. Work on the 2D survey is also



in progress 3000-line kilometers at Madaripur, Shariatpur, Faridpur, Gopalganj, Barisal, Jhalokathi, and Noakhali. These will be completed in 2025. The 3D survey is being conducted at Jokiganj and Patharia. BAPEX expects to get many new leads. If work can be done by making appropriate plans, there will be plenty of locations for carrying out even 10 exploration wells drilling every year.

Experts are very optimistic about getting new gas reserves in the onshore frontier areas. Energy expert Dr. Badrul Imam informed EP that gas from the easy-to-drill areas has already been explored. But there is a bright prospect for the discovery of gas from relatively complex structures. We must take appropriate actions without further delays. Energy expert Prof. Ijaz Hossain agreed that there are credible prospects for discovering new gas onshore. But if we keep our fingers crossed there will be no

option left to importing LNG. He proposed that the government must create a special fund of 3-5 billion for exploration only. Utilizing this over the next 10 years, at least 10 exploration wells should be drilled. BAPEX alone cannot do this. Contractors must be engaged. However, Dr. M Tamim, Dean of BUET, thought it extremely risky for the government to go for exploration. He suggested opening exploration for the private sector through updating MPSC. The capacity of BAPEX must also be enhanced to make it competent for monitoring the works of IOCs and drilling contractors. Engr. Nurullah suggested that the government should take a 3-year special program for exploration immediately. Spending up to Tk 20,000 crore, 30 exploration wells may be drilled. There is a bright prospect of discovering 3-5 Tcf gas through this initiative. That will play a major role in confronting the looming gas crisis.

Dr. Md. Anwar Hossain Bhuiyan, Member BAPEX Board of

Directors and Professor of Dhaka University Geology Department, mentioned that the data and information available with the Hydrocarbon Unit, Petrobangla, and BAPEX evidences that there exist 175 leads now in the country which have prospects of discovering oil and gas. In my opinion, about 30 of these have great prospects. There can be up to 15 Tcf of gas resources. If explored with a plan, there is a great possibility for discovering 3-4 Tcf new gas within the next 3 years. For this, the government should allocate a fund of Tk 6000-7000 crore. But in three years, BAPEX can drill a maximum of 9 wells. For the remaining 21 wells, 4-5 competent drilling contractors should be shortlisted and based on their responses should be engaged through competitive bidding. Another special project should be taken for exploration at CHT only. If all above can be done in a planned manner, within three to four years, local gas production can be significantly increased and the gas supply crisis can

be confronted without increasing LNG import.

Negotiation of Petrobangla with Chevron for new PSC following the proposal for IOC for blocks 11 and 12 has been already completed. However, Petrobangla has not yet received any specific directives from EMRD about it. MPSC for the onshore will require updates for concluding a new PSC with Chevron. That work has not started yet. Energy experts observed that initiatives must be taken to attract private sector investment in the onshore area even though some contingency measures are taken for 3-5 years to increase production. For these, separate MSPCs must be developed with required incentives for exploration at CHT prospects, Western Region, and other areas. A fresh round of PSC bidding for offshore must be invited now based on approved MPSC. In the context of a changed global scenario, there should be no concern regarding responses from IOCs.

The present crisis has not only emanated from gas resources running out but also due to ignoring repeated reminders by the experts to carry out regular exploration and development activities commensurate with the demand growth. However, it is very sad that the policymakers continued to ignore the suggestions of experts. Moreover, out of the wrong perception that nothing would be discovered from exploration, the policymakers were more interested in increasing LNG imports. However, it is very much possible to get out of the present chaotic situation in the energy sector in 3-4 years through a planned exploration campaign. The government must give top priority to a massive exploration campaign for oil and gas exploration. That will enable the government to get out of the immediate requirement of LNG imports from the volatile global market. This is essential now for Bangladesh to graduate into a developed economy.

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Optimizing Operations Of Gas Value Chain

Engr. Khondkar Abdus Saleque

One of the key challenges of the upcoming government will be to ensure a sustainable supply of primary fuel to meet the present and emerging demand for energy. The proven reserve of natural gas will continue depleting until replenished by some major discoveries and the development of large new resources onshore or offshore. In the present scenario, a significant increase in imported RLNG would not be possible before 2027. Summit Energy-owned third FSRU to add 500 MMCFD RLNG may not come into operation before then. The first unit of 1000 MMCFD capacity Land Based LNG Terminal (LBT) at Matarbari may not come into operation before the end of 2028 or early 2029. The other options for LNG import may also not happen soon. Any gas from shallow or deep-water blocks of the Bay of Bengal may take until 2030 to get benefit out of it. However, evacuation of discovered gas from gas fields in Shahbajpur, Bhola may provide some options. In the meantime, own gas production especially the production from prolific Bibiyana may deplete significantly by 2026. Petrobangla apart from going all out for expediting exploration initiatives onshore and offshore must work to optimize the operation of the entire gas supply chain ensuring value-added utilization of every

drop of gas. The manageable wastages and losses must be reduced to a bare minimum, and thefts and pilferages must be eliminated. Line pack (high-pressure inventory of gas) of the massive gas transmission grid must be smartly utilized. The entire gas value chain – production, transmission and distribution – must be brought under a fully functional Supervisory Control and Data Acquisition System (SCADA) for centralized and automated smart operation of the system. In the business-as-usual present scenario, when most of the gas-using industries, power plants and fertilizer factories perspire for quality supply of gas, major industrial entrepreneurs may not risk investments in Special Economic Zones. If necessary, the government should formulate and adopt a private sector energy policy for letting the private sector (local or foreign) participate as joint venture partners in various segments of the gas value chain.

The policymakers must have realized the depth and diversity of the challenges of relying on imported fuel giving less priority to exploring and developing their own primary fuel resources. The global fuel market is volatile often for various reasons ranging from natural disasters, pandemics, and global geopolitics. The geography of Bangladesh does not also offer opportunities for setting up enabling infrastructure for the import of primary fuel coal, and liquid fuel (LNG, LPG, Petroleum Products). Over-reliance on imported fuel creates challenges of price shock and supply disruptions. Bangladesh has experienced all of the above in the recent past. At present Bangladesh struggles to meet the coincident power demand of around 15000 MW despite having an installed capacity of grid-connected power of about 24,000 MW. The main reason is a shortage of primary fuel and a dollar crisis for making payments

for imported fuel and power. The success of the Awami League government in the power sector has been overshadowed by failures in the energy sector primarily due to a lack of initiatives for exploiting coal resources and expediting petroleum resources exploration onshore and offshore. There is no magic formula for turning all around overnight. The

Gas Supply Scenario : Own Gas (27-28th July 2023)

Company	GF	Wells	Cap (MMCFD)	Actual Production (MMCFD)
BGFCL	05	44	851	582.10
SGFL	04	11	149	90.60
BAPEX	08	15	145	146.00
Sub Total	17	70	1,145	818.70
IOC : Chevron	03	38	1512	1298.30
Tullow	01	05	103	44.40
IOC Total	04	43	1615	1342.70
Total	21	113	2760	2261.40
RLNG	02 FSRUs		1000	841.40
Total		113+02 FSRU	3760	3002.80

Source: Petro Bangla Daily Report 2023



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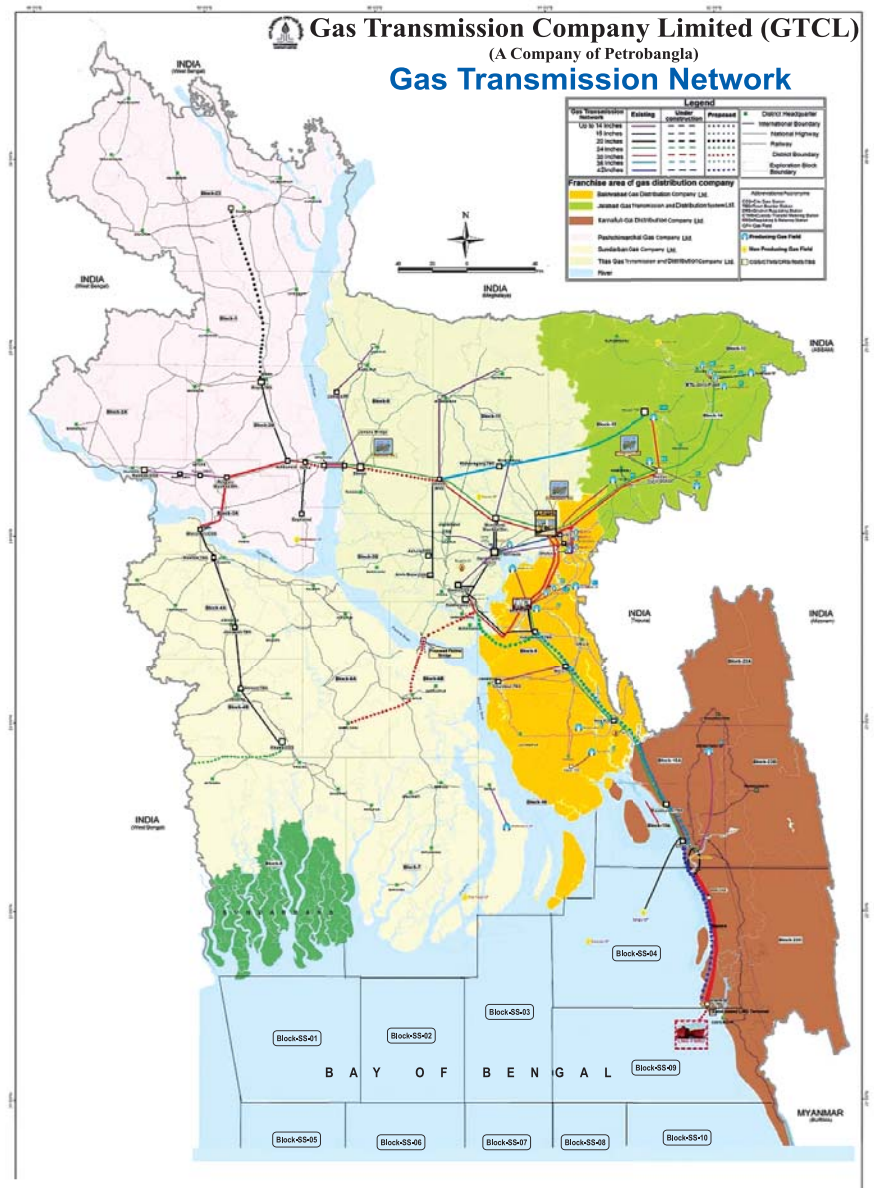
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incumbent government must professionally assess the entire power and energy value chain and launch actions for optimizing utilizations smartly.

It can be seen from above that US major Chevron smartly operating its three gas fields Bibiyana, Jalalabad and Moulavibazar deliver over 50% to national production. The proven recoverable reserve of Chevron-owned gas fields the prolific Bibiyana and Jalalabad is fast depleting. By 2026 these may deplete significantly creating huge concerns. Petrobangla company-owned gas fields – Titas of BGFCL, Rashidpur and Koilashtila of SGFL have higher reserves than Chevron-owned gas fields. Allout endeavors must be made between now and 2026 to increase production from these fields by applying appropriate modern technology. There are reports available with Petrobangla where an internationally accredited company Schlumberger identified several wells which on interception and workover can increase production. Unless these works are given priority attention, there may be a serious gas crisis from 2026 onwards. The present works of BAPEX may fall well short of requirements.

The other challenge of the incumbent government will be going for offshore exploration on the basis of just approved updated Model PSC 2023. On review, it appears that MPSC 2023 has included attractive fiscal and financial incentives. It hopefully will attract oil majors to risk investments. The government seems to be waiting for the completion of a third-party multi-client survey scheduled for the end of 2023. But US Oil major Exxon Mobil submitting an unsolicited offer for investing up to US\$30 billion is pressing for concluding non-binding MOUs for all 15 deepwater blocks. At this moment of geo-political confrontation in the Indo-Pacific Region, Bangladesh has to ponder very seriously the significant risks of entering into any contract with a US company exclusively for all the deepwater blocks especially adjacent to Myanmar offshore where China and Russia have high stakes. Bangladesh should rather go for formal PSC bidding.



In the past, ConocoPhillips was not awarded more than two blocks although their offer turned out to be the best in 8 blocks. The unsolicited offer of Australian company Woodside Petroleum for 5 deepwater blocks was not entertained.

Apart from offshore blocks, IOCs must be engaged through PSCs alongside BAPEX for exploration in onshore areas as well as either on stand-alone or as Joint Venture Partner (s) of BAPEX. Will also suggest creating provisions for local companies working as JV partners of BAPEX in the exploration and exploitation of Petroleum resources. The government must have realized that the

exclusive BAPEX strategy for onshore exploration has failed to provide the expected dividends. The ambitious 108-well drilling program died its normal death and the 48-well drilling program now underway will also fail to deliver. BAPEX as a purely government-owned company cannot successfully operate as an exploration company.

Gas Transmission Scenario

GTCL as the midstream company in the gas value chain has massively expanded its gas transmission grid over the past 15 years extending its coverage from Moshkhali in the South East to Rangpur in the North West, Khulna in the South. Huge investments have been made in

gas transmission infrastructure (pipelines, compressor stations). Some of the infrastructure is only partially utilized and some are not even put into use. The present GTCL infrastructure can handle up to 5500-6000 MMCFD gas. But the present maximum gas transmission (own gas and imported RLNG) is about 3000 MMCFD. Huge investments created financial impacts on GTCL. This has been partially compensated with the increase in wheeling charge. However, GTCL is no longer in a position to make additional investments unless these are provided as a grant. Many pipelines like the pipeline to Kustia, Jessore, and Khulna as well as that to Rajshahi and Bogura remain either completely unutilized or partially utilized. We are not sure where gas will be supplied from to Dinajpur and Rangpur regions. However, there is an urgent requirement for constructing a gas transmission pipeline from Bholā to the nearest gas grid for evacuating the stranded gas resource. Another large gas transmission pipeline from Matarbari to the gas grid must be constructed before the LBT at Matarbari comes into operation. The pipeline must be built to greater Faridpur and Barisal to bring these areas under gas coverage for extracting benefits that the Padma Multipurpose Bridge created.

Apart from these, the existing capacity of the national gas grid must be reassessed for optimum utilization. For overproduction, the resources in the greater Sylhet region (Surma Basin) are fast depleting. In not too distant future Bibiyana and Jalalabad Gas fields may not have enough left to meet the requirements of Power plants in the vicinity of Bibiyana Gas Field and other gas users in the greater Sylhet region. The compressor stations at Muchai and Ashuganj may not be required. One particular piece of important infrastructure the compressor station at Elenga has never been used since its inception. Wonder why a parallel pipeline from Ashuganj to Bakhrabad was constructed while the bulk of the gas from the

N-S and R-A Loopline Delivered From N-S Pipelines

Pipelines Downstream of AGMS	Gas Delivered
Ashuganj -Bakhrabad Pipeline 1	Zero
Ashuganj – Bakhrabad Pipeline 2	Zero
Brahmaputra Basin Pipeline (B-B)	213.40 MMCFD
VS3 at Ashuganj	137.10 MMCFD
Ashuganj – Monohardi Pipeline	322.40 MMCFD
Bibiyana -Dhanua Pipeline	478,50 MMCFD
Total	1151.40 MMCFD

Bibiyana gas field was diverted through the Bibiyana-Dhanua pipeline. These facilities remain mostly underutilized.

Insert a Map Of Gas Transmission Grid here

Petrobangla's daily gas production and marketing report of 18-19 August 2023 shows that no gas was transported through Ashuganj – Bakhrabad Gas Transmission looplines 1 and 2 on the day. And only 1151.2 MMCFD gas was delivered from Ashuganj Gas Metering and Manifold Station (AGMS), the nerve center of a gas transmission system.

The above evidence that most of the facilities for gas transmission like compressor stations and gas transmission loop lines are now underutilized for non-availability of gas. The time has come to reassess how these can be put to better alternate use.

Following the construction of the Bibiyana-Dhanua pipeline, there was a boom in the industrialization of gas-based industries in the Gazipur and Ashulia areas. The pipeline has a capacity of transporting 800 MMCFD to Dhanua. But simultaneously some large power plants were also set up at Bibiyana which depends exclusively on Bibiyana gas. Some gas from Bibiyana also goes to N-S and R-A looplines. As such only about 480-500 MMCFD gas is transported to Dhanua. This causes a huge gas deficit for a large number of gas-based industries in Mawna Gazipur, Ashulia region. Many composite textile, ceramic and other export-oriented industries suffer huge crises. Petrobangla must reassess how to address this situation. A very sophisticated gas metering station con-

structed by GTCL at Dhanua remains unutilized.

Now let us focus on the other segment of the Gas Transmission Grid. Two pipelines one 30 Inches and the other 42 inches Outer Diameter 90 KM pipelines from Moheshkhali, Cox's Bazar – Anowara, Chattogram transport RLNG from the two FSRUs anchored offshore at Moheshkhali. These two pipelines barely have the capacity left for accommo-

dating another 500 MMCFD RLNG expected from Summit 3rd FSRU. But for evacuating RLNG from the land-based terminal that is under implementation at Matarbari another large pipeline needs to be built from Matarbari all the way to the gas hub at the central location before 2028. Where from the investment come from? The incumbent government must plan to let out some segments of gas transmission for PPP ownership. The local private sector in joint venture with GTCL can share investment, own, and operate this piece of gas transmission infrastructure.

The two existing pipelines from Moheshkhali -Anowara transports about 800 MMCFD RLNG. From Anowara CGS it feeds the Chattogram Gas Distribution Ring Main of KGDCL and KAFCO, CUFL. Another pipeline from Anowara CGS to the new CGS built at Salimpur, Faujdarhat transports RLNG to the national gas grid. At Present original Bakhrabad–Chattogram 24-inch gas transmission pipeline and Faujdarhat CGS is used as a buffer. Gas from Salimpur CGS is transported to Faujdarhat CGS as and when required. Otherwise, it feeds the Salimpur–Feni–Bakhrabad gas transmission pipeline. The gas transmission operation in this segment must be reviewed ensuring that there is a contingency arrangement for addressing any situation arising out from natural calamities impeding gas supply from FSRUs as happened for a few days this year.

GTCL must plan how and where the gas compressor stations are now being partially utilized or remaining unutilized and can be optimally used without going for fresh investment when required. GTCL must now concentrate

more on its system operation. SCADA must be fully operational and regular arrangements of onstream pigging and occasional intelligent pigging must be done. If necessary, these works must be let out through outsourcing. All inlet and outlet of gas to and from the GTCL facility must be done through Custody Transfer metering stations.

Black Power Mystery

Gas consumers especially in the Meghnaghat area for a while are suffering from black powder carried by gas through the pipeline. GTCL and Petrobangla doing several exercises could not find any clue yet. These are metallic particles and obviously the corroded products of line pipes. There must be thorough investigations on whether some process plants of gas fields are malfunctioning or RLNG and grid gas having different compositions or quality is causing issues. The possibility of one or two pipelines built in the recent past may not have been properly cleaned. The sand and other undesirable elements left in the pipeline may cause

sandblasting. The intelligent pigging recently carried out of the Bakhrabad–Siddhirganj pipeline failed to give any conclusion. One pipeline, the Ashuganj–Bakhrabad pipeline may be the culprit as its pig receiver has not been properly placed. Anyway, the black powder mystery must be resolved as soon as possible.

System Loss

There is no possibility of any system loss in the gas transmission system if the gas intake and offtake of the system are appropriately measured and leakage surveys are regularly carried out with a special device that can be incorporated into the SCADA system. As such the BERC determination of making GTCL responsible for system loss has no technical basis at all.

Conclusion

Optimum utilization of facilities in the gas supply chain will be a major challenge for the incumbent government in the term from 2024-2028. Government should consider merging BAPLEX, SGFL

and BGFCL into a single large Exploration and Production Company. It must be strengthened technically and financially to operate like oil majors Petronas, and ONGC through creating facilities for private sector investment in exploration activities. Human resources must be given the required training for growing into a self-sustaining exploration management company not essentially a drilling company. GTCL must develop skills for applying all modern technologies for professionally operating and managing the maintenance of the national gas grid. In the future BAPLEX and GTCL will be required to supervise the activities of major IOCs operating onshore and offshore. The period of 2024-28 must be utilized by the government to prepare Petrobangla companies to embrace the challenges of the energy sector. Without strong Petrobangla companies, Bangladesh cannot achieve sustainable energy security.

EP

*Engr. Khondkar Abdus Saleque
International Energy Consultant*





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09
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Total: 3063 MW

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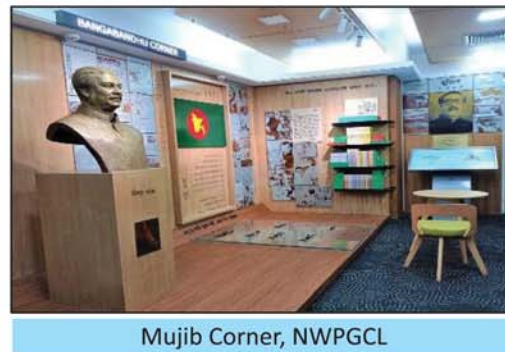
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How To Save Energy At Home?

Mustak Ahmed



Most of the things presently we use at home in lighting, cooking, heating, cooling, ventilation, TVs, computers, different appliances, etc. are related to energy (wood/oil/gas/light/heat/wind/electricity, etc.), a portion of which is misused that accelerates climate change. So we need to save it, and 'saving' is better than 'producing' the energy for many reasons.

Let's dive deeper. Energy whether produced from mines/generators/renewables has negative effects and needs transportation/generation/transformation/transmission/distribution having losses in each stage and other related hazardous processes. As part of the fuel mix, importing primary energy adds foreign currency burdens to struggling economies. It results in increasing costs & pollution in each process during changing hands up to the end user. But saving energy involves only the end-user at almost no cost, no hazard, and no pollution. Rather it saves money usable for other purpose(s). Besides, energy saved by just homes can be utilized by other types of consumers, help set up many new industries/businesses, and/or help existing ones to run load-shedding-free.

Around 80% of the global energy mix is fossil fuel (oil, gas, coal, etc.) which is not expected to decrease much by the next 10 years despite efforts to go renewable.

Burning Fossil Fuels Involves:

- Air pollution (due to sulfur dioxide, carbon monoxide, nitrogen oxides, and

particulate matter causing respiratory disease, cardiovascular disease, and cancer).

- Water pollution (occurs as sulfur dioxide and water creates sulfuric acid & acid rain/water, affecting crops and soil acidity. Life cannot survive in too acidic water).

- Climate change harms ecosystems & living beings. CO₂ from fossil fuel burning creates global warming through the greenhouse effect increasing natural disasters, increasing wildfires, and cultivable land gets reduced creating food shortages.

- For example, drought in rainy areas and heavy rains/floods in desert areas harm crops, livestock, and people in both areas. Recently portion of the Western world, Pakistan, India, and many African countries have been victims of these incidents. Even unexpected rain/flash floods happened in Saudi Arabia, Oman, Iran, etc. recently. Home energy misuse plays a role here, which relates to the following:

Causes/Impacts of Environmental Pollution:

Sources of today's home energy related to fossil fuel-based electricity (including losses), using gas/coal/oil, home-related industries, transportation fuel, population growth, temperature control, deforestation, etc. all give rise to environmental pollution.

In homes, toxic and other harmful substances (related to energy) found in fossil fuel combustion include:

- Carbon monoxide (colorless, odorless, and extremely toxic) causing organ damage.
- Polycyclic aromatic hydrocarbons (may cause cancer and affect eyes, kidneys, & liver),
- Aldehydes (can worsen cell functions, organ injuries, acute pain, inflammation, cancers, and cardio disease).
- Unburnt hydrocarbons (makes ozone, adverse health effects, plant growth reduction, climate change, etc.).
- Sulphur oxides (can cause bronchitis, nose/throat/lung irritation, coughing, wheezing, phlegm, and asthma).
- Nitrogen oxides (can irritate eyes, nose, throat & lungs, cause cough, tiredness, and nausea).
- Besides, acidic water/rain, particulate matter, CO₂, etc. can clog our respiratory system.
- "CO₂ causes headaches, dizziness, restlessness, tingling, difficulty breathing, sweating, tiredness, increased heart rate, elevated blood pressure, coma, asphyxia (oxygen deprivation), and convulsions (irregular movement of the body)."
- Air pollution causes asthma, chronic obstructive pulmonary disease (COPD), breathing problems and lung cancer.
- Pollution (by using oil/coal/gas) from kitchen/home heating gives serious hazards including respiratory infections.
- "Breathing particulate matters less than 10 micrometers in diameter can harm lungs and may go in blood."
- Excess use of fossil energy releases

more greenhouse gases (CO₂, methane, water vapor, ozone, CFCs, etc.) into the atmosphere and reflects heat radiated from surfaces. This results in climate warming, polar ice caps melting, and sea level rise.

- “In 2020, USA emitted 6 billion tonnes greenhouse gases: CO₂-79%, methane-11%, nitrous oxide-7% & other gases-3%”
- Over-using home energy in cooking, refrigeration, air cooling, other appliances, and machinery/equipment increases overall home temperature rapidly to unbearable/unhealthy levels.
- “In the atmosphere, CO₂ was 270 ppm in the mid-19th century; which went up at 400 ppm+ since 2015 from burning fossil energy.”
- Excess presence of CO₂ can be mortal for oxygen removal (similar to the working principle of fire extinguishers).
- Health hazards from dust, mud, soil, and even construction materials (kept on road/footpath) spread through vehicle wheels.
- Polluted dust on plants, roofs, windows, air filters, etc. proves what goes to our lungs and inflicts damage on all living beings.
- Countries with polluted air have increasing airborne catastrophes while suffering losses on.

Effects of progressively higher energy consumption:

- Overuse of energy increases their cost as per the supply-demand rule creating financial losses.
- It creates an additional burden on investment in machinery/equipment and their durability, which ultimately increases waste.
- It forces people to buy/replace equipment more frequently and also suffer financially.

Depletion of fuel supply and environmental impacts:

- The price of energy from depleting fossil fuel sources relates to cost, supply, and demand. Overusing energy leads to

a supply shortage, load-shedding, and increases overall consumption.

- Mining for coal, oil, or natural gas also negatively impacts the environment.
- “In 2021, total annual U.S. net electricity generation by utility-scale power of about 4.11 trillion kilowatt hours (kWh) resulted in the emission of about 1.65 billion metric tons of CO₂ (about 0.855 pounds of CO₂ emissions per kWh”.
- “On the other hand, methane is responsible for a 30% rise in global temperatures since the Industrial Revolution. The energy sector accounts for around 40% of methane emissions from human activity, which grew by just under 5% in 2021.”

Some facts about decrease in oxygen and increase in CO₂:

- “Oxygen levels in oceans have dropped more than 2 percent between 1960 and 2010, and they are expected to decline up to 7 percent below the 1960 level over the next century.”
- “Compared to prehistoric times, atmospheric O₂ levels dropped by a third and in polluted cities by more than 50%. Around 10,000 years ago, the planet’s forest cover was twice today and now emits only half of that O₂.
- Atmospheric O₂ levels in prehistoric times averaged around 30%-35%, compared to only 21% today. That levels are even less in densely populated city centers and industrial complexes, perhaps 15% or lower.”
- “This change in air has serious health implications and may ultimately threaten our survival because of rapidly losing oxygen. On average, each 1.0 ppm of CO₂ increase brings a loss of 2.15 ppm of atmospheric O₂.”
- Oxygen depletion is occurring at a rate far exceeding the planet’s ability to regenerate oxygen through photosynthesis.
- “The current atmospheric CO₂ concentration is 421 ppm (May 2022), a 50% increase since the start of the industrial revolution.”

- “According to ANSES, the level of CO₂ in the indoor air of buildings is usually between 350 and 2500 ppm.”
- “Rising of CO₂ at 2,000–5,000 ppm level associates with headaches, sleepiness with stagnant, stale, stuffy air, poor concentration, loss of attention, increased heart rate and may be slight nausea”.
- “CO₂ represents 77% of greenhouse gas (GHG) emissions. We need to avoid exceeding 1000 ppm (maximum accepted CO₂ concentration in air).” So home energy saving can play a big role in our healthy survival.
- On the other hand, fossil energy combustion and deforestation both reduced oxygen levels.
- “O₂ content of the ocean has declined by around 2% since the middle of the 20th century and is expected to fall on average by 3–4% by 2100 overall due to climate change.”
- “Oxygen levels in the oceans worldwide declined by roughly 2% between 1960 and 2010.”

Greenhouse gas levels reach new highs:

- “As per the World Meteorological Organization (WMO): CO₂, methane & nitrous oxide, the three main greenhouse gases, all reached new record highs in 2021. WMO’s Greenhouse Gas Bulletin reported the biggest year-on-year jump in methane concentrations in 2021 since systematic measurements began nearly 40 years ago
- “In 2021, CO₂ concentration was 415.7 ppm, methane 1908 ppb, and nitrous oxide 334.5 ppb. These values are, respectively 149%, 262%, and 124% compared to pre-industrial levels (before humans disturbed the natural balance of these gases)”. “Atmospheric methane levels averaged 1,895.7 ppb during 2021 (162% greater than pre-industrial levels). Scientists estimate global methane emissions in 2021 are 15% higher than the 1984-2006 period.”
- “Methane; a hazardous air pollutant & greenhouse gas contributes to ozone formation, exposure to which causes 1 million premature deaths every year.

Over 20 years, it is 80 times more potent at warming than CO₂.”

- “Annual increase in atmospheric methane during 2021 was 17 parts per billion (ppb), the largest annual increase recorded since systematic measurements began in 1983. The increase during 2020 was 15.3 ppb. Atmospheric methane levels averaged 1,895.7 ppb during 2021 or around 162% greater than pre-industrial levels. From NOAA’s observations, scientists estimate global methane emissions in 2021 are 15% higher than the 1984-2006 period.”

Wastage of energy at homes and its impacts:

- In some kitchens, gas stoves are kept on to save a machete stick! This adds inside heat (cooling load increases), gas wastage & pressure drop. So the gas runs out due to some users not being careful & prudent in using of this very important resource.
- Sometimes ACs/fans/ovens/lights & some machinery/ equipment are kept on unnecessarily.
- Some people use AC to over-cool the room and get wrapped in a blanket to get warmth by misusing cooling energy.

- “AC use for long causes lethargy, dry eyes/skin, frizzy hair, dehydration, dry/itchy skin, headaches, respiratory problems, infectious diseases, allergies/asthma, stress, and even deaths on days with high temperatures.”
- Wasting water, browsing fridge, powering empty freezer, using not-full dishwasher/washing machine, hot water cloth-washing (decreasing clothing life also), undesired thermostat setting, not changing filters, etc. results in energy misuse.

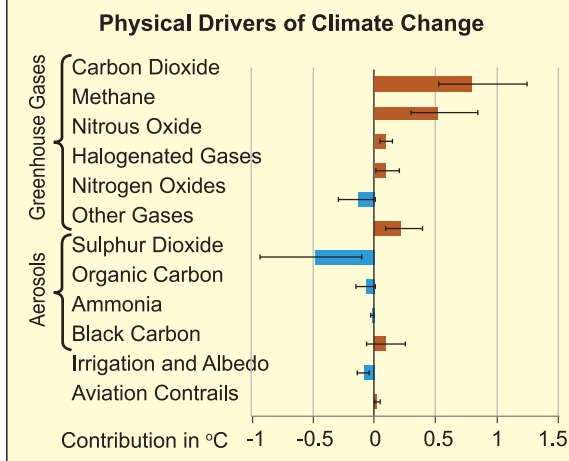
Energy Management: Its efficient/effective use reduces consumption and demand:

In homes, electricity is the most utilizable and controllable type of energy, but

Major portion of primary energy mix to generate electricity in most countries are fossil fuels. Fuel/resources for electricity in Bangladesh are 4.59% renewable, 4.46% imported and 90.95% fossil fuel based. (2023-07-23 13:34:58)
[\[https://ndre.sreda.gov.bd/index.php?id=7\]](https://ndre.sreda.gov.bd/index.php?id=7)

Fuel/Resource	Installed Capacity	Share
Coal	1768 MW	6.8 %
Gas	11476 MW	44.11 %
HFO	6278 MW	24.13 %
HSD	1341 MW	5.15 %
Imported	1160 MW	4.46 %
Renewable	1194.09 MW	4.59 %
Captive	2800 MW	10.76 %
Total	26017 MW	

Radiative forcing (warming influence) of different contributors to climate change through 2019, as reported in the Sixth IPCC assessment report
[\[https://en.wikipedia.org/wiki/Atmospheric_methane\]](https://en.wikipedia.org/wiki/Atmospheric_methane)



other types are also used. Below are some recommendations to better manage home energies.

- Turn off lights, fans, ACs, and other machinery/equipment when not used (Sensor automation & smart power strips help).
- Solar water heaters can reduce/eliminate the high energy consumption of geysers.
- Use less number of higher-wattage bulbs at the proper location (A 100-watt bulb is better than two 60-watt bulbs).
- Prefer smaller room/space (heating/cooling area) and use proper size heater/AC and airtight seals at home.

- “Maintaining AC temperature lower than 24-25 deg. C is considered most optimum for healthy bodily functions.”
- “A suggested typical temperature for summer is 23–25.5 °C, with that for winter being 20–23.5 °C”.
- A pressure cooker is better for preparing foods that take a long time to cook.
- Matching pot/pan size to stove plate/burner. Smaller pot on bigger plate/burners waste energy and pollutes the air.
- Keep the cooking pot closed until the food is cooked and use the residual heat of the stove.
- Defrost food; keep food in a normal fridge overnight for economic thawing.
- Keep a gap between the wall and fridge as recommended in the manufacturer’s manual.
- Do not open the fridge door unnecessarily and make sure the seal is intact.
- Defrost & clean the freezer/fridge regularly, ice reduces the efficiency of the fridge and increases running costs.
- Buy smaller appliances as needed, unnecessarily buying larger appliances wastes both energy and space

- Use the right equipment for any job. For example, don’t toast in an oven instead of a toaster/fryer.
- Using power in off-peak periods has positive financial and environmental impacts.
- In-house shade-tolerant plants during winter can increase humidity, O₂ level & comfort.
- “Cooling energy can be saved by 7% for every 1 °C rise in the set-point temperature.”
- “Photosynthesis uses water, sunlight & CO₂ and produces 10 times more oxygen.” So planting trees helps cool the environment (without using energy) and create more O₂ than they use.


- Use a programmable thermostat, natural light, ventilation, heating, cooling, etc. to save energy.
 - Ensure home insulation, energy-efficient doors, windows, and appliances.
 - Dress appropriately to adjust comfort level so that less heating/cooling is needed.
 - Accommodation space reduction matched with population growth can reduce deforestation to help O2 level retaining.
 - Decrease heating/ cooling area by proper room divider/curtain, which helps comfort and power saving.
- Cooking needs, preparation, and saving time plus energy:
- The kitchen (mainly cooking) consumes the highest energy in homes having no cooling/heating systems. Some issues related to kitchen energy savings are as below:
- Cooking is needed for sterilizing, flavoring/softening, and making food digestible, and not to pollute the environment.
 - Monthly/weekly shopping & cooking can save vehicle energy/time to refrigerate in small containers for reheating.
 - Cooking efficiently in microwave oven/slow-cooker/pressure cooker/induction cooker etc. if possible.
 - Efficient use of burner/flame/heating method preferably with multi-use pans/pots.
 - In the case of wood, use the advanced stove and keep the burning surface area larger with thinner wood (Fatwood partially burns inside creating irritating smoke and carcinogenic gas Carbon Monoxide).
 - It is even better to reduce water/energy consumption by using multi-purpose pans/pots along with steamers.
 - Induction cooking is far more advantageous, energy-saving, and healthier than any other type of traditional stove.
 - Using energy-efficient cook pots/pans having flat bottom surfaces (saucepan in place of traditional spherical banks).
 - Cooking smaller pieces of meat, fish, vegetables, etc. has financial, environmental, and health benefits. Empty pots/pans can be wiped with a little oil to lightly coat before cooking.
 - Overheating/frying is bad for health, energy, food quality, and the environment.
 - Cooking with a lid does not spread oil/toxic gases and keeps the kitchen and lungs clean.
 - Spreading oil from the top of fish/meat/curry helps proper mixing and healthy cooking with less oil.
 - Off-peak hour cooking is faster due to better voltage, less load shedding, and less costly with most ovens/stoves.
 - 2 to 3 marinated cooking and steaming by 1/3 to half energy by covering cooking pot along with steamer(s).
 - Electric cooking can provide low consumption, humidity, and cleanliness, whereas renewable energy can also be used.
 - Lack of care about gas/oil/wood/coal/cow dung burners involves accidents, energy misuse, pollution, dirtiness, etc.
 - Boiling/steaming food avoids high-temperature chemical reactions, removes excess fat, and provides health benefits.
- Healthy cooking and energy-saving issues:
- If we rub a finger at the kitchen wall/window/ceiling (which is cleanable), dirty grease spreads from bubbling oil/steam/gases causing pollution and it goes to our lungs as well causing health hazards. But can we clean our lungs? We need to take remedies, which also will reduce energy consumption and health hazards. We need to heat the food, not the inside/outside environment. Below are some features to better manage energy & health during cooking:
- Flame & burner control at the bottom of the cookware is essential for maximum heat utilization.
 - Reducing carbon dioxide & carbon monoxide in cooking and increasing comfort.
 - In winter, water vapor from wet clothing can reduce both cold & skin cracking, which ultimately saves energy/money.
 - Gas/wood/coal/cow dung stoves require air entry/exit during cooking and cross ventilation within the kitchen is a must.
 - Cook 2 or more foods within one pot containing steamers for better nutrition and energy savings.
 - Cooking food 2-3 hours before eating/remove from deep freeze and heat to 'thaw'.
 - Cross ventilation in the kitchen & washroom must be maintained to avoid humidity/heat inside causing energy wastage.
 - Safe electric cooking is the most convenient and least harmful way to energy saving and better environment.
 - Raising the required temperature in covered cookware and then reducing heat is enough for nutritious cooking.
 - Even not all food needs boiling temperature (at which nutrition value may go down) for healthy cooking.
 - Covered gravy cooking with less oil and spices is better than frying for many reasons including energy saving.
 - Foods chopped to smaller sizes are better to reduce energy & time for quality cooking due to higher food surface area.
 - Multi-cooker works as a slow cooker, rice cooker, pressure cooker, curd maker, steamer, fryer, bread-maker, etc. having money/energy saving options. The shape and size of the traditional cookware should be compatible with the stove.
 - Turning off the plate/burner before fully cooking of food [Cover pot/pan with towel and/or bigger inverted pot]. Energy-saving slow cooking is possible even with an ordinary stove.

Water management and energy saving:

- In winter, drying/keeping wet clothing inside the home can save heating & moisturizer needs for higher humidity.
- Drying clothes inside the room increases humidity and discomfort in summer. Dry them outside.
- Using low-flow showerheads and reusing water from the kitchen/shower for plants saves both electricity/water.
- Planting a little more drought-tolerant grasses, trees and shrubs also saves energy.
- Running high-efficiency appliances including laundry/dishwashers during off-peak hours saves energy & water.

Advantages of using improved stoves in rural households:

- Improved stoves reduce smoke emissions and health hazards and create an air pollution-free environment.
- Advanced cooking stoves save 50% more fuel compared to conventional stoves.
- Using a stove chimney keeps the flue gas out of the kitchen with comfort, cleanliness, and hygiene.
- It saves fuel and cooking time, ensures tastier food, and reduces the blackening of cookware.
- Fuel-saving and portable stoves can be easily moved during monsoons.
- Bangladesh's majority population live in rural areas using firewood, straw, twigs, leaves, rice husks, jute stick, and other agricultural residues for cooking purpose. So improved stoves can save energy a lot.

For our survival and freedom of having trouble-free energy, we need some efforts for ourselves and our future generations. This is a must-do charity to ourselves and may begin at home. 

Mustak Ahmed

Ex Member BPDB & Ex-Director BERCL

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Established in 1991, Confidence Cement Limited is one of the largest producers of cement in the country. It is also a leading Blue-Chip company in both Dhaka & Chittagong Stock Exchange and has been the top 20 performing companies for the last 30 years.



Established in 2010, Confidence Batteries (CBL) was created in anticipation of a surge in demand for battery-powered transportation. With around 600,000 battery-powered vehicles on the road at the moment, CBL controls over 20% of market share in Bangladesh.



Confidence Infrastructure (CIL), Confidence Group's vehicle in the field of construction and development of new infrastructure in power, railways, telecom, road networks, dredging and river protection combines manufacturing of various middle to light engineering products with its front end services for highest amount of local value addition.



DTL is an International Gateway (IGW) service provider, offering high quality call routing and call termination facilities having its own International Internet Gateway (IIG) and National Internet Exchange (NIX). In 2019, DTL launched its ISP operations with brand name, MiME.



Started in the year 2017, Confidence Power Holdings (CPHL) now owns and manages four Independent Power Plants (IPP), two in Bogura, and one each in Rangpur and Chattogram region aspiring to take its total capacity to over 1,000MW by 2023.



Confidence Tower Holdings Ltd.



Kirtonkhola Tower Bangladesh



The Present State Of Energy Security

Saleque Sufi

For the last few years, the Bangladesh government has been ceremoniously observing 9 August as the National Energy Security Day, remembering the historic achievement of the Bangabandhu government that took over the ownership of 5 major discovered gas fields from Anglo-Dutch energy major Shell BV on the day in 1975. These gas fields were discovered and owned by the oil major under lease.

The Bangabandhu government could achieve this acquisition through energy diplomacy for 4.5 million pounds sterling. Of these, Titas and Habiganj gas fields were partially developed, but Bakhrabad, Rashidpur, and Koillashtila remained undeveloped. Since 1975, these fields have made major contributions to providing gas supply security for Bangladesh and are still accounting for about 30% of national gas production. This was one of several epoch-making achievements father of the nation Bangabandhu in the energy and power sector of the country earning liberation through 9 months of supreme sacrifice of millions of brave Bangladeshis. Bangladesh is also the outcome of years of relentless struggle and sacrifice of brave Bangladeshis inspired by the great leader. This year in 2023 Bangladesh will observe National Energy Security Day at a time when Energy Security ap-

pears vulnerable. Despite having over 25000 MW installed power generation capacity, the power system struggles to meet about 15000 MW system demand due to the fuel supply crisis. The system requires 1500-2000 MW power load shedding during the hot humid summer days. Own gas production is depleting past, for dollar crisis BPDB can not pay huge outstanding bills of IPPs, can not arrange funds for procuring coal, BPC owes huge money to liquid fuel suppliers, Petrobangla owes payment of IOCs and LNG suppliers. Logically it is time to reassess the policies and strategies. Time to do soul searching why and how Bangladesh drifted away from the Mujib Doctrine of self-dependent energy security. Post COVID pandemic period followed by the Ukraine War made an impact on the economy. But countries of the world recovered from the energy shock. Prices of primary fuel have almost returned to pre-COVID level.

How Successive Governments Departed from Bangabandhu's Energy Vision?

Nation understands vested interest which occupied state power through the backdoor had the vision to undo whatever Bangabandhu achieved over three and half years. Even attempts were made to blot out his name from everywhere. Petrobangla and BMDC were degraded.

The government-favored military and civil bureaucrats started replacing experienced professionals. It created a major exodus of technocrats causing a massive brain drain. Though the remaining Petrobangla officials could still manage to develop the gas sector to the best of their abilities in the 1980s and 1990s, some incidents of big scandals and corruption took place in the late 1980s and 1990s. Saipem syndrome and the Scimitar scandal are among those. The mischief mongers were never punished. Bangabandhu could take over major gas fields from Shell BV using his limited manpower resources available in newborn Bangladesh. But other governments entered into dubious contracts in non-transparent manners with unknown company Scimitar, handed over the Petrobangla-owned Jalalabad gas field to Occidental, and entered scandalous contracts with NIKO for the development of Feni, Chattak gas fields, and Tengratila structures. Unfortunately, mischief mongers and beneficiaries of the scandals have not been brought to justice.

Petrobangla has 13 companies formed under the Companies Act. These are supposed to be operated as autonomous bodies by the board of directors as per the Companies Act. But these are now extensions of government ministry. The board comprises mostly the bureaucrats

of EMRD. In over 50 years there have been many competent Petrobangla officials with enviable track records. Many of them are still living in Bangladesh. But unfortunately, they are not being utilized in any capacity. None starting their career in Petrobangla could ever become the chairman of Petrobangla. Some positions like chairman and directors of Petrobangla have become transition positions for the bureaucrats. Consequently, the capacity of Petrobangla and the companies has depleted. From 1996 to 2001 during the tenure of Prime Minister Sheikh Hasina-led government, major achievements could be made in both the power and energy sector. Few large gas discoveries could be made, gas fields were developed, and gas transmission systems could be expanded across the length and breadth of the country. The impressive development of the gas sector could facilitate a vastly improved fuel supply situation for power generation and industrial growth. But the change of government in 2001 reversed the situation. From 2000-2006 the gas and energy sector moved in reverse gear. All the gains of the previous government were destroyed. During this period not a single gas field was discovered, apart from an 80MW Tongi power plant, and not a single new power plant could be set up. Rather the government creating unholy controversy put paid to Phulbari Coal field development initiative. The government also did not agree to the construction of a highly potential tri-nation gas pipeline from Myanmar to India across Bangladesh. If implemented as per negotiated MOU Bangladesh could get 500 MMCFD gas from Myanmar at a very reasonable price from 2008. This was a major opportunity lost.

The present government in 2008 was voted to power again in 2008. It inherited the diabolic power and energy sector. There were 8-10 hours of daily power load-shedding. The gas crisis almost brought to a halt the industrial development. The government adopted the Speedy Power and Energy Supply Act. Under short-term contingency measures, the rental and



quick rental plants comforted the situation by 2013-14. However, the government kept on neglecting the exploration and development of its fuel resources. For political dilemmas, coal mining was kept in suspended animation. The bureaucratization of the energy sector completely decapitated Petrobangla and its companies. The gas crisis started badly impacting the economy. Through flawed policy, the government preferred going to imported fuel -coal, LNG, and liquid fuel without considering the vulnerability of energy security from global energy price volatility from geopolitical events and disruption of the supply chain. Consequently, the government struggles to meet 13000-14000 MW power demand despite having over 25000 MW installed generation capacity. Capacity-constrained Petrobangla could neither explore and exploit coal nor expedite petroleum resources exploitation. Due to flawed policy, BPDB, BPC, and Petrobangla are almost on the brink of Bankruptcy. BPDB owes billions to IPPs, Petrobangla owes to IOCs and LNG suppliers, and BPC owes to liquid fuel suppliers. Yes, COVID-19 and the Ukraine war are issues. Other countries also suffered. But most of them could recover by taking smart required actions. But energy security in

Bangladesh remains in a serious spot of bother. Can Bangladesh keep paying in foreign currency for imported fuel and power consistently from the already stressed foreign currency reserve? Can BPDB pay outstanding dues of IPPs regularly? Can Petrobangla keep on paying regularly to IOCs and LNG suppliers? What happens in 2025 or 2026 when the present production of gas is further depleted? Can Bangladesh's economy survive and sustain on 60% and still growing imported fuel and power dependency?

The main reason for the above situation is Bangladesh moving in the reverse direction of Bangabandhu's self-reliant energy philosophy. Bangladesh has not exploited substantial coal resources, explored and developed huge untapped petroleum resources at onshore frontier areas and offshore, and has not done much in increasing contributions of renewable energy. Bangabandhu developed institutions, empowered these, and started building human capital. On National Energy Security Day, there must be soul-searching as to why even her daughter-led government drifted away from his energy philosophy.

EP

Saleque Sufi,
Contributing Editor, EP

'16999' Hotline to Ensure Hassle-Free Service for Electricity Users: Nasrul



State Minister for Power, Energy and Mineral Resources Nasrul Hamid recently said the integrated hotline '16999' call center will ensure hassle-free services for the electricity consumers across the country.

"It's a unique number for power consumers across the country, which will ensure

quick services through a single call to the hotline number 16999," he said.

Addressing a function at Bidyut Bhaban as the chief guest, Nasrul Hamid assured that

consumers will be able to inform their complainants to the hotline number through a toll-free call.

Bangladesh Power Development Board (BPDB) organized the inauguration ceremony of integrated hotline '16999' call center with its chairman Md Mahbubur Rahman in the chair. **EP**

Passive Heat Removal System Installed at RNPP Unit 1



The installation of eight heat exchangers of the Passive Heat Removal System (PHRS) has been completed in Unit 1 of the Rooppur Nuclear Power Plant (NPP), the country's first-ever nuclear plant being built by Russia's state-run nuclear power corporation Rosatom.

Each heat exchanger, a metal structure weighing over 32 tonnes, has a length of 8,530 meters and a width of 5,904 meters, reads a statement recently issued by the Communications Division of Rosatom Engineering Division.

The PHRS is a passive safety system that ensures the long-term removal of heat from the reactor core into the atmosphere in the absence of all sources of power supply.

"When the system is operational, atmospheric air enters the PHRS heat exchanger which cools it down at one side, while the steam from the steam generator condenses inside the heat exchanging tubes", explained Alexey Deriy, the vice president of Rosatom Engineering Division and director for Rooppur NPP Construction Project.

This followed the installation in July of the ventilation pipe at Unit 1. **EP**

Chevron Starts Drilling Bibiyana-27 Well



America's oil-and-gas major Chevron started drilling Bibiyana-27 well in the country's largest-producing Bibiyana gas field recently.

The gas filed in the northeastern part of Bangladesh, located under block 12 in Habiganj district of Sylhet division, is currently producing natural gas of around 1,100 million cubic feet per day (mmcf/d), which accounts for over half the total output from the local gas fields, according to official data of Petrobangla.

Chevron Bangladesh has planned to drill several gas wells at the newly obtained 'flank' area if the Bibiyana-27 well drilling

comes out successful.

Sources said the multinational company last year obtained a 60-square-kilometer 'flank' area from Petrobangla outside its existing contract zone to the north of the Bibiyana gas field to carry out exploration afresh.

Bangladesh's state energy agency Petrobangla agreed to offer the new area as the US firm showed interest to drill three onshore wells there. **EP**

Power Crisis Cost Vietnam \$1.4b: WB

A severe power shortage in Vietnam caused by an intensely hot spell and unprecedented drought in May and June cost the country \$1.4 billion, according to the World Bank.



Northern Vietnam suffered rolling blackouts and sudden power outages, with operations at a large number of factories badly impacted. Some businesses were given very little notice or had no warning at all.

Vietnam is a crucial part of the supply chain for some of the world's most important companies, and many of them — including Samsung and Apple supplier Foxconn — have factories in the north,

not far from Hanoi.

The World Bank said with an estimated peak demand supply deficit of 1.8GW, businesses in the north reported losses of up to 10 per cent of revenue, citing a small industry survey as part of its August economic updates.

'The preliminary estimate of economic costs for the May-June power outages is about US\$1.4 billion (or 0.3 per cent of GDP),' the World Bank said in its Taking Stock report released recently. **EP**

Six Diesel-Run PP to Shut by Year-End

The government plans to retire six diesel-fired power plants (PP), with a combined capacity close to 1000 MW, before the end of 2023.

According to official sources, the six plants, belonging to four private companies, are Bangla Track's 300 MW (Jessore 100 MW and Daudkandi 200 MW), Aggreko's 200 MW (Awarahati 100 MW and Brahmangaon 100 MW), APR Energy's Pangaon 300 MW, and Paramount's Baghabari 200 MW.

"Of these, 800 MW has already gone into retirement in between February and June this year while the remaining 200 MW will be retiring in August," said a highly-placed source at the state-owned Bangladesh

Power Development Board (BPDB).

Once all the plants are retired, it will save the government around Tk 2,250 crore per year, the source added.

As per the BPDB Annual Report 2021-22, the country's total grid-connected generation capacity is 22,482 MW, of which diesel-fired plants contributed 1290 MW, or 5.7 percent of the total capacity.

Up to date BPDB data shows that grid-connected installed capacity is closing in on 25000 MW in 2023-24.

In fiscal 2021-22 fiscal year, the cost per kilowatt-hour of electricity by diesel was Tk 154.11, while for gas-fired power plants it was Tk 3.46. It was Tk 9.17 for coal-fired plants and Tk 22.10 for furnace oil-based plants. **EP**

Govt Set to Allow Excelerate Energy to Raise Its capacity



The government has taken the decision to increase LNG re-gasification to meet the country's natural gas demand, Petrobangla Chairman Zanendra Nath Sarker told the FE Sunday.

The government is set to allow Excelerate Energy to increase LNG re-gasification capacity of its floating storage and re-gasification unit (FSRU) by 20 per cent to around 600 million cubic feet per day (mmcf) from October next, said sources.

Excelerate's FSRU, the first in Bangladesh, can now re-gasify around 500 mmcf of liquefied natural gas (LNG).

The cabinet committee is set to approve a Petrobangla proposal in this connection soon, he said.

Excelerate Energy is expected to increase its FSRU's re-gasification capacity during its scheduled overhauling period from late September and start operation with increased capacity from early November following a 45-day overhauling, sources said. **EP**

IDCOL Hands Over Tk 70cr to Govt from Its Net Profit

State-owned financial Institution Infrastructure Development Company Limited (IDCOL) has paid a dividend of Tk 70 crore to the government on the net profit of the last financial year 2022.



Ms. Sharifa Khan, Secretary, Economic Relations Department (ERD) and Chairman, IDCOL, formally handed over the dividend check to Finance Minister AHM Mustafa Kamal, FCA, MP, at the Ministry of Finance.

After receiving the cheque, the finance minister said, "IDCOL has set an example in financing the infrastructure development, energy and

renewable energy sectors of Bangladesh."

It is to be noted that in the previous financial year, IDCOL had paid a dividend of Tk. 50 crore to the government.

During FY 2022 IDCOL's profit before tax and provision was Tk. 698.79 crore. In IDCOL's 26th AGM, a total amount of Tk. 120 crore from the profit made by IDCOL during FY 2022 was declared as dividends. **EP**

Petroleum Price Hike Pays Govt High Revenues, Stokes inflation

Petroleum-price hike pays gov't high revenues as value-added tax (VAT) collection from the marketing of petroleum products grew nearly 94 per cent last financial year, which economists believe has backlashes.

Five petroleum-marketing companies under the state-owned Bangladesh Petroleum Corporation (BPC) in the FY2022-23 nearly doubled to Tk 75.76 billion from the previous year's amount, by official count.

Jamuna Oil Company Ltd, Meghna Petroleum Ltd, Padma Oil Company Ltd, Standard Asiatic Oil Company Ltd, and Eastern Refinery Ltd paid VAT worth Tk 39.13 billion in the FY2021-22.

In FY2020-21, the companies had paid Tk 28.99 billion VAT to the exchequer. However, collection of arrears was Tk 6.31 billion in FY22 and Tk 5.19 billion in FY21.

Officials said substantial rise in petroleum prices on the local market contributed to the hefty growth in VAT receipts from petroleum products, alongside intensified efforts by the officials concerned.

In August 2022, the government pushed up the prices of petrol and octane by 50 per cent and diesel and kerosene by 36 per cent on grounds of price rises on the international market under the impact of the Russia-Ukraine war. **EP**

Renewing Bangladesh's Energy Transition



power cuts are back.

Three key challenges plaguing Bangladesh's energy sector are overcapacity, growing power generation prices and fuel shortages. The installed capacity of

The Boston Consulting Group predicted that Bangladesh's economy will reach US\$1 trillion by 2040. The World Bank also lauded Bangladesh's strong track record of growth and development and the country is among the top three ready-made garments exporters in the world.

But despite these encouraging statistics, the country is struggling to pay its energy bills due to a dollar crisis, high capacity charges for power and increasing power generation costs. As a result, frequent

power plants far exceeds the actual demand for power in the country.

This overcapacity issue arose from the government's commissioning and approval of new power plants based on ambitious growth projections without assessing the actual need. Overall utilization of the power system plummeted to a mere 40 per cent in the FY2019-20.

Bangladesh's heavy reliance on imported fuel, following the depletion of its natural gas reserves, has exacerbated the overcapacity problem. **EP**

Govt to Review Fuel Oil Prices Quarterly



periodic price adjustment mechanism for petroleum products starting in December to keep pace with the prices in the international market.

The government is likely to review fuel oils prices every three months in the local market to meet a condition of the International Monetary Fund under the current \$4.7 billion loan program.

Officials of the finance and energy division said that the government was likely to adopt a three-month-based

The IMF wants the government to introduce such a periodic formula to avoid paying subsidies for petroleum products, said officials.

The country has been maintaining fuel oils prices under administrative orders for a long time irrespective of international market situation. **EP**

Bidding on Offshore Blocks Likely after Election

Bangladesh will invite bids on offshore oil and gas blocks in the Bay of Bengal after the national election expected to be held in January, 2024.



"We have to complete the offshore seismic data survey first. So, the offshore bidding round would not be possible before the national election," said State Minister for Power and Energy Nasrul Hamid.

He said that the bidding round would be held after the election as "we expect to get actual data on oil and gas resources in the Bay.

Responding to a query, the state minister said, "We will reach a final decision about the ExxonMobil proposal of investing a maximum \$30 billion in

the country's offshore blocks after getting data on seismic survey."

He, however, added, "It's unlikely to reach an agreement with them (ExxonMobil) before the election."

The US company proposed to sign a non-binding memorandum of understanding (MoU) with Petrobangla in the current month.

Besides, the government approved a draft Bangladesh offshore model Production Sharing Contract (PSC) 2023 to explore oil and gas in the Bay of Bengal. **EP**

Indian Gas Exploration Companies Seek Price Review from Petrobangla

India's hydrocarbon-exploration companies ONGC Videsh Ltd and Oil India Ltd sought review of the gas price from Petrobangla and urged it to make it a market-based one.

Bangladesh has PSCs for two shallow-water blocks-SS-04 and SS-09 -- which are being explored jointly by India's ONGC Videsh Ltd and Oil India Ltd.

Petrobangla had signed contracts with the opera-

tor of shallow-water offshore blocks SS-04 and SS-09, on February 17 in 2014, which expired in February 2019.

"Now, ONGC is arguing that the recently approved Model PSC 2023 offered the price of gas that linking with same benchmark used to buy expensive liquefied natural gas (LNG) without any cap, which is definitely marked based," said an Energy Division official. **EP**

Rampal Power Plant Resumes Production after 16-Day Halt Due to coal shortage



The coal-fired Rampal power plant in Bagerhat resumed production after 16 days of shutdown due to coal shortage on 14 August.

A total of 400 MW of electricity generated has been supplied to the national grid since resuming operations, officials said.

Earlier on 13 August, Bangladeshi flag ship MV Bashundhara Impress arrived at Mongla port from Indonesia with 31, 700

metric tonnes of coal, he said, adding that coal discharge, transportation and storage work has been going on since morning.

They said two more ships with coal for the power plant from Indonesia are scheduled to arrive at Mongla port this month.

After the plant was commissioned on 17 December last year, it has been shut down six times over the last seven and a half months.

The power plant was shut down on 14 January, 15 April, 23 June, 30 June, 16 and 30 July since production commenced. **EP**

Coal Tariff Fixation: Power Div, EMRD at Loggerheads



Two divisions under the Ministry of Power, Energy and Mineral Resources are at loggerheads over tariff of coal that feeds the country's only mine mouth power plant at Barapukuria in Dinajpur district.

The Barapukuria Coal Mining Company Limited (BCMCL) under the Energy and Mineral Resources Division (EMRD) sent a letter to the chief engineer of the

Barapukuria Thermal Power Plant Ltd. The letter asked the EMRD to pay over Tk 737.53 crore for coal supply to the power plant.

It said that the power plant has so far purchased over 1.02 lakh tonnes of coal at a cost of Tk 207.29 crore including value-added tax (VAT).

But the payment is yet to be made, said BCMCL general manager (marketing) Md Nazmul Huq. He informed this to the chief engineer of the Barapukuria Thermal Power Plant Ltd on August 7. **EP**

Bapex Faces Fund Crisis

State-owned Bangladesh Petroleum Production and Exploration Company (Bapex) is going through a severe fund crisis in performing its regular activities, said officials.



State-owned Bakhrabad Gas Distribution Company Ltd (BGDCL) is yet to pay outstanding wellheads margin to Bapex, which is being seen as responsible for the situation.

Bapex managing director (acting) Md. Shoaib has sought intervention of the Petrobangla chairman in this regard recently.

The Bapex supplied its produced gas to the distribution company as per the Bangladesh Energy Regulatory Commission (BERC) directive in July, 2022.

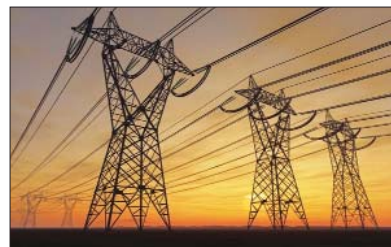
"Bapex has paid its due to the public exchequer. But the company has yet to receive its wellhead bills and another dues of Tk 114.04 crore until May, 2023," Md Shoaib said. **EP**

Tripartite Deal Soon to Supply Power to Bangladesh from Nepal via India

An understanding has been reached in principle for the supply of electricity to Bangladesh from Nepal via an Indian transmission line and a formal agreement between the three nations will be signed soon on this, according to officials at the Nepal Electricity Authority (NEA).

The three countries have reached a verbal understanding to export electricity from Nepal to Bangladesh, according to Suresh Bhattarai, spokesperson at the NEA, reports the Economic Times.

There has been an understanding to export 40 MW of electricity from Nepal to Bangladesh in the first phase. A formal agreement to this effect will take place very soon, according to Bhattarai. He also added India is positive regarding supplying electric-



ity from Nepal to Bangladesh by using its transmission line.

Bangladesh is planning to purchase 9,000 MW of electricity from Nepal in the long run, sources said.

The formal agreement to supply electricity from Nepal to Bangladesh via India is expected to be signed within a couple of weeks, sources at the NEA said.

Power Purchase Document has been agreed between Nepal and Bangladesh but the tariff and trade margin are yet to be finalized, said Prabal Adhikary, a senior official at the NEA. **EP**

Dhaka Gets First EV Charging Station



DHAKA GETS FIRST ELECTRIC VEHICLE CHARGING STATION

The country's first electric vehicle (EV) charging station was installed in the capital's Tejgaon area recently.

"Ekhon Charge", an initiative by Progress Motors Imports Limited, installed the charging station in front of their office near the Nabisco area and announced

plans to build 11 more stations by 2024.

Senior Secretary of the Power Division Md Habibur Rahman inaugurated the station.

Director (Finance) of Progress Motors, Md Hasib Uddin said a car will need only 20-30 minutes to fully charge. "On one full charge, a car would run for 500km.

Bangladesh is an ideal country for these EVs because our maximum routes are not more than 500km, so one charge will be enough," he said.

With the "Ekhon Charge" mobile app, people would also be able to pay and book a slot for this service. **EP**

Only Energy-Efficient Buildings to be Allowed



The government is likely to stop construction of buildings that are not energy efficient to ensure energy security in the coming days, said Sustainable and Renewable Energy Development Authority (SREDA) chairman Munira Sultana.

She made the remarks at a roundtable titled "Creating a Net Zero Smart

Bangladesh" held recently, jointly organized by Robi Axiata Limited and CSR Window at the BRAC Center in Dhaka.

"We are going ahead to conduct an energy audit in every building especially 150 designated organizations every two years to ensure efficiency on energy use," said the SREDA chairman.

She added that the SREDA already enrolled 25 energy auditors with high qualifications.

Speaking at the roundtable, Bangladesh Telecommunication Regulatory Commission's chairman Shyam Sunder Sikder said, "We should not wait for 2050 as stipulated by the United Nations, rather we should aim to achieve net zero targets within 2041, when we will achieve our Smart Bangladesh vision." **EP**

US Accuses China Firms of Evading Solar Panel Tariffs

Several Chinese manufacturers of solar panels have been shipping their products through third countries including Thailand and Vietnam to circumvent US tariffs, the Commerce Department announced recently.

"Commerce found that five companies were attempting to avoid the payment of US duties by completing minor processing in third countries," the Commerce



Department said in a statement.

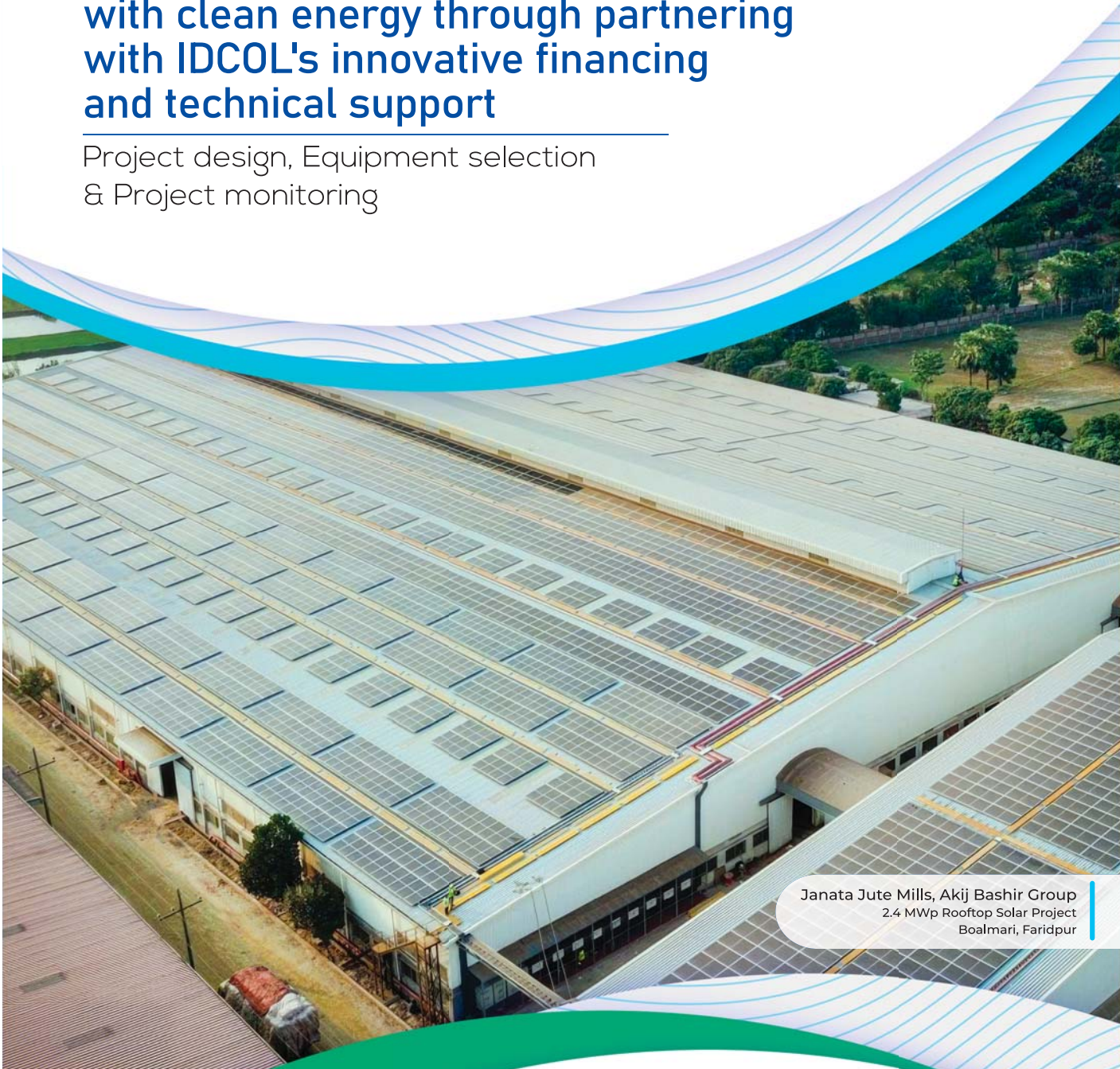
It named the companies BYD Hong Kong, New East Solar, Canadian Solar, Trina Solar and Vina Solar.

In 2022, the White House suspended tariffs for two years on solar panel imports from Cambodia, Malaysia, Thailand and Vietnam -- but not China -- in order to ensure the United States has access to the relevant parts to build up its domestic solar industry.

The Commerce Department announced that "certain unexamined companies" were also found to be circumventing the White House order, and that three firms initially suspected of engaging in the practice were found not to be doing so. **EP**

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Rancon, Montrims Sign Deal for Rooftop Solar Power Plant



power plant at the latter's factory at Mouchak, Kaliakoir in Gazipur.

Asadur Rahman Sikdar, director of Montrims, and Mashid Rahman, managing director of RIEL, inked the deal at the former's office in Dhaka on August 10, said a press release.

Rancon Infrastructures and Engineering Limited (RIEL) signed a contract with Montrims Limited to establish a 2.5MWp rooftop solar

Among others, Mohammad Moniruzzaman, chief executive officer of RIEL, and other high officials from both organizations were present. **EP**

Bangladesh Muses About Use of Wind Power Potential



Bangladesh has now moved to utilize wind-power potential with an eye to reducing its reliance on imported fuels to meet the mounting energy demand.

The country's largest wind-powered Cox's Bazar 60-megawatt plant is all set to start commercial operation in October amid struggles to source fossil fuels.

Eighty percent of work on the facility, owned by US-DK Green Energy (BD) Ltd, has already been done, officials said.

The plant, sited at Khurushkul in the country's far southeast near Cox's Bazar beach, has been synchronized with the national power grid.

It is currently supplying around 15-20 MW of electricity on a test run.

Chinese State Power Investment Corporation and Wuling Power Corporation are investing an estimated \$117 million in the project.

A total of 22 wind turbines, from China's Envision-Energy, are built on 110-metre tall towers, to generate 3.0 MW each of electricity.

AEP Finalizes \$1.5b Sale of Renewables Portfolio

American Electric Power has finalized the sale of its 1,365 MW renewables portfolio to IRG Acquisition Holdings, a partnership owned by Invenergy, CDPQ and funds managed by Blackstone Infrastructure, at an enterprise value of \$1.5 billion including project debt.

AEP netted \$1.2 billion in cash after taxes, transaction fees and other adjustments.

The portfolio includes 14 projects made up of 1,200 MW of wind and 165 MW of solar in 11 states. Renewable power from the projects is contracted under long-term agreements with other utilities, corporations and municipalities.

AEP said it remains committed to "de-risking the company and prioritizing investments" in its core regulated businesses. Proceeds from the sale will be directed to a pipeline of projects to advance the utility's clean energy transition, among other purposes.

EP

GREENpage

Xiaomi Gets Nod to Make EVs

Xiaomi Corp has won the approval of China's state planner to manufacture electric vehicles (EVs), said two people with knowledge of the matter, marking a major step towards the smartphone maker's goal of producing cars by early next year.

The National Development and Reform Commission (NDRC), which regulates new investments and production capacity in China's auto industry, gave the nod for EV manufacturing to Beijing-based Xiaomi earlier this month, said the people.

Xiaomi's venture is only the fourth since the end of 2017 to win NDRC approval.

While NDRC's nod brings Xiaomi closer to mass production of EVs more



than two years after it first announced the plans, the venture still needs clearance from the Ministry of Industry and Information (MIIT), which assesses new automakers and models for technical and safety requirements.

And it would be entering China's car manufacturing sector when the world's largest auto market is wrestling with a series of issues, including a capacity glut and slowing demand that have stoked a bruising price war and hit supplier margins.

EP

Siemens to Begin Manufacturing Solar Inverters in US



In conjunction with President Biden's visit to Wisconsin, Siemens announced it will begin manufacturing photovoltaic string inverters in Kenosha, Wisconsin, where the company will produce utility-scale solar components specifically designed to serve the U.S. market.

The Kenosha facility, owned and operated by the company's long-time manufacturing partner Sanmina, is meant to help meet increased demand for localized production of critical parts

for photovoltaic projects while helping customers take advantage of the full value of solar tax credits and domestic content incentives.

Operations at the Kenosha facility will be the newest addition to Siemens' growing U.S. footprint. Over the past four years, Siemens has invested \$3 billion to expand U.S. manufacturing and other strategic M&A activities.

"According to the Solar Energy Industries Association (SEIA), the total number of installed U.S. solar fleets is expected to grow fivefold from 2022 to 2033, and with tax credits now available due to the Inflation Reduction Act, that demand will only get stronger," said Brian Dula, Vice President of the electrification and automation business at Siemens Smart Infrastructure USA. **EP**

RE Investments in SE Asia Seen Topping \$76b by 2025



Southeast Asian national oil companies (NOCs) and traditional upstream players are progressively focusing on cleaner and more environmentally friendly energy initiatives with investments set to exceed US\$76 billion (RM353.1 billion) from 2023 to 2025, according to Rystad Energy.

The independent energy research and business intelligence company headquartered in Oslo, Norway said the upward trend is set to continue, with a projected total outlay of US\$119 billion by the end of 2027.

This expenditure will be driven by investments in wind, solar and geothermal projects.

Patek Philippe's chronographs epitomize horological excellence, blending timeless elegance with cutting-edge technology to create masterpieces sought by watch enthusiasts worldwide

"Regional NOCs like Indonesia's Pertamina are expanding their participation in geothermal, while Malaysia's Petronas aims to establish a notable presence in the carbon capture, utilization and storage (CCUS) market.

"The Malaysian NOC announced ambitious plans to build the world's largest dedicated facility by 2025, actively pursuing partnerships with international entities to unlock regional project potential," senior supply chain analyst Afiqah Mohd Ali said in a statement. **EP**

Yellen Stresses Need for Diversified Clean Energy Supply Chains

United States Treasury Secretary Janet Yellen stressed the need for diversified clean energy supply chains as America shifts away from fossil fuels, warning that production should not be concentrated in a few countries.

While she did not provide names,



Yellen's prepared remarks come at a time when China produces the majority of batteries for electric vehicles and the Treasury Department has noted a high level of Chinese control over critical mineral processing globally.

'Today, the production of critical clean energy inputs — from batteries to solar panels to critical minerals — is concentrated in a handful of countries,' Yellen said at an event in Las Vegas.

She stressed the importance of building resilient and diversified critical global supply chains to mitigate disruptions and safeguard economic security.

'That starts by investing here at home,' Yellen said, touting what she called the benefits of President Joe Biden's landmark climate action plan.

Called the Inflation Reduction Act (IRA), the plan provides incentives for America's energy transition and marks its one-year anniversary this week.

Apart from being the country's 'boldest-ever climate action,' Yellen said Monday that the act revitalizes left-behind communities and boosts energy security as well. **EP**

Efforts to Make Shipbreaking Industry Environment-Friendly: Minister



Environment, Forest and Climate Change Minister Md. Shahab Uddin has said that the government has taken various initiatives to make the shipbreaking industry safe and environment-friendly.

As a result of various far-reaching measures taken by the government, 4 shipyards have already become green and more than a dozen shipyards are in the process of becoming green, he said.

The environment minister said these while addressing a workshop organized by the Department of Environment on the environmental management of ship breaking industry.

Bangladesh has recently ratified the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, said the minister, adding that the Bangladesh Ship Recycling Act, 2018, Bangladesh Ship Recycling Rules, 2011 and Medical Waste (Management and Processing) Rules, 2008 have been enacted aimed at building a sustainable ship breaking industry. **EP**

India Sets Emission Limit for Hydrogen to Qualify as 'Green'



The Indian government has set an emission limit of two kilograms of carbon dioxide for every kilogram of hydrogen produced to be classified as "green" from renewable sources, the Ministry of New and Renewable Energy said recently. It said in a statement its notification would bring widely-awaited clarity for green hydrogen production in India.

"With this notification, India becomes one of the first few

countries in the world to announce a definition of Green Hydrogen," the ministry said in the statement, which detailed what emissions would be accounted for.

India wants to become a global hub for the production of green hydrogen and is aiming for annual production of 5 million metric tonnes of the fuel by 2030, which would cut about 50 million metric tonnes of carbon emissions and save more than \$12 billion on fossil fuel imports.

It is an ambitious plan for a country whose hydrogen consumed currently is produced mostly with fossil fuels. **EP**

COP28 to Focus on Energy Transition, Climate Finance



The United Arab Emirates (UAE) will focus on fast-tracking, orderly and equitable energy transition along with fixing climate finance by putting nature, lives and livelihoods at the heart of climate action plan at COP28 UAE at Expo City Dubai from November 30-December 12, 2023.

The COP28 UAE Presidency has announced an ambitious and inclusive two-week thematic program for the conference to deliver on four key goals alongside the negotiations process and as part of the critical Global Stocktake response, according to a media release.

The Conference is expected to convene over 70,000 participants, including heads of state, government officials, international industry leaders,

private sector representatives, academics, experts, youth, and non-state actors, it said.

Designed to drive action and implement policy, finance, and technology solutions across these priorities, the innovative two-week thematic program was developed in consultation with stakeholders including civil society, NGOs, youth, and Indigenous Peoples.

A six-week open consultation on the thematic areas and sequencing was held in which stakeholders were invited to submit feedback - the first such approach taken by a COP Presidency. **EP**

Bangladesh Working to Collect Data on Chinese Hydro Projects on Brahmaputra

Bangladesh is working to collect adequate data on the construction of eight hydropower plants by China upstream of the Brahmaputra, said the foreign ministry recently.

"However, no discussion on signing any agreement on water with China has begun yet," said Seheri Sabrin, spokesperson of the ministry, at a media briefing.

According to a Daily Mirror report, China has built about eight hydroelectric power projects on the lower reaches of Yarlung



Tsangpo. Some of them are already operational while a few others are still under work.

Meanwhile, a mega-dam has been proposed which could lead to consequences as Bangladesh is highly dependent on transboundary rivers and may face consequences in the future, the report further read. **EP**

EV Sales Yet to Gain Pace in Bangladesh



Although Bangladesh is laying the groundwork for gradually adopting electric vehicles (EVs), sales are yet to gain pace because of higher prices, further inflated by an elevated level of import duty and the cost of registration, according to market players.

Still, EVs will one day dominate the local market as the demand for cars run on alternative fuel is rising in line with increasing global awareness about their environmental and economic benefits, they said.

Around 70 units made by global automotive brands

such as Tesla, Audi and Porsche have been registered with the Bangladesh Road Transport Authority (BRTA) since September 2022, when the EV registration was introduced.

According to BRTA sources, the "Electric Vehicle Charging Guidelines" have been prepared to provide a framework to establish a wide network of charging stations across Bangladesh.

Sk Md Mahbub-E-Rabbani, director for road safety at the BRTA, said they consider the power capacity of an EV's battery while giving registration while it is the CC for fossil fuel-run cars.

With this backdrop, Executive Motors Limited, the sole distributor of BMW in Bangladesh, is going to introduce the BMW iX3 M Sport on August 26. **EP**

Gulf States Bet on 'Green' Hydrogen

After riding a fossil-fuel boom for decades, Gulf Arab states are eyeing "green" hydrogen as they try to transition their economies and ease the climate crisis at a stroke.



Oil producers Saudi Arabia, the United Arab Emirates (UAE) and Oman are investing heavily in climate-friendly fuel in a search for alternative revenues to crude and gas.

Green hydrogen, which is the hydrogen created when renewable energy electrolyzes water, appears to solve many problems: it is low-polluting and has widespread potential uses, which could make it lucrative and planet-saving at the same time.

But the fuel, which currently makes up less than one percent of total hydrogen production, is not yet

commercially viable and needs a major scaling-up of renewable energy sources -- a process that could take years.

Despite this, the Gulf monarchies sense an opportunity to remain major players in energy markets as oil revenues fall.

"Gulf states aim to lead the global hydrogen market," said Karim Elgendy, associate fellow at Britain's Chatham House think tank.

"They see green hydrogen as critical to remain major energy powers, allowing them to continue their influence as fossil fuel demand declines." **EP**

Global Warming Predicted to Cost Australia Billions



Global warming could cost Australia's economy hundreds of billions of dollars in the coming decades if workplaces cannot adapt to

soaring temperatures, a government report said recently.

Working conditions will become so difficult in the already sun-kissed and

desert-scarred continent that officials predict a drop in output of between Aus\$135 billion (US\$88 billion) and Aus\$423 billion (US\$274 billion).

The forecast assumes global temperatures will increase by three to four degrees Celsius by 2063, leaving laborers to toil in ever more difficult conditions.

Measures such as tree planting and changing how buildings are designed would only help sweltering workers "to some degree", the report said.

The estimate does not include the cost to agriculture, or tourism --

with fewer visitors expected to come to Australia due to natural disasters and the degradation of natural attractions, such as beaches hit by erosion.

"Dealing with climate change is a global environmental and economic imperative," said Treasurer Jim Chalmers on the report's release.

He said billions must be spent to meet the country's net zero by 2050 target, to decarbonize heavy industries and build a clean energy economy.

Australia is one of the world's largest producers of coal and gas. **EP**

US to Invest \$1.2b on Facilities to Pull Carbon from Air



The US government has said it will spend up to \$1.2 billion for two pioneering facilities to vacuum carbon out of the air, a historic gamble on a still-developing technology to combat global warming that is criticized by some experts.

The two projects -- in Texas and Louisiana -- each aim to eliminate one million tonnes of carbon dioxide per year, equivalent in total to the annual emissions of 445,000 gas-powered cars.

It is "the world's largest investment in engineered carbon removal in history,"

the Energy Department said in a statement.

"Cutting back on our carbon emissions alone won't reverse the growing impacts of climate change," Energy Secretary Jennifer Granholm said in the statement. "We also need to remove the CO₂ that we've already put in the atmosphere."

Direct Air Capture (DAC) techniques -- also known as Carbon Dioxide Removal (CDR) -- focus on that CO₂ emitted into the air, which is helping to fuel climate change and extreme weather. **EP**

TotalEnergies Joins North Sea Luna Carbon Storage Project

TotalEnergies has signed an agreement to acquire CapeOmega's 40% stake in the CO₂ storage exploration license ExL004 in the Norwegian North Sea, covering the proposed Luna project. Wintershall DEA Norge operates with a 60% interest.

The 453-sq-km concession is 120 km offshore Bergen in 200 m of water depth, and it is adjacent to the license in which the Northern Lights

CO₂ storage project (TotalEnergies, 33%) is under development. Here, Phase 1 operations are due to start in 2024.

"Subject to a successful exploration, this area could enable the storage of several hundred million tons of CO₂ from hard-to-abate industries in Europe," said Arnaud Le Foll, TotalEnergies' senior vice president of new business - carbon neutrality. **EP**

40% of US Climate Emissions Attributed to Richest Households

The wealthiest tenth of US households is the source of 40 percent of national greenhouse gas emissions, according to research published in the journal PLOS Climate.

Researchers, led by Jared Starr of the University of Massachusetts, Amherst, analyzed three decades of household income data



from 1990 to 2019.

They found that during this period, the bottom 90 percent of households' share of emissions has fallen, while the top 10 percent's share has increased. **EP**

UK to Host Global Energy Security Summit Next Year



Britain will host an international energy security summit next year, the government announced recently, inviting big oil-producing nations and companies but focusing also on net zero.

The London Energy Security Conference, set for early 2024, will concentrate on shoring up supplies and making the system "more resilient to shocks", the Department for Energy Security and Net Zero said.

The gathering will come two

years after Russia's invasion of Ukraine upended gas supplies and sent wholesale prices spiraling, and as countries grapple with the transition away from fossil fuels.

"Energy security does not stop at our borders," Energy Secretary Grant Shapps said in a statement.

"Our landmark... conference will bring together international governments and industry leaders to help rewire the global energy system and build collective resilience." **EP**

TIME IS WITH HASINA, IN DEVELOPMENT AND DIPLOMACY

Reverse Swing



Farid Hossain

Bangladesh looks forward expectantly to the coming months which will be hectic in terms of opening of mega projects, development and diplomacy.

Prime Minister Sheikh Hasina is going to attend the Sept 9-10 G20 summit as a special invitee of the host Prime Minister Narendra Modi. She will return home a bit early on Sunday (Sept 10) to personally receive in the evening of the same day French President Emmanuel Macron who will be the first head of state to visit Bangladesh in over three decades. The last French president to visit Bangladesh was Mitterand who came in 1990. Sergei Lavrov, meanwhile, is coming to Dhaka on Sept 7 becoming the first Russian foreign minister to land in Bangladesh since its independence in 1971. In between Dhaka and Washington are set to hold more talks on security issues. The diplomatic tours are to heighten as Bangladesh president Mohammed Shahabuddin is set to attend the ASEAN summit in Jakarta, Indonesia.

PM Hasina is set to open its G20 visit in New Delhi with a bilateral meeting with her Indian counterpart Modi. That Modi, the host PM of the summit, has decided to set aside time for the prime minister of Bangladesh, the time-tested friend of New Delhi, speaks a lot about its significance, especially at a time when the government of PM Hasina has been under some pressure in regard to its plan to hold the next national polls first week of January. India has always been a trusted friend of

Bangladesh and it is expected that the upcoming Hasina-Modi talks will cement it further.

Hasina, apart from delivering speeches on the theme of the conference, One earth, One family and One future, is expected to have sideline meetings with a host of foreign heads of state and government. Though no program has been scheduled as yet, there is an expectation of a chance meeting between Hasina and US president Joe Biden. Leaders of Argentina, Saudi Arabia, UAE, UK, France are likely to have talks with the Bangladesh PM on the sideline of the summit. These meetings are all aimed at further deepening the bilateral ties with trade, energy cooperation, connectivity and climate change high on the agenda.

Apart from the high-voltage diplomatic engagements PM Hasina's schedule will be long with expected opening of at least eight mega projects in the coming months. These assume special significance as the ruling party

gears up to start its campaign for the upcoming national elections.

The projects - Khulna-Mongla Rail Project, Padma Rail Link Project, Cox's Bazar Rail Link Project, Akhaura-Agartala Inter-Country Rail Link Project, Metrorail project, Dhaka Elevated Expressway Project, Bangabandhu Sheikh Mujibur Rahman Tunnel (Karnaphuli Tunnel) and Shahjalal International Airport Terminal-3 – will certainly have mega impact on the country's economic development. These will also help consolidate the ruling party's hold on the country's politics and brighten the prospect of Hasina's return to office for the fourth consecutive term and set a record. The mega projects are being launched when the main opposition BNP and its allies such as Jamaat are still on the streets trying to mobilize public support in favour of their key demands: the resignation of Hasina's government, dissolution of the parliament, reorganization of the Election Commission and installation of a caretaker government to supervise the balloting.

Hasina and her AL party sit firmly on the driving seat of the country's politics, economy, social development and diplomacy. Though there has been widespread dissatisfaction among the people in regard to run-away inflation, abnormal rise in the prices of the essentials and huge concern about mismanagement in financial sector, PM Hasina seems to be the choice of the people. Better the opposition reads the public mood right and make the right step at the right time.

EP



Explore Gas, Mine Coal Resources On A Priority Basis

There is no option but to ensure the supply of electricity and fuel at affordable prices for facilitating industrialization and achieving the vision of developing the economy. It cannot be achieved through exclusive reliance on imported primary fuel. The government should adopt an exploration project of Tk 20,000 crore for assessing the possible reserves of petroleum onshore on a priority basis. BAPEX on its own and through engaging drilling contractors can carry out 60 exploration wells in three years to achieve the mission. Simultaneously, the government must make an immediate political decision to exploit its coal resources to relieve stress on natural gas.

Engr. Ali Iqbal Md. Nurullah, former Director of Petrobangla said this in an exclusive interview with **Mollah Amzad Hossain**, editor of Energy & Power.

What is your view about the 46 wells drilling program of BAPEX? How optimistic are you about the success?

All concerned know about 46 wells including 17 exploration wells drilling program of BAPEX. 618 MMCFD new gas is supposed to be added on completion of works by 2025. In my opinion, at least 400 MMCFD new gas may be added. It may not increase total production but will assist in maintaining total production at the present level. But

this will not be possible if the project is not implemented on time.

However, EMRD and Petrobangla have instructed them to complete the project by 2024. Do you think it is possible?

Till now only 7 wells have been drilled. I do not think that it will be at all possible to complete the work of the remaining 39 wells in 15 months. These include 4 deep wells. I do not think it is possible for BAPEX on a stand-alone basis to accomplish the task. Engagement of a consultant, preparation of the tender document, engagement of contractors, and completion of work before December 2025 is not possible. Each of the deep wells will need at least Tk 400 crore.

Apart from BAPEX plans for onshore exploration, MAIKO JV of Japan for the onshore area and IOC Chevron for 2 blocks have given proposals for new PSCs. What are your views?

BAPEX has extensive experience in onshore exploration. Chevron has been also working with experience in Bangladesh onshore over the past 28 years in exploration and production. In my opinion, these proposals should be accepted after due scrutiny. But I suggest that for technology transfer BAPEX can be integrated as a carried-over partner of Chevron for the two blocks in new ventures.

Japan is a trusted and reliable partner of Bangladesh in the power and



Engr. Ali Iqbal Md. Nurullah

The government after the election must make a political decision and start mining coal. Open-cut mining method must be followed wherever applicable. It is possible to do that through farming land recovery, mine water, aquifer management, and environmental impact management. If this is done, coal can cater to the requirement of a significant portion of power generation.

energy sector. Japanese company Maiko has completed a feasibility study jointly with BAPEX for oil and gas exploration. Their exploration proposal is now under review by the government. Work under a joint venture should start after completing the review and scrutiny as soon as possible.

You are optimistic about BAPEX. Do you think it is possible to develop BAPEX into an international category exploration company through restructuring? How long would it take?

The time for remaining optimistic

about BAPEX has not expired yet. But to genuinely strengthen it, required political and policy decisions need to be taken urgently. BAPEX needs urgent restructuring keeping in mind 3Ms – Man, Money, and Machine. 30 years ago, ONGC made a modest start in their own country. However, enabling government policy facilitated their working as partners of IOCs. Continuing that trend ONGC now is working in Bangladesh and other countries acquiring experience and expertise.

Primarily the pay and incentive structures of BAPEX must be made like the IOCs as much as practicable. Getting out of the traditional business-as-usual administrative structure board of directors must be changed into a truly business-oriented professional body. Relevant experts with proven track records must be included alongside the bureaucrats. The technical manpower of BAPEX needs to attain certificates through training and examinations. Instead of a few weeks of training, these must be changed into 3-6 months of job training. But there must be a mandatory provision that persons availing of such training must work for BAPEX for at least 5 years.

On the other hand, for acquiring modern technology, and skills and ensuring effective technology transfer provision must be created for BAPEX employees working with IOCs at onshore and offshore exploration and development works. For this, there must be a provision for BAPEX to remain a technology partner of IOCs in all new PSCs. Finally, the required funds for BAPEX works must be allocated. If all the above can be ensured, BAPEX in 4 to 5 years can be transformed into a company of international repute.

Chattogram Hill Tracts (CHT) region is considered a high-potential area for oil and gas. BAPEX has been tasked with its exploration for a while. But work did not start. There are thoughts

for joint ventures. What are your views?

I am not in favor of the present process of the selection of a joint venture partner for BAPEX in CHT exploration. Three companies have responded to an invitation for Expression of Interest (EOI). It will not be appropriate to select one of them as a JV partner of BAPEX. CHT is very important in the context of geographical and geopolitical points of view. Myanmar and India are adjacent to CHT. China is engaged in Myanmar's oil and gas trading. So, we should try to attract international oil companies to explore the CHT prospects in any form – be it under a PSC or joint venture. Roadshows can be made in Europe, America, and Australia projecting the hydrocarbon prospects of the region. In my opinion, there is a huge prospect of getting an encouraging response.

But these activities must start on a priority basis without wasting any further time. The prospects appear truly promising. Success appears to be achieved soon if work starts immediately. This can go a long way in addressing the gas deficit of the region and the country.

The updated Model PSC for the offshore has been approved. But there is no sign of fresh bidding rounds soon. US Oil major ExxonMobil has registered interest in investment in all 15 deepwater blocks. What is your view?

In my opinion, there is no scope for entertaining any unsolicited offers for exploration at this stage. A single company, whatever large it may be, must not be awarded more than 3 blocks. Indian and Chinese companies should be given less priority in offshore exploration.

Partial data from the multi-client survey is now available with Petrobangla. The government has finally approved MPSC. Without any delay, Petrobangla must go for a fresh round of PSC bidding. However, a condition must be attached to the

bidding documents that would make sure of at least a 1% stake for BAPEX and its engagement in the exploration activities to facilitate gaining experience.

I am optimistic in the changed world order there will be an encouraging response to a fresh round of PSC bidding for Bangladesh offshore.

It is now believed that Bhola has sufficient reserves of natural gas. Without extensive reservoir study, it is being guessed that there may be at least 2 TCF gas there. How can this gas be evacuated to the national gas grid?

The required reservoir study for Bhola gas is essential now. It can assess how much proven recoverable gas is there. If the preliminary estimate of 2TCF is proven, an investment must be made in transmission pipeline infrastructure for evacuating the gas to the national gas grid. We did some study during my tenure at Petrobangla. In my opinion, the pipeline from Bhola should essentially consider the proposed pipeline from deep offshore FSRU off the coast of Kuakata. Gas from Kuakata and Bhola should be first taken to Barishal and then connected with the pipeline now under planning along the Padma Bridge towards Khulna. In that arrangement, both Bhola gas and RLNG from deep offshore FSRU can be transported through the pipeline infrastructure.

The greatest challenge of the pipeline is the acquisition of land for the right of way of the pipeline. It may take 5 years for Petrobangla to complete such a robust pipeline in the critical region. But if given to a reputed foreign company the project may be completed within 36-42 months after acquisition of ROW. However, crossings of large tidal rivers in the region are other major challenges.

Gas production is steadily decreasing though the demand is increasing. Reliance on imported LNG is consequently increasing. Efforts are going on to conclude

more long-term contracts for LNG import. The present capacity of two FSRUs is 1000 MMCFD. Plans taking final shape for two more FSRUs. When do you think these two facilities can start operation?

It may take at least 2.5 to 3 years to bring the two FSRUs into operation. But we must also consider whether Bangladesh can absorb the price challenge of additional LNG imports. Decisions on new FSRUs must be taken after due consideration of Bangladesh's capacity for other LNG imports.

Why is the work of the land-based LNG terminal being delayed? How long will the LBT at Matarbari take to complete?

Please note that the location of LBT at Matarbari has been changed. A fresh study needs to be done for the new location. LBT work is also losing momentum from the works of new FSRUs. If the works of LBT are not accomplished on a priority basis

under a special project, it may not be possible to complete it even by 2030.

You are suggesting not increasing LNG import. How can Bangladesh confront the gas supply deficit then?

Before deciding to increase LNG import, an assessment of own gas resources both onshore and offshore must be done professionally. A necessary fund of up to Tk 20,000 crore must be developed for carrying out extensive drilling onshore over the next three years using all available data and information. Utilizing this fund BAPEX on its own and engaging foreign drilling contractors can drill up to 60 wells. This will give a clear idea of how much gas we have onshore. At the same time, a fresh PSC bidding round for offshore must also be announced. It will take up to 10 years to derive benefits from offshore exploration.

On the other hand, despite having 5 discovered coal fields, mining is

going on in Barapukuria only using the underground mining method. The government after the election must make a political decision and start mining coal. Open-cut mining method must be followed wherever applicable. It is possible to do that through farming land recovery, mine water, aquifer management, and environmental impact management. If this is done, coal can cater to the requirement of a significant portion of power generation. Consequently, gas stress will be significantly reduced and Bangladesh can delay importing huge volumes of LNG import.

Other countries are exploring and exploiting coal despite obligations for environmental protection. The highest amount of coal ever has been used in 2022. Why should our superior-quality coal remain buried at mineable depth in such a situation? There is no other feasible alternative to using our coal to ensure fuel at an affordable cost for economic development.

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বিজ্ঞাপন হার	টাকা
শেষ প্রচ্ছদ (রঙিন)	৫০,০০০.০০
দ্বিতীয় প্রচ্ছদ (রঙিন)	৪০,০০০.০০
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ভেতরে পুরো পাতা (রঙিন)	৩০,০০০.০০
ভেতরে অর্ধেক পাতা (রঙিন)	২০,০০০.০০
ভেতরে ১ কলাম (রঙিন)	১০,০০০.০০
ওয়েব সাইট প্যানেল প্রতিমাসে	২০,০০০.০০
ওয়েব সাইট স্পট প্রতিমাসে	১০,০০০.০০

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আরিফুল ইসলাম ০১৭২৫ ৫৮৩০৮৬
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রুম ৫০৯, ৫১০, ৫১১ ও ৫১২, ইস্টার্ন ট্রেড সেন্টার, ৫৬ ইনার সার্কুলার রোড, পুরানা পল্টন লাইন, ভিআইপি রোড, ঢাকা-১০০০
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