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Uzbekistan

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Overview of the current energy mix, and the place in the market of different energy sources

General notes

Along with Kazakhstan and Turkmenistan, Uzbekistan is one of the few countries in Eurasia that is totally energy independent, self-sustaining and rich enough to subsidise domestic consumption and export energy resources. With abundant gas reserves and a growing gas production rate, Uzbekistan holds the position of the third-largest natural gas producer in Eurasia, behind only Russia and Turkmenistan, and eighth-largest in the world. At the same time, oil production has consistently decreased over the last decade as oil fields are depleted, and this situation puts pressure on the industry to focus primarily on thermal, hydropower and alternative power facilities and capacities.

The entire energy sector is still monopolised by the government, held by the state joint stock power company, Uzbekenergo. Despite efforts, it has never been privatised. Limited export capacities and obsolete energy infrastructure are major concerns for the government, which is now trying to coordinate and implement various programmes to diversify the use of hydrocarbons and their export routes, as well as to encourage alternative energy projects and energy-saving programmes. Uzbekistan has no nuclear power stations and, despite much speculation in the media, has denied any plans to construct a nuclear power station in what is a seismically active area.

The energy composition of Uzbekistan currently rests upon hydrocarbon consumption, as hydroelectric power is limited by shrinking water resources. Hydrocarbons, mainly gas, comprise nearly 97% of the country's energy balance, with the remaining 3% coming in the form of hydro, coal and charcoal.[1] Renovating the power transmission networks owned and monopolised by the government is one of the energy sector's priorities.

The installed capacity of Uzbekistan power plants exceeds 12.3 million kW, which represents more than half of all the generating capacity of the Interconnected Power System of Central Asia which includes the power systems of Turkmenistan, Tajikistan, Kyrgyzstan and southern Kazakhstan.

Natural gas and electricity are two of Uzbekistan's largest export items and represent up to 25% of all exports. The share of annual power consumption across the country is 1,940kW/h *per capita*.[2]

Overview of the hydrocarbon industry

According to the materials made public during the Oil & Gas Exhibition 2015, Uzbekistan's recoverable proven hydrocarbon reserve exceeded 2.5 billion metric tonnes of oil equivalent

as of early 2015, with around 65% of this volume accounting for gas reserves. In 2013, total crude oil and other liquids production was about 102,000 barrels per day (bbl/d), 30% of which came from natural gas plant liquids. It is estimated that nearly two-thirds of all known oil and natural gas fields are located in the Bukhara-Khiva region in the south of Uzbekistan.[3]

According to the BP Statistical Review of World Energy 2016, Uzbekistan's proven reserves of natural gas are 1.1 trillion cubic metres (tcm), effectively making it the 19th largest proved reserve-holder in the world.[4] Uzbekistan produces 60–70 billion cubic metres (bcm) of natural gas annually, with a steady growth rate. At present, Uzbekistan exports approximately 13 bcm of its produced natural gas annually.

Uzbekistan serves as a transit country for natural gas flowing from Turkmenistan to China through a strategically important Central Asia-China gas pipeline. This pipeline is also expected to commence the export of natural gas produced in Uzbekistan. In addition, two new natural gas pipelines, Gazli-Kagan and Gazli-Nukus, were built to connect the Ustyurt and Bukhara-Khiva regions with the existing system.

Overview of the coal industry

Uzbekistan's proven coal reserves are estimated at 1.9 billion tonnes, including 1,853 million tonnes of brown coal and 47 million tonnes of black coal. The annual production rate is 4.5 million tonnes.[5] Four coal enterprises are engaged in open pit mining, underground mining and underground coal gasification.[6] Since the adoption of the Modernization and Retooling Program for the Coal Industry in 2013, coal mining is expected to gradually increase in such a way as to replace natural gas and oil products for the power industry.

Overview of the nuclear industry

Uzbekistan is a party to the Non-proliferation Treaty and ratified an Additional Protocol Agreement with the IAEA in 1998. It has also ratified the Central Asia Nuclear Weapon Free Zone treaty, and does not plan to build a nuclear power station. In February 2014, the State Committee for Geology and Mineral Resources of Uzbekistan reported uranium resources of 138,800 tonnes of enriched uranium (tU) in sandstone and 47,000 tU in black shale. Navoi Mining & Metallurgy Combinat (NMMC), as part of the State Holding Company Kyzylkumredmetzoloto, undertakes all uranium mining in Uzbekistan. NMMC produces 2,400 tU annually, with exports going mainly to the USA through Nukem Inc.; South Korea through Kepco; Japan through Itochu Corp.; and now to China through CGN.

Overview of the power industry

With the gigantic power-generation facilities of the Soviet era and an ample supply of natural gas, Uzbekistan has become the second-largest electricity producer in Central Asia. Twelve thermal power plants and 31 hydropower plants annually generate up to 48 billion kW/h of electrical power and more than 10 million Gcal of thermal power, of which 88.5% is provided by the natural gas-powered thermal plants and 11.5% by hydropower plants. Thermal power plants (TPPs) account for a total capacity of 10.6 million kW; the biggest among them are Talimardjan, Syr-darya, Novo-Angren and Tashkent TPPs, generating over 85% of electric power. For power generation at TPPs, the gas share is 90.8%; mazut is 5.3% and coal is 3.9%.

The electricity is transmitted and distributed through power transmission lines whose voltage ranges between 0.4 and 500 kV and whose total length currently exceeds 243,000 km.

Uzbekistan's electricity capacity is expected to increase thanks to the modernisation of old facilities. Uzbekenergo is currently implementing 28 large-scale investment projects.

The development of the power industry for the period leading up to 2015 was determined by the Presidential Decree No. 1442 dated 15 December 2010, which highlighted 48

investment projects, including 15 TPP modernisation plans, with the development of an additional 2,329 MW capacity and nine hydropower projects with an additional 63.8 MW capacity in small HPPs.

During the last decade, hydropower energy production has been steadily increasing. It is expected to grow mainly by virtue of the development of mini-hydropower plants with a capacity of 420–440 MW and the modernisation of existing HPPs, as shrinking water resources are insufficient for a massive hydropower project.

Changes in the energy situation in the last 12 months which are likely to have an impact on future direction or policy

Falling oil and gas prices around the world have also affected petrochemical projects in Uzbekistan, where some investors have decided to leave, resulting in uncertainty regarding the future of those projects.

Following the withdrawal of Malaysian Petronas Carigali from all existing petroleum upstream projects in Uzbekistan, it is not clear what will happen with the Baisun Production Sharing Agreement (PSA), specifically whether or not Delta Oil, another member of the consortium formed for the implementation of the Baisun PSA, will replace the Malaysian investor in the product-sharing agreement.

The Uzbek government has been promoting the construction and financing of petrochemical facilities in an effort to diversify the economy and shift the focus of exports from raw materials to added-value products. In 2013, NHC Uzbekneftegaz, KOGAZ and Honam Petrochemical finalised the financing of the construction and operation of a petrochemical joint venture that will extract US$4.5bn of natural gas from onshore Surgil fields, sell methane gas locally and process ethane and condensate for petrochemical production, high-density polyethylene and polypropylene, to be sold on local and export markets. The facility has not been completed yet; it is understood to be undergoing testing procedures.

Uzbekistan's plans to gradually reduce its oil imports by converting natural gas into other hydrocarbon products have also been affected by the slump in oil prices. In 2009–2014, Sasol, Petronas and NHC Uzbekneftegaz signed an agreement to establish a joint venture for developing the GTL (gas-to-liquid) project on the basis of the Shurtan Gas chemical facility, which was expected to convert 3.5 bcm of natural gas and condensates into about 1,743,000 t/y of hydrocarbon products. The US$5bn facility was expected to be commissioned by 2017.[7] However, due to the dramatic changes in oil and gas prices, Sasol is considering exiting the project.[8] It is not certain whether Uzbekneftegaz will acquire Sasol's interests in the project in light of questions surrounding the feasibility of the project.

The government of Uzbekistan is also implementing other projects aimed at developing the production of energy from alternative sources. The first solar station in the region will be located near Samarkand and is expected to produce nearly 100 million MW of electricity per year. It was reported that the German consortium of GOPA International Energy Consultant, Suntrace GmbH and the Renewables Academy AG signed a contract with "Uzbekenergo" to provide consultancy services for the construction of this plant.[9] It is expected that the construction of the solar station will be completed by the end of 2016.

There are plans to build three solar stations by 2020 with a total capacity of 300 MW. In addition to the project near Samarkand, two stations of a similar capacity are due to be located in the Namangan and Surkhandarya regions. The total cost of constructing the stations is estimated to be US$450m.[10]

Developments in government policy/strategy/approach

The Uzbek government has implemented the following policies in the energy sector:

- Renewables: The government of Uzbekistan is aiming to generate approximately 21% of all its energy needs from renewable sources, including solar, by 2031. It is therefore contemplating developing a strategy for the use of alternative sources of energy, along with the very intensive construction of small HPPs in the near future. On 10 August 2016, Uzbek government officials, experts and representatives of business enterprises attended a roundtable hosted by the Chamber of Commerce and Industry of Uzbekistan to discuss the prospect of using solar power in Uzbekistan. The decree of the president of Uzbekistan on the programme of measures aimed at reducing energy intensity and implementing energy-saving technologies and systems for the period of 2015–2019 dated 5 May 2015 serves as a key instruction in this regard.
- Energy efficiency: There are a number of campaigns that are being carried out to install modern meters for consumers of natural gas, hot water and electrical power for households. The efficiency of electricity transmission and distribution is one of the government's priorities due to significant losses, estimated to represent 20% of net generation, with the cost of excess losses estimated at US$340m.[11]
- Added-value: As noted above, the government is also shifting its focus to diversifying the economy by building and operating petrochemical facilities that use natural gas as a raw material to produce petroleum products instead of exporting natural gas.
- Substitution: As highlighted, an Uzbekistan GTL facility is expected to convert gas into liquid hydrocarbons and decrease the import of crude oil. Consumer vehicles are also expected to shift from using gasoline to gas-powered engines.
- Modernisation: The government undertakes to modernise and retool existing outdated low efficiency gas-fired plants, whose efficiency is 40% lower than that of modern thermal plants, as the country loses approximately US$1.2bn in potential gas export revenues.
- Utilisation: Uzbekistan is one of the world's top 20 gas-flaring countries, with 1.8 bcm flared annually. This is being addressed through the programme on the utilisation of the associated gas that was developed by NHC Uzbekneftegaz for its subsidiaries.
- Gas exports: To increase and diversify gas exports, the Uzbek government plans to increase gas production by attracting foreign investors for the exploration and development of hard-to-recover fields and committing additional volumes for the Central Asia-China Gas Pipeline. In an effort to increase gas exports, the government also plans to use more coal and alternative energy for TPP and domestic consumption.
- Increase of production: The government plans to significantly increase the production of oil and gas condensate to keep the country's economy independent of oil imports that normally come from Kazakhstan. The government is looking to improve the rate of oil recovery, conversion and gas processing efficiency to raise product quality to world standards, and to increase the acreage for the hydrocarbon resource base, primarily liquids, through new discoveries. Specific privileges and preferences are granted to enterprises and organisations that use energy from renewable sources in their production.[12]

Developments in legislation or regulation

The new Regulation No. 164 adopted by the Cabinet of Ministers of the Republic of Uzbekistan on the use of petroleum products has been in force since June 2014. This regulation sets the general rules of delivery and acceptance of petroleum products, storage

conditions, and transportation rules. It also specifies environmental and safety requirements.

Additionally, to monitor reserves of mineral resources, companies engaged in the oil industry must submit annual reports regarding resources reserves used in the past year.

On 14 August 2014, the Uzbek Cabinet of Ministers approved a regulation forming the exploration programme of the NHC Uzbekneftegaz No. 230. The long-term exploration programme determines the main directions of development for the geological sector. The annual exploration programme includes geological exploration to search for oil and gas reserves given the target parameters (direction, stage, types and exploration volume, expected outcomes, the amount of the planned appropriations by indicating the sources of their funding) for each project, as well as the expected timing of their implementation.

On 4 March 2015, a Program of Measures to Secure Structural Reforms, Modernization and Diversification of Production for 2015–2019 was adopted by Presidential Decree No. UP-4707. The new programme covers 846 investment projects worth US$40.8bn. It is expected that the share of the industry in the country's GDP will increase from the current 24% to 27% in 2020.

According to Decree No. UP-4707, the consistent modernisation of existing facilities and the creation of new power-generating facilities is expected on the basis of the introduction of resource-saving and modern combined-cycle plants of solar technologies.[13]

The government of Uzbekistan is paying special attention to the development of the low-carbon sectors of the economy. On 5 May 2015, a Programme of Measures was adopted by Presidential Decree to reduce energy intensity, implement energy-saving technologies and systems both in different sectors of the economy and in the social sphere during 2015–2019. The programme outlines key directions for the implementation of energy-saving technologies and energy reduction programmes, whilst also promising tax benefits to entities producing energy from alternative sources.

Judicial decisions, court judgments, results of public inquiries

Judicial practice is not publicly available in Uzbekistan, and we are not aware of cases where the Uzbek courts have interpreted matters relating to the energy sector. However, we should note that electricity tariffs have been escalating over the last decade, raising concerns on the part of investors regarding increases in production costs. Some foreign investors whose disputes with the government have been brought before different arbitration forums intend to file claims for damages relating to the unilateral increase in electricity tariffs.

Major events or developments

Key events in the oil and gas sectors in Uzbekistan during the last year include the following:

In 2016, Gazprom International decided to increase the amount of natural gas purchased in Uzbekistan. It is expected that in 2016, Gazprom will export more than 3.1 bcm of gas from Uzbekistan.[14] The Russian oil company Lukoil already increased its investments in the exploration and production of gas in Uzbekistan by 38.3% in January-September 2015 compared to the same period in 2014, specifically from US$549 million to US$759m, according to the company. In the third quarter of 2015, the company's investments in Uzbekistan amounted to US$263m compared to US$248m during the third quarter of 2014.

Kossor Operating Company OJSC, a wholly owned subsidiary of PetroVietnam Exploration & Production (PVEP) in Uzbekistan, has suspended its exploration work at the Kossor investment block in the country's Ustyurt region. It was announced that the work had been

suspended due to adverse oil and gas market conditions.[15] The licence and exploration agreement between PVEP and Uzbekneftegas was not terminated; however, it was not clear for how long the exploration would remain suspended.

NHC Uzbekneftegaz decided to invest some US$200m in geological prospecting to find heavy oil in the south and east of Uzbekistan. NHC Uzbekneftegaz has already started to look for heavy oil and bitumen in the Korsagly-Dasmamagin area and the Besharcha block in the Surkhandarya district, as well as in the Fergana area in the east of the country. NHC Uzbekneftegaz believes that it will be possible to produce at least 100,000 more tonnes of oil *per annum* in those areas after the works' completion.

NHC Uzbekneftegaz opened two fields with hydrocarbon reserves of about 20 million tonnes of conditional fuel in the first quarter of 2014. According to the holding, recoverable hydrocarbon reserves in Uzbekistan make up over 2.5 billion tonnes of conditional fuel as of 1 January 2014, of which 65% pertains to shale gas reserves.

In June 2014, it was announced that the Asian Development Bank (ADB) had decided to expand its portfolio in Uzbekistan and allocate a loan worth US$300m to upgrade Uzbekistan's Takhiatash TPP. The project envisages the construction of two new energy-efficient combined-cycle gas turbines of up to 280 MW each, while decommissioning three existing steam turbine units. Uzbekenergo has issued tender offers for construction and consultancy services relating to this project, the results of which are yet to be announced.

NHC Uzbekneftegaz intends to build two combined-cycle gas turbines (CCGTs) at the Syr-Darya TPP, the largest in Central Asia, with a total capacity of 900 MW. It is assumed that the new CCGTs will be built to replace retiring-from-service NN 3, 4 and 5 units. Their total capacity is now the same 900 MW.

NHC Uzbekneftegaz also intends to begin construction on the second CCGT at the Navoi TPP with a capacity of 450 MW. The project cost is estimated to be US$547.2m.

The Russian company 'Power Machines' was chosen for the modernisation works of three hydro-generators at Charvak hydropower plant (HPP), which has a capacity of 155 MW, replacing the stator's winding on the hydro-generators and installing new feed systems on them. Earlier this year, it was reported that "Power Machines" had completed the modernisation of the Charvak hydropower plant (HPP).[16] Charvak HPP is the largest hydropower plant in the Chirchik-Bozsu cascade of hydropower plants.

In addition, the hydro-mechanical part of the regulators and oil pressure units were modernised on all four hydraulic units. The capacity of each hydraulic unit is set to increase from 155 MW to 175 MW, which will provide an opportunity to generate an additional 120 million kilowatt hours of electricity annually. The project is believed to have cost US$53.79m.

The Russian oil company Lukoil has commenced the implementation of the active phase of the Kandym Early Gas Project for the construction of a gas processing plant (GPP) and the arrangement of the Kandym group of deposits in the Bukhara region worth US$2.66bn. The GPP will be built by 2019 with a projected capacity of 8.1 bcm of gas per year. It is planned that, in the initial stage of the fields' operation, 2.2 bcm of gas will be produced annually and transported to the Mubarek Gas Processing Plant.

Moreover, Lukoil has started testing the operation of two preliminary gas processing terminals (PGPTs) in the area of North Shady, and deposits in Kuvachi-Alat in the Bukhara region of Uzbekistan, as part of the "Early Kandym gas" project. The total capacity of the units is 2.2 bcm of gas per year. The launch of the new facilities will allow Lukoil to significantly increase the volume of gas produced in Uzbekistan.[17]

Lukoil has also reported that it is in talks with South Korean agencies to raise US$2bn in order to finance these projects in Uzbekistan.[18]

"Uzbekneftegaz" and Chinese CNPC will begin the construction of the fourth line of the Uzbek section of the gas pipeline "Central Asia-China" at a total cost of US$800m. The gas pipeline, with a capacity of 20 bcm of gas, is planned to be put into operation in 2017.

Uzbekenergo has also completed the construction of the external power supply Ustyurt gas and natural gas chemical complex, worth about US$45m. The project has involved the construction of a substation with a capacity of 220 kW. Construction is financed by Uzbekenergo's own funds and Uzbek banks. The capacity of the natural gas chemical complex will allow 4 bcm of natural gas to be processed per year, along with the production of 400,000 tonnes of polyethylene and 100,000 tonnes of polypropylene. The total cost of the project is US$4.2bn.

There are plans to explore and extract hydrocarbon deposits in the Uzbek part of the Aral Sea. The preliminary costs of this project for 2017–2031 amount to US$300m.

Proposals for changes in laws or regulations

As proposals for regulatory reforms are not widely discussed in public, we are not aware of any reforms in this sector. We may, however, expect new legislation in the area of renewable energy, particularly solar and wind energy. It is unlikely that Uzbekistan will be in a position to develop public-private partnership laws or laws in relation to Independent Power Producers in the short term. There is a proposal to develop the draft of a law on alternative sources of energy for the parliament to adopt, but this initiative has not yet materialised.

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Endnotes

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Umid has 20 years of legal experience in five jurisdictions. As a partner, he co-heads the firm's Energy & Subsoil Group and works with inbound foreign investors and multilateral institutions, providing them with integrated legal, tax and business services in Central Asia.

Umid has been focusing on the subsoil sector, advising on multi-billion dollar investment and project finance transactions related to upstream, midstream and downstream petroleum operations, mining, cement and petrochemical industries in Uzbekistan, Kazakhstan, Kyrgyzstan, Turkmenistan and Tajikistan. Umid has also been advising foreign investors on large-scale automotive, textile and medical/pharmaceutical projects. Recently he has also been advising foreign clients on investor-state arbitrations.

Umid is recognised as a "top-ranked" or "leading" energy lawyer by *Chambers Global* 2006–2016, *The Legal 500, Who's Who Legal, PLC: WhichLawyer* and *BestLawyers*.

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Ravshan previously worked for a major international London-based law firm. He has considerable experience in the petroleum and subsoil sector, advising on a wide range of issues related to upstream, midstream and downstream operations, petrochemical, textile, pharmaceutical and automotive projects. In addition to serving clients in Uzbekistan, Ravshan has been actively involved in projects in Kazakhstan, Turkmenistan, Tajikistan and Kyrgyzstan. Ravshan is admitted to the New York Bar.

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