December 10, 2024

Exceptional Kashagan – Terms and Prospects

Introduction

The Kashagan oilfield, located offshore in the northern Caspian Sea, is one of Kazakhstan's most significant energy assets and a cornerstone of its oil production. It is the second-largest producer in Kazakhstan by volume but holds the largest reserves, accounting for almost half of the country's recoverable oil reserves.

Operated by the North Caspian Operating Company [NCOC], Kashagan significantly contributes to the country's oil reserves and output, alongside other major oilfields like Tengiz and Karachaganak. The Production Sharing Agreement for Kashagan [PSA], extending until 2041, provides a long-term framework for international collaboration. However, the Kashagan development project [the Project] faces challenges, including technical complexities, arbitration disputes, and the need for continued investment to ensure its success. Currently, the Kazakhstan government is engaged in arbitration with the consortium of Kashagan investors [the Consortium], having filed arbitration claims totaling to over $160 billion.

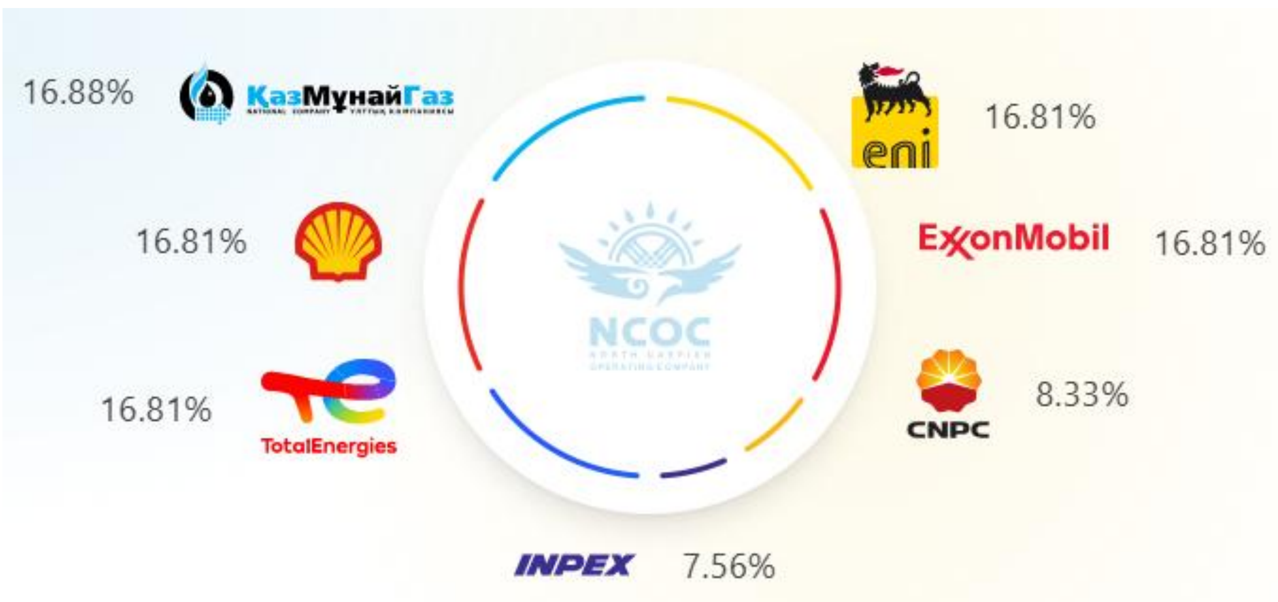
The development of the Kashagan oilfield not only contributes to the national budget but also plays a crucial role in unlocking the growth potential of the country's natural gas industry. Thus, the upcoming Kashagan-related expansion projects [1 and 2.5 bcma, Phases 2B and 3] hold strategic significance for the country as the source of natural gas for increasing internal demand by population and petrochemistry. However, delays in decision-making regarding these projects hinder the ability to meet these needs and, when considering the time value of money, negatively impact the Project's economic attractiveness.

Additionally, the terms of the PSA often become subjects of speculation both online and within the walls of the Parliament, making it crucial for the people of Kazakhstan to understand the Project's specifics, benefits, and potential. Addressing these issues is crucial for maintaining Kashagan's role in Kazakhstan's economic growth and energy security.

Kashagan and its footprint in Kazakhstan

Kashagan is operated through NCOC by a consortium of international oil companies. The Project's investors include KazMunayGaz, TotalEnergies, Shell, ExxonMobil, ENI, CNPC, and Inpex.

The oilfield's technical complexity, including shallow water depths, high reservoir pressures, and high concentrations of H2S and CO2, presents unique challenges. These factors necessitate the construction of artificial islands and specialized infrastructure to manage the harsh environmental conditions and technical demands. The oilfield's location in the northern Caspian Sea, with water depths of only 10 meters, requires complex engineering solutions. Given that the Caspian Sea is a drainless water body, it is crucial to approach the construction of engineering structures with great care to prevent accidents, as the Caspian Sea, unlike an ocean, cannot naturally cleanse itself. The presence of high-pressure reservoirs, with pressures exceeding 75 megapascals [11,000 psi], demands advanced drilling techniques and robust infrastructure to ensure safety and efficiency. The high concentrations of H2S and CO2 in the well stream fluids pose additional risks, necessitating the use of corrosion-resistant materials and comprehensive safety protocols to protect personnel and equipment.



Source: NCOC's official website

NCOC is Kazakhstan's second largest oil producer behind [Tengizchevroil [TCO]](). Kashagan's oil production started on September 11, 2013, marking a significant milestone for one of the world's largest oilfields. However, shortly after the commencement of production, operations were halted in October 2013 due to critical technical issues. The primary reason for this interruption was the discovery of gas leaks in the pipelines used to transport oil and gas from the offshore oilfield to the onshore processing facilities.

The extensive pipeline replacement and the need to address other technical challenges delayed the resumption of production until November 2016. During this period, the Consortium focused on enhancing the oilfield's infrastructure to prevent similar issues in the future. The delay also allowed improvements in the oilfield's operational reliability and safety measures, ensuring that it could be sustained when production resumed without further interruptions.

In November 2016, the Kashagan oilfield successfully restarted production, initially from four wells, with output gradually increasing as more wells were brought online. This cautious approach was necessary to ensure that the new infrastructure could handle the oilfield's challenging conditions and to prevent any recurrence of the issues that had previously halted production.

Oil production, mln tons	2016	2017	2018	2019	2020	2021	2022	2023
Kazakhstan	78	86	90	91	86	86	84	90
NCOC	1	8	13	14	15	16	13	19
NCOC's share, %	1%	10%	15%	16%	18%	19%	15%	21%

Source: compiled by ENERGY Insight & Analytics

There were no unplanned disruptions to the company's operations after the production restart, and the company clearly demonstrates an upward trend in its production levels with its market share expanding among Kazakhstani players. During the last full fiscal year, NCOC produced almost 19 million tons of crude oil, which was around 21% of the country's total output. NCOC's recoverable crude oil reserves [A+B+C1+C2 categories of Kazakhstan's classification] were 2.1 billion tons as of December 31, 2022. With the 2023 production level, the Reserves-to-production ratio is around 111 years. Kashagan oilfield is by far the largest in Kazakhstan in terms of oil reserves, representing 47% of the country's total recoverable reserves. To add more context, the country's largest oil producer's, TCO's, recoverable crude oil reserves are notably smaller at 936 million tons. NCOC's natural gas recoverable reserves are also by far the largest in Kazakhstan at 1.57 trillion cubic meters [55.3 trillion cubic feet] as of the end of 2022, which is around 42% of Kazakhstan's total natural gas recoverable reserves.

Being Kazakhstan's second-largest oil producer with by far the largest reserves makes Kashagan a vital asset for our country's economy. Despite all the positives, it is also crucial to mention that there are also large litigations between the Kazakhstan's government and the Consortium. The Government has arbitration claims against international companies involved in the oilfield's development totaling over $160 billion. These claims include $15 billion in contested recoverable costs and an additional $138 billion for lost profits due to unmet oil production targets. The Ministry of Energy has stated that details of these arbitration disputes are confidential. Additionally, the Ministry of Ecology and Natural Resources is seeking $5.1 billion in fines for environmental violations. The PSA Authority, as highlighted in the September 2024 interview with Beket Izbastin, plays a crucial role in these arbitrations, acting as the authorized body to protect Kazakhstan's interests in the Production

Sharing Agreements for projects like Kashagan. This involvement underscores the importance of PSA in navigating and resolving these complex disputes.

Kashagan Expansion Projects

Despite arbitration disputes between the Government and the Consortium, the Project goes on and there are ambitious expansion plans, which are divided into several phases of expansion. There are four key projects, and the first two are linked to building new gas processing plants, which are expected to be completed by QazaqGaz in partnership with the Qatari company UCC Holding.

The first of these projects involves the construction of a state-of-the-art gas processing plant designed to handle 1 billion cubic meters of commercial gas annually [1 bcma], where 75% share is acquired by UCC Holding. This development is expected to yield an additional 0.9 million tons of oil each year, marking a substantial increase in output.

Building on this momentum, Phase 2A is set to further enhance production. By channeling an extra 4 billion cubic meters of raw gas to a facility capable of processing 2.5 billion cubic meters of commercial gas per year, this project anticipates an additional 2.3 million tons of oil annually.

These developments align with our conclusions expressed in the article "Natural Gas – Kazakhstan's Great Expectations" where we highlighted that constructing such plants will significantly help unlock strong growth potential to boost gas production with plans already in place for gas chemistry and increased domestic consumption. Without these developments, the only viable alternative would be increased gas imports abroad.

Looking ahead, Phase 2B is in the planning stages, and UCC Holding from Qatar has signed a memorandum of understanding to jointly work on Phase 2B as well.

Meanwhile, Phase 3 remains in the conceptual phase, aiming to tap into the remaining untapped oil and gas reserves, ensuring the long-term viability and productivity of the Kashagan oilfield.

Kashagan Fiscal Regime

Disclaimer: the terms of Kashagan's PSA are not disclosed by its counterparties. The exact amounts of investments and other specifics of the Project's execution are unknown. The *information presented in this analytical article about the Project and its cash flows is prepared based on open-source information, including statements by officials related to the Project.*

A PSA [Production Sharing Agreement] is a contractual framework used in the oil and gas industry, where an international investor finances the exploration and development of a resource, such as the Kashagan oilfield in Kazakhstan. Under a PSA, the investor recovers their costs from the revenue generated by the project, and the remaining profit is shared between a government and an investor. This arrangement is designed to attract foreign investment by offering a structured method for cost recovery and profit sharing. In contrast, a subsoil use contract typically involves a direct lease or license to extract resources, with the investor paying royalties and taxes to the government but retaining ownership of the extracted resources. PSAs, like the one for Kashagan, often include specific terms for cost recovery and profit sharing, making them more complex and tailored to large-scale projects. The Kashagan PSA, for example, includes provisions for royalties, cost oil, profit oil, and income tax, with specific triggers that adjust the profit-sharing ratio over time.

The Kashagan fiscal regime is a comprehensive framework that dictates how revenues and profits from oil production are shared between the Consortium and the Government of Kazakhstan.

Initially, the Consortium pays royalties [priority payment] to the Government, calculated based on the total volume of oil produced. These royalties vary with the price of oil, ranging from 3.5% at $45 per barrel to 12.5% at $195 per barrel and above, based on 2007 prices and adjusted annually for U.S. dollar inflation. For instance, in 2023, the rates ranged from 3.5% at $66 per barrel to 12.5% at $286 per barrel and above.

After royalties, the Consortium receives 80% of the remaining oil as Cost Oil to cover operational and capital expenses, including an uplift. This share decreases to 55% once initial investments are recovered. The uplift is calculated as LIBOR + 2.5% [ranging from 2.8% to 8.0% annually] and is applied to the outstanding balance of unrecovered costs, functioning similarly to compound interest in project financing.

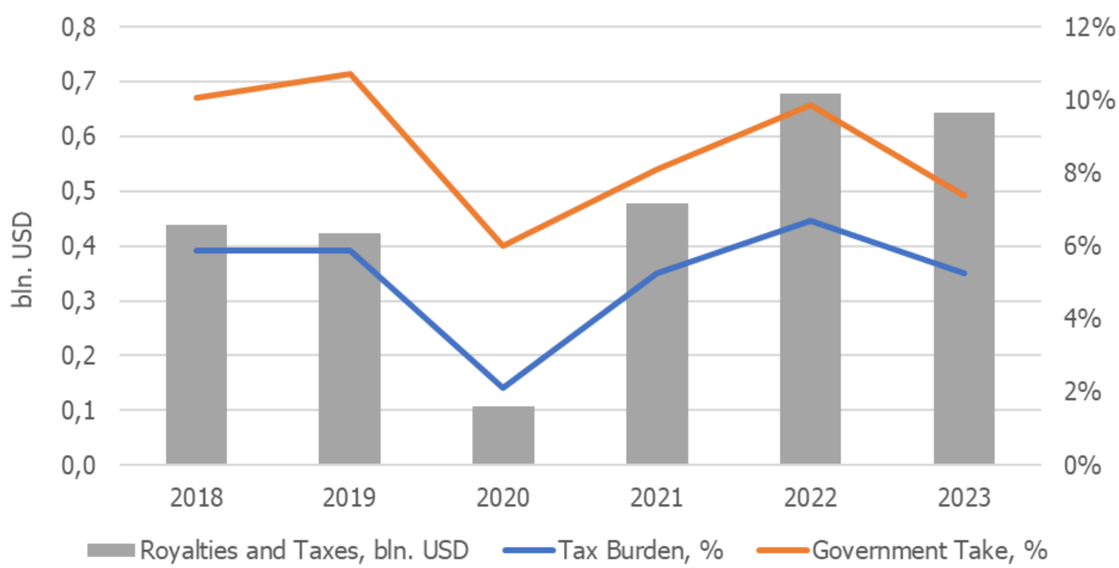
The remaining oil, known as Profit Oil, is initially split 10% to Kazakhstan and 90% to the Consortium. However, the Government's share increases based on three triggers: the Internal Rate of Return [IRR], Project's production volume, and the R-Factor [nominal project payback]. For example, Kazakhstan's share remains 10% if the IRR is 17% or less, increasing to 90% as the IRR rises from 17% to 20%. If the IRR exceeds 20%, Kazakhstan's share will remain at 90%. Similarly, the Kazakhstan's share increases with cumulative production and cash flow ratios, subject to certain conditions.

Finally, the Government levies a profit tax on the Consortium's share of Profit Oil, ranging from 30% to 60%, depending on the IRR.

Beyond these revenue-sharing mechanisms, the Government also holds a 16.877% stake in the Project through the national oil company, KazMunayGas.

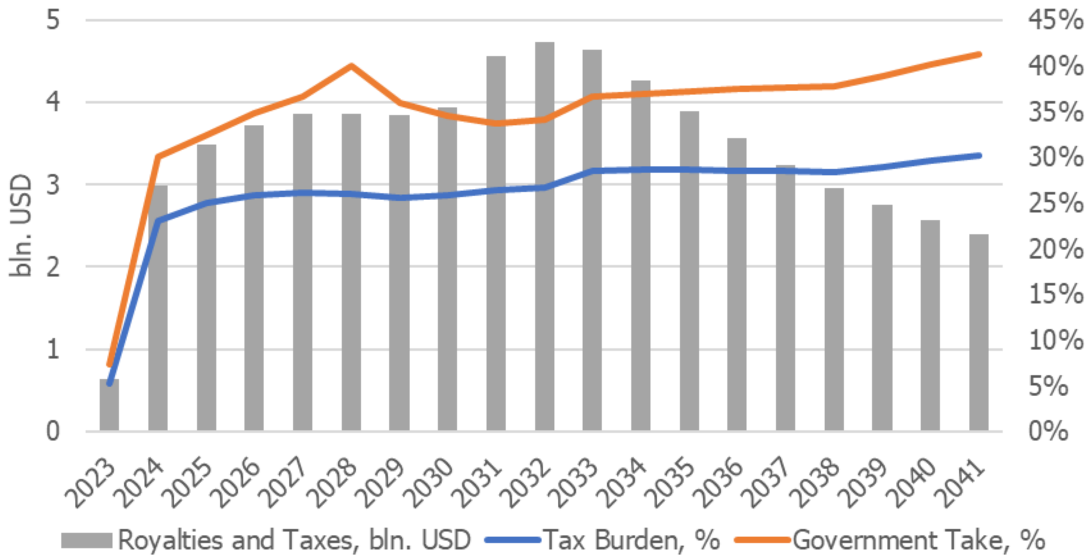
Kashagan and Government Take

As we saw in one of our previous articles, Tengizchevroil and Karachaganak Petroleum Operating [KPO] are by far the most significant contributors to the country's budget. Despite its scale and the status of a company with the largest oil and natural gas reserves, the Project's Tax Burden and Government Take from the Project are still relatively modest. Tax Burden is calculated as the sum of royalties and taxes divided by revenue, while Government Take is the sum of royalties and taxes divided by the divisible cash flow [Revenue – Operational Expenses – Capital Expenditures].



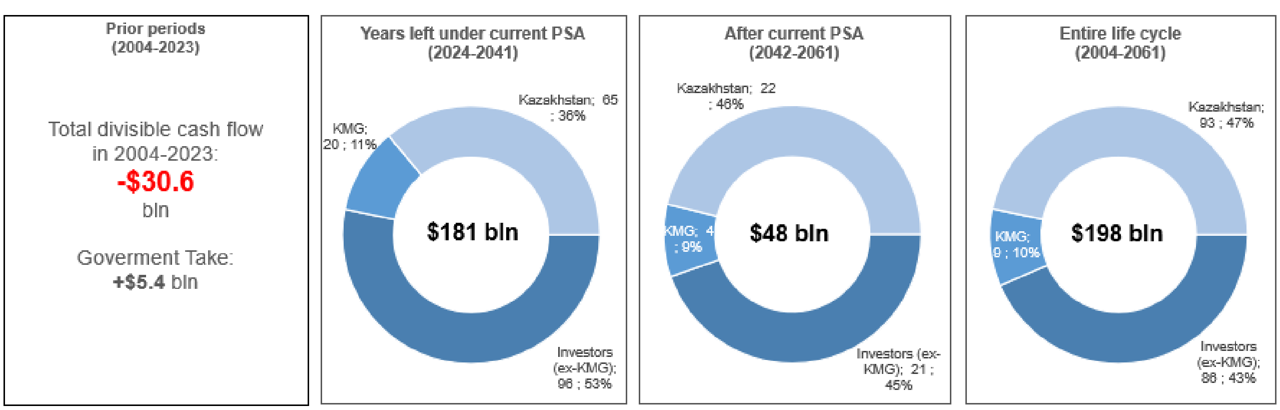
Source: compiled by ENERGY Insight & Analytics

The Project's modest Tax Burden of ~5% in 2023 is temporary. This is because the company has not yet reached the indicators, or "triggers," that would result in a higher Tax Burden. A sharp increase in taxes is expected in 2024 due to the activation of the profit tax, as members of the Consortium had not been paying it until 2023 because of accumulated losses, which (as per our calculations) have now been exhausted. The Project's Tax Burden is anticipated to gradually increase upon reaching triggers, peaking at 30% closer to 2041. Government Take is also expected to show an upward trend between 2024 and 2041, which will benefit the country's finances.



Source: compiled by ENERGY Insight & Analytics

The divisible cash flow to the Government and the Project's investors are detailed in the pie charts below, segmented by the Project's conditional stages. During the historical period from 2004 to 2023, the revenue from oil sales amounted to $55 billion, while capital expenditures were $58 billion and operating expenses were $28 billion, resulting in a total distribution of around -$30.6 billion. Government Take to the Republic of Kazakhstan was $5.4 billion during this time. From 2024 to 2041, the period until the end of the PSA, the total divisible cash flow is projected to be $181 billion. In the post-PSA period from 2042 to 2061, the divisible cash flow is projected at $48 billion, so in the Project's development period from 2004 to 2061, the divisible cash flow is expected to total $198 billion. Assessed values of the indicators mentioned above are valid in case of the successful execution of 1 bcma and Phase 2A projects.



Source: compiled by ENERGY Insight & Analytics

Based on our calculations, Kazakhstan has received $5.4 billion from the Project by 2023, including $1.1 billion from its share of Profit Oil, $1.7 billion in priority payments, $1.9 billion in bonuses, and $0.7 billion for social and infrastructure projects. Notably, Kazakhstan did not invest financial resources into the Project besides cash calls from its stake through KazMunayGas.

The details of the calculations presented above, including the projected production profile of NCOC, specific performance indicators, and assumptions regarding key macroeconomic indicators, are provided in the Investment Potential section of our analytical report Kazakhstan Energy Outlook 2024.

The Bottom Line

Kashagan is a vital asset for Kazakhstan, both economically and strategically. To unlock its full potential, resolving existing disputes and attracting new investments is crucial. By fostering a favorable investment climate and addressing stakeholder concerns, Kazakhstan can ensure that Kashagan continues contributing to its economic growth and energy security. The Project success will depend on effective collaboration between the Government and international partners, ensuring that the benefits of Kashagan are shared equitably and sustainably.

Resolving arbitration disputes through proactive negotiation and transparent communication is essential to minimize NCOC operational disruptions. Enhancing the investment climate with regulatory stability and incentives for innovation will attract additional foreign investment and encourage sustainable practices. Continued investment in infrastructure and safety protocols will address the oilfield's technical complexities and ensure safe operations. By implementing these strategies, Kazakhstan can maximize the benefits of the Kashagan oilfield, ensuring its long-term viability and contribution to the country's economic and energy security.

ENERGY Insights & Analytics

Analytical center "ENERGY" LLP (ENERGY Insight & Analytics) is a joint venture between the KAZENERGY Association and IT company AppStream. The company aims to become a priority source of data, analytical information, and recommendations for Kazakhstan's oil, gas, and electric power industries, allowing decision-makers to analyze and predict the most significant industry indicators with details on leading market players. Activities of ENERGY Insight & Analytics incorporate the whole analytics cycle with consequent stages: Descriptive, Diagnostic, Predictive, and Prescriptive analytics.

The key tool and product of ENERGY Insight & Analytics is internally developed software - the Analytical Platform EXia, aimed to identify, localize, format, and present data most efficiently for the specified use cases.

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www.exia.kz

info@exia.kz

https://www.linkedin.com/company/energy-insight/

10 D. Kunayev street, Astana, Kazakhstan