The fiscal implications for Kazakhstan of worldwide transition to a greener global economy
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ABSTRACT

Fulfilling the energy and climate change commitments embodied in the UN’s Sustainable Development Goals and the Paris Agreement will require a worldwide shift from fossil fuels to low-carbon energy.

With a focus on the oil and gas sectors, this paper analyses the fiscal risks that a global transition of this kind could pose for Kazakhstan, a country where oil accounts for roughly 50 per cent of exports and is a major source of government revenue.

In the period to 2040, a scenario in which there is worldwide adoption of greener energy practices in line with the SDGs and the Paris Agreement (transition to a “green” global economy) could lead to an overall drop of around 40 per cent in Kazakhstan’s fiscal revenues, relative to a “business as usual” scenario. This “green” transition could also lead to unsustainable levels of debt and potentially to depletion of the country’s national savings from oil within the next decade. This could occur despite a rapid increase in oil production through the Kashagan and Tengiz oil fields and their relatively low marginal costs of extraction. The most significant fiscal impacts of a transition to a greener global economy are projected to occur in the 2030s, suggesting that there is a window of opportunity in which Kazakhstan could take action to address these impacts.

A number of policy responses could offset the negative fiscal impacts and all of them build on the government’s current priorities. These responses are (i) structural transformation of Kazakhstan’s economy to manage exposure to oil-price shocks, as set out in the country’s development strategies for the periods to 2025 and 2050; (ii) effective management of oil revenues, building on recent announcements about limiting transfers from the National Fund of the Republic of Kazakhstan; (iii) fiscal consolidation to reduce the non-oil fiscal deficit to sustainable levels in the medium term; and (iv) the enhancement of medium and long-term fiscal planning. These four policy responses are prudent, given that they make sense in all three scenarios modelled in this paper for future states of the global oil and gas markets. Furthermore, they would build fiscal resilience to lower oil prices even lower than those that have been modelled here – which is important as the precise evolution of future global oil and gas markets is beset with uncertainty.
In the early 1990s the EBRD regions had the highest levels of carbon intensity per unit of economic output in the world. This was a legacy of central planning, with its polluting industries, cheap energy and chronic environmental neglect.

Since then, GHG emissions in these economies have fallen markedly but they remain above the levels seen in comparable emerging markets elsewhere in the world. This fall has been the result of the restructuring that underpins the shift to open-market economies, price and regulatory reforms, greater economic efficiency and improved environmental regulation.

In the context of the UN’s Sustainable Development Goals and the climate change commitments of the Paris Agreement, the EBRD regions will need to reduce GHGs even further. These economies will also need to deal with the impacts of climate change and overcome other environmental challenges.

Increasingly, countries acknowledge that it is in their long term self-interest to act, realising that the benefits of addressing climate change outweigh the economic costs. To support these aims, in 2015 the EBRD launched its Green Economy Transition approach, which seeks to increase the Bank’s green financing to around 40 per cent of its total annual investment in the period to 2020.

As countries become greener, economic activity and global markets will change, including what we consume and the way we produce goods. This shift will present opportunities in clean energy, low-carbon transport and energy efficient manufacturing.

However, the highest cost of these market adjustments is likely to fall on the countries that rely most heavily on fossil fuels, either due to their large fossil fuel reserves or their reliance on energy-intensive industries. In a world where the future of fossil fuels is increasingly uncertain, as the latest International Energy Agency (IEA) World Energy Outlook indicates, governments that own large reserves are particularly likely to face the risk of such assets becoming “stranded”. This will have substantial implications for their revenues and hence for their fiscal position.

The “macro relevance” of this issue is well recognised and the issue has been raised by the IEA, the IMF and the OECD. In 2015, the EBRD also set out broadly the scale of these risks and opportunities for its regions in a report titled “Government assets: risks and opportunities in a changing climate policy landscape”. Now, our new publication, “The fiscal implications for Kazakhstan of worldwide transition to a greener global economy”, we have built on the 2015 report to develop a deeper understanding of the fiscal risks and opportunities that Kazakhstan – a major fossil fuel exporter in the EBRD regions – faces as the world move towards a greener global economy.

This report shows that while a worldwide transition of this kind may present significant fiscal risks, the country has time to adapt. Indeed, the government has already prioritised many of the actions required to deal with these risks, – including supporting economic diversification, improving fiscal management and supporting Kazakhstan’s own transition to a green economy.

I would like to thank the Ministry of Finance of Kazakhstan, which has supported us in the joint endeavour of examining these risks and exploring how the country could address them.

Mattia Romani – Managing Director, Economics, Policy and Governance Department, EBRD
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Kazakhstan has experienced strong GDP growth since the early 2000s. This growth and the related increase in prosperity have largely been due to the country’s abundant natural resources, including oil, gas, uranium and copper. Oil, in particular, remains a critical component of Kazakhstan’s wealth, accounting for more than 50 per cent of exports and a large percentage of total government revenue. By the end of 2017, these resources had allowed the country to accumulate in its sovereign wealth fund – the National Fund of the Republic of Kazakhstan (NFRK) – national savings equivalent to around 40 per cent of GDP.

To build on this progress, the government recognises the need to develop a more diversified, competitive and sustainable economy in its ambition to become one of the 30 most developed countries in the world by 2050. This goal is aided by national strategies outlined in state publications such as “Kazakhstan 2025” and “One Hundred Concrete Steps to Implement Five Institutional Reforms”. Moreover, recent acceptance as a member of the World Trade Organisation demonstrates the country’s further progress on the international stage. As part of its National Concept for Transition to a Green Economy, Kazakhstan is also committed to making the country’s economy greener, aiming to reduce domestic greenhouse gas emissions and significantly increase the use of renewables.

However, Kazakhstan’s development will also need to factor in changing conditions that lie ahead in the global market for fossil fuels. A number of factors will shape these markets in the coming decades, including technological progress, global economic conditions and the extent to which other countries realise the ambitions of moving to a green global economy as set out in the Paris Agreement and the UN’s Sustainable Development Goals (SDGs).

These developments are beyond Kazakhstan’s control and difficult to predict. However, falling oil and gas prices in 2014 and 2015 and their subsequent rebound have shown that the extent to which Kazakhstan can adapt to future shifts in these external conditions will have significant economic and fiscal consequences.

Given these potential changes in global markets for fossil fuels it is important that Kazakhstan plans for a broad range...
of outcomes for its domestic economy. There is a window of opportunity of around a decade, before the largest impacts of a worldwide green economy transition are likely to be felt in public finances. Now is the time to plan and to start a well-ordered modification of domestic policies, rather than adjusting them in the wake of a shock event.

Against this backdrop, and with a focus on how global fossil fuel markets could potentially evolve in the period to 2040, this paper explores two questions:

1. What are the risks to Kazakhstan’s fiscal position and assets from changing global market conditions for fossil fuels linked to a transition to a greener global economy?
2. How can Kazakhstan best overcome these risks and benefit from the worldwide transition to a greener global economy?

**RISKS**

Kazakhstan is exposed to a number of fiscal risks that will become more pronounced if a greener global economy leads to lower-than-expected global prices for oil and gas.

Given the importance of oil to the economy, there is a clear link between global markets for fossil fuels and the country’s fiscal position. In the wake of the oil price shocks of 2014 and 2015, Kazakhstan maintained an accommodative fiscal policy to support economic activity, with government revenues from oil funding wider expenditure and multi-year expenditure commitments. Over the past decade, the government has tended to run a non-oil fiscal deficit of around 8 per cent of GDP. However, in 2015 and 2016 the non-oil deficits were 12 per cent and 10 per cent respectively, as Kazakhstan maintained a number of economic support measures.

While the government has fiscal flexibility, it has acknowledged that without fiscal consolidation the current approach may become unsustainable.

In 2017, Kazakhstan had a gross government-debt-to-GDP ratio of around 20 per cent and maintained a strong overall fiscal position through the NFRK. However, renewed oil price shocks and continued high fiscal deficits could erode the country’s savings and reduce its fiscal flexibility. While in 2017 Kazakhstan’s net financial assets (the stock of government assets, including those held in the NFRK, minus the gross stock of government debt) were positive, at 16 per cent of GDP, without further fiscal consolidation and a sustainable level of non-oil fiscal deficit of around 5-7 per cent of GDP, net assets could become negative within a decade. Indeed, the IMF projects that at current global oil prices which are relatively high – even with successful fiscal consolidation and no significant depletion of the sovereign wealth fund – the ratio of gross government debt to GDP will fall before rising to 20 per cent by 2022, as Kazakhstan continues to run fiscal deficits.

In the long run, prevailing market conditions which lead to lower oil and gas revenues could adversely impact fiscal resources. This could affect Kazakhstan’s long-term development, given its need for significant and sustained public expenditure. Indeed, there are likely to be significant changes in global energy markets and fossil fuel industries over the next few decades. In this regard, the International Energy Agency (IEA) has developed various scenarios of energy markets, taking a view on the future evolution of the oil and gas sectors. This research in this paper builds on these IEA scenarios, combining short-term predictions from the IMF for 2016-22 with the longer-term predictions of the IEA to assess the impact of three global energy transition scenarios on the fiscal position of Kazakhstan. The three scenarios examined in this paper are:

- **business as usual (BAU)**, a scenario which considers the impact of policies enacted as of mid-2017 and foresees oil prices reaching US$ 136 per barrel (in 2016 prices) by 2040
- **a “green” scenario**, in which there is a worldwide transition to a green global economy, with global carbon emissions and fuel use consistent with achieving the goals of the Paris Agreement and the SDGs, and resulting in oil prices of around US$ 65 in 2040
- **a scenario of worldwide transition to a “partially green” global economy** that represents a potential middle-ground between the two scenarios above, is based on policies that countries had announced as of around mid-2017, and in which oil prices could reach around US$ 110 in 2040.

Based on this paper’s assessment of the fiscal impacts of these three scenarios, a worldwide shift to a green global economy would have a material impact on Kazakhstan’s public finances (see Chart ES.1) but it would not be catastrophic, for the four reasons outlined below.

- (Government revenue from oil would be expected to grow in all scenarios as production in the Kashagan and Tengiz fields increased from around 500 million to 700 million barrels a year. Under the BAU scenario, average annual growth in government revenue from the oil and gas sectors would be forecast as 6 per cent up to 2040, with total revenues from these sectors falling by 18 per cent and 51 per cent in the “partially green” and “green” scenarios, respectively, due to lower fuel prices
- Under the BAU scenario, revenue increases would enable the government to repay all existing government debt and accumulate additional assets. Under the “partially green” scenario debt levels would remain broadly constant for the next two decades, although there would be no significant increases in net financial assets. This projection is based on the stylised assumptions that expenditure would grow by around 5 per cent a year from 2022 (in line with past trends) and that any deficits would be funded by raising additional debt.
- Even under the scenario of transition to a green global economy there is opportunity to develop appropriate responses. In this scenario, levels of gross debt in Kazakhstan would be expected to reach unsustainable levels, rising to almost 150 per cent of GDP by 2040, with a likely depletion of existing assets in the NFRK which are not large enough to offset the negative fiscal impacts of a green transition. However, under this scenario, gross debt would not rise above 30 per cent of GDP until the early 2030s, hence Kazakhstan could have a window of around a decade in which to put in place measures to build fiscal resilience
- Kazakhstan appears to have lower marginal extraction costs than other countries, and its assets seem unlikely to become stranded at the oil prices used in the “green” scenario, although further and more detailed work would be needed to confirm this view.
However, Kazakhstan should not become complacent. As fossil fuel markets are notoriously uncertain and volatile, the country should also plan for other, more extreme, futures. A lack of structural transformation and the concentration of risk in a single sector will continue to magnify Kazakhstan’s exposure to oil price shocks. Furthermore, there is significant uncertainty about the oil price and more work is needed to better understand the implications for Kazakhstan of very low oil prices (in other words, prices that are even lower than those projected in the “green” transition scenario) and a shrinking market for fossil fuels. A recent study from Stanford University (see endnote 42) predicts that oil prices could be as low as US$ 25 a barrel in 2030, driven by the widespread adoption of disruptive technology such as shared fleets of electric cars. These low prices might not make existing assets uneconomic or lead to the stranding of assets but they would sharply erode the country’s revenues from the sector, with significant consequences for Kazakhstan’s economy and fiscal position.

**RESPONSES AND OPPORTUNITIES**

The scale of the fiscal responses required will depend on prevailing market conditions for oil and gas, with more extreme scenarios requiring larger adjustments. Enhanced fiscal management that supports and complements a wider structural transformation of Kazakhstan’s economy will be required to manage these risks.

The size of the adjustment to fiscal policy and the degree of fiscal flexibility available to the government in the long run will depend on how global oil and gas markets evolve, but also on wider economic and fiscal policies within Kazakhstan. Mechanisms are currently available in the country to manage both the fiscal risks and emerging opportunities of the worldwide transition to a green global economy. The following four areas of focus are required, which build on current government priorities and reform initiatives.

**Area 1: Encourage growth of the non-oil sectors and promote structural transformation of Kazakhstan’s economy.**

It is clear that structural transformation which supports growth in the non-oil economy will reduce reliance on fossil fuels, building resilience to the fiscal risks of commodity price movements. To achieve this will require a number of reforms to overcome binding constraints on growth. These reforms include improving the productivity of firms, enhancing access to credit and increasing levels of foreign direct investment. The importance of these measures has been well recognised already and the government is currently implementing its priorities for structural reform through the “100 Concrete Steps” programme and the recently launched Astana International Financial Centre.

In addition, the government has defined its 2025 development strategy in the “Kazakhstan 2025” plan and is looking to revise its national commitments to a green economy. In the future, the extent to which drivers of economic growth can become greener should be explored across major sectors of the economy including services, industry, and agriculture, in addition to the key sectors that support growth, such as urban infrastructure and energy. Kazakhstan has large scope for reducing the energy intensity of its growth, driven by more efficient use of resources. In addition, the falling cost of renewables can support a greener energy system, potentially allowing the country to export its natural resources, maximise economic gains and strengthen its overall fiscal position.

However, Kazakhstan cannot afford to rely on long-term structural transformation alone to manage the economic risks of a global green economy. Coordinated reform of the country’s fiscal policy and public financial management architecture is therefore crucial in order to better understand and manage the risks of a worldwide transition to a greener global economy, building on the momentum of recent reforms.
Area 2: Manage the NFRK for long-term fiscal sustainability.

Kazakhstan needs more flexibility in the extent to which it can adjust fiscal policy in response to economic shocks and long-term trends. The newly implemented Oil Fund Rule, which restricts the annual consumption of oil revenues from the NFRK to a “guaranteed transfer” of approximately US$ 6 billion is an important step. Moreover, applying transparency in discretionary drawdowns will be crucial to ensure that the fund’s long-term assets are not depleted.

The country could also consider undertaking practices that are relatively novel for sovereign wealth funds. For example, the government could look at developing a “macro hedging” strategy to ensure that the fund also invests in assets that are negatively correlated with fossil fuel prices. Building on the emerging experience of other large sovereign wealth funds (such as those of Norway and Saudi Arabia) the government could perhaps foster sectors that are strategically important to investment and are linked to worldwide transition to green economic activity (such as knowledge-based sectors).

Moreover, the government could also conduct regular spending reviews to assess the impact of fiscal reforms and overall governance of the NFRK to ensure that the current fiscal strategy is fit for purpose in light of the prevailing fiscal and external market conditions.

Area 3: Continue with fiscal consolidation and reduce the size of the non-oil fiscal deficit.

It is important to reduce the non-oil fiscal deficit to sustainable levels. The Government appears to be on track to achieve this goal and has already taken steps to strengthen public revenues and support the business environment through reforms to the Tax Code, with important changes implemented in January 2018. It should continue to monitor closely the impact this has on revenue and consult with taxpayers and the business community to assess the effects of these reforms. Further measures should be explored, including a broadening of the tax base, improvements to tax collection, the introduction of new fiscal instruments (including revenues from the revived emissions-trading scheme) and the optimisation of government investment.

The fiscal regime for the oil and gas sectors seeks to balance revenue generation with incentives for private investment. To ensure optimal use of resources the government should seek to better understand the extent and impact of fossil fuel subsidies. The OECD has estimated that consumer subsidies in Kazakhstan accounted for around 3 per cent of GDP in 2011. During the research conducted for this paper it was not possible to identify the full scale of current subsidies to consumers and producers and thus to determine their distortionary impact. The identification of this impact should be the government’s first step in assessing whether it can remove inefficient subsidies. In addition, other opportunities for introducing environmental taxation should be explored.

Area 4: Enhance medium- and long-term fiscal planning.

In the medium and long term (in other words, beyond the next five years), the focus should be on goal-based policy objectives that align fiscal policy frameworks with development objectives. This would require a systemic change to the current system for managing public finances. The government has already introduced legislation to allow for a medium-term budget framework, but it now needs to develop plans for adoption of tools such as a medium-term expenditure framework (MTEF) and/or performance-based budgeting (PBB) to help manage its expenditure more effectively. This would allow the definition of tax policies and incentives that would stimulate structural transformation and the identification of fiscal measures, including public expenditure, to facilitate domestic transition to a low-carbon economy.

These measures should be complemented with plans to enhance the governance and transparency of public finances and to develop a mechanism — such as an independent committee — for monitoring and managing fiscal risks. Building on the method applied in this report, the government should continue to monitor the potential impacts of a global transition to a green economy, particularly the risks to highly exposed and material assets such as Kashagan. This would require understanding of the contractual arrangements for these assets, which this report does not analyse due to their confidential nature. This could be part of an enhanced approach to budget management, centring on the identification and analysis of fiscal risks under scenarios of uncertainty.
1 Why is transition to a greener global economy of concern to Kazakhstan?

1.1. INTRODUCTION

Economic context

Over the past 10 years, Kazakhstan has experienced strong economic performance, driven by the oil and gas sectors, with average GDP growth of around 5 per cent a year.¹ The country has significant fossil fuel resources which form the backbone of its economy and energy sector.

It is unsurprising, therefore, that growth in the economy of Kazakhstan has been driven by natural resource extraction and fossil fuel exports. The oil and gas sectors make a significant contribution to GDP and have been the basis for economic growth for many years.² Oil and gas also account for a significant percentage of the country’s exports (around 45 per cent in 2016).³ Kazakhstan’s domestic consumption of energy is also highly carbon-intensive: coal accounts for 76 per cent of electricity generation and natural gas 15 per cent.⁴

However, economic growth has slowed markedly in recent years. During the period 2012-16 the country’s growth was a little over half that seen during the period 2007-11. This relative weakness was mainly due to a global decline in commodity prices. The slowdown highlighted how reliance on oil as a driver of the national economy makes Kazakhstan vulnerable to external shocks.

While the non-oil economy remained relatively stable from 2012-16, oil’s contribution to GDP slowed markedly over the same period, resulting in an overall slowdown in the rate of economic growth. In 2016, GDP growth reached was only 1.1%, driven by a contraction of 1.2 per cent in oil’s contribution and a slowdown in non-oil growth.

These shocks have been due to Kazakhstan’s heavy dependence on oil exports. The country’s economy suffered as a result of the sharp decline in oil prices observed from the second half of 2014 onwards: in 2014 the average international oil price was US$ 96 per barrel, but in 2016 it fell to US$ 43
a barrel. From 2013 onwards, the growth of oil-related GDP (the percentage of gross domestic product generated by the extraction and domestic consumption of oil) contracted, largely as a result of the decline in oil prices. Notably, the fall in oil prices led to domestic consumption falling by 1.2 per cent in 2014 and 1.8 per cent in 2015. Kazakhstan also faced reduced external demand for its real exports as a result of other shocks in the main markets to which it exports – China, the European Union and Russia. With the contraction of the Russian economy and a slowing of China’s economic growth, Kazakhstan’s annual growth in real exports was negative throughout the period 2013-16. However, the recovery of global oil prices in 2017, as well as the start of production at the Kashagan offshore oil field, has subsequently accelerated GDP growth in Kazakhstan.\(^7\)

Shocks of the kind seen in 2014 and 2015 can have a significant impact on the exchange rate and balance of payments, given that oil accounts for a large percentage of Kazakhstan’s exports. However, these impacts can be positive as well as negative. For example, a currency devaluation brought about by a fall in the value of exports could boost other exporting sectors, but also make imports less affordable for domestic businesses and consumers.

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<td>Source: EBRD (2017), based on IMF data.(^5)</td>
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<td><strong>Table: Economic Indicators (2013-2016)</strong></td>
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Source: EBRD (2017), based on IMF data.\(^5\)
The fiscal implications for Kazakhstan of worldwide transition to a greener global economy

An overview of the oil and gas sectors in Kazakhstan

Extraction of crude oil

Among the countries of the former Soviet Union, Kazakhstan has the second-largest oil reserves. At the end of 2015, the country had 30 billion barrels of proven reserves, with the most notable discovery in recent years being that of the Kashagan field in 2000 (11 billion barrels of recoverable reserves).

BP has estimated a “reserves-to-production” (R/P) ratio of 49 years in Kazakhstan, based on 2015 proven reserves and production (and assuming that no new discoveries are made (see endnote 42)). Chapter 2 of this report shows estimated production profiles for Kazakhstan.

The oil production sector is dominated by KazMunaiGas (KMG). The firm is 100 per cent owned by Samruk-Kazyna (Kazakhstan’s state-owned enterprise holding company), which in turn is wholly owned by the government of Kazakhstan. KMG has interests in the oil production value chain, including exploration and production, transport and oil refineries. It owns a stake in the majority of Kazakhstan’s oil fields, often partnering with international oil companies that bring their knowledge and expertise to the partnerships.

Two fields currently dominate oil production: Tengiz and Karachaganak. Both of these fields generate revenue for the government under a royalties and taxation regime. In future, the country’s production will be dominated by the Kashagan oil field, which will operate under a production-sharing agreement (PSA).

Extraction of natural gas

The majority of Kazakhstan’s natural gas production originates at the Tengiz and Karachaganak fields, although most of the gas produced at oil fields is reinjected so as to boost oil production. Tengiz has its own gas-producing facilities, which produce most of the gas destined for domestic consumption. Karachaganak delivers its gas to Russia for processing, of which approximately 70 per cent comes back for domestic use, thus incurring significant costs. Production profiles for natural gas are shown in Chapter 2 of this report.

Seventy-four per cent of the proven reserves of gas-condensate are located in the Karachaganak field. BP has estimated that, based on the levels of reserves as of the end of 2015 and the level of production during that year, the R/P ratio for Kazakhstan will be around 75 years, assuming that no new discoveries are made.

According to Rystad Energy consumption forecasts (see Rystad, 2017), domestic demand for gas in Kazakhstan is expected to remain relatively stable, although recent announcements about expanding the provision of gas to the regions (including Astana) could change these forecasts. Most power is provided by coal, which is a relatively cheap fuel (although the current price of coal does not include unpriced externalities), and the industry is a major employer in Kazakhstan.

The extent to which the gas sector could increase its share of domestic energy consumption would depend on the prioritisation of cleaner fuels in the energy mix. Currently, a lack of pipeline infrastructure to transport gas limits the extraction and consumption of gas in Kazakhstan. Most of the country’s gas is produced in the north-western regions and there are few domestic pipelines connecting these regions to the population centres in the rest of the country. In June 2014, the government approved a US$ 3.6 billion project to facilitate the domestic supply of gas. Successful implementation of this scheme will have wide-ranging effects on current projections of domestic consumption but this report does not include them in its own projections.

Kazakhstan is surrounded by significant gas-producing countries, including Russia, Turkmenistan and Uzbekistan, all of which compete for a greater share of the gas supply market. In this regard, construction of the Power of Siberia pipeline from Russia to China, with a capacity of 38 billion cubic metres (bcm), may further hamper Kazakhstan’s efforts to supply more gas. Currently, the country has an allocation of 5 bcm in the Central Asia-China Gas Pipeline, but is unlikely to be successful in obtaining a larger allocation."
The economy is expected to bounce back over the coming years. The IMF projections outlined in Figure 2 show Kazakhstan’s growth rate is expected to improve in the period to 2022 thanks to a rise in oil prices and increased oil production, driven primarily by the Kashagan oil field. According to the IMF, no contraction is expected in consumption, investment, exports or imports, and growth is projected to remain positive from 2017-22 across all of these GDP components – due, in part, to programmes of structural reform and economic diversification. This suggests that the next five years could provide a window of opportunity for Kazakhstan to take advantage of the positive impact of rising oil prices on revenue.

The government aims to address the imbalances in the economy through changes in structural policy. Its major focus has been on diversifying the economy, in order to reduce the country’s vulnerability to external shocks. This is part of the government’s medium-term (“Kazakhstan 2025”) and long-term (“Kazakhstan 2050”) development strategies. As such, the “100 Concrete Steps” initiative has implemented five institutional reforms to help transform Kazakhstan into a diversified modern economy driven by private sector activity.

The EBRD has published its own diagnosis of binding constraints on private sector growth that the country will need to address if it is to unlock its economic potential. The country’s long-term development ambition is for growth to be sustainable. As part of its National Concept for Transition to a Green Economy, Kazakhstan has also committed to reducing domestic greenhouse gas emissions and to significantly increasing the percentage of renewables in the energy mix.

** Contribution of the oil and gas sectors to public finance: government revenue and expenditure**

Periods of high oil prices have allowed the government to generate a regular budget surplus (such as in 2013-14). However, if oil sector is stripped out of the budget balance, Kazakhstan consistently runs a non-oil fiscal deficit. Indeed, in recent years (for example, 2015-17), Kazakhstan has generated overall fiscal deficits due to falling global oil prices.
In public finances, the role of the oil and gas sectors is most prominent on the revenue side of the budget. As Figure 4 shows, until 2014 revenue from the oil sector accounted for approximately 50 per cent of Kazakhstan’s total government revenue. This relationship has created significant exposure to movements in global oil prices, with total government revenue moving in line with oil prices over the period 2013-16.

Global oil price volatility is transmitted to the national budget through two main revenue-side channels.

First, a significant proportion of the oil and gas sectors operates under a system of production-sharing agreements (see Box 2). The structure of a typical PSA would generate direct budgetary exposure to oil price volatility (to the extent that Kazakhstan does not determine global prices or that domestic prices are set in relation to global prices). This occurs because government revenue is generated by the sale of the so-called “profit oil” left after expenditure allowed under the terms of a PSA has been deducted.

Second, the remaining segment of the oil and gas sectors operates under a regime of taxes and royalties. Movements in global oil and gas prices will affect the value of sectoral output (in other words, the tax base), which will, in turn, affect the value of tax revenues. Movement in government oil revenues in response to oil prices has largely been generated by taxation of the oil sector. This is because the oil and gas fields (such as Kashagan) that operate under the PSA regime have only recently started production. As such, the budgetary impact of the sale of profit oil will increase over time as these fields increase their production.

**BOX 2**

**How do production-sharing agreements work?**

Production-sharing agreements are a means of sharing the profit generated from oil and gas extraction between the host government and private sector operators. In the past, PSAs have been used by developing economies and countries in transition that do not have the resources or expertise to develop fields independently.

Although the terms of PSAs are confidential in Kazakhstan, the concept of “profit oil” is at the heart of a typical PSA. Profit oil is usually calculated as follows, but some PSAs include provisions that allow private sector operators to recover the cost of capital expenditure before profit oil is generated:

\[
\text{Profit oil} = \text{Total oil produced} - (\text{Cost oil} + \text{Royalties})
\]

Once profit oil has been generated, profit is usually shared on a progressive scale, with the profit share being set with reference to an agreed profit metric, such as internal rates of return, or ratios of revenues to expenditures or production.

The state’s share of profit oil is in the form of crude oil or the monetary equivalent, although many governments exercise the right to receive the monetary equivalent. The state may then exercise its right to tax the profit generated by the private sector operator. However, under the terms of certain PSAs, taxation rights may be forgone in return for a larger share of profit oil.
Tax revenue from the non-oil economy is also exposed to oil price volatility, albeit indirectly, through the multiplier effect. When oil and gas sector revenues decline in response to falling global prices, the non-oil economy can contract—and indeed this effect was seen during 2013-16 as a result of the oil price shocks. These impacts indirectly contract the non-oil fiscal base, depressing government revenue.

Kazakhstan supports fossil fuel production and consumption through subsidies. In line with most non-OECD countries, the country’s support for the oil and gas sector focuses primarily on consumers and although the government provides no direct consumer subsidies, other forms of consumer support remain, keeping domestic prices artificially low.

However, because these forms of support are not fully disclosed as tax expenditure or other quantified forms of support in the national budget, the level of provision is not easy to quantify in monetary terms. The OECD has estimated the level of support by using a price-gap approach, based on the difference between market prices and the prices that local consumers face. It estimates that for 2011, total consumer subsidies for oil and gas were US$ 3.2 billion and US$ 0.3 billion, respectively. Including consumer support for coal and electricity, the total figure was US$ 5.9 billion, or 3.3 per cent of GDP (an average subsidisation rate of 32.6 per cent). The government provides subsidies primarily through the regulation of local prices, including price-capping and the imposition of export duty or by banning some petroleum products.

Producer subsidies, although estimated to be significantly lower than other forms of support (and inconsequential compared with other areas of state expenditure), are equally difficult to quantify in Kazakhstan. Here, the two main channels of government support are direct support (in the form of grants or concessional loans recognised in either local or central government budgets, and thus a potential source of fiscal risk) and support provided through Samruk-Kazyna. It has not been possible to identify any direct production or price-related subsidies to producers due to the lack of information available. With regard to consumer and producer subsidies alike, periods of relatively low oil price are an opportunity for subsidy reform that is less disruptive than would be the case when prices are high, and to the extent that this support is monetary the government could also use the opportunity to save on expenditure.

Contribution of the oil and gas sectors to public finance: government debt and assets

In response to the sharp decline in global oil prices from 2014-16 government debt levels rose in order to finance—at least partly—the resulting deficit. Kazakhstan’s level of gross debt grew from approximately 17.6 per cent of GDP in 2002 to approximately 21 per cent of GDP in 2016, with the stock of gross government debt rising from KZT 4,537 billion in 2013 to KZT 9,640 billion in 2016. The slight decline in gross government debt as a percentage of GDP between 2015 and 2016 can be explained in part by the growth of GDP outpacing the growth of gross debt and by the flotation of the tenge in 2015. The flotation resulted in a devaluation the tenge relative to other currencies, causing the stock of government debt denominated in tenge to fall in value.

However, the state’s debt position looks different when viewed from the perspective of net government debt (in other words, by offsetting the value of government assets). From this perspective, Kazakhstan is in a position of negative net government debt, with growth in the value of government assets outpacing growth in gross government debt over the period 2002-16 (see Figure 5).

\[\text{General government net debt} \quad \text{General government gross debt}\]

The downward trajectory in net government debt as a percentage of GDP has been driven by the National Fund of the Republic of Kazakhstan (NFRK), which was set up in 2000 as a mechanism to channel hydrocarbon revenues for the purposes of economic stabilisation and diversification, as well as long-term savings. The NFRK is capitalised through direct budget transfers, all government revenues from oil companies (taxes, royalties and production-sharing agreements), privatisation receipts and

* The term “gross government debt” refers to the value of the stock of government liabilities. “Net government debt” is calculated by deducting the value of the stock of government assets from the value of the stock of government liabilities.
investment income from NFRK-owned assets. In return, the NFRK makes “guaranteed” transfers into the state budget to cover development-related expenditure and the cost of stimulus measures to stabilise the economy.19

As with gross government debt, the increase in net debt between 2015 and 2016 can be partly explained by the flotation of the tenge, which had a significant impact on government assets and liabilities denominated in foreign currency (such as foreign currency reserves, global equites and global bonds). The NFRK has grown significantly since it was established, with the total value of the fund’s assets standing at approximately US$ 58 billion as at the end of June 2018.20

In the past, the NFRK has been used to support general fiscal policy, maintaining government expenditure or providing stimulus. Between 2008 and 2010 the value of the NFRK decreased as significant withdrawals were made from the fund to provide economic stimulus during the financial crisis. Later, in response to falling oil prices in 2015, the government initiated a programme of fiscal consolidation. This consisted of a KZT 611 billion (approximately US$ 3.3 billion) cut to the government budget, financed by postponing non-priority investment and freezing public sector salaries.21 The impact of these spending cuts was partially offset by an additional KZT 339 billion disbursement from the NFRK for the Nurly Zhol programme, an economic stimulus package focused on infrastructure development.

In December 2016, a new general framework for the operation of the NFRK was adopted to ensure long-term sustainability and limit transfers from the fund. The “guaranteed transfer” from the fund into the national accounts was reduced from US$ 8 billion to US$ 6 billion and the minimum balance of the fund was increased significantly from 20 per cent of GDP to 30 per cent. Furthermore, in line with the aim of reducing the government’s reliance on oil revenues, a new rule was introduced that required the budget to target a non-oil deficit not exceeding 7 per cent of GDP by 2020, and 6 per cent of GDP by 2025.22 These measures will serve to support long-term fiscal sustainability.

Despite Kazakhstan’s favourable net debt position, without changes to its sovereign wealth fund policy the state’s ability to finance future deficits from anything other than adjustments to revenue and expenditure may have limits. This is because government reliance on debt financing is restricted by relatively poor sovereign-debt ratings. Two of the main credit rating agencies have placed Kazakhstan on the lowest investment-level (pre-junk) rating, with the third agency rating them only one notch above this (albeit with a stable outlook). As of July 2018, Kazakhstan had the following sovereign debt ratings:

- Standard & Poor’s: BBB- (lowest investment grade) with a negative outlook 23
- Moody’s: Baa3 (lowest investment grade) with a stable outlook 24
- Fitch: BBB (second-to-lowest investment grade), with a stable outlook 25

An improvement on the Moody’s outlook in July 2017 reflected a resilience to oil price shocks and the positive impact of recent reforms, but if S&P’s indication of a potential downgrade were to materialise Kazakhstan could face difficulty borrowing and a sharp increase in the cost of borrowing. The reliance on oil and the related risk of price changes are important features in the explanations for these ratings. Over the longer term, the government of Kazakhstan has proposed to address projected budget deficits through spending cuts and tax reforms. Indeed, the country has already embarked on a process of tax reform, introducing a new tax code in 2015 to increase tax revenues as a percentage of total government revenue.
1.2. POTENTIAL IMPLICATIONS OF TRANSITION TO A GREENER GLOBAL ECONOMY

As an exporter, conditions in the international markets for oil and gas have direct fiscal consequences for Kazakhstan.27 These markets will be heavily influenced by the global transition to a green economy as set out in the Paris Agreement and the UN’s Sustainable Development Goals. In the medium and long term this is likely to put downward pressure on global prices for oil and gas, which could have significant fiscal impacts for Kazakhstan. The impacts would occur through the following four channels.

- **Government revenue:** Lower global oil and gas prices could reduce the value of output from the oil and gas sector. Without a production response (in other words, producing more oil and gas) or a fiscal policy response (in other words, increasing the tax rate), government revenue will decline. And if fossil fuel prices fall far enough, fossil fuel assets may become stranded and extraction may no longer be commercially viable (see Box 3).

- **Government expenditure:** Fiscal rules around the NFRK aim to ensure sustainable fiscal and government policy. Over the longer term, falling revenues create pressure to seek alternative sources of funding and promote structural transformation. Without these changes, falling prices could put pressure on the government to support the sector by, for instance, protecting jobs or maintaining a strategic level of domestic production.

- **Government debt and assets:** Assuming that the government does not change fiscal policy to address the implications of worldwide transition to a green global economy, revenue shortfalls and changing needs for expenditure will be financed through raising debt or reducing assets. A significant reduction in revenues from oil and gas may therefore lead to an increase in the cost of borrowing and restrict the government’s ability to respond to further shocks through borrowing.

- **Sovereign credit ratings:** Research by Standard & Poor’s finds that many of the countries that lost their investment-grade rating over the past 20 years were commodity exporters that had suffered a price shock, and the agency argues that the relationship between global commodity prices and fiscal performance is substantial.28 The lower the susceptibility to global commodity price shocks and the lower the variability of government revenue streams from the exploitation of commodities, the more stable government revenue is perceived to be. This perception is correlated with a stronger rating across all sectors. Higher ratings tend to be based on more predictable and stable revenue streams. In the past, credit ratings agencies have not explicitly incorporated into their sovereign credit ratings a specific analysis of the effects of a shift to greener economies or of climate risk but there is an increasing push to do so.29

Together, the fiscal implications of worldwide transition to a green global economy could influence the government’s ability to support the growth of the non-oil economy, a long-term macroeconomic challenge for Kazakhstan. Achieving its ambitious vision of a diversified modern economy, driven by private sector activity and more renewables in the energy system will require significant and sustained public investment over the long term.

Against this backdrop, Chapter 2 examines the risks to Kazakhstan’s fiscal position and assets due to changing global market conditions for fossil fuels, while Chapter 3 asks how Kazakhstan can best overcome these risks and benefit from a greener global economy.
The term “Stranded assets” has become understood to mean, broadly, “assets that have suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities.” The process of asset stranding has been linked “with the concept of ‘creative destruction’ in modern capitalism.” For fossil fuel assets, the risk of stranding is driven by the implementation of climate policies at the national, regional and international levels, and by the resulting impact on production and prices.

Technically, the point at which an asset becomes “stranded” from a financial perspective is the point at which prices fall below the break-even level, as a result of which the asset – before the end of its useful economic life – no longer generates an economic return. The resulting costs of write-downs, impairments, decommissioning or mothballing are borne by companies, investors and governments as the asset owners. The prices of oil at which oilfields become uneconomic or stranded are determined by a range of factors, including national policy, existing contractual arrangements and local costs. Other factors include environmental challenges, the availability of resources, government regulations, technological change, social norms and consumer behaviour, litigation and statutory interpretations.

Estimates of the scale of fossil-fuel asset stranding differ significantly due to varying interpretations of the pace and scale of climate policy implementation, as well as the definitions of an asset. For example, the IEA interprets assets as being physical capital, while the Climate Policy Initiative (CPI) defines assets as the “net value of output, including foregone revenues due to a combination of lower volumes of fossil fuels in a 2°C scenario, sold at lower prices than in a hypothetical business-as-usual scenario.” The resulting estimates for asset stranding calculated by the two organisations differ significantly: the IEA’s 2°C-compatible 450 Scenario forecasts US$ 304 billion worth of stranding by 2035, whereas the CPI estimates US$ 50 billion for power generation, US$ 600 billion in coal and US$ 400 billion in gas.

One of the most important aspects that determine whether fields can continue to operate economically is the cost of extraction. This differs for each field, but in general the break-even cost curve (the price of oil at which a new oil extraction project would become economically viable) slopes upward from easy-to-reach onshore fields (for example, in the Middle East), where average break-even costs can be as low as US$ 30 per barrel, to deepwater and oil sands fields (such as those in mid-ocean and in the Arctic), where average break-even costs may be as high as US 75 per barrel. Break-even cost curves tend to shift downwards over time, particularly for some of the higher-cost segments, as improvements in technology lower production costs. This has been observed with recent advances in shale technology, which have continued to drive production costs lower.

For existing fields the economic decision to continue operating or to cease production is not made on the basis of overall break-even costs, because significant capital and other upfront costs have already been spent and can be considered as sunk costs. The decision, therefore, will rest on whether the sale price of each barrel is greater than the marginal cost of producing that barrel for a particular field. Operators may even choose to operate at a short-term loss (in other words, to sell at a price that is lower than marginal cost) if the price of oil is expected to rise and stopping and restarting operations would incur substantial additional costs. If, however, the price of oil is expected to remain below this marginal cost – as could be the case with a rapid worldwide transition to a green global economy – operators are unlikely to continue producing unless they are contractually obliged to do so. In practice, the point at which as asset becomes stranded is less precise because the decisions surrounding it are subject to wider economic, social and political considerations.

Faced with falling prices and pressure on fossil fuel resources – asset owners may respond by boosting production levels in order to increase revenue. Responses of this nature to changing prices may indicate that an asset is susceptible to stranding. As prices fall towards the break-even level, an increase in production to meet a pre-defined revenue criterion or to maintain market share reflects a decision to shorten the useful economic life of an asset in response to the threat of stranding. This has been referred to as the “green paradox.”
What are the fiscal implications for Kazakhstan?

2.1. ANALYTICAL APPROACH

Overview

To assess the fiscal impacts for Kazakhstan of worldwide transition to a green global economy the analytical approach in this paper builds on earlier work conducted by the EBRD. A separate technical annex, available on ebrd.com, provides a more detailed explanation of the analytical approach and key data inputs.

Figure 7 outlines broadly the four high-level steps of the approach.

FIGURE 7. Overview of the analytical approach

- Construct scenarios: This step involves constructing a understanding of how global prices for fossil fuels will change through the course of the worldwide green economy transition.
- Identify and assess impact on material sectors: This step involves indentifying those sectors that are material both to the government finances and to worldwide transition to a green global economy and analysing the impacts of different scenarios on sectoral revenue.
- Analyse fiscal implications: This step involves analysing the fiscal implications generated by the impact of this green economy transition on the material sectors (oil and gas). This requires analysis of the implications for government revenue, expenditure, assets and debt but also of the potential fiscal flexibility generated by impacts on consumers.
- Prepare fiscal policy recommendations: This steps involves developing recommendations on fiscal policy and budget process designed to mitigate the fiscal risks on worldwide transition to a green global economy while taking advantage of the potential fiscal opportunities.
The modelling approach focuses on the fiscal impacts for Kazakhstan of worldwide transition to a global green economy, under three scenarios which are derived from similar concepts used by the International Energy Agency (IEA). These adapted scenarios are as follows:

1. **Business as usual (BAU):** This price scenario aims to depict the evolution of international oil and gas prices in the absence of a worldwide green economy transition and based on current trends in the energy markets. It is used as the baseline against which the other two price scenarios are compared in order to understand the marginal impacts.

2. **Worldwide transition to a partially green global economy:** This price scenario projects how international oil and gas prices will evolve if the policy measures already announced by countries are introduced, although these measures are not enough to meet long-term goals for climate change and sustainable development.

3. **Worldwide transition to a green global economy:** This price scenario aims to project how international oil and gas prices will evolve during a transition to a green global economy that is consistent with long-term goals for climate change and sustainable development. This is based on a pathway to 2040 which is broadly consistent with the ambitions of the Paris Agreement (in other words, well below 2 degrees C) and with the achievement of significant improvements in energy access.


The key variables we have used from the the IEA scenarios are the prices of oil and gas on the international markets – which reflect underlying changes in the market conditions for these resources due to transition to a green global economy. The markets for oil and gas and related prices are influenced by many factors, but this analysis focuses only on the price changes that would be attributable to different levels of implementation of the Paris Agreement and the SDGs. The reductions in price represent a number of explicit changes (such as carbon pricing) in the market for energy which directly influence fossil fuels but also represent indirect instruments such as fuel standards and innovation policies.

In Kazakhstan, the largest fiscal impacts of the global transition to a green economy are likely to be in the oil and gas sectors – and are therefore the focus of the analysis of potential fiscal impacts in section 2.2. But these are not the only sectors of the country’s economy that will be affected. Here, it is important to distinguish between sectors that will be influenced by worldwide implementation of the Paris Agreement and SDGs and those that will be impacted by the domestic approach captured in Kazakhstan’s National Concept for Transition to a Green Economy. Other sectors that will have fiscal impacts (but to a lesser extent than oil and gas) are the mining of coal and lignite, and electricity generation, but this paper does not explore them. In addition, it does not examine how domestic policies and commitments to a green economy will impact fossil-fuel intensive sectors such as iron and steel, cement and chemicals. Moreover, the paper also does not focus on the impacts of climate change on Kazakhstan’s economy.

The model that underpins this analysis estimates three main impacts of implementing sustainability goals over the period 2016-40. The first is the impact – under each of the three scenarios – on the apportionment of revenue between the government and the private sector. The second is the corresponding impact on the national budget, covering effects on budget surplus or deficit, gross government debt and the marginal accumulation of government assets. Lastly, the model estimates how the impact of a green transition on domestic fossil fuel prices would affect consumer welfare. The analysis focuses solely on the direct fiscal impacts and not on the indirect impacts that different oil and gas prices would have throughout the economy of Kazakhstan. In practice, these indirect impacts would also have fiscal impacts, both positive and negative, which are not modelled here.
2.2. KEY ASSUMPTIONS

The underlying model is built up using a number of modelling assumptions and sources (see Box 4). For macroeconomic and fiscal data, the model is based on the projections of the 2017 IMF Article IV assessment for Kazakhstan and the October 2017 edition of the IMF’s World Economic Outlook (IMF WEO) database. For global energy market projections, data from the IEA World Energy Outlook is used. And domestic production profiles of oil and gas in Kazakhstan use Rystad Energy data. All prices are shown in constant 2016 US dollars unless otherwise stated.

The assumptions which are most material to the results of this model relate to the prices and production profiles assumed for oil and gas. The following section explores each profile.

Oil and gas price profiles

For oil prices, those derived from the IEA scenarios discussed above are complemented with data on short-term spot prices from the IMF WEO database. The prices used in the modelling (see Figure 8) are constructed using the following methodology.

1. Constructing the baseline scenario: The IMF’s global oil price projections for the period 2016-22 are used to maintain internal consistency with the IMF macroeconomic and fiscal projections used elsewhere in the model. The IMF’s oil price projections are based on a simple average of the futures prices for Dated Brent, West Texas Intermediate and Dubai Fateh. These are then adjusted using the IMF’s GDP deflator series to express them in real 2016 terms. Next, the deflated prices are projected forward from 2023 using linear interpolation to reach the IEA projected global oil price for 2030 under their Current Policies scenario. For the period from 2030 onwards, the IEA’s projections are used without adjustment (as they are already in real 2016 terms).

2. Constructing scenarios for the period 2017-22: The baseline projection of the global oil price for the period 2017-22 is adjusted based on the relative differences observed between the prices projected under the IEA’s Current Policies, New Policies and Sustainable Development scenarios (in other words, the 2017 New Policies price is X per cent of the 2017 Current Policies price, and so on).

3. Constructing scenarios for the period 2023-40: In line with the approach used for the baseline, global oil prices for the period 2023-30 are projected using linear interpolation to meet the IEA’s projected global oil price in 2030 under the New Policies and Sustainable Development scenarios. For the period from 2030 onward, the IEA’s projections are used without adjustment.

For gas prices, a “haircut” is applied to the regional prices to allow for a better fit with the actual prices Kazakhstan faces. The majority of Kazakhstan’s natural gas for export is sold to European markets through a Russian pipeline, with the remainder being exported to China. However, the price that Russia pays Kazakhstan for the gas is significantly lower than the price realised in western Europe (in 2015 it was 60 per cent lower).

For the purposes of the analysis in this paper, the European natural gas import price projections in the 2017 edition of the IEA’s World Energy Outlook (WEO) is used as a starting point and a fixed percentage reduction to the WEO price is applied to approximate the discounted price paid by Russia. Figure 9 shows the resulting gas price scenarios.

These price projections do not reflect every credible view on the likely path of global oil and gas prices over the next 25 years. Indeed, projecting oil and gas prices is notoriously difficult and therefore the prices presented in Figures 8 and 9 should be seen as scenarios that can be used to guide policy planning rather than a definitive view on what prices will be two decades from now. The prices used are in a plausible range based on credible assumptions, although there are studies that have predicted scenarios of lower global oil prices. For instance, researchers at Stanford University have estimated that a combination of dramatic disruptions to the transport industry – primarily the approval and widespread adoption of autonomous electric vehicles – would lead to the equilibrium oil price falling to US$ 25 per barrel by 2030.
Production profiles

In 2016, Kazakhstan’s share of a global oil production stood at just under 2 per cent in 2016 (1.7 million barrels a day), according to the BP Statistical Review 2017.\textsuperscript{42} It seems unlikely, therefore, that the country’s domestic production could alter global market prices, particularly when Saudi Arabia, which had around a 13 per cent share of global oil production (12.3 million barrels a day) in 2016, has to coordinate with other members of OPEC to influence global oil prices. It seems reasonable, therefore, to assume that Kazakhstan can make decisions about local and national production without noticeably affecting the price of oil in world markets.

The projected production profile of the country’s oil sector has been built up on a field-by-field basis by Rystad Energy, as Figure 10 shows. Over the period to 2040, oil production is expected to increase from approximately 500 million barrels in 2016 to approximately 700 million barrels in 2040. The production profile is influenced not only by the development of significant new oil fields, such as Kashagan and Tengiz, but also by the closure and decline in production of existing oil fields.

For the purposes of this analysis, the local production profile in Kazakhstan under the two scenarios of transition to a “partially green” or “green” global economy are assumed to remain the same as under the business-as-usual scenario.

In practice, the projected production profile will be influenced by the development of global oil prices, as well as by the trade-off between revenue maximisation and international market share, and the risks posed by asset stranding. For instance, if global prices became so low that they prevented oil and gas producers in Kazakhstan from recovering their costs, many fossil fuel assets could become stranded – a situation that could lead to the unanticipated closure of assets, devaluation, or even conversion to liabilities. Box 3 discusses these risks in more detail.

However, while the marginal costs of extraction in Kazakhstan are uncertain, they are said to sit at the lower end of the global spectrum.\textsuperscript{43} As a result, the country is unlikely to be directly affected by domestic asset stranding under any of the global oil and gas prices scenarios above.

**FIGURE 10.** Oil sector production profile, 2016-40

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Figure 11 shows the projected production profile of the gas sector. Gas production is set to double between 2016 and 2032 as new fields come on line, before embarking on a gradual downward trend to 2040. It is projected to be more stable than oil production due to the high levels of domestic consumption (which are likely to rise if the government achieves its goal of boosting the use of gas in the country. Most of the gas produced is therefore expected to be consumed domestically due to the challenges (such as difficulties with pipelines) of exporting gas. Again, the assumption is that production profiles are fixed across all scenarios.
Summary of main assumptions

Oil and gas prices
Kazakhstan is assumed to be a “price-taker” of oil and gas prices on the global markets and domestic consumer prices are assumed to be a fixed percentage of global prices. As such, movements in oil and gas prices in the three scenarios are transmitted directly to domestic consumers and producers.

All impacts are determined relative to the BAU scenario, which this model treats as the baseline against which any impacts are assessed. In that sense, it is important to note that a “fall” in prices in the modelling is a fall in relation to where the BAU scenario projects prices to be, and may therefore still be an increase on the current price.

Oil and gas production
The model assumes that Kazakhstan will adhere to the same production profile across all scenarios. Therefore movements in oil and gas prices in the scenarios modelled here do not influence production volumes, which are assumed to remain constant at the prices used in the modelling.

The government of Kazakhstan has ultimate control of output levels, and may decide to either increase or decrease supply in response to a fall in prices. Lower prices for goods typically elicit a decrease in the supply of those goods. However, if the government wants to maintain a particular minimum level of revenue from the sector over time (in order to maintain a balanced fiscal position, for example), production may actually increase due to falling prices.

Government revenue
Government revenues are a direct function of the value of oil and gas sector output each year (price multiplied by production), with different measures for PSA and non-PSA oil fields. Any returns generated from assets accumulated throughout the forecast period are also included in the calculations of government revenue.

Under scenarios with lower prices, the model calculates “marginal revenue losses” – the difference between the revenue to the government under the lower price scenario and what the government could have expected to receive under the BAU price scenario.

Indirect revenue impacts, such as changes to corporate income tax revenue or VAT, are not modelled.

Government expenditure
The only government expenditure that is adjusted in the modelling is the cost of debt servicing. This expenditure comprises an effective interest rate on the stock of debt, which is assumed to increase as Kazakhstan’s debt-to-GDP ratio increases. In light of estimates from the IMF and World Bank, this assumes an effective interest rate of 5.8 per cent, rising by 35 basis points for newly issued and reissued debt as debt-to-GDP crosses certain thresholds.

Any support provided to the sector (such as expenditure that benefits producers or consumers) that is not explicitly recorded as a separate line item in IMF government finance statistics is implicitly captured in the model’s aggregate expenditure forecasts.

Government debt
In line with the assumption that fiscal policy remains constant, the model assumes that any additional deficit (as a result of either a decline in revenues or of debt-servicing costs) is funded by issuing more debt.
Government assets

Once gross government debt reaches zero (in the scenarios where this occurs), any additional surpluses accumulate as additional financial assets to the government. The model assumes that these assets are used to fund any subsequent deficits, rather than raising debt, until they are exhausted.

This avoids any assumptions about changes to the government’s sovereign wealth fund policy, focusing instead on the marginal impacts on the government’s fiscal position over time and as a result of global transition to greener economic practices. This is in line with analysis from the World Bank, which suggests that the current fiscal rules around NFRK transfers help to reduce expenditure growth but will lead to a faster accumulation of sovereign debt.

Accumulated assets are assumed to earn a constant real return of 4.5 per cent a year, in line with the country’s historic average.45

Gross domestic product

Only the direct impacts are modelled, hence GDP is assumed to follow the same profile (based on IMF projections) in each price scenario. However, in practice, low fossil fuel prices under a green economy transition would impact GDP growth as well as oil and non-oil revenue.

2.3. MAIN FINDINGS

Impacts on government revenue

Under both the “partially green” and “green” scenarios the government is projected to see a significant loss of revenue from the oil and gas sectors relative to the BAU scenario (see Figure 12). In 2040, marginal government revenue losses from the oil and gas sectors would be between US$ 15 and US$ 34 billion under the partially and full green scenarios respectively, relative to the BAU scenario. There is a steady increase in annual marginal revenue losses until approximately 2025, after which a steeper growth trajectory appears, driven by the production profile of the oil sector. From 2025 onwards, oil production appears set to expand significantly, driven largely by greater production from a number of fields, including the Kashagan.

FIGURE 12. Marginal government revenue losses from the oil and gas sectors (compared to BAU scenario)

Source: Authors’ calculations using data sources listed in the technical annex to this paper.
The fiscal implications for Kazakhstan of worldwide transition to a greener global economy

Legacy impacts of production-sharing agreements

Royalties and taxes are the main source of government revenue in the initial years of the projection period. However, the PSA regime seems likely to become an increasingly important source of government revenue. Although the government of Kazakhstan has recently moved away from the use of PSAs as a means of generating government revenues from the oil and gas sectors, the PSAs that were negotiated prior to this recent trend have left significant legacy effects.

As Figure 13 shows, the PSA regime begins to scale up from around 2024 (under the BAU scenario), due to growing production from fields such as Kashagan which operate under PSAs, and increasingly becomes the main source of government revenue from the oil sector. Under the other two scenarios, lower prices act to delay government receipt of revenues via the PSA mechanism, as it takes longer for these projects to recover their capital expenditure costs before they can generate residual distributable profit. Despite this delay, under the partially green transition scenario, total annual government revenue from the oil sector could be US$ 45 billion in 2040, with PSA revenue accounting for around 70 per cent of this revenue. Similarly, under the green transition scenario the contribution of the PSA regime to annual government revenue from the sector could be just under US$ 26 billion in 2040, with PSA revenue still accounting for around 70 per cent of total government revenue from the sector, and projected to overtake revenue from taxes by around 2035.

**FIGURE 13. Percentage of government oil revenues attributable to PSAs**

Source: Authors’ calculations using data sources listed in the technical annex to this paper.
Government expenditure and annual budget impact

In all three scenarios, underlying government expenditure is assumed to grow in line with IMF forecasts for 2016-22, and to grow over the period 2022-40 in line with the average rate for 2002-22 (which is projected to be 5.5 per cent). It is also assumed that the government will maintain consistent expenditure in all scenarios. Therefore, as revenues from the oil and gas sectors fall – in the green and partially green scenarios relative to BAU – this will impact the overall level of annual budget deficit or surplus in a given year.

Any deficit or loss of revenue is compensated for by either raising more debt or repaying debt more slowly than would otherwise have been done. In years of surplus, it repays the existing stock of debt (if the debt-to-GDP ratio is greater than zero) or results in accumulated assets (if debt to GDP ratio is below zero).

In this analysis, the impact of a transition to a greener global economy on the government’s expenditure comes solely from the marginal costs of debt servicing that the government incurs.

* These debt-servicing costs compound to drive up government expenditure significantly in the two green scenarios, with the state spending a total of an additional US$ 39 billion and an extra US$124 billion on debt servicing from 2016-0 in the partially green and green transition scenarios, respectively. On an annual basis, by 2040 the most extreme scenario amounts to US $21.4 billion of additional expenditure on the annual costs of debt servicing, due to the compounding of debt.

The combination of changing government revenue and expenditure leads to substantial differences in the government’s fiscal balance over the period. Figure 14 shows that the surpluses projected in the BAU scenario after 2022 are significantly lower in the partially green transition scenario before reverting to deficits (as growth in expenditure outstrips growth in revenue). In the green transition scenario, the government consistently runs deficits that improve slightly in the medium term before worsening significantly.

Consequences for gross government debt

These surpluses and deficits will influence the level of government debt. Figure 15 shows the impact of the different fiscal balances on the government’s gross debt-to-GDP ratio. Under all three scenarios, after falling in 2016-17, debt-to-GDP rises slightly between 2017 and 2022, in line with the baseline scenario being anchored to short-term IMF projections. Beyond this point, as the government’s fiscal balance diverges across the three scenarios, gross debt-to-GDP falls slightly in the intermediate scenario before recommencing an upward trend, and accelerates upwards in the green transition scenario. As described, this is due to compounding borrowing costs in the absence of any fiscal policy responses to offset these costs.

The impact of the green transition scenario on gross debt-to-GDP is of particularly concern for Kazakhstan. In this scenario, steadily increasing expenditure outpaces revenue growth and sets the country on an unsustainable trajectory, prompting the need for fiscal policy to rein in government expenditure or promote revenue growth in the non-oil and non-gas sectors. Potential fiscal policy responses are discussed in Chapter 3.

The analysis also looks at the impact of sustained surpluses on the accumulation of assets once the government has repaid all of its debt. The revenue forecasts assume some return in years where the gross debt-to-GDP level is less than zero (the
The fiscal implications for Kazakhstan of worldwide transition to a greener global economy

In the BAU scenario, the gross debt-to-GDP ratio reaches zero in 2029. At this point, surpluses are channelled into financial assets due to the significant rise in oil and gas prices. This leads to a rapid accumulation of assets after 2029, to the point where these additional assets equate to just over 38 per cent of GDP by 2040. Due to large deficits and/or short-lived periods of surplus, the partially green and green global economy scenarios see no additional assets created.

Consequences for net government debt

The analysis above looks at gross debt and the modelling approach ignores intergovernmental transfers, focusing instead on the government’s overall fiscal position. It is important to take into account the government’s existing stock of assets in the NFRK to create a view of the country’s position in terms of its net debt. The NFRK provides a mechanism for Kazakhstan to capture the fiscal revenues if oil prices remain high but could also provide buffers to absorb the government’s marginal revenue losses under the partially and green transition scenarios modelled.

Under a set of simplifying assumptions about the evolution of existing and accumulated assets in each of the three scenarios, it is possible to estimate the path of net government debt. * Our initial assessment is that it existing NFRK assets and consumer-side gains from falling oil and gas prices (see Box 6) are unlikely to offset the negative impacts of transition to a green global economy. Net debt remains well below zero in the BAU scenario, allowing the government to accumulate significant assets.

However, in the two green scenarios, net debt turns negative at some point between the mid-2020s and mid/late 2030s. Under the green scenario, it accelerates rapidly to well over 100 per cent by 2040. This finding is consistent with recent research by the IMF, which projects that using the NFRK to maintain the current non-oil deficit would exhaust the fund’s assets by 2021.47

These estimations are less robust than the estimations for gross government debt – and will be heavily influenced by factors such as asset returns and policies on intergovernmental transfers. However, it is clear that further reform of fiscal policy will be essential if the government is to manage the impacts of a transition to a greener global economy on public finances. Here, the good news is that there appears to be a window of opportunity to react before the worst impacts are felt. This chapter now turns to these potential policy reforms.

* Returns on assets are broadly equal to the interest rates payable on public debt (an assumption not made in the calculation of gross debt).
Implications for consumers

Changes in international oil and gas prices have the potential to affect consumers in Kazakhstan by driving changes in domestic prices. If it is assumed that regulation of domestic pricing is maintained and that the ratio between domestic and international prices remains constant, lower global prices could potentially benefit consumers in Kazakhstan. This benefit would offset the reductions in producer surpluses which have already been calculated through the impact on government budgets – although likely not at an order of magnitude to fully offset the most significant impacts. This has not been a core focus of the analysis but we present a stylised example of the potential impact.

Lower oil and gas prices for domestic consumers could generate a positive economic impact which could, to some extent, offset the negative fiscal impact of reduced government revenue. But there is an opportunity cost to the government in selling oil and gas domestically at prices below the international market rate. These low prices could be thought of as an implicit subsidy on the domestic sale of oil and gas. If, all else being equal, domestic prices were to fall, this would make it possible to raise taxes, or reduce this implicit subsidy, in a manner that would leave consumers no worse off but would raise some revenue for government.

As Figure 16 shows, in 2040 the estimated consumer impact under the partially green and green transition scenarios would be US$ 54 and US$ 166 per capita, respectively (relative to GDP per capita of approximately US$ 12,000 in 2040).\(^{48}\) This benefit would be equal to an equivalent increase in real income for each individual. The analysis assumes that all benefits from lower domestic prices flow through to consumers, either because any cost reduction in the intermediate purchase of oil and gas (for example, by industry) is passed on to consumers, or because households are ultimately the owners of the firms that consume oil and gas and hence experience the benefit of higher profits through larger dividends. By 2040, under the partially green transition scenario, this consumer benefit would be equivalent to a total cumulative US$ 13.5 billion, and US$ 38.5 billion in the green economy scenario. This is based on estimates of the responsiveness of domestic consumption to price changes based on recent studies.\(^{49}\)

The majority of the consumer welfare impact is driven by the oil sector. A potential impact from the oil sector of between US$ 46 and US$ 141 per capita is projected in 2040 under the partially green and green transition scenarios, respectively. By 2040, this is equivalent to a total positive welfare impact of US$ 12 billion under the partially green scenario, and US$ 33 billion in the green scenario.

Compared to the oil sector, the range of potential consumer impacts is much lower in the gas sector. A potential impact of between US$ 8 and US$ 25 per capita is estimated in 2040 under the partially green and green scenarios respectively. This is equivalent to a total positive welfare impact of US$ 1.5 billion under the partially green scenario, and US$ 5.5 billion in the full green scenario.

Consumer-side gains could provide an opportunity for the government to somewhat offset the negative budget impact of lower international prices, but this would be modest at best. Under the scenario of transition to a partially green economy, the total positive consumer impact is equivalent to approximately 6.9 per cent of the total marginal reduction in the government’s fiscal balance by 2040, while under the green transition scenario this share increases to 9.8 per cent. This suggests that the domestic market is simply too small for this to materially affect the overall fiscal position of the government.

**FIGURE 16.** Aggregate impact of the modelled sectors on per capita consumer welfare

![Graph showing the aggregate impact of the modelled sectors on per capita consumer welfare over the years 2016 to 2040.](image-url)
2.4. SUMMARY OF RESULTS, BY SCENARIO

Scenario 1: Business as usual

- **Prices**

  Global oil prices fall slightly between 2016 and 2022, before rising to US$ 136 per barrel by 2040.

  Gas prices see sharp growth between 2016 and 2025, at which point the pace of growth begins to slow.

- **Revenue**

  Total government revenue from the oil and gas sector grows rapidly from 2022 to 2034. Revenue growth stabilises between 2034 and 2038, before a substantial increase in the closing years. The growth from 2022-34 and 2039-40 reflects the high oil price and the parallel increase in oil production.

- **Debt**

  Gross government debt is expected to grow until 2023, peaking at US$ 33 billion, before the government moves into a position of surplus and debt levels begin to fall.

  The opening debt-to-GDP ratio is 21 per cent in 2016. This falls slightly before rising to 19.5 per cent in 2022, at which point the debt-to-GDP ratio starts to decline more rapidly. By 2029, debt-to-GDP is 0 per cent.
Scenario 2: Transition to a partially green global economy

Global oil prices follow a similar – albeit dampened – growth trajectory compared to the BAU scenario. After a period of decline between 2016 and 2022, prices grow until 2040, reaching US$ 111 per barrel. Similarly, gas prices increase significantly between 2016 and 2025, before tapering through to 2040.

Compared to the figures projected in the BAU scenario, government revenue from the oil and gas sector follows a comparable trajectory from 2016-22 before diverging between 2023 and 2040 as the impact of lower oil and gas prices passes through to public finances.

The corollary of lower prices and lower government revenue under the “partially green” scenario is reflected in the trajectory of gross government debt and the debt-to-GDP ratio.

Unlike in the BAU scenario, gross government debt reaches a low of 18.5 per cent of GDP in 2035 before beginning to rise.
Scenario 3: Transition to a green global economy

Global oil and gas prices follow a significantly lower growth trajectory under the scenario of transition to a “green” global economy.

Global oil prices peak in 2030 at US$ 69 per barrel before falling to US$ 64 per barrel in 2040. Meanwhile, gas prices grow from US$ 2.0 MBTU in 2016 to US$ 3.2 MBTU in 2025, at which point growth slows through to 2040.

After declining between 2016 and 2022, government oil and gas revenue grows slowly through to 2040. While government revenue from the gas sector is affected, lower total government revenue under the “green” transition scenario is driven by a substantial fall in oil revenue compared to the BAU scenario. Total cumulative revenue is around 40 per cent lower than in the BAU projection.

The corollary of lower prices and lower government revenue under the “partially green” scenario is reflected in the trajectory of gross government debt and the debt-to-GDP ratio.

Unlike in the BAU scenario, gross government debt reaches a low of 18.5 per cent of GDP in 2035 before beginning to rise.
Kazakhstan aims to use structural reform to address its dependence on the oil and gas sector as a driver of economic growth, exports and public finances. The government has recognised the implications of this dependence and plans to foster long-term economic diversification, using natural resource revenues to support this transformation. A core aim of the Kazakhstan 2050 Strategy is to transform the country into a knowledge-based economy driven by the private sector. Based on the analysis in Chapter 2, the scale of the required fiscal response will depend on prevailing global market conditions for oil and gas, with more extreme scenarios requiring larger adjustments. Enhanced fiscal management to support and complement a wider structural transformation of the country’s economy will be necessary in order to manage risks.

Coordinated reform is required to enable Kazakhstan to manage these risks and ensure that its fiscal position can support the implementation of structural reform. The risks and opportunities of worldwide transition to a green global economy can be addressed through a range of policy responses, individually or in combination. Fiscal policy is just one part of a broader portfolio of policy responses that are available.

In recent years, the government has taken a number of steps to address the fiscal risks posed, or the structural imbalances exacerbated, by the country’s continued reliance on oil (see Box 7). Kazakhstan’s planned response to the fiscal risks that could appear in the long run should be seen in the context of what the country has already achieved. Recent reforms include measures on both the revenue and expenditure sides of the budget, as well as in the budget process itself, and provide a strong basis for further reform.

These recent reforms have established a fiscal policy and public financial management pathway that will go part way to managing the fiscal risks and opportunities under the “partially green” and “green” global economy scenarios modelled. However, further reform may be necessary in order to generate the required fiscal flexibility and public financial management architecture required to manage the significant risks that this analysis highlights.
Oil and gas taxation
The revised Tax Code of 2009 introduced significant structural changes in the fiscal regime for oil and gas extraction in Kazakhstan. In the years before 2009, oil and gas extraction in the country was conducted under PSAs and concession agreements. However, the government criticised the PSA model for failing to generate sufficient state revenues.

To address this issue, the revised Tax Code stated that all new oil and gas agreements should fall under the remit of the tax system, while allowing existing PSAs and concession agreements to remain in force. Meanwhile, to compensate for the discontinuation of PSAs, the revised Tax Code replaced royalties with a mineral extraction tax and introduced a tax on excessive profits. However, it is important to bear in mind that although taxation has replaced the PSA regime, the legacy impacts of PSAs will continue to be felt over time (as Box 5 outlines).

In 2018 it also launched a revised 2018 Tax Code that aims to rationalise tax expenditure, broaden the tax base and increase reliance on indirect taxes (such as value-added tax).

The Code includes wider elements of reform, with benefits for tax administration and non-oil sectors. For example, the tax administration reforms to “horizontal monitoring” will benefit the small and medium-sized enterprise sector through the removal of tax audits and the introduction of automatic VAT refunds. Changes to the tax benefits for special economic zones and priority investment projects may stimulate inbound investment in the non-oil economy.

The Kazakhstan National Action Plan and “100 Concrete Steps” set out a number of planned tax reforms designed to support the mobilisation of domestic resources, greater levels of industry value-added and foreign direct investment. If these reforms are successful, they will boost the percentage of non-hydrocarbon revenues in the government budget and provide a certain degree of budgetary insulation from oil price shocks.

Reforms of public financial management: state-owned enterprises
The government has embarked on a comprehensive programme of privatisation known as the “People’s IPO”. Launched in 2012, the programme aims to divest stakes in a range of state-owned enterprises to Kazakhstan’s citizens and institutional investors and provide opportunities for them to invest in Kazakhstan’s largest companies. The process is being managed by Samruk-Kazyna and will see the privatisation of stakes of at least 25 per cent in 43 large state-owned enterprises, including KazMunaiGas, electricity firms held by Samruk-Energo, and 182 “non-core” assets in 2016-17.

The programme should also mitigate, to a certain extent, the fiscal risks linked of a transition to a greener global economy. Full divestiture or partial privatisation is an asset ownership structure that splits economic value between the private and public sectors and could reduce direct exposure to oil price volatility. However, it is unlikely to address indirect exposure caused by falling government revenues.

Public financial management reforms: NFRK policy
A one-off budget transfer equivalent to approximately 10 per cent of GDP was taken from the NFRK in the wake of the financial crisis. As a result, in 2010 legislation on fiscal responsibility was introduced to ensure prudent management of NFRK funds. Capping transfers from the NFRK to the national budget at approximately US$ 8 billion per year, this legislation restricted the use of the NFRK to financing the government’s industrialisation programme (the Strategic Plan for 2020) rather than financing current expenditure.

In 2016, further legislation on fiscal responsibility legislation was approved which will see guaranteed transfers gradually decline, reaching approximately US$ 6 billion in 2020. Furthermore, it will see the introduction of a requirement for the fund to maintain assets of at least 30 per cent of GDP and for the fund to target a specified medium-term non-oil deficit pathway. This will put Kazakhstan’s fiscal policy on a more sustainable path and has been welcomed by the IMF and World Bank.

Public financial management reforms: Accounting and reporting
The Statistics Committee (Ministry of National Economy), in partnership with the OECD, is exploring the integration of green growth or green economy indicators into government accounting and statistical frameworks. This broader view of national wealth is essential for the sustainable management of assets and is a welcome step for effective management of national wealth, an area not included in conventional national accounts.
Building on stated government priorities, four policy responses can be deployed to manage potential risks and are likely to be beneficial no matter how global energy markets evolve. These responses are (i) structural transformation of Kazakhstan’s economy to manage exposure to oil price shocks; (ii) effective management of oil revenues; (iii) fiscal consolidation to reduce the non-oil fiscal deficit; and (iv) the development of medium- and long-term fiscal planning. These four policy responses are prudent given that they make sense in all scenarios and build fiscal resilience to even lower oil prices than are modelled in this paper. As the most significant impacts are projected to occur in the 2030s, there is a window of opportunity of around a decade in which to react.

The recommendations outlined below build on those made by other international organisations operating in, and supporting, Kazakhstan in recent years. The IMF has stressed the importance of maintaining ongoing tax reform to diversify public revenues away from the oil sector, while balancing this with the promotion of non-oil sectors and the diversification of the economy, something that the Asian Development Bank has also stressed as being crucial for the country. Meanwhile, the World Bank has encouraged Eurasian economies to consider diversification in terms of their national asset portfolios, not just in terms of exports or production, with areas of focus such as built capital and intangibles. In addition, the World Bank has recently published a study examining potential changes to the fiscal framework to encourage economic transformation. Although unlike this EBRD report the World Bank study does not analyse long-term fiscal stability, the study underlines the importance of responding to recent oil price falls with structural, rather than merely countercyclical, measures.

This initiative aims to support the development of a System of Environmental-Economic Accounting (SEEA), an internationally agreed framework that supports internationally comparable environmental and economic statistics for policymaking. This will allow the Statistics Committee to produce environmental and economic government accounts, supporting the monitoring of green economy-related fiscal risks and the development of green domestic fiscal policy.

The OECD has also recommended prioritising the collection and publication of comprehensive data on the level and nature of government support to the oil and gas industry, and that this should include details of support provided by Samruk-Kazyna and estimates of any tax expenditures (tax concessions that lead to a loss of potential revenue). Tax expenditures can be difficult to determine in practice. However, quantifying these in some form will be essential for determining the appropriate fiscal policy response to the impacts of worldwide transition to a green global economy.
Area 1: Support growth of the non-oil sector and promote structural transformation of Kazakhstan’s economy

It is clear that structural transformation which supports growth in the non-oil economy will build resilience to commodity price-related fiscal risks by reducing reliance on fossil fuels. Achieving this will require a number of reforms to overcoming binding constraints on growth by making firms more productive, enhancing access to credit, and increasing levels of foreign direct investment as set out in the EBRD’s private sector diagnostic for Kazakhstan.55 The diagnostic sets out five areas of reform, based on the EBRD’s concept of transition to open-market economies:

- A better-defined and executed role for the state and a gradual reduction of state presence in the economy would make the economy more competitive and better governed.
- Improved access to finance and a more robust financial sector would support diversification of the economy and make growth more resilient.
- The economy’s integration with neighbouring countries and with the wider global economy would be helped by making border crossing easier, thus creating export opportunities, and by reducing the costs of trade, to increase competition.
- The greening of the country’s economy is a critical requirement for sustainable growth of the private sector, particularly in the long run, with focused efforts required now if the government is to create conditions for achieving this growth.
- In addition, the workforce needs better skills if the private sector is to achieve its potential and make economic growth more inclusive.

These areas of reform have been well recognised. Indeed, the government is currently implementing structural reform priorities through the “100 Concrete Steps” programme and the recently launched Astana International Financial Centre in a bid to become a financial hub for Central Asia. The government has defined its development strategy for the period up to 2025 in “Kazakhstan 2025” and is looking to revise its national commitments to the green economy as part of a revision of the country’s national green economy concept.

In the future, the state should explore the extent to which drivers of economic growth can become greener across major sectors of the economy, including services, industry and agriculture, in addition to the typically growth-supporting sectors such as urban infrastructure and energy. There is a large scope for Kazakhstan to reduce the energy intensity of its growth, through more efficient use of resources. In addition, the falling costs of renewables can support a greener energy system, potentially allowing the country to export natural resources and maximise economic gains. Furthermore, analysis focused on the economic impact of a green global economy should form the basis of an enhanced National Determined Contribution as part of Kazakhstan’s obligations under the Paris Agreement.

However, Kazakhstan cannot afford to rely on long-term structural transformation alone to manage the risks of worldwide transition a green global economy. Coordinated reform of the country’s fiscal policy and public financial management architecture is therefore crucial, building on the momentum of recent reforms and aligning with the government’s economic vision. The following section discusses detailed measures in these areas which, if implemented, would support broader growth of the non-oil sector and structural transformation.

Area 2: Manage the NFRK with a view to long-term fiscal sustainability

The extent to which fiscal policy can be adjusted in response to economic shocks and long-term trends requires improvement. The newly implemented NFRK rule is an important step, and ensuring the transparency of discretionary drawdowns will be crucial to ensuring that long-term assets are not depleted.

Kazakhstan could also look to develop practices that are relatively novel for sovereign wealth funds, such as a “macro hedging” strategy to ensure that the fund is investing in assets that are negatively correlated with fossil fuel prices. Building on the emerging experience of other large wealth funds, such as those of Norway and Saudi Arabia, this could perhaps involve the government fostering investment-strategic sectors – knowledge-based sectors, for example – linked to the green economy. Recently, a group of the largest sovereign wealth funds was set up to analyse the risks that climate change poses to their portfolios and assets and Kazakhstan should aim to learn from this emerging area of work.56

The government should also conduct regular spending reviews to assess the impact of fiscal reform and overall NFRK governance to ensure that the current fiscal strategy is fit for purpose, given the prevailing fiscal position and external market conditions. These reviews could also explore the experience of other large funds and the types of fiscal rules that they employ for long-run fiscal sustainability. More detailed recommendations for the short, medium and long term are show in Table 1.

### TABLE 1. Recommendations for management of the NFRK

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<td><strong>Short term</strong></td>
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<tr>
<td>• Implement the new NFRK fiscal rules planned and consider further investing in assets that are negatively correlated with fossil fuel prices as part of a wider strategy of macro-hedging against the risk of asset stranding.</td>
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<td><strong>Medium term</strong></td>
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<td>• Review and, if necessary, refine the NFRK concept so that it continues to support fiscal sustainability and economic stability amid the current and projected market conditions that transition to a green global economy could generate, as this analysis highlights.</td>
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<td><strong>Long term</strong></td>
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<td>• Consider further integration of the NFRK into the budget process, with transfers governed by a fiscal framework that protects the fund’s integrity while enabling it to contribute to expenditure priorities, including financing countercyclical measures.</td>
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Area 3: Continue with reforms in the area of fiscal consolidation and reduce the size of the non-oil fiscal deficit

It is important to reduce the non-oil fiscal deficit to sustainable levels and the government is on track to achieve this. It has already taken steps to strengthen public revenues and support the business environment through reforms to the Tax Code, with important changes implemented in January 2018. The government should continue to monitor revenue impacts closely and consult with taxpayer groups and business communities to assess the impacts of these reforms. Other impacts and further reforms should be explored, including broadening the tax base, improving tax collection, introducing new fiscal instruments (including revenues from the revived emissions-trading scheme) and optimising government investments.

The fiscal regime for the oil and gas sectors seeks to balance revenue generation with incentives for private investment. To ensure optimal use of resources the government should seek to better understand the extent and impact of fossil fuel subsidies which, in terms of consumer subsidies, the OECD estimated to be around 3 per cent of GDP in 2011. For the purposes of this paper it was not possible to identify the full scale of subsidies to consumers and producers and thus their distortionary impact. This should be the government’s first step in assessing whether it can remove inefficient subsidies. In addition, other opportunities for green or environmental taxation should be explored. Table 2 provides more detailed recommendations, disaggregated by revenue and expenditure policies over the short, medium and long term.

TABLE 2. Recommendations for revenue-side fiscal measures

<table>
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<th>Short term</th>
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<tr>
<td>• Consult with taxpayer groups and business communities to understand the impact of recent tax reforms and develop proposals for further reforms. Reform proposals could be based on analysis to:</td>
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<tr>
<td>‒ identify opportunities to broaden the tax base further, ensuring that taxation does not dampen incentives for economic diversification (this could include reform of VAT registration thresholds, property taxation or further rationalisation of exemptions and reliefs).</td>
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<tr>
<td>‒ continue the reform of tax administration, collecting tax more efficiently and combating tax evasion across the economy</td>
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<tr>
<td>‒ analyse examples of best practice in the use of fiscal policy levers for investment in the small and medium-sized enterprise sector and of carbon taxation for resource-rich, carbon-intensive economies</td>
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<tr>
<td>‒ Review the appropriateness of the tax rate threshold applying to subsoil use, based on the market oil price and depending on the trajectory of global oil prices.</td>
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<th>Medium term</th>
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<tr>
<td>• Consider introducing further tax reforms shaped by public consultation and analysis of the effectiveness of current reforms. These could include:</td>
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<tr>
<td>‒ evolution of the oil and gas tax regime to incentivise further exploration, while setting a sustainable level of taxation on the business profits that extraction generates, recognising that the potentially low marginal costs of extraction in Kazakhstan may lead to unusually high profits</td>
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<tr>
<td>‒ introduction of VAT reform measures, such as a lower registration threshold, while mitigating the marginal compliance costs to business (for instance, through e-filing or prompt payment of VAT refunds)</td>
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<tr>
<td>• Consider introducing tax measures designed to encourage the domestic transition to a low-carbon economy, such as those that would influence behaviours around fossil fuel use and energy intensity.</td>
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<th>Long term</th>
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<tr>
<td>• Consider further tax reforms to stimulate greater addition of value and to promote knowledge-based industries. These reforms might include, for example, incentives for research and development (such as patent boxes), and provisions for the amortisation of intellectual property.”</td>
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</table>
The fiscal implications for Kazakhstan of worldwide transition to a greener global economy

The country’s government does not currently produce holistic macroeconomic projections beyond a three or four-year horizon, which makes it challenging to align budgeting with long-term national plans. Governments cannot effectively respond to longer-term risks such as those posed by the worldwide transition to a green global economy without a proper understanding of their likely impacts. The adoption of concepts such as an MTEF and PBB can make it easier to align budgeting and fiscal policy with the national plan. However, this should be complemented by incorporating regular long-term (40 to 50-year) forecasting into formal budget planning processes, in order to better understand and plan for the likely impacts of major long-term trends and risks.

Area 4: Enhance medium and long-term fiscal planning

In the medium term and long term (in other words, beyond the next five years), the focus should be on goal-based policy objectives to align fiscal policy frameworks and wider development objectives. This will require a systemic change in the architecture of public financial management.

The government has already introduced legislation to allow for a medium-term budget framework, but now needs to develop plans to adopt tools such as a medium-term expenditure framework (MTEF) and/or performance-based budgeting (PBB) to help manage its expenditure more effectively. This will enable the definition of tax policies and incentives to stimulate structural transformation. It will also make it possible to identify fiscal measures – including public expenditures – that encourage domestic transition to a low-carbon economy.

The introduction of an MTEF and PBB can be lengthy and complex, but would help Kazakhstan to adjust fiscal policy in response to important long-term trends rather than to short-term volatility. MTEFs involve setting an aggregate allocation of resources for the medium-term (typically three years). They also require regular estimations of the cost of current policies over the same period, and the strategic adjustment of the budget to ensure a medium-term fiscal and macroeconomic outcome in line with the government’s objectives. PBB seeks to align the planning and budgeting processes to explain and support decisions about public expenditure. This allows governments to allocate resources efficiently by directing their spending to high-performing or priority areas of public expenditure.

These measures should be complemented with plans to enhance the governance and transparency of public finances. It is also important to develop a mechanism to monitor and manage fiscal risks, such as an independent fiscal risk committee. Building on the method applied in this report, the government should continue to monitor the potential impacts of worldwide transition to a green global economy, monitoring in particular the risks for highly concentrated assets (such as Kashagan) and their links to the underlying fiscal position. To do this requires an understanding of the contractual arrangements for these assets which have not been analysed in detail in this report due to their confidentiality. This monitoring could be achieved as part of an enhanced approach to budget management, centred on the identification and analysis of fiscal risks under conditions of uncertainty. More detailed recommendations are shown below for the short, medium and long term.

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<table>
<thead>
<tr>
<th>TABLE 3. Recommendations for expenditure-side fiscal measures</th>
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<tbody>
<tr>
<td><strong>Short term</strong></td>
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<tr>
<td>• Consult groups in the taxpayer and business communities about potential reforms of expenditure. Reform proposals could be based on analysis to review the framework of subsidies targeting oil and gas extraction and consumption, with a view to introducing mechanisms to make current expenditure on the oil and gas sector more transparent and understand key distortions</td>
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<tr>
<td>• Perform scenario analysis to better determine the extent of possible asset stranding under different oil and gas prices.</td>
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<tr>
<td><strong>Medium term</strong></td>
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<tr>
<td>• Introduce spending reforms identified in, and shaped by, public consultation. These could include continuing to phase out explicit and implicit fossil fuel subsidies with a view to eventually removing these subsidies to the sector altogether.</td>
</tr>
<tr>
<td>• Promote public investment and expenditure in sectors that have been identified as priorities for Kazakhstan’s domestic transition to a green economy and where public investment is most appropriate and additional relative to the private sector.</td>
</tr>
<tr>
<td>• Introduce regular spending reviews to assess the progress of fiscal consolidation measures. Here, areas to consider are comparisons between budgeted and actual expenditure (and the drivers behind these differences). Promoting the efficiency and impact of expenditure will complement fiscal consolidation efforts. For example, evidence suggests that there is room to increase the effectiveness of health and education spending.</td>
</tr>
<tr>
<td><strong>Long term</strong></td>
</tr>
<tr>
<td>• Continue to promote public investment and expenditure in sectors that have been identified as priorities for the country’s own transition to a green economy and introduce wider programmes for public expenditure to improve the skills of people entering the labour market. Greater diversification of national assets will develop resilience to the potential risks of worldwide transition to a green global economy.</td>
</tr>
<tr>
<td>• Continue to reform the regulation of fossil fuel pricing, encouraging consumers to adopt renewables and energy efficient technology.</td>
</tr>
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</table>

The introduction of an MTEF and PBB can be lengthy and complex, but would help Kazakhstan to adjust fiscal policy in response to important long-term trends rather than to short-term volatility. MTEFs involve setting an aggregate allocation of resources for the medium-term (typically three years). They also require regular estimations of the cost of current policies over the same period, and the strategic adjustment of the budget to ensure a medium-term fiscal and macroeconomic outcome in line with the government’s objectives. PBB seeks to align the planning and budgeting processes to explain and support decisions about public expenditure. This allows governments to allocate resources efficiently by directing their spending to high-performing or priority areas of public expenditure.

These measures should be complemented with plans to enhance the governance and transparency of public finances. It is also important to develop a mechanism to monitor and manage fiscal risks, such as an independent fiscal risk committee. Building on the method applied in this report, the government should continue to monitor the potential impacts of worldwide transition to a green global economy, monitoring in particular the risks for highly concentrated assets (such as Kashagan) and their links to the underlying fiscal position. To do this requires an understanding of the contractual arrangements for these assets which have not been analysed in detail in this report due to their confidentiality. This monitoring could be achieved as part of an enhanced approach to budget management, centred on the identification and analysis of fiscal risks under conditions of uncertainty. More detailed recommendations are shown below for the short, medium and long term.
TABLE 4. Recommendations for measures to manage public finances

**Short term**
- Design a plan for the transition to a medium-term expenditure framework “with a statement of fiscal policy objectives; a macro-fiscal strategy; integrated medium-term macroeconomic projections within which the annual budget and multiyear budget estimates can be presented and discussed; fiscal targets, rolling aggregate revenue, expenditure, and other fiscal forecasts; and fiscal risk and sustainability analysis”, building on recent legislative changes to facilitate this framework.
- Introduce performance-based budgeting through pilot projects in the relevant line ministries (such as health or education), before extending them to all areas of government in the long term.
- Deepen reforms for transparency, governance and reporting across government, the sovereign wealth funds and state-owned enterprises. Monitor progress towards compliance with international standards, such as the IMF Government Finance Statistics, OECD Corporate Guidelines on Corporate Governance of State Owned Enterprises or OECD Budget Transparency Toolkit. Consider indicators of progress in governance or transparency, such as the Open Budget Index Rankings and sovereign credit ratings.
- Clarify the fiscal framework surrounding the transfer of NFRK funds and establish limits on the discretionary use of targeted transfers. This approach would be complemented by the development of a rules-based fiscal framework in which the NFRK would be used for countercyclical measures, particularly in the context of worldwide transition to a green global economy or when further shocks occur in fossil fuel markets.
- Consider establishing an accountable fiscal risk council or committee, with oversight of the budgeting process to ensure appropriate management of fiscal risks. The responsibilities of this body should be recognised in policy or legislation.

**Medium term**
- Begin transition to an MTEF blueprint.
- Extend performance-based budgeting beyond the initial pilots in relevant line ministries.
- Continue to deepen reforms for transparency, governance and reporting across government, sovereign wealth and state-owned enterprises. Monitor progress towards compliance with international standards.

**Long term**
- Complete the implementation of an MTEF across the whole of government.
- Review the results of initial pilot projects to implement PBB in line ministries and, where this shows positive results, implement PBB across all levels of government.
1 Throughout this report, unless indicated otherwise, all prices are in real (2016) US dollars.


11 The five institutional reforms under the “100 Concrete Steps” are: 1) the creation of a modern and professional civil service, 2) ensuring the rule of law, 3) industrialisation and economic growth, 4) a unified nation for the future, and 5) transparency and economic growth.


13 The balance of government revenue from the non-oil economy and government expenditures to the non-oil economy.

14 The price-gap approach aims to capture all direct and indirect subsidies that affect prices. As such, it captures the opportunity cost of domestic energy pricing, as well as the actual budgetary cost.


16 Ibid.

17 The OECD cited similar difficulties in their 2014 report on energy subsidies in Kazakhstan. The OECD report noted the sub-programme on industrial development in the 2013-15 budget plan which earmarked approximately US$ 395 million for the development of the oil and gas sectors.


19 Kazakhstan has a number of state entities that support the management of the government’s investments and interests in certain industries, as well as promoting economic stabilisation. Samruk-Kazyna is the state-owned enterprise holding company and Baiterek provides direct financial support to certain sectors. In contrast, the NFRK fulfils the role of a conventional sovereign wealth fund in that it channels hydrocarbon revenues to promote long-term savings and economic diversification.


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26 See, for example, https://www.moodys.com/research/Moodys-changes-outlook-on-Kazakhstan-rising-to-stable-from-negative--PR_370462 (last accessed 27 October 2018).


31 R. Baron and D. Fischer, “Divestment and Stranded Assets in the Low-Carbon Transition”, background paper for the 32nd Round Table on Sustainable Development, OECD, p. 5.


33 See Baron and Fischer, “Divestment and Stranded Assets in the Low-Carbon Transition”, p. 5. See also Caldecott and McDaniels, “Stranded Generation Assets”, p. ii.

34 See Baron and Fischer, “Divestment and Stranded Assets in the Low-Carbon Transition”, p. 8.


39 International Energy Agency (2017). World Energy Outlook. Available at: www.worldenergyoutlook.org (last accessed 5 December 2017). All IEA data used in this report is used under licence as set out here: www.iea.org/t&c


46 Here, the term “marginal revenue losses” is defined as the difference between the revenue that government receives under the lower price scenario and what the government could have expected to receive under the business-as-usual price scenario.


48 This analysis considers only the impact on consumers through changing price levels. Any wider impacts that transition to a green global economy may have on consumers, such as health effects, are not quantified here. Similarly, this paper does not consider the direct or indirect impact on consumers via the contraction in the oil sector (such as through lower wages). Greater detail on the approach used to quantify this impact is included in the technical annex to this paper, which is available on ebrd.com


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