ADB TA 8727 REG

CAREC: Study for Power Sector Financing Road Map

Mobilizing Financing for Priority Projects

Kazakhstan

September 2016

pwc

CAREC

List of abbreviations

ADB	Asian Development Bank
Bn	Billion
BOO	Build, Own, Operate
BOT	Build, Operate, Transfer
BTO	Build, Transfer, Operate
CAREC	Central Asia Regional Economic Cooperation
CHPPs	Combined Heat Power Plants
CPS	Country Partnership Strategy
DBFO	Design, Build, Finance, Operate
DBTO	Design, Build, Transfer, Operate
EBRD	European Bank for Reconstruction and Development
ENRC	Eurasian Natural Resources Corporation
ESO	Energy Supplying Organizations
EWP	Energy Work Plan
FEC	Fuel and Energy Complex
G-T-D	Generation-Transmission-Distribution
GDP	Gross Domestic Product
GW	Gigawatt
GWh	Giga Watt per hour
HPP	Hydro Power Plant
IMF	International Monetary Fund
IPO	Initial Public Offering
JSC	Joint Stock Company
KASE	Kazakhstan Stock Exchange
KEGOC	Kazakhstan's Electricity Grid Operating Company
KOREM	Kazakh Operator of Electric Energy and Power
KPPPC	Kazakhstan PPP Center
kV	Kilo Volt
kWh	Kilo Watt per hour
KZT	Kazakhstani tenge
LSEG	London Stock Exchange Group
LTP	Long Term Planning
MEDT	Ministry of Economic Development and Trade
Mn	Million
MOF	Ministry of Finance
MOG	Mining and Oil & Gas
MW	Megawatt

NFRK	National Fund for the Republic of Kazakhstan
NPG	National Power Grid
OHTLs	Over Head Transmission Lines
PFA	Partnership Framework Arrangement
PPP	Public Private Partnership
PSMP	Power Sector Master Plan
REC	Regional Electric Grid Companies
RK	Republic of Kazakhstan
SMEs	Small and Medium Sized Enterprises
TPP	Thermal Power Plant
UNDP	United Nations Development Programme
UNICITRAL	United Nations Commissions on International Trade Law
UPS	Unified Power System
USD	United States Dollar

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1. National power sector overview

Kazakhstan is the front runner when it comes to power sector reform in the Central Asian region, having unbundled its generation, transmission, and distribution functions. In this section, we have provided a brief description of the companies/ agencies involved in the Kazakhstan power sector, including their roles and ownership structure. Further, we have discussed the historical electricity supply and demand situation in the country along with a description of the regulatory landscape and institutions involved in regulating the sector.

1.1. Industry structure and institutional arrangements

The Ministry of Energy, Republic of Kazakhstan (hereinafter - Ministry), is a central executive authority of the Republic of Kazakhstan, which is engaged in the formation and implementation of state policy, coordination of management process in various industrial sectors such as oil & gas, transportation of hydrocarbons, electricity, coal, nuclear energy, development of renewable energy sources, and control over state policy for the development of "green economy".

Transmission, distribution, and heat tariffs are being regulated by the Agency for regulation of Natural Monopolies. The wholesale and capacity market Kazakh Operator of Electric Energy and Power Market (KOREM JSC) operates the centralised electricity trading market. Power generation is excluded from the list of natural monopolies and, as a result, the sector is characterised by involvement of both public and private companies. Kazakhstan's national grid is operated by the state owned Kazakhstan's Electricity Grid Operating Company (KEGOC). KEGOC is also the system operator involved in the management and operation of 220-1500kV National Electricity Grid. The transfer, distribution, dispatch and consumption of electrical energy are within the sphere of natural monopoly in Kazakhstan and are the functions of Regional Electric Grid Companies (REC). Of the several distribution companies operating, only a few are still under state control. Any competition in the sphere of transfer & distribution of electric energy in the retail market is excluded.

The supply sector consists of Energy Supply Organisations (ESO), which sell electricity to the end retail customers. ESOs are effectively "energy traders" in the retail market who collect payments from consumers and distribute to other sectoral G, T and D entities while retaining the margin as their profits. A summary of the sector structure is provided in the figure below.

Generation

It is a licensed activity and the license for generation is granted by the committee of State Energy Control and Supervision Markets

Distribution

It has been declared as a natural monopoly as per Law on Natural Monopolies, 1998, and requires licence from Committee of State Energy Control and Supervision. The distribution sector has been successfully privatised and out of the 21 distribution companies, only two remain state-owned

Transmission

It has been declared as a natural monopoly as per the Law on Natural Monopolies, 1998 and is under state-owned Kazakhstan Electricity Grid Operating Company (KEGOC)

Supply

Supply licence required from Committee of State Energy Control and Supervision. There are 180 registered energy sale companies of which 40 (as per 2013 data) are subject to regulation under the Law on Natural Monopolies and Regulated

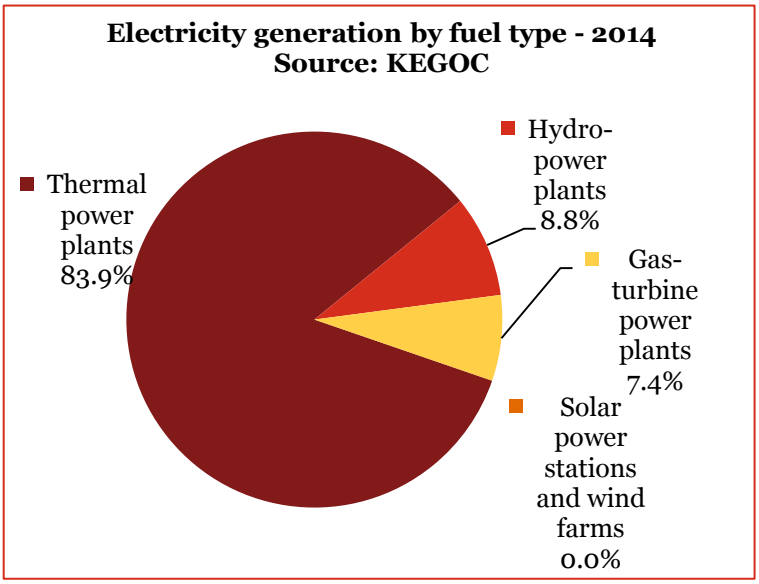
1.2. Power supply and demand

Kazakhstan has experienced a sharp increase in power consumption that was driven by rapid growth in the economy since early 2000. Given the increase in power demand, the once existing power surplus ceases to exist and has given way to a tight supply-demand situation. Power shortages due to the increasing population and economic growth in urban areas were noted especially in Astana and Almaty during the winter season. Moreover, limited investments towards rehabilitation & modernisation and increasing generation capacity between 1990 and 2007, further exacerbated the power demand-supply situation in Kazakhstan.

A major portion of Kazakhstan's coal deposits are located in the northern and central parts where most of the large power plants are based. The majority of Kazakhstan's power plants are located in the northeast of the country while the southeast is the main power consumer. While north-south connections for the transfer of power exist, they are insufficient when it comes to addressing the southern demand. Northern regions meet their own power requirements and have the potential for surplus electricity that can be transmitted to the western and southern regions having insufficient power supply.

1.2.1. Power supply

Kazakhstan's power generation is dominated by coal which can be attributed to its huge coal deposits in the northern and central parts of the country where the major power plants are located. These regions, after meeting their electricity demand, can offer surplus electricity to neighbouring regions. It is envisaged that in years to come, coal will continue to form a major portion of the Kazakhstan's power generation mix until 2030, although there have been efforts to diversify the same, given the government's priorities on promotion of low-carbon techniques, greater energy saving and various measures to reduce environmental impact.



About 84% of electricity in Kazakhstan is generated from thermal power plants with hydro and gas accounting for about 8.8% and 7.4% of total generated electricity respectively. The major coal-fired deposits are located across the northern coal producing parts of Kazakhstan. Although coal is abundantly available in Kazakhstan, it is of relatively low quality with high ash content of over 40%. Kazakhstan has around 102 power plants of various form of ownership that account for an installed capacity of almost ~20.8 GW[1] . The power plants in Kazakhstan are categorised into several classes (of national or regional importance; serving industrial sector, etc.) and many are owned by large industrial enterprises.

[1] KEGOC Website

According to KEGOC, the power plants in Kazakhstan are classified into the following categories:

Power plants of national importance	Power plants of industrial importance	Power Plants of Regional importance
• These are the large thermal plants that are generating and selling electricity to consumers at the electricity wholesale market of Kazakhstan. • Large hydro power plants have also been included in this category. These plants are used as auxiliary units and to control load schedule profile of Unified Power System (UPS) of Kazakhstan.	• The power plants of industrial importance are the Combined Heat Power Plants (CHPPs) which supply heat and electric power to large industrial enterprises and nearby populated areas.	• These are CHPPs integrated with the territories, supplying electricity via the networks of regional electricity network companies and power transmission companies as well as heat supply to the towns nearby.

Kazakhstan's power sector has come a long way since the start of the first privatisation drive in the mid-1990s. Post-independence, with the initiation of power sector reform, approximately 87%[2] of the country's power generation systems have been privatised. Amongst the privatised power plants, many are owned by large industrial enterprises such as Kazakhmys, one of the largest vertically integrated metal producers, and ENRC (Eurasian Natural Resources Corporation), a leading diversified natural resources group[3]. The second privatisation wave initiated by the Government of Kazakhstan in 2014 and is currently underway.

State ownership is exercised by equity investments of the government via Samruk-Kazya Joint Stock Company (JSC). Currently, Samruk-Kazya is the sole shareholder of Samruk-Energy JSC involved in the generation sector. Samruk Energy produces about 38-40% of the power generated in Kazakhstan. ENRC (Eurasian Resources Group) produces about 16 %. AES and MAEK Kazatomprom each produce about 7%, and the other companies produce about approx. 30% of the total power generated.

A list of the power plants in Kazakhstan along with ownership of the plants is provided in **Appendix A.** The table below captures the power generation over the years in Kazakhstan.

Kazakhstan power generation (Mn kWh)

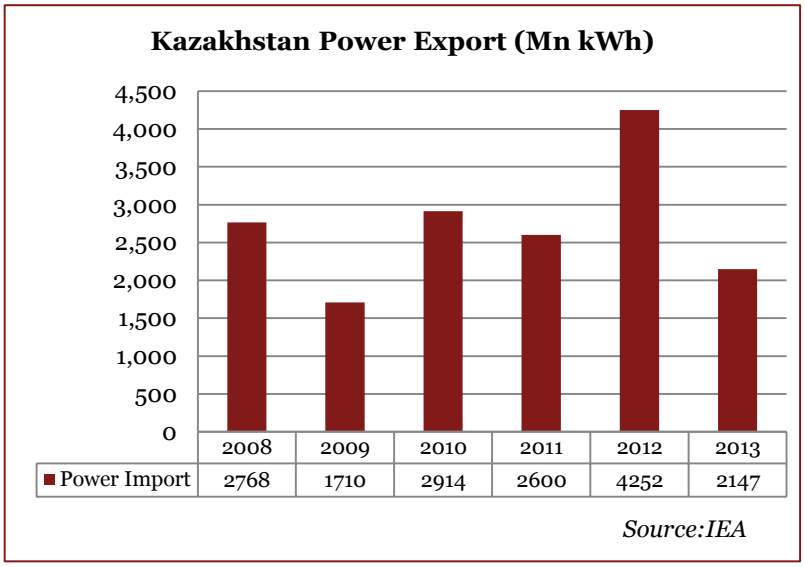
	Year				
Plant type	**2010**	**2011**	**2012**	**2013**	**2014**
Thermal power plants	69,463	73,031	76,664	77,622	78,773
Hydro-power plants	7,990	7,849	7,608	7,701	8,236
Gas-turbine power plants	4 842.7	5,323	5,976	6,646	6,916
Solar power stations and wind farms	-		-	4	11
Total	**77,453**	**86,203**	**90,247**	**91,973**	**93,935**

Source: KEGOC Annual reports

[2] ABD- Country Partnership Strategy: Kazakhstan 2012–2016. Please note that Samruk Energy's Annual Report of 2013 states that around 47% of the country's installed capacity is owned by Samruk Energy. This aspects needs to be clarified
[3] U.S. Department of Commerce, 2013-Kazak Power Generation and Distribution Industry

Power imports by Kazakhstan

Kazakhstan does not have adequate generating capacity in the western region and depends on Russian imports to overcome deficits. The western regions that include Aktobe, Atyrau, and Mangystau areas have significant hydrocarbon reserves which have not been fully tapped. The regions consisting of Almaty, Zhambul, Kzyl Orda and other areas of South-Kazakhstan areas linked with the power systems of Kyrgyz Republic's and Uzbekistan. As there are no indigenous fuel sources in the southern regions, it depends on power imported from neighbouring countries. Moreover, Kazakhstan's power sector is unable to operate its generating capacity to meet increases in demand during peak loads or supply disruptions. Hence, the country needs to import electricity not only to offset supply gaps, but also to regulate frequency.



Source:IEA

Kazakhstan's imports from Kyrgyz Republic are in connection with additional water released from the Toktogul reservoir in the Kyrgyz Republic, which is in the interest of water users in southern Kazakhstan. The imported volume from Kyrgyz republic during 2013 was 365.6 million kWh. In 2014, Kazakhstan also imported around 1,270 Mn kWh electric power from the Russian Federation to cover hourly deviations of the actual interstate net power flow balance. In 2014, KEGOC and INTER RAO UES arranged for transmission of the electricity from the Russian Federation to the Republic of Kazakhstan to offset the transmission losses in Mynkul Valikhanovo areas.

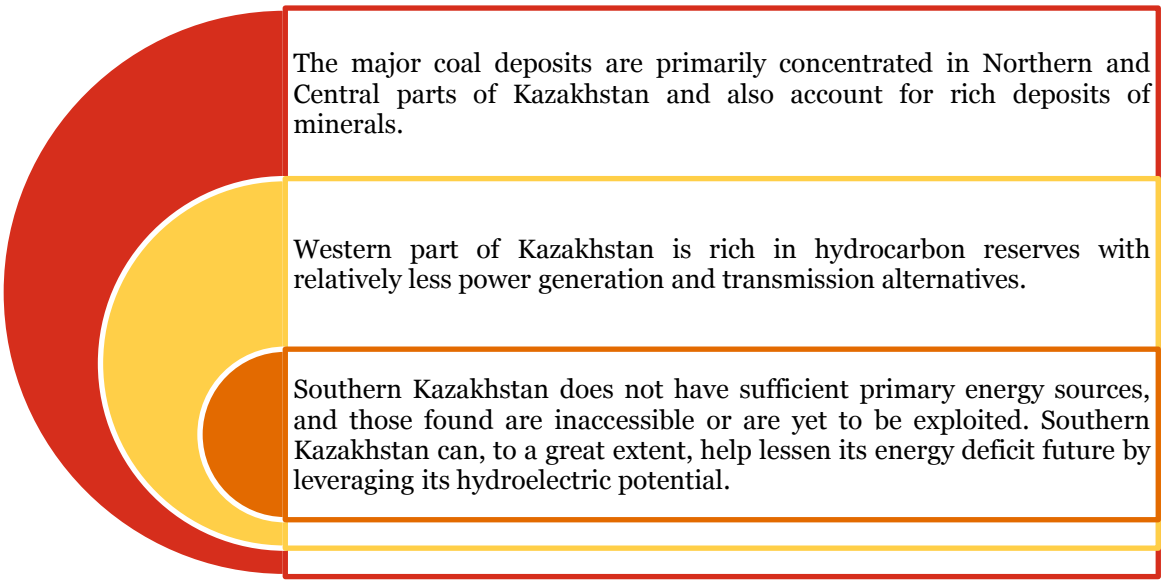
1.2.2. *Power demand*

Development of Kazakhstan's electricity generation and distribution network between 2008 and 2012 had been sluggish. This remains a major challenge to Kazakhstan given the rapid growth in the economy and the subsequent increase in energy demand. Electricity generation is expanding by approximately 5% annually, while the growth in consumption is estimated at 5-7%. Moreover, the country's generating stations operate at only 60-70% the total capacity, due to a lack of investment towards rehabilitation and modernisation. For several years, Kazakhstan has experienced increasing demand for electricity, while generation companies could not make sufficient investments in new power plants.[4]

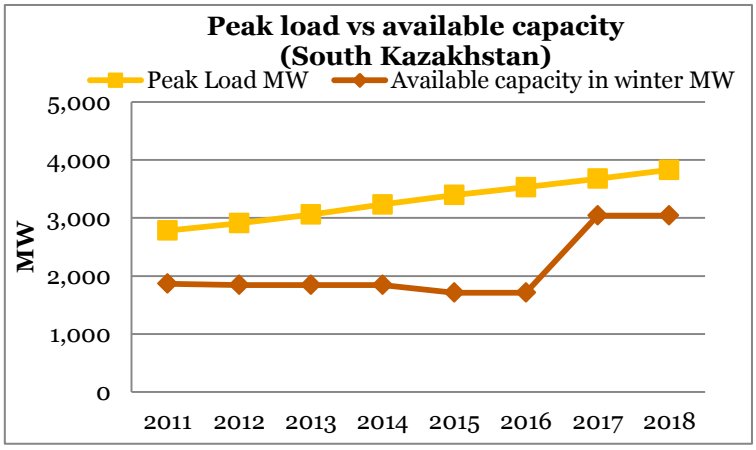
The problem of electric power supply particularly in South Kazakhstan remains acute. This region does not have sufficient primary sources of energy and has to import coal and gas to generate power. Besides this, up to 15% of electric power is imported from neighbouring nations to make up for the deficit. Unfortunately, the transmission connectivity between the north with surplus power and the south facing power deficit, is currently insufficient.

[4] Report: Kazakhstan: Power Generation and Distribution Industry, 2013

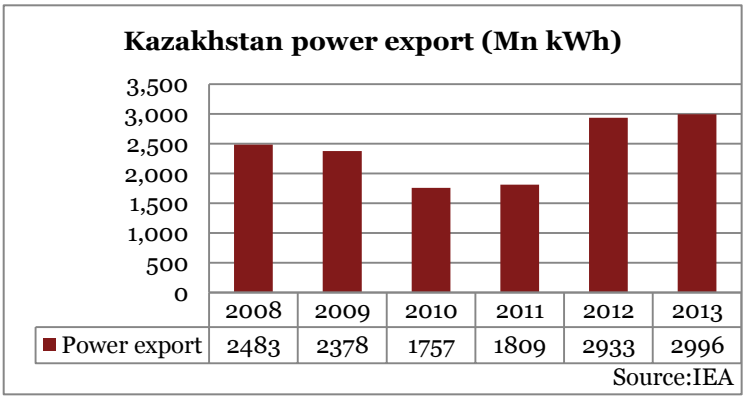
Skewed distribution of energy resources impacting power demand-supply situation



Although Kazakhstan is rich in natural resources, their distribution across the country is rather skewed. The diagram below outlines the distribution pattern of energy resources in Kazakhstan.



The graph alongside illustrates the available capacity during the winter season vis-a-vis peak demand in South Kazakhstan. Low available capacity is observed during winters in South Kazakhstan as it has some hydro based power generation plants which work at reduced capacity. Kazakhstan also lacks sufficient generating capacity in the western region and is dependent on Russian imports to overcome deficits. Kazakhstan needs to construct approximately 600 MW worth of new plants and modernise 500 MW worth of existing plant to support current level of GDP growth and power consumption. Furthermore, surplus generating capacities, which came up in the early 90's, shifted the focus from energy efficiency and energy saving initiatives. Rapid energy consumption in the last decade and increase in electricity demand more focus on such initiatives.



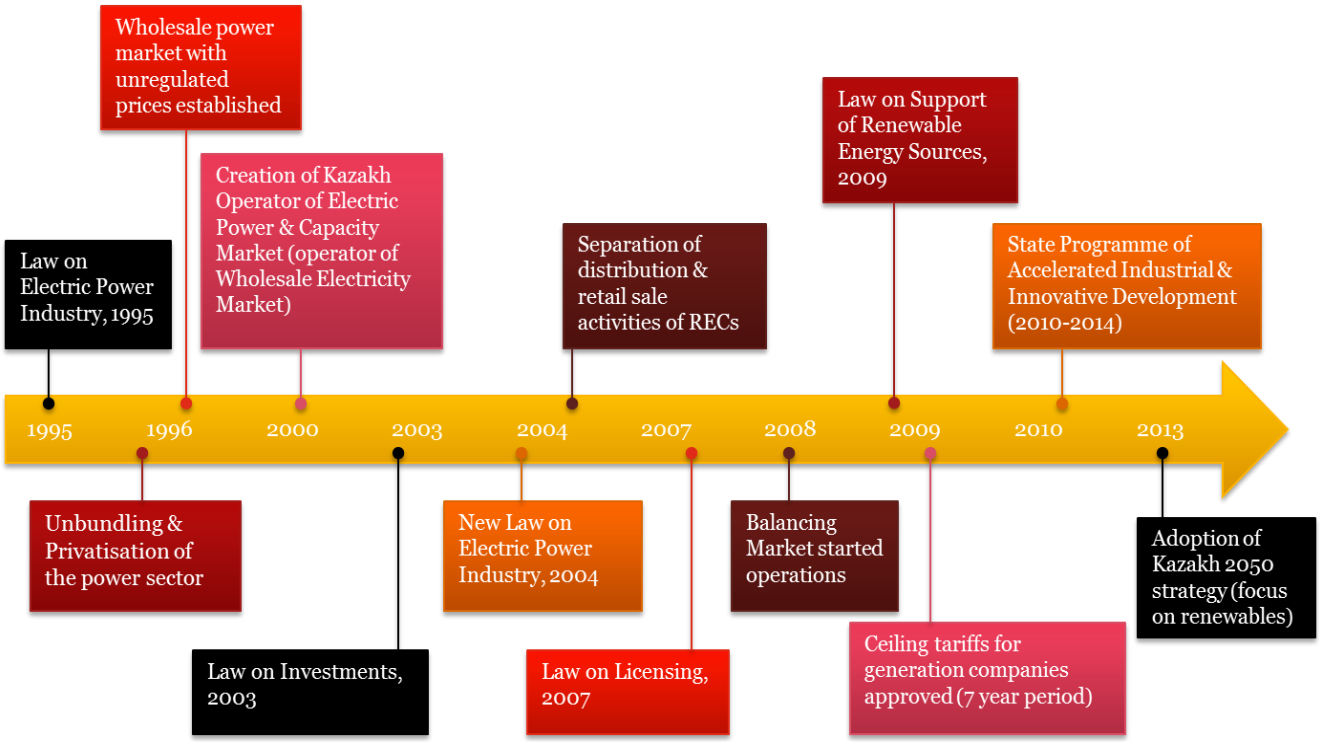
Power exports

Kazakhstan is also a significant exporter of energy to Russia, the Kyrgyz Republic and Uzbekistan. The two way nature of power trade can be attributed to the variations in seasonal energy supply/demand as well as the inheritance of a Soviet-era grid that was built without respect to modern-day national boundaries. The chart above shows the annual power exports by Kazakhstan since 2008. According to estimates in 2014, Kazakhstan imported 644 million kWh and exported approximately 2 billion kWh of electricity.

1.3. Sector regulation

1.3.1. Evolution of legal and regulatory landscape

Key regulatory milestones in Kazakhstan's power sector since the 1990s are represented in the schematic diagram below:



It may be noted that although the capacity market has been added, it is planned to be enforced from 2019. After the enforcement of the capacity market, part of the tariff will be used to recover the variable operating cost and the remaining part of the tariff shall be used to recover the fixed capacity costs.

Kazakhstan is one of the first countries of former Soviet Union that has developed a functioning electric power market. Kazakhstan underwent a series of reforms in the 1990s with the following objectives:

- Focus on privatisation in generation;
- Creation of market operator for wholesale electricity market;
- Power Sector was divided into competitive entities and regulated monopolies; and

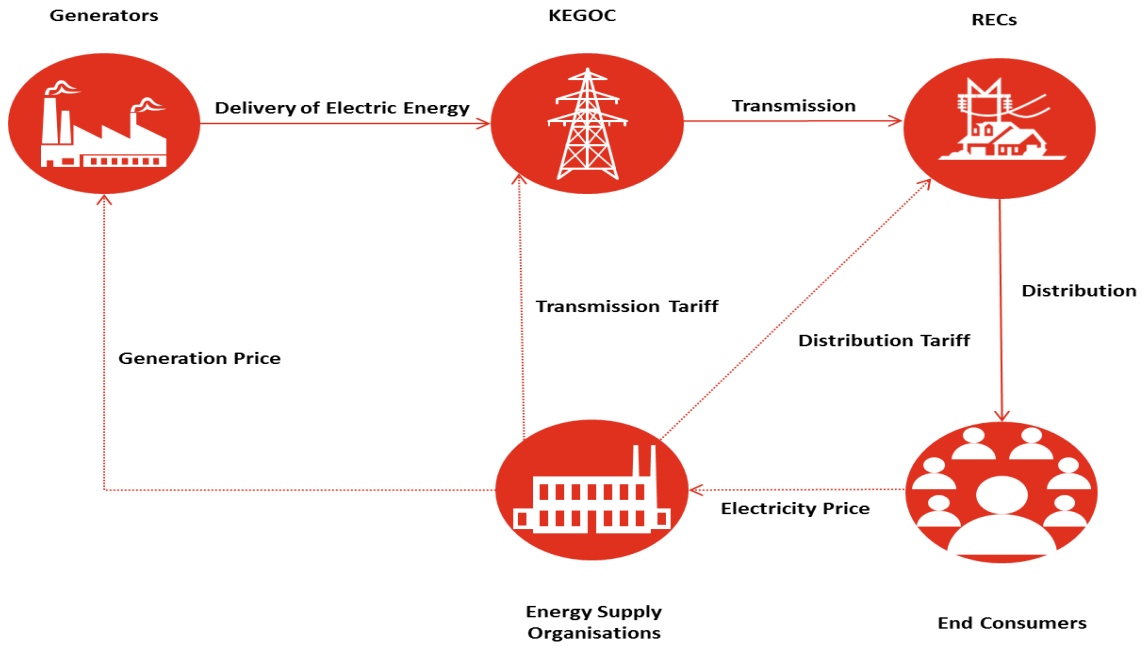
- Formation of Regional Electric Companies and segregation of carriage and content.

It may be noted that though the plan for privatising generating entities was taken up in the 1990s, very little capital, as down payment, came in from the private parties. The year 1995 saw the start of privatisation of power generation sector and a major overhaul of the power industry structure.

1.3.2. *Key features of the legal and regulatory landscape*

Segregation of retail and distribution business

Law on Electric Power Industry, 2004, mandates the government to ensure that consumers are given the freedom to choose their electricity and/or heat supplier. Since the distribution sector was declared as a natural monopoly hence there was a need for separate supply companies to introduce competition. The following is the structure of the power market :



As can be seen from the diagram, in the power sector of Kazakhstan, the generation business has been segregated from transmission and distribution business as well as functions of consumer supply business. The retail supply business involves the service side like purchase of electricity from generators, selling electricity to consumers, customer services, billing, and collection of charges from consumers. On the other hand, the distribution business involves the technical side like setting up of physical network in order to wheel electricity to consumer premises

The initial objective of privatisation of the power sector was the development of competition in power supply of consumers, which would reduce the level of tariffs for electricity for the end consumers. In this case, consumers had the right to choose producers and suppliers of electricity

Prohibition of interference in operation

As per the *New Law on Power Sector, 2004* ,unless otherwise allowed by the law, central executive bodies and local representative/executive bodies cannot interfere in the activities of companies which are involved in the

generation and transmission of heat and power. This provides autonomy to power generation and transmission companies from government interference in operations.

Single window for investors in priority sectors

A single access point (Investors' Service Centre) is provided for investors involved in priority investment projects. Furthermore, for the convenience of foreign investors, a Public Service Centre (PSC) representative is available in Investors' Service Centre, who provides help in qualitative and quick delivery of automated public services. *(Law on Investments, 2003)*.

Feed-in tariff for renewable generation

Kazakhstan has been the first country in Central Asia, where the feed-in tariffs for renewable energy facilities have been adopted. As per the *Law On Support Of The Use Of Renewable Energy Sources, 2009,* the following are the features of determination of fixed tariff:

- The fixed tariffs set by power generators using renewable sources of energy are to be approved by the government (15 year validity).
- The approved fixed tariffs should be annually indexed to the inflation rate in the manner specified by the government.
- In order to achieve the performance targets set by the National Planning System of Kazakhstan, the government is allowed to revise earlier approved tariffs every three years. These revised tariffs are applicable one year after its official date of publication. However, these revised tariffs will not hold for effective sale & purchase contracts between the Accounting and Finance Centre and generation companies.

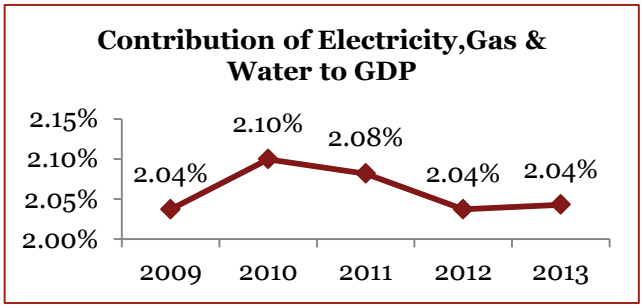
The legal guarantee concerning the duration of the tariff (15 years) is of key importance for investors because it provides protection against the risk of a unilateral reduction of this duration by the government, the ministry, or the Accounting and Finance Centre.

2. Power Sector Development and Investment Plan

Kazakhstan is among the largest economies in the CAREC region and is dependent to a great extent on the oil and gas sector. Average growth of 8% over the past decade, supported by rising oil output and prices, have set Kazakhstan's position as a regional economic power. Much of the fiscal surpluses have been saved in the National Fund for the Republic of Kazakhstan (NFRK), with portions transferred to the budget to fund public investment. Structurally, the economy remains largely dependent on oil production.

GDP by sector (Source: IMF,ABD Outlook)				
Year	Overall GDP Growth	Agriculture	Industry	Services
2008	3.3	-7.6	4.3	3.1
2009	1.2	13.2	1.9	-1.4
2010	7.3	-11.6	7.6	7.1
2011	7.5	23.0	0.7	6.0
2012	5.0	-17.6	1.7	10.6
2013	6.0	10.9	2.9	7.0
2014	4.3	0.7	1.2	6.0
2015	1.0	-	-	-

The energy/ power sector has played an important role in the GDP structure and its share increased significantly from 2001 to 2007, but has stabilised post 2008 because of the growing realisation of the industrial innovative policy (which prescribed GDP energy-output ratio to be limited to 10 % of the level of 2008) in the country. The contribution of electricity, gas & water sector to GDP has remained at around 2% for the last 5 years.

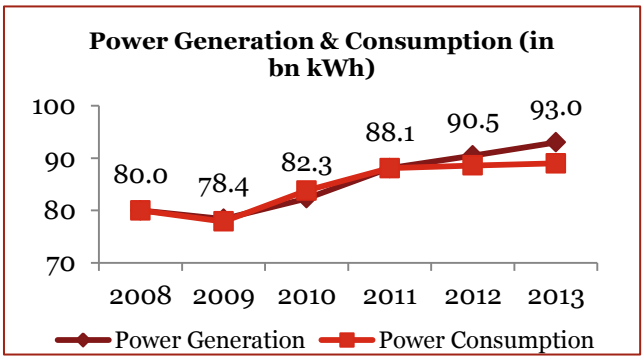


Rising oil prices greater than $90/barrel) ensured high growth in the last decade averaging around 6% in the last five years.

By 2019, the economy of Kazakhstan is expected to be 1.65 times in comparison to 2013.

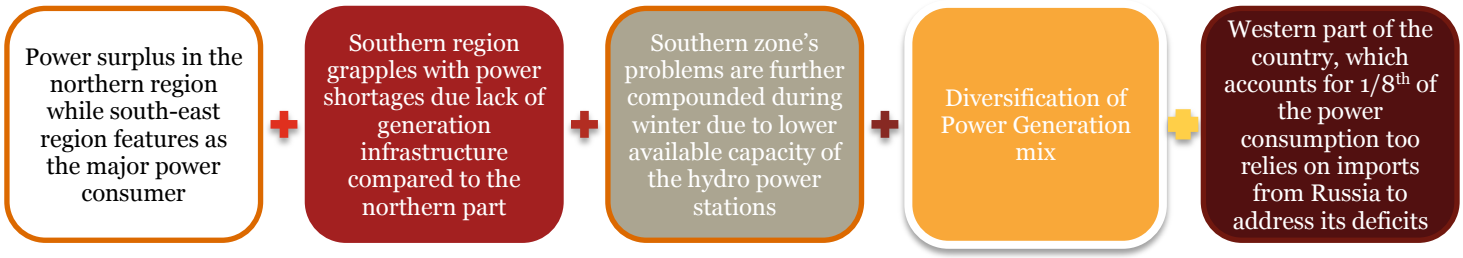
2015-2019 is expected to be a period of steady growth despite global challenges.

Kazakhstan's rapid economic growth in the past decade has led to a sharp upswing in electricity consumption. The electric power industry remains a key factor in Kazakhstan's industrial development and economic growth as electric power generation accounts for about one-tenth of all industrial output. Almost 75% of the power generated is consumed by industries, 11% by households, and 2% by the transportation sector. The financial crisis in 2009 resulted in a decrease in electricity generation as well as consumption due to production stagnation in metallurgical plants and the construction industry. However, post 2009, consumption is growing at an average rate of 5% per annum.

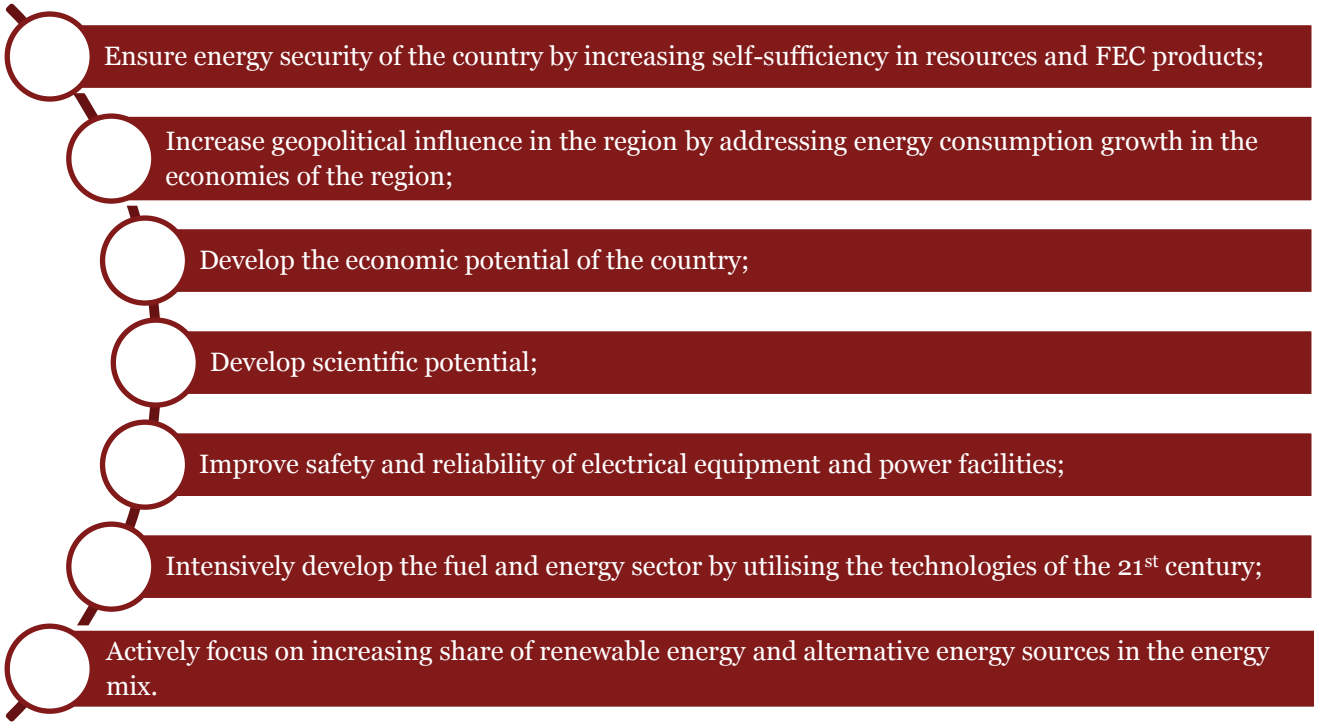


2.1. Objectives driving sector development

Almost 77% of Kazakhstan's total electric energy is produced in the northern zone, where the key coal deposits and water energy resources are located. However, the major power requirement is from the southern and western zones. One of the key focus areas in Kazakhstan is to transmit the surplus power from the northern zone to the southern zone which witnesses severe power shortages. Moreover, 70% power generation infrastructure is in need of rehabilitation. Almost 65% of power sector infrastructure is more than 20 years old while 31% of the equipment is more than 30 years old. Kazakhstan needs to modernise and rehabilitate its aging transmission infrastructure. The power generation mix for Kazakhstan too is dominated by thermal power and the government envisages diversification of the mix in the future with the inclusion of renewable and other energy sources. The key issues that need to be addressed are shown in the figure below:



The Government of Kazakhstan (decree No. 724 dated 28 June 2014) approved the Concept of development of the fuel and energy complex of Kazakhstan until 2030. The Concept of development of the fuel and energy complex of Kazakhstan until 2030 links the development of oil and gas, coal, nuclear and electricity industries into a single whole using the best international practices and the latest trends in the global energy industry. The concept of the Fuel and Energy Complex (FEC) includes the following goals:



Green Energy Policy, Kazakhstan 2050 strategy

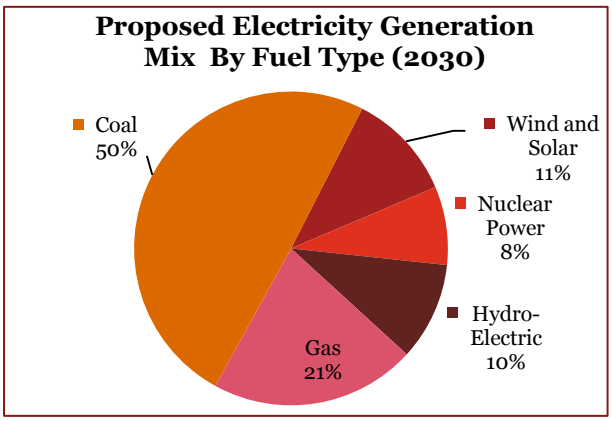
The Kazakhstan 2050 strategy is a comprehensive state plan aimed at inclusion of Kazakhstan into the ranks of the world's 30 most developed countries by the middle of the twenty-first century. With regard to enhancing renewable energy mix in power generation, the strategic document sets out the objective that a major portions of Kazakhstan's energy generation should come from renewable and alternative energy sources.

The Kazakhstan 2050 strategy sets the goal that 50% of Kazakhstan's energy consumption will come from renewable and alternative energy sources. During his annual state of the nation address in Astana on December 15, 2012, the president of Kazakhstan, Nazarbayev pronounced the new Kazakhstan 2050 Strategy— a comprehensive state plan aimed at inclusion of Kazakhstan into the ranks of the world's 30 most developed countries by the middle of the twenty-first century.

Phase-wise Implementation of Green Kazakhstan

Phase I: 2013-2020	•During this period, the main priority of the government will be optimisation of the resources, improvement of environmental performance, as well as the creation of "green" infrastructure;
Phase II: 2020-2030	•In the second phase, on the basis of the established "green" infrastructure, it is envisaged that the national economy will be transformed, focusing on the careful use of water, encouragement and stimulation of the development and widespread adoption of renewable energy technologies, as well as the construction of structures on the basis of high standards of energy efficiency;
Phase III: 2030-2050	•The transition of the national economy on the principles of the so -called " third industrial revolution", requiring the use of natural resources, subject to their renewability and sustainability.

The chart below shows the proposed power generation mix that Kazakhstan aims to achieve by 2030 by reducing the contribution from coal and increasing generation from Renewable Energy sources[5].

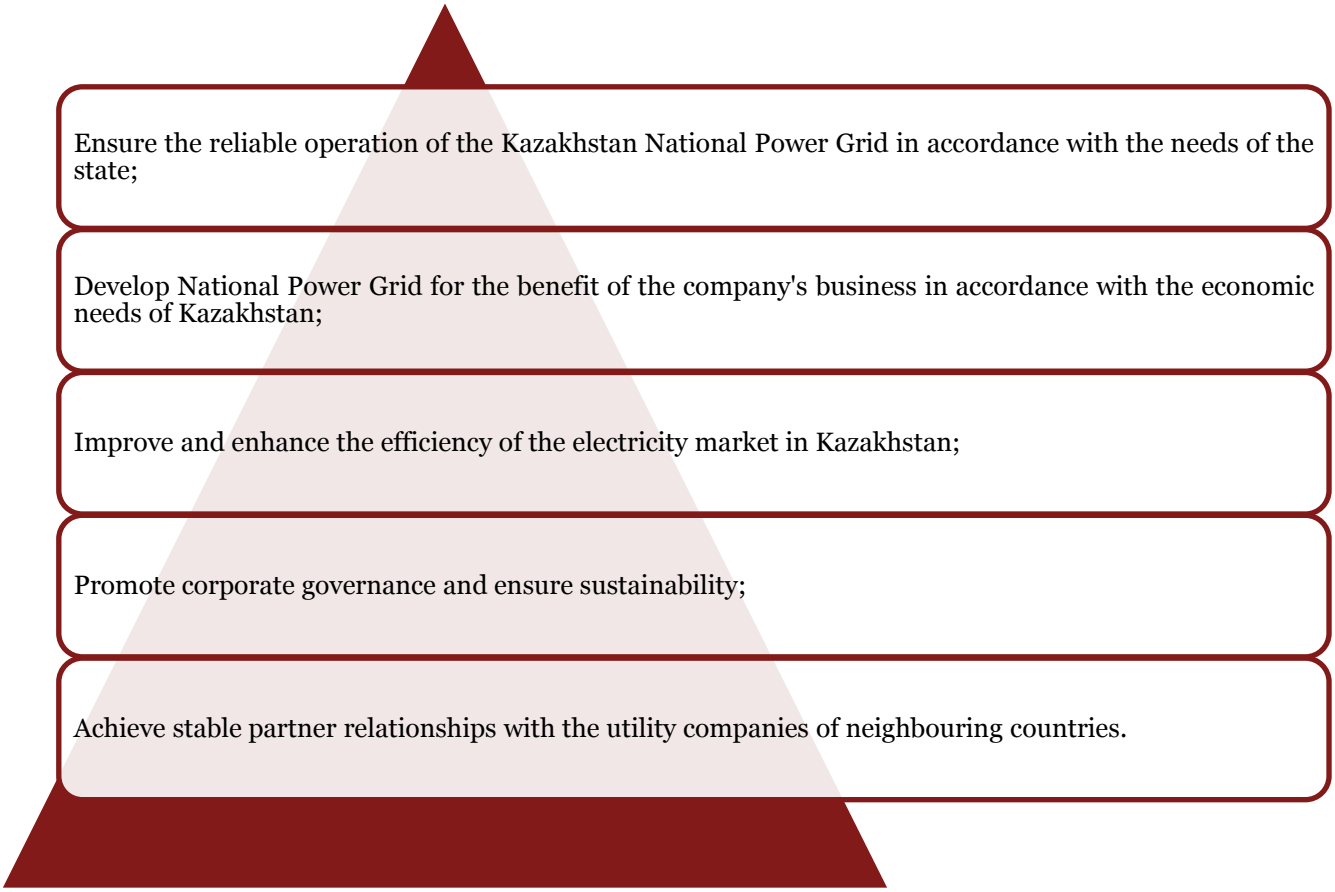


- Kazakhstan will be spending 1% of its annual output on increasing power generation from green resources until 2050.
- The overall cost of the programme from the period it starts until 2050 will be USD 3.2 Bn, approximately 1% of the country's GDP.
- Kazakhstan aims to achieve half of the aggregate power generation from alternate and renewable energy sources by 2050.

[5] (Source: Strategy 2030 for Kazakhstan- UNECE PPP Assessment Report on Kazakhstan).

KEGOC Vision 2025[6]

KEGOC's vision is to ensure reliable operation and efficient development of UPS of Kazakhstan in line with the up-to-date technical, economic, environmental, occupational health and safety requirements. The key goals and objectives as envisaged in the the Long-Term Development Strategy 2025 are:



Alignment of the power sector objectives of Kazakhstan with the CAREC Energy Work Plan, 2016 – 20

The table below provides a brief overview of alignment of the Kazakhstan's power sectors goals and objectives with the CAREC EWP 2016-20

	Element of EWP	Objectives of Kazakhstan's Power Sector
1.	**Developing the East-Central Asia-South Asia Corridor**	• KEGOC's Long Term Planning (LTP) Strategy states how Kazakhstan can leverage the large coal deposits, natural gas and uranium fuel reserve, which considerably exceeds the domestic needs, thus creating a potential for electric power generation and export in future. • It outlines that Kazakhstan could export electricity to China as well as to Afghanistan which will likely to have a significant

[6] Source: KEGOC Long-Term Development Strategy until 2025

	Element of EWP	Objectives of Kazakhstan's Power Sector
		electricity shortage in future. • The KEGOC LTP strategy envisages construction of 220 - 500 kV interstate transmission lines that will allow Kazakhstan to transmit power to neighbouring countries by 2025.
2.	**Promoting regional electricity trade and harmonization**	• Among the key objectives of the Government of Kazakhstan and the power generation companies is to substantially increase the export potential of electricity to adjoining states through construction of major new power generation capacities using advanced clean technologies, modernisation and reconstruction of existing electric power facilities. • KEGOC seeks to achieve stable partnership relationships with the utility companies of neighbouring countries, namely Russian and the Central Asian countries. • The main priorities of the KEGOC in cooperation with the energy enterprises of Russia and Central Asia outlined in the LTP are to: ✓ Protect interests of Kazakhstan UPS in relations with power systems of neighbouring states (abide to established technical operation modes of regional power systems, monitor fulfilment of obligations undertaken by states, etc.); ✓ Assist in settlement of the existing water and power problems in the region; ✓ Cooperate with Central Asian countries in rendering of power control service.
3.	**Managing energy-water linkages**	• The proposed 500 kV Cross-Border Kazakhstan – Kyrgyz power transmission project aims to connect the powers systems of the Kyrgyz Republic and Kazakhstan. The project aims to achieve the goals of additional export and transit opportunities for Kazakhstan and optimise water and energy issues to the benefit of Kazakhstan.
4.	**Mobilising financing for priority projects**	• In 2014, Kazakhstan embarked on a second wave of privatisation to boost foreign investment. The reforms could be the largest since the end of the Soviet Union and are currently underway. Of the 599 companies included in Kazakhstan's sovereign wealth fund, Samruk Kazyna, up to 209 are considered for privatisation. This includes state assets in both the atomic energy and oil/gas sectors will also be sold, along with stakes in the power distribution network. • Among the envisaged financing options, the power companies plan to use their own funds from operations along with support from government and multilateral funding agencies. Private sector investment is foreseen in the power generation and distribution space. Moreover, the Kazakh 2050 strategy clearly outlines development of effective private sector and public private partnerships (PPPs).

	Element of EWP	Objectives of Kazakhstan's Power Sector
5.	**Implementation of Energy Sector Priority Projects.**	• The document on Concept of development of the country's fuel and energy complex until 2030 envisages that Kazakhstan will be fully provided with its own electricity by 2030.It is envisaged that between 2016 and 2020, the Kazakh power transmission sector will focus on enhancing the efficiency of operations and investment activity. • KEGOC seeks to attract the necessary investments to implement the planned investment projects: construction of 500 kV lines in Zone West, Zone East, and Zone North which will ensure connectivity across the various regions and result in energy independence.
6.	**Capacity building and knowledge management**	-
7.	**Promoting and prioritizing clean energy technologies**	• The development of renewable energy is declared as one of the priority directions of establishing the future economy sectors as set forth in the State Program for Accelerated Industrial and Innovative Development of the Republic of Kazakhstan (RK) for 2010–2014 and the Kazakhstan 2050 Strategy. • The Kazakhstan 2050 strategy sets out an ambitious target that 50 % of Kazakhstan's energy consumption will come from renewable and alternative energy source by 2050. • The Concept of development of the fuel and energy complex of Kazakhstan until 2030 reiterates the focus on increasing share of renewable energy and alternative energy sources in the energy mix.

2.2. Projected supply and demand

It is envisaged that the key demand supply challenge facing the country will be in the southern and western region. With the power transmission infrastructure between the north and south consists of one 500 kV power line with a maximum transmission capacity of 600 MW between the regions. It is also necessary to build a transmission line connecting the western area of the unified national grid of the Republic of Kazakhstan. Due to the high projected energy consumption growth rates on the one hand, and the high degree of wear of existing generating assets on the other hand, it is envisaged that an annual addition of approximately 600 MW is required until 2025. It is also important to rehabilitate and modernise most of CHP plants that are over 45 years old. The Government of Kazakhstan, under its current sector development programme, focuses on the expansion of generation capacity through new investments, modernisation of existing capacity and extension of related transmission capacity amidst growing threats of debilitating power shortages.

It is also important to rehabilitate and modernise most of CHP plants that are over 45 years old. The Government of Kazakhstan, under its current sector development programme, focuses on the expansion of generation capacity through new investments, modernisation of existing capacity and extension of related transmission capacity amidst growing threats of debilitating power shortages. The tables below captures the overall power consumption vis-à-vis production in Kazakhstan till 2025 and the overall maximum load vis-à-vis

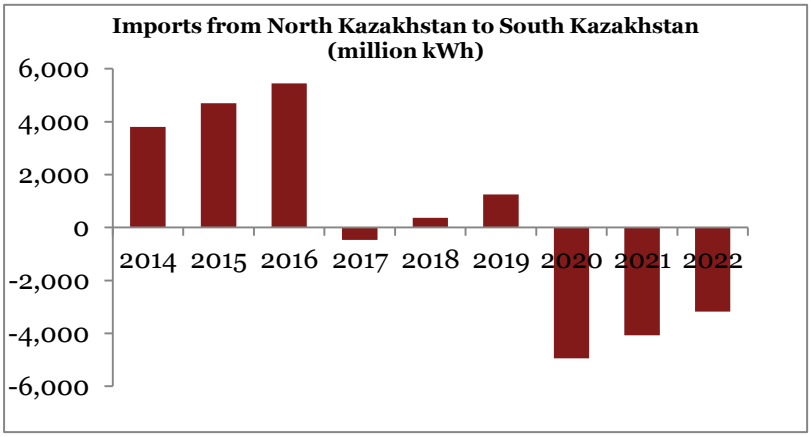
power generation.[7]

Overall Kazakhstan power consumption vs production (Bn kWh); Source: KEGOC				
	2014	2015	2020	2025
Electricity consumption	91.6	100.9	116.0	129.9
Electricity production	93.9	102.7	120.5	133.8

	2013	2015	2020	2025
Maximum load (MW)	14,700	15,920	18,530	20,500
Generation (MW)	14,620	16,220	18,930	21,000

On an average, the installed capacity in Southern Kazakhstan is almost forty years old and facilities with around 3,000 MW of installed capacity needs to be rehabilitated in the next ten years. South Kazakhstan is overly reliant on power from other regions, in particular, from North Kazakhstan. The 1,320 MW Balkhash thermal power plant will provide much needed power to the southern region.

The coal-fired power plant in Balkhash will supply energy to the Almaty and Jambyl regions of south Kazakhstan. The chart alongside captures the estimated imports to South Kazakhstan from North Kazakhstan till 2022. It may be noted that the dependence on imports from Northern regions is expected to decline since 2017 with modernisation of several operating power plants that are underway along with the commissioning of the Balkhash power plant. Kazakhstan is also looking to construct new power generation facilities with the aim of exporting the electricity they produce to China. Currently, Kazakhstan and China are considering the possibility of building an electricity transmission line to the central and eastern regions of China. It is possible to build new power plants in the Turgai and Ekibastuz regions in Kazakhstan to sell Kazakh electricity to China. Both countries are considering the construction of an electricity transmission line from Kazakhstan's Ekibastuz to the Hami substation in the Xinjiang Uygur Autonomous Region in north western China. This brings to the fore an electricity export up to 6 GW of electricity to China in the long-term.



Renewable Energy in Kazakhstan

Kazakhstan, in the recent times, has emphasised on changing its generation mix and shifted more towards renewable and green sources of energy. The important drivers that led to enhancing focus towards renewable energy resources are as follows:

Kazakhstan is amongst 10 countries globally with the highest level of energy intensity of the economy and this is expected to further increase in years to come.

The International Energy Agency forecasts the energy consumption of Kazakhstan to double by 2035.

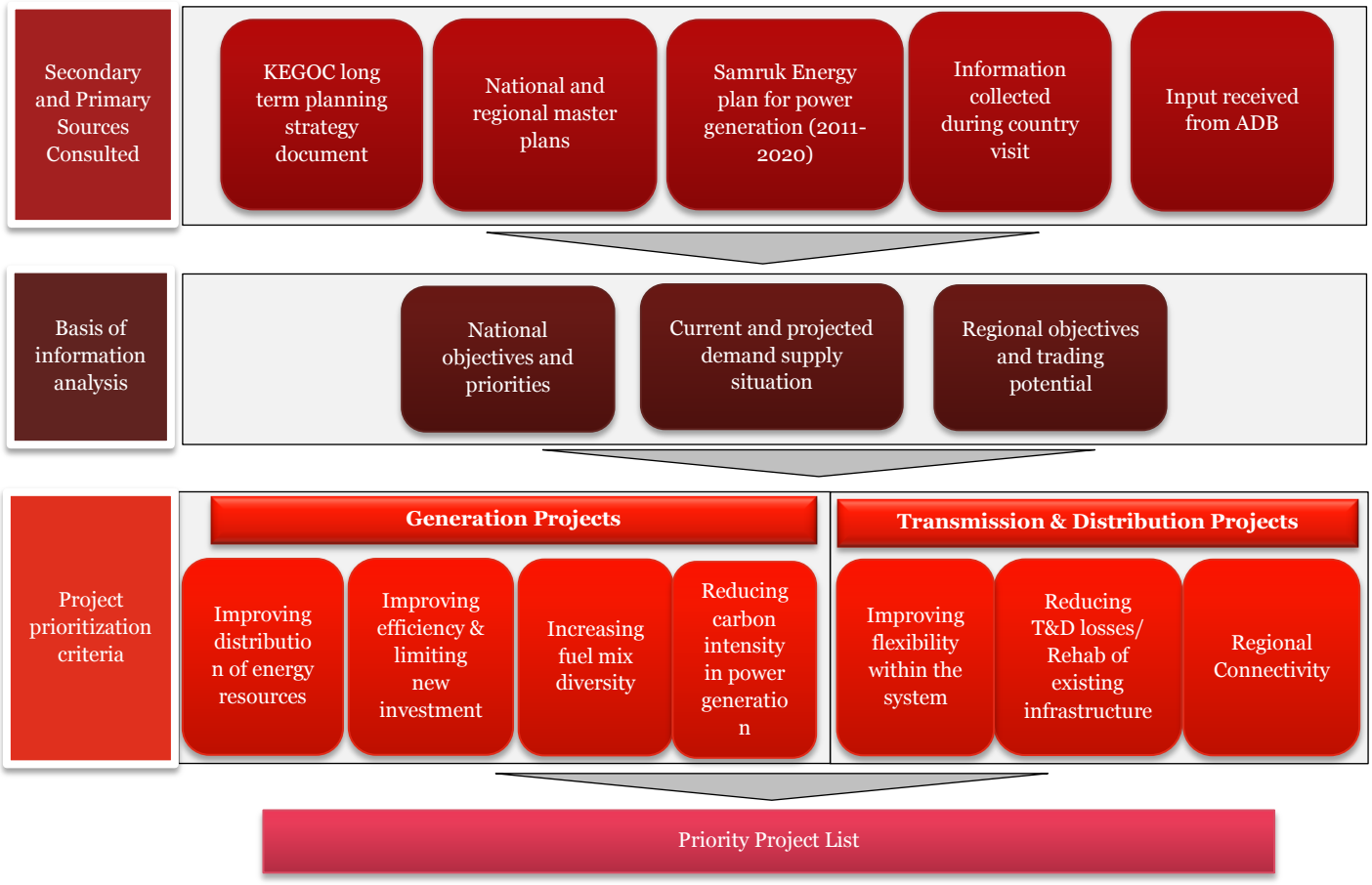
Kazakhstan features among nations with the highest CO_2 emissions intensity.

[7] Source: KEGOC Long-Term Development Strategy until 2025

There are a number of projects planned in the renewable energy sector in Kazakhstan over the coming years to develop over 1,040 MW of renewable energy capacity by 2020 (hydro, wind and solar).According to the Plan of Activities for Alternative and Renewable Energy in Kazakhstan, it is envisaged to put into operation about 28 solar energy projects until the end of 2020 with total installed capacity of 713.5 MW. The share of renewable energy in electricity production currently accounts for less than 1%. As Kazakhstan is sparsely populated, decentralized power generation could be particularly beneficial in distant villages of the country with little access to conventional energy sources.

2.3. Approach and key considerations for project prioritisation

An assessment of Kazakhstan's power sector was undertaken to understand the current sector structure, demand supply position, the industry challenges and concerns. Subsequently, a list of power projects were identified which would help improve the current situation. Based on assessment of the current and targeted macroeconomic and sector status, we have framed our approach to prioritise projects as shown below:



An initial list of projects were identified from the national and regional master plans, the KEGOC long term planning strategy document, the Samruk Energy plan for power generation (2011-2020) and in consultation with ADB. This was further discussed, during the country visit which took place between 10 and 13 November 2015, with the CAREC energy focal points, ministries and various development partners. A holistic view of the power sector was obtained to understand the key government priorities, thrust areas and taking into

consideration the existing and forecasted demand supply situation vis-à-vis the regional objectives. This provided us with an understanding of the priorities for the power sector based on which we worked out the different categories of the projects to be considered and also the key considerations/ criteria for project prioritisation. A consultative methodology for prioritising the projects which included a mix of secondary research and inputs from our national consultants on a regular basis and subsequent analysis and review, have been followed to arrive at the list of priority projects.

Project selection criteria – Generation Projects

The table below represents the key criteria for selection of generation projects from the initial list developed. These criteria, along with rationale for selection, are further discussed in brief below.

Criteria	Overview
Improving distribution of energy resources	• Coal dominates Kazakh power generation mix with a share of 84%, which can be attributed to the huge coal deposits in the northern and central parts of the country. • Southern Kazakhstan has limited primary energy sources most of which are inaccessible or yet to be exploited.
Improving efficiency and limiting new investments	• Most generation assets installed during 1960s & 70s have reached the end of their technical life and need to be rehabilitated. • 44% of power generation capacity is over 30 years old. • This will also bring down investments required to build new generation assets.
Increasing fuel mix diversity	• A skewed generation mix dominated by thermal sources necessitates inclusion of RE and hydro sources.
Reducing carbon intensity in power generation	• Kazakhstan is already among top 10 carbon intensive country globally. • Kazakhstan 2050 - Green energy initiatives aims for 50% renewables and alternative energy in the generation mix.

Project selection criteria – Transmission Projects

The table below represents the key criteria for selection of transmission projects from the initial list developed. These criteria, along with rationale for selection, are further discussed in brief below.

Criteria	Overview
Improving flexibility within the system	• The current north-south transmission is insufficient to transmit power from north to south. • Improving flexibility is important to strengthen the connectivity between the north, south and western regions. • This will decrease the southern and western region's dependence on

Criteria	Overview
	import of electric energy from northern regions of Kazakhstan.
Reducing T&D losses/ rehabilitation of existing infrastructure	• T&D losses are at 15% due to ageing assets (many over 40-45 years old). • New transmission lines to replace outdated ones are government's priority.
Regional connectivity	• Improving regional connectivity allows the northern and central region to leverage its power export potential • Strengthening of the transmission infrastructure will allow export of surplus power and import cheaper hydropower from Kyrgyz in summer.

- It is to be noted that unlike other CAREC member countries such as the Kyrgyz Republic and Uzbekistan, almost 87% of the power generation in Kazakhstan lies with the private sector. Transmission sector which is controlled by the government requires a lot more support from multilateral financing institutions than the power generation sector.
- Hence, among the list of priority projects in Kazakhstan are mostly power transmission projects that required additional support and financing.

2.4. Description of priority projects and investment requirements

The list of generation, transmission and other key energy projects with the probable financing options are presented in the table below. The proposed time frame for commissioning of these projects is between the years 2017 and 2023.

List of Power Generation Projects

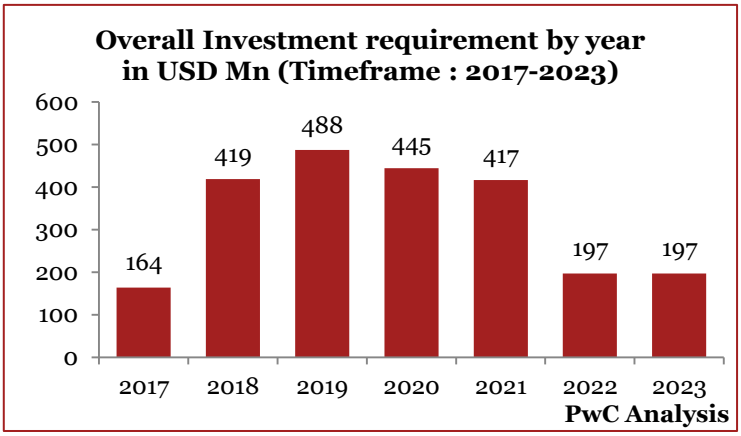
No.	Project Name	Investment Type	Description	Benefit(s)	Est. cost (USD Mn)	Project Selection Criteria			
						Improving distribution of energy resources	Improving efficiency and limiting new investments	Reducing carbon intensity in the power generation	Increasing fuel mix diversity
1.	Yereimentau wind park	Expansion	Upgrade capacity of 45 MW Yereimentau wind park to 300 MW	• This project is implemented as part of the expansion of facilities in the field of renewable energy sources. Construction will make it possible to organise an optimal structure of generating facilities, taking into account the decline in total consumption of fuel and energy resources, minimize negative environmental impact and curb GHG emissions.	238	✓	✓	✓	✓
Total					**238**				

List of Power Transmission Projects

No.	Project Name	Investment Type	Description	Benefit (s)	Est. cost (USD Mn)	Project Selection Criteria		
						Improving flexibility within the system	Reducing T&D losses/ Rehabilitation of existing infrastructure	Regional Connectivity
1.	Integration of the Power System of the Western Kazakhstan with Kazakhstan UPS	New	This project will ensure power delivery by the projected power plant in Aktau and integrate Zone West with Kazakhstan UPS with the lines in the territory of Kazakhstan	• The Western region relies on power imports from Russia. Proper connectivity with the UPS will help reduce dependence on power imports.	533	✓	✓	✓
2.	220 kV OHTLs Uralsk – Atyrau and Kulsary – Tenguz	New	Involves construction of a 625 km, 220 kV OHTLs from Uralsk – Atyrau and Kulsary – Tenguz	• Will strengthen electric connections between the oblasts of West Kazakhstan.	113	✓	✓	✓
3.	The Astana Electricity Transmission Project	New	The proposed 250km power transmission line shall ensure power supply to Zhezkazgan power centre	• This project will ensure reliability of power supply in Astana and Akmola oblast that has seen power shortages during the winter season	126	✓	✓	✓
4.	500 kV OHTL between Nura - Zhezkazgan	New	A 550 km dedicated power line to supply power to the industrial region of Zhezkazgan located in south-central Kazakhstan	• The Zhezkazgan sees increasing power demand due to mining activity. This project will help improve overall power supply to the region.	143	✓	✓	✓
5.	The 500 kV North – East – South	New	Bolster connection of the Eastern region with	• This project will enhance reliability of power supply in	655	✓	✓	✓

No.	Project Name	Investment Type	Description	Benefit (s)	Est. cost (USD Mn)	Project Selection Criteria		
						Improving flexibility within the system	Reducing T&D losses/ Rehabilitation of existing infrastructure	Regional Connectivity
	Electricity Transmission Project		Kazakhstan UPS and enable Shulbinsk hydro power plant (HPP) to deliver its full capacity into the grid after the commissioning of Bulak HPP	the East zone, Almaty region and help strengthen North-South power transit.				
6.	The National Power Grid Rehabilitation Project	Rehabilitation	Involves replacement of overloaded power transformers; installation and commissioning of power transformers at the existing substations, including power transformers with low loss level.	• This project aims to increase the transmission capacity and volumes of power transmitted by rehabilitating and modernising existing power transmission infrastructures	449	✓	✓	✓
7.	The Torgai Electricity Transmission Project	New	The Torgai TPP planned for construction at Torgai coal deposit in Kostanai oblast	• This project is needed to evacuate power from the Torgai TPP and transmitted to the other regions	68	✓	✓	✓
Total					**2,087**			

Project implementation and year-wise investment requirement for the power generation & transmission projects[8]



The proposed investment plan comprises of the generation and transmission projects with an estimated investment requirement of USD 2,325 mn or an annual requirement of approximately USD 332 mn. We assume a project start-up year of 2017 and completion period of 7 years with a major portion of the investment required is foreseen between the years 2017-2023. The chart alongside captures the estimated yearly investment requirement till 2023 for the selected projects assuming project start-up from 2017 onwards.

Assumptions:

- Large transmission projects to commence construction in 2017 with a completion period of 7 years;
- Mid-size transmission projects to commence construction in 2018 with a completion period of 4 years;
- RE projects (300 MW wind) to commence in 2018 with a completion period of 6 years.

Investment phasing

Year	2017	2018	2019	2020	2021	2022	2023
% of project (Large Transmission projects)	10%	20%	20%	16%	14%	10%	10%
% of project cost (Mid-Size Transmission projects)		15%	25%	30%	30%		
% of project cost (RE projects)		10%	20%	20%	22%	14%	14%

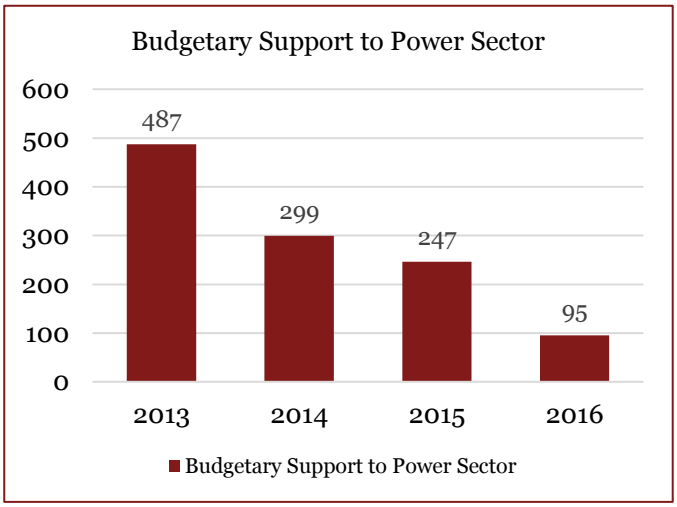
[8] We have provided a snapshot of the investment requirement as per the Power Sector Master Plan for Kazakhstan in Appendix B

3. Options for funding and financing power sector investment plans

In line with the investment plan for Kazakhstan from 2017-23, proposed funding from the national government budget, other governments, assistance from development partners(ADB and World Bank) has been estimated and the funding gap has been determined which needs to be filled up from other sources such as private investors, PPP, etc. The following section describes the proposed funding from each source in details.

3.1. National Government

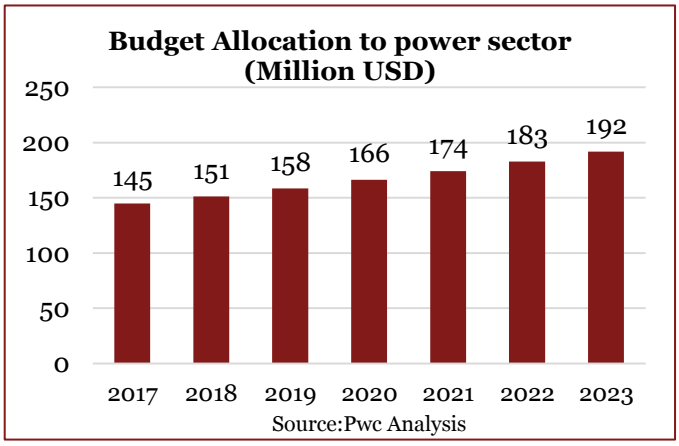
The national budget consists of the government budget and the local budgets. From the past budget expenditure trends, it could be seen that the government does not allocate significant amounts to the budget for power sector development rather encourages state-owned entities in the energy sector to borrow on a non-sovereign basis from international development partners for development projects. This is in line with the government's efforts to develop the private sector's role in energy. Further, it was felt that significant expenditure and commitments of future expenditure on social and development programmes may limit direct government budgetary support in the power sector



- The declining trend of budget from 2013-16 (in USD terms) is primarily on account of depreciation of tenge w.r.t USD by more than 50%.
- The government budget has been mostly allocated for thermal projects (new and R&M) and transmission projects.

Government budgetary support over 2017-2023 is estimated at USD 1,170 Mn based on the following assumptions:

- The budgetary support was assumed to be 0.15 % of GDP based on trend between 2013 and 2016.
- Average GDP growth of 4.7% till 2023 (as per IMF projections till 2020).
- Budget allocation in 2016 sharply reduced on account of oil price crash – the same has been normalised in 2017 for projections.

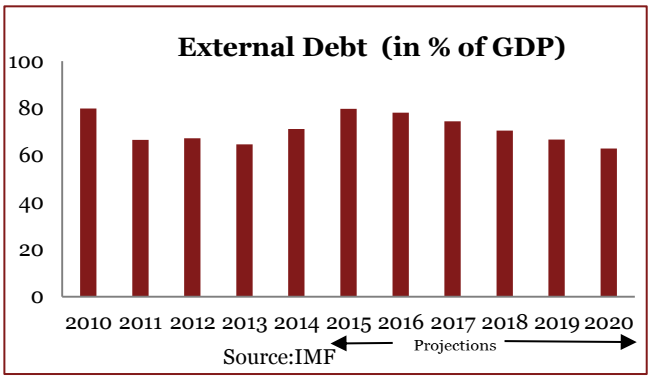


Government's ability to borrow

The government's ability to borrow is broadly based on the current level of debt and the projected level of debt in the near future. The following section provides a broad overview on the overall ability of the Government of Kazakhstan to borrow from various sources based on the debt sustainability.

Debt sustainability analysis

Total external debt of Kazakhstan increased from USD 118 Billion (approximately) amounting to 79.9 % of GDP in 2010 to USD 157 Billion (approximately) amounting to 73 % of GDP in 2014. Debt service ratio has shown a declining trend from 2010 to 2014. Debt has been more commercial in nature and the grant element had declined in recent past.

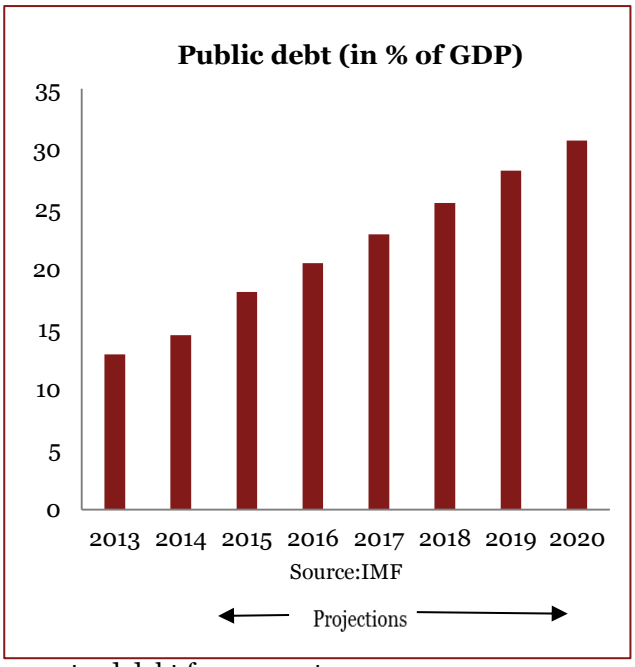


Though in recent years, Kazakhstan has been exhibiting a high external debt to GDP ratio mainly due to large inter-company loans, the situation is expected to improve in medium term .The external debt is expected to show a declining trend and reach about 63 % of the GDP in 2020. Non-interest external current account surpluses, non-debt creating capital inflows and automatic debt dynamics are expected to be responsible for this decline.

Kazakhstan: External debt composition, 2014		
	US$ (Billion)	**% of GDP**
Monetary authority	1.0	0.4
General government	8.3	3.9
Banks	10.1	4.6
Other sectors, *of which:*	137.7	63.2
Intra-company lending	79.2	36.4
Total external debt	157.1	72.1
Long-term	147.1	67.5
Short-term	9.9	4.6
Source: National Bank of Kazakhstan; Ministry of Finance of Kazakhstan		

External debt of the government debt and state guarantees, is expected to increase from 2014 to 2015-17 as the government will borrow about USD 7 Billion from multilaterals in order to support the implementation of the Partnership Framework Arrangement (PFA) for 2015-17 to support Kazakhstan 2050 development strategy and the government will issue Eurobonds worth USD 4 Billon. Earlier in 2014, Kazakhstan sold Eurobonds USD 2.5 Billion which resulted in rise of public and publicly guaranteed debt from 2013 to 2014.

- Kazakhstan has one among the lowest public debt to GDP ratio's among the CAREC member countries at 15% (approx.) of GDP.
- Most of the public borrowing is local currency denominated.
- The public debt is expected to increase over the medium term as the government plans to borrow about USD 7 Billion from multilaterals in order to support Kazakhstan 2050 development strategy.
- As per IMF projections, the total value of public debt is expected to remain close to around **30% of GDP till 2020**.
- Based on such assumptions, **the average net borrowing by the Government of Kazakhstan could be around USD 10 bn per year across all sectors.**



Impact of Decline in Oil Prices

As the economy of Kazakhstan is hugely dependent on revenues from oil, gas, and other raw materials, the country's GDP is expected to remain low at 0.7% in 2016. Fitch cut Kazakhstan to BBB, its second-lowest

investment grade, from BBB+ in April 2016. That marked the country's third downgrade in three months after the Kazakh tenge plummeted to a record low in January 2016 amid slumping oil prices. Kazakhstan's average annual inflation is projected to increase to 12.6% in 2016, because of currency depreciation.

As oil prices were forecast to remain low over the near term, the government revised its planned 2015 budget in March, with total budget cuts estimated at about 8% of the initial budget. The government's off-balance sheet funding of infrastructure investments through the nation's oil fund led to the budget deficit which widened sharply to 5% of gross domestic product in 2015 compared with a surplus of 3.5% over prior five years. Assuming the medium-term fiscal consolidation continues as planned, public spending could fall from 23.5% of GDP estimated in 2015 to about 20% by 2017. This may impact the budgetary allocations to the power sector in the medium term.

3.2. Assistance from development partners

Assistance from multilateral financing institutions will play a pivotal role in Kazakhstan's power sector. The support from multilateral funding institutions is primarily required in the power transmission, energy efficiency, and to a certain extent in the renewable energy space. The following paragraphs mention the major development partners involved in Kazakhstan power sector.

European Bank for Reconstruction and Development (EBRD): EBRD is assisting Kazakhstan particularly in the transmission of electricity to help improve energy efficiency in the system and increase electricity transmission capacities. The assistance is aimed at helping Kazakhstan establish more efficient use of existing energy resources and increase electricity supplies. EBRD is also involved in the development of the infrastructure sector in Kazakhstan to improve the infrastructure in Kazakh municipalities Among the key priorities of EBRD is addressing energy imbalances and the issue of improving energy efficiency.

World Bank: World Bank has prioritised to promote regional cooperation in energy, water, transport and trade in the Central Asian region. The key focus areas in Kazakhstan include improving energy transmission infrastructure, integration of wind and hydropower into the national grid and improving Energy efficiency.

Asian Development Bank (ADB): Improved energy efficiency initiatives under the auspices of ADB will help the Kazakhstan government assess energy efficiency options and provide support for improving demand supply imbalance and regional cooperation. Power transmission is one key area in the power sector in Kazakhstan which could be financed by ADB along with renewable energy projects.

United Nations Development Program (UNDP): The UNDP in Kazakhstan focuses primarily on climate change and energy efficiency initiatives. UNDP's key focus areas in Kazakhstan are energy efficiency of heat supplying services, climate variability, energy efficient lighting and wind power market development initiative

Assistance from development partners – Future trends

It is expected that ADB and World Bank would continue to invest in Kazakhstan's power sector and would be amongst one of the most significant development partners in the sector. It is estimated that Kazakhstan will receive USD 160 mn worth assistance from the World Bank and USD 245 mn worth assistance from ADB over 2017-2023.

World Bank Estimates

Year	Amount (in $ mn)	Remarks/ Assumptions
2016	20	Based on the Country Partnership Strategy
2017	20	
2018	22	Increase in lending by 10% for the next CPS
2019	22	
2020	22	
2021	22	
2022	26	Increase in lending by 20% for the next CPS
2023	26	
Total	**160**	

ADB Estimates

Year	Amount (in $ mn)	Remarks/ Assumptions
2016	110	Based on COBP
2017	0	
2018	25	
2019	40	Based on the average proposed lending for 2016-2018
2020	40	
2021	40	
2022	50	Increase in lending by 25% based on past trends
2023	50	
Total	**245**	

3.3. Other governments

Countries like UK, China, France and Republic of Korea have invested in Kazakhstan's power sector in the past and it can be envisaged that they would continue to invest in the power sector even in future. Apart from this, several private investors are actively involved in Kazakhstan's power sector.

United Kingdom: UK remains amongst the top 10 investors in Kazakhstan. In 2015, 24 agreements worth $3.8 billion during Kazakh Presidents visit to UK were signed and both the countries have agreed on cooperation in development of many sectors including oil and gas industry & energy.

China: China is in the process of developing more than 40 new proposals worth USD 6.8 Billion with Kazakhstan in the several field including atomic energy sector.

Republic of Korea: In 2011, an agreement was signed between the Government of the Republic of Kazakhstan and the Government of the Republic of Korea for the development, financing, design, construction, operation and maintenance of the Balkhash thermal power plant.

France: In November 2015, the French and Kazak President discussed on bilateral cooperation and expressed their desire to strengthen their strategic cooperation in the fields of energy, aeronautics and space sector.

3.4. Private sector participation

Public-Private-Partnership in Kazakhstan

Laws pertaining to PPP in Kazakhstan

The 2006, the Kazakhstan Concession Law No. 167-III, as amended (the "Concession Law") is the principal source of rules governing concessions. In addition, general laws such as the Civil Code, sector specific laws as well as sub-laws are applicable to PPPs.

Under the current framework, upon completion of the construction phase, ownership of the relevant concession facilities must be transferred to relevant state authority. Hence, Kazakh concessions as of today may only be structured as either Build, Transfer, Operate (BTO) or Design, Build, Transfer, Operate (DBTO) projects.

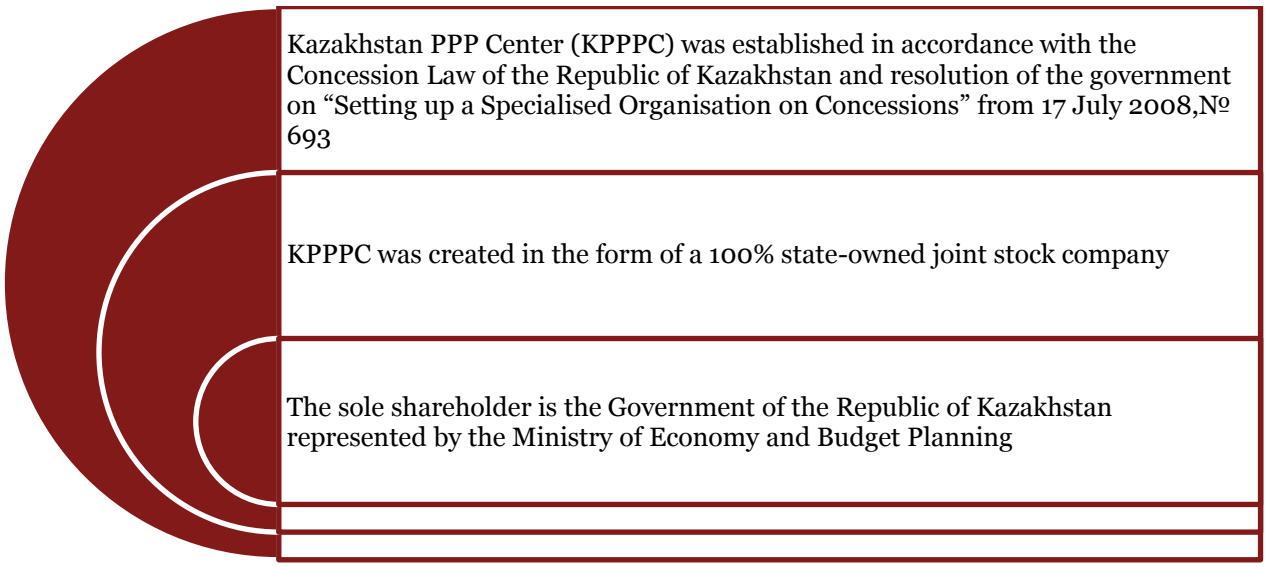
Partnership Framework Arrangement (PFA)

In May 2014, the World Bank and the Government of Kazakhstan embarked on a new Partnership Framework Arrangement (PFA), which is being guided by the CPS and aims to support the Government's efforts to ensure more sustainable development and inclusive growth that is widely shared and benefits the lower-income groups.

New Law on PPP signed in 2015: On 31 October 2015, a new RK Law on Public Private Partnership ('PPP Law') was signed**.** This law was adopted with an aim of establishing a common legal framework to regulate public-private partnership projects, which could enhance the investment prospects of this vehicle for private businesses.

Kazakh PPP Centre

The PPP Centre, in general, plays the role of an external independent advisor of the Government of Kazakhstan. It should ensure the balance of interests of the state, business and end-users. Moreover, after the concession agreement is signed, the PPP Centre continues to keep track of the project and monitors the course of its realisation and the dynamics of the inherent risks. The Kazakhstan PPP Centre also has important functions of developing methodologies for project preparation and appraisal, preparing recommendations for institutional development, and capacity building of state and other bodies in the sphere of PPP.



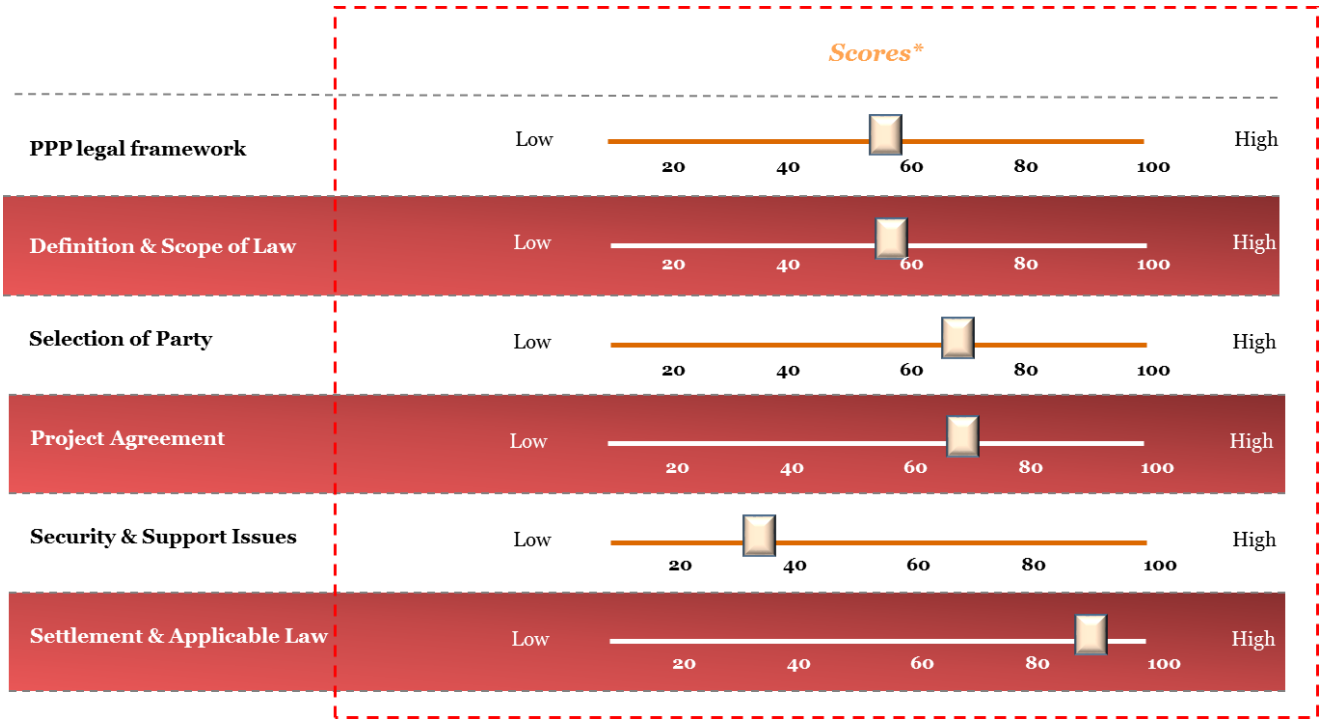
The Kazakhstan Centre for PPP has been evaluating the economic expediency of projects and their implementation. As part of the development of a PPP methodology for Kazakhstan, the PPP Centre:

- Works to ensure the development and improvement of the framework methodology for evaluating and examining state based investment projects;
- Assesses the implementation of PPP Projects;
- Contributes towards enhancing the quality of training & development of the PPP institutional system.

- PPP centre is a dedicated PPP unit which acts as a single window facilitating PPP across Kazakhstan.
- It is responsible for analysis and review of concession proposals, economic appraisal, feasibility studies, and analysis/review of concession projects submitted by bidders during tender.

Assessment of PPP framework in Kazakhstan

Quality of the PPP legislative framework in Kazakhstan: The chart below captures an evaluation of PPP framework in Kazakhstan. The right extreme of each scale (100) represents an ideal score in line with international standards such as the UNCITRAL Legislative Guide for Privately Financed Infrastructure projects. The higher the score, the more closely concessions laws of the country approximate these standards.



The concern areas in the existing PPP legal framework in Kazakhstan that need to be addressed to improve the overall PPP process are as follows.

Key issues/ Areas of intervention
• Under current Kazakhstan law, the investor/concessionaire is, generally, not protected from subsequent legislative changes which can be a deterrent to attract foreign investment
• The concession law doesn't allow the private party to create security interests over the project assets, rights and proceeds or other valuable guarantees related to the project.
• The Legislation allows the lender's step-in right only for certain concession projects and taking over a concessionary's entity. This is not applicable for all concession projects in Kazakhstan.
• The legislation[9] doesn't allow the private party to create security interests over the project assets, rights and proceeds or other valuable guarantees related to the project
• Despite a dedicated PPP centre, it still depends on the ministry and other government stakeholders for taking decisions related to PPP projects. • While a PPP centre needs to serve as a single window to facilitate PPP projects, the centre may require more autonomy to function and take decisions independent of the ministry.

[9] As of November 2015 (Till signing of the new PPP law)

3.5. Envisaged funding probability of priority projects

Overview of Investment plan and financing sources for 2017-2023

Investment plan and funding pattern, 2017-2023

It is envisaged that from 2017-23 the estimated requirement for development of the power sector is USD 2,325 mn. Further, it can be estimated that the power sector is likely to receive USD 1,170 Mn as government budgetary support and USD 405 Mn as assistance from development partners (sources such as World Bank, ADB) over 2017-2023 . The remaining is likely to be sourced from private sector and assistance from other countries.

Envisaged funding probability of priority generation project

Projects	National Government	Other governments	Assistance from development partners	Private investment
Yereimentau wind park expansion	Low	Low	Medium	High

Envisaged funding probability of priority transmission project

Projects	National Government	Other governments	Assistance from development partners	Private investment
Integration of the power system of Western Kazakhstan with Kazakhstan UPS	Medium	Low	High	Low
220 kV OHTLs Uralsk – Atyrau and Kulsary – Tenguz	Medium	Low	High	Low
The Astana Electricity Transmission Project	High	Low	Medium	Low
500 kV OHTL between Nura - Zhezkazgan	Medium	Low	High	Low
The 500 kV North – East – South Electricity Transmission Project	High	Low	Medium	Low
The National Power Grid Rehabilitation Project	High	Low	Medium	Low
The Torgai Electricity Transmission Project	Medium	Low	High	Low
Integration of the Power System of Western Kazakhstan with Kazakhstan UPS	High	Low	Medium	Low

4. Barriers to investments in power sector

In this section, we have discussed some of the key issues related to investment climate and regulatory landscape which is resulting in inadequate investments in the sector.

Absence of an independent regulator

Persuant to the ***Law on Electric Power Industry, 2004,*** the Ministry of Energy was deemed as an authorised body for framing regulations on electricity related matters. However, this impacts the transparency and independence of regulatory institutional structure as the regulator needs to be compeltely independent of the various stakeholders including the government, so that it can effectively discharge the duties of balancing the needs of all stakeholders.

Similarly, as per the ***Law on Electric Power Industry, 2004,*** the Agency for the Regulation of Natural Monopolies was conferred with the responsibility of approval of investment programme of electricity companies and approving individual tariffs for power plants. Recently, as per enforcement of new presidential order passed in Aug 2014, the above activities will be taken care by the Ministry of Economy. Thus, a committee within the Ministry of Economy is entrusted with the responsibility of the regulatory functions of tariff fixation and investment approval. This committee is known as *Committee for Regulation of Natural Monopolies and Protection of Competition at the Ministry of National Economy Competition*.

As per *Article 8 of Law on Electric Power Industry, 2004,* unless otherwise allowed by the law, Central executive bodies and local representative/executive bodies cannot interfere in the activities of companies which are involved in the generation and transmission of heat and power. This has been done to prevent interference of the other government departments and executive bodies in the functioning of the sector. However, ironically, the regulatory functions in the electricity sector and other sectors coming under natural monopoly are indirectly vested with the government.

The independence of sector regulator is based on financial and operational autonomy. The independence can be analysed on the basis of the following:

Areas	Details
Composition	The composition is approved by a Decree of the Government of the Republic of Kazakhstan. The committee consists of a chairperson and four deputy chairpersons along with few representatives of the Government
Decision-making	Majority vote of members
Appointment of members	Appointed by the government
Tenure	No Specific tenure of appointment, no specific provision on reappointment. However, in accordance with the law On Civil Service, rotation may be carried out. Terms and conditions of civil and political officials' rotation procedure are determined by President of the Republic of Kazakhstan at the request of the Authorised Body.
Funding	Funded directly by State Budget according to the budget proceedings stipulated by the law

According to the Article 12 of Law of the Republic of Kazakhstan On Natural Monopolies, the position, structure and the total number of regular authorised bodies are determined by the Government of the Republic of Kazakhstan. Similarly, the chairman of the Agency can only be appointed as well as dismissed from his position by the Government of the Republic of Kazakhstan.

Since both the regulatory powers and investment decisions are vested with the ministries, the lack of independent regulator with autonomous power may pose a challenge to be seen as transparent and efficient from the investors' perspective.

Mandatory licensing

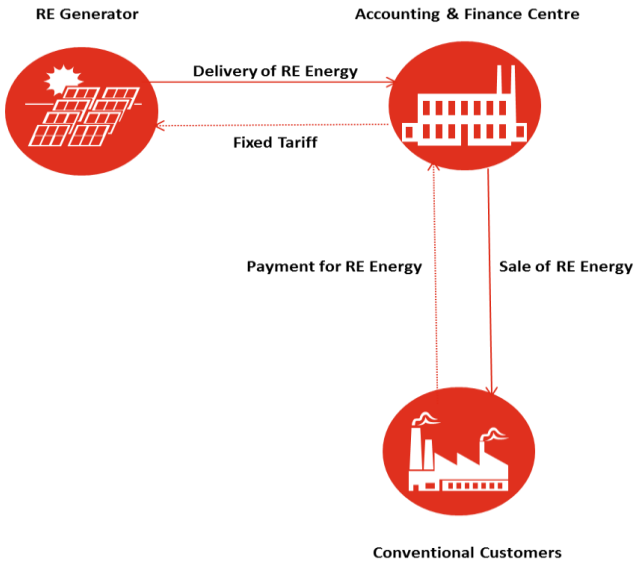
Entry for private players is not possible in generation, transmission or distribution sector without obtaining a license. In fact, as per the ***Law on Licensing, 2007***, almost all economic activities are subject to licensing. The requirements for obtaining a license, makes the business processes slow, complex and non-transparent. In order to attract investments in specific areas and to increase the number of participants in the sector, the mandatory provisions of licensing may be exempted for certain specific functions/ projects.

Credit worthiness of the Accounting and Finance Centre of Kazakhstan Electricity Grid Operating Company (KEGOC)

A power generation company that produces electricity using renewable energy sources can sell it in either of the following ways:

- At a fixed tariff to the Accounting and Finance Centre of KEGOC
- At a contract price determined through bilateral agreements with final consumers

The structure of Renewable Energy Market under fixed tariff regime is shown in the figure below:



Investors in renewable energy installations, who opt for method 1, conclude PPAs with the Accounting and Finance Centre of KEGOC. However, the existing uncertainty over the creditworthiness of the Accounting and

Finance Centre poses a big risk for investors. Hence, additional provisions and measures are needed to ensure that renewable developers are paid on time and PPA is thus bankable and secure.

Transparency in evaluation of renewable projects

The Ministry of Energy maintains a list of renewable energy projects on their website which are considered to get benefits under the RE policy. However, there are no fixed guidelines or criterion to evaluate which project would be considered for providing the benefits. The government has identified some sites for development of RE in the official plan *"**Development of renewable energy to 2020**"* vide *decree N43 art. 5 of 25 Jan 2013*. However, there is a lack of clarity on how a project developer can apply for benefits under RE policy if he selects a site different from the one mentioned in the official plan.

Issues with the Law of Concessions, 2006

A possible option for implementation of a project for construction of a power plant in Kazakhstan is through concession. As per ***Article 5 of the Concession Law* 2006**, the concession facilities may not act in the capacity of a pledge within validity period of concession agreement. This clause makes the project less attractive from the financing perspective and hence risky for investors. This is even more important for investments in the renewable energy segment because they are capital intensive and require significant debt and equity funding.

Issues with the Law on support of the use of Renewable Energy Sources, 2009

The renewable policies have to be developed in a manner which incentivises investors to get attractive returns and at the same does not make the end price of electricity unaffordable to the consumers. As such, the tariff of electricity has to be controlled effectively and suitable subsidies are required to be put in by the state government to control the tariff. In this context, the RE policy 2009 of Kazakhstan, does not give any control to the government to control tariffs based on volumes or to control the investments and capacities being planned under renewables.

Further, the ***RE Policy 2009***, provides exemption of cost of transmission to organisations that produce electricity through RE sources. However, it is silent on how the connection cost will be shared between the generator and KEGOC. This shall be clarified via policy measures to avoid potential conflicts in case the RE generator is opting for fixed tariff option for selling to Accounting and Finance Centre on support of renewable energy sources

Segregation of transmission from trading

In Kazakhstan, the transmission function and the trading function both are handled by KEGOC. In order to ensure proper accountability in energy management and development of electrical infrastructure, it is important that the activities of transmission and the trading function along with the load management functions are segregated. This brings more accountability in functions of trading and transmission and also ensures that the operation of the sector is transparent.

Drawbacks of capacity purchase agreements (upcoming)

Investment decisions in the Kazakh electricity market are not based on free market prices (i.e. the forces of supply and demand) but on the basis of regulated capacity tariffs. The successful bidders for generation and the System Operator conclude Capacity Purchase Agreements (Purchase Agreements of Services to maintain the Capacity Availability of new power plants). The Capacity Purchase Agreements fix the tariff, amount and duration of capacity supply.

In contrast to the principles of liberalisation, power plants cannot trade more than 10% of the amount of electricity they produce on the day-ahead (spot) market.

Electricity Tariff below Cost Recovery

The electricity tariff in Kazakhstan does not cover all costs of production and distribution. A World Bank report states that tariffs cover only 60% of costs. The lack of framework for cost recovery is resulting in the existing generating capacities being obsolete. The existing tariff determination process is really complicated and has many different mechanisms for different members of the electricity value chain. The table below shows how the tariff is set by the different members of the electricity value chain:

Segments of Value Chain	Authority for tariff	Methodology
Generation	Approved by Committee on Natural Monopolies	• Generators can decide their own tariffs subject to a maximum cap • The maximum price is approved within the cap which is set for each of 13 groups of generators classified by type, installed capacity, type of fuel and distance from fuel deposits. The caps are single part energy prices, there is no capacity element. • A certain portion of revenue has to be invested on capital expenditure. Investment tariff or its limit level is approved by the Authorised Body
Transmission (KEGOC)	Approved by Committee on Natural Monopolies	• Since August 2010, a single, uniform tariff has been applied over the whole of the country. The methodology is said to be cost-based, supplemented by benchmarking. • A uniform tariff based upon dividing the revenue requirement by the total energy transported has been set at EUR 2/MWh. There is no differentiation at voltage level.
Distribution companies and REC's	Approved by the Committee on Natural Monopolies	• The tariff methodology is cost-based and as such the actual tariffs vary with the individual RECs, depending upon their revenue requirement and consumption • Since 1 January 2013, the REC tariffs are regulated under the comparative analysis method, according to which the tariffs are approved for three years with the possibility of annual adjustment. This has paved path for introduction of incentive-based tariffs based on internal benchmarking between the distribution companies.
Electricity Supply Organisation	Approved by the Committee on Natural Monopolies	• ESO's can set their own tariffs depending on their power purchase costs

KOREM (Kazakh Operator of Electric Energy and Power Market) collects and reports all tariffs for distribution and supply, on their web site. It continuously updates this information on an ongoing basis. The few key issues with respect to tariffs being below cost recovery levels are:

Segments of value chain	Key issues in the tariff setting
Generation	• For generators where the tariff is fixed as per the regulatory cap, there is lack of incentives for cost optimisation and efficiency because the cost reduction leads to a reduction of the tariff in the next regulatory period. • Since any additional capital investment would have to be approved with the regulatory authorities over and above the tariff cap, it discourages generators from investing in Renovation, Modernisation and Upgradation
Transmission	• A uniform tariff based upon dividing the revenue requirement by the total energy transported may not be sufficient to recover costs in some cases • With the network being more complex with increasing demand, the single and uniform tariff applied over the whole of the country needs to be revisited
Distribution companies and REC's	• Non-transparency of the tariff calculation method making it less investor friendly • The tariff on the basis of benchmarking within the distribution companies may not be an efficient method of tariff determination because of the different consumer mix, geography and terrain being served by the different supply companies.
Electricity Supply Companies(ESOP)	• There is an inconsistency between differentiated ESO tariffs and wholesale electricity market. ESO's purchase electricity from power plants under uniform tariffs throughout the day and sell it according to the tariff differentiation (based on the time of day), which leads to losses incurred by the ESO.

Case facts: Need for cost reflective tariff for upgradation of infrastructure

At the beginning of 2013, the level of wear and tear in electrical networks in Kazakhstan is reported to be around 60%. Loss rate in electric grids is around 13%, which is significantly higher than the grid losses in the developed European countries, which are in the range of 2.3% to 6%. High losses in electric grids in Kazakhstan are explained both by significant wear/tear and outdated equipment and electrical grids' topology caused by the vast territory of Kazakhstan and the associated need to transmit electricity over long distances. Thus, significant capital expenditure is required to upgrade the transmission and distribution network and thus the tariffs which truly reflect costs including renovation and modernisation is needed.

5. Reform action plan for facilitating investments

In the previous section, we have identified key barriers which have resulted in inadequate investments in the electricity sector of Kazakhstan. In this section, we have discussed some indicative reform measures that may be considered for facilitating investments and making the sector more attractive for private investors.

Strengthening of Sector Regulator

An Independent regulator can provide assurance to investors that prices, outputs and inputs will not come under the pressure of 'regulatory capture' and pressures from economic and political interest groups. It has been observed worldwide that any bureaucratic and political intervention in the working of sector regulator has always resulted in discharge of ineffective regulatory functions by the body. A brief snapshot of the suggested reform action plan to strengthen the sector regulator has been shown in the below table.

Prerequisite for regulatory reform

Currently, the *Committee for Regulation of Natural Monopolies and Protection of Competition at the Ministry of National Economy* looks after regulatory activities for all the natural monopolies. As per the Law on Natural Monopolies, many sections of sectors such as electricity, oil and gas, airport services, air navigation, water supply and sewage services, telecommunications, etc. come under the purview of natural monopolies. Thus forming sector regulations for all the sectors by a single committee is a tedious task. Therefore, a pre-requisite for a stronger regulatory regime for the electricity sector is the formation of a separate regulator for the electricity sector alone.

Reform action plan for strengthening of existing regulatory regime

Indicative measures for strengthening of existing regulator
• Establishment of a single dedicated regulator for power sector which has an independent legal entity. It can be either a single regulator looking after both the natural monopolies (transmission and distribution) and competitive segments (generation and retail supply) or two separate central regulators. This will ensure policy formation and sector regulations are done by independent agencies.
• In order to ensure financial autonomy, the regulatory body can be funded through other means than government budget (refer case study on funding of independent regulatory agency).
• The process of appointment of chairman and members of the regulatory body shall be made transparent by issuing detailed guidelines. The tenure of the members shall also be clearly defined.
• The regulatory institutional structure may be evolved gradually to a central regulator with various regional regulators under it. (Refer: case study on formation of **Central Electricity Regulation Commission (**CERC) and **State Electricity Regulation Commission (**SERC) in India).
• The dedicated regulator shall come up eventually with required guidelines regarding standard of performance, grid code, framework for private participation, tariff guidelines, etc.

Case Study regarding formation of CERC and SERC: India

In the year 1998, The Central Government of India moved forward to enact the Electricity Regulatory Commission Act of 1998, which mandated the creation of the Central Electricity Regulation Commission (CERC) with the charge of setting the tariff of centrally owned or controlled generation companies. The Ministry of Power, India, has published the Electricity Regulatory Commissions Act, 1998. Apart from CERC, the act also introduced a provision for the states to create the State Electricity Regulation Commission (SERC) along with the power to set the tariffs without having to enact separate state laws. The Electricity Regulatory Commission Act 1998, has also clearly laid down guidelines for the constitution and appointment of both the CERC and SERC.

CERC intends to promote competition, efficiency and economy in bulk power markets, improve the quality of supply, promote investments and advise the government on the removal of institutional barriers to bridge the demand supply gap and thus foster the interests of consumers.

The main functions of the SERC as envisaged in the act is to determine the tariff for electricity, wholesale, bulk, grid or retail; to determine the tariff payable for use by the transmission facilities, to regulate power purchase and procurement process of transmission utilities and distribution utilities, to promote competition, efficiency and economy in the activities of the electricity industries, etc.

The act thus laid the foundation for detaching the government from tariff determination process from the entire value chain of the electricity sector.

Case Study regarding funding of independent regulatory agencies.

There are various ways in which an independent agencies are funded. The three basic ways are:

- Assessments on Regulated Companies
- Appropriations from General Treasury
- Fees for Special Services/Activities

The most common method for funding regulation is by assessing the costs of regulation to the regulated companies, and then allowing them to simply pass those costs directly on to the consumers. The second most utilised method is through an appropriation from general tax revenues. The third, and least common methodology, is specific fees for services/activities.

Pakistan and Mongolia are currently using the third methodology for funding of their regulatory commissions which ensures financial autonomy to a greater extent but such methods has the highest transaction costs, and may yield less stability and reliability in a revenue stream thus hampering key regulatory activities. Fess, however, can be a very useful mechanism for providing supplemental funds for agencies when required for specific purposes.

India on the other hand uses the second method of funding the Central Electricity Regulatory Commission, namely from appropriation from general tax revenues. As per article 11 of The Electricity Regulatory Commissions Act, 1998, the expenses of the Central Commission including all salaries and allowances payable to, or in respect of, the Chairperson and the Members of the Central Commission shall be charged upon the Consolidated Fund of India.

Even though the above methodology may not always attract political interference in the operation of the agency but is not as reliable or has stable assessments, and does not internalise regulatory costs into the

sector.

Kazakhstan is funding the regulatory body directly from the federal budget; thus it is clearly under government control as far as the financial dependence is concerned. Therefore, on the basis of the current state of sector reforms, it needs to find a suitable methodology of funding the regulatory body for natural monopolies from one of the above methodology to ensure financial autonomy.

Promoting competition and efficiency

Licensing process: As provided earlier, almost all economic activities are subject to licensing in Kazakhstan. Entry for private players is not possible in generation, transmission or distribution sector without obtaining license. It has been observed in various cases that delicensing has resulted in significant capacity additions by private players. For example, in India, post the enactment of Electricity Act 2003, in which generation was de-licensed, there was significant improvement in the contribution of private players towards the installed capacity base.

New models of PPP: At present, the PPP model used in Kazakhstan in power sector is mainly through direct ownership of private players. In some cases, direct ownership is not possible or feasible which limits private participation. As such, Kazakhstan needs to try and adopt new models like franchisee, wherein the licensee outsources all its activities to a third party over a clearly defined framework for operation and improvement. This helps in bringing additional private funding linked to performance improvement.

Indicative measures for increasing competition

- Requirement of licensing shall be exempted/done away for certain functions/ projects. For example, small renewable projects, concession projects.
- Licensing process to be simplified and made more transparent, especially the process for renewal and re-issuance. For example, public consultation on matters related to licensing can also be made obligatory.
- The Public Private Partnership Model of Franchisee may be tried in areas where complete private takeover is not feasible. (For example, in distribution, a Distribution Franchisee may be allowed where in the franchisee can take over certain functions—metering, billing, revenue collection, and capital expenditure; while the government utility retains the legal responsibility for power supply)
- More private players should be brought in the retail supply side by relaxing the license conditions, requirements for license area, etc.

Cost reflective tariffs

Electric power transmission and distribution services in Kazakhstan belong to the sphere of natural monopolies. Under the current legislation, tariffs of the grid companies should provide compensation of costs necessary for provision of regulated services, as well as the implementation of the investment programme. However, as outlined in the section on barriers to investment, the tariffs are below cost-recovery levels. Also, for certain areas, there are no strong incentives to optimise cost and improve efficiency.

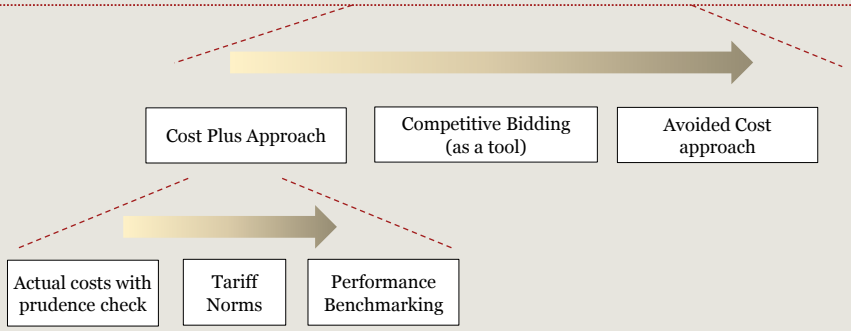
Indicative measures for ensuring cost reflective tariff

- Issue of guidelines for mandatory procurement and supply of power through competitive means. This may be associated with removal of caps for generation prices, so that market based wholesale trading can happen for purchase of power
- In order to ensure efficiency, performance based tariff regulations may be established along with benchmarking. Benchmarking may be done against similar system in other similar countries. (See case study)
- For efficient load forecasting and despatch, the balancing market, which is in simulation mode (no settlement at present) shall be implemented
- ESO's independent tariff determination methodology shall also be made transparent so that there is no unnecessary cost burden on the end consumers. Also, a ceiling tariff may be notified by the regulator for different categories of consumers to prevent cherry-picking.

Case Study regrading various methods of tariff structuring

It can be observed across developing and developed countries that historically as the energy sector of a country progresses, the tariff setting regime has moved from historical tariff setting (based on historical and socio-political trends) to a regulated regime (with independent and transparent tariff determination) and finally to a competitive bidding based market with multiple buyers and sellers. The below diagram lists down the salient features of each of these tariff regimes.

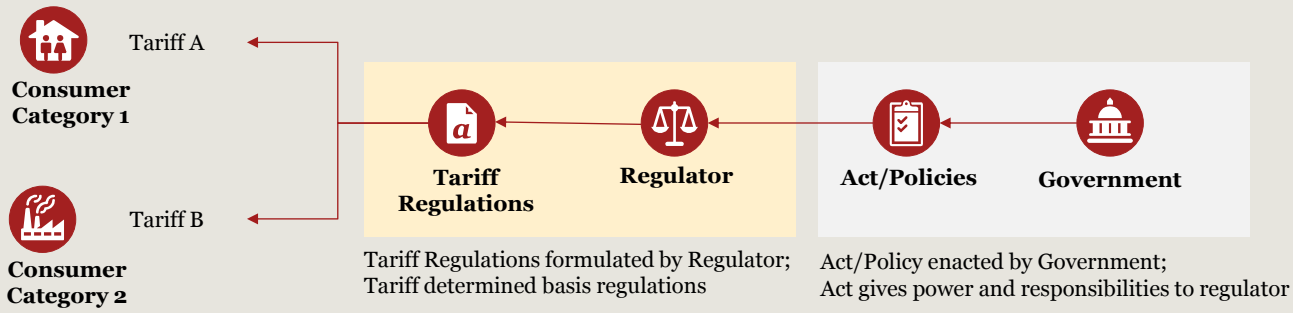
	Historical Regime	Regulatory Regime	Competitive Regime (Retail Competition)
Description	Tariff set based on historical & socio-political trends	Tariff set based on Tariff Regulations & policies by independent regulator	Tariff set based on competing market forces
Sector Scenario	Small Industry with low private participation	Medium sized developing Industry with increasing private participation	Large sized developed Industry with majority private participation
Tariff determination Agency	Government	Independent Regulator	Multiple buyers and sellers monitored by Regulator
Pros	Protection of Consumer interests	Transparency and Standardisation	Efficiency and increased private investments
Cons	Financial burden on state, Opaque process	Susceptible to political motivations	Requires multiple players with economies of scale



Based on the current scenario in Kazakhstan, the end user tariff by supply companies are still operating under

regulatory regime with a limited competitiveness. There is a need for transformation to a full competitive regime where multiple buyers and sellers can compete under regulatory supervision. However, in order to ensure a smooth transition from one tariff regime to another, the government and the independent regulator need to formulate certain laws, policies and regulations to ensure a standard, non-arbitrary and transparent method of tariff determination.

The flow of tariff reforms shall follow the following sequential steps for seamless transition from one regime to the other:



Case Study : Price reform in Vietnam

The key idea of the price reform in Vietnam was to make the price reflect real costs and changes in upstream and downstream markets and gradually reduce the state subsidies to electricity costs and prices.

In 2009, Prime Minister Nguyen Tan Dung issued Decision 21/2009/QD-TTg initiating electricity price reform. The price was planned to move towards cost recovery, increasing average electricity prices and transparency in price setting. The decision also regulated the phase out of cross subsidies in prices for different consumer groups. The 7th National Power Development Plan (PDP), approved by the Prime Minister in 2011, sets a specific target of increasing the electricity price to "meet the long-run marginal cost of the electricity system by 2020, equal 8-9 cents per kWh".

The sale prices were to be adjusted within a fiscal year as per changes in fundamental input indexes, including fuel price, foreign exchange rate and the structure of electricity generation outputs. The minimum time between two consecutive adjustments was decided as three months. The Ministry of Industry and Trade then decided to regulate the electricity price adjustment as per fundamental inputs including foreign exchange rate, electricity generation structure and fuel price. The electricity price adjustment are specifically regulated and openly announced.

As a result of this measure, within 1.5 years, electricity retail prices were increased thrice and thus increased by 8.3% in USD. However, still the electricity prices in Vietnam are lower than their cost of production but situation is slowly improving.

Promotion of renewables

As outlined in the previous section, reforms needs to be brought in to promote development of renewable projects and ensure financial sustainability of the projects. The measures are given below:

Indicative measures for promoting renewables

- To promote renewables and provide a clear vision, clear and tangible targets for RE Generation may be fixed along with associated plan to meet the targets.
- Frame clear policies for providing incentives to renewable projects which ensure that the projects have affordable tariff.
- Framework should be developed to ensure off-take of power from renewable sources (mandatory procurement of power from renewables).

Appendix A: List of power plants

No.	*Power Station*	*Owner*
1	Aksu Power Plant	ENRC
2	Ekibastuz PP-1	Kazakhmys-Samruk-Kazyna
3	Karaganda PP-2	Kazakhmys-Samruk-Kazyna
4	Ekibastuz PP-2	Samruk Energo
5	MAEK TPP 2-3	KazAtomProm
6	Almaty Power	KazTransGas
7	Temirtau TPP	Arcelor Mittal
8	Petropavl TPP-2	AccessEnergo
9	Astana TPP1-2	Astana-Energy
10	Karaganda PP1-3	Karaganda Energo Center
11	Bukhtyrma HPP	Kazcink
12	Shulby HPP	AES
13	Oskemen HPP	AES
14	Jambyl PP	Samruk Energo
15	Shymkent TPP1-3	Energoortalyk
16	Aktobe Ferroalloy Station	Kazchrome
17	Shardary HPP	Samruk Energo

Source: Kazakhstan: Power Generation and Distribution Industry- U.S. Department of Commerce, 2013

Appendix B: Investment requirement according to the Power Sector Master Plan

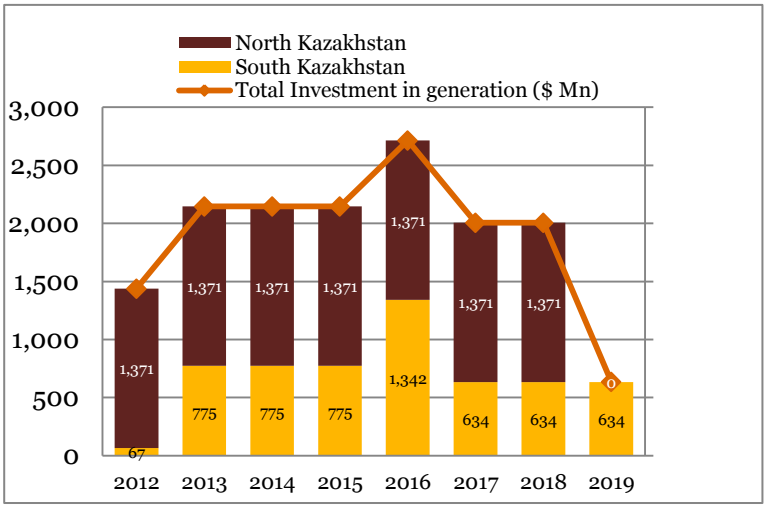
In order to achieve long-term economic development in Kazakhstan, in October 2012, the government outlined its plans to invest up to $63 billion to boost power generation capacity over the next 20 years.

Samruk Energo, the power generation arm of state holding company Samruk Kazyna, proposed a master plan for development of the energy industry which plans to increase power generation capacity by 62% by 2030. Investment projects will be executed by Ministry of Industry and New Technologies, Samruk Kazyna, and KEGOC. Proposed investment plans by KEGOC, Samruk and investment requirement according to RPMP is captured in the table below:

No.	Name	Details	Sector	Investment Requirement ($ Bn)	Timeframe	Comments
1.	**KEGOC**	KEGOC Long-Term Development Strategy until 2025	Transmission	4.70	2010-2025	Priority projects for the NPG development
2.	**Samruk Energy**	Long-Term Development Strategy	Generation	6.91	2010-2020	Modernization and reconstruction of generation facilities Construction of new generating facilities
3.	**RPMP**	10 year Investment Plan	Generation	15.23	2012-2022	Modernization and New infrastructure
4.	**RPMP**	10 year Investment Plan	Transmission	0.84	2012-2022	

Power Sector Investment Requirement according to PSMP

Investment Required in Power Generation Segment (2012-19) by Region: According to the Regional Power Sector Master Plan (RPMP), among the key investments required towards power generation, apart from modernisation and rehabilitation of existing plants, is the construction of the Balcash Thermal Power Plant and addition of thermal power plants of approximately 5,000 MW capacities across North Kazakhstan by 2019.



Investment Required in Power Transmission Segment (2012-19): With an objective to improve energy efficiency and increasing electricity transmission capacities, Kazakhstan needs steady investment towards establishment of new transmission lines and rehabilitation of existing substations and transmission infrastructure all over the country. According to the RPMP, transmission investment is pegged at $ 838.8 million from 2011-2022 of which $ 629 million is allocated towards new transmission lines while the rest is towards rehabilitation of substations and transmission lines.

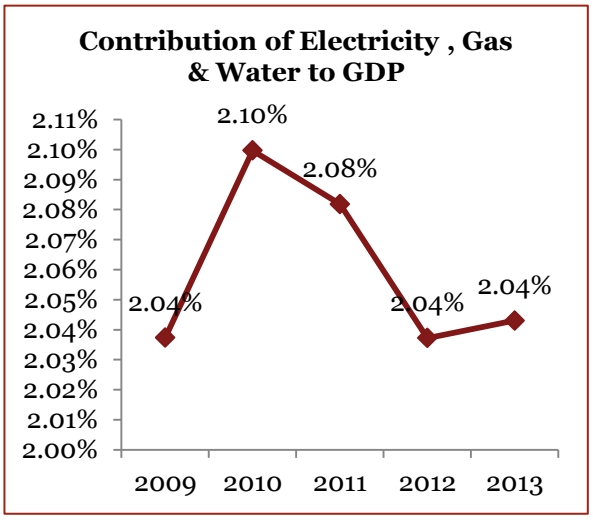
KEGOC Investment Plan

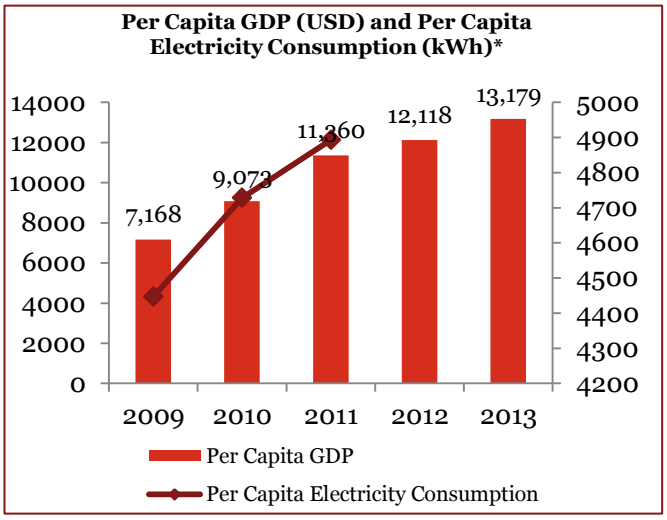
KEGOC approved a long-term investment strategy in 2013 under which $3.5 bn will be invested by 2025. Kazakhstan electricity grid is receiving assistance from the World Bank and the European Bank for Reconstruction and Development (EBRD).

Furthermore, KEGOC has embarked upon several projects, including the rehabilitation of substations, transmission lines and other equipment, as well as building a substation near Almaty and power lines to the Moinak power plant. KEGOC is considering building a 500 kilovolt north-south power line and transmission lines in order to connect the west Kazakh regions of Uralsk, Atyrau and Mangystau to the national grid.

Appendix C: Macroeconomic overview

Kazakhstan, among the largest economies in the CAREC region, remains highly resource dependent, with manufacturing accounting for 11 % and agriculture for 5 % of GDP. Much of the fiscal surpluses have been saved in the National Fund for the Republic of Kazakhstan (NFRK), with portions transferred to the budget to fund public investment. The current account also reported a deficit for the first time since 2009 due slowdown in exports mainly due to low oil price and slow growth in trading partners. In 2015, in order to cope up with the negative developments in external situation the government of Kazakhstan abandoned an exchange rate band for a floating rate.





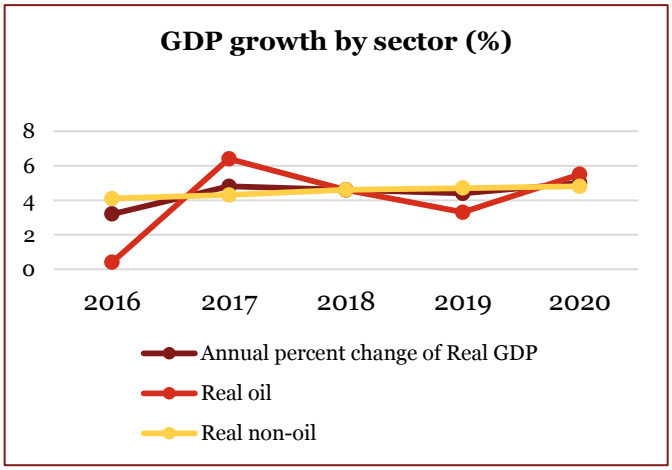
The favourable external economic environment and fast per capita income growth have contributed to an impressive reduction in poverty from 47 percent in 2001 to about 3 percent in 2013. Kazakhstan's rapid economic growth in the past decade has led to a sharp upswing in electricity consumption with per capita consumption close to 5000 units/ annum. The electric power industry remains a key factor in Kazakhstan's industrial development and economic growth as electric power generation accounts for about one-tenth of all industrial output

In the medium term, the growth outlook is dampened by weaker domestic demand & expectations of weaker external demand due to the anticipated slowdown in China and the recession in Russia.

Lower oil export revenues are expected to lead to deficits in both the current account and the overall fiscal balance.

In 2016, projected rise in exports and preparations for Expo 2017 will promote a recovery in growth despite continued weak private consumption and investment.

The Government's current development program puts a major emphasis on increasing the non-oil sectors' contribution to growth.



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