Resolution of the Government of the Republic of Kazakhstan dated November 4, 2014 No. 1171 on approval of the General scheme of gasification of the Republic of Kazakhstan for 2015-2030

(as amended dated28.09.2015)

In accordance with subparagraph 4) of article 5 of the Law of the Republic of Kazakhstan dated January 9, 2012 "on gas and gas supply", the Government of the Republic of Kazakhstan **DECIDES**:

1. Approve the attached form General scheme of gasification of the Republic of Kazakhstan for 2015-2030.
2. Central and local Executive bodies to take measures arising from this decree.
3. This resolution shall enter into force upon the expiration of ten calendar days after the date of its first official publication.

Prime Minister
Of The Republic Of Kazakhstan **K. Massimov**

Approved
by the resolution Government Of
The Republic Of Kazakhstan
dated November 4, 2014 No. 1171

Introduction

The General scheme of gasification of the Republic of Kazakhstan (hereinafter referred to as the General scheme) is a comprehensive document that provides strategic directions for prioritizing the provision of domestic gas needs of the Republic of Kazakhstan.

In accordance with the Law of the Republic of Kazakhstan dated January 9, 2012 "on gas and gas supply" (hereinafter - the Law) strategic priorities of gasification are aimed at solving the following main tasks:

1) formation of strategic directions for the development of prospective gasification to ensure reliable gas supply to the domestic needs of the Republic of Kazakhstan;

2) determining the layout of existing and planned gasification facilities, which are the basis for creating a unified gas supply system;

3) creating conditions for increasing the share of consumption (commercial and liquefied petroleum gas) in the structure of the fuel and energy balance of the Republic of Kazakhstan.

Solving the above tasks will ensure the applicability of gasification development in the long term, make effective management decisions depending on the pace of transition of the economy of the Republic of Kazakhstan to an innovative development path.

Natural gas occupies a special place in the structure of world energy and the international fuel balance. The rapid development of the liquefied natural gas market over the past 20 years has contributed to the accelerated development of the gas industry in the world. It is assumed that the share of hydrocarbon gas fuels in the global energy balance may reach about thirty percent. As a result, global experts characterize the upcoming period in the development of energy as the era of "methane".

For the Republic of Kazakhstan, natural gas is also becoming an increasingly promising energy carrier, with proven and estimated reserves amounting to about 3.9 trillion^{m3} (hereinafter-trillion. m^3), taking into account the discovered new deposits on the Caspian shelf, reach 6-8 trillion. m^3.

At the same time, the peculiarity of the explored gas reserves in the Republic of Kazakhstan is that almost all fields produce gas in parallel with the production of oil and condensate. Therefore, the active development of these fields and a sharp increase in oil production in recent years dictate the need to utilize the increasing volumes of associated gas produced.

The measures taken in recent years to develop the gas industry have allowed for a relative financial stabilization of gas transportation organizations, an increase in the volume of work and technical reconstruction of main and local gas pipeline systems (hereinafter - MG), which has affected the growth of domestic gas consumption.

Currently, the produced gas is not fully processed, and there is no possibility of redistributing natural gas from its production sites to its consumption regions.

All of the above causes the need to solve a number of tasks related to the search for new ways of utilization of associated gas produced, the introduction of new capacities for processing and transporting gas, as well as the expansion of the domestic sales market.

The adoption of the General scheme is aimed at uniting the technologically and geographically separated set of individual links of the gas component in the oil and gas complex into a single industry system.

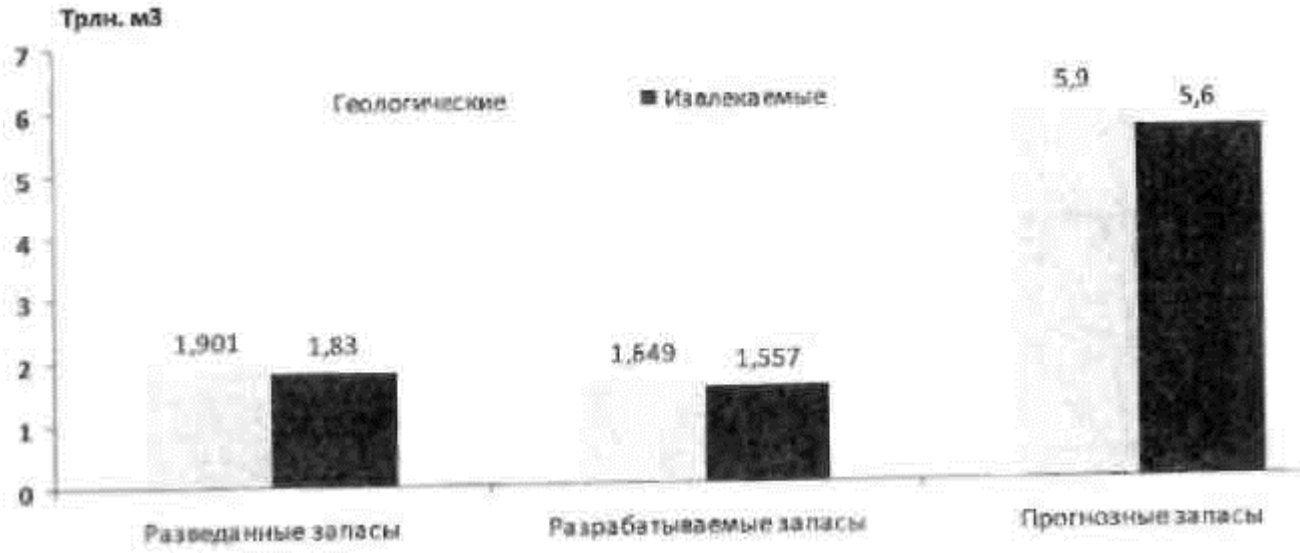
General scheme is aimed at creating conditions for ensuring internal needs of the Republic of Kazakhstan in gas by not only large-scale construction of new pipelines, but also of finding alternative and efficient sources of gas supply of regions of the Republic of Kazakhstan.

1. Current state of gasification in the Republic of Kazakhstan

The initial total gas resources of the Republic of Kazakhstan are estimated at 3.9 trillion cubic meters as of January 1, 2010, including 2.6 trillion cubic meters of dissolved gas. m^3, free of gas - 1,3 trillion. m^3. The most significant gas resources are concentrated in the subsurface of the Caspian oil and gas province - 3.72 trillion cubic meters. m^3. The area of oil and gas bearing regions of the Republic of Kazakhstan occupies about sixty-two percent of the territory of Kazakhstan. About ninety-eight percent of gas reserves are geographically located in the regions of the Western region of the Republic of Kazakhstan, in particular Mangystau, Atyrau, West Kazakhstan and Aktobe.

As of January 1, 2010, according to the Committee of Geology and subsoil use Ministry of investments and development of Republic of Kazakhstan (hereinafter - RK), the state balance accounted for 202 of the field of free and dissolved gas, which differ in geological structure, stratigraphic range of the platform cover, and oil and gas potential.

Figure 1-gas Reserves in Kazakhstan*



* Source: according to the Committee of Geology and subsurface use of the Ministry of foreign AFFAIRS of the Republic of Kazakhstan, 2010. г.

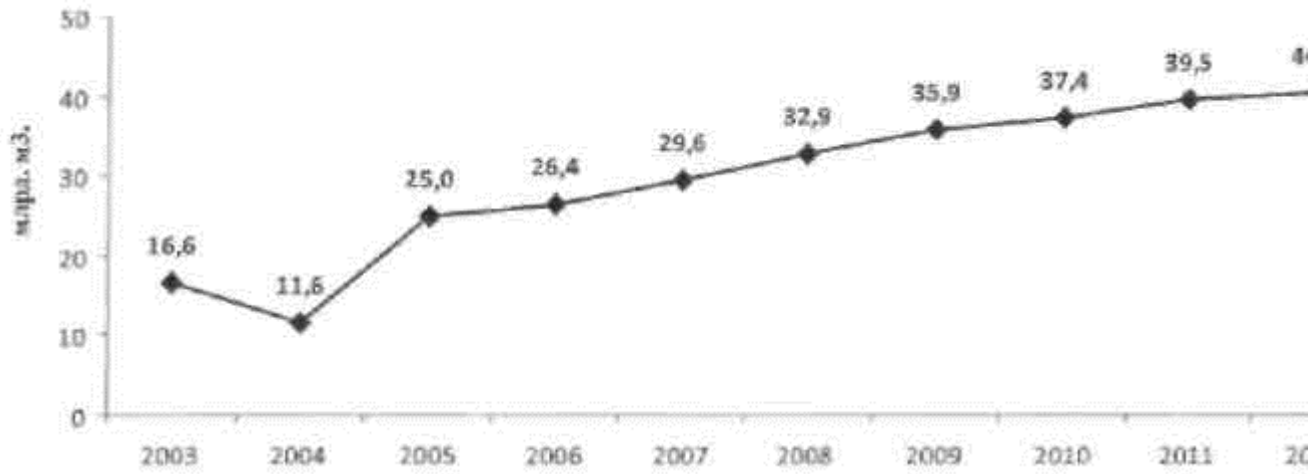
The specifics of Kazakhstan's gas resources are such that most of it is associated gas, and, therefore, gas production is tied to the production of liquid fractions of hydrocarbons. A significant amount of the extracted crude gas is pumped back into the formation to maintain reservoir pressure and to produce liquid hydrocarbons in the first place.

Kazakhstan's prospective and forecast gas resources are estimated at 6-8 trillion. m^3 and are connected to the Caspian sea shelf, where the largest Kashagan field has been identified. Thus, Kazakhstan, possessing significant reserves of gas resources and being at the center of the regional market of cross-border States, has the opportunity to play a key role in the transit of gas through the main gas pipeline system, the possibility of expanding and full-scale gasification of the domestic market of the Republic of Kazakhstan.

1. Trends and forecast of gas production development

The current trend in the development of the gas industry in Kazakhstan is a dynamic growth in gas production, which will continue in the long term. The positive factors for the development of the gas industry are mainly due to the planned implementation of planned measures within the framework of investment programs of subsurface users, which provide for the commissioning of new large deposits from pilot to industrial development. As a result, gas production for the period 2002 - 2012 increased by more than 2.5 times.

Diagram 1-Dynamics of gas production (gross output)*



* Source: according to the Ministry of energy of the Republic of Kazakhstan

The production growth trend is observed in all oil and gas producing regions of the Republic of Kazakhstan. A significant share in the total volume of gas production falls on the fields of the West Kazakhstan region, the share of which is about forty-seven percent, which is due to the development of one of the largest oil and gas condensate fields, Karachaganak. In Atyrau region, the share of which is about thirty - two percent of national gas production, the largest volumes of gas extraction have on the Tengiz and Royal, in Mangistau region (five to six-tenths of a percent of national gas production) North Buzachi, in Kyzylorda region (three point eight percent of the Republican volume of gas production) - South Kumkol and Akshabulak.

The prospective development of the gas industry will be inextricably linked with the development of fields in the Kazakh sector of the Caspian sea. According to the Ministry of energy of the Republic of Kazakhstan (hereinafter - Ministry of economy of RK), the expected gas production at Kashagan will amount to about 9 billion m^3 (hereinafter referred billion. m^3) of gas per year. From this amount, according to the agreement between the National operator of the Republic of Kazakhstan joint - stock company "KazTransGas" (hereinafter-the national operator) and contractor companies under the production sharing Agreement on the North Caspian project, the national operator will acquire annually about 2.5 - 3 billion tenge. m^3 of Kashagan gas until the end of the North Caspian production sharing Agreement (hereinafter referred to as the SC PSA), i.e. until 2042.

The planned annual volumes of Kashagan gas supplies will contribute to the consolidation of significant volumes of gas for the domestic market and for export.

According to forecasts of the Ministry of energy of the Republic of Kazakhstan, the volume of gas production will increase to 62 billion cubic meters by 2020. m^3 of gas per year with a gradual reduction to 59.7 billion by 2030 m^3, which will be due to the need for gas reverse injection. Since the specific nature of liquid hydrocarbon production involves the use of backfill gas injection technology, significant volumes of gas produced continue to be used for this purpose. As a result, commercial gas production is expected to decrease in the future .

Table 1-Forecast gas balance of the Republic of Kazakhstan, million m3 *

№	Indicators	for 2015	2020	2025	2030
1.	Gas production	44 194	61995	61022	59 784

2.	Gas injection	12 475	22 838	24 768	25 108
3.	Technology and their own needs including the combustion of gas	5 631	5 927	5 532	5 291
4.	Total-dry gas production	26 087	33 230	30 722	29 385
5.	Fuel gas for own needs, including GTU	3 868	8 643	8 479	8 369
6.	Commercial gas for distribution	22 219	24 587	22 243	21 016

*Source: according to the Ministry of energy Of the Republic of Kazakhstan "balance of gas of the Republic of Kazakhstan until 2030" dated April 21, 2014.

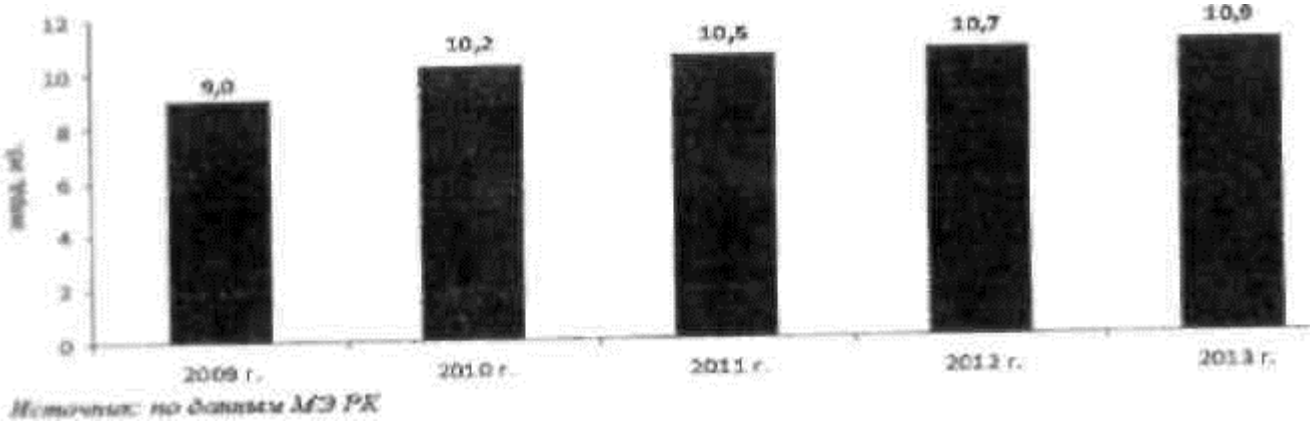
These consequences may affect the formation of a gas shortage to ensure the domestic market in its own resources. At the same time, the potential for gas production and commercial gas production is far from being exhausted and the projected volumes of decline is not a typical trend, with the commissioning of new fields, an increase in gas production is possible .

2. Dynamics and structure of commercial gas consumption

The current state of gasification in the regions of Kazakhstan is characterized by the following basic indicators. Gas supply covers nine regions of the Republic of Kazakhstan and the largest megacity in the southern region - the city of Almaty. The highest levels of gas supply were observed in the regions of the Western region: Mangystau-96.4 %; Atyrau-92.9 %; West Kazakhstan - 86.7 %; Aktobe - 79.9 %.

With the implementation of planned measures for the construction of gasification facilities, the volume of commercial gas consumption is growing dynamically.

Diagram 2-Commercial gas consumption in 2009-2013



In the structure of gas consumption, the largest share falls on industrial enterprises and the fuel and energy complex (26% and 45%, respectively).

Table 2-commercial gas Consumption by segment, 2013*

Name	of 2013, billion rubles m^3.	Share, in %
Commercial gas consumption-	10.9	100

total in the Republic of Kazakhstan		
industrial enterprises	2.8	25.5
utility enterprises	0.7	6.8
heat and power processing enterprises	4.9	45.2
Population	2.5	22.5

*Source: according to the Ministry of internal Affairs of the Republic of Kazakhstan

Along with the high level of gasification of the regions of the Western region, the percentage of gas supply coverage in which is more than 90 %, in the rest of the Republic of Kazakhstan, the level of gasification is significantly lower.

With the implementation of major investment projects on construction of main gas pipeline "Beineu - Bozoi - Shymkent", "Sarybulak - Maikapshagai", "Kazakhstan - China", "Almaty - Taldykorgan" and promising "MG "West - North - Center" in the territories, passing along the main gas pipelines, carried out reconstruction, modernization and construction of new objects of gas supply. In particular, in the East Kazakhstan region, the development of gas supply to settlements in the Zaisan district has begun. The project "Modernization of gas distribution networks of South Kazakhstan region and Shymkent city"is being implemented in South Kazakhstan region . В Zhambyl region с 2012 года has been implementing the project since 2012 проект
"Modernization of the gas distribution network of Taraz city" and gasification of settlements in the region. Projects on gasification of the city of Kyzylorda, as well as settlements included in the structure of the city administration, have been completed in the Kyzylorda region.

For the implementation of large-scale tasks on the development of gasification and gas supply of the internal market of the Republic of Kazakhstan by the resolution The government of the Republic of Kazakhstan has defined a national operator representing interests in the gas market of the Republic of Kazakhstan as of July 5, 2012. The sole shareholder is the national company KazMunayGas joint stock company (hereinafter-NC JSC «НК
"KazMunayGas"). The national operator manages the transportation of natural gas through main gas pipelines, sells gas on the domestic and foreign markets, as well as designs, construction and operation of facilities intended for the transportation, storage and marketing of gas.

3. Purpose and objectives of the master plan

The goal is to create conditions for sustainable socio-economic development of the Republic of Kazakhstan through the gradual development of the gas transportation system (hereinafter-GTS) and ensure the need for gas supply at the expense of its own resources of natural gas as an environmentally friendly fuel.

Tasks:

1) formation of strategic directions for the development of prospective gasification;

2) determining the layout of existing and planned gasification facilities, which are the basis for creating a unified gas supply system;

3) creating conditions for increasing the share of gas consumption in the structure of the fuel and energy balance of Kazakhstan;

4) achieving the maximum economically justified level of gasification in the Republic of Kazakhstan;

5) regularization and achievement of effective interaction between the National operator and local Executive bodies of the Republic of Kazakhstan in the implementation of measures for gasification and gas supply to consumers;

Subparagraph 6 is set out in the wording of the resolution Government of the Republic of Kazakhstan dated 28.09.15 № 794 (see old ed.)

6) implementation of measures for technical reconstruction of GTS facilities to ensure technical and environmental safety during their operation, as well as construction of new gas pipelines and development of export routes for gas transportation to foreign markets.

2. Economically sound strategic directions for the development of the gas industry to ensure reliable gas supply to consumers Commonwealths Kazakhstan

The General scheme is considered optimistic, realistic, pessimistic scenarios for gasification based on the development prospects of the resource base, the projected gas balance, the level of demand for gas in the domestic market, the degree of development of the GTS and other parameters. The forecast scenarios for the development of gas supply and gas consumption in the regions of the Republic of Kazakhstan until 2030 are formed taking into account the priorities and limitations of gasification implementation.

Implementation of gasification under an optimistic scenario of development seems unpromising due to the following forecast data by 2030:

1) 25.5 billion. m^3 - volume of gas consumption provided by regional gasification schemes of the Republic of Kazakhstan;

2) 21 billion rubles m^3 - free volume of gas to be distributed, predicted by the Ministry of energy of the Republic of Kazakhstan;

3) 18.7 billion rubles. m^3 - the volume of gas consumption by industrial and energy enterprises, of which the share of large industrial and energy enterprises will account for 13.3 billion cubic meters. m^3, projected MIR of the Republic of Kazakhstan;

4) 1.5 trillion tenge (hereinafter-trillion tenge) (in 2012 prices, excluding changes in the tenge exchange rate in 2014) - the volume of investment resources.

Thus, the investment of significant investment resources will be inefficient, as it creates excess capacity of the GTS with the projected volumes of decline in production and production of commercial gas.

The pessimistic scenario of gasification provides for a surplus in the gas balance. However, this scenario does not encourage the development of gasification of the population, the development of chemical industries and the gas sector, as well as related sectors of the economy.

1. Justification of the basic scenario of gasification development

Based on the possible scenarios of gasification development and current trends in the gas industry as a whole, a realistic scenario of gasification development is adopted as the base scenario, due to the following aspects:

1) achieving a deficit-free gas balance, which implies optimization of projected and declared volumes by industrial and energy enterprises;

2) optimization of projected gas consumption volumes is possible by adjusting the timing and / or volume of gasification;

3) the missing gas volumes will be covered for the main industrial consumers by importing gas at market prices;

4) completion of the construction of transit main gas pipelines in the South of Kazakhstan as "Turkmenistan-China", " Beineu-Bozoi - Shymkent»;

5) implementation of construction of gas pipelines-branches from transit main gas pipelines in Almaty, Zhambyl, South Kazakhstan regions;

6) completion of construction of the Sarybulak - maykapshagai mg IN the East Kazakhstan region and the beginning of gasification of settlements in the Zaisan district;

7) reconstruction and modernization of gas distribution networks (hereinafter - GDS) in South Kazakhstan and Zhambyl regions;

8) continuation of the implementation of the construction of GDS in the districts of Aktobe region;

9) development of feasibility studies for the construction and gasification of new gasification and gas supply facilities in the regions of the Western and southern regions;

10) development of new alternative approaches to gasification of the regions of the Northern and Eastern regions.

A realistic scenario for the development of gasification provides for the implementation of measures for previously gasified regions and the gasification of new consumers in areas close to major main gas pipelines. The scenario provides for the development of the MG "West-North - Center" with gasification of the city of Astana and settlements of the Akmola region.

The scenario does not provide for gasification of Karaganda and North Kazakhstan regions, Tarbagatay district of East Kazakhstan region.

A realistic scenario of gasification development is determined by the following aspects:

1) construction of gasification facilities along the main gas pipelines, laying gas pipelines-branches from them, taking into account the efficiency of gasification of new territories (rating assessment);

2) expansion of the gas resource base due to stabilization of the level of gas production and production of commercial gas;

3) stable dynamics of gas demand due to stable demand from fuel and energy and industrial enterprises, as well as the solvency of the population;

4) stabilization of the gas price level and balancing of gas transportation and storage tariffs .

The scenario provides for achieving a deficit-free gas balance, which implies optimizing the projected and declared volumes of gas by industrial and energy enterprises.

Table 3-Projected regional balance of gas resources and consumption under a realistic gasification development scenario, mln m3[3]

№ item number	Name	2020	2025	2030
1.	**Commercial gas for distribution**	24 587	22 243	21 016
1.1	Western region	23 053	21 575	20 548
1.2	southern region	1 532	667	467
2.	**Commercial gas consumption**	16 287	16287 17 589	18 085
2.1	Western region	8 101	8 609	8 506
2.2	southern region	6 447	7 071	6,447 7,071 7,573
2.3	Northern region	1 724	1 889	1 986
2.4	Eastern region	15	19	20

3.	**The deficit//Surplus**	8 300	654 4	2 931

Industrial and energy companies will account for the largest share of gas consumption. The scenario provides for optimization of projected gas consumption volumes by adjusting the timing and volume of consumption by large industrial enterprises.

Table 4-Forecasted gasification indicators under a realistic scenario

item number	Name	Consumption-total, mln m3[3]			Investments -total, million tenge		
		2020	2025	2030	2020	2025	2030
1	Akmola region	137	162	169	19 337	-	-
2	Aktobe region	2 086	2 187	2 217	60 627	10 068	-
3	Almaty region	542	802	962	97 755	29 889	8 511
4	Atyrau region	2 260	2 498	2 535	865 40	22 203	18 534
5	East Kazakhstan region	15	20	20	4 574	2 203	-
6	Almaty	1 210	1 269	1 335	59 883	7 381	-
7	Astana	601	721	792	46 678	15 344	6 768
8	Zhambyl region	2 696	2 794	2 894	14 252	6 966	142
9	West Kazakhstan region	1 121	1 159	1 165	33 456	8 269	-
10	Kostanay region	987	1 006	1 025	-	480	-
11	Kyzylorda region	695	763	838	47 900	13 880	741
12	Mangystau region	2 634	2 766	2 590	1 431	-	-
13	South Kazakhstan region	1 304	1 444	1 544	61 691	11 700	4 364
14	**The Republic Of Kazakhstan**	**16 287**	**17 589**	**18 085**	**488 449**	**128 384**	**39 059**

The projected volume of investments in the implementation of a realistic scenario of gasification development will amount to more than 655.9 billion tenge (in 2012 prices).

In the structure of investment costs, the largest share - more than 45% - will fall on the construction of intra-village and intra-city gas distribution pipelines. Such a significant share of costs is caused by the densely populated settlements of certain districts of South Kazakhstan, Almaty, Kyzylorda and Zhambyl regions.

Table 5-Projected consumption volumes in a realistic scenario

s / n	Name	Population, mln. m			Public utilities, mln. m^3		
		2020	2025	2030	2020	2025	2030
1	Akmola region	92	113	118	13	15	15
2	Aktobe region	394	424	434	55	59	61
3	Almaty region	343	508	623	48	71	78
4	Atyrau region	181	202	222	28	31	35
5	East Kazakhstan region	12	16	16	2	2	2
6	Almaty	421	452	497	42	45	50
7	Astana	287	339	362	40	47	51
8	Zhambyl region	274	324	360	72	79	86
9	West Kazakhstan region	244	264	266	153	162	164
10	Kostanay region	164	172	180	84	88	92
11	Kyzylorda region	155	192	237	28	32	38
12	Mangystau region	240	266	284	41	43	44
13	South Kazakhstan region	526	608	665	105	122	133
14	**Republic Of Kazakhstan**	**3 333**	**3 879**	**4 265**	**711**	**797**	**848**

Table 6-Projected consumption volumes in a realistic scenario

item number	Name	The fuel and energy complex, million m^3			Industry		million m^3
		2020	2025	2030	2020	2025	2030
1	Akmola region	24	26	27	7	8	8
2	Aktobe region	649	662	672	988	1042	1050
3	Almaty region	51	76	87	100	147	174
4	Atyrau region	1 303	1507	1 510	748	757	767
5	East Kazakhstan region	1	1	1	-	-	-

6	Almaty	582	582	582	165	189	205

7	Astana	274	335	379	-	-	-
8	Zhambyl region	482	492	520	1 867	1 899	1 928
9	West Kazakhstan region	287	288	288	437	445	446
10	Kostanay region	277	279	281	462	467	472
11	Kyzylorda region	394	401	405	117	137	158
12	Mangystau region	2 171	2 267	2 069	182	190	193
13	South Kazakhstan region	397	405	417	276	309	329
14	**Republic Of Kazakhstan**	**6 892**	**7 321**	**7 240**	**5 349**	**5 589**	**5 730**

When implementing gasification measures under a realistic scenario, the coverage rate of the population of the Republic of Kazakhstan will reach 56 %, which will allow providing gas supply to about 1.6 thousand settlements. According to the calculations, the total length of gas pipelines will be about 28.3 thousand kilometers (hereinafter - thousand km), of which more than 18 thousand km will fall on intra-village and intra-city gas distribution pipelines.

A realistic gasification scenario provides for achieving a deficit-free gas balance, which implies optimizing the projected and declared volumes of gas for industrial and energy companies in the following forecast data:

1) 21 billion rubles m^3 - free volume of gas to be distributed, predicted by the Ministry of energy of the Republic of Kazakhstan;

2) 18 billion rubles. m^3 - the volume of gas consumption provided for in a realistic scenario;

3) 13 billion m^3 - the volume of consumption by industrial and energy enterprises, of which 10.4 billion rubles are consumed. m^3 is accounted for by large industrial and energy enterprises;

4) 656 billion tenge (in 2012 prices) - the volume of investment resources, of which 74% is expected to be realized at the first stage of gasification.

To implement large-scale investment projects need to include plans for a phased increase in wholesale gas prices on the domestic market to a level that ensures sufficient financial base of the reproductive process gas supply, and not exceeding the share of spending on utility payments.

One of the fundamental factors of possible scenario conditions for the development of gasification is the provision of a resource base, which means that one of the main and promising directions for the development of the gas industry is to stimulate an expanded reproduction of raw materials (gas, gas condensate) reserves with an increase in the share of state-owned companies.

2. Comparative analysis of the use of alternative sources of gas supply Optimal development of fuel and energy supply systems provides for maximum use of the most advanced and environmentally friendly technologies

energy resource. These are liquefied natural gas, natural gas and liquefied petroleum gas.

Compared with other types of organic non-renewable fuels, they are the most environmentally friendly and convenient to use, so in the coming years they will remain the basis of domestic demand for fuel and energy resources in all development options, taking into account the necessary amounts of material and technical resources.

A comparative analysis of energy prices in the Republic of Kazakhstan and current tariffs for natural gas shows the economic benefits of using coal. However, this is typical for regions where coal traditionally accounts for the largest share of consumption in the structure of energy consumption, which is justified by the dependent territorial and energy structure of consumption. Given the time spent, the high labor intensity of using coal in the municipal sector and the high burden on the environment, the economic effect in this case is to reduce the cost of environmental measures.

Table 7-Comparative calculation of the conversion of individual homes from traditional fuels to gas*

item number	Indicators	Unit	Average in Kazakhstan
1	**energy costs***		
1.1	Payment for natural gas transported through distribution networks	tenge / m^Z	10.5
1.2	Liquefied natural gas	m/kg	of 131.2
1.3	Coal stone	tenge / ton	6 594.0
1.4	Diesel	fuel tenge / liter	99.0
1.5	fuel-oil residual	oil tenge / tonne	50 725.0
2	**energy costs converted to fuel equivalent**		
2.1	Natural gas	tenge/kg cu	9.0
2.2	Liquefied gas	tenge / kg cu	59.4
2.3	Coal stone	tenge / kg cu	10.5
2.4	Diesel	fuel tenge / kg cu	68.3
2.5	fuel-oil residual	oil tenge / kg cu	36,8
3	**Housing stock parameters***		
3.1	Living area	thousand m	201 589.6
3.2	Number of residential buildings	units	2,062 115,0
3.3	INCL INDIVIDUAL HOMES IN SETTLEMENTS	u.	591 657.0
3.4	individual homes in rural localities	units	1 103 017.0
3.5	Average area of individual houses	m^2	97.8
3.6	Nominal fuel consumption for heating 1 m^2 of usable area per year	kg cu per 1 m^2	69.1

4	**The cost amount for the consumption of fuel (in prices per unit of conditional fuel per 1 sq m. usable area):**		
4.1	Natural gas	tenge / month	622.2

4.2	Liquefied gas	tenge / month	4 107.2
4.3	Coal stone	tenge / month	728.3
4.4	Diesel	fuel tenge/month	4 720.4
4.5	fuel-oil residual	oil tenge / month	2 543.1

* Source: Committee on statistics of the Ministry of national economy of the Republic of Kazakhstan

Paragraph 3 has been amended in accordance with the resolution The government of the Republic of Kazakhstan from September 28, 2015, № 794 (see old ed.)

3. Use of liquefied natural gas in gasification of the regions of the Northern region

In order to create a network gas market, Autonomous energy supply to small industrial enterprises and settlements using liquefied natural gas in previously non-gasified territories is an attractive area for investment with a relatively short payback period for capital investments. Autonomous small-scale energy facilities will help eliminate the problem of energy supply in remote regions.

In General, it is worth noting that even in the case of construction of the gas pipeline, first, it will take a long time for the construction of both the gas pipeline itself (1-2 years) and distribution networks in the region (up to 10 years), and secondly, to create demand from the consumer, whose goal, in fact, is to build the pipeline. However, it is not possible to create such a demand at the same time due to the lack of infrastructure and readiness of the consumer.

In this regard, gasification with liquefied natural gas may seem more appropriate in this case. So, to begin with, large consumers of liquefied natural gas (industrial enterprises, municipal facilities, etc.) are identified, near which appropriate storage facilities and regasifiers are installed. Further, as demand develops, liquefied natural gas networks and storage facilities are enlarged, as well as the construction of gas filling stations at large facilities and corresponding facilities for the population (regasifiers in residential neighborhoods). And уже after all this, when there is a demand and appropriate infrastructure, a decision is made to bring the gas pipeline to the region, as a result of which gasification with network natural gas becomes economically attractive. At the same time, liquefied natural gas facilities (storage facilities and regasifiers) are being moved to other regions due to their mobility in order to carry out similar gasification measures.

Liquefied natural gas, not being a competitor to grid-based natural gas, will create demand and appropriate infrastructure at the initial stage, sufficient for an economically attractive gas pipeline at the subsequent stage.

The primary issue is the use of resources for the production of liquefied natural gas. In Kazakhstan, in order to supply gas to the Northern and Central regions, it is most appropriate to use imported Russian gas, which is supplied for the needs of Kostanay region as part of exchange operations. Accordingly, the deployment of a natural gas liquefaction plant is logically seen in this region (Tobol).

In addition, there are other options for gasification of regions and, accordingly, the use of resources for the production of liquefied natural gas, for example, in Mangystau region - the transfer of vessels of the joint stock company "national Maritime shipping company "Kazmortransflot" to liquefied natural gas, in the Kyzylorda and East Kazakhstan regions.

Thus, it is possible to gasify several localities (or groups of localities) in the same region using liquefied natural gas with low consumption and a total distance of up to 300 kilometers (hereinafter referred to as km) from a natural gas liquefaction plant using gas carriers. Transporting liquefied natural gas over a distance of 300 km or more will require the use of rail transport.

4. Use of liquefied petroleum gas

The design capacity for the production of liquefied petroleum gas in the Republic of Kazakhstan as a whole (taking into account GPP, SG) is about 2 million tons per year. Production of liquefied petroleum gas is also concentrated at three refineries in the Republic: the Pavlodar petrochemical plant (PPC), the Atyrau oil refinery (APP), and PetroKazakhstan oil products (PKOP of Shymkent).

The design capacity of oil refineries is about 18 million tons of oil per year, which makes it possible to produce more than 2.4 million tons of liquefied petroleum gas. Different levels of technological characteristics of plants and the quality of processed raw materials determine the level of output of its processed products. The highest percentage of liquefied petroleum gas output was recorded at Tengizchevroil LLP. The average annual volume of liquefied petroleum gas production in Kazakhstan is about 2,448 thousand tons, which covers the domestic market needs in full.

The implemented regional programs of gasification of the population have somewhat reduced the volume of consumption of liquefied petroleum gas over the past 5 years. However, with the implementation of the General gasification scheme until 2030, which provides for measures for full-scale gasification of the population, it is also planned to supply liquefied petroleum gas to regions far from the main gas pipelines. According to the forecast calculations of the General scheme of gasification of Kazakhstan, the prospective needs of the Republic of Kazakhstan in liquefied petroleum gas (propane-butane) will amount to about 1654 thousand tons per year. The decrease in consumption of liquefied petroleum gas in the forecast period is justified by an increase in the level of gasification of the Republic of Kazakhstan to 56 %. As a result, the existing volumes of liquefied petroleum gas production will be quite sufficient to cover future needs.

However, in the period 2011 - 2016 years for all refineries (hereinafter - the refinery) of the Republic of Kazakhstan planned projects for reconstruction and modernisation to increase depth of oil refining, processing residual heavy oil into high quality motor fuels, as well as the issue of export of petrochemical products, raw materials creates the basis for further processing producing competitive petrochemical products.

Table 8-Projected volumes of liquefied petroleum gas consumption under a realistic scenario, in tons

№	Name	2020	2025	2030
1	Akmola region	40 492.9	35 432.0	36 337.6
2	Aktobe region	13 238.2	9 436.1	8 247.8
3	Almaty region	120 309.9	137 841.2	170 211.9
4	Atyrau region	938 487.7	936 375.7	934 599.1
5	East Kazakhstan	102 777.8	95 341.2	96 964.0

	area			
6	Almaty	12 5220	6 376,5	0,0
7	Astana	9 120.9	5 037.5	0.0
8	Zhambyl region	36 881.5	29 572.0	23 513.5
9	West Kazakhstan region	10 113.9	6 769.9	7 177.6
10	Karaganda region	105 4374	100 8603	105 9798
11	Kostanay region	30 058,5	25 6417	24 4276
12	Kyzylorda region	32 217.1	23 865.0	16 563.2
13	Mangystau region	8 144.8	8 942.3	10 585.8
14	Pavlodar region	56 928.3	53 968.9	56 481.4
15	North Kazakhstan region	41 625.2	38 070.6	38 807.7
16	South Kazakhstan region	133 644.2	121 469.0	124 102.9
	Total	**1,692**	**0000 1,635 0000**	**1,654 0000**

3. Main actions to implement the general scheme

Ensuring stable development of Kazakhstan's economy and fulfilling international obligations directly depends on the ability of the gas industry to implement investment projects for the development of gasification and gas supply to the domestic market.

The main objectives for promoting investment processes in the development of gasification and gas supply should be:

1) promotion of extended reproduction of raw materials (gas, gas condensate) inventory management;

2) creation of favorable conditions and guarantees for the implementation of large investment projects that contribute to a significant multiplier effect on the long term;

3) stimulating the effective development of gasification and gas supply in new regions, taking into account the introduction of innovative technologies and equipment.

The identified tasks correspond to the set development directions state programms They are adapted to the long-term state policy in the field of energy (the Concept of development of the fuel and energy complex of the Republic of Kazakhstan until 2030, approved by the resolution of the Government of the Republic of Kazakhstan dated June 28, 2014 No. 724).

As a result, it is proposed to provide measures and measures for the implementation of a consistent state policy in the field of price and tariff formation, gas and energy saving, which will ensure the most effective use of investment funds, rational and integrated spending of an irreplaceable fossil resource-natural gas.

Ensuring the stable development of the economy of the Republic of Kazakhstan and fulfilling international obligations directly depends on the ability of the gas industry to implement investment projects for the development of gasification of the domestic market.

As part of the consideration of the possibility of gasification of regions by means of liquefied natural gas, it is necessary to harmonize the regulatory legal acts of the Republic of Kazakhstan in the field of technical regulation and standards with the relevant ones

international standards for the use of liquefied natural gas and gas-engine fuel.

As part of the promotion and development of regional gasification with liquefied natural gas, incentives should be provided for vehicles using gas as motor fuel.

When implementing gasification development programs, measures should be taken to implement modern integrated gas metering systems, which will ensure effective monitoring of gas consumption in the domestic market. Large-scale introduction of metering devices in the domestic market will increase the efficiency of gas use by the population.

4. List and technical characteristics of planned construction, modernization and (or) reconstruction of gas supply system facilities

When assessing the volume of construction of gas distribution systems takes into account the current state of gasification of regions of the Republic of Kazakhstan, in particular the activities carried out on construction and planned investment projects on modernization and reconstruction of existing gas distribution systems and requirements for ensuring the effectiveness of the construction of gas distribution networks with a corresponding increase in gas consumption. A more precise need for the construction of gas distribution networks can be determined taking into account the specifics and technical condition of the existing gasification system. The terms of construction implementation are provided taking into account the development and reconstruction of gasification facilities in the context of regions (development of resources and construction of main gas pipelines from them).

In the basic scenario of gasification development, the largest length of gas pipeline construction will be in the regions of the southern region, which will amount to about 14 thousand km, of which more than 12 thousand km will fall on gas distribution networks, due to the high density of settlement of settlements. Connecting gas pipelines under construction and gasifying new consumers requires increasing the capacity of distribution systems. Especially relevant is the issue of reconstruction of existing gas distribution systems in major cities. In particular, the modernization of gas distribution systems in Taraz and Zhambyl region, the modernization of gas distribution systems in Shymkent and South Kazakhstan region.

In the regions of the Western region, local reconstruction of gas distribution networks is planned in terms of low-pressure gas pipelines that supply gas to residential private homes.

The development of gasification in the regions of the Republic of Kazakhstan involves large-scale construction of new capacities, which leads to the creation of a new gas infrastructure and the diversification of gas flows.

In technical calculations of the length of gas pipelines, averaged values for the main indicators of construction of intra-village (intra-city) gas pipelines were used:

1) the average length of intra-village gas pipelines per subscriber (low-rise building) is 30 meters;

2) the average length of intra-block gas pipelines per multi-storey building is taken at the rate of 150 meters.

According to the calculations, the total length of the planned main and distribution gas pipelines will be about 67.6 thousand km, of which

of which more than 43 thousand km will be accounted for by gas distribution pipelines running within territorial localities.

Table 9-Estimation of volumes planned for the construction of gas distribution systems in the regional context by 2030

Name	Total-length of gas pipelines, km	The gas pipeline branch to the automated gas distribution station, km	Inter-settlement high -pressure gas pipelines, km	Intra-village and intra-city gas distribution pipelines, km
Western region				
2020	8 247	5	6 594	1 649
2025	2 169	8	1 159	1002
2030	744	-	13	731
Total	**11161**	**13**	**7 765**	**3 383**
southern region				
2020	10 303	138	1 121	9 044
2025	2 967	91	403	2 473
2030	622	4	48	570
Total	**13,892**	**233**	**1572**	**12087**
Eastern region				
2020	272	2	54	216
2025	169	-	102	67
2030	d. -	-		-
total	**441**	**2**	**156**	**283**
Northern region				
2020	2 102	16	314	1773
2025	986	-	9	977
2030 G.	423	-	-	423
Total	**3 511**	**16**	**323**	**3173**
Republic of Kazakhstan				
2020	20 925	161	8 082	12 682
2025	6 291	99	1672	4 519
2030	1789	4	61	1724
Total	**29 004**	**264**	**9 815**	**18 926**

For gas supply facilities, as a whole in the Republic of Kazakhstan until 2030, it is planned to install more than 230 thousand units (hereinafter - thousand units) of gas engineering equipment according to the following technical parameters:

Table 10-List and technical parameters of planned construction projects gas supply facilities

Number	of objects//Construction parameters
1.	Automatic gas distribution station with capacity of

	(thousand m^4/ hour)
1.1.	automated gas distribution stations at 50 thousand $meters^3$/hour
1.2.	automated gas distribution stations at 30 thousand $meters^3$/hour
1.3.	automated gas distribution stations at 10 thousand $meters^3$/hour
1.4.	automated gas distribution stations for 3 thousand $meters^3$/hour
2.	Gas control points (hereinafter-GCP), including head gas control points (hereinafter-GCP) for productivity (thousand^{m3}/ h)
2.1.	gas distribution substationat 10 thousand $meters^3$/hour
2.2.	gas distribution substationat 5 thousand $meters^3$/hour
2.3.	GCP per 1 thousand m^3/hour
3.	Individual Cabinet points (hereinafter referred to as SHP) with a capacity of 4-10^{m3}/ h
4.	Group Cabinet control points (hereinafter referred to as SRPS) with a capacity of up$^{to\ 300\ m3}$/ h

For technical calculations of gas supply facilities, averaged values are taken for the number of Cabinet control pointswith a capacity of 300 m3 / hour (taken taking into account the 1st Cabinet control point for 3 apartment buildings). In General for newly gasified territories The Republicof Kazakhstan is expected to introduce equipment with modern design solutions: equipping the gas пункта средствами учета control point with gas metering facilities, telemechanization пунктов of control rooms and системами automated control systems gas distribution system.

In the regional structure of construction and installation of gas supply facilities, the largest amount of gas engineering equipment will fall on the regions of the southern region - more than 170 thousand units.

Table 11-Estimation of volumes planned for construction of gasification facilities in the regional context up to 2030

Name	**automated gas distribution stations pcs.**	**The head points of the reduction gas (hereinafter PWG), pcs.**	**Individual gas-distributing plant, pcs**	**Group gas-distributing plant, pcs**
Western region				
2020	2	131	23 212	171
2025	4	162	15 662	372
2030	-	195	10 985	544
Total	**6**	**487**	**49 859**	**1 087**
Southern region				
2020	24	469	126212	345
2025	8	157	34 176	187
2030	2	34	8815	15
Total	**34**	**660**	**169 203**	**547**
Eastern region				
2020	1	10	-	47
2025 g.	-	2	-	18
2030	d. -	-	-	-

Total	**1**	**12**	**-**	**65**

Northern region				
2020	1	127	9 152	148
2025	-	1	290	-
2030	d. -	-	-	-
Total	**1**	**128**	**9 442**	**148**
Republic of Kazakhstan				
2020	28	736	158 576	711
2025	12	322	50 128	577
2030	2	2,228	19 800	559
total	**42**	**1286**	**228 504**	**1847**

5. Necessary financial resources and their sources

According to the consolidated calculations for determining the volume of necessary investments, the total volume of capital investments in the construction of gasification facilities in the Republic of Kazakhstan under the basic (realistic) scenario will be about 656 billion tenge by 2030 (in 2012 prices, excluding the correction of the tenge exchange rate in 2014). These amounts are estimated and are indicative.

According to the Law, financing of the General scheme implementation is carried out at the expense of the national operator's income, budget funds and other sources not prohibited by the legislation of the Republic of Kazakhstan. At the same time, the consolidated calculations of investments made within the framework of regional gasification schemes are necessary for preliminary assessment and planning, but are not final. A detailed financing plan will be implemented directly at the stage of drafting project documents at the time of gasification.

According to the enlarged calculations carried out to determine possible amounts of financing from the National operator, the total volume of capital investments in the construction of gasification facilities in the Republic of Kazakhstan will be about 161.6 billion tenge until 2030, according to the basic (realistic) scenario.

The decision on financing from the funds of the National operator is made in accordance with the corporate rules for consideration of investment projects of the JSC "KazTransGas". The estimation of gasification financing volumes from the National operator's funds is calculated on the basis of the wholesale price of commercial gas, taking into account the margin of the National operator in the amount of 5% from 2016 to 2021 and 10% from 2022 to 2030.

A consolidated estimate of the amount of funding from the National operator is provided in the attached table.

Table 12-Estimation of the amount of funding from the National budget operator's

№	Name	Unit	Total	2020	2025	2030
1.	Pessimistic scenario	million tenge	81 308.6	32 386.3	29 928.7	18 993.6
2.	Realistic scenario	million tenge	161 598.8	36 544.1	85 995.4	39 059.3
3.	Optimistic scenario	million tenge	321218.1	44 827.2	118 704.4	157 686.5

Note: the required investment Amounts are calculated in increments. It is necessary to clarify the results of the development of design and estimate documentation.

Based on the calculations performed, several options for allocating financing for gasification projects included in the General scheme for the period 2015 were considered
- 2030 years:

In the basic (realistic) scenario, the share of financing from the National operator in the total investment volume for the implementation of the General scheme will be 24.6 % or 161.6 billion tenge until 2030. According to the stages of financing: 36.5 billion tenge until 2020, 86 billion tenge until 2025 and 39.1 billion tenge until 2030.

Table 13-table of distribution of funds for financing gasification projects under the basic (realistic) scenario

Name	Unit	2016-2020 2016-2020	2021-2025	2026-2030	Total
Investment volumes for the implementation of the General scheme of gasification	**million tenge**	**488 448.6**	**128 383.8**	**39 059.3**	**655 891.7**
Consolidated assessment of financing volumes by the National operator (KazTransGas JSC»)	KZT million	36 544.1	85 995.4	39 059.3	161 598.8
Share of the National operator (KazTransGas JSC) in the volume of financing General scheme	%	7.5%	67.0%	100.0%	24.6%
The volume of financing from the Republican budget	KZT million	651,6 67	0,0	0,0	67 651,6
the Share of funding from the Republican budget in the amount of funding General scheme	%	13.9%	0.0%	0.0%	10.3%
Volume of financing from other sources of financing and private investors	million tenge	384 252.9	42 388.4	0.0	426 641.3

Share of financing from other sources of investment in	%	78.7%	33.0%	0.0%	65.0%

amount of funding for the General scheme					

Note: the required investment Amounts are calculated in increments. It is necessary to clarify the results of the development of design and estimate documentation.

In the case of financing from the Republican budget within the current funding volumes, the volume of financing under the basic (realistic) scenario for the period from 2016 to 2019 will amount to 67.6 billion tenge or 13.9% of the total investment for the implementation of the General scheme.

The state will take an increasingly active part in the implementation of gas projects that are of great socio-economic importance for the regions or meet the interests of energy security of the Republic of Kazakhstan.

At the same time, it is assumed that as the Program is implemented and the feasibility of certain projects is identified, the amount of funding for individual projects will be adjusted. It is also assumed that for conducting individual strategic studies or working through individual projects, the attracted target funds of sponsor companies and attracting borrowed funds will be used.

The master scheme will be updated every 3 years.

6. Layout of existing and planned gas supply system facilities

The existing scheme of gas supply of cities and settlements technologically connected with the gas transmission system, which was created as part of the Union's gas transportation system focused on the supply of natural gas from Central Asian republics to the Russian Federation (hereinafter - RF), Ukraine and Transcaucasian republics. In this regard, gas supply was made only in cities and settlements adjacent to the main gas pipelines.

Taking into account the economic feasibility and profitability of the construction of gas supply facilities, the regional gasification scheme is proposed for consideration, taking into account existing and planned gas pipelines and gas supply facilities (annexes 1 and 2).

1. Expected gas supply schemes, taking into account the commissioning of new main gas pipelines.

Settlements of the Kyzylorda, South Kazakhstan, Zhambyl, Almaty regions and Almaty city located along the main gas pipelines "Beineu-Bozoy - Shymkent", "Kazakhstan - China" with the construction of gas diversions.

The settlements of the East Kazakhstan region, located along the main gas pipeline "Sarybulak - Maikapshagai". If an agreement is reached with the Russian Federation on the construction of a gas pipeline along the route Rubtsovsk-Ust-Kamenogorsk, it is planned to include the settlements of borodulikhinsky, shemonaikhinsky, Glubovodsky, Ulansky districts, the cities of Semey and Ust-Kamenogorsk.

Reaching an agreement with the Russian Federation to expand gas supplies by substituting the Kartaly-Rudny-Kostanay main gas pipeline with the extension of construction

the main gas pipeline "Tobol-Kokshetau-Astana", with the possibility of covering the settlements of Kostanay, North Kazakhstan, Akmola regions and Astana with the possibility of laying a gas pipeline to the city of Karaganda.

2. Gas supply scheme for the Northern region

In 2013, the development of design and estimate documentation for the construction of the main gas pipeline "West-North - Center" along the route "Tobol - Kokshetau - Astana", with connection to the main gas pipeline "Kartaly - Rudny - Kostanay" near the city of Tobol, Kostanay region, was completed. The implementation of this construction project will allow us to provide gas supply to Kostanay, North Kazakhstan, Akmola regions and Astana in the future. A positive aspect of this route is the possibility of connecting to the main gas pipeline "Bukhara-Ural" on the territory of the Republic of Kazakhstan in the area of the compressor station KS-14, with further access to the supply of natural gas from the Karachaganak field. Also, one of the main aspects of the project for the construction of this gas pipeline is to ensure the energy independence of the Northern regions and the capital of the Republic of Kazakhstan from gas supplies from outside, operational intervention in seasonal fluctuations in gas consumption (Annex 3).

Implementation of the design solutions will be implemented in one or without isolation of the complexes, that is, the estimated period of construction and installation works must be carried out the construction of the linear part of the pipeline and all facilities, including compressor stations, property management companies, automated gas distribution stations, linear - production control Central production control and more.

The implementation of the first stage provides for a planned increase in gas transportation and consumption with the output to the full design capacity of 1.5 billion cubic meters. m^3 per year in 2025. The maximum capacity of the gas pipeline, subject to the implementation of all design decisions, will be about 1.8 billion cubic meters. m^3 per year, provided that this volume is transported to Astana with a final pressure of 2.6 MPa. With a further increase in gas consumption, the implementation of the stage with the prospect of gas transportation in the amount of up to 2.3 billion cubic meters is considered. m per year.

The far-off perspective construction involves the construction of two strands of the main gas pipeline along the route "Tobol-Kokshetau - Astana", with a capacity of 5.4 billion cubic meters. m^3 per year, with branches to Karaganda and Petropavlovsk.

Table 14-Main technical and technological indicators of main gas pipeline" Tobol - Kokshetau-Astana»

No	Name of indicators	Unit.	Correction of the feasibility study (hereinafter -the feasibility study)	Feasibility
1	Design pressure	MPa	5.4	7.4
2	Throughput capacity	billionm^3/ year	1.5	5.4
3	Total length of the main route of the main gas pipeline			
3.1	-main route	km	829.8	818.6

	main gas pipeline			
4	Pipe diameter:			
4.1	-main route of the main gas pipeline	mm	720	1020
5	pipe wall Thickness:			
5.1	- the main highway	mm	8	12
6	Total weight of pipes of the linear part	thousand tons	123.39	364
7	Site of a gas measuring station	unit.	1	2
8	Automated gas distribution stations	units	4	5
9	Number of compressor stations	units	2	1
10	The number of gas compressor stations one compressor station	units.	3	6
10.1	-working	unit.	2	4
10.2	-reserve	unit.	1	2
11	Nominal unit power of the gas pumping unit	MW	4,92	8
12	Fuel gas for own needs	billion rubles m^3/ year	0.015	0.06

At the same time, the significant volume of investments in the construction of the West - North - Center mg, as well as the lack of development of free gas resources in the long term, indicate that the implementation of the project is uncertain.

In order to expand the coverage of gas supply to Kostanay region and meet the growing gas consumption the possibility of expansion of the gas pipeline branch from the main gas pipeline "Bukhara - Ural" to the city of Troitsk of the Chelyabinsk region of the Russian Federation, with the further possibility of building a gas pipeline through North Kazakhstan, Akmola region and Astana. According to the assessment of open joint stock company Gazprom (hereinafter-JSC Gazprom), the enlarged volume of capital investments will amount to about 1.5 billion rubles.

3. Gas supply chain in the Eastern region

The main gas pipeline "Sarybulak - Maikapshagai - Zimunai". The project of construction of the Sarybulak-Maikapshagai - Zimunai main gas pipeline in the direction of the people's Republic of China, which has a total length of 92.5 km, has been implemented in the territory of East Kazakhstan region. Implementation of the project will allow gasification of settlements in Zaisan and Tarbagatai districts of the region.

The main gas pipeline "Barnaul-Rubtsovsk - Ust-Kamenogorsk". The regional gasification scheme of the Republic of Kazakhstan considers the option of gasification of the East Kazakhstan region with the possibility of constructing a gas pipeline-branch from the gas transportation system of the Russian Federation. Analysis of options for the construction of trunk

pipelines from Russia into the Eastern region of Kazakhstan has determined the best route for the construction of the gas pipeline branch from the city of Rubtsovsk, Russian Federation to Ust-Kamenogorsk through Borodulikha, Shemonaikha, Glubokovsky, Ulansky areas and drainage in the city of Semey. According to Gazprom's estimate, the enlarged volume of capital investments in the construction of a gas pipeline branch from the Altai territory along the route "Barnaul-Rubtsovsk" will amount to about 10 billion rubles. The estimated volume of commercial gas consumption in Ust-Kamenogorsk, Semey and the region's districts will be about 1.8 billion cubic meters by 2030. m^3 per year, with gasification of 118 settlements and reaching gas supply coverage of more than 64 %.

At the same time, to determine the effectiveness of the gas supply route implementation, it is necessary to study the feasibility study of the construction of the gas pipeline, which will determine the risks of project implementation. In particular, the determination of the purchase price of gas (social and economic aspects), the formation of tariffs for end users (social aspect), methods of gas purchase (counter delivery or free purchase of Russian gas).

It is assumed that gasification of settlements in the districts of the East Kazakhstan region with a source of natural gas supply from the gas transportation system of the Russian Federation is technically justified, will create not only favorable socio-economic conditions, but also significantly improve the environmental situation in the region.

7. Timeline for the implementation of the scheme in the future

The General scheme will be implemented in stages with a view to 2030.

Implementation of the master plan according to the basic scenario of development Assumes achieving the following forecast results:

1) achieving a deficit-free gas balance, which implies optimizing the projected and declared gas volumes by industrial and energy companies;

2) the level of gas consumption in the domestic market will reach 18 billion cubic meters by 2030. m^3;

3) the level of gasification coverage of the population of the Republic of Kazakhstan will reach 56%, which will provide gas supply to more than 1.6 thousand settlements ;

4) The total length of construction of new gas pipelines will be about 29 thousand kilometers. km;

5) the projected volume of investments will be about 655.9 billion tenge (in prices 2012);

6) the conditional economic effect of implementing gasification in newly gasified territories will amount to about 910 billion rubles by 2030 tenge.

In addition, an important aspect in the implementation of the gas industry development Program is ensuring the reduction of harmful impact on the environment.

Note: explanation of abbreviations:
MG - main gas pipeline
LPG - liquefied petroleum gas
LNG - liquefied natural gas
LHG - liquefied hydrocarbon gases
NG - natural gas
AGDS-automated gas distribution stations
GDP -gas-distribution plant
MGDS- main gas distribution station

GDS- gas distribution networks
GTU - gas turbine unit
GRS - gas reducing stations
GC – gas cabinet
CCS- cabinet control station
C&IW - construction and installation
works
M&OA - maintenance and operations area
LOS- line operation section
CPU - Central production management
LC - linear part
GMS-gas measuring station
CS-compressor station
GPS-gas pumping station
ME RK - Ministry of energy of the Republic of Kazakhstan
MF RK - Ministry of Finance of the Republic of Kazakhstan
MNE - Ministry of national economy of the Republic of Kazakhstan
EK-East Kazakhstan region
SK-South Kazakhstan region
WK-West Kazakhstan region
JSC - joint stock company
KMTF - joint stock company "National maritime shipping company Kazmortransflot
RF - Russian Federation
FS - feasibility study

Appendix 1
toGeneral scheme of gasification
The Republic of
Kazakhstan for
2015-2030 years

The scheme of gas supplies via existing and planned for construction objects of gas supply systems

Appendix 2 to
theGeneral scheme of gasification
The Republic of
Kazakhstan for
2015-2030 years

Gas distribution diagram for existing and planned gas supply system facilities

Appendix 3
toGeneral scheme of gasification
The Republic of
Kazakhstan for
2015-2030 years

Gas supply scheme for the Northern region


КУРГАНСКАЯ ОБЛАСТЬ
ТЮМЕНСКАЯ ОБЛАСТЬ
ПЕТРОПАВЛОВСК
СЕВЕР
КАЗАХСТАН
ОБЛАСТ
КОСТАНАЙ
КОКШЕТАУ
КС-Тобол
АКМОЛИНСКАЯ ОБЛАСТЬ
АСТАНА