Multilateral Assessment
SBI 46
Republic of Kazakhstan

Ministry of Energy of the Republic of Kazakhstan

Astana- Bonn, May 12, 2017

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of the Republic of Kazakhstan

National Conditions
of the Republic of Kazakhstan 2015

Territory - 2724.9 thous. sq. km

Population density - 6.7 people/1 km2

Population - 17.4 million people

GDP per capita - $ 10,5 thousand

Fuel energy resources:
Oil - 40.9%;
Gas and gas condensate – 35 %
Natural gas – 24,1 %

Production of the most important types of fuel in 2015:

Coal - 107.3 million tons
Oil, including gas condensate -
66.5 million tons
Natural gas - 12.0 billion cubic meters
Extraction of iron ore - 37.3 million tons
Mining of copper ores - 42.4 million tons

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The Republic of Kazakhstan received 13 questions on the Multilateral Assessment in 2017

From UNFCCC Parties

▶Brazil – 1

▶EU – 1

▶China – 2

▶Thailand - 9

Categories of the Questions:

▶Progress towards the achievement of its quantified economy-wide emission reduction target – 5 questions

▶ All emissions and removals related to its quantified economy-wide emission reduction target– 3 questions

▶ Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target– 5 questions

Progress towards the achievement of its quantified economy-wide emission reduction target

The quantified emission reduction target is reducing 15% of GHG emissions between 1990 and 2020. Does it mean that Kazakhstan will not achieve the 2020 target?

Indicators of the Concept for the transition to a "green" economy until 2020	The results of the implementation of the Agriculture and Industry Complex Development Program of Kazakhstan for 2015 - 2016:
Increase the share of alternative energy sources by 3%	The share of alternative (solar, wind, hydropower and nuclear energy) energy sources in electricity generation in 2015 was 0.77%, and in 2016 - 0.98%;
Increase the share of gas power stations to 20%, including conversion from coal to gas	The share of gas power stations in power generation increased to 21.2% and 21.4% in 2015 and 2016 with a plan of 20% by 2020; Gasification of regions reached 42.98% and 46.35% in 2015 and 2016 respectively.
Increase the energy efficiency of the GDP by 25% from the 2008 level	The goal of increasing the energy efficiency of GDP by 25% by 2020 was fulfilled ahead of schedule by 2015.

How the emission reduction actions have already affected the emission reductions and how the future realization of the goal will ensure its achievement?

▶ Transition to a green economy and GHG emissions reduction are implemented by means of reducing consumption of coal and fuel oil, as well as the transition from coal to gas and to renewable energy sources

▶ The technical potential of renewable energy in Kazakhstan is significantly exceeds the projected level of electricity consumption in the country

▶ The future actions to reduce greenhouse gas emissions is implemented on the basis of the Concept on the transition of the Republic of Kazakhstan to a "green" economy through the Action Plan to the State Program for the Agro-Industrial Complex Development in 2017

▶ The Action Plan is updated annually. Currently, the Plan contains 141 measures, including the development of renewable energy production through a fixed tariff system, which assumes the initial certainty for investors in the form of guaranteed purchase of the whole amount of electricity from RES at fixed tariffs adjusted to inflation rate.

▶ This mechanism allowed to quickly launch the RES market and implement the following types of renewable energy sources: wind, solar and small hydro

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Progress towards the achievement of its quantified economy-wide emission reduction target
Additional information on National ETS of Kazakhstan and lessons learned

► The national ETS and the carbon market started in 2013 and in April 2016 it was suspended till 2018.

► The reason was the inadequate balance of the system because of ineffectiveness and imperfection of the historical (grandfathering) method of quota allocation

► Based on the results of the historical method the Ministry of Energy of the Republic of Kazakhstan started work to transition to the quota allocation mechanism by means of benchmarking method

► To improve the effectiveness of ETS a strong political solution, a well-established monitoring, reporting and verification system, a correct legal and regulatory framework, a qualified human potential in ETS regulating and administrating bodies and an early analysis of the impact and economic consequences of ETS action are necessary

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GHG emissions in Kazakhstan for 1990-2015
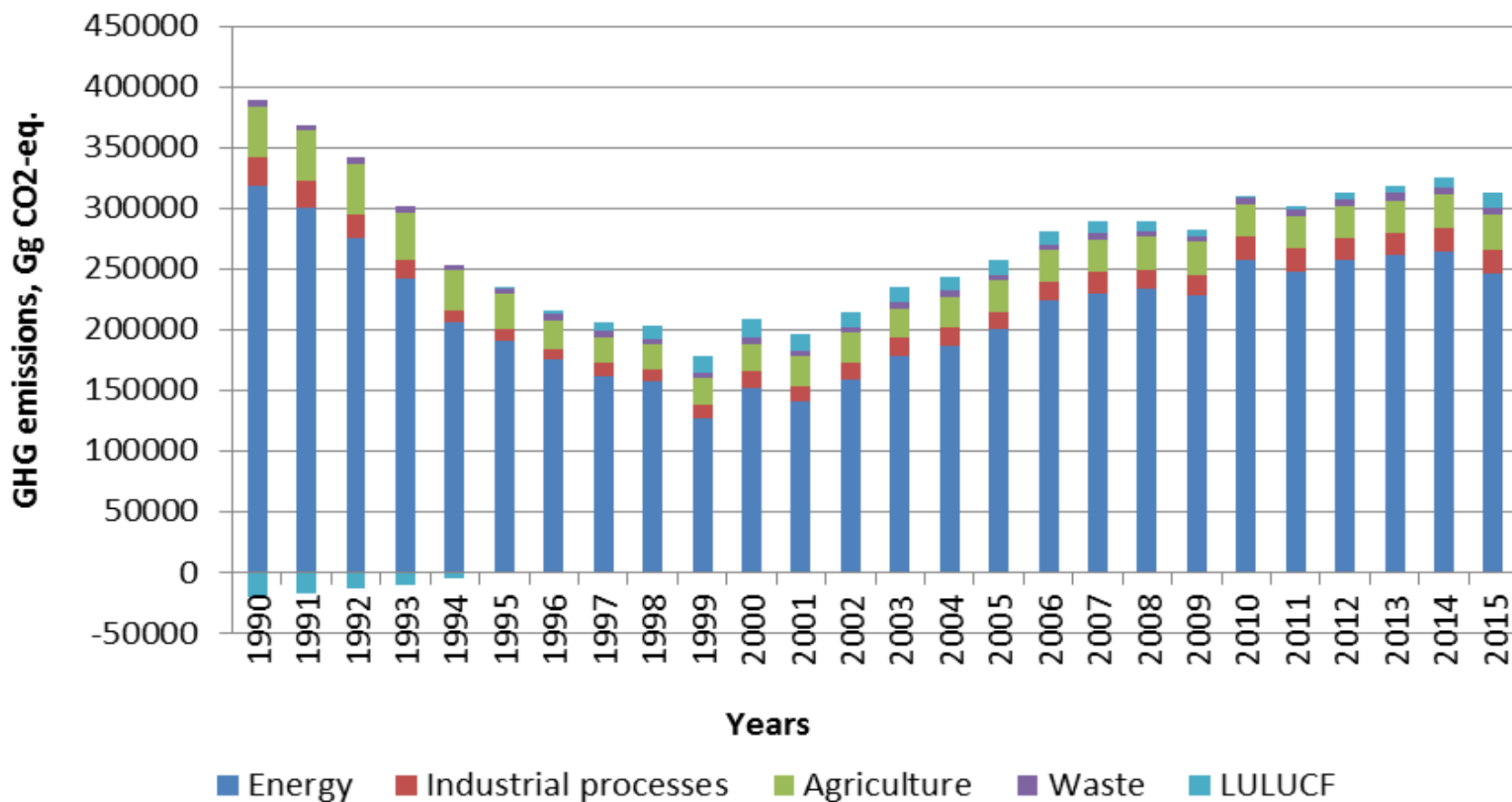
	1990	2015	Difference	In % towards 1990
Total GHG emissions with LULUCF, thous. t of CO2-eq.	369187,18	313146,55	-56040,62	-15%
Total without LULUCF, thous. t of CO2-eq.	389104,42	300920,50	-88183,92	-23%

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Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Did Kazakhstan apply IPCC Guidelines 2006 and the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (Wetlands Guidelines) ?

- Kazakhstan uses the 2006 IPCC Guidelines for the preparation of national GHG inventories

- Kazakhstan does not yet use the 2013 supplement to the IPCC Guidelines for Wetlands for National Greenhouse Gas Inventories.

- To estimate GHG emissions from land conversion to permanently flooded lands, special studies are needed.

- In the annual wetland inventory, only CO_2 emissions are calculated for lands converted to artificial reservoirs in the first year of their completion in accordance with the 2006 IPCC Guidelines on national biomass data of these lands before flooding.
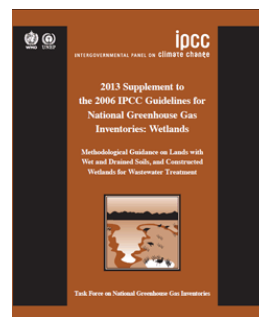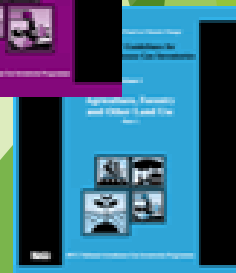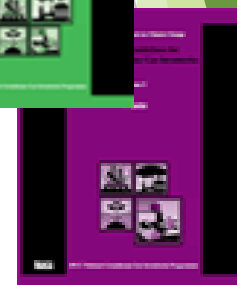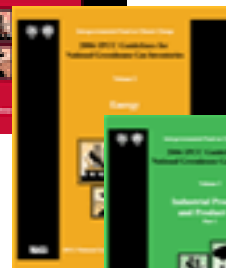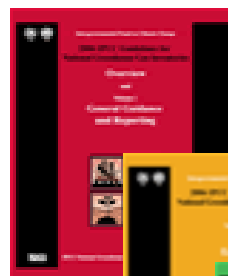
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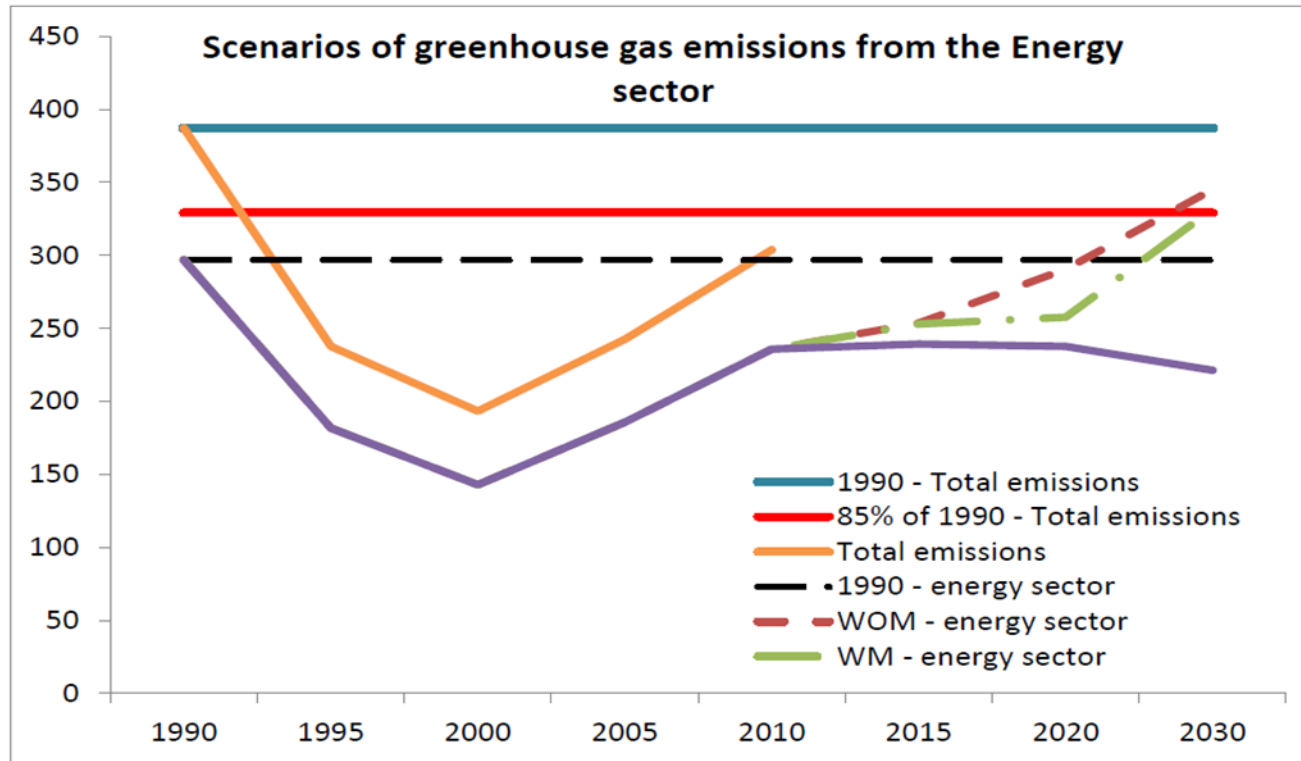of the Republic of Kazakhstan**

Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target.
In Section 5.1.2. Projections in the industrial processes sector, since Production is a function of GDP only, how do demands affect the Production ?

▶ In Section 5.1.2, a simplified formula for the level of production calculation was given, where production depends on GDP.

▶ The demand indirectly (through GDP) affects the level of industrial production through the anticipated future GDP growth rates, as the consumption and the net exports are the components of GDP.

▶ According to the forecast of the Ministry of National Economy from 2015, the GVA (gross value added) of industry will grow by an average of 2.1% in 2016-2020. GVA of the mining industry in the forecast period will increase at a rate of 2.5% on average annualy. GVA manufacturing industry will grow in the range of 1.1-3.9% in 2016-2020. The increase in GVA in the chemical industry will average 2.2% per year. The average annual increase in the GVA of construction will be 3.3%. It is assumed that in the period 2020-2030, the real GDP growth rate will average 3% per year.

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In the scenario with additional measures a downward trend is observed after the 2020 due to high costs of CO_2 emissions

Scenarios of greenhouse gas emissions from the Energy sector

Legend:
- 1990 - Total emissions
- 85% of 1990 - Total emissions
- Total emissions
- 1990 - energy sector
- WOM - energy sector
- WM - energy sector

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Category: Progress towards the achievement of its quantified economy-wide emission reduction target
In Figures 5.1 and 5.2, why the increasing rate of GHG emissions with measures after 2020 (until 2030) is higher than without measures (WOM).

▶ **Answer:** In the process of forecasting GHG emissions in the scenario with measures, a number of policies and measures were taken into account. One of the key measures aimed at reducing emissions was the emission trading system. At that time it was unknown, if the restrictions of ETS will take place after 2020. This scenario takes into account that the ETS had to stop. That is why the growth rate of emissions in the scenario with measures exceeded the GHG emissions in the scenario without measures.

All emissions and removals related to its quantified economy-wide emission reduction target
What are the results of key category analysis of the inventory ?

Key Source Analyses. Level assessment 1990 without LULUCF

Key Sources	GHG	1990 (ths. t of CO_2 eqv.)	Level Assessment
1.A.1 Fuel combustion – Energy – Solid fuel	CO_2	103107,85	0,265
1.B.1 Fugitive emissions from solid fuel combustion	CH_4	50243,50	0,129
1.A.4 Other sectors – Solid fuel	CO_2	37450,28	0,096

Key Source Analyses. Level assessment 1990 with LULUCF

Key Sources	GHG	1990 (ths. t of CO_2 eqv.)	Level assessment
1.A.1 Fuel combustion – Energy – Solid fuel	CO_2	103107,85	0,254
1.B.1 Fugitive emissions from solid fuel combustion	CH_4	50243,50	0,124
1.A.4 Other sectors – Solid fuel	CO_2	37450,28	0,092

Key source analyses. Level assessment 2014 without LULUCF

Keu Sources	GHG	1990 (ths. t of CO_2 eqv.)	Level assessment
1.A.1 Fuel combustion – Energy – Solid fuel	CO_2	87625,15	0,279
1.B.1 Fugitive emissions from solid fuel combustion	CH_4	26848,75	0,086
1.A.4 Other sectors – Solid fuel	CO_2	23717,92	0,076

Key source analyses. Level assessment 2014 with LULUCF

Key Sources	GHG	1990 (ths. t of CO_2 eqv.)	Level assessment
1.A.1 Fuel combustion – Energy – Solid fuel	CO_2	87625,15	0,234
4.B.1 Arable land remaining arable land	CO_2	42885,33	0,114
1.B.1 Fugitive emissions from solid fuel combustion	CH_4	26848,75	0,072

All emissions and removals related to its quantified economy-wide emission reduction target
What are the results of key category analysis of the inventory ?

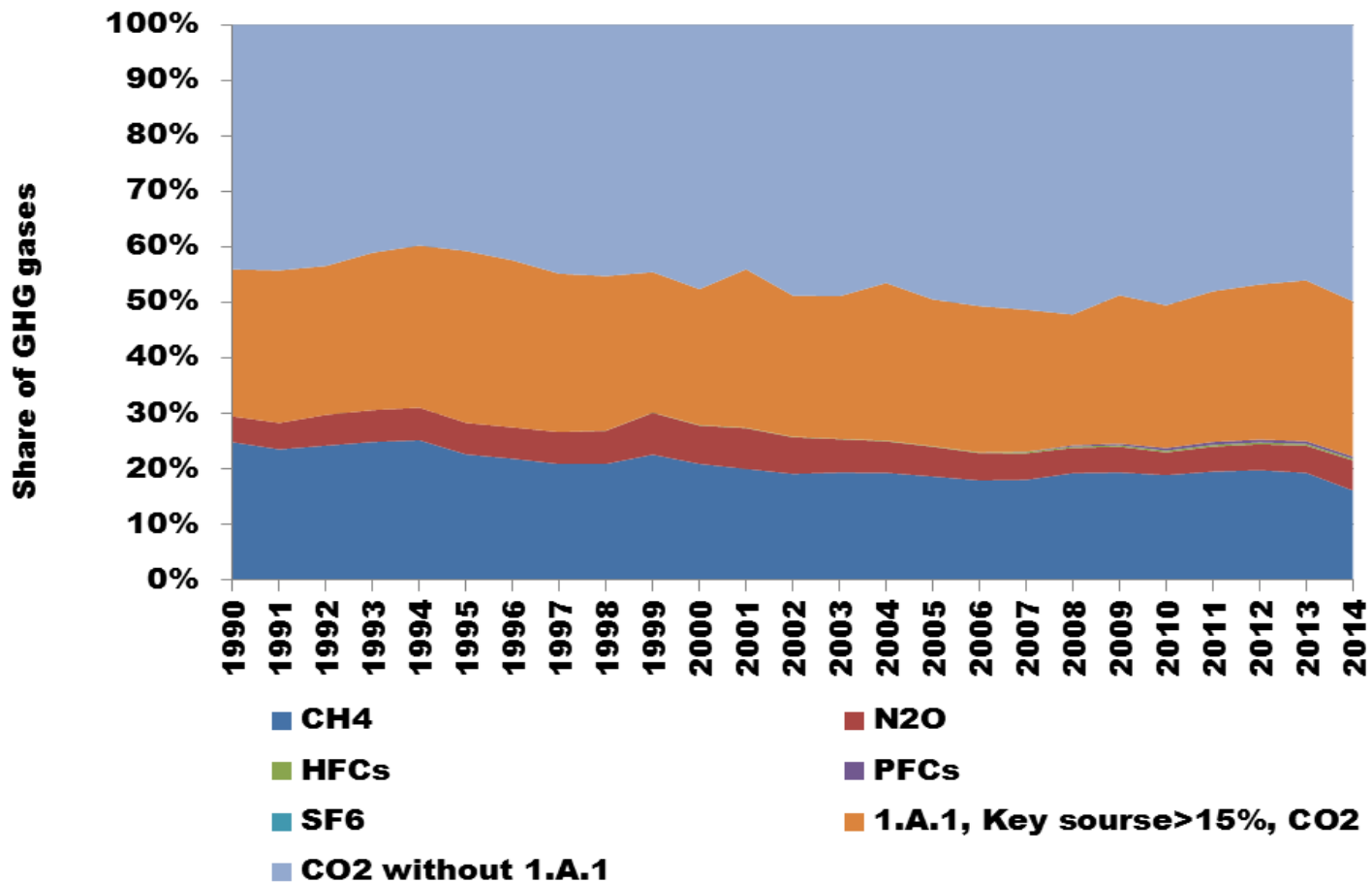Key source analyses. Level assessment 2014 without LULUCF

Key Sources	GHG	1990 (thous t of. CO_2 eq.)	2014 (thous t of. CO_2 eq.)	Trend assessment	Share of trend (%)	Совокупный вклад в тенденцию (%)
1.A.4 Other sources – Solid fuel	CO_2	37450,28	14151,42	0,050	13,3	13,3
1.A.5 Others – Solid fuel	CO_2	5111,62	23717,92	0,041	10,9	24,2
1.B.1 Fugitive emissions from solid fuel combustion	CH_4	50243,50	26 848,75	0,035	9,3	33,5

Key source analyses. Trend assessment 2014 without LULUCF

Категория источников эмиссий парниковых газов	GHG	1990 (thous t of. CO_2 eq.)	2014 (thous t of. CO_2 eq.)	Trend assessment	Share of trend (%) (%)	Совокупный вклад в тенденцию (%))
4.B.1 Arable land remaining arable land	CO_2	-817,63	42885,33	0,108	20,5	20,5
1.A.4 Other sources – Solid Fuel	CO_2	37450,28	14151,42	0,049	9,3	29,8
1.A.5 Others – Solid fuel	CO_2	5111,62	23717,92	0,047	8,9	38,8

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Share of GHG emissions by gases in Kazakhstan

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GHG emissions. All emissions and removals related to its quantified economy-wide emission reduction target
Question: Time series of greenhouse gas emissions by sectors in Figure 2.1. It is not clear that F-gas has been presented in the inventory since 1990.

▶ Kazakhstan is not F-gases producer. They are imported from other countries, mainly from Chinese and European manufacturers

▶ As substitutes for ozone-depleting substances, they have been used in Kazakhstan since middle 90-s. In 1995 only HFC-134a was presented with the amount of 228.8 tons of CO2 equivalent. Their share in total national emissions from 1995 to 2014 in CO_2 -equivalent is hardly exceed 1% of the total national emissions.

Feed-in tariffs for electricity generated by renewable energy sources

	Renewable energy technology used for power generation	Tariffs in USD/kWh (no VAT)*
1	Wind power plants, except for the feed-in tariff for the wind power plant Astana EXPO-2017 with a capacity of 100 MW	0.12
1.1	Wind power plant Astana EXPO-2017 with a capacity of 100 MW	0.33
2	Photovoltaic solar energy transformers, except for the fed-in tariff for solar power projects that use photovoltaic modules made of Kazakh silica (KazPV) for transformation of solar radiation energy	0.36
3	Small hydro plants	0.09
4	Biogas plants	0.18

Approved by the Decree of the Government of Kazakhstan No 645 on 12 June 2014. The approved fixed tariffs are indexed annually, taking into account inflation and changes in the exchange rate of the national currency

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Astana Expo - 2017

International specialized exhibition "Astana Expo-2017" will be held from 10 June to 10 September. The topic of the event is defined as "Energy of the future"

The President of Kazakhstan Nursultan Nazarbayev noted the importance of the EXPO-2017 exhibition as a large-scale event in the context of Kazakhstan's scientific and innovative development, whose legacy will be a whole complex of the latest developments and technologies in the sphere of clean energy, green economy and IT sphere "

Thank you for the attention!

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