

Presentation

The theme: Work on the project "Scientific heritage of EXPO 2017 a green future against the hydrocarbon present. How to choose a balance between renewable energy, oil and coal?"



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EXPO2017
ASTANA
KAZAKHSTAN

The World Exhibition or Expo is an international exhibition that is a symbol of industrialization and an open area for demonstrating technical and technological achievements.

The first world exhibition was held at Hyde Park in London at the initiative of Prince Albert. The main attraction of the exhibition was the Crystal Palace, built by Joseph Paxton of iron and glass.





Expo 2017 ASTANA

Expo 2017 Astana is a planned international exhibition recognized by the Bureau of International Exhibitions, which was held in Astana, Kazakhstan in 2017. Expo theme: "Energy of the future". Expo 2017 expects the participation of more than 100 countries and international organizations, and 8 million visitors.

On June 10, 2011 in Paris at the headquarters of the International Bureau of Exhibitions, the Executive Secretary of the Ministry of Foreign Affairs of the Republic of Kazakhstan, Rapil Zhoshybaev, national coordinator of the EXPO-2017 project, met with the Secretary General of the BIE Mr. Vincent Gonzalez Lossertales. During the meeting, Mr. Zhoshybaev submitted an official application of the Republic of Kazakhstan, signed by the Prime Minister of the Republic of Kazakhstan.

THEME AND SUB-THEMES



REDUCING CO₂ EMISSIONS

- Carbon Capture & Storage
- Renewable Energy
- A Future in Hydrogen
- Fusion Energy

LIVING ENERGY EFFICIENCY

- Energy Efficiency
- Urban Planning & Buildings
- Efficient Transport
- Efficient Industry

FUTURE ENERGY

ENERGY FOR ALL

- Energy Against Poverty
- Access to Sustainable Energy
- Decentralized Energy Systems

- The modern energy sector of Kazakhstan, which generates energy mainly from the combustion of coal and fuel oil, is the source of almost 88% of all greenhouse gas emissions within the republic. Forecasts suggest that this industry will for a long time use coal and fuel oil in production, since the transition of the country's energy industry to a low-carbon basis has been a matter of decades.
- In this regard, the main issue for Kazakhstan related to the concept of clean air will obviously be how and how domestic energy companies will be able to reduce emissions. And here they can come to the rescue the latest developments, allowing to burn coal without fear of being among the violators of the international energy-ecological convention.
- Another promising area of the low-carbon economy of the future is the development of renewable energy sources - wind, sun and mountain rivers. Judging by experts, the potential of these sources is huge in Kazakhstan, but due to objective and subjective reasons it is almost never used. For example, the wind energy potential of the Dornal area is equal to at least 100 thousand megawatts of electricity. This is only a new industry that will require huge expenses. But Kazakhstan will still have to master and develop this direction since the prospects of the energy industry suggest that by 2030 the replacement of a certain part of production with alternative sources. That is, of the 30 gigawatts of electricity



- The potential of small hydropower is also little used in domestic energy generation practice, while there are dozens of successful developments in this world for this specific area.
- In Kazakhstan, several years ago, a small hydroelectric power station was built on the Issyk River in the Almaty region, built by EnergoAlem in conjunction with one of the banks. A small hydroelectric station, using unlimited energy of the cascade flow, produces electricity 5-6 times cheaper than that produced by the CHP. Moreover, for its operation requires 10 times fewer workers than for a standard CHP.
- According to the CEO of EnergoAlem Kenzhemurat Dukenbaev, 150 such hydropower plants are able to cover 90% of the republic's energy consumption. Moreover, the use of energy from mountain rivers is equivalent to burning hundreds of thousands of tons of coal.
- Kazakhstan at EXPO-2017 in Astana is ready to present a number of its own ideas and radical solutions in the field of energy supply to the cities of the future. Ultimately, such efforts by our country in moving towards a "green economy"

MASTER PLAN



RESIDENTIAL AREA

ENERGY
DISCOVERY CENTER

CONGRESS
COMPLEX

INFRASTRUCTURE

MULTI-FUNCTIONAL
RETAIL
AND ENTERTAINMENT
COMPLEX

EXHIBITION
COMPLEX

EXHIBITION COMPLEX



**Thematic pavilion
"ENERGY FOR ALL"**



**Thematic pavilion
"ENERGY FOR LIFE"**



**Thematic pavilion
"MY FUTURE ENERGY"**



**Thematic pavilion
"WORLD OF ENERGY"**



**CORPORATE
PAVILIONS**



**NATIONAL PAVILION
"KAZAKHSTAN" - THE SPHERE**



**INTERNATIONAL
PAVILIONS**



**ENERGY BEST
PRACTICE AREA**

Expo 2017 Facts

● 1. The new era



Astana should bring the world into the future - roughly the same challenge facing the organizers of "Expo 2017". Kazakhstan will become the birthplace of the energy of the future, and experts are seriously talking about a new era in industry and energy. Given the reputation of the world-famous brand "Expo", the exhibition was able to change the world many times. The "Expo" of 1878 in Paris is considered a reference point in the era of electricity. For 160 years, many famous buildings have been erected - from the unique Crystal Palace and the Eiffel Tower to progressive high-tech factories. At exhibitions, people got acquainted with such inventions as a telegraph apparatus, electric lights, a hydraulic elevator. For the organization "Expo-2017" in Astana, Kazakhstan proposed the theme "Energy of the future". It is aimed at stating (ways for qualitative changes in the energy sector, the application of alternative energy sources and new ways of transporting it.

2. The capital twice

Astana was chosen as the capital of the Expo-2017 during a secret ballot by representatives of 161 states (members of the International Bureau of Exhibitions) on November 22, 2011. The capital of Astana was supported by 103 countries participating in the BIE. Our main competitor - the Belgian city of Liege - won 44 votes.

- **3. In the next five years, the whole world will talk about Kazakhstan.** The Expo exhibition in Astana will last three months - from June 10 to September 10, 2017. It is expected that about a hundred countries of the world and about ten international organizations will take part in it. More than five million people will attend the exhibition. In the countries of the Central Asian region and the CIS, such an event is held for the first time.
- **4. The matter of billions.** A total of 1 billion 250 million euros will be required for the “Expo-2017” in Astana. At the same time, it is estimated that about 250 million euros will be spent on site preparation (supply of communications, arrangement of infrastructure). One billion will be spent on the exhibition itself. With these funds, pavilions, hotels, entertainment centers and shopping areas will be built.
- **5. There was a hotel - became a house.** After the exhibition ends, the constructed production and residential areas will become urban property. Thus, the authorities intend to solve the problems of housing affordability simultaneously with the organizational work timed to coincide with the exhibition. Architects argue that the expo will be designed not so much for the guests as for the future.
- **6. Country in country.** Senator Gani Kasymov proposes to build Disneyland in Astana as part of Expo 2017. He believes that in this way the investment will pay off and the town will work for a long time in the name of the country. The deputy said that this is one of the options focused on the development of tourism. Of course, scientific and educational objects

8. **The exhibition will leave, science will remain.** Nursultan Nazarbayev, instructing the Government to organize the exhibition, emphasized that everything that will be built in Astana for "Expo-2017" will become a laboratory, a science park for the introduction of new technologies. The city authorities will spare no effort to make Expo not only memorable for guests, but also important for the city, useful for future generations.

9. **Place in the sun.** The sun is a source of energy and a symbol of "Expo 2017". This is precisely the idea reflected in the logo designed for an important event. Rounded petals with smooth and graceful shapes should be associated with movement and life. The third of legends for the exhibition is for the rainbow, the artists and wanted to emphasize the natural, green idea of energy. An American couple who had Strange as it may seem, ice cream in waffle cups Astana, which is 800 days gained exhibition in 1904 in St. Louis, USA. And the monument "Worker and Collective Farm Girl" was designed specifically for the Soviet pavilion of the Paris World Exhibition, held under the motto "Art and Technology in Contemporary Life" in 1937. And from



11. **Pavilion "Kazakhstan-Astana"** The main object of the EXPO-2017 exhibition complex will be the Kazakhstan-Astana pavilion in the form of a sphere with a diameter of 80 meters. This sphere will be the largest in the world, no one has yet built a complete solid sphere of this size. It will have solar panels, a wind installation that will accumulate the wind and let it pass through itself.

12. **Energy-positive area.** We will have the first energy-positive site in the world, that is, such a part of the city that will generate more energy than it consumes. In those days, when there is a lot of wind and sun, it will give its energy to the city, and some will accumulate in the energy storage system.

13. **Recycling** The Smart Garbage system will be implemented on the territory of EXPO-2017. This is a vacuum system that will suck in the garbage of each building and direct it to the central factory, where this garbage will be recycled. This plant will be unique, there will be no odors and pollution. It can be called universal, because it will not only recycle garbage, but also be used for water treatment.

14. **A completely covered street 500 meters long.** It will

- 15. **Developed logistics.** A new railway station, two bus stations are planned to be built by 2017. Each of them will have a capacity of 4.5 thousand people per day. An airport passenger terminal with four gates with a capacity of up to 1,500 passengers



Conclusion

The result of EXPO 2017 is a great event and a great responsibility. The people of Kazakhstan must show their famous hospitality and cordiality. "This is another" national construction "of Kazakhstan. Astana's success in the fight for the right to host EXPO 2017 is the success of the entire people of Kazakhstan," Nazarbayev said.

Bibliography

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