



Strategic Environmental Assessment Fuel and Energy Sector Development Concept of the Republic of Kazakhstan till 2030

26 October 12:30 - 13:50 CET

Subregional Workshop on the Practical Application of SEA and Transboundary EIA, 26 – 27 October 2020

Action implemented by:















Background information

- Fuel and energy sector development strategy was adopted by the Ministry of energy in 2014. In 2017 the review and updating process started and a taskforce was set up to this end.
- The FES Concept defines the thrust of the FES development and lists key projects vital for the implementation of the Concept. Each of the projects requires an EIA therefore the SEA of the Concept is required.
- The Ministry of energy initiated a pilot SEA and a SEA team was set up.
- The SEA process was arranged in parallel with the Concept review process in line with the Protocol requirements.





The SEA was implemented in two stages

Stage 1. Preliminary assessment and scoping (November, 2017 - March, 2018). During this stage the following surveys were made i.e.

- The strategic planning context of the FES Concept development and implementation was analyzed; environmental targets for further analysis were identified.
- Available environmental and social data and information were reviewed and main trends were identified.
- The FES Concept structure and contents were analyzed, including development analyses. The proposals for refining the scenarios were given to the taskforce.
- Impacts were identified and their preliminary assessment and ranking was made.
- Potential transboundary impact was analyzed and also need for transboundary consultations and areas thereof.
- The stakeholder analysis was made as well as that of the preferred ways of communication.
- The SEA implementation and stakeholder interaction plans were made.
- Preliminary recommendations were prepared and given to the taskforce.





Stage 2. The full-scale assessment and preparation of the SEA Report (April – November, 2018)

Within the full-scale assessment,

- Additional data about environment and human health conditions were collected and analyzed for the regions where there are the FES installations. And the trends were also analyzed.
- The Taskforce supplied updated FES development scenarios and the latter were analyzed. Comparative environmental assessment of the scenarios was made, including targeted analysis and analysis of possible effects on environment and human health.
- Recommendations were prepared to prevent and minimize possible adverse effects of the FES Concept implementation and to enhance positive effects.





Stakeholder Consultations

Stakeholder groups

- Entities that are related to the energy sector either directly or indirectly.
- State authorities that implement state energy policy.
- The affected population: inhabitants that can potentially be affected by the implementation of the FES
 Concept and by the environmental aspects thereof.
- General public stakeholders: citizens and the citizens' organizations which are interested in discussing the FES Concept and the environmental aspects thereof.
- States which can potentially be affected by transboundary impacts of the RK FES Concept implementation.
- Consultations stages
 - In April May 2018, in Astana, Pavlodar, Karaganda.
 - In November 2018, in Astana.





Methods used

- Strategic analysis methods (policy analysis):
 - Strategic context analysis
 - Scenario analysis
 - Targeted analysis
- Impact methods (impact assessment)
 - Cartographic methods
 - Qualitative methods of environmental (aspects) impact assessment
 - Key indicators





FES Development Scenarios Developed Upon SEA Recommendations

Baseline scenario:

Maintaining the existing FES structure which is primarily coal-based.

Gas-based FES scenario:

Transition to preferential use of natural gas, reduction of coal use, government support to renewable energy development (RES).

Multiple scenario:

Implementation of all the gas-based FES scenarios and enhanced support to RES.

• Optimistic scenario:

Focused on both achievement of the goals set in the Republic of Kazakhstan development strategy till 2050 and most active support to RES.





The environmental goals

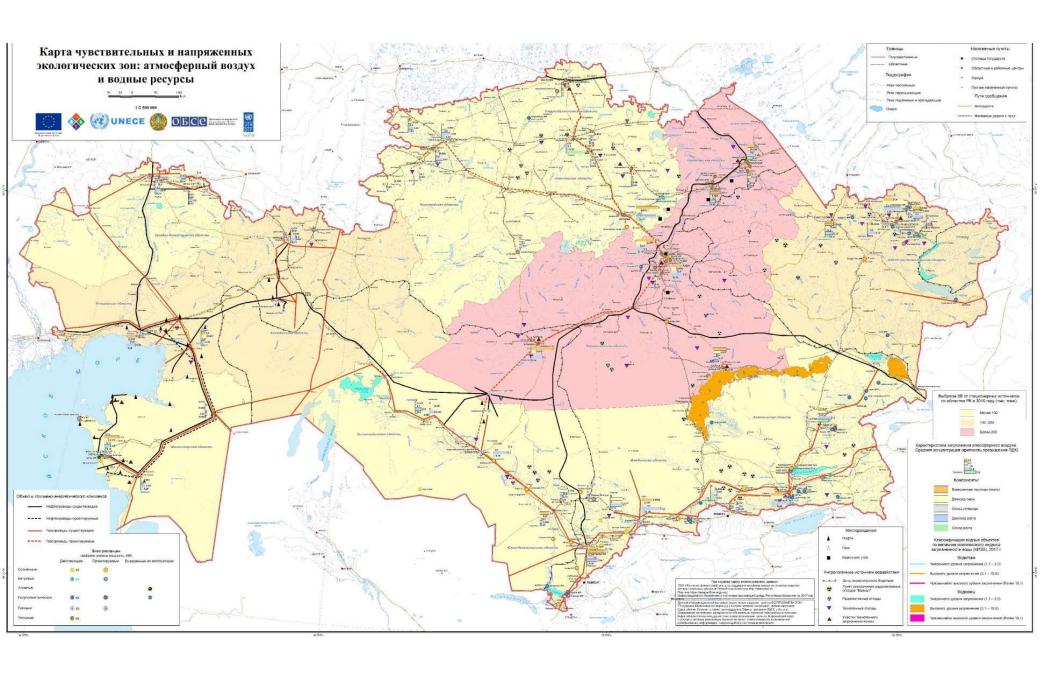
- EG 1. Reduce sulfur dioxide, nitrogen oxide, volatile organic compounds, dust, etc. emissions to reach the levels required by European standards and ensure compliance with the air quality standards.
- EG 2. Reduce emissions of greenhouse gases by at least 15% of the 1990 level by 2030 and by at least 40% by 2050.
- EG 3. Protect water bodies and manage water resources conservatively.
- EG 4. Sustainable land use.
- EG 5. Achievement by the Government of the goals of beneficial environment for human life and health.
- EG 6. Conservation of biodiversity.
- EG7. Reduce waste generation, including that of substances of high hazard categories.

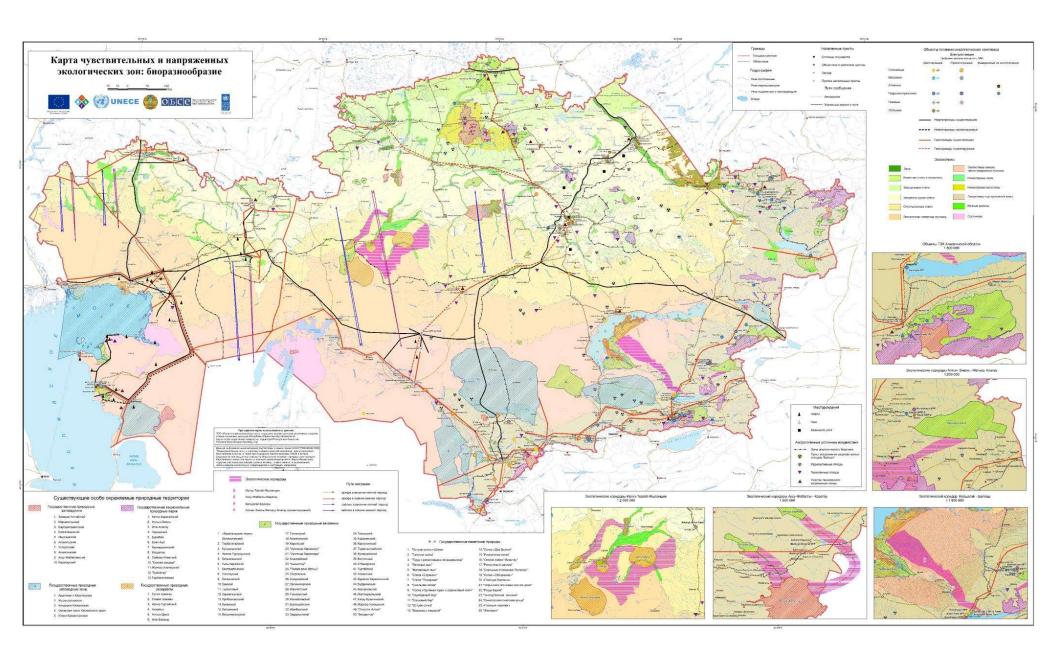
Universal national environment protection and human health goals	Baseline	Gas-based	Multiple	Optimistic
EG 1. Reduce sulfur dioxide, nitrogen oxide, volatile organic compounds, dust, etc. emissions to reach the European standards level and ensure compliance with the air quality standards.	-	+	+	++
EG 2. Reduce emissions of greenhouse gases by at least 15% of the 1990 level by 2030 and by at least 40% by 2050.	-	+	++	++
EG 3. Protect water bodies and manage water resources conservatively.	-/0	-/0	-	-
EG 4. Sustainable land use.	-/0	0	0	0
EG 5. Achievement by the Government of the goals of beneficial environment for human life and health.	-	+	+	++
EG 6. Conservation of biodiversity.	-/0	+/0	+/0	+/0
EG7. Reduce waste generation, including that of substances of high hazard categories.	-	+	+	++

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EU4Environment

	Baseline	Gas-based	Multiple	Optimistic	
The share of alternative energy sources in total domestic energy production by 2030 (%).	11	15	20	30	
Growth of alternative energy sources in total energy production versus baseline scenario (%).	0	4	9	19	
The share of substituted coal-based energy production by increased share of alternative energy sources by 2030 (%).	0	4	9	19	
The planned energy output in Kazakhstan by 2030 (for comparison, the projected baseline scenario output is used – it is equal to actual energy production in 2016).	94.1 billion kwh				
The share of substituted energy output due to increased production by alternative sources (million kwh).	0	3 764	8 469	17 879	
Specific energy production coefficient at coal-fueled power stations (average amount of coal per 1000 kwh). The coefficient is calculated only for coal-fueled station by the 2016 results.	760 tons coal per /1 million kwh				
Reduction of coal use due to increased power production by alternative energy	0	2.000.0	C 42C 4	42 500	









SEA Recommendations

- Initial recommendations prepared during the scoping stage:
 - Key issues to be included in the SEA
 - Preliminary recommendations to the Taskforce:
 - Political recommendations for planning
 - Technical and governance recommendations
- Recommendations for the Ministry of energy taskforce
- Recommendations for further planning





Examples of SEA recommendations

Examples of initial recommendations prepared during the scoping stage:

- When planning, extending, upgrading and building new energy sector production installations take into
 account availability of environmental network: wildlife corridors, specially protected natural areas, forest
 reserves, natural reserve fund, key bird areas, wetland, routes of animal migration, existing endangered
 species habitats and other valuable elements of ecosystems.
- Incorporate the strategic modeling research of the KR FES into the FES Development Strategy. This will
 make possible both eventual updates of the Concept and development of sector strategies and FES
 development plans.
- Set up quality control of coal supplied for sale for private individuals' consumption.

Examples of recommendations prepared within the full-scale SEA:

- Prepare a Joint development program of coal-based co-generation. Develop a goal setting chapter (goals and purposes, and also indicators and procedures to monitor efficiency of the Concept implementation (including activities and follow-up documents to further develop the Concept) and to make timely adjustment.
- Promote increase of oil-associated gas conversion to reduce gas flaring.
- Rehabilitation of mined land, remediation of land affected by oil-gas and coal sectors, and also rehabilitation of out-of-operation ash landfills.