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Renewable Energy in Kazakhstan

Case study on synergies and complementarities between climate finance mechanisms



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1 Executive summary

1. Kazakhstan has an immense but untapped wind and solar potential. At the same time, the power sector in Kazakhstan is highly energy intensive and suffers from ageing infrastructure, high transmission losses and temporary power shortages. The Government of Kazakhstan (GoK) has recognized the possibility to address these issues with expanding the use of renewable energy and is committed to develop this market. To that end, it combined funding from various climate finance sources like the GEF, CTF and GCF for a long-term endeavor, working with several partner organization and the private sector.
2. Since 2004, GEF, CTF and GCF funded a series of initiatives through and with UNDP, EBRD and IFC to provide Technical Assistance (TA) - mainly to support the development of the legal and regulatory framework for large-scale renewables - and capacity building services and project financing to support the private sector. As a first climate-financed effort to stimulate wind power market development, the GoK implemented UNDP's GEF-financed Wind Power Market Development Initiative from 2004 onwards. In 2009, the National Concept for Transition to a Green Economy up to 2050 as well as the Law on Supporting the Use of Renewable Energy (RES Law) were adopted. 2013 marked another important milestone, when the RES Law was improved in a way that it allowed for the development and implementation of first wind and solar power projects. The EBRD played a central role from 2008 and implemented most initiatives, collaborating with the government and the other partner organizations. EBRD and MoE constituted an axis from where initiatives were planned, implemented and coordinated with others.
3. The various funds and agencies complemented each other by offering a wide spectrum of applications and instruments. They were applied in a very coordinated and complementary manner, duplication was largely avoided and their use efficient. Combining funds from different sources had various advantages: Blending loans in local currency (provided by EBRD) with hard currency (by CTF / GCF) helped investors to pay back their loans with income generated in Kazakh Tenge and buy equipment on the international market, respectively, reducing exchange rate risks. Concessional financing by CTF and GCF helped to reduce costs for investors.
4. To keep the advancement of the regulatory framework going and enable first investment in a country where long-term financing sources were missing, it was essential that TA funding and means to finance projects were permanently available. A particular challenge in Kazakhstan was that the development of the RE sector was slow, among other things because of macroeconomic difficulties such as the extreme devaluation of the Kazakh Tenge in 2015. The possibility to shift funds between projects funded by the same mechanism, and between agencies was crucial to provide consistent support over such a lengthy period. It also enabled the continuous and persistent policy dialogue necessary to trigger the development of the market. Today, first solar projects are already operational and the interest in the Kazakh market by investors is reflected by a well-filled project pipeline at the EBRD. This highlights the benefit of country programming – in this case through the CTF's Investment Plan process.

2 Overview of sector and country

2.1 Economic context

5. The Republic of Kazakhstan is the ninth largest country and one of the least densely populated countries in the world with about 18 million inhabitants.
6. Kazakhstan harbors large reserves of uranium (largest producer in the world),¹ coal (10th place),² petroleum (13th place, 2017 est.) and natural gas (30th place, 2017 est.).³
7. An upper-middle income country since 2006, its GDP per capita has increased six-fold since 2002. During the global financial crisis of 2008 and 2009, Kazakhstan's GDP growth rate plummeted from 8.5 % to 3.2 % and 1.2 %, respectively, affecting infrastructure investments. Economic growth partly recovered from 2010 onwards, with growth rates between 5 and 7.5 %.⁴ In 2015 and 2016⁵, it fell again to just above 1 % due to falling oil prices and effects of the Ukrainian crisis.⁶ In 2017 and probably also in 2018, the growth rate was and will be at 4%, thanks to higher oil prices, robust investments and private consumption.⁷
8. Until 2015, the Central Bank of Kazakhstan tried to keep the national currency tenge (KZT) at comparatively stable exchange rates with the USD but devaluated it twice in 2009 (-18 % between Jan, 1 and Dec, 31) and 2013 (-15 %). But when oil prices decayed too much, in August 2015, the government decided to make the tenge a floating currency, leading to a devaluation of almost 50% in 2015 (cf. Figure 1). Until then, Foreign Direct Investment had already dropped by more than 50%, although the devaluation led to a slight recovery (cf. Figure 2). Today still, more than 70 % of FDI goes into resource extraction and it remains difficult to attract investments into other sectors until today.⁸

¹ https://en.wikipedia.org/wiki/List_of_countries_by_uranium_production

² https://en.wikipedia.org/wiki/List_of_countries_by_coal_production

³ <https://www.cia.gov/library/publications/the-world-factbook/geos/kz.html>

⁴ <http://mecometer.com/whats/kazakhstan/gdp-growth-rate/>

⁵ <https://www.adb.org/countries/kazakhstan/economy>

⁶ https://en.wikipedia.org/wiki/Economy_of_Kazakhstan

⁷ <https://www.gtai.de/GTAI/Navigation/DE/Trade/Maerkte/Wirtschaftsklima/wirtschaftsausblick,t=wirtschaftsausblick--kasachstan-juni-2018,did=1932946.html>

⁸ https://www.oecd-ilibrary.org/finance-and-investment/oecd-investment-policy-reviews-kazakhstan-2017/foreign-direct-investment-performance-and-kazakhstan-s-economic-development_9789264269606-6-en

Figure 1: Exchange rate US Dollar per Kazak Tenge



Source: www.xe.com

Figure 2: Foreign Direct Investment in Kazakhstan (in USD Million)



Source: tradingeconomics.com

2.2 Electricity sector and renewables

9. The power sector of Kazakhstan is under pressure for several reasons:⁹

- Infrastructure - often dating back to the Soviet era - is ageing,
- Existing capacities are not always able to meet rising demand (especially in winter), and
- the fact that 80 % of electricity is generated in the north of the country results in high losses in the inefficient transmission networks (7 TWh in 2012).

⁹ EBRD (2018b), p. 3

10. In 2017, wind and PV power generation accounted for only 0.4 % of Kazakhstan’s total utility-scale power generation, hydropower for 9.9 %, coal for 81 %, gas for 7.9 %, and oil & diesel for 0.6 %.¹⁰
11. Kazakhstan has a large wind and solar power potential: Solar irradiation levels are similar to those in France, with a pretty constant increase from North to South.¹¹ In most parts of the country, annual average wind speeds are above a 6 m/s – very suitable for harvesting wind energy - with several large areas with a good to excellent wind resource between 7 and more than 9 m/s (measured at a height of 80 m). Such regions can be found in the North, the South-West (especially at the Caspian Sea) and several other but smaller areas in the center and the South of the country.¹²
12. The Government acknowledged this opportunity and started first efforts to stimulate wind power generation as executing agency of UNDP’s Wind Power Market Development Initiative in 2004. To meet the power sector challenges and decrease Kazakhstan’s energy intensity, the National Concept for Transition to a Green Economy up to 2050 was released in May 2009. It sets out that the share of wind and PV shall reach 3% by 2020 as well as the objective that at least 50% of its electricity shall be provided by “alternative and renewable”¹³ sources by 2050.
13. In May 2009, the Law on Supporting the Use of Renewable Energy (RES Law) created several important preconditions, such as priority dispatching for renewables or project-based tariffs for produced electricity.¹⁴ Unfortunately, not all aspects of the regulatory framework were resolved, and high uncertainties for investors remained. Among other things, the prices for green power had to be negotiated for each project, which created such a high barrier that the law failed to stimulate any investments.¹⁵ With support of EBRD,¹⁶ an amendment to the law in 2013 introduced a general compensation mechanism guaranteeing a fixed price for all wind, solar and hydropower plants guaranteed for a 15 years period.¹⁷ In 2014, the Cost Clearing and Settlement Centre – a subsidiary of Kazakhstan Electricity Grid Operating Company (KEGOC) - was established, acting as single buyer for renewable electricity. With these improvements, first power plants could be erected over the years that followed. The first wind farm in Yereymentau-1 was financed by the Eurasian Development Bank (operational since 2015, EBRD had no stakes in this project).¹⁸ In 2014, EBRD was able to sign an agreement in 2014 to finance the extension

¹⁰ BNEF (2018), p. 3

¹¹ <https://solargis.com/>

¹² UNDP (2011b), p. 19

¹³ : The official website of the Kazakhstan Strategy website <http://kazakhstan2050.com/kazakhstan-energy/> does neither define the term “alternative source” nor is nuclear power explicitly mentioned. BNEF (2018) suggests that nuclear is considered as one potential source to achieve the 2050 target.

¹⁴ CTF IP (2010), p. 29

¹⁵ EBRD (2018a), p. 6

¹⁶ EBRD (2018a), p. 8

¹⁷ <https://www.iea.org/>

¹⁸ The existing wind power plant was financed by the Eurasian Development Bank and is owned by Samruk-Energy JSC. It has a capacity of 45 MW and was commissioned in August 2015. It was already under construction at that time and refinanced by EBRD. Source: <https://www.samruk-energy.kz/kz/press/news/i3888>; unfortunately, the EBRD project Yereymentau-2 (YLWPP) was canceled in 2018 since the project sponsor elected to not pursue the project anymore.

of that wind power plant (the extension is hereafter referred to as Yereymentau-2) and provided financing for two construction stages of a solar power plant in Burnoye in 2015 and 2016 (Burnoye-1 is operational now, Burnoye-2 currently close to commissioning). But due to the crash of the Tenge in 2015 and other market insecurities, the RE market came to a halt and nearly all projects were either delayed or had to canceled.

14. In 2018, Kazakhstan moved away from the feed-in-tariff scheme and towards a reverse-auction procedure for determining the prices for RES electricity. In total, the government aims at securing investments for 1 GW of renewable power generation capacity (Solar: 290 MW; wind: 620 MW; hydropower: 75 MW; bio power plants: 15 MW) through these auctions.¹⁹ The first set of auctions took place in spring and autumn 2018.²⁰

3 Context and timeline of GEF, CIF and GCF interventions

15. The development of the wind and the solar market in Kazakhstan can be split into two phases. From the beginning of the century until about 2013, the emphasis was on the policy dialogue and technical studies, raising awareness among decision-makers. It culminated in the establishment of the feed-in regime in 2013. In the second phase, from 2014 the interventions shifted their focus more on specific investments, while technical assistance measures to improve and refine the regulatory framework and build capacity remained an important component. Since 2008, EBRD played a central role as implementing agency providing own and using CTF / GCF funds but also coordinating own TA activities with TA interventions by other agencies. Table 1 provides an overview of the funds and projects included in this case study, including major RE market milestones.

Table 1: Timeline of projects included in this study and major RE market milestones for Kazakhstan

Implementing agency: Project	Start	End	Financing institution(s)	Short description
UNDP: Wind Power Market Development Initiative (WPMDI)	2004	2011	GEF	Full-size project to <ul style="list-style-type: none"> develop the policy and legal framework and adopt a national wind energy program, build capacity to develop commercially feasible investment proposals and to structure financing, and, facilitate the construction of a pilot project (not accomplished).²¹

In 2008, the government of Kazakhstan (GoK) and EBRD signed a Sustainable Energy Action Plan (SEAP) foreseeing joint actions in Technical Assistance and investments.²² In 2010, the Clean Technology Investment Plan for Kazakhstan was published.

¹⁹ <https://www.pv-magazine.com/2018/01/26/kazakhstan-1-gw-solar-renewables-auction-first-bidding-round-planned-for-may/>

²⁰ https://www.korem.kz/eng/press-centr/novosti_kompanii/?cid=0&rid=7133

²¹ UNDP (2011b), p. 13

Implementing agency: Project	Start	End	Financing institution(s)	Short description
EBRD: Kazakhstan Renewable Energy Financing Facility (KAZREFF)	2012	Funds fully utilized	CTF, EBRD + TA by Japan-EBRD Cooperation Fund	A Facility to <ul style="list-style-type: none"> provide financing and TA for implementing early RE projects, and, support policy dialogue and institutional capacity building to create a favorable environment for project implementation.²³
<i>In 2013, a feed-in-tariff mechanism is introduced, and the Cost Clearing and Settlement Centre established, important milestones allowing for first investments in RE projects in Kazakhstan.</i>				
IFC: Renewable Energy Infrastructure Program (REIP); Advisory Services Component	2014	2018	CTF	Provide Technical Assistance to <ul style="list-style-type: none"> improve the RE regulatory framework, and, support early private sector entrants.²⁴
EBRD: Yereymentau Large Wind Power Plant – Yereymentau-2 (YLWPP)	2014	Canceled in 2018	CTF, EBRD	A fund to co-finance construction, commissioning and operation of Yereymentau-2, the extension of the existing wind farm Yereymentau-1 by 50 MW wind farm in the community of Yereymentau. The funding was canceled in 2018 since the project sponsor elected to not pursue the project anymore.
UNDP: De-Risking Renewable Energy Investment (DREI)	2017	2022	GEF	A fund to promote private sector investment in large-scale (wind and PV) and small-scale RE (urban and rural) by using UNDP's De-Risking Renewable Energy Investment (DREI) model. -The model identifies barriers and risks, assesses cost-effectiveness of public instruments to promote RE investment and assists policy makers to apply them. ²⁵
EBRD: Kazakhstan Renewables Framework (KAZREF)	2017	2023; Lifespan of investments: ~ 20 yrs	GCF, EBRD, CTF, other lenders and donors	<ul style="list-style-type: none"> Investment framework to finance (1) up to 330 MW RES projects and (2) modernization and strengthening of the electricity grid. Technical Assistance to further develop the regulatory framework for energy and carbon markets.
<i>In 2018, the FIT mechanism for new projects ceases to exist for projects which have not qualified before June 2018²⁶, first RE auctions are held in spring and autumn 2018.</i>				

²² EBRD (2018a), p. 6

²³ <https://www.ebrd.com/work-with-us/projects/psd/kazreff-kazakhstan-renewable-energy-financing-facility.html>

²⁴ IFC (2014), p. 1

²⁵ http://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climateresilientdevelopment/derisking-renewable-energy-investment.html

²⁶ BNEF (2018), p. 5

3.1 Phase 1 – Building the foundations for RE deployment and policy dialogue

16. As in many countries, wind energy – thanks to its relatively low cost and maturity – was the first new renewable energy technology which was considered deployable in Kazakhstan. A first wind project “Wind Energy in Kazakhstan” (1997-98) funded by the Dutch Government and implemented by the Energy Research Centre of the Netherlands (ECN) noted that the country was “one of the most appropriate countries in the world to develop wind energy” with regards to its wind resource. A UNDP/GEF project development activity between 1997 and 1999 – initiated by the Ministry of Energy and Mineral Resources (MEMR) – provided the basis for a full sized UNDP/GEF project.

17. This project, the “Wind Power Market Development Initiative” (WPMDI), a UNDP/GEF project executed by the Ministry of Energy and Mineral Resources MEMR,²⁷ laid the foundation for renewable power market development in Kazakhstan. It assessed the wind resource at 15 selected sites through an on-site measurement campaign, produced the Kazakhstan Wind Atlas, and prepared prefeasibility studies for 10 sites.²⁸ An important activity was the preparation of the Law on Supporting the Use of Renewable Energy. It set out that power purchase prices for projects had to “be agreed between generator and energy purchaser (Regional Energy Company (REC)²⁹ or the national grid operating company KEGOC) on the basis of a full (lengthy and costly) feasibility study”. Even if it ultimately proved impossible to clarify and derisk the market framework for renewable energy in Kazakhstan sufficiently, the WPMDI was an important and necessary building block: The project engaged and raised awareness among important stakeholders such as utilities, KEGOC and the regulator, involved local and international developers, and demonstrated technical and commercial feasibility of wind projects.

18. After the financial crisis of 2008, the GoK remained determined to reduce the energy sector’s energy intensity.³⁰ Until 2008, the EBRD had focused on energy efficiency in Kazakhstan. In that year and in the frame of its Sustainable Energy Initiative (EBRD SEI), the EBRD supported the development of the Sustainable Energy Action Plan (SEAP) of the Government of Kazakhstan (GoK). The plan defined actions needed to enhance the framework for investment and projects that EBRD would carry out. It was signed by both the GoK and EBRD. Already in autumn of that year, EBRD used resources from its Shareholder Special Fund (SSF)³¹ to support the government’s work on the Law on Supporting the Use of Renewable Energy.

19. The CIF Clean Technology Fund Investment Plan (IP) was created in the following year. A month before that Law was passed, in June 2009, EBRD – who had the strongest relationship with the GoK – organized the joint mission of EBRD, World Bank and ADB, to Kazakhstan. Renewable energy market development was found to be a priority for investments and in the CTF, the

²⁷ UNDP (2011b), p.10

²⁸ UNDP (2011b), pp. 37-38

²⁹ There are 21 regional energy companies distributing electricity.

³⁰ EBRD (2009), p.45

³¹ A multi-donor fund established in 2008 “to complement existing funding for projects which do not fit the donors’ priorities.” Source: <https://www.ebrd.com/downloads/research/factsheets/ssf.pdf>

government and the MDBs assigned US\$ 116 million concessional CTF funding for investment and TA. The CTF IP was published in October 2010³² and revised in May 2013.³³

20. EBRD continued to provide technical assistance, funded by the SSF until 2011 and by CTF from 2012 to 2015. In 2012 and 2013, this assistance included advice on primary and secondary legislation, the set-up of the Cost Clearing and Settlement Center,³⁴ the introduction of a fixed feed-in-tariff (FIT)³⁵ manifest in the amended RES Law in 2013 as well as drafting of model power purchase agreements.³⁶ (A detailed overview of implemented and planned measures can be found in Annex II.) The introduction of the FIT but also the Cost Clearing and Settlement Center was the starting signal for the first investments in large-scale wind and solar projects.³⁷

3.2 Phase 2 – RE projects funding and further development of the regulatory framework

21. In the second phase, after the introduction of the FIT in 2013, a pipeline of first mover wind and solar projects was co-financed by EBRD and CTF: An extension of Yereymentau Wind farm by 50 MW³⁸ (Yereymentau-2) was funded through a dedicated EBRD/CTF project (Official project title: “Yereymentau Large Wind Power Plant” (YLWPP), canceled in 2018), and the development of a number of solar power plants took place under EBRD’s/CTF’s “Renewable Energy Finance Facility” (KAZREFF). Of these projects, Burnoye-1 Solar Power Plant (50 MW) is already operational and repaying, Burnoye-2 is about to be commissioned (50 MW). Under KAZREFF, a comprehensive Strategic Environmental Review (SER) report³⁹ was elaborated and published in 2014. This document helps to identify promising areas for RE development. The stakeholder engagement plan of the SER was used later on in the Funding Proposal for the “GCF-EBRD Kazakhstan Renewables Framework” (KAZREF) as a reference to the required engagement and consultation with all relevant stakeholders. Between 2014 and 2017, EBRD’s TA (using CTF funds) worked on grid integration issues, cooperated with national authorities on the strategic review of Kazakhstan’s RE financing facilities in view of project development and appraisal and helped establishing a framework for technical, environmental and legal due diligence for EBRD’s RE investment projects.⁴⁰

³² EBRD (2015), p. 6

³³ CTF IP (2013)

³⁴ The Cost Clearing and Settlement Center acts as the off-taker for electricity from RES facilities.

³⁵ A fixed feed-in-tariff is a fixed price at which an off-taker (in Kazakhstan the Cost Clearing and Settlement Center) has to buy a unit of energy (e.g. a kilowatt-hour) from a renewable power producer.

³⁶ EBRD (2018b), p. 9

³⁷ EBRD (2015), p. 6

³⁸ The first stage of Yereymentau Wind farm (45 MW, Yereymentau-1) was financed by the Eurasian Development Bank (EDB) and commissioned in August 2015. Source: <https://www.samruk-energy.kz/en/press/news/i3888>

³⁹ <http://www.kazreff-ser.com/>

⁴⁰ EBRD (2018b), p. 9

22. In an update of the CTF IP in April 2013, US\$ 21 million for RE development were reallocated from EBRD to IFC.⁴¹ Of this amount, IFC used US\$ 1.2 million for CTF-funded advisory services for the “Renewable Energy Infrastructure Program” (REIP) in 2014, aiming “at supporting the government in finalizing the enabling environment and supporting the private sector developers in establishing a pipeline” in close coordination with the EBRD.⁴² The remainder of the CTF-IFC allocation (US\$ 19.8 million) was intended for investments but could not be allocated until 2018.^{43, 44} Likely reasons why no pipeline of commercially viable projects could be established on time, is the extreme depreciation of the Tenge in 2015, lengthy permitting times of 2-3 years⁴⁵ and other market insecurities. Overall in Kazakhstan no wind and less than 10 MW PV capacity were added in 2016, and no PV and only about 60 MW wind capacity in 2017.
23. Despite slow RE market development in 2015 and 2016, EBRD continued to maintain its project pipeline and liaised with investors during that time. In fact, the EBRD/CTF-KAZREFF project pipeline was oversubscribed, in January 2017, by an estimated US\$ 28 million. EBRD therefore applied to the GCF for further funding. In order to bridge the time until funds of the “GCF-EBRD Kazakhstan Renewables Framework” (KAZREF) would become available and to avoid stalling project implementation, EBRD requested to re-devote CTF funds from the EBRD “Waste Management Modernisation Phase I & II” project to the Renewable Energy Finance Facility KAZREFF⁴⁶ increasing this facility’s funding from US\$ 41.7 million to US\$ 65.5 million.⁴⁷ By the writing of this case study, these funds are fully allocated.⁴⁸ KAZREFF’s technical assistance component was funded by the Japanese government through the Japan-EBRD Cooperation Fund (JECF).⁴⁹
24. In October 2017, the “GCF-EBRD Kazakhstan Renewables Framework” (KAZREF) was approved by the GCF,⁵⁰ to fill a financing gap as long-term financing for renewables was unavailable in Kazakhstan, attract private sector investors and reduce financial risks for project sponsors in an untested market. In addition to renewable energy projects (solar, wind, small hydro and biogas), KAZREF will also provide loans to distribution and transmission companies to modernize and strengthen grids and improve grid integration of renewables.⁵¹ Through this facility, EBRD intends to lend US\$ 413 million, including own (US\$ 214 million), GCF (US\$ 106 million), and other lenders’ (US\$ 93 million) funds and aims at attracting US\$ 137 million of equity funding,⁵² and support development and construction of 8-11 projects. The first project to be financed under this Framework is the construction of a 40 MW project by China’s Risen Energy in the

⁴¹ CTF IP (2013), p. 2

⁴² IFC (2014), p. 1

⁴³ IFC (2014), pp. 1-2

⁴⁴ CTF SAR (2018), p.11

⁴⁵ BNEF (2018), p. 7

⁴⁶ EBRD (2017), p. 2

⁴⁷ CTF CP (2018), p. 8

⁴⁸ Personal communication, EBRD, October 2018

⁴⁹ http://www.kazreff-ser.com/doc/KazREFF_Flyer_ENG.pdf

⁵⁰ <https://www.greenclimate.fund/-/gcf-ebrd-kazakhstan-renewables-framework>

⁵¹ EBRD (2017), p. 20

⁵² <https://www.greenclimate.fund/-/gcf-ebrd-kazakhstan-renewables-framework>

Karaganda region.⁵³ Another loan agreement has been signed with Mangistauskaya Regional Distribution Company (MREK)⁵⁴ to support modernization and energy efficiency improvements of its distribution networks.

25. In 2016, UNDP launched its GEF-financed “De-risking Renewable Energy Investment” (DREI) project for large- and small-scale renewables. The relatively small project component (GEF funding: US\$ 0.7 million) which is addressing large-scale renewables aims at supporting the MoE and other stakeholders in designing and implementing policies, programs and regulation and capacity building for key stakeholders.⁵⁵ Applying its DREI methodology, UNDP published a report⁵⁶ in December 2017 in which major risks are assessed and possible cost-effective public de-risking measures are presented.

26. Thus, in this phase and in the future, technical assistance and capacity building has been funded by EBRD and CTF, and GEF. To further develop the regulatory framework in the future, TA components are foreseen in the new KAZREF funded by EBRD, GCF and other donors.⁵⁷

4 Findings regarding synergies

4.1 Synergies and continuity for technical and financial aspects of policy framework and capacity building

27. **The combination and interplay of technical assistance with financing of renewable power projects funded by different climate finance mechanisms was crucial for the early wind and solar market development in Kazakhstan.** During the UNDP WPMDI, the framework conditions were too rudimentary to facilitate large-scale wind projects. Therefore, project financing was only planned for a small 5 MW pilot wind project in the Djungar Gate region. This project could not be implemented due to insufficient private sector involvement.⁵⁸ When EBRD entered the market in 2008 it did so with the clear intention to do both advance the legal and regulatory framework and finance projects, as evidenced by the Sustainable Energy Action Plan (SEAP): In the SEAP the GoK committed to improving framework conditions and the EBRD committed to investing in projects.⁵⁹ Once favorable conditions were in place, EBRD could immediately offer financing to early wind and solar projects. In fact, EBRD permanently maintained and managed a project pipeline and was ready to finance projects immediately after regulatory changes became effective. As a result, Burnoye-1 is already repaying, Burnoye-2 close to commissioning, Zadarya, Baikonur and Risen solar power plants are in advanced stages of development and more

⁵³ EBRD (2018b), p. 11

⁵⁴ MREK was privatized by private utility Kazakhstan Utility Systems (KKS). (Source: <https://www.ebrd.com/work-with-us/projects/psd/mrek-privatisation-and-transformation.html>)

⁵⁵ UNDP (2016)

⁵⁶ UNDP (2017)

⁵⁷ For more details about details of the several TA initiatives in the past, please refer to Annex II.

⁵⁸ UNDP, 2011b, p.44

⁵⁹ EBRD, 2009, p.45

projects in the current pipeline. In 2016, the GEF-funded UNDP project De-Risking Renewable Energy Investment (DREI) provided funds for an analysis of possibilities to de-risk large-scale RES projects. Such analysis again is directed towards the policy level, where it can enable a more informed and thus more effective policy-making process.

28. Since 2009, EBRD in particular was able to combine funding from several funds to finance a series of complementary TA measures to maintain the momentum of regulatory development.

It complemented own resources in a very strategic and targeted manner with resources from climate finance mechanisms: At the beginning, EBRD used its own Shareholder Special Fund (SSF) (2009-2011) to bridge a TA funding gap until CTF could take over TA funding from 2012 until 2017. Since 2017, EBRD is using the new KAZREF to co-fund its TA and capacity building interventions. This means that there is constant TA and capacity building through EBRD for eight years now, contributing to a step-by-step improvement of framework conditions. And it clearly shows a synergy between the funds where, for example funding from a waste project under CTF is used to provide interim support until there GCF project approval process was finished. In 2017, flexibility to re-allocate money between CTF programmes / projects helped EBRD to avoid a potential funding interruption between KAZREFF (CTF) and KAZREF (GCF) and to link both funding programmes. When KAZREF funds were not yet available in January 2017 but EBRD had an oversubscribed project pipeline, CTF funds were shifted from another programme towards RE project funding under KAZREFF. This allowed EBRD to continue processing the existing pipeline with funds from the increased KAZREFF and a potential disruption of funding could be prevented.⁶⁰

29. Coordination and communication between MoE, EBRD, other MDBs, UNDP and other national and international agencies and stakeholders on the ground has helped provide continuity and consistent support to the government. This is achieved through several measures:⁶¹

- There is a Working Group on renewable energy headed by the MoE in which initiatives are discussed and coordinated. EBRD highlighted that this working group is a very suitable platform for this task.
- In certain situations, the international organizations elaborate joint positions on required improvement of regulation and present them to the MoE.
- EBRD and other international organizations conduct coordination calls on a regular basis.

30. This was useful to coordinate between the different stakeholders who had access to different types or climate finance funds. And it enabled them to provide this consistent support.

31. Channeling funds through an established and successful implementing agency (here the EBRD) which has a long-standing business relationship with the respective Ministry (here the MoE) was important for the effective use of climate financing. This year, cooperation of EBRD with Kazakhstan celebrates its 10th anniversary. During that time EBRD has steadily supported the development of the regulatory framework through its TA measures, including through funding by CTF. Important milestones such as the enacting of the FIT or the establishment of the Cost

⁶⁰ EBRD (2017), p. 2

⁶¹ Personal communication, EBRD, October 2018

Clearing and Settlement Centre have been reached. As has been seen in many countries around the globe, the mere existence of a few renewable power plants increased confidence among local players that RE systems are a viable option for power supply and triggered interest among investors. Most recently, the new GCF KAZREF could also be established as a consequence of the long presence and experience of EBRD. EBRD's pole position is also reflected in the reactions of the private sector. An energy market player reported that cooperation with EBRD was useful beyond the mere financing of projects: Firstly, awareness for solutions for more sustainable energy supply within the company had been raised and, secondly, the company's standards in areas such as operations, safety or reporting had been improved thanks to experience shared by EBRD.

32. Climate finance projects build the capacity of individuals and organizations. This ensures continuity of efforts and supports market development. Local champions are a precondition for successful market development – and networks of such local champions can be built up by a multiplicity of agencies better than through individual initiatives. In this case study, at least one individual has been identified who has entered the field of renewables as manager of one of the early projects of this study, and afterwards moved into a public institution and helped shape the framework for renewables. In another case, an individual was involved in developing the regulatory framework as consultant on behalf of EBRD. This person then took on a position in a local key institution and helped developing important bylaws, rules and processes. Later the individual moved into the private sector, dealing with the realization of RE and related projects. With respect to institutions, an important milestone was EBRD's support to establish the Cost Clearing and Settlement Center, the off-taker for electricity from RES facilities.

4.2 Synergies in financing

33. After the introduction of a feed-in-tariff scheme in 2013, EBRD was ready to finance for early mover RE projects. The lion's share of these projects' financing needs was financed with debt from EBRD and a smaller part (not more than 20%) with concessional loans by CTF.

34. EBRD uses own, CTF and GCF financing to fill the gap of unavailability of commercial and/or local financing. The combination of standard capital resources of EBRD with concessional financing from CTF and GCF makes it possible to do this at preferential costs of capital and longer tenors, which provides incentives for investors. Lack of liquidity, limited loan tenors of only 4-5 years for projects offered by local commercial banks and the Development Bank of Kazakhstan (KDB), currency fluctuation and high interest rates between 12 % - 15 %⁶² rendered financing of RE projects in Kazakhstan impossible. EBRD was able to provide appropriate financial capital, combining own, CTF and GCF funding. Each RE project financed by EBRD so far has integrated debt funding by CTF and / or GCF. In addition, the readiness of EBRD to finance projects and successful first projects might attract other commercial lenders' interest to also invest in RE projects in Kazakhstan.⁶³

⁶² BNEF (2018), p. 9

⁶³ BNEF (2018), pp. 9-10

35. The diversification of investor types and evolution of equity shares of first mover projects indicates that the RE market has reached a higher level of maturity and a growing interest of private investors. Looking at the ownership of the renewable energy facilities in Kazakhstan, a trend to diversification is apparent: starting from de facto state-ownership more and more private and international investors are active. For example, the loan for Yereymentau-2 Wind Farm was provided through EBRD – using own and CTF funds - to Samruk-Energo JSC, a national energy company which is owned by the state-owned JSC Sovereign Wealth Fund Samruk-Kazyna. Burnoye-1 and 2 are owned by the Kazakh-UK joint venture of Samruk Kazyna Invest LLP (the investment arm of the Wealth Fund) and United Green Energy Limited,⁶⁴ a privately-owned investment group. The Kulan Solar Power Plant is entirely sponsored by a private Indian developer, ACME Cleantech Solutions Pvt Ltd. Secondly, the increase of the equity share might be another indicator that EBRD was successful in implementing the objective to attract and raise confidence by investors: Yereymentau-2 (although canceled in 2018) had an equity share of 20 %, Burnoye-1 25 %, Kulan 35 % and Burnoye-2 almost 32 % (cf. Table 2). Besides attracting more private equity, EBRD also managed to diversify debt financing by attracting co-financing from ordinary capital resources by ADB for the 2018 Baikonur solar project (50 MW).⁶⁵ Without the consistent and gap-free funding that was leveraged on time from multiple climate finance mechanisms, the continuity that ultimately led to this diversity in private sector involvement would have been much more difficult.

Table 2: Financial structure of early projects financed by EBRD and CTF

Project	Date (PSD disclosed)	EBRD	CTF	Client (estimated)	Total project volume (estimated)
Yereymentau-2 Wind Farm (50 MW) Status: Signed, but canceled in 2018	11/2013	US\$52.16 61.35%	US\$15.86 18.65%	US\$17m 20%	US\$85.02m 100%
Burnoye-1 solar plant (50 MW) Status: Repaying (operational since two years)	03/2015	US\$75m 62.5%	US\$14.8m 12.33%	US\$30.2m 25.17%	US\$120m 100%
Kulan Solar Power Plant (29 MWp) Status: MDB approved in the 2nd half of 2017 ⁶⁶	08/2016	US\$24m 47.06%	US\$9m ⁶⁷ 17.65%	US\$18m 35.29%	US\$51m 100%

⁶⁴ <http://unitedgreen.com/>

⁶⁵ For further details about financial structuring and other project information, please refer to Annex I)

⁶⁶ CTF SAR (2018), p. 10

⁶⁷ https://www.climateinvestmentfunds.org/sites/cif_enc/files/meeting-documents/ctf_sar_presentation_6-3-2018.pdf

Burnoye-2 solar plant extension (50 MW)	10/2016	US\$44.5m	US\$10m	US\$25.5m	US\$80m
Status: Disbursing, pre-commissioning checks have been carried out		55.63%	12.5%	31.87%	100%

36. The flexibility specifically of country programming in the CTF, which allowed to move funding from one agency to another was helpful in broadening the spectrum of agencies able to work in Kazakhstan within an agreed country framework. In 2014, IFC provided ad hoc support to MoE to improve the framework for renewables. The CTF funds for this had been shifted intentionally from EBRD to IFC.⁶⁸ 2014 was a crucial year for renewables when the FIT scheme was enacted. The parallel engagement of both EBRD and IFC could have helped to expedite this process. In its proposal to CTF, IFC explicitly states that “project teams [of IFC and EBRD] coordinate closely and maintain open communications.”⁶⁹ According to the revised IP, EBRD aimed at implementing at least 5 and IFC between 1 and 3 projects.⁷⁰ This approach of diversifying agencies might also have had a positive effect by introducing potential other private sector investors through IFC. While, in the end, mainly due to macroeconomic difficulties but also continuing deficiencies of the regulatory system, IFC could only implement the Advisory Services Component (US\$ 1.2 million), and the intended Financial Services Component was canceled in 2018, the combination of the two MDBs would have enabled foreign investors to choose between or combine loans in tenge (from EBRD) and loans in USD (from IFC), and thus better buffer currency risks.

37. Blending loans in local currency (EBRD loans) with loans in hard currencies (CTF / GCF) helps addressing forex risks and investors who have to buy equipment on the world market. In Kazakhstan, EBRD is lending local currency to increase creditworthiness of projects which are only generating income in the local currency as RE projects do. Creditworthiness is improved since loan repayments are not subject to exchange rate fluctuations.⁷¹ At the same time, equipment or certain services for the project can only be purchased in hard currencies. This is where CTF and / or GCF loans provide at least a partial solution to developers, particularly if another bank like IFC can also access these funds and provide lending in a hard currency.

38. As the regulatory framework evolved, project pipelines grew, and funding for project financing was scaled up. The first project to be funded by EBRD– Yereymentau-2 Wind Farm – had its own dedicated fund and an expected investment volume of up to US\$ 103 million. KAZREFF combined several RE projects under the same Facility and an expected volume of up to US\$ 289 million (in 2018, the original volume was US\$ 157 million). The new EBRD / GCF KAZREF expects a total project investment volume of US\$ 557 million. It is likely that increased scale and combining several RE project under one programme leads to lower transaction costs and that later programmes are able to benefit from the experience gained in earlier projects. But the

⁶⁸ This shift was requested by the GoK in order to increase “MDB processing capacity”. Source: CTF IP (2013), p.9

⁶⁹ IFC (2014), p. 2

⁷⁰ CTF IP (2013)

⁷¹ EBRD (2018b), slide 4

main driving force for up-scaling certainly was and is the growing project pipeline in Kazakhstan. Besides the mere up-scaling, funding also evolved qualitatively. Whereas the fund for Yereymentau-2 only intended to finance one wind farm, the funds of KAZREFF were used to finance solar power projects as well. The newly established KAZREF aims at implementing solar, wind, small hydropower (<35MW) and biogas projects. Furthermore, it is targeting electricity distribution and transmission companies to help them integrating renewables in the grid.

5 Conclusions

5.1 Synergistic use of climate funding enables consistent long-term market development

- 39. Long-term engagement was facilitated by the continuity provided by resources from different funds and through different agencies.** Market development is almost always a slow process. To keep up the momentum in the evolution of the regulatory framework and to enable first investments, ongoing funding – in the form of technical assistance but also investment capital - was essential. It was one of the major preconditions in Kazakhstan - for undisrupted policy advice and maintaining a pipeline of RE projects that funding was continuously available including from GEF, CTF and now GCF. Complementing it by own resources, in particular EBRD's climate financed support was reliably available even in times when renewable market prospects deteriorated, e.g. when the Tenge crashed.
- 40. Different market stages require different instruments and approaches. The different funds and agencies offer a appropriately broad range of instruments.** They facilitate the development of very fundamental but important information and data bases (e.g. UNDP's WPMDI), capacity building and technical assistance (EBRD and IFC through their renewable programmes), market analysis and policy advice (e.g. UNDP's DREI model) and last, but not least, project financing through EBRD. Their complementary application avoids unnecessary duplication and thus seems to be very efficient.
- 41. Growing climate finance funds allowed to scale up the engagements as needed and helps the market mature.** Since no long-term financing by local commercial banks or the Development Bank of Kazakhstan was available, the provision of concessional financing for projects by CTF and GCF was and still is indispensable. The combination of ordinary resources by EBRD with concessional CTF financing has reduced costs and thus provided an incentive for investors. This incentive might have played a role in the fact that project ownership has evolved from state-owned, public-private to purely private international project sponsoring. The fact that funds for project financing were scaled up over time by EBRD, CTF and now GCF reflects growing market maturity and ensures that a large part of the potential for projects can be realized. The number of equity investors in Kazakhstan is growing, as a consequence. And more successful projects in turn will increase confidence in the technology and trigger interest among even more market players.

42. The multitude of funds and the multitude of financiers allows to mitigate financial risks. EBRD is providing loans in Kazakh tenge while IFC is providing loans in US Dollars. The blending of loans in KZT by EBRD and hard currencies (by CTF / GCF) helps to hedge against currency risks. Firstly, investors benefit from the hard currency share of the loans because equipment can be purchased on the world market. Secondly, since the RES projects are generating income in the local currency Tenge, exchange rate risks can be avoided since the loan has to be paid back in the same currency.

5.2 Country coordination allows for flexibility while keeping eye on the ball

43. Systematic development of a new sector in a country is benefitting greatly from country coordination. The Government of Kazakhstan was overseeing the growth of the sector through a working group on renewable energy. This allowed the government to stay informed about all activities, including the private sector activities and engage with the process. The MDBs considered the working group a useful platform for this task. The effectiveness of this working group was further enhanced as it allowed its members to align positions between agencies in certain cases before approaching the Ministry. It also the Ministry to guide the allocation of technical assistance by providing an understanding of where it is most needed.

44. Close collaboration with one development organization can help provide for systematic growth. In this case, one agency, i.e. the EBRD, was and still is at the center of most (climate-financed) activities. It has excellent and long-standing relations with the government, and is responsible for most technical assistance and investment initiatives. Over the last ten years it has built and maintained a clear line of reporting and established a trusting relationship with the GoK. EBRD and MoE constituted an axis from where initiatives were planned, implemented and coordinated with others. This does not always have to be the case – there are examples where agencies do not want to share their access to the government, or think it to their advantage to “do it alone”. But this case is a demonstration that it can be to the benefit of many if the “de-facto-lead agency” is open for collaboration and division of work with others.

45. Investment plans define the framework for the necessary flexibility. Kazakhstan also demonstrates that the CTF investment plan was an important tool to provide the necessary supported flexibility. Within this plan, reallocations of funds within the same MDB between different funding purposes were possible without major reapproval processes. And in this case, the allocation to a different bank was also possible, providing an opportunity for leveraging some of the advantages of a multi-funds, multi-MDB funding environment. In times when advising the legislator required more support in improving policy framework, the funding to distribute the work on several agencies. This was the case, for instance, when CTF funds were partially shifted from EBRD to IFC when the FIT scheme was being introduced. Then, both agencies could advise the government in close coordination with each other.

5.3 Drivers and challenges for bringing out synergies between the funds

46. Slow market development is requiring a long breath and lots of flexibility from all partners. In Kazakhstan the renewable energy market evolved in spurts and much slower than in other countries with similar resource endowment. The reasons for that are manifold and include the typical challenges of a resource-based economy – Kazakhstan’s main exports are bringing significant investments and thus also capture significant attention with policy makers – and of an economy in transition. As a former Soviet Republic, the legal and regulatory framework needed to be built from scratch. In addition, there were situations when it seemed that the RES market could evolve rapidly - for instance when the FIT was introduced -, but then macroeconomic or currency challenges prevented it. In this respect, the – already discussed – flexibility in funding was very beneficial but of course cannot make up for the overall economic framework. Thus, the market development becomes visible only when looking at it in the big and overall picture – and this look highlights the need for a very long breath and continuous engagement.

47. Even in slow moving markets, managing the availability of funds is no easy task. Even here, there are a few situations where it might have been possible to optimize the management of funds. For plausible reasons when it seemed that many projects would require assistance fasts, CTF investment funds were shifted from EBRD to IFC to accelerate project investment. Yet, the IFC was not able to lend these funds to a project when the Tenge had crashed in 2015, and the re-allocated fund ultimately were canceled. Few years later, the funds were missing for an over-subscribed pipeline at EBRD and were shifted to the EBRD pipeline from another programme, until the time when the GCF (KAZREF) funds became available. As the market was still moving slower than EBRD was moving the funds, this did not cause any gap in project financing. But situations are conceivable when market dynamics are stronger, and funds cannot be shifted simply because no funds are scheduled. Long-term country planning and working with envelopes and ranges that build in some flexibility helps mitigate these risks.

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Annex I. Financing structures of projects implemented by EBRD

Project	Date	EBRD project number	Status	Client	Total project volume	EBRD	CTF	GCF / ADB	Client's funding
Yereymentau-2 Wind Farm (50 MW) Source: ⁷² ; Exchange rate: Average of November 2013: 1 US\$ = 1.135 € (Source: imf.org)	11/2013 (PSD disclosed)	45618	Signed, but canceled in 2018	Samruk-Energo JSC	€96.5m / US\$85.02m	€59.2m / US\$52.16 loan (provided in KZT)	€18m / US\$15.86 (concessional loan)	n.a.	€19.3m / US\$17m (estimated)
Burnoye-1 solar plant (50 MW) Source: ⁷³ , if not stated otherwise	03/2015 (PSD disclosed)	46570	Repaying (operational since two years)	Samruk-Kazyna United Green LLP ⁷⁴	\$120m (estimated) ⁷⁵	\$75m loan (provided in KZT)	\$14.8m (concessional loan)	n.a.	\$30.2m (estimated) Note: Project uses a limited-recourse finance structure ⁷⁶

⁷² <https://www.ebrd.com/work-with-us/projects/psd/yereymentau-wind-farm.html>

⁷³ https://www.greenclimate.fund/documents/20182/574760/Funding_Proposal_-_FP047_-_EBRD_-_Kazakhstan.pdf/15f95a5f-6bd1-480b-9f8b-b5967d600868

⁷⁴ "The venture is owned by UK-based United Green Energy Limited and Samruk Kazyna Invest LLP, the investment arm of Kazakhstan's sovereign wealth fund.", from: <https://www.ebrd.com/news/2015/first-largescale-solar-plant-in-kazakhstan-receives-ebrd-backing.html>

⁷⁵ <https://renewablesnow.com/news/ebrd-helps-finance-50-mw-solar-project-in-kazakhstan-479540/>

⁷⁶ EBRD (2018b), p.10

Project	Date	EBRD project number	Status	Client	Total project volume	EBRD	CTF	GCF / ADB	Client's funding
Kulan Solar Power Plant (29 MWp) Source: ⁷⁷ , if not stated otherwise	08/2016 (PSD disclosed)	48488	MDB approved in H2 of 2017 ⁷⁸	ACME Cleantech Solutions Pvt Ltd, an Indian developer	about \$51m	\$24m loan (provided in KZT)	\$9m ⁷⁹ (concessional loan)	n.a.	\$18m (estimated)
Burnoye-2 solar plant extension (50 MW) Source: ⁸⁰	10/2016 (PSD disclosed)	48545	Disbursing pre-commissioning checks have been carried out	Samruk Kazyna United Green Energy LPP	up to \$80m	\$44.5m loan (provided in KZT)	\$10m (concessional loan)	n.a.	\$25.5m (estimated)
Gulshat Solar Power Plant (48 MWp) Source: ⁸¹ , if not stated otherwise	11/2016 (PSD disclosed)	48716	Concept reviewed	ACME Cleantech Solutions Pvt Ltd):	about \$73m	\$30m loan (if the loan is paid in local currency is unknown)	no data available	n.a.	no data available
MREK Privatisation and Transformation ⁸² Source: ⁸³ , if not stated otherwise; Exchange rate of Dec 07, 2017: 1 US\$ = 1.20 € (Source: imf.org)	12/2017 (PSD disclosed)	49730	Signed	MREK	unknown	€35m / US\$29.17m (provided in KZT)	n.a.	GCF: US\$5.3m	unknown

⁷⁷ <https://www.ebrd.com/work-with-us/projects/psd/kulan-solar-power-plant.html>

⁷⁸ CTF SAR (2018), p. 10

⁷⁹ https://www.climateinvestmentfunds.org/sites/cif_enc/files/meeting-documents/ctf_sar_presentation_6-3-2018.pdf

⁸⁰ <https://www.ebrd.com/news/2017/ebd-invests-in-second-solar-park-in-kazakhstan-burnoye2.html>

⁸¹ <https://www.ebrd.com/work-with-us/projects/psd/gulshat-solar-power-plant.html>

⁸² MREK was privatized by private utility Kazakhstan Utility Systems (KKS). The project supports modernization and energy efficiency improvements of distribution networks. (Source: <https://www.ebrd.com/work-with-us/projects/psd/mrek-privatisation-and-transformation.html>)

Project	Date	EBRD project number	Status	Client	Total project volume	EBRD	CTF	GCF / ADB	Client's funding
Zadarya Solar Power Plant (14 MW) Source: ⁸⁴	01/2018 (date of EBRD press release)	48821	Signed ⁸⁵ ; project is not listed in EBRD online project database	Kaz Green Tek Solar LLP, incorporated in Kazakhstan and majority owned by Urbasolar ⁸⁶	no data available	\$8.8m loan (provided in KZT)	\$3.9m (concessional loan)	n.a.	no data available
Baikonur Solar Plant (50 MW) Source: ⁸⁷ , if not stated otherwise	05/2018 (date of EBRD press release)	49296	information not available; project is not listed in EBRD online project database	Baikonur Solar LPP, a 100 % subsidiary of United Green	no data available	\$30m loan (provided in KZT)	\$10.3m (concessional loan)	ADB: \$12m (provided in KZT, ordinary capital resources) ⁸⁸	no data available
Risen Solar (Karaganda region, near Gulshat) (40 MW) Source: ⁸⁹ , if not stated otherwise	06/2018 (date of EBRD press release)	50002	information not available; project is not listed in EBRD online project database	no data available	no data available	\$22m loan (provided in USD) ⁹⁰	\$5.8m (concessional loan)	GCF: \$4.2m (concessional loan)	no data available

⁸³ <https://www.ebrd.com/work-with-us/projects/psd/mrek-privatisation-and-transformation.html>

⁸⁴ <https://www.ebrd.com/news/2018/ebrd-supports-frances-urbasolar-in-kazakhstan.html>

⁸⁵ <https://www.ebrd.com/news/2018/ebrd-supports-frances-urbasolar-in-kazakhstan.html>

⁸⁶ <http://www.urbasolar.com/>

⁸⁷ <https://www.ebrd.com/news/2018/ebrd-arranges-international-financing-of-baikonur-solar-power-plant.html>

⁸⁸ <https://www.adb.org/projects/51250-001/main#project-pds>

⁸⁹ <https://www.ebrd.com/news/2018/ebrd-supports-chinas-risen-energy-expansion-in-kazakhstan.html>

⁹⁰ According to sub-project list available on: <https://www.ebrd.com/work-with-us/projects/psd/kazakhstan-renewables-framework.html>

According to EBRD's online project database, there are three more recent projects of which the concept has been reviewed but where additional financing information is not yet available:

- KAZREF - Nomad Solar Power Plant, 30 MW (EBRD project number: 50027; 08/2018); EBRD funding: €31m
- KAZREF - M-KAT Green Solar Power Plant, 100 MW (EBRD project number: 50025; 08/2018); EBRD funding: €50m
- KAZREF - Zheruyik Wind Power Plant (EBRD project number: 50026; 10/2018); EBRD funding: €46.3m

Annex II. Technical assistance and capacity building measures between 2004 and today

Technical assistance	Period	Donor / [agency]
<p>Wind Power Market Development Initiative</p> <p>Formulation of a draft of a National Wind Energy Programme and support on drafting the Law on Renewable Energy Sources (until 2009)</p> <p>Preparation of 10 feasibility studies at selected sites (technical, commercial and environmental assessment; grid study)</p> <p>Wind Atlas for the whole country; wind measurement campaign at 13 sites</p>	2004-2011	GEF / [UNDP]
<p>Support of the GoK during preparation of the CTF IP; IP published in October 2010</p>	2009-2010	n.a.
<p>EBRD programme</p> <p>Assistance for drafting of secondary legislation implementing the RE law; focus: introduction of a FIT scheme and procedures for investor selection (2009)</p> <p>Advice to the government on developing feed-in tariff levels for RES (2010)</p> <p>Advice to the government on introducing a cost allocation system, power purchase procedures and licensing (2011)</p> <p>Modelling regional renewable energy feed-in-tariffs for wind and small hydropower within Kazakhstan (2011)</p>	2009-2011	EBRD's SSF / [EBRD]
<p>EBRD programme using KAZREFF funds</p> <p>Kazakhstan renewable energy development framework and regulatory support (primary and secondary legislation) and support of the Cost Clearing and Settlement Centre (2012)</p> <p>Advice to the government on a renewable energy sources (RES) allocation agreement: introduction of fixed feed-in tariffs; development of the Cost Clearing and Settlement Center; cost allocation to suppliers/other load-serving entities (2013)</p> <p>Modelling the social impact of renewable energy feed-in tariffs in Kazakhstan (2013)</p> <p>Assisting the Ministry of Environmental Protection in the final stage of developing renewable energy legislation (2014)</p> <p>Assisting the MoE on a technical workshop with IEA on Renewable Energy Grid Integration to outline challenges and solutions (2015)</p> <p>Cooperation with national authorities on Strategic environmental review of Kazakhstan renewable energy financing facilities to provide a basis for project development and appraisal (2015)</p> <p>Framework for technical, environmental and legal due diligence of renewable energy projects to be financed by EBRD (2015-2017)</p>	2012-2017	CTF / [EBRD]

Technical assistance	Period	Donor / [agency]
<p>Renewable Energy Investment Programme (REIP)</p> <p>IFC provided ad hoc support to the MoE to improve the framework for RES Focal areas were:⁹¹</p> <ul style="list-style-type: none"> • Refining RES regulations • Establishing the clearing house (Cost Clearing and Settlement Center) for RES energy purchase/sale • Solving grid integration issues for RES projects • Identification of training measures for system operator KEGOC 	2014-2018	CTF / [IFC]
<p>De-risking Renewable Energy Investment (DREI) – Component 1 (large-scale RE)</p> <ul style="list-style-type: none"> • Report: Kazakhstan: De-risking Renewable Energy Investment; Selecting Public Instruments to Promote Utility-scale Renewable Energy Investments in Kazakhstan (published in December 2017)⁹² <p>Other Planned output for Component 1, addressing utility-scale wind and solar PV:</p> <ul style="list-style-type: none"> • Technical, economic, financial, environmental and social analysis to support the MoE and other stakeholders in the design and implementation of appropriate policies, programs and regulations, including development of briefings for decision-makers. • Capacity building of key stakeholders through coaching and training seminars / study tour 	2016-2022	GEF / [UNDP]
<p>GCF-EBRD Kazakhstan Renewable Energy Framework (KAZREF) – Component 2⁹³</p> <ul style="list-style-type: none"> • Institutional capacity building to support auctions and project preparation for public entities and capacity building to the Cost Clearing and Settlement Center • Vocational training development • Address barriers restricting women’s access to employment and skills • Enhance RE integration • Support further regulatory reforms in energy and carbon markets, incl. review of the FIT system and development of the auction system in close coordination with other donors 	Since 2017	EBRD, GCF / [EBRD]

⁹¹ GEF (2017), p. 6

⁹² UNDP (2017)

⁹³ EBRD (2017)