November 22, 2013

Review of European Bank for Reconstruction and Development (EBRD)
Clean Technology Fund (CTF) Private Sector Proposal:
Yereymentau Wind Farm and Project Feasibility TA Fund

1. I have reviewed the EBRD CTF private sector proposal for the Yereymentau Wind Power Plant (WPP) and Project Feasibility TA Fund. **On the basis of this review, I strongly support and endorse this CTF proposal** for the reasons summarised below.

2. **The Program is an appropriate strategy to support the scaling up of the first large-scale WPP with accompanying TA.** The program consists of: (i) a financing component for the investment project and (ii) an Advisory Service based TA fund and it builds on the EBRD's extensive investment and market development experience in the field of large-scale renewable energy (RE) financing and policy dialogue.
   The Program will bring and adapt this experience and these instruments to Kazakhstan's first large-scale wind power plant investment project and therefore represents - in combination with the project feasibility TA fund - an important new initiative.
   As of today, the RE market in Kazakhstan has been analysed, projects have been identified and a supportive legislative framework is in place; therefore it is an appropriate and prudent strategy to now support one of the first large-scale wind farm investment projects by means of direct lending instruments and TA for feasibility assessment to reduce the risks for the first project of its kind in Central Asia.
   The EBRD has extensive experience in providing credit resources to financial intermediaries and in the implementation of advisory services in the sustainable energy and environmental sector in Kazakhstan as well as in direct lending for the renewable energy sector in its former Soviet Union countries of operation.

3. **The Program is fully in line with the CTF objectives and guidelines** in light of a combination of factors, including: (a) the potential for large-scale green house gas (GHG) emission reductions; (b) the cost-effectiveness of GHG emission reductions; (c) the presence of additional costs or risks associated with the GHG emission reduction investment that affect its financial viability; (d) demonstration potential, including scope for replication of results on a wider scale; (e) institutional and market transformation potential; (f) development impact, and (g) implementation potential in the country. The Program can satisfy the above set of criteria in Kazakhstan, and can also meet the purposes of the CTF Country Investment Plan (CIP) in its 2013 revision regarding the defined areas of intervention.
   The project will deliver substantial CO_2 emission reductions of up to 3.3 $MtCO_2$ over its lifetime at a relatively high level of abatement costs of \$30/tCO_2eq, but with an acceptable rate of return of approx. 14% under a grid-feed-in tariff of approx. KZT 19/kWh. The project with an installed capacity of 50 MW will contribute by one quarter to the set targets of the CTF CIP for wind energy sector development. The project site and volume is expandable to 100 to 300 MW capacity, subject to grid constraints.
   The co-benefits of the program are to start the market transformation of power generation in Kazakhstan towards a low-carbon power supply structure by means of a concrete investment project of economic scale and to develop a capable wind energy development and service industry.

4. **The development of renewable energies receives support from the Government of the Kazakh Republic (GoK)**. The project will help to address the energy and climate change challenges of Kazakhstan**.** In July 2013, the GoK published an amendment to a 2009 RE law setting a Green Feed-In-Tariff (FIT) for power generated by renewables. As stated by the Deputy Prime Minister in February 2013, renewable energies are of high priority for the country, in order to reduce GHG emissions and begin the change to a green growth model of the economy. Thus the implementation of the Yereymentau WPP, will receive much attention from politicians and decisions makers at national and international

level. The success of the project might be considered as an indicator of how seriously the government is following the stated targets with concrete actions. Consequently the GoK is expected to mobilise the required support to drive the project to success and demonstrate the opportunities towards the path of green growth. The RE medium to long-term targets are clearly determined by the Kazakh President: 1 GW of newly installed capacity by RE by 2020 and a 50% contribution to the Kazakh energy supply by RE in 2050. A respective RE action plan for the period 2013 to 2020 was adopted in January 2013. This Yereymentau WPP project is also extremely relevant in the run up to the forthcoming EXPO 2017 exhibition, whose theme will be Future Energy. It will be a concrete showcase of the efforts of Kazakhstan in the field of renewable energy.

5. **The stakeholders' engagements for the successful realisation of the Yereymentau WPP are high** as can be drawn from: (a) the recent statement by Samruk-Green Energy LLP, that in the framework of the upcoming EXPO 2017 exhibition, it is planned to supply the power of some parts of the exhibition through the energy generated by the Yereymentau WPP, (b) the ceremony of laying a foundation plaque to commemorate the launching of the WPP project in the town of Yereymentau, in the Akmola Region, on October 17, 2013 and (c) the fact that the WPP was included in the Regional Industrialisation Map of the Akmola Region in December 2012. For the purpose of the Yereymentau WPP, the SPC "First Wind Power Plant Ltd." was established on June 27, 2011 as a 100% subsidiary of Samruk-Green Energy LLP being part of the National Welfare Fund Samruk-Kazyna JSC. The first indicators that Samruk-Green Energy has started to actively build capacities and know-how are that: (i) they joined the European Wind Energy Association in January 2013 and (ii) they launched a cooperation program and joint venture with German wind energy equipment manufacturers in early 2013 for the localisation of the production of component parts of wind turbines in Kazakhstan.

6. **The economic and financial risks of the Yereymentau WPP are low, while the technical risks are high.** The absence of real-life construction experience relating to WPPs of this scale in Kazakhstan might lead to technical problems concerning the installation and grid connection which might cause delays in commissioning and energy production. In addition, the absence of wind measuring data of the required quality standard might lead to inaccuracies in the forecast power generation. To reduce the risks of this and any subsequent WPP projects, what is required is to improve the quality of the accompanying products and services, such as wind measuring, construction standards, quality of products (e.g. foundations, grid connection), operation maintenance and services as well as feasibility studies. The challenges which will certainly appear during the implementation of the Yereymentau WPP project will provide lessons in setting up the requirements for quality standards in the frame of the Project Feasibility TA. Financial risks are reduced by concessionality on the CTF loan, an appropriate equity contribution and guarantees of the project sponsor as well as a 15-year guaranteed FIT.

7. **Market distortions due to blending of concessionally priced CTF funds with market-priced EBRD funds can be mitigated by addressing the reduction of risk and additional costs by means of utilising the experience of the piloting investment project.** The planned concessional conditions of the financial instruments bear, on the one hand, the risk of the distortion of the RE market, thereby delaying the transition to commercial viability and the competitiveness of businesses other than the project's RE sponsoring companies. They, however, are justified, on the other hand, to cover the higher economic risks of the 'first mover' project possibly arising from: (a) delays until the commissioning of power production due to the uncertainty in the processes, (b) higher costs due to currently not available specialised services and (c) even lower than planned energy yields due to insufficient accurateness of wind measuring and breakdowns due to unexpected technical incidents concerning the wind energy converters (WECs) or the grid.
   The distortion risk will be mitigated through an investment focus on sound management, service and good environmental practice, linking CTF finance to associated measures to reduce risk and additional costs leading to a situation in which the feed-in tariff alone should be able to carry the industry to sustainability. Continued support of the wider renewables agenda in Kazakhstan focusing on the development of sound policy and regulation, will also mitigate these risks.

8. **A gap remains in Kazakhstan between the conducing environment for RE, the interest of governmental stakeholders and potential investors versus the limited commercial realisation** of already identified investment projects at wind sites with good conditions. The major causes of this gap are: (a) the limited availability of long-term financing, (b) the associated risks of a first mover in the newly established market, (c) the lack of experience and capacities in project planning and management and (d) the uncertainties of the currently not very detailed regulatory framework. The programmatic approach of this CTF proposal addresses the needs to overcome those barriers by providing: (a) long-term direct finance, (b) TA for project development and management of uncertainties, (c) assistance in utilising the project as a pilot for the improvement of processes and the completion of the regulatory environment and (d) support to the establishment of a wind power industry in Kazakhstan.

9. **The establishment of the piloting wind farm project at a reasonable economic scale will enable the road-test on the functionality of the newly established legal basis and will provide important lessons for the improvement of the regulatory frame under real and commercial conditions**. This project is important for establishing the reference basis to learn practical lessons from the planning and implementation process to develop further the required enabling framework. The identification of procedural barriers in technical planning, financial structuring, licensing and granting permission, implementation, and commissioning as well as operation will be a pre-condition of high value to improve processes and provisions to ease the way for private investors in RE in Kazakhstan. The combination of the pilot investment WPP with project feasibility TA is an effective way of adapting the framework with a short response time.

10. **The Yereymentau WPP provides both the headstone and the opportunity to build a wind energy service industry in Central Asia.** The planning, erection and operation of large-scale wind power plants require a wide spectrum of engineering, construction, financing and maintenance services. There is a lack of all of those services in a reliable quality in Kazakhstan due to the lack of experience based on operating facilities, failure and success. While the technical and economic sustainability of WPPs highly depends on the availability of the equipment, the services mentioned are required in precision terms to reduce operation risks. Examples worth mentioning are essential, specific services such as: (a) wind measuring during the planning phase, (b) the transport and foundation of WECs during the construction phase, (c) power feed-in regulation/ compensation, maintenance and incidence services during the operation phase and (d) accompanying services such as insurance and financing. The Yereymentau WPP project will be the first in the Central Asian region delivering practical experience on the erection and operational servicing of large wind energy projects. Transposing those lessons into reliable service products, Kazakhstan could form the hub of the wind energy industry in this region with its specific climatic conditions.
    Experience from Western Europe shows that the development of a new industrial sector may require more than a decade. The planned associated advisory service (AS) will enable technical assistance which will accelerate the process of building capacities by the transfer of foreign expertise. Suppliers, sponsors and investors will appreciate reliable and specialised services available near the RE site.

11. **The associated advisory service (AS) component in the form of the Feasibility TA Fund will support the full implementation of the green tariff law by** secondary legislation **and methodology,** addressing: (a) the regulation and specifications for wind measuring, (b) transparent technical rules and regulations, (c) the regulation of technical specifications in particular for the power grid connection, (d) power purchase agreements, (e) mandatory procedures and standards for Stakeholder Engagement, Environmental and Social Impact Assessment (ESIA) and the Action Plan (ESAP), (f) monitoring of RE production to assess losses and benefits for the TSO to establish the costing methodology, (g) the assessment of data for the calculation of costs for the grid connection and (h) pricing policy considering the cost effects of the feed-in tariff to the end-consumer tariffs.
    Advisory service support will be needed to improve the market framework and introduce sound management and governance principles and to set standards for corporate governance and business conduct. Crucial elements to increase the quality of project planning and management will be knowledge management, along with the establishment of a standardised accreditation, auditing and certification scheme.

12. **The Yereymentau WPP will be used to establish basic data from practice for the application of the costing methodology for the RE tariff.** The assessment of production, operation and economic data will be used to further justify RE support with the generous feed-in tariff and to analyse the consequences of the FIT on the evolution of the end user energy costs in the medium to long term. Through that, trust in the functionality of the RE FIT model at the governmental and power utility level can be generated. In addition, the WPP project will be piloting processes of the costing methodology within the TSO.

13. **The economic development benefits of the proposed CTF investment will be significant,** exemplified by: (a) support to the government efforts to develop cleaner sources of energy as it strives to curb the use of coal to generate power, (b) increasing private sector involvement by the demonstration of private sector operations in RE production, (c) supporting the development of a capable wind energy development, construction, and service industry in the country and (d) increased employment – especially, in the qualified service sector.
The program complemented by the planned AS will point out a new path for assembling, managing and maintaining sustainable energy sector know-how. Kazakhstan has a huge pool of staff in the heavy energy sector, but the fluctuation is high due to fast changing opportunities and a lack of long-term sustainable perspectives. The development of the WPP business opens the latter for qualified personnel to demonstrate new replicable behaviour and activities. This may even lead at a later stage to the production of RE components in Kazakhstan which will give further impulses for the employment of highly qualified personnel and for the extension of services in the Central Asian region. The Program complements to this end initiatives of the GoK and other international TA donors, such as the EC and the UNDP to establish a Sustainable Energy Technology and Know-how Transfer Centre in Central Asia. Respective commitments were signed by MINT and Samruk-Kazyna in 2009, but have not materialised yet.

14. **The project has a significant demonstration potential,** in validating: (a) the bankability of new renewable energy generation in principle, (b) that large-scale wind energy exploitation works under specific conditions in Central Asia, (c) that the RE Act with an FIT is the appropriate tool to trigger projects and attract investments and (d) that concerted efforts in capacity building and know-how management are the right path to develop a sustainable new RE and much needed service industry.

15. **The challenging elements for the successful implementation of the Program will be straightforward**, (a) to ensure the facilitation of the stakeholder input and coordination processes by the regulator/ministry and (b) to engage various entities responsible for planning, design, connection, network operation, and sales of renewable generated electricity, namely the TSO, the DSOs, Samruk Energo, design institutes, and private sector generators, towards the development of transparent procedures and rules of an enabling framework. Both should be examined and monitored as the Program proceeds.

16. **Taken together, the Program's combination of financing sources and the AS component constitute a recipe for success** in particular linked with the EBRD's strong RE financing execution capacities, expertise in financing facilities and track record on sustainable energy policy dialogue in Kazakhstan. It is hoped that the piloting Yereymentau WPP investment project will serve as a pool for learning the correct lessons to improve the regulatory and market framework and to enable the development of a sustainable wind energy industry in Kazakhstan. The success of the CTF intervention might lead to the final expansion stage of the Yereymentau WPP with a capacity of 300 MW, which might almost be an achievement of the ambitious 1.5 TWh RE production target by 2017.

Respectfully submitted,

Consultant's name Rainer Behnke

Administrative information:

Consultant's name Rainer Behnke

Consultant's address An den Erbslaendern 17, D-14712 Rathenow, Germany

Consultant's contact details E-Mail: behnke-rainer@freenet.de

Mobile phone: +49 160 5075540

Office phone: +49 3385 502847

Call-Off notice number: C27819 /FC543

Start date: Nov 15, 2013

End date: Nov 22, 2013

Sources of information for the review:

(1) The Republic of Kazakhstan: The Clean Technology Fund (CTF) Investment Plan, October 2010;

(2) Annual Report Samruk-Energy JSC, http://samruk-energy.kz

(3) EBRD Project report: Renewable Energy Project Pipeline Preparation, Kazakhstan, 2012

(4) Review of European Bank for Reconstruction and Development (EBRD) Clean Technology Fund (CTF), Private Sector Proposal :Kazakhstan Renewable Energy Framework (KazREFF), July 2012

(5) Amendment of Law "Support of use of RE"; 15Jul2013, http://online.zakon.kz

(6) EBRD project: Review of Public Consultations on RES Laws – Advice to the Government of Kazakhstan on Developing Feed-in Tariffs for RE, Preparation of meeting at MINT on 8 Sep 2010 on justification and clarification of FIT and RE targets

(7) Phone interview with:

- Mr. Dauren Tokbayev, Director of Energy Partner LLP, Almaty, Kazakhstan; consultant on sustainable energy to Samruk Energy
- Team Leader Mr. Helmut Lorenz of GFA Group, of EBRD consulting project: Kazakhstan Renewable Energy Project Pipeline Preparation

(8) Official web-sources:

- http://www.kazakhembus.com
- http://www.strategy2050.kz
- http://eabr.org
- http://en.trend.az/capital/energy

Abbreviations used:

AS	Advisory services
CIP	Country Investment Plan
CTF	Cleat Technology Fund
DSO	Distribution System Operator (Power grid)
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
FIT	(Grid) Feed-In-Tariff
GHG	Greenhouse Gas(es)
GoK	Government of Kazakhstan
KazREFF	Kazakhstan Renewable Energy Framework
KZT	Kazahk Tenge Currency
MDB	Multilateral Development Bank
RE	Renewable Energy
RES	Renewable Energy Sources
SME	Small and Medium Enterprises
SPC	Special Purpose Company
TA	Technical Assistance
TSO	Transmission System Operator (Power grid)
TWh	Terawatt-hour
UNDP	United Nations Development Programme
WEC	Wind Energy Converter (single unit mast, turbine)
WPP	Wind Power Plant