September 26, 2011

**European Bank for Reconstruction & Development (EBRD)**
**Clean Technology Fund (CTF) Private Sector Proposal**

**Kazakhstan Railways: Sustainable Energy Programme:**
**Independent Review Letter**

1. Endorsement. I have reviewed the EBRD CTF private sector proposal for the Kazakhstan Railways Sustainable Energy Programme ("Programme"). On the basis of this review, I support and endorse this CTF proposal for the reasons summarized below. My review covers: (i) overall strategy and rationale for the Programme, (ii) replication potential, (iii) finance structure and justification for CTF funds, (iv) disbursement plan, and (v) risks and conclusions.

2. Overall Strategy and Rationale for the Programme. The Programme has been developed in response to requests from the Kazakhstan national government to develop the market for renewable energy (RE) applications in buildings, with a focus on ground-source heat pumps and solar thermal energy systems. These are both proven technologies that can substitute for coal and diesel fuel in building heating systems and deserve this market development effort. The Kazak National Railways (KTZ) is a natural user of such technologies, as KTZ operates many buildings and train stations. Working with this national agency as an aggregator for distributed building RE projects is an excellent strategy. Through this Programme, significant demand for these RE technologies will be generated that will demonstrate these technologies and promote RE industry and market development. The Programme aims to implement these technologies in 30% of KTZ facilities and in over 600 locations.

   The economics of ground-source heat pumps substituting for diesel fired boilers are reasonably strong, with simple payback periods estimated by EBRD in the range of five years. EBRD has identified several companies capable of supplying and installing ground-source heat pumps these systems in Kazakhstan. This Programme is being undertaken as part of a $200 million energy efficiency (EE) and RE investment plan being implemented by KTZ and developed with EBRD. Thus, EE investments will be made alongside the RE investments, assuring that energy loads will be reduced and made efficient prior to sizing the RE systems. Please note that the economics of solar thermal systems for KTZ are yet to be estimated and payback periods are expected to be longer.

3. Replication Potential. The Programme strategy has replication potential to promote EE and RE investments with other government agencies, e.g., for schools, hospitals, water and waste water facilities, streetlighting and government buildings. Many successful examples exist internationally of aggregated procurement, development and financing of public sector EE and RE projects. These public facilities represent addressable markets. Public sector decision makers which operate multiple facilities can be readily identified and contacted. The energy loads of these public facilities are typically substantial and predictable making EE and RE investments are economic. Public agencies are typically creditworthy, making the projects financeable. Procurement methods developed by this Programme can be adapted and used to procure EE and RE projects for these other government agencies. Many successful examples exist internationally of aggregated procurement, development and financing of public sector EE and RE projects. Thus, the Programme can provide a large demonstration effect and base of experience that can be built on and replicated in other public sector as well as commercial markets. Research and development of replication strategies is recommended to be part of the Programme.

4. Finance Structure and Justification for CTF Funds. CTF funds will be on-lent through EBRD to the KTZ with a tenor of ten years. The loans will be full recourse to KTZ. As an essential national and

monopoly industry, KTZ's creditworthiness is assessed by EBRD to be quite strong and credit risk for these loans is deemed low. There is a foreign exchange risk concern here, as KTZ revenues are in local currency and loan repayments will be in US dollars; EBRD is developing strategies to mitigate the foreign exchange risk. Use of the CTF funding with its long 10 year tenor, 1.5 year grace period and low (75 bp) interest rate will lower KTZ's annual debt service payments for the RE projects, improve the project economics and thus provide an important incentive to KTZ for undertaking these RE projects. CTF funds will be blended with and lent on parity with EBRD funds. CTF funds will constitute 20% of EBRD's sources of funds for KTZ overall RE investment program, thus providing reasonable leverage of CTF funds. Further, EBRD has arranged other funds for Programme development and operations, technical assistance to KTZ and project preparation.

5. Disbursement Plan. According to EBRD, KTZ is advanced in the development of a first set of ground source heat pump (GSHP) projects for approximately 130 KTZ facilities representing a total installation cost of $15 million and corresponding to approximately $3 million in disbursement of CTF funds. The simple payback period for these GSHP projects is estimated at 5.2 years due to savings in energy operating costs, making them economic. Because CTF funds will constitute 20% of EBRD's sources of funds for making loans for these RE projects, KTZ must implement at least $75 million in project to fully subscribe the $15 million in CTF. The balance of the RE investment program remains to be developed in other KTZ facilities; KTZ will be making these investment plans and decisions even after the CTF funds are provided. KTZ is highly committed to its EE and RE investment program both by its management need to replace aged building and facility energy systems and by national policy. However, there is uncertainty associated with achieving the level of RE investment in KTZ facilities needed to fully utilize the CTF funds. For this reason, EBRD proposes a back-up plan to utilize the CTF funds for its Kazakhstan Sustainable Energy Financing Facility (Kazseff) program, which provides credit lines via local commercial financial institutions for financing EE and RE projects with private sector energy users; any such shift of funds is subject to a further CTF approval.

6. Risks and Conclusions. The main risk for this Programme concerns the project development and investment preparation and decision-making process and whether or not sufficient RE investment will be readied to disburse all the CTF funds. Further, while initial estimates on the economics of ground source heat pump systems are positive, more information is needed on the economic feasibility of site-specific projects, particularly for solar thermal systems. The proposed disbursement timeline is ambitious and more time may be needed to prepare projects for investment. This risk is mitigated because EBRD is working with closely with KTZ supporting the project development process and because the basic Programme strategy works with a single customer, KTZ, which is committed to the Programme and has a large set of facilities needing energy system upgrades. Overall, the Programme has strong prospects for success given the commitment of KTZ to proceed to implement the RE projects and given that KTZ is the sole customer for Programme. The Programme further serves the important objective of developing the market in Kazakhstan for distributed RE systems.

Respectfully submitted,

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