Uzbekenergo: Talimarjan Thermal Power Plant 2, Uzbekistan
Environmental and Social Action Plan (ESAP)

No	Action	Environmental Risks, Liability/ Benefits	Legislative Requirement / EBRD Performance Requirement (PR) / Good practice	Investment Needs / Resources Costs	Timetable Action Due Date	Target and Evaluation Criteria for Successful Implementation	Comment
A. Corporate Environmental and Social Management Issues							
A.1	**Environment, Health & Safety Management System** Establish and Implement Environmental, Health & Safety (EHS) management system on ISO 14001 and ISO 45001. The EHS Management System shall be based on the whole Talimarjan Thermal Power Station, taking an integrated approach to EHS management, monitoring and reporting.	The procedures for critical environmental, occupational and social issues are implemented to improve the management and repeatability of operations in various projects.	Good Practice EBRD PR 1 EBRD PR 2	Internal cost. Optional external consultant support.	By commissioning of TPP2 Within 2 years of operation	Environmental Management procedures implemented to support the operation of TPP2 Certification of EHS Management System to ISO45001 and ISO14001.	At the point of commissioning, a management system should have a management system established to assist with the operations. This statement should be based on the requirements of ISO14001 and ISO45001. Within 2 years of operation, the management system shall be certified to both ISO14001 and ISO45001.

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A.2	**Environmental, Health & Safety and Social (EHSS) Contractor Requirements** Incorporate the requirements for EHSS management (environmental, health and safety and social, including HR policies) as part of tender documents. Conduct periodic inspection of contractors' EHSS performance.	Ensure that all aspects of the company operation, including those delivered by sub-contractors are in compliance with the EBRD requirements to avoid causing social disruption, environmental damage or harm to employees and the public.	EBRD PR1 EBRD PR2 Good Practice	Internal costs and resources. Liaison with contractors.	On-going and upon appointment of contractors	Sub-contractor clauses setting out requirements for performance with respect to environmental, H&S, labour and HR policies of the Company are developed and included in the tender documentation. Results of Risk Assessment for Contractors and sub-contractors.	-
A.3	**Worker Grievance Mechanism** Amend the existing grievance mechanism to formally allow for anonymous complains and suggestions. . Ensure suggestion/ grievance boxes are available on the power plant site. Provide printed out blank forms next to the boxes to facilitate and encourage communication.	Provide a channel for raising workers' concerns and a transparent, consistent mechanism for resolution.	EBRD PR2	Internal costs and resources.	December 2018	Adoption of revised grievance mechanism allowing anonymous complains and suggestions. Register of grievances and suggestions and their resolution. Grievance and suggestion boxes available across the sites.	-

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A.4	**Labour Risks in Supply Chain** During the procurement process, put in place a mechanism for checking the presence/absence of child labour and forced labour in the production of core materials and equipment. For example, if equipment is produced outside the EU, as a part of tendering process request relevant information relating to prevention of child labour and forced labour at the production facilities.	Minimise risk of child labour and forced labour being used in a core supply chain.	EBRD PR2	Internal costs and resources.	Prior to EPC Tender	Specific tender clauses on the exclusion, and definition, of 'forced' and 'child' labour; together with requirements to undertake a Supply Chain Risk Assessment and monitoring and verification.	The assessment of labour risk during the tender process should be documented.

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A.5	**Commission Audit within 1 year of Operation** inclusive of: ▪ NOx emissions; ▪ noise; ▪ water use and impacts on ecosystems ▪ labour issues ▪ Greenhouse Gas (GHG) emissions and Carbon-Capture-Storage (CCS) Readiness Based on the audit developed a *Best Available Techniques* (BAT) assessment. Undertake an audit every 5 years and develop an action plan based upon the audit findings. Provide options for improvement, including for water use reduction at the entire plant.	Need to verify operations NOX and efficiency to review BAT. Water use to confirm best solution and water loss, ***Noise Modelling*** The noise model presented in the EIA should be updated in line with ISO 9613 sound propagation methodology. ***Biodiversity*** Review biodiversity impacts to confirm no significant adverse impacts from the Project.	Lenders	Independent consultant	Within 1 years of commissioning and then every 5 years	Compliance and improvement plan.	The audit will include a review of the entire plant Prepare in 2025 a long term road map to further reduce water use by changing TPP to dry cooling. Study ISQ 9613 requirements and consider possibility for implementation
A.6	Assign responsibility for environmental, social and labour, health and safety management at Board level at Uzbekenergo and appoint an EHS Manager for the company to oversee management system implementation	Senior management commitment to continuous improvement in EHS management practices	EBRD Best practice	Own	2018-19	Uzbekenergo organisation charts showing line of responsibility. Job description for appointed EHS Managers.	

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A.7	Develop a plan / road map for E&S management systems implementation across the Uzbekenergo business in line with the requirements of ISO 14001 (Environmental Management System), ISO 45001 (Safety Management System) and SA 8000 (Social Accountability). Formalised, EHS management systems, aligned to the international standards (for example ISO 14001 and ISO 45001 standards) for Uzbekenergo	Optimisation of environmental, management though a formalised system.	EBRD PR1 Voluntary and best practice	Own plus consultant	2019-onwards	Annual report to include information on EHS and CSR development.	Road map for EHS Management system implementation is approved by the Uzbekenergo Board. Own Costs of Uzbekenergo. EBRD will; endevrous to seek TC funds for this development
A.8	**Implement a corporate EHS management system** and CSR (Corporate Social Responsibility) program for UzbekEnergo, Publish CSR/ Sustainability report for UzbekEnergo in 2021 The report will be in line with GRi4 standards and EU Directive on disclosure of non-financial information	Need to develop corporate EHS program and publish information as part of commercialization and best practices	EBRD Best Industry Practices	Own plus consultant	2020+	Report in 2021 and every year thereafter	Report in 2021-22 Inclusive of Key Performance Indicators (KPI's)), such as carbon intensity and road map to reduce carbon emission and water use The Non-Financial (CSR) Report can be part of financial statement

B. Implementation of the Stakeholders Engagement Plan							
B.1	**Stakeholder Engagement Plan (SEP)** Implement the SEP and grievance mechanism (by PMU within the organization and for subcontractors and external stakeholders). Nominate a person in the PMU responsible for SEP implementation and for responses to grievance raised by stakeholders. Ensure that SEP and Non-Technical Summary (NTS) and appropriate environmental documentation is disclosed on the company web site throughout the project life, and updated as necessary.	Need for good stakeholder engagement and public information. The Company needs a plan for communication with third parties as well as workers and subcontractors, and create mechanisms for feedback on concerns/issues raised by stakeholders. Tasks and responsibilities are clearly identified. Reducing the risk of conflicts and ensuring good public relations	Good practice, EBRD Performance Requirement 10	Management time, or external experts fee	As soon as possible, prior to commencement of the construction activities. Continuous implementation.	SEP published on website and disclosed to affected stakeholders. Documentation of stakeholder engagement activities is readily available for the Bank's review. Grievance and suggestions log and resolution records are readily available for the Bank's review. SEP implementation results will be part of annual reporting to the Bank.	-

C. Project issues							
C.1	**Employment Policy Document (EPD)** Develop the Employment Policy Document (EPD) for construction phase The EPC document should include a Human Resource Policy that will address: ▪ Working conditions ▪ Terms of employment ▪ Informing workers about their rights ▪ Child Labour ▪ Forced labour ▪ Equal Opportunities/non-discrimination ▪ Workers organisations ▪ Workers accommodation Regulations and Workers' accommodation: processes and standards; A guidance note by IFC and the EBRD, September 2009) ▪ Occupational Health and Safety ▪ Grievance mechanism for all workers on the project site.	Ensure cascading of core PR2 requirements through the contracting chain, and to ensure ongoing monitoring of - and reporting on – PR2 performance of the EPC Contractor, and all sub-contractors.	National Legislation Good Practice EBRD PR2	EPD development - Management time of PMU, or external experts' fee.	Prior to commencement of the construction activities; to be submitted together with the Site-specific Environmental Management Plan (SSEMP)	EPD is developed, and approved by Lenders before the start of civil works. Implementation of EPD to be subject to periodic review and monitoring by Supervising Consultant. First EPD implementation report to be submitted to Lenders within 3 months of construction starting.	Where possible, the EPD should prioritise local employment and procurement of services.
C.2	**Workers Accommodation** Workers accommodation facilities should be installed to meet regulations and Workers' accommodation: processes and standards; A guidance note by IFC and the EBRD, September 2009)	Ensure safety and wellbeing of workers. Minimise risk of incidents, and accidents. Minimise risk of social conflicts.	Good Practice EBRD PR2	Contractors own resources	Prior to commencement of construction works.	Record of internal and external (by the Engineer and Supervising Consultant) inspections. Record of grievances. Feedback from workers.	Accommodation camps to be subject to quarterly inspection by Supervising Consultant. First inspection to be within 3 months of construction starting. Findings are presented to the ADB and EBRD.

C.3	**EIA Implementation** Implement all requirements of the EIA in the project.	Compliance with all EIA recommendations are required in order to ensure that Project impacts are within those defined by the EIA, approved by the respective authorities, and understood by the Lenders.	Uzbek Regulations EBRD PR 3	Part of project implementation – Contractor's own resources.	As defined within the EIA.	Audits by Lenders Advisor to verify that Project implementation is in accordance with the EIA.	The EIA includes *Corrective Action Plans* (CAPs) for TPP0 Operation (Table F-1); TPP1 Operation (Table F-2); and TPP2. Construction Phase (Table F-3). These CAPs should be implemented immediately.
C.4	**Technical Feasibility & Cost Viability Analysis of NOx Emissions Reduction and assessment of best Energy Efficiency** **Include low NOx in tender requirement as well as high efficiency into documentation.** **Continuous emission monitoring for NOx to be included in design** As part of the feasibility process and subsequent tender process, obtain proposals to provide a design solution to achieve BAT Emission Limit Values (ELVs) for NOx (40mg/Nm^3 daily; 30mg/Nm^3 annually), on a guaranteed basis. Submit assessment to Lenders. Within 5 years of operation undertake an audit to review performance and how efficiency and BAT can be further implemented	To reduce NOx emissions in line with EU Directive and Best Available Techniques.	EU Directive and Large Combustion Plant BAT Conclusions dated August 2017. EBRD PR3	Management time in Tender Documentation preparation and analysis. Potential additional Project cost in obtaining performance guarantees for BAT NOx ELVs.	Prior to finalisation of design and instruction of Contractor.	Technical Feasibility & Cost Viability Study presented to Lenders. BAT Conclusion compliance Average emission data provided in Annual report.	Where proposals are deemed to be viable, these should be implemented. Where proposal would either not be technically feasible and/or commercially viable, clear justification, to the satisfaction of the Lenders, must be provided.

C.5	**GHG Emissions and Carbon Capture Storage (CCS) Readiness for TPP2**. Require that the necessary space to retrofit CCS within TPP2 is included within the plant layout and tender requirements. Undertake GHG Emissions for TPP2, as well as TPP0 and TPP1, and provide reporting on an annual basis. Undertake a CCS Readiness / Feasibility Assessment of the Project every 5 years throughout operations.	Critical for ensuring that the Project's GHG impacts are understood, and minimised as and when new technology becomes viable.	Best Practice EBRD PR1	TPP Management time, internal costs	GHG Emissions Reporting on 31 January, on an annual basis. CCS Feasibility to be completed 5 years from TPP2 commissioning, and every 5 years thereafter.	Provide a report to the Lenders "the assessment report covering the availability of suitable storage sites and the technical and economic feasibility of transport facilities and retrofit for CO2 capture" GHG Reports to be provided to the Lenders annually.	Summarize any regulatory requirements relating either to GHG contributions or CCS Readiness, within the reports to the Lenders.
In addition to Item C.3., the following key recommendations under the EIA are considered critical and shall be specifically monitored under the ESAP.							
C.6	**Continuous Ambient Air Quality Monitoring & Meteorological Station** Implement continuous monitoring at two (2 no.) locations, in addition to a meteorological station, as described within the EIA.	To assist in developing a better understanding of local ambient air quality issues. Compliance with ESIA outcomes.	Good Practice. EBRD PR1 EBRD PR3	Part of project implementation	Within 3 months of Financial Close	Establish monitoring stations and commence data collection.	A summary of ambient air quality and meteorological data shall be included in annual reporting to the Lenders.
C.7	**Health Impact Assessment Monitoring** Implement the monitoring conclusions as set out in the Health Impact Assessment contained within the EIA	To assist in developing a better understanding of local ambient air quality issues. Compliance with EIA outcomes.	Good Practice. EBRD PR4	Part of project implementation	Implement upon Financial Close	Production of Annual Monitoring Report	-

C.8	**Monitoring of KMK** KMK monitoring, for both flow and temperature, at various locations, as described within the EIA.	To develop an understanding of the KMK and conditions where the Project can operate in compliance with the EIA. Compliance with EIA outcomes.	Good practice. EBRD PR3	Part of project implementation	Within 3 months of Financial Close	Install and commission the necessary monitoring equipment and start compiling monitoring data.	This data shall be used to inform water availability and security risks for the Project, irrespective of whether dry cooling is adopted as the final cooling method.

C.9	**The Company will include in the** design and tender process closed circuit cooling towers and no abstraction from the canal except for make-up water, if evaporative cooling used. Although the technical choice is to be defined by the EPC contactor, an EPC contractor that offered dry cooling towers will be given preference if as long as similar in cost. This explicit performance will be included in the procurement notice. Ensure that the Tender process includes cooling tower and no water abstraction. Provide space in the design to install in future dry air condensers (ACCs).	To ensure that the adopted cooling method is climate resilient and optimised to minimise environmental impacts. **Detailed cooling Method Feasibility Analysis & Detailed Design to be undertaken as part of the tender process. The analysis will include**– as a minimum - dry (Air Cooled Condenser); Forced Draft Cooling Towers; wet cooling methods; or a combination thereof.	Good Practice. EBRD PR3	Part of project implementation and detailed design.	Prior to award of EPC Contract. Review of EPC contract Post construction performance	Closed circuit cooling tower and no canal water use (apart from make-up if needed). Review water options as part of tender process and opt for most efficient water use option. Provide report to Lenders on option taken and reason with cost and water use breakdown.	The analysis should be undertaken in collaboration with the preferred contractor, as part of the detailed design, and must include consideration, on a cumulative basis, of: thermal discharge on KMK during wet cooling; water availability, security and conflicting uses; ambient climate (temperature and wind conditions); plant efficiency impacts; capital costs and O&M; fuel consumption and resultant carbon intensity (gCO2(e)/kWH) impacts.
C.10	**Water Savings & Auditing** Implement all viable water savings opportunities that have been identified under the Technical Reports. Undertake a baseline water audit of the entire plant. Undertake annual water auditing of entire plant Identify additional water savings at TPP0, TPP1 and TPP2 The Project shall continuously seek to reduce water losses and intake demand.	To ensure that the impact of the Project upon water resources is minimised as far as reasonably practicable. This shall also help the Project mitigate potential water availability risks, particularly in the longer term when water availability may be further constrained by climate change impacts.	Good Practice. EBRD PR3	Part of project implementation	Prior to award of EPC Contract, incorporate water savings into the works package for implementation as part of TPP2 construction. Water audits completed annually, on 01 December.	Implementation of water saving measures at the entire plant Submittal of water audits, together with the identification of any other water saving opportunities, on an annual basis to the Lenders.	Water audits and savings identification to be completed by an independent engineer.

C.11	**Fish Surveys within KMK** Fish surveys are currently being undertaken within the KMK, and should be repeated on an annual basis as set out in the EIA.	Management of potential environmental impacts of the Project. Compliance with EIA outcomes.	Good Practice. EBRD PR6	Part of project implementation	Initial survey is in progress and shall be completed prior to start of construction. Annual surveys thereafter.	Documented survey report. Subsequent annual reports, discussing any material changes in fish populations.	Summary findings of surveys to be provided in annual report to the Lenders.
C.12	**Procurement & Supplier Conformance to EIA and Lender Requirements** Develop a procedure of communication and implementation of Project requirements to subsidiaries, suppliers and contractors.	Ensure that the recommendations in local development plan and environmental consent are properly implemented by subcontractors. Ensure that rules of operations are determined and communicated to workers and subcontractors.	Good Practice EBRD PR 1	Part of project implementation	As soon as possible	Clear rules are agreed and confirmed by involved parties	-
C.13	**Traffic Management Plan** Agree transportation routes and acceptable traffic patterns to minimise traffic nuisance during construction phase of the Project	Avoid or minimise risks and nuisance to local community	EBRD PR 4	Part of project implementation	Prior to commencement of construction works	The plan is in place, consulted with local authorities and approved by the Engineer and the PMU.	Instruction for the subcontractors regarding transportation should be prepared. In addition to traffic routes and requirements for signage, the plan should include driver awareness training, and requirements for awareness raising among general public.

C.14	**Emergency Response Plan** A comprehensive Emergency Response Plan to be developed for the Project clearly setting roles and responsibilities. There should be sections developed to cover situations relating to: ▪ Containment of hazardous materials; ▪ Oil and fuel spills; ▪ Fire, gas leaks and explosions; ▪ Work-site accidents; and Earthquake and other natural hazards. ▪ Extreme weather conditions	Maximise effectiveness of response to emergencies Minimisation of risks to workers and community health and safety	EBRD PR4 EBRD PR2	Part of project implementation	Prior to commencement of construction works.	The plan is in place, consulted with and approved by local Emergency Services, the Engineer and the PMU. Record of consultation. Schedule and record of drills.	The plan should include information about Emergency Planning arrangements for the local community.
C.15	**Quarterly Construction Monitoring** The Project shall be subject to independent audits of construction activities by Environmental, Health and Safety, Social, and Labour (EHSS) specialists.	Prevention of damage to environment, accidents prevention, Ensuring adequate labour working conditions, cooperation with administration. Supervision of implementation of environmental consent decisions for construction works.	Good Practice EBRD PR1 EBRD PR2 EBRD PR4 Labour Regulations Environmental Regulations Environmental Consent	Cost of Supervising Consultant.	During Construction	Audit reports to be provided to Lenders. (In addition to regular monthly monitoring reports)	-
C.16	**6 Monthly Operational Monitoring for 1st Year** The Project shall be subject to independent audits of construction activities by Environmental, Health and Safety, Social, and Labour (EHSS) specialists.	Confirm how the plants operational impacts and risks are being managed,	Good Practice EBRD PR1 EBRD PR2 Labour Regulations Environmental Regulations Environmental Consent	Cost of Supervising Consultant.	During Operation	Audit reports to be provided to Lenders. (In addition to regular annual reporting)	-