



**ACWA POWER ELECTRICITY OPERATION AND
MANAGEMENT INDUSTRY AND TRADE CO.**



**ACWA POWER KIRIKKALE NATURAL GAS
COMBINED CYCLE POWER PLANT PROJECT
ENVIRONMENTAL AND SOCIAL
MANAGEMENT AND MONITORING PLAN**



MGS PROJECT CONSULTANCY ENGINEERING TRADE CO.

ANKARA – JUNE/2014

PROJECT NAME

AWCA POWER KIRIKKALE NATURAL GAS COMBINED CYCLE POWER PLANT
PROJECT

PROJECT LOCATION

Kırıkkale Province, Yahşihan County, Kılıçlar Municipality

PROJECT OWNER

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**ENVIRONMENTAL AND SOCIAL
MANAGEMENT AND MONITORING PLAN
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This report has been prepared as part of public disclosure on Stakeholder Engagement requirements of EBRD, IFC and KEXIM. The report is not available for any other purposes and all rights are reserved.

ABBREVIATIONS

CEMP	Construction Environmental Management Plan
EBRD	European Bank of Reconstruction and Development
EHSP	Environmental Health and Safety Plan
ESIA	Environmental and Social Impact Assessment Report
EPC	Engineering, Procurement and Construction
ESMMP	Environmental and Social Management and Monitoring Plan
IFC	International Finance Corporation
KEXIM	Korea Kexim Bank
NTS	Non-technical Summary
OEMP	Operation Management Plan
O&M	Operation and Maintenance Company
PR	Performance Requirements
PS	Performance Standard
SEP	Stakeholder Engagement Plan

Introduction

The Environmental and Social Management and Monitoring Plan (ESMMP) presented in this document has been prepared in accordance with EBRD Performance Requirements and IFC Performance Standards to document the key management and monitoring actions to be implemented during construction, operation and decommissioning periods of the Project. The plan has been developed from ESIA recommendations on the mitigation measures in order to minimize and/or remove possible adverse environmental and social effects of the project.

This ESMMP has been developed to provide the frame work for the implementation of specific measures to ensure compliance with EBRD Performance Requirements, IFC Performance Standards, and KEXIM Requirement and Turkish Environmental Standards throughout construction and operation phases.

The action plan provides the following information:

- Environmental and Social Aspects
- Details of required management actions
- Rationale or key performance objectives
- Parties responsible for implementations
- Implementation timetable

EBRD Performance Requirements relevant to this action are as follows:

- PR 1 : Environmental and Social Appraisal and Management
- PR 2 : Labor and Working Conditions
- PR 3 : Pollution Prevention and Abatement
- PR 4 : Community Health, Safety and Security
- PR 5 : Land Acquisition, Involuntary Resettlement and Economic Displacement
- PR 6 : Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PR 8 : Cultural Heritage
- PR 10 : Information Disclosure and Stakeholder Engagement

IFC Performance Standards relevant to this action are as follows:

- PS 1: Assessment and Management of Environmental and Social Risks and Impacts
- PS 2: Labor and Working Conditions
- PS 3: Resource Efficiency and Pollution Prevention
- PS 4: Community Health, Safety, and Security
- PS 5: Land Acquisition and Involuntary Resettlement
- PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PS 8: Cultural Heritage

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No	Aspect	Action	Rationale	Responsibility	Timetable
1.0 Environmental and Social Management					
1.1 Construction					
1.1.1	Management Program	Integrate Environment Management Actions from the ESIA into the EPC Project Environmental Health and Safety Plan (EHSP)	<ul style="list-style-type: none"> • To provide guidance for environmental and social management actions • To ensure compliance with PR1 and PS1 during construction 	Project Owner and EPC	Within one month before construction
1.1.2	Management Program	Subcontractors to integrate requirements of EPC Construction Environmental Management Plan (CEMP) into their own documents and procedures.	<ul style="list-style-type: none"> • To provide guidance for environmental and social management actions • To ensure compliance with PR1 and PS1 during construction 	EPC and Subcontractors	Within one month before construction
1.1.3	Monitoring Program	Undertake sufficient and necessary monitoring measures: <ul style="list-style-type: none"> • Noise survey around the site boundary • Chemical analysis of effluents before discharge to receiving body. • Dust monitoring by visual inspection along the site boundary. 	<ul style="list-style-type: none"> • To ensure compliance with environmental limits • To ensure compliance with EPC EHSP 	EPC and Subcontractors	Throughout construction period.
1.2 Operation					
1.2.1	Management Program	Establish and manage an Operation Management Plan (OEMP) which has to be consistent with actions identified in the ESIA	<ul style="list-style-type: none"> • To provide guidance for environmental and social management actions • To ensure compliance with PR1 and PS1 during operation 	O&M (Operation and Maintenance Company)	OEMP to be established prior to initial operation of the plant
1.2.2	Monitoring Program	Undertake sufficient and necessary monitoring measures to check against compliance with environmental limits and OEMP: <ul style="list-style-type: none"> • Continuous monitoring of NOx. • Sampling before direct discharge to the river 	<ul style="list-style-type: none"> • To ensure compliance with legal environmental limits • To ensure compliance with PR1 and PS1 during operation 	O&M	Throughout operation period.

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No	Aspect	Action	Rationale	Responsibility	Timetable
1.3 Decommissioning					
1.3.1	Management Program	Planning of control and measure action which are determined in ESIA	<ul style="list-style-type: none"> To provide guidance for environmental and social management actions To ensure compliance with PR1 and PS1 during operation 	O&M	Before decommissioning

No	Aspect	Action	Rationale	Responsibility	Timetable
2.0 Labor and Working Conditions					
2.1 Construction					
2.1.1	Wellbeing of workers	<ul style="list-style-type: none"> Protect and promote the health of workers, especially by promoting safe and healthy working conditions Establish and maintain a sound worker-management relationship Promote the fair treatment, non-discrimination and equal opportunity of workers Comply with labor laws Provide grievance mechanism Provide necessary personal protection equipment Fire control, working at height, first aid, etc. trainings 	<ul style="list-style-type: none"> To ensure safe working practices and to maintain workers' rights and benefits To ensure compliance with PR2 and PS2 	Project Owner, EPC and Subcontractors	Throughout the construction phase
2.2 Operation					
2.2.1	Wellbeing of worker	<ul style="list-style-type: none"> Prepare Human Resources Policies 	To ensure workers rights and benefits and workers' duties	O&M	Within three months of commencing operation

No	Aspect	Action	Rationale	Responsibility	Timetable
2.2.2	Wellbeing of workers	<ul style="list-style-type: none"> • Protect and promote the health of workers, especially by promoting safe and healthy working conditions. • Establish and maintain a sound worker-management relationship. • Promote the fair, treatment, non-discrimination and equal opportunity of workers. • Comply with labor laws. • Provide grievance mechanism. 	<p>To ensure safe working practices and to maintain workers' rights and benefits. To ensure compliance with PR2</p>	O& M	Throughout the operation phase
2.3 Decommissioning*					
2.3.1	Wellbeing of workers	<ul style="list-style-type: none"> • Protect and promote the health of workers, especially by promoting safe and healthy working conditions • Establish and maintain a sound worker-management relationship • Promote the fair, treatment, non-discrimination and equal opportunity of workers • Comply with labor laws • Provide grievance mechanism 	<ul style="list-style-type: none"> • To ensure safe working practices and to maintain workers' rights and benefits • To ensure compliance with PR2 and PS2 	O&M	Throughout the decommissioning phase

No	Aspect	Action	Rationale	Responsibility	Timetable
3.0 Pollution Prevention Abatement					
3.1 Construction					
3.1.1	Air Quality	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Reduce dust effects (watering during dry season, etc.) • Minimize emissions from vehicles and construction equipment (sealing trucks, setting speed limits, vehicle maintenance, etc) • Minimize environmental effects from construction camp 	<ul style="list-style-type: none"> • Protect air quality • To ensure compliance legal environmental limits • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout construction period
3.1.2	Soil and Ground Water	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Prevent and/or minimize contaminations of soil and ground water from oils, fuels, and chemicals 	<ul style="list-style-type: none"> • To maintain the quality of soil and ground water in construction and lay down areas • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout construction period.
3.1.3	Surface Water	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Divert natural storm water away from construction site • Prevent discharge of contaminated water directly to the river 	<ul style="list-style-type: none"> • To prevent pollution of the river water and protect river ecology • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout construction phase
3.1.4	Solid Waste	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Collect and segregate solid waste materials for reuse, recycling • Minimize disposable wastes • Suitable disposal of hazardous waste like waste oil, contaminated waste, etc. 	<ul style="list-style-type: none"> • Encourage a safe working environment and good housekeeping and promote recycling • Minimize the risk of fire • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout construction phase

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No	Aspect	Action	Rationale	Responsibility	Timetable
3.1.5	Noise	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Perform regular maintenance on static and mobile noise sources • Provide noise protection gears 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To avoid impacting sensitive receptor off-site • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout construction phase
3.1.6	Wastewater	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Using cesspool which is sealed and aerated for construction camp 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To avoid impacting sensitive receptor off-site • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout construction phase
3.2 Operation					
3.2.1	Air Quality	Implement measures identified in the ESIA and OEMP and EHSP. <ul style="list-style-type: none"> • Use of low NOx burners, • Compliance with • NOx limits during operation. • Engage an independent environmental consultant to audit the CEMS data. 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To ensure compliance legal environmental limits • To ensure compliance with PR3 and PS3 environment. 	O & M	Integrate into the plant design and construction
3.2.2	Wastewater	Implement measures identified in the ESIA and OEMP and EHSP. <ul style="list-style-type: none"> • Use of wastewater treatment plant. • Comply with discharge limits during operation. 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To ensure compliance legal environmental limits • To ensure compliance with PR3 and PS3 	O & M	Integrate into the plant design and construction.
3.2.3	Noise	Implement measures identified in the ESIA and OEMP and EHSP. <ul style="list-style-type: none"> • Comply with noise limits for boundary and sensitive receptors. 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To ensure compliance legal environmental limits To ensure compliance with PR3 and PS3 	O&M	Throughout the operation phase.

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No	Aspect	Action	Rationale	Responsibility	Timetable
3.2.3	Solid Waste	Implement measures identified in the ESIA and OEMP and EHSP. <ul style="list-style-type: none"> • According to analysis results of sludge, if it is dangerous waste, than sludge will be disposed by giving to a licensed contractor • Collect and segregate solid waste materials for reuse, recycling. 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To ensure compliance legal environmental limits • To ensure compliance with PR3 and PS3 	O&M	Throughout the operation phase.
3.3 Decommissioning*					
3.3.1	Decommissioning	Implement measures identified in the ESIA and CEMP and EHSP <ul style="list-style-type: none"> • Minimize waste production • Minimize adverse environmental effect and taking necessary measures • Suitable disposal of solid wastes 	<ul style="list-style-type: none"> • To provide a healthy, safe working environment. • To ensure compliance legal environmental limits • To ensure compliance with PR3 and PS3 	EPC and Subcontractors	Throughout the decommissioning phase

No	Aspect	Action	Rationale	Responsibility	Timetable
4.0 Community Health, Safety and Security					
4.1 Construction					
4.1.1	Community	<ul style="list-style-type: none"> Prevent or minimize impact on community by implementation of EPC EHSP Construct a fence line around project. Prepare Emergency Response Plan Maintain open communication channels with local communities 	<ul style="list-style-type: none"> Ensuring minimum risks to local communities To ensure compliance with PR4 and PS4 	EPC and Subcontractors	Throughout construction period.
4.2 Operation					
4.2.1	Community	<ul style="list-style-type: none"> Prevent or minimize impact on community by implementation of O&M EHSP Prepare and implement Emergency Response Plan Maintain open communication channels with local communities 	<ul style="list-style-type: none"> Ensuring minimum risks to local communities To ensure compliance with PR4 and PS4 	O&M	Throughout operation phase.
4.3 Decommissioning*					
4.3.1	Community	<ul style="list-style-type: none"> Prevent or minimize impact on community by implementation of O&M EHSP. Prepare Emergency Response Plan. Maintain open communication channels with local communities. 	<ul style="list-style-type: none"> Ensuring minimum risks to local communities. To ensure compliance with PR 4. 	O&M	Throughout operation phase.

No	Aspect	Action	Rationale	Responsibility	Timetable
5.0 Land Acquisition, Involuntary Resettlement and Economic Displacement					
5.1 Construction					
5.1.1	Physical or Economic Displacement	Not applicable for the project site(CCPP)	<ul style="list-style-type: none"> Project site is owned by Turkish Government and no private property exists on the project site. To ensure compliance with PR5 	Not applicable	Not applicable.

No	Aspect	Action	Rationale	Responsibility	Timetable
6.0 Biodiversity Conservation and Sustainable Management of Living Natural Resources					
6.1 Construction					
6.1.1	Protect and conserve Biodiversity	<ul style="list-style-type: none"> Minimize land use. Retain top soil for future habitat restoration. No introduction of non-native species. Pollution prevention measures as mentioned in above PR3. Restore habitat of land used for lay down area. 	<ul style="list-style-type: none"> To conserve biodiversity by the project site and surrounding areas, including the rivers etc. To ensure compliance with PR6 and PS6 	EPC and Subcontractors	Throughout construction phase.
6.2 Operation					
6.2.1	Protect and conserve Biodiversity	<ul style="list-style-type: none"> Minimize land use. No introduction of non-native species. Pollution prevention measures as mentioned in above PR3. 	<ul style="list-style-type: none"> To conserve biodiversity by the project site and surrounding areas, including the rivers, etc. To ensure compliance with PR6 and PS6 	O&M	Throughout operation phase
6.3 Decommissioning*					
6.3.1	Protect and conserve Biodiversity	<ul style="list-style-type: none"> Protect natural habitat Reclamation Pollution prevention measures as mentioned in above PR3 	<ul style="list-style-type: none"> To conserve biodiversity by the project site and surrounding areas, including the rivers, etc. To ensure compliance with PR6 and PS6 	O&M	Throughout the decommissioning phase
7.0 Cultural Heritage					
7.1 Construction					
7.1.1	Protection of cultural heritage	<p>Implement measures identified in the ESIA and CEMP and EHSP</p> <ul style="list-style-type: none"> Upon discovering of cultural and or archeological assets during site excavation, immediate stopping of work and then notification of relevant authorities. 	<ul style="list-style-type: none"> To conserve cultural heritage and archaeologies. To ensure compliance with PR8 and PS8 	EPC and Subcontractors	During excavation phase of the project

No	Aspect	Action	Rationale	Responsibility	Timetable
8.0 Information Disclosure and Stakeholder Engagement					
8.1 Construction					
8.1.1	Information disclosure	<ul style="list-style-type: none"> Preparation of SEP, NTS and ESIA. Updating SEP, NTS as necessary. 	<ul style="list-style-type: none"> To provide transparent process by which stakeholders and interested parties can raise their concerns or observation To ensure compliance with PR10 and PS10 	ACWA	At early planning stage throughout the construction period.
8.2 Operation					
8.2.1	Information disclosure	<ul style="list-style-type: none"> Updating SEP as necessary. 	<ul style="list-style-type: none"> To provide transparent process by which stakeholders and interested parties can raise their concerns or observation. To ensure compliance with PR10 and PS10 	ACWA	Throughout the whole operation period.
8.3 Decommissioning*					
8.3.1	Information disclosure	<ul style="list-style-type: none"> Updating SEP as necessary 	<ul style="list-style-type: none"> To provide transparent process by which stakeholders and interested parties can raise their concerns or observation. To ensure compliance with PR10 and PS10 	ACWA	Throughout decommissioning period.