

MOLDELECTRICA



ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY

**400kV Transmission Line Chişinău to Vulcaneşti and Substations
at Chişinău and Vulcaneşti**

Environmental and Social Management and Monitoring Plan

July 2017

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List of Acronyms

BtB	Back-to-Back
E&S	Environmental and social
EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health, and Safety
EMF/EMR	Electromagnetic Field/Radiation
EPRI	Electric Power Research Institute
ESIA	Environmental and Social Impact Assessment Study (or Report)
ESMMP	Environmental and Social Management and Monitoring Plan
ESS	EIB Environmental and Social Standards
IFI	International Financial Institution
INCIRP	International Commission on Non-Ionizing Radiation Protection
kV	kiloVolt
LACF	Land Acquisition and Compensation Framework
LACP	Land Acquisition and Compensation Plan
MSDS	Material Safety Data Sheet
NCR	Noncompliance Report
NTS	Non-technical Summary
O&M	Operation and Maintenance
OHL	Overhead Line
OHS	Occupational Health and Safety
OP	World Bank Operational Policy
PCB	Polychlorinated biphenyl
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PR	EBRD Performance Requirements
SEP	Stakeholder Engagement Plan



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SF6 Sulphur hexafluoride

USEPA United States Environmental Protection Agency

WB World Bank

WHO World Health Organisation

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Introduction

Moldelectrica proposes to upgrade the electricity grid in Moldova by developing a new high-voltage transmission line between Chişinău and Vulcăneşti and a new substation at each end of the line (“the Project”). Several international financial institutions (IFIs), including the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the World Bank (WB) are considering providing financing for the project. Therefore, the Project will have to meet not only the environmental and social (E&S) requirements of Moldovan law but also the E&S standards of the IFIs, including EBRD Performance Requirements (2014), EIB Environmental and Social Standards (ESSs), and WB Operational Policies (OPs).

The Project includes design, construction, and operation of the following elements:

- A new “back-to-back” (BtB) substation within the existing 400kV Vulcăneşti substation, and a short connection to the existing 400kV Isaccea-Vulcăneşti transmission line
- Construction of a 158-kilometer 400kV transmission line between Vulcăneşti and Chişinău. The line will run through the area of Moldova shown in Figure 1.
- Adaptation of the existing 330/110/35 kV Chişinău substation by adding a new 400kV substation and a new 400/330kV autotransformer bay.

An Environmental and Social Impact Assessment (ESIA) has been prepared to identify potential environmental and social impacts and measures to avoid, control, or otherwise reduce those impacts to acceptable levels. This Environmental and Social Management and Monitoring Plan (ESMMP) describes the required actions required by the ESIA and how environmental and social impacts will be managed and monitored so they meet the requirements of Moldovan law and the environmental and social standards of the IFIs.

These applicable standards include, *inter alia*:

- Moldovan legislation:
 - Law no. 86/2014 on Environmental Impact Assessment
 - Law no. 1515/1993 on Environmental Protection
 - Law no. 272/2011 on Water
 - Law no. 1538/1998 on natural areas protected by the State
 - Law no. 325-XVI/2005 related to Republic of Moldova Red Book
 - Law no. 94-XVI/2007 on the ecological network

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- Law no. 439-XIII/1995 on animal kingdom
- Law no. 239-XVI of 8.11.2007 on vegetal kingdom
- Law no. 1531/1993 on cultural heritage monuments protection
- Law no. 2018/2010 on protection of archaeological heritage
- Land Code no. 828-XII/1991
- Law no. 488-XIV/1999 on expropriation in case of public utility;
- Law no. 1308/1997 on land compensation
- Forest Code no. 887-XIII/1996
- GD no. 1451, 24 December 2007, for approval the procedure for land assignment, change of land use and land exchange
- Law no. 186/2008 on Occupational Health and Safety amended by the Law no. 201/28.07.2016
- Labour Code of Republic of Moldova no. 154-XV of 28 March 2003.



- EBRD:
 - PR1: Assessment and Management of Environmental and Social Impacts and Issues
 - PR2: Labour and Working Conditions
 - PR3: Resource Efficiency and Pollution Prevention and Control;
 - PR4: Health and Safety
 - PR5: Land Acquisition, Involuntary Resettlement and Economic Displacement
 - PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
 - PR8: Cultural Heritage
 - PR10: Information Disclosure and Stakeholder Engagement.
- EIB:

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- ESS 1 - Assessment and Management of Environmental and Social Impacts and Risks
 - ESS 2 - Pollution Prevention and Abatement
 - ESS 3 - EIB Standards on Biodiversity and Ecosystems
 - ESS 4 - EIB Climate-related Standards
 - ESS 5 - Cultural Heritage
 - ESS 6 - Involuntary Resettlement
 - ESS 7 - Rights and Interests of Vulnerable Groups
 - ESS 8 - Labour Standards
 - ESS 9 - Occupational and Public Health, Safety and Security
 - ESS 10 - Stakeholder Engagement.
- WB:
 - OP 4.01 Environmental Assessment
 - OP 4.04 Natural Habitats
 - OP 4.11 Physical Cultural Resources
 - OP 4.12 Involuntary Resettlement
 - OP 4.36 Forests.
 - Good international practice (GIP), including World Bank Group Environmental, Health, and Safety (EHS) General Guidelines and EHS Guidelines for Transmission Lines.

Organization and Structure of the Project's Environmental and Social Management

The Project will be overseen by a Project Management Unit (PMU) and directly implemented by a Project Implementation Unit (PIU) that will be established within Moldelectrica and dedicated specifically for this project. Figure 2 shows the indicative high-level organization of the Project.

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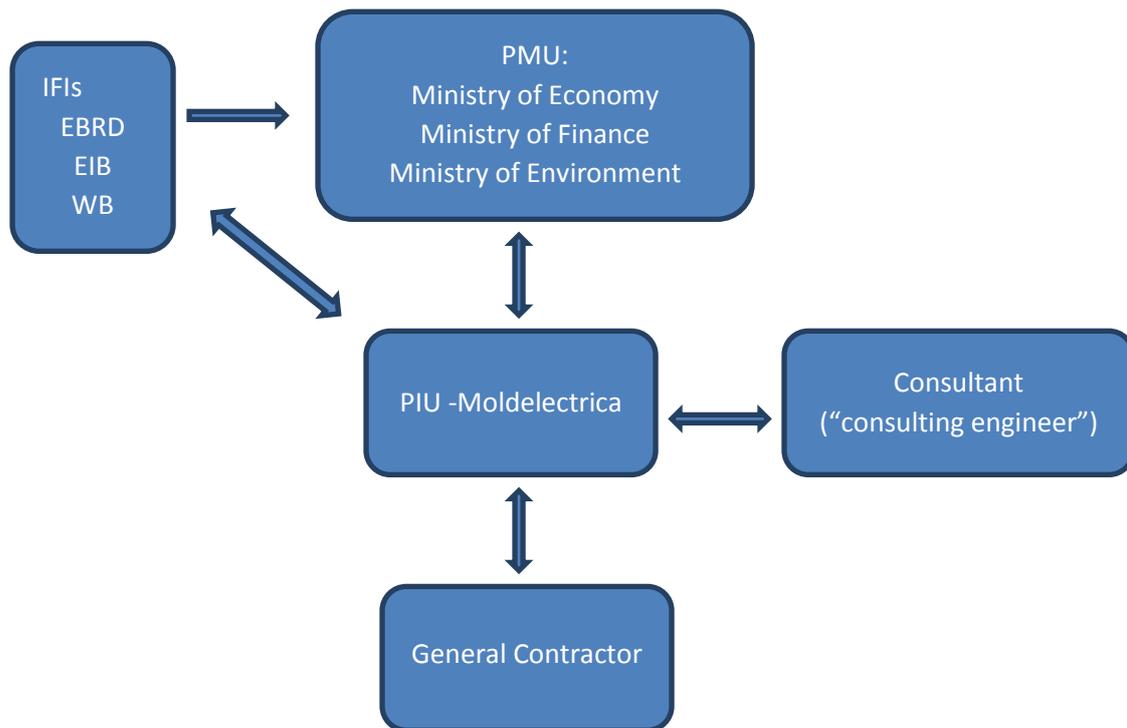


Figure 2. Indicative Project Organization

The PMU will include representatives of the Ministry of Economy, Ministry of Finance, and Ministry of Environment and will be responsible for high-level coordination and monitoring of the Project, including particularly the schedule, budget, and communication with national and international bodies.

The PIU will be responsible for implementing the Project – to accomplish this, the PIU will engage a general contractor (or possibly more than one) to construct the transmission line and substations, and also a Consultant (also known as the consulting engineer) to supervise the day-to-day activities of the contractor(s). Figure 2 shows the indicative organization of the PIU, which will include managers and staff with expertise in the following disciplines:

- Project Management and administration
- Technical/engineering
- Procurement
- Financial
- Environmental
- Social / Land Acquisition
- Occupational safety

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- Communications.

The PIU team will be drawn from within Moldelectrica, including staff and managers whose sole responsibilities will be for this Project.

The PIU will work closely with other organizations within Moldelectrica, including:

- Financial and Economic Department – administration of project financial matters, ensuring adherence to financial agreements by Moldelectrica, cooperation with relevant Governmental authorities
- Legal Department – legal support and approval on the project, proposal related to legal options and supervision of contract requirements
- Investment Division - preparing and supervision of design and execution processes, planning and investment execution monitoring, design and execution documentation, legal issues related to lands

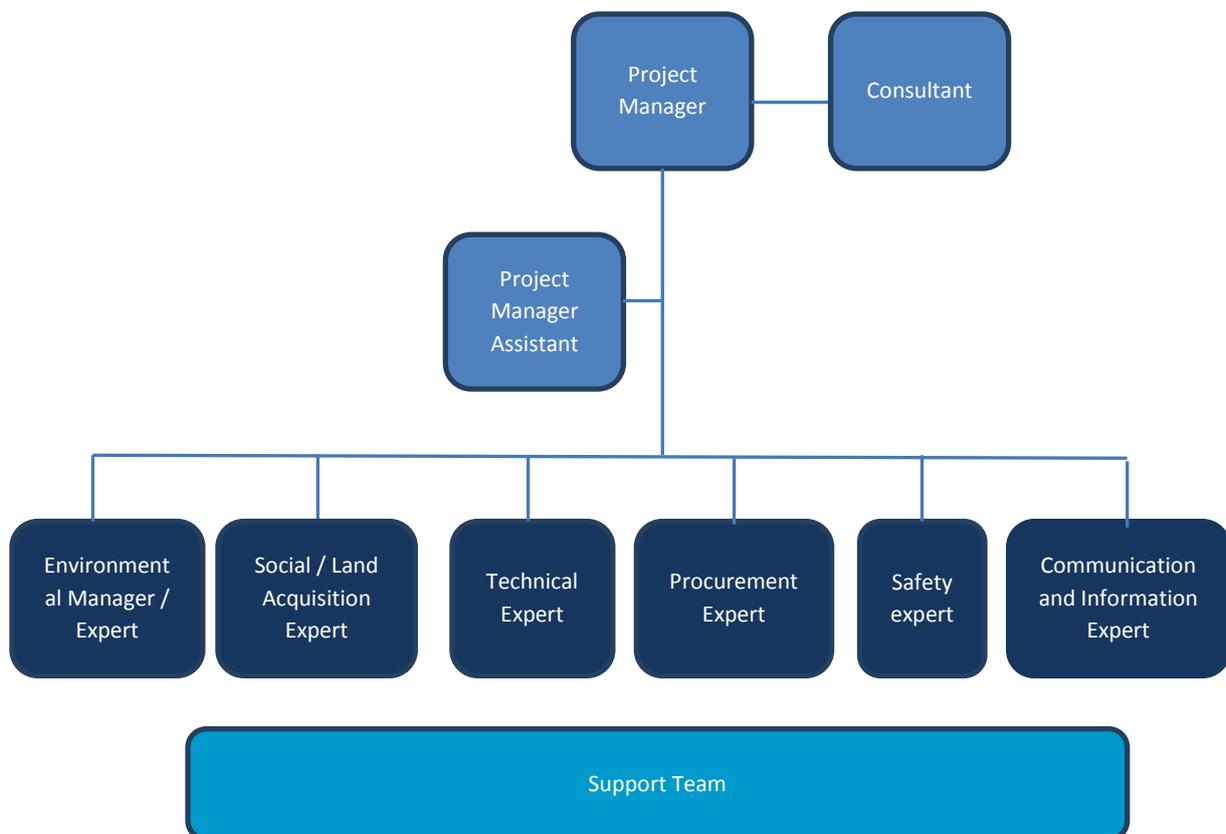


Figure 3. Indicative organization of PIU within Moldelectrica

- OHL Department – supervision of 400kV OHL construction process, approval of technical aspects, checking conformance of Project execution with technical requirements of the contractor;
- Power Substation Department - supervision of power substations construction process, approval of technical aspects, checking conformity of Project with technical requirements of the contractor;

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- Accounting and Reporting Department - support for the Project audit, accounting and payment of loan obligations.

Implementation of the requirements of the ESMMP will be the responsibility of the following individuals and organizations. Moldelectrica may employ experts directly or procure the services of consultants to fill certain responsibilities.

Within the PIU:

- The environmental manager/expert will be responsible for overseeing implementation of most ESMMP requirements, with the exception of the SEP, LACP, and grievance mechanism. The environmental expert will report to and advise the Project Manager and will communicate regularly with the consulting engineer's Resident Engineer and environmental expert(s), and with the contractor through the consulting engineer. The environmental manager/expert will also have primary responsibility for preparing E&S reports for submission to Lenders, including coordinating input from land acquisition/social expert and safety expert.
- The social/land acquisition and communication expert(s) will have primary responsibility for leading implementation of the SEP, including the grievance mechanism, and for preparing (or coordinating consultant¹ preparation of) the LACP, and then overseeing Plan implementation. This expert (or experts) will also prepare summaries of land acquisition, compensation payments, grievances and resolutions, and stakeholder engagement activities for inclusion in reports to the Lenders.
- The safety expert will coordinate with the consultant's and contractor's safety managers to ensure the Occupational Health and Safety Plan and Traffic Management Plans, and Emergency Preparedness and Response Plan are kept up to date and fully implemented. The safety expert will also compile data from the consulting engineer and the contractor for inclusion in reports to the Lenders.

These PIU environmental and social managers/experts will participate in Project progress meetings and advise the Project Manager on environmental, health and safety, and social issues.

Within the Consultant (also known as the consulting engineer, or supervising engineer) organization, one or more environmental, safety, and social experts will have the following responsibilities:

¹ This refers to an individual or firm with expertise in land acquisition, livelihood restoration, and other relevant topics, including the requirements fo Moldovan law and the IFI's standards, and not to the consulting engineer (who is referred to elsewhere as the Consultant).

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- Day-to-day supervision of the contractor's implementation of the ESMMP and of associated E&S management plans (OHS plan, waste management plan, etc.—required plans are listed in the next section), including preparing inspection protocols, conducting inspections, reviewing reports, assessing compliance with applicable standards, advising contractor's E&S experts
- Recordkeeping and preparation of relevant sections of progress reports, based on reports from the contractor and direct observation
- Advising the Resident Engineer of deficiencies in contractor implementation of the ESMMP and of actions required to regain compliance, including preparation of compliance schedules.
- Making recommendations to the Resident Engineer for issuing noncompliance reports (NCRs) in case of continuing or serious noncompliance with contract requirements related to environmental, health and safety, and social performance, including timebound compliance actions and warnings of temporary or permanent penalties in case of continued noncompliance.

Within the contractor's organization:

- One or more full-time environmental experts will oversee contractor and subcontractor managers' and work crews' implementation of ESMMP requirements and will lead training of workers and supervisors in E&S matters. Responsibilities will include regular inspections of all work sites, advising the contractor's project manager and supervisors of measures needed to improve E&S performance, keeping records and submitting reports on E&S matters for inclusion in project progress reports. The environmental expert(s) will also assist the safety expert(s) in overseeing worker and site safety and compliance with the OHS and Traffic Management Plans.
- One or more full-time safety experts will have primary responsibility for overseeing implementation of the OHS Plan, the Traffic Management Plan, and the Emergency Preparedness and Response Plan. This will include managing stores of personal protective equipment (PPE) and safety equipment, preparing materials and training workers and supervisors (including those of the contractor and the consulting engineer) in task hazards and safety measures, inspecting safety conditions and safety equipment at all work sites, enforcing use of PPE and safety equipment, advising contractor managers and supervisors of measures needed to improve worker and community health and safety, investigating near misses and incidents, compiling statistics as required by the OHS plan, and providing safety-related input to progress reports.

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Requirements for Management and Monitoring of Environmental and Social Performance

This section summarizes specific requirements to avoid or mitigate potential environmental and social impacts required by the ESIA and the applicable standards. This ESMMP is considered to be a “living” document that will be updated throughout construction, operation, and decommissioning of the project as needed to ensure compliance with the applicable standards. The ESMMP requires that a number of more detailed E&S management plans and programmes be prepared, including²:

- Occupational Health and Safety Plan
- Emergency Preparedness and Response Plan
- Traffic Management Plan
- Land Clearing, Erosion Control, and Site Restoration Plan
- Land Acquisition and Compensation Plan
- Chance Find Procedure
- Air Quality Management Plan/Procedure
- Noise & EMF Control Plan/Procedure
- Waste and Materials Management Plan
- Spill Prevention and Response Plan
- Work Camp Management Plan (including accommodations plan if workers are to be accommodated)
- Worker Code of Conduct
- Construction and Post-Construction Bird Monitoring Programmes
- Vegetation Management Plan.

These plans and programmes are considered to be part of this ESMMP, and will be prepared and approved prior to construction, or as otherwise indicated. The PIU will be responsible for preparing these plans, engaging external experts and consultants (again, not the consulting engineer) to prepare them, or requiring the construction contractor to engage experts/consultants to prepare them. Any or all of the Plans are subject to review by the Lenders, at the Lender’s discretion. If prepared by external consultants or the contractor(s), they will be approved by PIU following review by

² As needed, the contractor may prepare method statements or procedures to implement specific requirements of the various management plans. Any such statement or procedure will be approved by the consulting engineer prior to implementation.

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persons with suitable expertise. It is important to note that many of the Plans, including the LACP, the erosion control plan, and chance find procedure, will require surveys and/or other significant activities to be completed before construction can begin.

Each of these E&S management plans/procedures will include the following:

- Identification of who (that is, what positions) within the contractor, consulting engineer, and PIU organization(s) will be responsible for ensuring the requirements are implemented
- The applicable standards – including Moldovan law, IFI requirements, and good international practise – that are required to be met. In case of conflict or inconsistency, the most stringent standard is to be followed unless that is in explicit violation of Moldovan law, in which case Moldovan law will apply.
- Requirements for training supervisors and workers in their responsibilities for implementation, supervision, and reporting on performance/compliance.
- Recordkeeping, monitoring, and reporting requirements for the contractor(s), the consulting engineer, and the PIU, including (for each party) what is to be monitored, how and when it is to be monitored, and potential actions to be taken in case of noncompliance

In addition, the PIU will require that the contractor compile all training requirements into a single training plan and that the consulting engineer supervise implementation of this plan.

Besides the E&S plans, the PIU will also ensure that the Project's Procurement Plan includes requirements to include E&S requirements, and relevant contract management requirements, into tender documents and contracts for the construction contractor and the Consultant.

The table below outlines management and monitoring requirements, organized by EBRD Performance Requirement. The table describes actions to be taken, the party primarily responsible, the measure of completion, and the timeframe for implementation.

Table 2. Environmental and Social Management and Monitoring Requirements				
<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
Assessment and Management of Environmental and Social Impacts				
1	Establish Project Management Unit (PMU) to be responsible for: <ul style="list-style-type: none"> – Coordinating and monitoring Project implementation on behalf of Government – Maintaining communications with national and international bodies involved and monitor PIU activity. 	PMU in place	Ministry of Economy	<ul style="list-style-type: none"> – As required by financing agreements – Prior to signing of MoU between Moldelectrica and CNTEE Transelectrica SA
2	Establish Project Implementation Unit (PIU) to manage implementation of the Project, including the ESMMP and associated plans	PIU in place	Moldelectrica	Establish: as required by financing agreements
3	Develop Procurement Plan , to include requirements: <ul style="list-style-type: none"> - For tender documents and contracts for design and construction contractors and for consulting engineers to include (specifically or by reference) (a) the ESIA and this ESMMP, (b) clauses that explicitly require contractors to comply with ESIA and ESMMP requirements and applicable standards and (c) explicit statement that consulting engineers will be responsible for supervision of E&S performance - For tender documents and contracts for contractors and consulting engineers to require environmental, social, and safety experts be identified as key persons, with minimum qualifications for these positions - For contractor tender documents and contracts to explicitly state that E&S performance/compliance is an integral part of technical performance and that payments may be withheld in case of noncompliance, 	<ul style="list-style-type: none"> – Plan approval by Lenders – E&S qualifications considered in contractor and Consultant selection – E&S-qualified contractors and consulting engineers – Contracts with enforceable E&S provisions 	PIU	<ul style="list-style-type: none"> – Submission to Lenders: 30 days prior to requests for tenders – Approval by Lenders: prior to requests for tenders and awards of contracts

Table 2. Environmental and Social Management and Monitoring Requirements				
<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
	<p>whether temporarily until compliance is achieved, or possibly permanently in case of continued noncompliance or if noncompliance adversely affects people or the environment</p> <ul style="list-style-type: none"> - For tenders and contracts for consulting engineers to include responsibility for monitoring E&S compliance and requiring actions in case of noncompliance, including withholding payments temporarily or permanently - For the evaluation and selection of contractors and consulting engineers to include consideration of (a) qualifications of proposed E&S experts and (b) past performance relevant to compliance with E&S requirements 			
4	Appoint managers/staff with expertise and experience in managing and overseeing environmental, social, land acquisition & livelihood restoration, safety, and communications performance to implement and oversee implementation of this ESMMP and applicable standards	Qualified managers/staff in all organization4 (ns	- PIU, consulting engineer, and contractor(s)	- PIU: within 30 days of PIU establishment - Consulting engineer & contractor(s): immediately upon contract award
5	Obtain all environmental permits and approvals	No work performed without authorization	PIU	Prior to financial close
6	Develop and implement Decommissioning Plan for any project element(s) to be taken out of service, to include requirements for worker safety, waste management, future land uses and restrictions, site restoration, noise	<ul style="list-style-type: none"> - Plan approval - Sites restored to beneficial uses 	<ul style="list-style-type: none"> - Plan: PIU - Implementation: contractor - Confirmation: 	Plan approved prior to start of decommissioning

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
	and air emissions control, traffic management, notice to and consultation with authorities, and independent confirmation of successful decommissioning		independent consultant	
Labour and Working Conditions				
7	Develop and implement Work Camp Management Plan (including major storage/laydown areas), to include requirements/definitions as needed for: <ul style="list-style-type: none"> - Delineation of the boundaries of work areas and roads - Definition and marking of discrete areas within the boundaries (e.g., accommodations, vehicle maintenance, fuel storage, materials storage, waste storage, offices, materials storage, etc.) - Separation of accommodations (if any) and maintenance/storage areas - Hours and curfews - Security and access control - Fire safety - Requirements for sanitation, potable water, site maintenance - Requirements for gray water and sewage management - Accommodations management (if the camp includes accommodations) 	Plan developed and approved Work camp O&M according to Plan	<ul style="list-style-type: none"> - Plan: PIU or contractor - Implementation: contractor 	Prior to construction
8	Establish goals for contractor to hire local workers, with priority for affected people, and require contractor to provide skills training and to report on workforce composition in terms of local vs nonlocal vs expat.	<ul style="list-style-type: none"> - Local hires - Increased skills 	<ul style="list-style-type: none"> - PIU to establish goals - Contractor to hire 	Goals established: at time of tender requests

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
	Provide for bonus/reward for meeting and exceeding goals.			
Resource Conservation and Pollution Prevention and Control				
9	Develop and implement Waste and Materials Management Plan (separate plans or sections for construction vs operation, OHL vs substations), to include: <ul style="list-style-type: none"> - Identification of and estimated amounts of materials to be used and wastes to be generated - Prohibition on use of transformers that contain polychlorinated biphenyls (PCBs) in transformer oils - MSDS/fact sheets for all hazardous materials/wastes (fuels, lubricants, fluorescents, paints, epoxies, etc.) - Methods and locations for storing and using each type of wastes and material - Rules for fueling (designated locations, >50m from water, over impervious surface) - Use of licensed waste haulers - Permits for waste storage and disposal as required - Methods of storage and disposal of sanitary sewage (>50m from water, licensed haulers) - Local and national permitting requirements 	<ul style="list-style-type: none"> - Plan(s) approved and implemented - All materials and wastes managed according to applicable standards - No uncontrolled releases of wastes or materials 	<ul style="list-style-type: none"> - Plan development: PIU and/or contractor - Implementation in construction period: contractor - Implementation in O&M period: PIU 	<ul style="list-style-type: none"> - Approval: prior to relevant phase and location (construction vs operation, OHL vs SS) Implementation: throughout relevant phase
10	Develop and implement Wastewater Management Plan/Procedure (separate plans or sections for construction vs operation, OHL vs substations), to include: <ul style="list-style-type: none"> - Identification of waste streams, including sewage, gray 	<ul style="list-style-type: none"> - No uncontrolled/ unauthorized wastewater emissions - Maximize 	<ul style="list-style-type: none"> - Development: Moldelectrica or contractor - Implementation: contractor 	<ul style="list-style-type: none"> - Approval: prior to relevant phase and location (construction vs operation, OHL vs SS)

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
	<p>water at camp(s), vehicle/equipment washwater, concrete washwater</p> <ul style="list-style-type: none"> - Evaluation of suitability of, and rules for, wastewater use for vehicle/equipment washing, dust control, and other beneficial purposes - Treatment as necessary to meet standards for use or discharge - Discharge only as authorized by permit 	<p>beneficial use of wastewater</p>	<p>(construction) and Moldelectrica (O&M)</p>	<ul style="list-style-type: none"> - Implementation: throughout relevant phase
11	<p>Develop and implement Land Clearing, Erosion Control, and Site Restoration Plan, to include requirements for:</p> <ul style="list-style-type: none"> - Marking and keeping works within boundaries, including temporary roads and tracks - Prohibition of off-road vehicle and equipment movement - Removal and storage of topsoil in secure locations (no topsoil wastage) with erosion controls - Storage and disposal of spoil in designated locations with erosion controls - Planning for stable configuration (maximum grades, revegetation, etc.) of temporary and permanent spoil dumps - Adoption of rules to maximum beneficial use of spoil (as fill, in concrete, etc.) - Use of best-practice erosion control measures, including silt fences, drainage control, flow retardation structures, settling ponds, etc. - Inspections after heavy rainfall events, immediate repairs to erosion controls as needed 	<ul style="list-style-type: none"> - Plan developed and approved - No working outside boundaries - No loss of topsoil - No uncontrolled run-off, minimal erosion sedimentation - Disturbed areas restored to productive use immediately after disturbance 	<ul style="list-style-type: none"> - Development: PIU or contractor - Implementation: contractor 	<ul style="list-style-type: none"> - Plan approved prior to construction - Plan implemented throughout construction - Sites monitored until vegetation meets restoration goals

Table 2. Environmental and Social Management and Monitoring Requirements

<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
	<ul style="list-style-type: none"> - Restoration of disturbed areas (tower locations, temporary roads, others) immediately after local construction is complete: grading, topsoil replacement, seeding/planting, monitoring - Program for monitoring revegetation in non-agricultural areas until 75%+ vegetative cover is self-sustaining <p>Plan is to apply to all works that involve vegetation removal, excavation or grading, and earth-moving</p>			
12	<p>Develop and implement <i>Procedure/Plan for Working Near Water</i>, to include:</p> <ul style="list-style-type: none"> - No towers or work activities within 5m of standing or moving surface water - No vehicles or equipment to work in or cross standing or moving water or wetlands - Minimal disturbance and immediate restoration of stream banks - Safety training and equipment (e.g., life rings, barriers, no working alone) for workers who work near ponds/lakes or rivers (see Occupational Health and Safety Plan below) 	<ul style="list-style-type: none"> - Minimal disturbance of banks - No water contamination - No worker incidents 	<ul style="list-style-type: none"> - Development: PIU or contractor - Implementation: contractor 	<ul style="list-style-type: none"> - Plan approved prior to construction - Plan implemented throughout construction

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
13	Develop and implement <i>Air Quality and Emissions Management Plan/Procedure(s)</i> , to include: <ul style="list-style-type: none"> - Requirements for dust control in dry conditions, including continual observations and wetting or other controls in case of visible dust - Reduced speed on dusty roads - Covers on earthen/dusty loads - Maintenance of all vehicle and equipment engines per manufacturers' instructions - Immediate removal from service and repair of any vehicle or equipment emitting black smoke - Prohibition of trash-burning and other open fires - Inspect and maintain SF6-containing equipment according to Moldovan law, manufacturer's specifications, and good international practice (e.g., programs recommended by EPRI, WB, ABB Group, UK National Grid, etc.) 	<ul style="list-style-type: none"> - Plan approved - No visible dust - Minimum emissions of pollutants and GHGs - 	<ul style="list-style-type: none"> - Development: Moldelectrica or contractor - Implementation: contractor, except Moldelectrica for SF6 requirements 	<ul style="list-style-type: none"> - Plan approval: prior to construction (or substation commissioning, in the case of SF6) - Implementation: throughout relevant phase
14	Develop and implement <i>Plans/Procedures for Noise and EMF Control</i> , to include: <ul style="list-style-type: none"> - Noise and EMF: Monitoring at residences or other sensitive locations upon request of potentially affected parties (either monitoring protocols or arrangements for consultant services) - Noise: Working on weekends or outside daylight hours only after consultation with local authorities and notice to residents - Noise: good-practice mitigation measures (engine maintenance, limits on air brakes, careful dumping, 	<ul style="list-style-type: none"> - Plan for noise: prior to construction - Plan for EMF: prior to OHL and substation commissioning 	<ul style="list-style-type: none"> - Noise protocols: Moldelectrica or contractor - Noise implementation: contractor (construction) & Moldelectrica (operation) - EMF protocols & implementation: 	<ul style="list-style-type: none"> - Noise: prior to construction - EMF: Prior to commissioning of OHL and substations

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
	mufflers on engines, sound barriers, etc.) - Rules for reducing noise and/or EMF in case monitoring shows exceedances of Moldova or international standards (ICNIRP, WHO, WBG EHS Guidelines, etc.)		Moldelectrica	
15	Develop and implement Spill Prevention and Response Plan (separate plans or sections for OHL vs substations, construction vs operation), to include: - Fuel and hazardous materials storage and use in designated locations with impervious surfaces with containment capacity at least 110% of volume stored - Immediate removal from service of equipment and vehicles with evidence of leaking fuel or oil - Spill kit and training in use at all work sites - Containers for contaminated soil and cleanup media	- Plan approved - Spills contained and cleaned up immediately	- Development: PIU or contractor - Implementation: contractor (construction) & Moldelectrica (operations)	- Plan approved: prior to construction - Spill cleanup: immediately - Plan implemented: throughout construction and operation
Health and Safety				
16	Develop and implement Occupational Health and Safety Plan for construction and for operation (separate plans or sections for construction vs operation, OHL vs substations), to include: - Job hazard analysis for all tasks - Defined hazard controls for all tasks, with PPE as last resort - Training programme, including induction training for all workers and visitors, training on safe work practices and conditions for all workers, periodic refresher training, toolbox training	- Approved OHS Plan - Trained workers - 100% PPE use Zero accidents and incidents	- Develop: PIU or contractor - Implement: all parties	- Construction-period plans approved prior to construction - Operations-period plans approved prior to commissioning - Annual reviews and revisions as needed

Table 2. Environmental and Social Management and Monitoring Requirements

<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
	<ul style="list-style-type: none"> - Special training for workers with high-hazard tasks/locations: working at heights, in/near excavations, with electricity, with hazardous materials/wastes, with heavy equipment - Special training for supervisors and foremen, first aiders - PPE requirements for all workers and visitors - Formal and informal safety monitoring of work practices and site conditions - Enforcement of PPE use, work practices, and site conditions - Procedures for responses to accidents with injuries or fatalities - First aid kits and at least one trained first aider at all OHL work sites, kits and at least two first aiders at substation sites - Recordkeeping requirements, including hours worked, near misses, injuries, fatalities, root cause investigation results - Contact information for first responders, hospitals, medical providers, site and corporate managers - Annual reviews and updates of Plan as needed - Regular reporting to project and corporate management, authorities, & Lenders, and immediate reporting of serious injuries and fatalities to Lenders and authorities 			
17	Conduct study of the need for and feasibility of remediation of the area of Vulcănești substation needed	- Contamination defined	Moldelectrica & Ministry of	- Sampling & analysis plan: August 2017

Table 2. Environmental and Social Management and Monitoring Requirements

<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
	<p>for BtB substation to reduce soil and groundwater contamination by PCBs & dioxins to levels safe for workers, to include:</p> <ul style="list-style-type: none"> - Detailed sampling & analysis plan - Field sampling of soil & groundwater - Laboratory analysis - Determination of need for remediation - If remediation required to reduce contamination, identify technical limitations and cost as part of evaluation of the technical and economic feasibility of remediation - Make decision whether BtB substation is to be at Vulcanesti substation or at alternative site shown in ESIA 	<ul style="list-style-type: none"> - Feasibility study completed - Substation location selected 	<p>Environment</p>	<ul style="list-style-type: none"> - Field sampling: September 2017 - Lab analysis & report: October 2017 - Feasibility study & decision: 31 October 2017
<p>18</p>	<p>Develop and implement Emergency Preparedness and Response Plan (separate plans or sections for construction vs operation, OHL vs substations) to include:</p> <ul style="list-style-type: none"> - Identification of types of emergencies and means to reduce probability of occurrence and severity - Organization and identification of response teams - Response procedures (evacuation, management notice, communications, etc.) - Location of firefighting and other emergency response equipment and supplies - Inventory of flammable and hazardous materials - Assessment of vulnerability of towers and substations to flood, wind, fire, and assessment of need to include 	<ul style="list-style-type: none"> - Plan approved - Minimum number of emergencies - Orderly responses to emergencies they occur 	<ul style="list-style-type: none"> - Development: Moldelectrica or contractor - Implementation: contractor (construction) & Moldelectrica (operations) 	<ul style="list-style-type: none"> - Plan approved: prior to relevant phase - Plan implemented: throughout relevant phase

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
	adaptation/resilience measures to designs and/or maintenance procedures - Contact information for police, emergency responders, local/District/national authorities, medical providers/responders			
19	Develop and implement Traffic Management Plan , to include: - Speed limits (and engine controls, as needed) - Minimum driver qualifications - Driver training - Special requirements for oversize and special loads (routes, times, etc., in order to minimize disruption) - Consultations with and notice to authorities and nearest residences before working near populated areas - Contact information for traffic authorities, police, and medical providers/responders - Requirements for warning signs and controls (lights, flagmen, signs) at access points on public roads	- Plan approved by traffic/road authorities - No accidents - Minimal disturbance to normal traffic	- Development: PIU or contractor - Implementation: contractor	- Plan approval: prior to construction - Implementation: throughout construction
20	Develop and implement measures to minimize risk to local communities, to include: - Access controls at all work sites and camps, and at substations (fences, guards, barriers, signs, as needed to control access) - Measures to discourage/prevent climbing on towers - Consultation with local authorities on hazards, materials and training programmes for schools	No uncontrolled access to sites	- Construction: contractor - Operation: Moldelectrica	Throughout construction and operation

Table 2. Environmental and Social Management and Monitoring Requirements				
<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
21	Establish goals for contractor procurement of local firms and services, with rewards for achieving goals	Number of contracts with local firms/services	- PIU	Establish goals: prior to tendering
Land Acquisition, Involuntary Resettlement, and Economic Displacement				
22	Initiate procedure and take the necessary steps to have Project declared as being in the “national interest”.	Project declared in national interest	Ministry of Energy & Moldelectrica	Declaration at least 12 months prior to construction
23	Establish goals for contractor to hire local workers, with priority for affected people, and to provide skills training, and including requirements to report on workforce composition in terms of local vs nonlocal vs expat. Provide rewards/bonus for meeting and exceeding goals.	- Local hires - Increased skills	- PIU to establish goals - Contractor to hire	Goals established: at time of tender requests
24	Appoint qualified expert(s) to prepare and oversee implementation of Land Acquisition and Compensation Plan in accordance with LACF, relevant applicable IFI standards, and Moldovan law, including <i>inter alia</i> : - Census, cadastral work, and other activities needed to identify and value owners and assets - Replacement or compensation for losses at full replacement cost - Compensation for economic displacement for loss of land and use by owners and users, including unauthorized users - Compensation for damage to crops and land, and for livestock death or injury - Compensation audit at completion of land acquisition	- Plan agreed with IFIs - Land acquired - Compensation at replacement cost	- Appointment & compensation: PIU - Plan preparation: external expert - Audit: independent expert	- Full compensation for land and economic displacement prior to construction start - Audit complete: 90 days prior to construction start

Table 2. Environmental and Social Management and Monitoring Requirements

<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
	and compensation - Consultation with affected parties			

Table 2. Environmental and Social Management and Monitoring Requirements				
<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
<i>Biodiversity Conservation and Sustainable Management of Living Natural Resources</i>				
25	Implement recommendations of the May 2017 “Biodiversity Impacts Assessment Report for the LEA Project”, including actions 25a, 25b, 25c, 25d, 25e	- Recommendations implemented, minimal bird disturbance and morality	Construction: contractor Operation: Moldelectrica	As recommended in report unless otherwise specified in actions below
25a	Install and maintain anti-collision bird diversion devices (flappers, reflectors, etc.) on middle 60%+ of conductor spans between towers 01 – 205, 224–230, 268–277; 310-314, 354-355, 357-358, 390-465; 485-482; 508-509. Appoint qualified expert to oversee and approve installation. <i>(Note: tower numbers are based on preliminary design, to be confirmed and modified as needed to ensure devices are placed in the areas of concern.)</i>	- Diverters installed, overseen by expert	- Install: contractor - Maintain/replace: Moldelectrica	- Install: as power lines are suspended from towers - Maintain/replace: throughout construction
25b	Construct towers 01–18 and Vulcănești substation outside the April-July breeding period of Saker falcon (<i>Falco cherrug</i>). <i>(Note: for the substation, construction could occur if timely surveys by qualified experts show no nesting of Saker falcons within 2km of the substation)</i>	- No disturbance of nesting falcons	Contractor	At time of construction of towers 01-18

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
25c	Appoint qualified expert to identify towers where nesting platforms could be placed on towers to support nesting of Saker falcons (<i>Falco cherrug</i>) and other raptors and cranes. Place nesting platforms as recommended	<ul style="list-style-type: none"> - Nesting platforms placed - Successful use of platforms by Saker falcons and other species of concern 	<ul style="list-style-type: none"> - Appoint expert: PIU - Install platforms: contractor 	<ul style="list-style-type: none"> - Identify towers: prior to final approval of design - Install platforms: at time of tower construction
25d	<p>Appoint experts to design and implement a Bird Monitoring Programme for migrating and resident birds during construction period to verify and update findings and conclusions of prior assessment, to include:</p> <ul style="list-style-type: none"> - Monitoring protocols (observation methods, timing and frequency, locations, reporting, etc.) - Surveys during migration and nesting/fledging seasons - Annual reports on annual and cumulative findings, including possible changes in conclusions of prior assessments and recommendations for changes in mitigations. Reports to be reviewed by independent expert approved by Lenders 	<ul style="list-style-type: none"> - Programme developed and implemented - Current understanding of risk confirmed or refined - Additional mitigation defined and implemented, if needed 	<ul style="list-style-type: none"> - Appointment of experts: PIU - Programme development: expert - Programme approved: independent expert - Programme implemented: team of experts - Reviews of results: independent expert - Implementation of changes to mitigations: PIU/ Moldelectrica 	<ul style="list-style-type: none"> - Experts appointed: 90 days prior to construction - Programme developed and approved: prior to construction - Programme implemented: from approval through end of construction
25e	Appoint experts to develop and implement a Post-	- Programme	- Appointment of	- Programme developed

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
	<p>Construction Monitoring Programme to assess bird mortality along OHL route, with priority for diverter-marked spans and IBAs/Emerald sites, to include:</p> <ul style="list-style-type: none"> - Monitoring protocols (methods, timing, locations, reporting, etc.) - Defining adjustments to mortality statistics based on probability of carcass scavenging - Establishing thresholds for determining need for further mitigation/compensation/offsets - Annual reviews and reports of current and cumulative results - As needed, recommendations for changes in mitigation measures (modifications to specific towers, change type or increase numbers of diverters, nesting platforms, offsets, etc.) - Threshold for determining need for continued monitoring in case of uncertainty of conclusions - Programme and reports to be reviewed by independent expert approved by Lender 	<p>developed and implemented</p> <ul style="list-style-type: none"> - Mortality accurately assessed - Additional mitigation defined and implemented as needed 	<p>experts: PIU</p> <ul style="list-style-type: none"> - Programme development: expert - Programme approved: independent expert - Program implemented: expert - Reviews of results: independent expert 	<p>and approved: prior to OHL commissioning</p> <ul style="list-style-type: none"> - Monitoring: During first three years of OHL operation, or until experts determine risk is sufficiently understood and mitigated
26	<p>For towers in forests, Emerald network sites, and IBAs, appoint qualified experts to conduct preconstruction surveys to identify need for limiting construction during certain times, seasons, or areas in order to minimize impact on fauna species of conservation concern (IUCN or Moldova Red List), and whether micro-location of towers is needed to avoid impact on plants of conservation concern (Moldova Red List).</p>	<ul style="list-style-type: none"> - Experts appointed - Surveys conducted - Impacts avoided/minimized 	<ul style="list-style-type: none"> - Appoint: PIU - Surveys: experts - Tower location: PIU & contractor - Changes to construction schedules: contractor 	<p>Conduct surveys within 90 days of construction start for individual towers</p>

Table 2. Environmental and Social Management and Monitoring Requirements

Action no.	Action	Monitoring/ Performance indicators	Entity responsible	Timetable
27	<p>Inform the Lenders on an annual basis, based on annual reports prepared under action 25d and 25e, whether results of monitoring programme (action 25d) and mortality monitoring (action 25e) show likelihood or existence of adverse impacts on Emerald Areas, IBAs, and/or protected species. If impacts are likely or present:</p> <ul style="list-style-type: none"> - Prepare and submit for Lenders' approval a Biodiversity Action Plan (BAP) that meets the requirements of EBRD. - Plan to include site-specific measures (such as moving tower locations, seasonal restrictions on activities at specific locations, enhancements or additions to habitat, etc.) to achieve no net loss/net gain of priority biodiversity features or habitat, as defined in EBRD PR6 (also see EU Habitats and Birds Directives) - Plan to be approved by Lenders and authorities. 	<ul style="list-style-type: none"> - Annual assessments and reports to Lenders - BAP submission in case of impacts 	PIU	As part of annual E&S report submitted to Lenders
28	<p>Develop and implement a Vegetation Management Plan in order to:</p> <ul style="list-style-type: none"> - Minimize O&M tree-cutting within working corridor - Define proper methods for vegetation clearance and tree-cutting as part of right-of-way maintenance, including no use of herbicides - Schedule vegetation maintenance activities to minimize disruption to nesting/breeding fauna - Provide advice to LACP in replacing trees and compensating for loss of income from trees 	<ul style="list-style-type: none"> - Plan developed and approved - Minimal cutting and associated income loss 	<ul style="list-style-type: none"> - Development: PIU - Implementation: PIU 	Plan developed and approved 60 days prior to OHL commissioning

Cultural Heritage

Table 2. Environmental and Social Management and Monitoring Requirements				
<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
29	Appoint qualified/licensed archaeologist to conduct Archaeological Survey as part of process for obtaining relevant permits from Ministry of Culture, submit report to Ministry	<ul style="list-style-type: none"> - Appointment made - Survey completed - Report submitted to Ministry and approved 	PIU	Report approved prior to construction
30	Obtain relevant permits from the National Archeological Agency of the Ministry of Culture.	Permit(s) received	Moldelectrica/PIU	One month prior to construction start
31	Develop and implement Chance Find Procedure , to include <ul style="list-style-type: none"> - Consultations with authorities - Training for foremen in areas of most concern and most probable finds - Training for workers in actions to take in case of finds - Procedures & rules for stopping work, securing discovery, notifying authorities, permitting removals, re-starting work, etc. 	<ul style="list-style-type: none"> - Expert appointed to prepare Procedure - Procedure developed - Procedure approved by Lenders and authorities - Training conducted - No damage to artefacts 	<ul style="list-style-type: none"> - Procedure development: PIU or contractor - Procedure implementation: contractor 	<ul style="list-style-type: none"> - Procedure approved by authorities: 30 days prior to construction - Implementation: throughout construction
Information Disclosure and Stakeholder Engagement				
32	Implement Stakeholder Engagement Plan , review and revise as needed to ensure effective communications with stakeholders	<ul style="list-style-type: none"> - Stakeholder engagement per SEP 	PIU, with support from contractor and consulting engineer	<ul style="list-style-type: none"> - Implement: throughout construction and operation - Review & update: as needed, and prior to

Table 2. Environmental and Social Management and Monitoring Requirements

<i>Action no.</i>	<i>Action</i>	<i>Monitoring/ Performance indicators</i>	<i>Entity responsible</i>	<i>Timetable</i>
				operation
33	Implement <i>Grievance Mechanism</i>	<ul style="list-style-type: none">- Register maintained- Grievances resolved	PIU	Throughout construction and operation