

OSLOMEJ SOLAR POWER PROJECT, MACEDONIA



Non-Technical Summary

November 2018

Table of Contents

1	INTRODUCTION	3
2	PROJECT DESCRIPTION	3
2.1	Summary of Key Components	4
2.2	Rationale of the Project	4
2.3	Project Alternatives	4
3	SUMMARY OF ENVIRONMENTAL AND SOCIAL LEGISLATIVE FRAMEWORK	5
3.1	National Requirements for Environmental Impact Assessment.....	5
3.2	National Requirements for Stakeholder Engagement	5
4	STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE.....	5
4.1	Stakeholders.....	6
4.2	Ongoing Engagement.....	6
4.3	Information Disclosure	7
5	SUMMARY OF ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS, IMPACTS AND MITIGATION MEASURES	7
5.1	Summary of Baseline, Potential Impacts and Mitigation	7
5.1.1	Land Use and Liabilities.....	7
5.1.2	Soil	8
5.1.3	Water.....	8
5.1.4	Air Quality and Air Emissions	8
5.1.5	Noise and Vibration.....	9
5.1.6	Landscape and Visual Impacts.....	9
5.1.7	Biodiversity	9
5.1.8	Climatic and Climate Change	9
5.1.9	Waste Management	10
5.1.10	Community Health, Safety and Security	10
5.1.11	Worker Occupational Health and Safety	10
5.1.12	Transport and Traffic Safety.....	10
5.1.13	Socio-Economic Environment	11
6	ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING	11
7	FURTHER INFORMATION AND CONTACT DETAILS.....	12

1 INTRODUCTION

The European Bank for Reconstruction and Development (the “EBRD” or the “Bank”) is considering providing finance to JSC Macedonian Power Plants (ELEM or the Company) for the development of a 10 MW photovoltaic (PV) plant (the Project) at the existing Oslomej Thermal Power Plant (TPP) site near the town of Kicevo, Macedonia.

ELEM is a state-owned electricity company that currently operates three major thermal power stations with the total installed capacity of 842 MW as well as a number of hydropower plants with the 554 MW total installed capacity and the 38.6 MW Bogdanci wind park, the first wind energy project in Macedonia. The Company currently produces approximately 90% of total electricity production in Macedonia.

The Project will be developed on a former overburden tip within the former lignite mine that will ensure beneficial re-use of the currently unused industrial land. As such, the Project has been categorised a “B” project by EBRD in accordance with the EBRD Environmental and Social Policy (ESP) (2014) and is therefore not subject to an Environmental and Social Impact Assessment; similarly, according to the Macedonian environmental legislation, the Project is small-scale with the potential for minor environmental and social (E&S) impacts and is therefore not subject to an Environmental Impact Assessment (EIA). However, in accordance with the Macedonian Law on the Environment there is a requirement to prepare an EIA Elaborate Report (not a full EIA Study) which includes a limited identification and assessment of E&S impacts and risks. The EIA Elaborate Report for the Project was developed for the Project and approved in July 2018 by the Ministry of Environment and Physical Planning (MoEPP).

This Non-Technical Summary (NTS) provides, in a non-technical language, an overview of the findings of the Environmental and Social Assessment of the Project, by briefly describing the Project, presenting an overview of the key E&S findings and summarising the potential E&S impacts and mitigation measures that need to be applied in order to reduce those impacts. A Stakeholder Engagement Plan (SEP) describing the planned stakeholder engagement activities has been developed for the Project.

2 PROJECT DESCRIPTION

ELEM is planning to develop a 10MW PV plant, adjacent to the existing TPP Oslomej, located approximately 110 km south-west of Skopje, in the vicinity of the village of Oslomej, in the western part of Macedonia. The nearest town is Kicevo situated approximately 7 km south-west (see Figure 1 below). The Project will be developed on a former overburden tip within the former lignite mine that will ensure beneficial re-use of the currently unused industrial land and the electricity produced will be directly sold to the nearby grid.

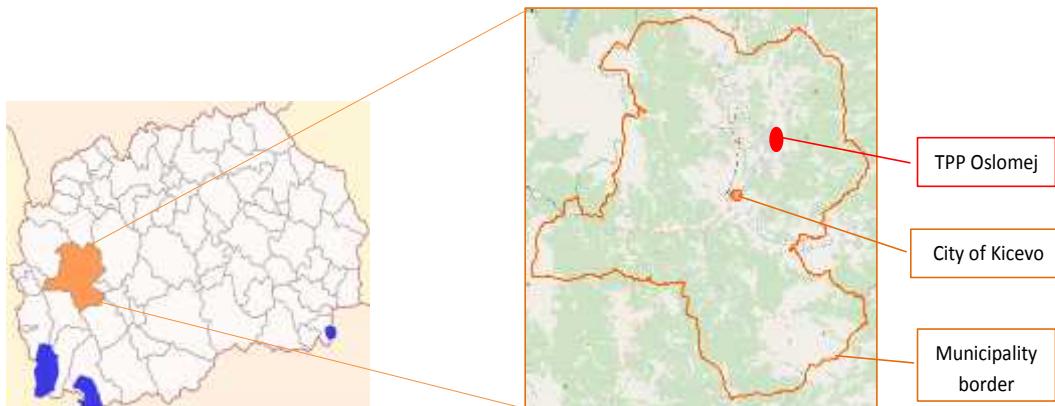


Figure 1: The Project location

The nearest residential communities are Oslomej (approximately 1 km north-west of the Site), Zhubrino (approximately 2 km north-east), Srbica (approximately 2.5 km north-east) and Shutovo (approximately 2 km south-east). The Project general setting with the locations of nearby communities is shown in Figure 2 below.

2.1 Summary of Key Components

The 10MW solar photovoltaic (PV) plant comprises approximately 33,600 PV modules, four inverters, control units, sensors and other supporting equipment. The proposed PV plant will use the existing transmission line and the existing 35 kV substation located at the Oslomej mine site approximately 350 m north of the Site.

2.2 Rationale of the Project

The Project is part of the strategy of ELEM to diversify its production mix away from coal and increase the production share from renewable energy sources which will provide clean energy in a country and a region with serious capacity shortages and high levels of carbon intensity. The implementation of the project will increase the installed capacity of ELEM's production facilities for 10MW and annual electricity production of additional 14,6GWh.

ELEM will conduct its first investment into the PV plant as part of the Company's development strategy in order to:

1. Decarbonise and develop a portfolio of RES (Renewable Energy Sources) projects;
2. Increase electricity production from renewable energy sources;
3. Ensure compliance with the applicable EU Directives.

This Project will support the national efforts to increase the share of renewable energy sources in total electricity production.

2.3 Project Alternatives

Site visits were undertaken on three sites proposed by ELEM for the PV plant development (Figure 2) to undertake an initial qualitative assessment of potential technical and environmental and social issues as part of the selection of the most appropriate site. The sites visited included:

- A mining overburden site;
- A wet fly ash site; and
- A fly ash site.

Based on the assessment of the sites, the mining overburden site (the "Site") was considered to be the preferred site of the three site options for the development of the PV plant and forms the basis of the ESA. The fly ash site is almost inaccessible, and its ground conditions would make construction on it extremely challenging. The site also has known contamination issues. The wet fly ash site is accessible, however there are potential issues with ground stability and contamination and it lies further from the existing electricity network.



Figure 2: The Project Setting and Alternatives

3 SUMMARY OF ENVIRONMENTAL AND SOCIAL LEGISLATIVE FRAMEWORK

3.1 National Requirements for Environmental Impact Assessment

The environmental legal framework is defined by the national Law of the Environment (Official Gazette No. 53/05, 81/05, 24/07, 159/08, 83/2009, 124/2010, 51/2011, 123/12, 93/13, 163/13, 42/14, 44/15, 129/15, 39/16, 99/18).

During the implementation of this Project, ELEM is expected to meet the requirements of relevant national, EBRD Performance requirements and EU environmental principles, practices and substantive standards to ensure environmental protection and community health and safety.

According to the requirements of the Law on the Environment, ELEM has prepared an EIA Elaborate Report (reference number EZS_068_05/18) in May 2018. The Report describes the main project goals, main sub-project activities, photos of the locations where the project activities will be implemented, key environmental impacts from the project implementation and proposed mitigation measures and a monitoring plan for the implementation of the proposed mitigation measures. The EIA Elaborate Report was approved by the MoEPP (Decision on approval of the EIA Report, ref. UP1-11/4-844/2018 dated 17.07.2018).

3.2 National Requirements for Stakeholder Engagement

The Project belongs to the category of activities for which an EIA Elaborate Report should be prepared. For such lower category projects, public disclosure and consultation is not mandatory under the national legislation.

4 STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

The EBRD Performance Requirement 10 (Information Disclosure and Stakeholder Engagement), emphasises the importance of an open and transparent engagement between the project, the local communities directly affected by the project and other stakeholders.

ELEM has developed a corporate social responsibility strategy and adopted the Declaration for Social Responsibility. Under the Declaration, ELEM gives public announcements about project investments. ELEM has

informed the public about the upcoming Project implementation, primarily through statements by the Company's General Manager and sectoral directors in the mass media.

As part of the Environmental and Social assessment of the Project, a SEP has been developed to provide clear and smooth communication between all interested and affected parties. The purpose of the SEP is to enhance stakeholder engagement throughout the life cycle of the Project, and to carry out stakeholder engagement in line with the national laws, as well as the EBRD PRs.

The main objective of the SEP is to improve and facilitate Project-related decision-making process and create opportunities for active involvement of all stakeholders in a timely manner providing their opinions and concerns that may influence the Project implementation. It also defines what information will be disclosed to stakeholders and defines how stakeholders can raise any complaints, concerns or questions regarding the Project.

4.1 Stakeholders

ELEM' s engagement process will be used to obtain comments and suggestions for the development of the Project. The stakeholders identified include:

Community (affected parties);

Employees and non-employee workers (interested parties);

Relevant government authorities, ministries and public institutions (interested parties);

Non-governmental organisations and professional associations (interested parties);

Local and regional authorities (interested parties); and

Financial institutions and private companies (interested parties).

4.2 Ongoing Engagement

ELEM has established mechanisms for communication with the public. The Company has a regularly updated webpage on which it announces news, notifications and reports on current projects. ELEM has profiles on social networks through which it communicates with the public, in addition to press conferences and official press releases.

Even though this is not required by current Macedonian law, ELEM will voluntarily disclose the latest version of the EIA Elaborate Report for the Project on the Company's website. ELEM will carry out public consultations and information dissemination under this SEP that will reflect the project main environmental and social issues/impacts (e.g. noise and traffic safety during the construction phase, employment opportunities, community safety and, visual impacts, etc.) to the Project in the Municipality of Kicevo.

ELEM will schedule and hold at least one public consultation meeting in Kicevo after disclosure of the above listed documents. ELEM will inform all stakeholders about the exact date, time and venue where the meeting will be held, at least 2 weeks ahead of the meeting, through disclosure through the websites of ELEM, local media (newspapers, online news portals) and the bulletin boards of Municipality of Kicevo. The announcement of the public meeting will also be posted in the local communities, in order to specifically target the local residents.

Throughout the life of the Project, stakeholders will be able to provide feedback and receive responses to questions and comments. A formal complaints procedure (also known as a Grievance Procedure) will also be in place to ensure that complaints are addressed in a timely and consistent manner. It will inform all stakeholders for the grievance mechanism by communicating the availability of the grievance registry, the contact persons, its

function and the procedures for submitting a complaint in the affected areas and for receiving a response. The Project Grievance Form and the Public Grievance Leaflet will be placed on ELEM'S website, and also be made available in printed copies in the premises of the ELEM and the communities immediately surrounding the plant location and the Municipality of Kicevo.

4.3 Information Disclosure

The Company intends to disclose the following Project disclosure package:

- EIA Elaborate Report developed in March 2018;
- A SEP;
- Project Grievance Form and Public Grievance Leaflet (see Annex A); and
- Non-Technical Summary (NTS).

The disclosure package will be publicly available in English and Macedonian and the NTS and Project Grievance Form and Public Grievance Leaflet in the three official languages of the Municipality of Kicevo (Macedonian, Albanian and Turkish) immediately upon its finalisation, on ELEM's website: <http://www.elem.com.mk/>

The documents will be disclosed on the website for a period of 30 days prior to holding a public meeting and will remain publicly available throughout the life of the Project. The link to ELEM web site will be ensured where other documents will be held.

In addition, hard copies of the documents will be available at the following locations:

- ELEM Offices in Skopje (11th October Street 9, Skopje 1000)
- Municipality of Kicevo (Boris Kidric No. 1 6250 Kicevo)
- Centre for Development of South-West Planning Region (Partizanska Street, PO Box 27,6330 Struga)
- Community offices at settlements of Zhubrino, Srbica, Oslomej and Shutovo (at least this Non-Technical Summary of the project, Info leaflet and grievance forms)

5 SUMMARY OF ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS, IMPACTS AND MITIGATION MEASURES

5.1 Summary of Baseline, Potential Impacts and Mitigation

A summary of the identified impacts and the planned measures to mitigate such impacts during the construction and operation phase are provided below for each key issue. The baseline conditions are drawn from site visits performed and existing available information.

5.1.1 Land Use and Liabilities

The area around and including the Site has been in use as a lignite mining site and a coal-fired power station since 1980, including the storage, transfer and handling of non-hazardous and hazardous materials. The Site had been used as an overburden tip from the early 1980s until early 2000s. The overburden originates from nearby activities to mine lignite for TPP Oslomej. The Site is owned by TPP Oslomej and is currently zoned as industrial land.

Under the current Macedonian law, the TPP Oslomej as the mining licence holder is liable for any historical and current soil and groundwater contamination found at the project Site. However, TPP Oslomej can be released from its reclamation obligations regarding the Site if appropriate reinstatement measures are taken at the Site. This is

allowed by the current mining legislation, provided that a Waste Management Plan covering closure and reinstatement of any waste storage areas is developed. ELEM has requested a written confirmation from the relevant authorities clarifying mine reinstatement requirements and documentation needs (i.e. if a waste management plan is required). Depending on the response the Company has confirmed that it will develop a Waste Management Plan for the Oslomej mine. The plan will also cover the proposed PV plant and provide for the rehabilitation measures to be undertaken at the Site.

During the site visit, Ramboll did not observe any visible signs of current or historical contamination. No significant contamination was identified at the selected PV site that would require further action.

There will be no land acquisition as part of the Project. No issues regarding presence of any informal land use within or in the vicinity of the Site.

The current use of the Site is not considered to pose a significant risk with regards to ground contamination. However, localised contamination at the Site cannot be ruled out. In this case, the potential negative impacts are hence considered to be **local** and **insignificant**. The expected beneficial re-use of former industrial land is considered as a positive impact. Remediation programme would be developed to address the identified impacts If a contamination is found.

5.1.2 Soil

The quality of soil at the Site is not known, given the absence of any environmental site investigations. During the site visit, the entire area of the Site was unsurfaced and covered with vegetation. The soil across the Site was observed to be predominantly clayey with the addition of rock material.

The Project Activities will have a **moderate negative local-level** impact on soils throughout the life-cycle of the Project. A comprehensive drainage management plan should be provided that includes detailed description of temporary drainage arrangements, erosion control and silt capture measures and other treatment measures necessary to comply with the national legislation and GIIP.

5.1.3 Water

The nearest major surface water body is the Lake Oslomej located approximately 3 km south of the Site. There are minor ponds and wetlands adjacent to the Site from the south-east. Due to the elevated terrain, the Site is not prone to flooding. No groundwater abstraction wells are located within 500 m of the Site.

The Project has the potential for a **significant negative** impact on surface water as a result of the removal of both waterbodies for the PV plant development. The Project is not expected to consume large volumes of water or generate a significant volume of wastewater at the operations phase. In order to minimise impacts upon the waterbodies on site, efforts should be made for the larger water body to be retained and avoided by the works (where practical) to construct the solar PV plant, where practical

5.1.4 Air Quality and Air Emissions

The Project Site is undeveloped and does not currently have any stationery air emission sources. The main air emissions generated at the Site largely include some fugitive emissions from vehicles, including fugitive dust emissions caused by the movement of vehicles over unsurfaced ground.

Insignificant and local air emissions are expected at the construction phase. The Project is expected to generate negligible volumes of air emissions at the operations phase.

5.1.5 Noise and Vibration

The current noise at the Site is mainly generated by the operating construction machinery carrying out levelling activities. Given the scale of the current levelling works and the distance to the nearby communities (over 1 km from the Site), the current noise levels are not significant.

Noise impacts at the construction phase has the potential to be **local and insignificant**. No noise or vibration impacts are expected during the operations of the Project. Proposed anti-glare coating on the PV panels will further reduce any potential impacts. Where possible, the orientation of the panels should consider the potential for reflection towards settlements.

5.1.6 Landscape and Visual Impacts

Settlements with views to the proposed development are generally located on the hill slopes to the north east and south of the Site, at distances of greater than 2 km. Views from these settlements currently extend across a landscape which is extensively influenced by human activity, such as TPP Oslomej along with associated overburden/spoil and ash ponds.

The development of the PV plant is unlikely to affect the quality or character of the view from the neighbouring settlements; however, the reflection of the sun may cause a notable change in the view during certain times of the day. Given the distance from the Site to the receptors, this is considered **unlikely to be significant**.

5.1.7 Biodiversity

The Site is not considered to be a critical habitat for any species. None of the habitat types or features identified onsite is considered to constitute as a priority biodiversity feature. There are two wetlands onsite, including a large waterbody partially covered by tall emergent vegetation, with the depth of the water body being approximately 1 m. The dominant habitat type for the Site is a wildflower rich grassland. One large area and a number of smaller stands of woodland occurs onsite. The woodland is dominated by willow and poplar species. The Site supports a variety of habitat types which have established themselves naturally since deposition of the overburden material. There is one critically endangered insect species (Macedonian grayling *Pseudochazara cingovski*) and two endangered insect species (big-bellied glandular bush cricket *Bradyporus macrogaster* and *Dasypoda frieseana* (unnamed bee species)), known to be present in the vicinity of the Site but were not encountered on the site itself at the time of the site visit.

The removal of the vegetated habitats onsite will have potential for **negative** impacts only significant at a **local** level. For construction phase – avoidance of Key Habitat Features, the construction area should be minimised as far as possible allowing for areas of habitat outside it to be retained and areas used only temporarily should be reinstated. For operational phase - excessive vegetation growth/weeds should be removed manually/mechanically rather than by herbicides and all areas of the retained/reinstated grassland should be cut once a year in autumn and the cuttings removed.

5.1.8 Climatic and Climate Change

Direct Project greenhouse gas emissions will be **negligible** and in any case are not expected to be more than 25,000 tonnes of CO₂-equivalent annually. The Project is expected to displace approximately 12,500 tonnes of CO₂ annually that would have been generated from fossil fuel power generation: this is considered a **positive** impact of regional level.

5.1.9 Waste Management

There is no waste storage or handling (other than the storage of overburden material which is considered as an inert non-hazardous waste) currently present at the Site. Waste currently generated on-site is sourced from construction machinery and vegetation clearance activities and is being handled offsite at the TPP Oslomej.

The waste assessment considered potential impacts arising from the management of waste generated by the Project. Wastes produced by the Project activities are considered to be **insignificant** and **local**, given the type and volume of wastes generated. During the operational phase, waste is expected to be generated from end-of-life disposal of PV panel waste and defective/spent spare parts.

5.1.10 Community Health, Safety and Security

There is currently no security fence around the Site. The TPP Oslomej management reported that there have been zero trespassing incidents for the past few years. No unauthorised people or animals were observed during the Site visit.

The Project has the potential for a **significant negative** impact on the community health and safety through the potential for electric shock or arc flash impacts unless an adequate security fence and entrance controls are installed. Adequate security fence and entrance controls for the PV site should be installed.

5.1.11 Worker Occupational Health and Safety

Small-scale site levelling works were observed during the site visit. Those are undertaken by the TPP Oslomej personnel using the TPP's construction machinery. The Project will operate under ELEM's current H&S management system. The Company undertakes limited environmental, health and safety oversight of contractor activities.

The worker OHS assessment considers the potential OHS risks for contractors/ subcontractor personnel. The Project has the potential for **significant negative** OHS risks for contractor/subcontractor personnel, particularly at the construction phase. Mitigation measures to increase the workers safety include the development of a Health and Safety Management Plan for the construction phase based on GIP and increase supervision of contractors. Extend a grievance mechanism for employees to contractor and subcontractor personnel.

5.1.12 Transport and Traffic Safety

Traffic safety provisions within the area surrounding the Site, particularly the access road to the Site, are poor and in need of improvement. ELEM is aware of this and is planning to address issues including access to the Site, designated walkways/roadways and road signs.

There are no sensitive sites (e.g. schools, hospitals, etc) located in the vicinity of the Site. As far as the Company is aware, there are no future plans for the construction of such sensitive sites in the immediate vicinity of the Project Area.

The Project is expected to upgrade the local road network within the TPP Oslomej site that will have a **positive** impact of **local** nature. During the construction phase, there may be the potential for a **negative significant** impact of **local** nature caused by vehicles and construction machinery. For transport and traffic safety at the Site, most appropriate mitigation measures to be implemented include provision of appropriate training to Project personnel on driving and vehicle safety, identification of road safety measures and the incorporation of these components into associated aspects of the Project design where applicable. A Traffic Risk Assessment will be undertaken to identify, evaluate and monitor the potential traffic and road safety risks to potentially affected communities throughout the Project life cycle. A Traffic Management Plan will be developed for the construction phase.

5.1.13 Socio-Economic Environment

There are no residential communities in the immediate vicinity of the Site. The three nearest residential communities, Zhubrino (approximately 2 km north-east), Srbica (approximately 2.5 km north-east) and Shutovo (approximately 2 km south-east). These communities are located on the surrounding hills overlooking the Site from the north and south and represent permanent residential housing with large gardens.

The local economy is predominantly agricultural. Based on the 2007 Census of Agriculture, the Kicevo municipality had 5,649 individual agricultural holdings that used 81,7% of total agricultural land within the municipality. Cattle breeding is the main type of farming activities. The other significant sectors are the services (including retail, hotels, restaurants, etc) and food and textile sectors.

As the rest of Macedonia, Kicevo has been undergoing a painful process of de-industrialisation. A quarter of its socialist era enterprises were liquidated, with over half of the industrial jobs gone by the beginning of the 2000s. The private sector is mainly a realm of family-run shops and cafés, with a small construction sector heavily dependent on public work contracts.

There were no publicly available recent employment data for the region.

The Project is expected to employ part of the current staff at TPP Oslomej (approximately 30 workers) at the operations phase. This is considered as a **positive** impact of **regional** nature.

6 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING

Environmental and social monitoring will be implemented both during construction and operation of the Project. Some of the monitoring measures and activities that need to be implemented in the construction and operational phase are as follows:

- *Land Use and Liabilities* - Monitoring during construction for the discovery of any unknown contamination and appropriate management of any material encountered
- Soil – Monitoring of soil erosion and inclusion in the drainage management plan. Those will include, but not limited, to the monitoring of cleared areas for erosion problems following major rainfall events, monitoring of vegetation clearance activities near sensitive areas (e.g. wetlands), etc.
- Biodiversity – Completion of an annual vegetation survey of the restored grassland habitats during July for the first three years following reinstatement in order to monitor the effectiveness of the habitat reinstatement/enhancement. Community Health, Safety and Security - Identify, evaluate and monitor the potential traffic and road safety risks to potentially affected communities throughout the Project life cycle.
- Worker Occupational Health and Safety – increase of supervision of contractors. Monitoring of OHS performance via the commonly established metrics (LTIFR, etc) should be undertaken to take timely measures to address the issues and deficiencies (to be also included in the construction phase Health and Safety Management Plan).
- Transport and Traffic Safety – Installation of an adequate security fence and entrance controls for the Site.
- Stakeholder Engagement Practices - The relevant monitoring parameters should include engagement activities held; issues and concerns raised and responded; number of type of grievances and timeframe for response

All negative impacts post mitigation are expected to be negligible.

7 FURTHER INFORMATION AND CONTACT DETAILS

The disclosure package will be publicly available in Macedonian and Albanian language (as well as English where available) immediately upon its availability, on the website of the Company ELEM www.elem.com.mk.

Any comments or concerns can be directed to the PIU verbally (personally or by telephone) or in writing by filling in the Project Grievance Form (to be posted by personal delivery, post, fax or e-mail to the address/number given below), without any costs incurred to the complainant. Grievances in any time can be submitted anonymously or without the use of the form if preferred.

At all times, complainants may seek other legal avenues in accordance with the legal framework of FYR Macedonia, including formal judicial appeal.

Contact details for the Project are:

Contact information for enquiries and grievances:

Attention: Office of General Manager

JS Company "Macedonian Power Plants"

Address: Str. 11.October 9, 1000 Skopje

Tel: + 389 2 3149 121

E-mail: contact@elem.com.mk