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SOLENTEGRE SOLAR POWER PLANT

ENVIRONMENTAL MANAGEMENT PLAN



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SEPTEMBER 2015

ANKARA



SOLENTEGRE SOLAR POWER PLANT ENVIRONMENTAL MANAGEMENT PLAN

Project No: 106.07.01

September 2015

REVİZYON LOGU

REVISION LOG

		<u>Revizyon Numarası</u> Revision Number		
		0	1	2
<u>Tarih</u> Date		01.09.2015		
<u>Rapor Adı</u> Report Title	Solentegre Solar Power Plant Environmental Management Plan			
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ABBREVIATIONS

%	Percentage
AC	Alternating Current
dBA	Decibel A-weighting
DC	Direct Current
EAC	Emergency Action Coordinator
EAP	Emergency Preparedness/Action Plan
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMRA	Energy Market Regulatory Authority
EP	Equator Principles
EPFIs	Equator Principles Financial Institutions
ESMS	Environmental and Social Management System
Ha	Hectare
IFC	International Finance Corporation
kWe	Kilowatt electric
kWh	kilowatt-hour
kWp	Kilowatt peak
L	liter
Leq	equivalent continuous sound level
m²	Meter square
m³	Meter cube
Mm	millimetres
MoEU	Ministry of Environment and Urbanization
MW	Megawatt
MWe	Megawatt electric
RAMEN	Regulation on Assessment and Management of Environmental Noise
RCIAP	Regulation on Control of Industrial Air Pollution
Sec	Second
Solentegre Enerji	SOLENTGRE Enerji Yatırımları Ticaret A.Ş.
SPP	Solar Power Plant
TÜİK	Türkiye İstatistik Kurumu (Turkish Statistical Institute)

1 PURPOSE AND SCOPE

The Environmental Management Plan (EMP) for Solentegre Solar Power Plant (SPP) Project consists of specific actions which would enable the Project to meet all of its objectives and targets for environmental management and monitoring. The EMP will also be utilized as a tool to comply with national and international legislation and standards during the implementation of the Project. The EMP provides mitigation measures defined for each possible environmental impact as well as monitoring activities. Throughout the EMP, the responsibilities for each specific action are allocated to Project owner, subcontractors and related Project personnel.

The management plans which presented within this EMP are aim specifically to provide the followings:

- Information on environmental responsibilities of Solentegre Enerji Yatırımları Ticaret A.Ş. (Solentegre Enerji) and their subcontractors;
- A list of procedures for environmental management of the Project that Solentegre Enerji is committed to. The procedures are outlined to prevent or minimize potential adverse impacts on the environment due to Project activities;
- An outline of the environmental policy and framework, including national and international legislation regarding environmental protection, under which the Project will operate;
- The monitoring and reporting activities through which the effectiveness of the management plans will be assessed.

The EMP is planned to provide a list of specific management/mitigation measures, targets and responsibilities for construction and operation phases of the Project. Procedures provided within this EMP are open for update, whenever there is a need to improve the performance of the Project and further mitigate any potential impacts.

The following chapters outline the regulatory background for environmental management, organizations that will be responsible for the implementation of this EMP, specifications of the Project as well as its location (the area of influence) and schedule for construction and operation, mitigation plans for the construction and operation periods for the main environmental issues, monitoring plan, emergency action plan, requirements for institutional arrangements, consultation with stakeholders and finally the public relations plan.

2 ENVIRONMENTAL POLICY AND LEGAL FRAMEWORK

2.1 National Legislations

Turkish environmental legislation has been established according to national standards and regulations. Some of these regulations have been revised recently to be aligned with EU Directives because of Turkey's candidate membership of EU.

Ministry of Environment and Urbanization (MoEU) is responsible in adaptation of environmental protection and conservation policies, implementation of sustainable development and provision and management of natural resources.

Turkish Environmental Law, numbered 2872, came into force in 1983 (amended with the Law dated April 26, 2006 and number 5491) and the Law addresses environmental issues in a broader sense. According to the basic principles governing the implementation of the Environmental Law and as stated in the Constitution the citizens are responsible for the protection of the environment as the government. As well as Environmental Law and related regulations, as a complementary, other laws also organize the protection and control of environment, implementation of pollution prevention techniques and issues related to labor health and safety. Some of these laws are as follows:

- Environmental Law No. 2872 (11 August 1983 dated and 2872 numbered Official Gazette)
- Occupational Health and Safety Law No. 6331 (30 June 2012 dated and 28339 numbered Official Gazette)
- Labor Law No. 4857 (10 June 2003 dated and 25134 numbered Official Gazette)
- Social Insurance and General Health Insurance Law No. 5510 (16 June 2006 dated and 26200 numbered Official Gazette)
- Public Health Law No. 1593 (6 May 1930 dated and 1489 numbered Official Gazette)

Activities envisaged and relevant management plans to be implemented under the project will be in compliance with Turkish environmental regulations. A detailed list of the relevant regulations is as follows:

- Environmental Impact Assessment Regulation (Official Gazette No: 29186 dated 25 November 2014)
- Environmental Auditing Regulation (Official Gazette No: 27061 dated 21 November 2008)
- Regulation on the Control of Waste Batteries and Accumulators (Official Gazette No: 25569 dated 31 August 2004)
- Packaging Waste Control Regulation (Official Gazette No. 28035 dated 24 August 2011).
- Regulation Concerning Environmental Land-use Plans (Official Gazette No. 27051 dated 11 November 2008).

- Regulation on Environmental Permission and License (Official Gazette No. 29115 dated 10 September 2014).
- Regulation on Assessment and Management of Environmental Noise (Official Gazette No. 27601 dated 4 June 2010).
- Exhaust Gas Emission Control Regulation (Official Gazette No. 28837 dated 30 November 2013).
- Waste Oil Control Regulation (Official Gazette No. 26952 dated 30 July 2008).
- Regulation on Control of Waste Vegetable Oil (Official Gazette No. 25791 dated 19 April 2005).
- Excavation Soil, Construction and Demolition Waste Control Regulation (Official Gazette No. 25406 dated 18 March 2004).
- Regulation on Assessment and Management of Air Quality (Official Gazette No. 26898 on 6 June 2008).
- Regulation on Waste Management (Official Gazette No. 29314 dated 14 April 2015).
- Regulation on Control of End of Life Tires (Official Gazette No. 26357 dated 25 November 2006).
- Regulation on the Control of Industrial Air Pollution (Official Gazette No. 27277 dated 3 July 2009).
- Water Pollution Control Regulation (Official Gazette No. 25687 dated 31 December 2004).
- Regulation on Surface Water Quality Management (Official Gazette No. 28483 dated 30 November 2012).
- Regulation on the Quality of Surface Waters Used and Planned to be Used for Drinking Water (Official Gazette No. 28338 dated 29 June 2012).
- Hazardous Waste Control Regulation (Official Gazette No. 25755 dated 14 March 2005).
- Regulation on the Control of Hazardous Materials Causing Pollution in Aquatic Environment (Official Gazette No. 26005 dated 26 November 2005).
- Regulation on the Control of Medical Wastes (Official Gazette No. 25883 dated 22 July 2005).
- Regulation on Management of Soil Contamination and Contaminated Land with Point Source (Official Gazette No. 27605 dated 8 June 2010).
- Regulation on Water Intended for Human Consumption (Official Gazette No. 25730 dated 17 February 2005).
- Regulation on Ambient Noise Emission by Equipment Used Outdoor (Reprinted Official Gazette No. 2639230 dated 30 December 2006).

- Regulation on Starting Up and and Operating a Workplace (Official Gazette No. 25902 dated 10 August 2005).
- Regulation on Occupational Health and Safety (Official Gazette No. 25311 of 9 December 2003).
- Regulation on Protection of Workers from Risks related to Noise (Official Gazette No. 28721 dated 28 July 2013).
- Regulation on the Protection of Groundwater against Pollution and Deterioration (Official Gazette No. 28257 dated April 7, 2012).
- Regulation on Vocational Education of Employee to Work in Dangerous and Very Dangerous Jobs (Official Gazette No. 28706 dated 13 July 2013).
- Regulation on Procedures and Principles of Education of Employee on Occupational Health and Safety (Official Gazette No. 28648 dated 15 May 2013).
- Regulation on Manual Lifting Works (Official Gazette No. 28717 dated 24 July 2013).
- Regulation on Health and Safety Signs (Official Gazette No. 28762 dated 11 September 2013).
- Regulation on the Use of Personal Protective Equipment at Work Places (Official Gazette No. 28695 dated 2 July 2013).
- Regulation on Health and Safety Requirements in the Use of Work Equipment (Official Gazette No. 28628 dated 25 April 2013).
- Communiqué on Hazard Classes List related to Occupational Health and Safety (Official Gazette No. 28509 dated 26 December 2012).
- Ordinance on Measures to Be Taken in Workplaces Working with Flammable, Explosive, Dangerous and Hazardous Substances (Official Gazette No. 14752 dated 24 December 1973).
- Regulation on the Protection of Workers from the Dangers of Explosive Environments (Official Gazette No. 28633 dated 30 April 2013).
- First Aid Regulation (Official Gazette No. 24762 dated May 22, 2002).
- Regulation on Employment Protection against the Risks Associated with Vibration (Official Gazette No. 28743 dated 22 August 2013).
- Major Industrial Accident Prevention and Mitigation Regulation (Official Gazette No. 28867 dated 30 December 2013).
- Regulation of Buildings to be constructed in Seismic Zone (Official Gazette No. 26454 dated 6 March 2007).
- Regulation about Construction in Disaster Zones (Official Gazette No. 26582 dated 14 July 2007).

- Regulation on Control of Polychlorinated Biphenyl and Polychlorinated Terphenyls (Official Gazette No. 26739 dated 27 December 2007).
- Regulation on Reduction of Ozone Depleting Substances (Official Gazette No. 27052, dated 12 November 2008).
- Regulation on the Protection of Buildings from Fire (Official Gazette No. 26735, dated 19 December 2007).

Solentegre Enerji is committed to comply with the requirements of current national legislations and codes of practice, and fulfils all other legal requirements. Therefore, during each stage of the planned Project and the implementation of related management plans, all activities will be carried out in line with standards and limits set by the above mentioned laws and regulations.

2.2 International Requirements

In addition to the national legislation, the Environmental Management Plan (EMP) for Solentegre SPP Project has been prepared to form a basis for specifying the environmental provisions to ensure that the construction and operation of the Project will be carried out in an environmentally sound manner in accordance with the international standards. In this regard, requirements of the World Bank Safeguard Policies, as well as the requirements of the International Finance Corporation (IFC) Performance Standards (2012) and Equator Principles (2013), which will be followed during implementation of the EMP, are provided below.

The objectives of the World Bank (WB) Safeguard Policies briefly are:

- To protect people and environment from adverse impacts
- To enhance social equity and promote environmental sustainability
- To reduce and manage risks for the Client and for the WB
- To respond to a world-wide constituency

The WB Safeguard Policies (10+1) are:

Environmental Policies

- OP 4.01 Environmental Assessment
- OP 4.04 Natural Habitats
- OP 4.09 Pest Management
- OP 4.36 Forests
- OP 4.37 Safety of Dams

Social Policies

- OP 4.10 Indigenous Peoples
- OP 4.11 Physical Cultural Resources

- OP 4.12 Involuntary Resettlement

Legal Policies

- OP 7.50 International Waterways
- OP 7.60 Disputed Areas

BP 17.50 Bank Disclosure Policy

Operational Policies (OP) are concise statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank. Whereas, Bank Procedures (BP) are mandatory procedures to be followed by the Borrower and the Bank

The objectives of the WB Environmental and Social Safeguard Policies are as follows:

OP 4.01: Environmental Assessment

- To help ensure the environmental and social soundness and sustainability of investment projects.
- To support integration of environmental and social aspects of projects into the decision making process.

OP 4.04: Natural Habitats

- To promote environmentally sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions.

OP 4.09: Pest Management

- To minimize and manage the environmental and health risks associated with pesticide use and promote and support safe, effective, and environmentally sound pest management.

OP 4.12: Involuntary Resettlement

- To avoid or minimize involuntary resettlement and, where this is not feasible, to assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

OP 4.10: Indigenous Peoples

- To design and implement projects in a way that fosters full respect for Indigenous Peoples' dignity, human rights, and cultural uniqueness and so that they: (a) receive culturally compatible social and economic benefits; and (b) do not suffer adverse effects during the development process.

OP 4.36: Forests

- To realize the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests.

OP 4.11: Physical Cultural Resources

- To assist in preserving physical cultural resources and avoiding their destruction or damage. Physical Cultural Resources includes resources of archaeological, paleontological, historical, architectural, and religious (including graveyards and burial sites), aesthetic, or other cultural significance.

OP 4.37: Safety of Dams

- To assure quality and safety in the design and construction of new dams and the rehabilitation of existing dams, and in carrying out activities that may be affected by an existing dam.

International Finance Corporation (IFC) applies the Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in the member countries eligible for financing. The Performance Standards may also be applied by other financial institutions electing to apply them to projects in emerging markets.

The following eight Performance Standards establish the requirements that the client has to meet throughout the life of an investment supported by IFC or other relevant financial institution using these Standards:

Performance Standard 1	Assessment and Management of Environmental and Social Risks and Impacts
Performance Standard 2	Labour and Working Conditions
Performance Standard 3	Resource Efficiency and Pollution Prevention
Performance Standard 4	Community Health, Safety and Security
Performance Standard 5	Land Acquisition and Involuntary Resettlement
Performance Standard 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources
Performance Standard 7	Indigenous Peoples
Performance Standard 8	Cultural Heritage

Performance Standard 1 establishes the importance of: (i) integrated assessment to identify the social and environmental impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project.

The objectives of Performance Standard 1 are as follows:

- To identify and evaluate environmental and social risks and impacts of the project,
- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and where residual impacts remain, compensate/offset risks and impacts to workers, Affected Communities, and the environment,
- To promote improved environmental and social performance of clients through the effective use of management systems,

- To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately,
- To promote and provide means for adequate engagement with Affected Communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.

Performance Standards 2 through 8 establish objectives and requirements to avoid, minimize, and where residual impacts remain, to compensate/offset for risks and impacts to workers, Affected Communities, and the environment. While all relevant environmental and social risks and potential impacts should be considered as part of the assessment, Performance Standards 2 through 8 describes potential environmental and social risks and impacts that require particular attention. Where environmental or social risks and impacts are identified, the client is required to manage them through its Environmental and Social Management System (ESMS) consistent with Performance Standard 1.

The Equator Principles is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. The Equator Principles Financial Institutions (EPFIs) have adopted 10 Principles to ensure that the projects financed are developed in a manner that is socially responsible and reflect sound environmental management practices.

The environmental and social categorisation process of the International Finance Corporation (IFC) is used. Using categorisation, the EPFI's environmental and social due diligence is commensurate with the nature, scale and stage of the Project, and with the level of environmental and social risks and impacts. For all Category A and Category B Projects, the EPFI will require the client to conduct an Assessment process to address, to the EPFI's satisfaction, the relevant environmental and social risks and impacts of the proposed Project. The Assessment Documentation should propose measures to minimise, mitigate, and offset adverse impacts in a manner relevant and appropriate to the nature and scale of the proposed Project.

The principles adopted by the EPFIs (commercial banks/financial institutions) are as follows:

Principle 1	Review and Categorization
Principle 2	Environmental and Social Assessment
Principle 3	Applicable Environmental and Social Standards
Principle 4	Environmental and Social Management System and Equator Principles Action Plan
Principle 5	Stakeholder Engagement
Principle 6	Grievance Mechanism
Principle 7	Independent Review
Principle 8	Covenants
Principle 9	Independent Monitoring and Reporting
Principle 10	Reporting and Transparency

2.3 International Agreements

Turkish national policy on protection of cultural heritage and conservation of biological resources has also been constituted on the base of relevant international agreements that Turkey is a party to, which have been ratified or acceded by laws or relevant legislation.

In addition to these, there are various laws and regulations on protection and conservation of natural habitats, wildlife and cultural heritage. The international agreements and conventions on cultural heritage and biological conservation that Turkey had ratified are:

- Bern Convention on Protection of Europe's Wild Life and Living Environment (acceded by the Decision of the Council of Ministers dated 9 January 1984 and published in the Official Gazette dated 20 February 1984 and no. 18318);
- Ramsar Convention on Wetlands of International Importance Especially as Wildfowl Habitat (acceded by the Decision of the Council of Ministers dated 15 March 1994 and published in the Official Gazette dated 17 May 1994 and no. 21937);
- Convention on the Protection of the World Cultural and Natural Heritage (acceded by Law no. 2658 published in the Official Gazette dated 4 February 1983 and no. 17959);
- Convention to Combat Desertification (acceded by the Decision of the Council of Ministers dated 3 May 1990 and published in the Official Gazette dated 24 June 1990 and no. 20558);
- Convention on International Trade in Endangered Species of Wild Flora and Fauna (acceded by Law no. 4041 and published in the Official Gazette dated 20 June 1996 and no. 22672);
- UN (Rio) Convention on Biological Diversity (ratified by Law no. 4177 published in the Official Gazette dated 27 December 1996 and no. 22860);
- European Convention on the Protection of the Archaeological Heritage (1999).

3 ORGANIZATONS AND AGENCIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN

The Solentegre Enerji who is the owner of the Project is the key organization for the implementation of the EMP. Additionally, during different phases of the Project, other parties (construction sub-contractor(s), Provincial Directorate of Environment and Urbanization, etc.) will be responsible for some of the issues specified in the subjected EMP, however the coordination of those parties will still be under the responsibility of Solentegre Enerji. The mitigation and monitoring tables presented in this EMP summarize the principle roles and responsibilities appointed to specific organizations and agencies for management of a particular issue.

It is recommended that the tender dossiers for the construction should include environmental obligations the constructor(s) has to fulfil. These consist of:

- EMP specifications,
- Environmental and health and safety related obligations, which additionally may arise as a part of any necessary permit (from e.g. Ministry of Environment and Urbanization, Ministry of Health, etc.) and
- Other environmental considerations, which may arise in the meantime.

4 PROJECT DESCRIPTION

4.1 Scope of the Project and Conducted Environmental Studies

The energy sector is vital for the development strategies of Countries. Due to the growing economy of Turkey and young population, the energy demand of Turkey is increasing continually. Energy generation thorough the use of fossil fuels requires external dependence while it is possible to utilize local resources that are environmentally-friendly to generate substantial amounts of electricity. It is of utmost importance to utilize the existing renewable energy resources. By means of local energy generation plants especially renewable resourced ones, Turkey is increasing its energy supply to contribute its energy demand. In contrast to non-renewable fossil fuel sources, natural resources like solar, wind and geothermal energy are not only renewable but also clean sources of energy.

The Solar Power is a new sector in Turkey. The solar power systems do not produce any emissions, no discharge of wastewater which can impact the environment negatively and do not need any raw material input. With no input of materials and no operational waste, SPPs are an environmentally-friendly option. Moreover, it is possible through the SPPs and other renewable energy options to reduce external dependence for energy.

Turkey is in an advantageous position since the sunshine duration is exceedingly long. As can be seen from the map in Figure 4-1 which shows the Solar Energy Potential of Turkey prepared by General Directorate of Renewable Energy of Turkey, the Elazığ Province annual average solar radiation is 1,600-1,650 kWh/m². Hence a solar energy establishment in Elazığ Province where the Solentegre SPP will be installed is highly feasible.

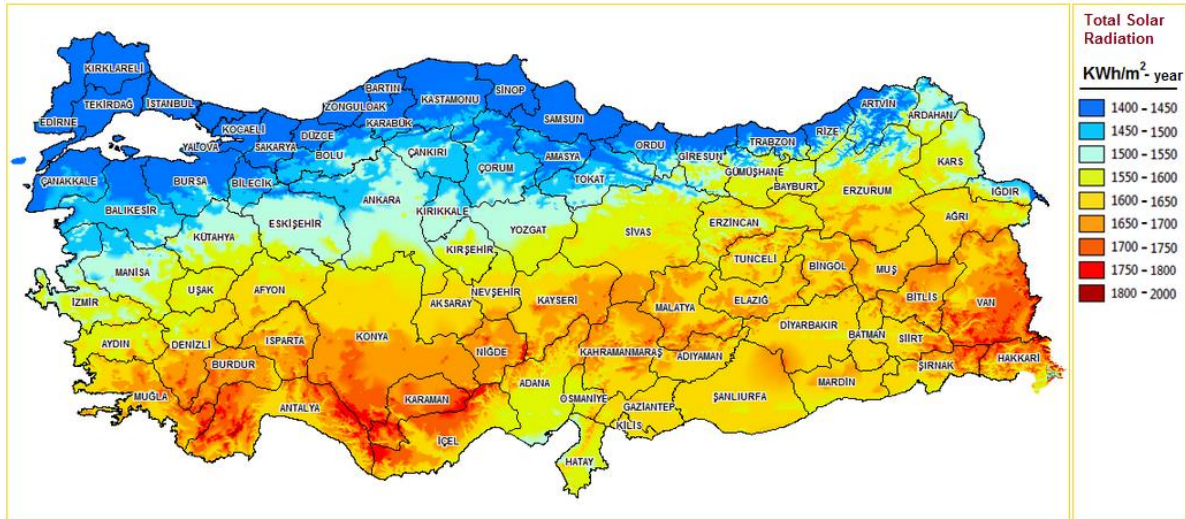


Figure 4-1 Solar Energy Potential Map of Turkey

Source: www.eie.gov.tr

Considering the increasing energy demand in Turkey and the advantages of solar power, Solentegre Enerji set forward Solentegre SPP Project in order to utilize the solar power potential of the region to generate electricity through a local, cheaper, reliable and more environmentally- friendly resource.

Solentegre SPP Project is planned to be in Elazığ Province, Center District, Şahinkaya Village, Holoşnut Locality. The Project is planned to have 8 MW (licensed) installed capacity with 14,000,000 kWh annual electricity production and 0.5 MW (unlicensed) installed capacity with 875,000 kWh by means of fixing the solar panels to ground with the optimized angle. The Solentegre SPP will have a total 8.5 MW installed capacity with 14,875,000 kWh total electricity production.

The site location map of Project Site is given in Figure 4-2.

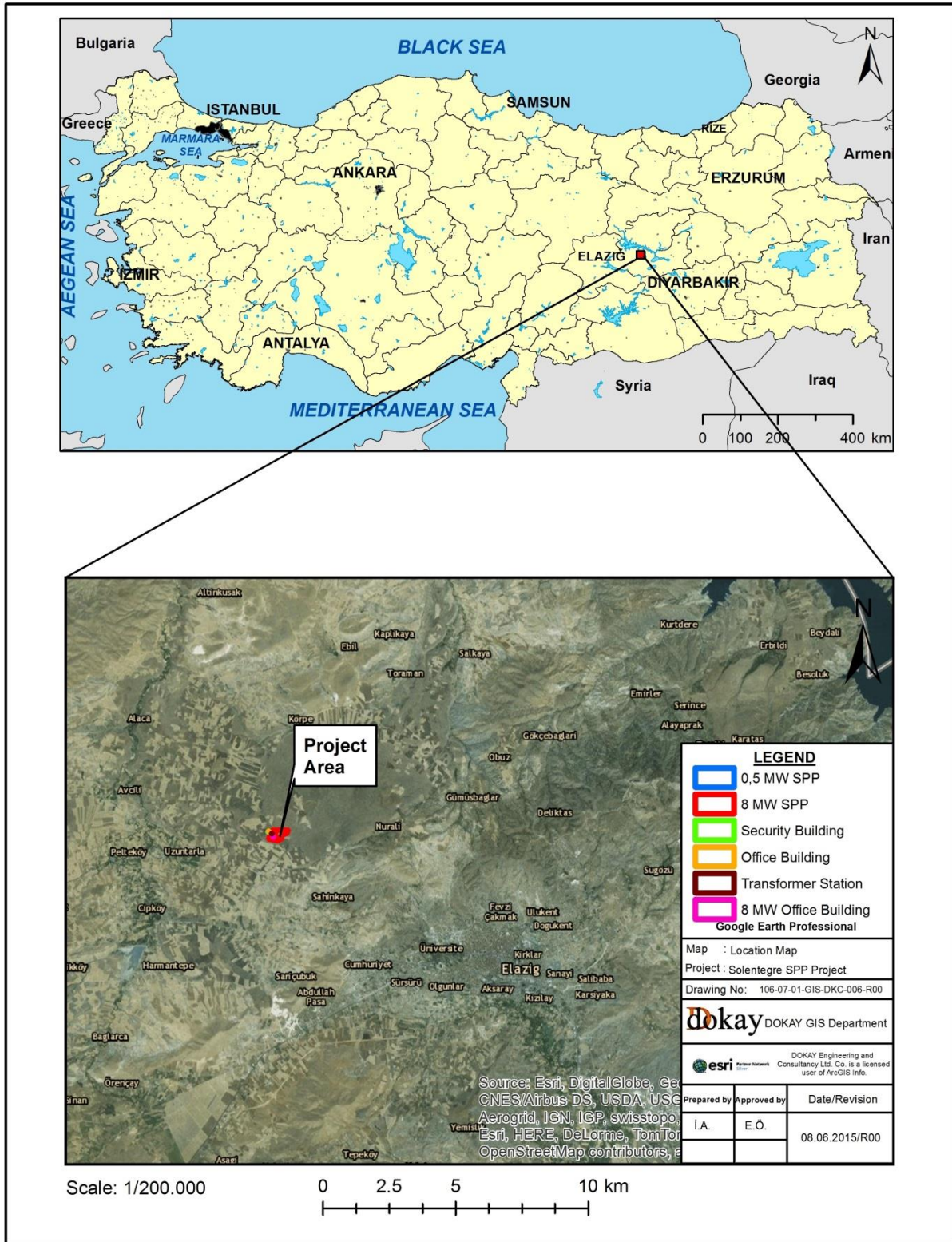


Figure 4-2 Site Location Map of Project Site

The topographical map of Project Site is given as Annex 1.

The satellite image of Project Site is given as Annex 2.

The starting date of the construction activities is foreseen as September 2015 and the construction period will be last for 4-5 months. The operation period will be 49 years as per Electricity Generation License.

The Project cost is estimated as 24,602,610 TL.

An Electricity Transmission Line will be established from Solentegre SPP Switch Yard to Hankendi Transformer Station. The ETL to be established will be low voltage with 34.5 kV and consists of 8.2 km overhead ETL and additional 1.7 km underground cable.

The nearest settlement at the vicinity is the houses of Şahinkaya Village at 1.6 km south east direction and the centre of Şahinkaya Village is 2.4 km to Project Site. The map showing the nearest settlements is given as Annex 3.

The Project Introductory File for the proposed Project was conducted in line with the Turkish Environmental Impact Assessment Regulation published in the Official Gazette dated 25.11.2014 and numbered 29186. The "EIA Exemption Decision" was obtained after the approval of Project Introductory File by Elazığ Provincial Directorate of Environment and Urbanization. The Decision was given as Annex 4.

4.2 Location of the Project Site

Solentegre SPP Project is planned to be in Elazığ Province, Center District, Şahinkaya Village, Holoşnut Locality on Block 110, Layout 19-28-29 with 8 MW (licensed) and on Layout 31 with 0.5 MW (unlicensed) installed capacity.

The total area of licensed SPP is 159,629.12 m². Within the area, an office building will be located on 24 m².

The total area of unlicensed SPP is 9,700 m² and within the area, 90 m² office/construction building, 6 m² security building and 9 m² transformer station will be located.

The geographical coordinates of the Project Site are tabulated at the table below.

Table 4-1 Coordinates of the Project Site

8 MW Licensed SPP (Datum: WGS-84)		
No	Latitude	Longitude
K1	38,7164802	39,1245556
K2	38,7164731	39,1310341
K3	38,7156946	39,1308735
K4	38,7151649	39,1292399
K5	38,7142768	39,1278532
K6	38,7136699	39,1283059
K7	38,7130018	39,1267666
K8	38,7134917	39,1230140
K9	38,7135670	39,1230332
K10	38,7136448	39,1230934
K11	38,7138362	39,1229571
K12	38,7140318	39,1230663
K13	38,7145541	39,1233367

K14	38,7147600	39,1234773
K15	38,7147341	39,1235914
K16	38,7150109	39,1234401
K17	38,7151173	39,1233277
K18	38,7150339	39,1238900
K19	38,7149565	39,1238059
K20	38,7146222	39,1255409
K21	38,7148014	39,1256036
K22	38,7153823	39,1256239
K23	38,7154878	39,1246442
Office Building		
B1	38,7280673	39,1246284
B2	38,7280672	39,1247205
B3	38,7280401	39,1247204
B4	38,7280402	39,1246283

0.5 MW Unlicensed SPP		
No	Latitude	Longitude
K17	38,7151174	39,1233277
K24	38,7158699	39,1225340
K25	38,7162067	39,1227881
K26	38,7156522	39,1233703
K27	38,7158567	39,1236940
K28	38,7155130	39,1244102
K18	38,7150339	39,1238900
K19	38,7149565	39,1238059
K16	38,7150109	39,1234401
Office Building		
O1	38,7161186	39,1227798
O2	38,7161536	39,1228323
O3	38,7160506	39,1229441
O4	38,7160156	39,1228916

Switch Yard		
T1	38,7292030	39,1240323
T2	38,7292029	39,1240669
T3	38,7291759	39,1240668
T4	38,7291760	39,1240323

Security Building		
G1	38,7160085	39,1226443
G2	38,7159974	39,1226693
G3	38,7159778	39,1226552
G4	38,7159888	39,1226302

4.3 Project Schedule

The starting date of the construction activities is foreseen as September 2015 and the construction period will be last for 4-5 months. The operation period will be 49 years as per Electricity Generation License.

4.4 Project Units and Characteristics

There are 8 MW/MWe licensed SPP and 0.5 MW/MWe unlicensed SPP within the scope of the proposed Project.

The 8 MW/MWe licensed SPP has 35,200 crystalline photovoltaic panels (PV) and 8 central invertors with a power of 1,000 kW. The expected annual electricity production is 14,000,000 kWh.

The 0.5 MW/MWe unlicensed SPP has 2,200 crystalline photovoltaic panels (PV) and 25 central invertors with a power of 20 kW. The expected annual electricity production is 875,000 kWh.

The pre-license obtained from EMRA for the proposed Project is given as Annex 5.

The total annual electricity production is expected to be 14,875,000 kWh/year.

The capacity information of Solentegre SPP is presented in Table 4-2.

Table 4-2 Capacity Information of Solentegre SPP

		Number of	Detail
8 MW Licensed	Panel	35,200	250 W
	Inventor	8	1,000 kW
	Total Installed Capacity DC	-	8,800 kWp
	Total Installed Capacity AC	-	8,000 kWe (8 MWe)
	Total Area of Panel	1	1,638 m ²
	Total Area of Panels	35,200	57,657.6 m ²
	Annual Electricity Generation	-	14,000,000 kW
0.5 MW Unlicensed	Panel	2,200	250 W
	Inventor	25	20 kW
	Total Installed Capacity DC	-	550 kWp
	Total Installed Capacity AC	-	500 kWe (0.5 MWe)
	Total Area of Panel	1	1,638 m ²
	Total Area of Panels	2,200	3,603.6 m ²
	Annual Electricity Generation	-	875,000 kWh

The solar panel electricity systems, also known as solar photovoltaics (PV), capture the sun's energy using photovoltaic cells. These cells don't need direct sunlight to work – they can still generate some electricity on a cloudy day.

PV cells are made from layers of semi-conducting material, usually silicon. When light shines on the cell it creates an electric field across the layers. The stronger the sunshine, the more electricity is produced. Groups of cells are mounted together in panels or modules.

The power of a PV cell is measured in kilowatts peak (kWp). That's the rate at which it generates energy at peak performance in full direct sunlight during the summer.

An inverter is used to convert direct current (DC) to alternating current (AC) which is appropriate to be feed to the grid.

In order to fix the PV panels to ground with constant angle and not to be affected by rain, snow and other weather conditions, aluminium and concrete holders are used.

The Figure 4-3 shows an example of PV panels and holders.



Figure 4-3 PV Panels and Holders

Other equipment that is required for the Project is cables and breakers. For monitoring the system, some electronic circuits are needed to be established.

For 8 MW licensed plant 8 km cable, 1 set of medium voltage (MV) cell and a monitoring system, for 0.5 MW unlicensed plant 1 km cable, 1 set of medium voltage (MV) cell and a monitoring system is required.

An Electricity Transmission Line will be established from Solentegre SPP Switch Yard to Hankendi Transformer Station. The ETL to be established will be low voltage with 34.5 kV and consists of 8.2 km overhead ETL and additional 1.7 km underground cable.

4.5 Geological Characteristics of the Project Area

4.5.1 Geology of the Project Area

A Geological and Geotechnical Survey Report was prepared for the basis of Project Site including ten drillings to define the structure.

In the Project Area and its vicinity, basalts belonging to Elazığ Magmatites (granite rocks) formed at Cenozoic period constitute the main units. At the upper part of the rocks hollowed, broken fractured and low strength basalt and at the deeper less hollowed and more massive basalt structure is determined.

There is no inconformity at the Project Site, on the contrary at the centre of Elazığ Province where is inconformity between Keban Metamorphite and Kırkgeçit Formation and between Kırkgeçit Formation and Karabakır Formation.

There is not folded and faulted structure at the Project Site.

The permeability of soil is not seen due to the rocky structure of ground.

The Geological Map of Project Site is given as Annex 6.

4.5.2 Structural Geology and Seismicity

The “Seismicity Map of Turkey” published by Ministry of Public Works (1996); investigation area remains within the boundaries of “Second Degree Seismic Zone”.

Elazığ Province Seismicity Map and the Project Site is given in the following figure.

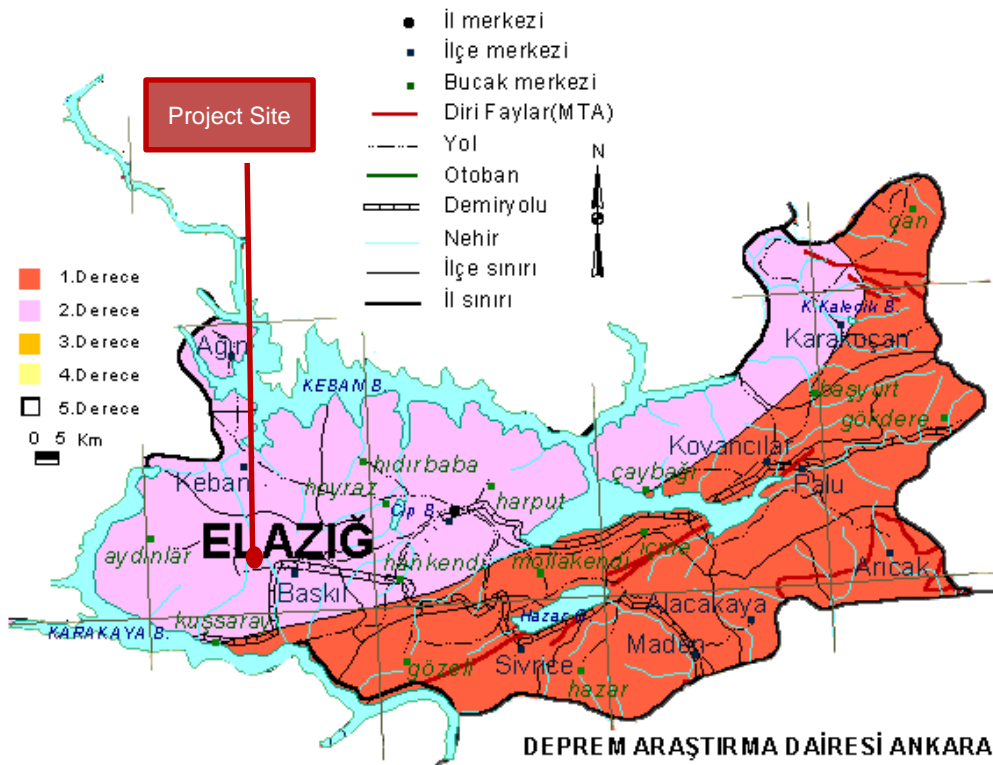


Figure 4-4 Elazığ Province Seismicity Map

Within the scope of Geological and Geotechnical Survey earthquake probability assessments was carried out. The former earthquakes between 1900 and 2011 at the area with a 100 km radius considering the Project Site as centre were listed. In this respect it was obtained that the buildings is required to be done in line with the relevant preventive requirements.

On the other hand, as the nature of the Project, there will be no building, only solar panels will be established on aluminium holders which are not able to be affected by an earthquake.

Besides, the office building will have only one floor and will be built in line with the relevant requirement.

All national and international legislations will be complied with during the establishment of panels and one floored office buildings.

In addition to that, active or non-active landslide is not seen at the Project Site and its vicinity.

4.6 Land Use

The total area of licensed SPP is 159,629.12 m². Within the area, an office building will be located on 24 m².

The total area of unlicensed SPP is 9,700 m² and within the area, 90 m² office/construction building, 6 m² security building and 9 m² transformer station will be located.

Table 4-3 Land Use Information

	Layout	Owner	Deed Area (m ²)	Area to be Used (m ²)
8 MW Licensed SPP	28-29	Treasury Land	32,000-9,800	29,875.86
	19	Pasture Land (now Treasury Land after required application)*	402,270.97	129,753.26
			Total	159,629.12
0.5 MW Unlicensed SPP	31	Personal Ownership of Project Owner	9,700	9,700

The Pasture Land within the Layout 19 was lost its “Pasture” property. During the Project Site visit, presence of musk thistle was observed by the expert biologist at the Project Site. On the other hand, the Pasture Land covers a wide area aside from the Layout 19. Therefore, negative impact on husbandry is not expected.

In order to change the attribute of the Pasture Land, Project Owner made an application to the Provincial Directorate of Food, Agriculture and Livestock. After the official procedures, attribute of the “Pasture Land” was changed to “Treasury Land”. The approval letter, relating to the subject, of Elazığ Governorate Provincial Directorate of Food, Agriculture and Livestock is given in Annex 7. After the attribute change of the Land, Project Owner will rent the Land from the Treasury.

In Turkey, power plants are defined as public welfare projects and are able to use Treasury Land by renting from government until the end of duration of the Electricity Generation License.

4.7 Protected Areas

The Project Site does not fall within a protected area; Natural Parks, Natural Monuments, Nature Conservation Areas, Cultural and Natural Heritage, Archaeological Site according to National Legislations. Considering International Agreements; Cultural and Natural Heritage under the provision of Convention on the Protection of the World Cultural and Natural Heritage, protected areas regarding Ramsar Convention on Wetlands are not presented at the Project Site.

The closest protected area is Munzur Valley National Park at 55 km northeast. The map of Protected Areas at the nearest can be shown in Annex 8.

4.8 Water Resources

The Project Site and its surrounding area do not include a significant surface water resource. The nearest surface water is presented in Annex 3 -the map showing the surface waters with distances to Project Site-.

A Geological-Geotechnical Report was prepared for the Project Site. The number of geotechnical drillings conducted within the scope of the Report were ten with a depth of 5-7 m. No ground level water was encountered at the mentioned depths.

There will be no discharges into any receiving environment within the scope of the Project. Thus, the water resources will be protected and there will be no interference with the existing water systems. Besides, no water resources will be used during construction and operation period.

4.9 Flora and Fauna Species

A detailed literature survey and direct observation were conducted during the assessments of Project Introductory File.

The number of floral species identified with this assessment is 73. As a result of the study, endemic floral species were not found in the region where Project will be established. Besides, the floral species within the scope of International Union for Conservation of Nature IUCN at the vicinity were investigated. At the Project Site, there is no floral species defined in the IUCN Red List of Threatened Species. None of the species at the Project Site is protected under the provisions of the Bern Convention.

The threat statuses of fauna species were evaluated within the scope Project Introductory File in line with IUCN Red List, Bern Convention and endemism condition. The number of mammals defines at the region is 13. Eleven of them are listed as Least Concern (LC) according to IUCN Red List of Threatened Species. None of them is protected under the provisions of the Bern Convention and no endemism was estimated for those species.

Five amphibians are listed; none of them is endemic and listed as Least Concern (LC) by the IUCN Red List of Threatened Species. The amphibian species are protected under the provisions of the Bern Convention. Three of them are listed in Appendix-II (Strictly protected fauna species) and two of them are listed in Appendix-III (Protected fauna species) of the same Convention.

Amongst the 12 reptile species identified; no endemism was found, two of them are listed as Least Concern (LC) and one of them is listed as Endangered (EN) and one of them is listed as Vulnerable (VU) according to the IUCN Red List. Six of them are listed in Appendix-II (Strictly protected fauna species) and other six are listed in Appendix-III (Protected fauna species) of Bern Convention.

The 44 bird species are listed at the survey results. When the threat statuses of the bird species identified within the Project Area were evaluated, it was found out that all of them are protected under the provisions of the Bern Convention (listed either under Appendix-II (Strictly protected fauna species) or Appendix-III (Protected fauna species) of the Convention). The 43 bird species are listed as Least Concern (LC) by the IUCN Red List of Threatened Species and one of them is listed as Endangered (EN).

4.10 Socio-Economic Structure

4.10.1 Population of Project-Affected Settlements

Solentegre SPP Project is planned to be in Elazığ Province, Center District, Şahinkaya Village, Holoşnut Locality. The nearest Village to Project Site is Şahinkaya Village which is at 2.4 km south east and Körpınar Neighbouring of Şahinkaya Village is at 2.1 km south east. As per the address-based census of the year 2014 by Turkish Statistical Institute, the population of Şahinkaya Village is given in the following table.

Table 4-4 Population of Şahinkaya Village (2014)

	Total	Men	Women
Elazığ Province	568,753	281,583	287,170
Center District	351,504	173,594	177,910
Şahinkaya Village	1,577	591	986

Resource: Turkish Statistical Institute, 2014

Due to Project, any increase in population is not expected. The priority to hire local workforce will be given depending upon the technical capability.

4.10.2 Economic Characteristics

The economical character of Elazığ is based on agriculture and commerce. After the Keban Dam, most of the agricultural lands were submerged. In this sense the commerce has been developing parallel to developments of Elazığ. Gross income of Elazığ is obtained 30% industry, 25% agriculture and 10% commerce.

The agricultural lands are productive. Grains, legume, fruits and vegetable are generally produced. Furthermore, animal husbandry is major income of villagers at highlands.

The local people of Şahinkaya Village works at centre of Elazığ since the Village is close to Elazığ. Some of them continue their agricultural and husbandry activities.

5 MITIGATION PLAN

5.1 Construction Period

5.1.1 Landscaping and Top Soil Utilization

Within the scope of the Project, no excavation is needed due to the plain structure of Project Site. There are no surface features, trees or vegetation that may affect the PV Panels assembly.

The PV panels will be positioned on a thin layer of concrete on the soil. First the top soil will be scraped in order to eliminate the risk of gliding due to that top soil, and then concrete will be poured on the ground. After that the panels will be positioned by means of aluminium piers. The top soil will be utilized for landscaping purposes at the Project Site.

5.1.2 Air Quality

Since no soil excavation, dust emission will not compose. The exhaust emissions of vehicles used for construction will have an effect on air quality. The number of vehicles is only 4 and which are a truck and a crab for transportation and lifting of panels, regarding to the soil structure a pile driver or a boring machine to position the steel construction on which panels will be fixed.

There will also be pollutants generated by exhaust gas emissions of the construction vehicles like carbon monoxide, hydrocarbons, nitrogen oxides and sulphur oxides. Pollutant concentrations anticipated to be generated due to use of construction vehicles were calculated to be lower than the emission limit values set by the Regulation on Control of Industrial Air Pollution. Therefore, such emissions are not expected to have any adverse impacts on ambient air quality.

There will be no blasting operation to be performed at the Project Site.

Emission Control Plan defines prevention methods will be implemented to control dust resulting from construction related activities as;

- The exhaust emission of vehicles will be checked periodically for amount of emission and its concentrations as per Regulation on the Control of Exhaust Emissions and Diesel Quality
- High quality, clean and legal fuel will be utilized to minimize gas emissions from construction machinery and vehicles.
- Modern equipment and vehicles will be selected and used for construction such that they will comply with the relevant emission standards.
- The machinery and vehicles will be inspected with regard to their exhaust systems and emission levels and adjusted to comply with relevant local and international requirements, and to protect the health of the workers.

- Besides, the maximum velocity of the vehicles travelling on non-asphalt roads will be limited to 30 km/hour in order to minimize the possible dust formation on the roads.

5.1.3 Noise

During the construction phase of Solentegre SPP, the noise will be generated by the construction vehicles and equipment. For the construction there are a truck and a crab for transportation and lifting of panels, regarding to the soil structure a pile driver or a boring machine to position the steel construction on which panels will be fixed.

The noise levels of those vehicles and equipment is given in Table 5-1.

Table 5-1 Noise Levels of Vehicles and Equipment Used in Construction Period

Vehicle/Equipment	Noise Level (dBA)
Truck	85
Crap	102
Pile driver/Boring machine	107

Noise modelling studies were carried out for the worst case scenario assuming that all construction machinery will be operated all day long at the same location simultaneously. The resulting noise levels expected at different locations have been calculated as given in Table 5-2.

Table 5-2 Noise Level During Construction by Distance

Distance to Source (m)	Lp (dBA)
10	84.6
70	67.7
90	65.5
100	64.6
200	58.5
300	55.0
400	52.5
500	50.6
600	49.0
1000	44.6
1200	43.0
1400	41.6
1600	40.5
1800	39.5
2000	38.5

As is seen from Table 5-2 that considering the nearest settlement of Şahinkaya Village to the Project Site is located 1.6 km away, the noise level will be less than both the limit value set by the Regulation on the Assessment and Management of Environmental Noise (Official Gazette date: June 4, 2010, No: 27601) which is 70 dBA and the limit value of 55 dBA set by the IFC General EHS Guidelines.

Noise Control Plan will be implemented including following mitigation and control measures;

- All construction activities will be planned and performed to minimise noise generation.
- Appropriate protective equipment against noise (e.g. ear mufflers, earplugs) will be provided for the workers.
- Construction work will only be carried out during the day time and will not be allowed in the evening or at night.
- Equipment will be selected with consideration to noise emissions. In this respect, new construction equipment and vehicles will comply with the provisions of international standards and the Turkish regulations.
- All workers will be trained and instructed to reduce the noise emissions at the site.
- Wherever possible the deliveries of materials would be programmed to arrive during daytime hours.
- Vehicles will be routed such that disturbance to local residents would be minimized.
- Delivery vehicles would be prohibited from waiting within the site with their engines running.

5.1.4 Water Quality and Water Use

Water to be consumed by the Project personnel during the construction and operation phases of the Project will be provided by tankers. For both phases of the Project, drinking water needs of the Project personnel will be bought as bottled water.

During the construction and operation phases of the Project, groundwater will not be used by any means. If deemed necessary, water will be used for dust suppression activities during the construction phase of the Project. There will not be any process water use during the operation of the Project.

There will be 80 people working on site during the construction phase leading to a total of 12 m³/day of water consumption (assuming a unit consumption rate of 0.150 m³/person-day). All this water is assumed to be converted to domestic wastewater.

The domestic wastewater generated at the construction site will be stored in an impermeable septic tank in line with the provisions of the Regulation on Pit Openings Where Sewer System Construction is not Applicable (Official Gazette date: March 19, 1971, No: 13783) and emptied regularly by Elazığ Municipality. There will be no discharge into any receiving environment.

5.1.5 Waste Management

The solid wastes expected to be generated during the construction phase of the Project can be listed as:

- Construction waste
- Domestic solid waste
- Medical wastes

- Waste oils
- Waste tires

Waste to be generated within the construction site will be managed in accordance with the Regulation on Waste Management (Official Gazette; Date: April 2, 2015, No: 29314), and other related legislation where applicable.

Solid Waste Management Plan composes of relevant mitigation measures;

- Wastes will be systematically collected and all types of waste will be separated for proper handling and disposal. Recyclable wastes (such as glass, paper, plastic, etc.) will be collected separately to be sent to license recycling facilities. Separate waste containers (drums, bins, skips or bags) will be provided for different types of waste.
- Transportation of waste will be carried out in closed vehicles specially designed for this purpose so as not to cause any kind of pollution.
- No waste will be disposed of or buried on site. Illegal dumping, either at the construction camp, along public roads or in the surrounding areas, or into the surface waters will not be allowed.
- It will be ensured that construction camp sites and surroundings are kept clean at all times.
- Domestic type solid wastes will be collected and disposed properly by Municipality to the designated disposal site after agreement with the municipality. If not possible, Project owner or the authorized construction firm will bring the domestic solid waste to nearest Municipality's containers for disposal. The transportation requires care in order not to litter waste around and proper containers should be used during transportation.
- Reusable wastes like accumulators, machinery parts, scrap metal, and waste tires will be sent to licensed companies for recycle.
- Medical wastes generated at the construction site will be collected at impermeable specially designed medical waste bags and transported to licensed companies via "Medical Waste Transport Vehicles" for their final disposal.
- Waste oils to be generated during maintenance of construction vehicles and machinery will be managed appropriately and no waste oil will be discharged into any receiving environment. During oil change and maintenance of construction machinery and transport vehicles, all provisions of the Regulation on Control of Hazardous Waste will be complied with.
- Construction workers will be instructed for proper storage and handling procedures of construction waste and other solid wastes.
- There will not be any hazardous waste generated within the scope of proposed Project.

5.1.6 Habitat and Wildlife Management

Natural habitats and wildlife species within the Project Site and its surroundings will be managed in accordance with national and international laws and regulations.

It should be noted that the management of natural habitats and wildlife species is closely related to the management of other resources within the Project Area. Management of secondary impacts on the biological environment, like noise, dust, wastewater, solid waste, etc. will also be affecting natural habitats and wildlife species. Therefore, other management plans also apply to the management of the impacts on the biological environment.

Wildlife Management Plan is stated for terrestrial flora and terrestrial fauna respectively;

Terrestrial Flora

The major impact on terrestrial flora species appears as the degradation of landscape, loss of topsoil, land and vegetation at construction sites. Indeed, the terrestrial flora at the Project Site was lost its natural character. The land that was used for pasturing does not have any valuable vegetation for husbandry. The area have not been used for pasturing for long time since nearby the Village, there are areas with same properties.

Even though, in order to minimize the impacts of the Project, prior to the start of construction activities, it is necessary to carefully remove the topsoil and store it in a manner that it would preserve its properties to be used for landscaping in the future.

The secondary impact on terrestrial flora can be mitigated through implementation of the above-mentioned mitigation measures in regard to control of generation of noise, dust, wastewater, solid waste, and etc.

Terrestrial Fauna

The major impacts of the Project on terrestrial fauna elements during the construction phase can be listed as:

- Loss and fragmentation of habitats;
- Disturbance of sites of higher faunal sensitivity;
- Destruction of shelters and nests of certain animals;
- Illegal hunting activities;
- Mortality of animals during construction.

In order to avoid any unnecessary disturbance of wildlife during the construction phase, the following will be prohibited for fauna species, which constitute the mitigation measures specified in Article 6 of the Bern Convention:

- All forms of deliberate capture and keeping and deliberate killing;
- Deliberate damage to or destruction of breeding or resting sites;

- Deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of the Bern Convention;
- Deliberate destruction or taking of eggs from the wild or keeping these eggs even if empty;
- Possession of and internal trade in these animals, alive or dead, including stuffed animals and any readily recognizable part or derivative thereof, where this would contribute to the effectiveness of the provisions of this article.

The following legislative measures/restrictions will also be followed in accordance with Article 7 of the Bern Convention:

- Closed seasons and/or procedures regulating the exploitation; temporary or local prohibition of exploitation, as appropriate, in order to restore satisfactory population levels;
- Sale, keeping for sale, transport for sale or offering for sale of live and dead wild animals.

In order to avoid any unnecessary disturbance to wildlife during the construction phase:

- Movement of machinery and workers will be limited to the designated construction sites and camp facilities.
- The construction sites will be secured by temporary fencing to prevent entrance of animals into the construction sites and thus mortality due to construction activities.
- Unnecessary traffic outside the designated routes within the Project Area will be minimized in order to prevent mortality of animals.
- In order to prevent secondary impacts of the Project on terrestrial fauna elements, generation of noise, dust, wastewater and solid waste will be managed in accordance with the plans mentioned above.

5.1.7 Socio-Economy

The implementation of the Project is not expected to cause any problem regarding the public health and the environment. The traffic flow will arise from the transportation of solar panel. Such impacts and possible traffic accidents, will be prevented or minimized through measures such as the training of the personnel, placing traffic signs and limiting the maximum speed of vehicles. Moreover conducting periodical maintenance and controls of such vehicles will be performed.

5.1.8 Cultural and Historical Assets

There are no recorded archaeological, historical and cultural assets within the vicinity of the Project Area, in line with the provisions of the Law on Protection of Cultural and Natural Assets.

A **Chance Find Procedure** will be established to provide guidelines for the appropriate and prompt response to the discovery of either disturbed or intact archaeological materials during the construction phase which is as follows;

If any archaeological finding during site activities is encountered, the construction will be stopped immediately. Construction manager will be informed about. The manager will be responsible to make the best effort to protect the discovery area. The site manager will make sure that the photograph of the discovery area is taken and if necessary the discovery area will be surrounded by fence or barriers. The site manager will contact the Provincial Directorate of Culture and Tourism for further guidance. Initial contact will be made via a phone call to describe the incident. An officially written application enclosed with the photograph will be made to the Directorate afterwards. No further works will take place until go-ahead is provided by the Provincial Directorate of Culture and Tourism.

5.1.9 Health and Safety

In accordance with the related Turkish Legislation and international standards, the Health and Safety Management Plan will be conducted. The other environmental management procedures will be included in the Plan.

Health and Safety Management Plan

- Occupational health and safety measures will be implemented according to the Labour Law of Turkey and the requirements of international standards and will be communicated to all employees before commencement, during the construction and operation phases.
- An on-site medical facility will be designed for the construction phase to cater for primary health care needs of personnel.
- Workers will be selected from the workforce and will be given additional training in occupational health and first aid. These workers will be under the supervision of the person responsible for occupational health and safety.
- Personal protective equipment for workers will be provided, when necessary, to minimize health and safety risks.
- Appropriate health and safety signs such as “Danger”, “Entrance Prohibited”, etc. will be placed in proper places.

The following fire management measures will be taken in order to minimize the risk of fire and to ensure that incidents are effectively managed,

- All necessary precautions will be taken to ensure that fires are not started as a result of construction activities on site. Uncontrolled fires will not be permitted on or off site.
- Smoking will not be permitted in those areas where there is a fire hazard.

- All necessary precautions will be taken to prevent fires or spills at the construction sites. It will be ensured that there is adequate and appropriate fire-fighting equipment at the construction sites.
- All equipment will be maintained in good operating order.
- It will be ensured that all sub-contractors and construction workers are aware of the procedures to be followed in the event of a fire.
- Emergency teams (fire, first aid, communication and rescue) will be appointed who will be responsible for ensuring immediate and appropriate actions in the event of a fire.

5.1.10 Environmental Coordination

The coordination is the rule of thumb for implementation of those plans mentioned above for impact mitigation.

The Project owner will coordinate with related agencies by the assigned coordinators and monitor environmental and social issues. National environmental regulations and international standards will be complied with at all times. If required, professional consultation will be acquired for this purpose.

Within the scope of environmental coordination efforts for the construction phase of the Project, environmental training will be given to construction workers.

All employees will be required to comply with environmental protection procedures and they will attend the training sessions, for which attendance sheets or certificates will be kept.

The goal of the basic environmental training program will be to train all construction workers on:

- Reinstatement and landscaping
- Emissions and dust control
- Noise control
- Wastewater and waste management
- Wildlife management
- Health and safety
- Fire protection
- Traffic management
- General information on the environment in which they will be working

Penalties for those who violate the rules will be established.

Methods for conducting the training program will include formal training sessions, posters, and signs in construction and camp areas.

Construction camp facilities will satisfy the following provisions:

- Suitable wastewater and solid waste collection and disposal means will be provided to serve construction sites.
- Construction sites will consist of appropriate facilities for all workers accommodated within the camps.
- Medical and first aid facilities will be provided at the construction campsite.
- The camps will have an adequate supply of potable water in compliance with relevant Turkish Legislation.
- Ventilation of buildings within the camp areas will be provided in accordance with relevant Turkish legislation.
- Site layouts will be prepared for construction sites for informative purposes.
- Effective erosion control measures during construction of the construction sites will be implemented.

An on-site traffic and access management plan will be prepared during the construction phase including the following issues:

- Detailed plans to be prepared for putting signs around the construction areas to facilitate traffic movement (to provide directions to various components of the construction works, and to provide safety advice and warnings).
- Parking for all classes of vehicles traversing the site.
- Plans to be followed while moving special loads, such as hazardous material, or heavy loads.
- Monitoring means and methods of enforcing the requirements of the traffic management plan.
- Plans for controlling site access, including both construction areas and construction camp facilities.
- Personnel authorized to enter the construction areas will be briefed on traffic regulations applicable to the construction areas.

“Environmental Site Manager” will be designated on duty during the construction phase of the Project, who will be full-time available for environmental coordination including implementation of mitigation measures and monitoring activities. The main responsibilities of the environmental site manager will be listed below;

- Supervising the proper fulfilment of all environmental measures as set out in this EMP or which may further be added as the case maybe
- Delivering environmental education and awareness programs to construction staff prior to and during on-site works.

- Providing technical assistance on environmental matters to construction staff and government auditing officers.
- Inspecting all activities during construction to ensure compliance with terms and conditions of approvals and permits.
- Carrying out monitoring activities as required.
- Preparing reports at regular frequencies which summarize activities and actions taken, and submitting these reports to the appropriate organizations.
- Ensuring that necessary spill emergency action is taken.
- Supervising implementation of general good environmental practice.
- Liaison with regulatory government agencies as required.
- Communicating with local population and responding to any complaints that may arise.

5.2 Operation Period

5.2.1 Landscaping and Top Soil Utilization

After the construction period, suitable areas of the Project Site, where PV panel will not present, will be covered by scraped top soil for landscaping. In this sense, the vegetation will regenerate at these areas at where fauna species can use as suitable habitat. Hence during the operation period, the reinstatement of suitable parts of the Project Site will be achieved.

5.2.2 Air Quality

There will be no dust, exhaust or process emissions due to proposed Project which affect air quality during operation period.

As compared to conventional fossil fuel power generation technologies, the Project provides reduction of not only carbon dioxide emissions but also other harmful greenhouse gases such as methane and di-nitrogen oxide.

According to Turkey Energy Efficiency Report, Enerdata (2012), CO₂ emissions of 2010 from electricity generation in Turkey is 444 gCO₂/kWh. Therefore, an estimate can be done based on the 2010 values as the Project will save 6,604.5 tons of CO₂ annually.

5.2.3 Water Quality

During operation period, a total of 4 people (1 technician and 3 security personel working in shift) will work. Similar to the construction phase of the Project, domestic wastewater generated will be stored in an impermeable septic tank in line with the provisions of the Regulation on Pit Openings Where Sewer System Construction is not Applicable (Official Gazette date: March 19, 1971, No: 13783) and emptied regularly by Elazığ Municipality. There will be no discharge into any receiving environment.

As is the case for the construction phase, drinking water needs of the Project personnel during the operation phase will be bought as bottled water. There will not be any process water use during the operation of the Project.

Wastewater Management Plan

- Domestic wastewater generated will be stored in an impermeable septic tank in line with the provisions of the relevant Turkish legislation.
- Septic tank will be regularly emptied by Elazığ Municipality and disposed off accordingly.

5.2.4 Waste Management

The personal who works during operation period will generate domestic solid waste. There will be no other waste types generated during operation period as process waste. The domestic waster will be stored in a suitable container and disposed off to nearest Municipality's Containers by the Project personal.

Moreover, use of photovoltaic products are expected to increase in the following decades as newer technologies reach the market. By this means, recycling of the solar panels and related components becomes an emerging issue. Therefore, recycling will be the first alternative to be chosen for the Project related components' end-of-life solution since the cost effective recycling methods are growing for PV technology (Nath, 2010).

5.2.5 Habitat and Wildlife Management

The reclamation and landscaping of the construction sites except areas where PV panels fixed, will promote suitable habitats for regeneration of vegetation. In order to avoid any unnecessary disturbance to wildlife during the operation, mitigation measures specified in Articles 6 and 7 of the Bern Convention (see Section 5.1.6) will also be implemented during the operation period of the Project.

5.2.6 Health and Safety

During the operation phase, one security personal and one technician will be employed. Health and safety measures will be followed as presented for the construction phase in accordance with the "Health and Safety Management Plan". The following measures will be especially taken during the operation phase of Solentegre SPP Project:

- Health and safety organization, tasks, responsibilities and authorities will be determined.
- Employees will be trained regarding the health and safety procedures they would be required to follow including handling of machinery and equipment, fire protection, etc.
- Personal protective equipment be provided, when necessary to minimize health and safety risks.

- Appropriate health and safety signs such as “Danger”, “Entrance Prohibited”, etc. will be placed in proper places.

5.2.7 Environmental Coordination

The management and coordination of environmental and social issues will be under the responsibility of Project Owner. The assigned coordinator will monitor the environmental and social issues and achieve coordination with other stakeholders. Consultants will be employed, whenever necessary. National environmental legislation, as well as international standards and best practices will be complied with during all phases of the Project, and if needed assistance will be acquired in this matter.

Table 5-3 Environmental Management Plan for the Construction Period of Solentegre SPP

No	Action	Environmental Liability	Legislative Requirement/Best Practice	Investment Needs/Resource/Responsibility	Target and Evaluation Criteria for Successful Implementation
1	Implementation of Emissions and Dust Control Plan	Compliance with relevant Turkish legislation and international requirements	<ul style="list-style-type: none"> -Regulation on Control of Industrial Air Pollution -Regulation on Assessment and Management of Air Quality - Regulation on the Control of Exhaust Emissions and Diesel Quality -Best practice: IFC General EHS Guidelines 	Checking the exhaust emissions of vehicles used during construction periodically	<p>Target: Protection of the social and biological environment from adverse impacts of emissions and dust</p> <p>Passing regular monitoring or inspections of relevant authorities successfully</p> <p>Receiving no complaints</p>
2	Implementation of Noise Control Plan	Compliance with the applicable Turkish legislation and international requirements	<ul style="list-style-type: none"> -Regulation on the Environmental Noise Emission caused by Equipment used Outdoors -Regulation on the Assessment and Management of Environmental Noise -Best practice (IFC General EHS Guidelines) 	Noise level measurements to be performed by Project owner/Contractor	<p>Target: Protection of the environment and workers' health</p> <p>Receiving no complaints from nearest settlements</p> <p>Positive results of monitoring reports regarding implementation of Noise Control Plan</p>
3	Implementation of Wastewater Management Plan	Compliance with the applicable Turkish legislation and international requirements	<ul style="list-style-type: none"> -Water Pollution Control Regulation -Regulation on Pit Opening Where Sewer System Construction is not Applicable -Best Practice (IFC General EHS Guidelines) 	Storage of domestic wastewater in impermeable septic tanks at camp facilities, collection of wastewater regularly to be disposed in accordance with the Turkish legislation during construction supplied by Contractor/ Project Owner	<p>Target: Managing the domestic wastewater so as not to cause any environmental impacts on the quality of available water resources</p> <p>No discharge to the receiving environment without any treatment</p> <p>Positive results of monitoring reports regarding implementation of Wastewater Management Plan</p>
4	Implementation of Solid Waste Management Plan	Compliance with the applicable Turkish legislation and international requirements	<ul style="list-style-type: none"> -Regulation on Waste Management -Hazardous Waste Control Regulation -Regulation on the Control of Waste Oils -Regulation on the Control of Medical Wastes 	Separate collection and temporary storage of different types of wastes (i.e. medical wastes, domestic wastes, etc.), will be provided by Contractor and Subcontractors (after temporary storage, waste	<p>Target: Protection of the environment from adverse impacts of solid wastes generated on site</p> <p>Positive results of monitoring reports regarding implementation of Solid Waste Management Plan</p>

No	Action	Environmental Liability	Legislative Requirement/Best Practice	Investment Needs/Resource/ Responsibility	Target and Evaluation Criteria for Successful Implementation
			<ul style="list-style-type: none"> -Regulation on the Control of Packaging Wastes -Regulation on the Control of Waste Tires -Regulation on the Control of Soil Pollution and Polluted Areas by Point Sources -Best Practice 	oils and special wastes will be collected by licensed companies for proper disposal and this will be provided by Contractor and Subcontractors)	
5	Implementation of Reinstatement and Landscaping Plan	Preventing and mitigating landscape degradation and protection of soil	<ul style="list-style-type: none"> -Regulation on the Control of Excavation Materials, Construction and Demolition Wastes -Best practice 	Required procedures will be handled by Contractor,/Project owner	Target: Reduction of landscape impacts No complaints regarding landscape Positive results of monitoring reports regarding implementation of Reinstatement and Landscaping Plan
6	Implementation of Health and Safety Management Plan	Compliance with the applicable Turkish health and safety legislation and international requirements	<ul style="list-style-type: none"> -Turkish Health and Safety Legislation -Best practice (IFC General EHS Guidelines) 	Protective equipment will be provided and necessary health and safety trainings will be conducted by Contractor/Project owner	Target: Prevention of injuries and providing safe work environment Positive results of monitoring reports regarding implementation of Health and Safety Management Plan
7	Implementation of Wildlife Management Plan	Stability of the flora and fauna populations Preservation of biodiversity within the Project Area and its surroundings Better coordination of construction works (i.e. temporary fencing etc.) and monitoring (i.e. animal mortality etc.)	<ul style="list-style-type: none"> -The Environmental Law of Turkey -Law on Protection of Cultural and Natural Heritage -Law on Forests -Regulation on Protection and Development of Wildlife Areas -International Agreements -Best practice (IFC General EHS Guidelines) 	Funding resources to be provided by Contractor/Project owner for construction works such as fencing etc.	Target: Less damaged areas, no violations of construction boundaries Conservation of flora and fauna populations inhabiting the area Positive results of monitoring reports regarding implementation of Wildlife Management Plan
8	Identification of Cultural and Historical Assets	Compliance with the applicable Turkish legislation and international standards (e.g. IFC PS8)	<ul style="list-style-type: none"> -Law on Protection of Cultural and Natural Heritage -Law on National Parks -Best practice 	Implementation of chance find procedure when necessary by Contractor/ Project owner	Target: Protection of cultural and historical assets (Solentegre Enerji will inform Provincial Directorate of Culture and Tourism regarding cultural heritage according to chance find procedure)

No	Action	Environmental Liability	Legislative Requirement/Best Practice	Investment Needs/Resource/ Responsibility	Target and Evaluation Criteria for Successful Implementation
9	Implementation of Monitoring Plan	Compliance with the applicable Turkish legislation and international standards in terms of items to be monitored as identified within the monitoring plan	-EIA Regulation -Best practice	Project Owner /Contractor	Target : Successful implementation of the monitoring plan Preparation of monitoring reports
10	Environmental Coordination	Ensure proper implementation of management plans (mitigation measures) and monitoring plans Detailing(when necessary) and implementation of plans for: (i) Environmental training of construction workers; (ii) Construction camp facilities; (iii) On-site traffic and access management	-Regulation on Environmental Permits and Licences -Turkish Health and Safety Legislation -Best practice	Designation for an environmental site manager by Project owner/ Contractor	Target: Successful implementation of management and monitoring plans
11	Information Disclosure and Stakeholder Engagement	Development of an internal formal grievance mechanism for the public (in case of any possible environmental impact) including written procedures describing the process on how to handle a complaint, designated personnel for this purpose and related forms.	- World Bank Group Requirement	Project Owner /Contractor	Target: Recognizable results of the grievance mechanism with the public. Preparing reports for the result of the complaint and concern.

Table 5-4 Environmental Management Plan for the Operation Period of Solentegre SPP

No	Action	Environmental Liability	Legislative Requirement/Best Practice	Investment Needs/Resource/ Responsibility	Target and Evaluation Criteria for Successful Implementation
1	Landscaping and Top Soil Utilization	Preventing and mitigating landscape degradation and protection of soil	Best practice	Reinstatement of the site after construction period under the responsibility of Project owner	Target: Successful implementation of Landscaping and Reinstatement Plan
2	Implementation of Wastewater Management Plan	Compliance with the applicable Turkish legislation and international requirements	-Water Pollution Control Regulation -Regulation on Pit Opening Where Sewer System Construction is not Applicable -Best Practice (IFC General EHS Guidelines)	Storage of domestic wastewater in impermeable septic tanks, collection of wastewater regularly to be disposed in accordance with the Turkish legislation during operation	Target: Managing the domestic wastewater so as not to cause any environmental impacts on the quality of available water resources No discharge to the receiving environment without any treatment Positive results of monitoring reports regarding implementation of Wastewater Management Plan
3	Implementation of Solid Waste Management Plan	Compliance with the applicable Turkish legislation and international requirements	-Regulation on Waste Management -Best Practice	Separate collection and temporary storage of different types of wastes (ie. domestic wastes, packaging wastes etc.), will be provided by Project owner (the recyclable wastes will be sent to recyclable firms separately from domestic wastes under the responsibility of Project owner)	Target: Protection of the environment from adverse impacts of solid wastes Positive results of monitoring reports regarding implementation of Solid Waste Management Plan
4	Implementation of Wildlife Management Plan/Mitigation Measures	Stability of the flora and fauna populations Preservation of biodiversity within the Project Area and its surroundings	-The Environmental Law of Turkey -Law on Protection of Cultural and Natural Heritage -Regulation on Protection and Development of Wildlife Areas -International Agreements -Best practice (IFC General EHS Guidelines)	Project Owner	Target: Less damaged natural habitats Conservation of flora and fauna populations inhabiting the area Positive results of monitoring reports regarding implementation of Wildlife Management Plan/Mitigation Measures

No	Action	Environmental Liability	Legislative Requirement/Best Practice	Investment Needs/Resource/ Responsibility	Target and Evaluation Criteria for Successful Implementation
5	Implementation of Health and Safety Management Plan	Compliance with the applicable Turkish health and safety legislation and international requirements	-Turkish Health and Safety Legislation -Best practice (IFC General EHS Guidelines)	Protective equipment will be provided and necessary health and safety trainings will be conducted by Project owner	Target: Prevention of injuries and providing safe work environment Positive results of monitoring reports regarding implementation of Health and Safety Management Plan
6	Implementation of Monitoring Plan	Compliance with the applicable Turkish legislation and international standards in terms of items to be monitored as identified within the monitoring plan	-EIA Regulation -Best practice	Project Owner	Target : Successful implementation of monitoring plan Preparation of monitoring reports
7	Environmental Coordination	Ensure proper implementation of management plans (mitigation measures) and monitoring plans and coordination with relevant stakeholders	-Regulation on Environmental Permits and Licences -Turkish Health and Safety Legislation -Best practice	Designation for an environmental coordinator by Project Owner	Target: Successful implementation of management and monitoring plans
8	Selling the spent components for recycling	Disposal of spent batteries, lead and acid wastes	- World Bank Group Requirement - Best practice	Project Owner	Target: Successful implementation of monitoring plan Waste disposal logs with the contracted firm.
9	Information Disclosure and Stakeholder Engagement	Development of an internal formal grievance mechanism for the public (in case of any possible environmental impact) including written procedures describing the process on how to handle a complaint, designated personnel	- World Bank Group Requirement	Project Owner /Contractor	Target: Recognizable results of the grievance mechanism with the public. Preparing reports for the result of the complaint and concern.

No	Action	Environmental Liability	Legislative Requirement/Best Practice	Investment Needs/Resource/ Responsibility	Target and Evaluation Criteria for Successful Implementation
		for this purpose and related forms.			

6 MONITORING PLAN

6.1 Objective

The aim of monitoring is ensure continuity of the implementation of effective management strategies. Monitoring Plan which is an important tool in environmental management will be utilized to evaluate the impacts of Solentegre SPP on environment and the settlements at the vicinity.

Monitoring activities will provide detailed information on;

- Changes in environmental conditions with the Project activities;
- Actual level of impact that had been estimated prior to the start of the Project;
- Level of compliance with mitigation and management plans;
- Assessment on success of mitigation and management activities to reduce adverse impacts to acceptable levels.

Furthermore monitoring activities enable updates and improvements on the management plans by estimation the actual situation at that time.

By using the facts collected through monitoring, the EMP can be improved whenever necessary (eg adapting mitigation measures to changing situations) throughout project construction and operation to ensure that the anticipated impacts are mitigated.

Thus, monitoring will ensure the successful implementation of the mitigation/management plans and optimize environmental protection through good practice at all stages of the Project.

The monitoring activities to be performed during the construction and operation phases of Solentegre SPP Project are tabulated in Table 6-1 and Table 6-2, respectively, together with the details on how the monitoring activities are planned to take place.

6.2 Coordination of Environmental Monitoring

The aim of the proposed management/mitigation plan is the remediation or mitigation of the adverse impacts defined for Solentegre SPP Project. All relevant items in the mitigation scenario become commitments of the Project owner and the monitoring of those are going to be performed according to the monitoring plan and related legislation. The success of the mitigation/management plan can be assessed by the quality of implementation.

During both construction and operation periods, an environmental site manager will be designated, who will be responsible for environmental monitoring issues. In the event the outcomes of the monitoring indicate nonconformity with the implementation of the outlined plans, or if any environmentally inadequate condition is to be faced, the environmental site manager should guide corrective actions as necessary. Compliance with national environmental legislation and international standards will be strictly complied with in all periods of the Project and if necessary, for monitoring activities independent consultants can also be employed.

Monitoring records will be kept and regularly prepared by the environmental site manager. Mostly, reports will be arranged bi-annually or annually to define the monitoring activities and their results considering any necessity for improvement and the means of realising this. These reports will be accessible to relevant governmental agencies, when required, and to the public as appropriate.

Table 6-1 Monitoring Plan for the Construction Period of Solentegre SPP

No	What parameter is to be monitored?	Where the parameter is to be monitored?	How the parameter is to be monitored/ type of monitoring equipment?	When the parameter is to be monitored- frequency of measurement or continuous?	Why the parameter is monitored?	Source of Funding	Start Date	Finish Date	Institutional Responsibility
1	Proper storage and utilization of topsoil	The soil at the Project Site where PV panels will not fixed.	Visual observation	Weekly	To control the effectiveness of the relevant mitigation measures and ensure landscaping and restoration	No additional cost	Start of topsoil scraping	Completion of construction works	Solentegre SPP Contractor Solentegre Enerji Environmental Site Manager
2	Ambient Air Quality (PM10, Settled Dust)	Nearby settlements	Sampling and analysis	Seasonal (PM10) Seasonal (Settled Dust) Upon complaint	To ensure compliance with local and international requirements regarding air quality and occupational health and safety	Project Budget	Start of construction works	Completion of construction works	Solentegre Enerji
3	Noise	Nearby settlements	Noise measurements	Seasonal Upon complaint	To ensure compliance with local and international requirements and noise control plan	Project Budget	Start of construction works	Completion of construction works	Solentegre Enerji
4	Wastewater	Project Site	Visual inspection	Periodical controls of wastewater septic tanks if they are emptied on a regular basis & there is no discharge into the	To comply with Wastewater Management Plan	Project Budget	Start of construction works	Completion of construction works	Solentegre SPP Contractor Solentegre Enerji Environmental Site Manager

No	What parameter is to be monitored?	Where the parameter is to be monitored?	How the parameter is to be monitored/ type of monitoring equipment?	When the parameter is to be monitored- frequency of measurement or continuous?	Why the parameter is monitored?	Source of Funding	Start Date	Finish Date	Institutional Responsibility
				environment					
5	Water quality parameters defined in related Turkish regulation and international requirement	Construction Site	Sampling and analysis	When an accident such as spill and leakage is reported	To determine the potential contaminant and to comply with Turkish legislation and international standards	Project Budget	Start of construction works	Completion of construction works	Solentegre SPP Contractor Solentegre Enerji
6	Health and Safety	All work places	Observation and inspection	Daily, monthly	To ensure compliance with Health and Safety Management Plan	Project Budget	Start of construction works	Completion of construction works	Solentegre SPP Contractor Solentegre Enerji
7	Chance finds of Cultural and Historical Assets	Project Site	Visual inspection	-	To comply with all related Turkish regulations and international requirements	No additional cost	Start of construction works	Completion of construction works	Solentegre SPP Contractor Solentegre Enerji
8	Soil Quality	Project Site	Sampling and analysis	Seasonal	Control of the impact of the Project on soil quality	Project Budget	Before the construction works start	Completion of construction works	Solentegre Enerji
9	Solid Wastes	Project Site	Visual inspection	Weekly Seasonal	To comply with related Turkish regulations and international requirements in the scope of Solid Waste Management Plan	Project Budget	Start of construction works	Completion of construction works	Solentegre SPP Contractor Solentegre Enerji
10	Terrestrial flora and fauna	Project Site	Visual observation	Biannual (twice a year)	To minimize loss of damage to natural habitats and species	Project Budget	Start of construction works	Completion of construction works	Solentegre Enerji

No	What parameter is to be monitored?	Where the parameter is to be monitored?	How the parameter is to be monitored/ type of monitoring equipment?	When the parameter is to be monitored- frequency of measurement or continuous?	Why the parameter is monitored?	Source of Funding	Start Date	Finish Date	Institutional Responsibility
11	Public Concerns	Project Site and the Vicinity	Grievance Mechanism	Upon complaint	To resolve possible environmental concerns of the public	Project Budget	Start of construction works	Completion of construction works	Solentegre Enerji Contractor

Table 6-2 Monitoring Plan for the Operation Period of Solentegre SPP

No	What parameter is to be monitored?	Where the parameter is to be monitored?	How the parameter is to be monitored/ type of monitoring equipment?	When the parameter is to be monitored- frequency of measurement or continuous?	Why the parameter is monitored?	Source of Funding	Period	Institutional Responsibility
1	Wastewater	Solentegre SPP	Visual inspection	Periodical controls of wastewater septic tanks if they are emptied on a regular basis & there is no discharge into the environment	To comply with Wastewater Management Plan	Project Budget	During operation period	Solentegre Enerji Environmental Site Manager
2	Water quality parameters defined in related Turkish regulation and international requirement	Solentegre SPP	Sampling and analysis	When an accident such as spill and leakage is reported	To determine the potential contaminant and to comply with Turkish legislation and international standards	Project Budget	During operation period	Solentegre Enerji Environmental Site Manager
3	Health and Safety	Solentegre SPP	Observation and inspection, reporting	Monthly	To ensure compliance with Health and Safety Management Plan	No additional cost	During operation period	Solentegre Enerji Environmental Site Manager
4	Soil Quality	Solentegre SPP	Sampling and analysis	Annual	Control of the impact of the Project on soil quality	Project Budget	During operation period	Solentegre Enerji Environmental Site Manager
5	Solid Wastes	Solentegre SPP	Visual inspection	Weekly Seasonal	To comply with related Turkish regulations and international requirements in the scope of Solid Waste Management Plan	Project Budget	Completion of construction works	Solentegre Enerji Environmental Site Manager
6	Terrestrial flora and fauna	Solentegre SPP	Visual observation	Annual	Control of the impact of the Project on soil quality	Project Budget	Completion of construction works	Solentegre Enerji Environmental Site

No	What parameter is to be monitored?	Where the parameter is to be monitored?	How the parameter is to be monitored/ type of monitoring equipment?	When the parameter is to be monitored- frequency of measurement or continuous?	Why the parameter is monitored?	Source of Funding	Period	Institutional Responsibility
								Manager
7	Public Concerns	Project Site and the Vicinity	Grievance Mechanism	Upon complaint	To resolve possible environmental concerns of the public	Project Budget	Start of construction works	Solentegre Enerji Contractor
8	Waste components	Solentegre SPP	Waste logs to the licensed firm	When a panel or other components are at end-of-life	To ensure the recycling of the wasted panels or other components	Project Budget	During operation period	Solentegre Enerji Environmental Site Manager

7 FRAMEWORK FOR EMERGENCY ACTION/PREPAREDNESS PLAN

A framework for emergency action/preparedness plan (EAP) has been prepared for the emergency situations that could occur in both the construction and operation phases of Solentegre SPP Project. In this context, an Emergency Action Coordinator (EAC) will be identified for the EAP, who is going to deal with emergency situations.

7.1 Purpose and Scope

The main objective of the EAP is to establish strategies and procedures for managing all aspects of emergency situations associated with the Project components. The targets and procedures of emergency management are as follows;

- Prevention and preparation measures are the actions to be taken before emergency cases.
- Response measures those are the actions to be taken during emergency situation.
- Damage assessment and recovery measures are the actions to be taken after emergency cases.

This EAP prepared for Solentegre SPP is to define actions to be taken in an emergency case such as; natural disasters, fire and accidents. The following are some of the main issues to be included within the detailed EAP(s) to be prepared:

- The tools and equipment (i.e. diggers and shovels, face masks, protective eye gear, gloves, various pumps, radios...) required for instant response in case of an emergency (fires, lightning, explosion, etc.) will be kept at the Project Site.
- The EAP will take account the locations of safety tools and equipment and the escape routes and procedures. The telephone numbers for emergency contacts will be included in the plan as well.
- The EAP will be continuously checked for improvement if needed.
- The periodic maintenance of tools and equipment will be performed. Key staff will be trained in the subject.
- In the event of an emergency, the nearest security force unit will be notified immediately.
- In order to implement the EAP, an EAC will be assigned. The EAC is formerly informed on his responsibilities.

7.2 Duties and Responsibilities

Solentegre Enerji and the Contractor(s)

All the activities to be performed during the construction and operation phases of Solentegre SPP Project are under the responsibility of Solentegre Enerji and the appointed contractors. For the implementation of these responsibilities should be achieved by Construction Manager during construction period and Project Manager during operation period. Within the

context of the EAP; the responsibilities of these managers who will be the EAC as well are summarized below:

- Attending the annual review meetings related to EAP and approval of the recent version of the EAP;
- Approval of the activities those are not included in EAP during an emergency situation;
- Analysing the reports prepared after any emergency situation.

In general, the implementation of the activities developed and specified in the EAP, and improving the EAP are the main responsibilities of the EAC. Moreover informing the relevant authority, gendarme and others regarding the emergency situation is the duty of EAC in line with EAP.

7.3 Potential Emergency Situations

Potential emergency situations to take place within Project Site are given below to be further analysed within the scope of a detailed EAP.

7.3.1 Fire

Fire at Project Site can be caused by a lightning strike, machinery breakdown, failure in electrical installations, and resonant circuits of the equipment. The risks of a fire will be minimized effectively by the following, which can be further expanded throughout construction and operation phases of the project:

- Use of non-combustible or difficult to ignite materials.
- Early fire detection systems.
- Frequent maintenance activities.
- Automatic switch-off of system or complete disconnection from the power supply system in case of a fire.
- Training of the employees with respect to the risk of fire and effective response.
- Installation of a lightning protection system.

Duties and responsibilities of the EAC in case of a fire are the following:

- EAC should know the fire risk in each work area and have to know how to extinguish different types of fires as well.
- If any fire is determined, or emergency situation is a fire, EAC takes the necessary actions for extinguishing without panic.
- Depending on the type and extent of fire, all operations and energy supply may be halted. Depending on the risk of a present fire to spread, local fire department is notified.
- When the fire engine arrives, EAC help extinguishing activities, if needed.

- During the firefighting, EAC prevents the entrance of irrelevant people to the area.

7.3.2 Accidents

Potential accidents during construction and operation may cause injuries and even death. In such situations, the first aid will be provided by the EAC and assistance will be sought from the closest health facilities. In any injury encountered in the facilities, first aid will be the responsibility of the EAC and/or the medical doctor available at the site. In the meantime, to prevent any further damage, EAC will ensure environmental safety, investigate any fire possibility, and clean any spilled materials.

As a result of some accidents, fuel, oil, or other hazardous liquids may reach surface water resources. When fuel or other hazardous materials are seen floating in the surface waters, first EAC will respond, and, if necessary, the closest fire department will be contacted. Fuel, oil, and other floating materials will be separated from water via skimming.

These skimmed materials will be collected in sealed tanks and disposed in line with the Waste Oil Control Regulation.

The duties and responsibilities of the EAC in case of accidents are listed below:

- EAC should know the type of injury risk in each work area.
- In case of an accident, EAC will check for the persons that might be injured. The EAC will provide first aid as proper. If the injury is beyond his ability for first aid than a more capable, or authorized person will be waited.
- An ambulance may be required depending on the type and extent of injury. After the arrival of the ambulance the responsibility passes to the medical personnel that arrived with the ambulance, EAC will help first aid activities if needed. Further, during the first aid activities, EAC prevents the entrance of irrelevant people to the incident area.
- Right after the necessary actions is completed and/or injured person is sent to the hospital, the incident record is prepared.

7.3.3 Earthquake

All workers will be trained according to the necessary action to be taken during an earthquake. If an earthquake greater than a scale of 5 or more on Richter scale is determined, and workers on duty feel earth tremor or are exposed to specified earthquake consequences (feeling of the earthquake by everybody, moving/falling of objects in the shelves, moving/falling down of furniture, fracturing of some plasters and walls, quaking of trees and shrubs), the steps given below will be followed:

- Personnel working in indoor areas leave from the closest secure exit and go to the specified meeting point if possible and if not, waits at a secure outdoor area until the earthquake ends.
- After the earthquake, the operations will be paused for a general visual check of the Project equipment.

- After completion of the necessary controls, the detections will be communicated to the relevant authorities. Moreover, if any equipment is damaged, and the damage is considered to be significant, the relevant authorities will be informed immediately.
- If any equipment is damaged, and the damage is not considered to be significant, necessary technical observations/testing will be performed immediately. Then, the assessment will be communicated to the project management and other relevant local and national authorities.
- If the SPP is determined as secure, operations will begin incrementally.

7.3.4 Flood

Although the Project Site is not under a risk of flood and flood have not been seen ever, some precautions should be determined due to changing weather condition as per climate change. Since floods are not sudden natural hazards and that they present various indications before they occur, actions regarding this natural hazard follow a predetermined and well established program:

- In case of a heavy rain incident, the entire site drainage system is checked for possible blockages and if present, the blockage is removed.
- If the amount of precipitation continues to increase, energy supply of the electrical equipment which may present a risk will be cut off.
- If the need for evacuation of the facility arises, hazardous materials will be secured and transported outside the facility during the evacuation.
- After the flood event and heavy rain ceases, operations will be halted for a general visual check of the project units and assessments are recorded.

7.3.5 Threats such as Terrorist Attacks, Sabotage etc.

Security team duties in case of a threat such as sabotage or a terrorist attack will be specified and communicated to the team via an appropriate education. Following actions will be taken in such scenario:

- Project manager, gendarme and police will be immediately notified of the situation.
- Entrances and exits to the facility will be taken under control and personnel will not be allowed to the scene of the incident.
- If possible, saboteur or the terrorist will be stalled until the security forces arrive to take control of the situation.

7.3.6 Emergency Aftermath and Further Actions

When an emergency situation ends and the EAC approves the safety of the Project site, relevant units and authorities will be informed of the incidence. EAC will prepare a report about the emergency. Activities conducted during the emergency will be assessed and any necessary adjustments and/or improvements will be made in the EAP. If the emergency incidence is an unforeseen case, the precaution measures to prevent this type of emergency

incidences and the action plan for such emergencies will be developed and integrated into the EAP.

7.3.7 Contact List for Emergency Situations

A contact list for emergency situations will be established with relevant contact information. This list will include relevant project management units and persons, and local and central authorities (i.e. village headmen, municipality, district governorship, police department, fire department, General Directorate of Disaster Affairs, Electricity Production Corporation, Electricity Transmission Authority Corporation, etc.).

8 INSTITUTIONAL ARRANGEMENTS

The framework of the institutional arrangements necessary to effectively implement the EMP and monitor its overall success is defined under this section. Institutional arrangements are also stated in order to clarify the tasks associated with several activities that are defined in the EMP.

The key issues to be considered within the scope of this EMP are as follows;

Legal framework for environmental protection: Legal framework to manage and protect the relevant measures that may be affected by the Project is defined within EMP. The natural resources that may be affected from the Project and the environmental quality (requirements of the relevant Turkish legislation) are underlined as well.

Responsibilities for environmental management: These responsibilities have been clearly defined for the environmental components being impacted from the project and sufficient resources have been allocated.

Responsibilities to understand the impact mitigation measures: These responsibilities have been clearly defined for the environmental impact mitigation measures and sufficient resources have been allocated.

Legal basis for the implementation of mitigation measures: The mitigation measures for least negative impact to environment were defined within the scope of Project Introductory File prepared in line with the National Environmental Legislation and approved by Provincial Directorate of Environment and Urbanization of Elazığ Province. Other than the environmental protection legal framework, Energy Market Regulation Authority Production License and also other legal project documents form a basis for the implementation of the impact mitigation measures.

8.1 Institutional Coordination

The parties responsible for the implementation of the impact mitigation measures/management plans and carrying out the monitoring activities to manage the possible environmental impacts are provided in Table 5-3, Table 5-4, Table 6-1 and Table 6-2. Measures to be taken and activities to be undertaken during the construction period will be performed by the Project owner, main contractors and all the sub-contractors. The environmental responsibilities and EMP requirements will be included in the contracts to be signed with the main contractors and the subcontractors. Consultants may be hired to implement certain relevant actions such as monitoring measurements. Local state authorities and the Ministry of Environment and Urbanization (MoEU) has the authority to execute monitoring and inspection activities to follow-up the conformity of the Project activities with the environmental requirements as per the relevant legislation.

The collection of the Project monitoring data is under the responsibility of Solentegre Enerji, or the consultants of Solentegre Enerji. These data will be recorded, analysed and stored by the project environmental manager, related expert personnel or the consultants to be employed. The results obtained will lead to the evaluation of the effectiveness of the

measures taken to mitigate the adverse impacts. Accordingly, the impact mitigation measures and monitoring plans will be revised if deemed necessary.

8.2 Decision Making Process

Changes in mitigation measures/management plans, revisions of the impact mitigation or monitoring plans and similar EMP related decisions, and the notification of the relevant institutions (the Provincial Directorate of the MoEU or if required MoEU) will be executed by Solentegre Enerji. In this respect, the Provincial Directorate of the MoEU can provide its own feedback regarding the suggested changes/revisions to Solentegre Enerji and where necessary, Solentegre Enerji can cooperate with the Provincial Directorate of the MoEU on these matters. After this, notification and instruction of the parties responsible from the future activities will be performed by the Solentegre Enerji. The responsible parties will implement the mitigation measures/management plans in line with the program defined within the EMP.

9 CONSULTATION WITH LOCAL NON-GOVERNMENTAL ORGANIZATIONS (NGOS) AND PROJECT-AFFECTED COMMUNITIES

9.1 Project-Affected Settlements

The nearest settlement at the vicinity is the houses of Şahinkaya Village at 1.6 km south east direction. The centre of Şahinkaya Village is at 2.4 km south east direction. Körpınar Village is at 2.1 km south east as well. (Please see Annex 3)

No major disturbance on nearby communities is expected due to the distances of these settlements to the Project Site. Moreover as stated in former section the potential impact of Solentegre SPP Project on the environment during construction is very low and even negligible. In addition to that during operation, no environmental impact such as emissions, water usage or waste water discharge will be presented to impact environment.

With successful implementation of the environmental management plans, the Project will be completely environmental friendly.

9.2 Consultation with Local Governmental and Non-Governmental Agencies

During the implementation and operation of the Project, the Project owner has been and will be in relation with governmental authorities which are as follows;

- Elazığ Provincial Directorate of Environment and Urbanization
- Elazığ Municipality
- Turkish Electricity Transmission Company (TEİAŞ)
- Energy Market Regulatory Authority (EMRA)
- Provincial Directorate of Disaster and Emergency
- Provincial Special Administration

As referred to Turkish EIA Regulation, a public participation meeting is not required for the Project.

In order to participate the public in the project and take their opinions and answer their questions about the Project, Solentegre Enerji conducted a meeting on 23 June 2015 at Şahinkaya Village Coffee house. Şahinkaya Village is the biggest settlement at vicinity of Project Site with a population of 1,577 composed of 591 men and 986 women. Total 18 local people were participated in the meeting as well as mukhtar. The meeting was announced via a written invitation which was put on the mukhtar's office and coffee house on 4 June 2015. During the meeting, following the Project Owner's presentation regarding the firm, solar energy in Turkey, solar panels to be used and project properties, the consultant was present the possible environmental impacts and mitigation ways of these. After presentations, the participants asked questions regarding the electricity supply opportunities to the village, employment and the reason of selecting Project Site for SPP. Moreover, they asked about the possible hazard of SPP to human health.

The list of participants and minutes of meeting is attached as Annex 9 of this EMP.

Consultation activities with the local community, NGOs and other institutions will continue by Solentegre Enerji, whenever needed, via official and unofficial meetings and individual discussions.

10 PUBLIC RELATIONS PLAN

10.1 Introduction and Scope

In order to create positive and independent relations with the local settlements and the stakeholders, the Public Relations Plan (PRP) is defined. In line with PRP, the acceptance by public is essentially aimed.

The public relations will start before the construction phase, and will continue through the construction and operation phases of the Project. The public relations will be managed by Solentegre Enerji, the start of this relations was Public Participation Meeting which was concluded with the satisfaction of local people. As well as Project owner, construction contractor will be responsible as well. The contractor will execute the public relations procedure as per the fundamentals stated at the PRP prepared within the scope of this EMP. Realization of public relations activities is important in terms of executing the Project in a socially peaceful environment. A sufficient financial resource should be allocated from the Project budget for the public relations activities.

10.2 Objectives

For establishing successful and positive relations between the Project and its stakeholders including the communities to be affected from the Project, the PRP has been prepared.

The essential objectives of the PRP can be defined as:

- Creating an open dialogue with the communities being affected from the Project and all the related stakeholders.
- Informing the disadvantaged groups, understanding the opinions of these groups and ensuring that they actively participate to opinion exchange activities.
- Increasing the social benefits of the Project and preventing or mitigating the negative social impacts.
- Updating public directly or via different tools (such as meetings, brochures, etc.) and providing communication channels to enable all the related parties to obtain information regarding the Project and the possible environmental and social impacts.
- Informing all the stakeholders in a timely and clearly understandable manner.
- Monitoring the concerns and information requirements of the communities being affected from the Project.
- Providing an open communication between the Project owner and the project-affected people and other stakeholders).
- Providing timely and correct information about the project and its progress to all the stakeholders including project-affected persons, related institutions, local and government authorities, local and national media and to the international non-governmental organizations.

- Ensuring that all the related stakeholders and the project-affected persons to attend to the meetings organized.
- Giving priority to the project-affected persons while hiring workforce from the local community.
- Encouraging and orienting the subcontractors to employ local workers and benefit from local services.
- Developing public development projects.
- Accepting and keeping record of all the complaints, concerns and feedbacks received regarding the Project.
- Ensuring the resolution of any reaction, disagreement or disputes related to the Project impacts via an open communication method. An internal formal grievance mechanism for the public will be developed by the Contractor/Project Owner which includes written procedures describing the process on how to handle a complaint, designated personnel for this purpose and related forms.
- Ensuring that the communication to be made by the main and sub-contractors with the local community, official institutions and other stakeholders for purposes of feedback to information, complaint, and requests, etc. with the knowledge of Project owner.
- If positive or negative news comes out regarding the Project, monitoring the progress of the news from its start until the end and observing whether there is any attempt to distort the content of the mentioned news.
- Caring life and property safety during construction works to ensure the continuity of the good relations with the local community, informing the public and the relevant institutions on time in case of such a risk.
- Training of all the workers to work and exist in at the region during the construction concerning the issues to be paid care on public relations at the work commencement and the attitude principles.
- Updating the PRP in line with the changing needs of the public and preserving certain and close contact with different phases of the Project.
- In case of any planned interruption or unplanned damage at the infrastructure of the nearby residential locations during construction, notifying the public and the relevant institutions for reaching a solution within the shortest time possible.

10.3 Identification of the Stakeholders

A stakeholder list is required to be conducted and should be reviewed by the relevant Project staff (or community relation team). The notable stakeholders, apart from the ones directly involved in the Project (such as the Project owner, or Project engineer), is listed but not limited to;

- Local Public (Project-affected people)

- Local governmental authorities
- Regional governmental authorities
- Elazığ Municipality
- Non-governmental organizations (local, national, international)
- The print and visual media (mainly local but also regional)
- Academic institutions (Firat University)
- Regional business organizations

10.4 Public Relations Activities

The public relations expert/official who is specially assigned to, will be the main point of contact for the project-affected people and all the stakeholders. The public relations expert/official will be responsible for the implementation of the PRP. The activities within the scope of the PRP are as follows:

- Informal meetings with project-affected people such as face-to-face talks and meeting at coffee house.
- Organizing meetings and/or forums to be held with the local community and government authorities to establish a mutual understanding.
- Organizing monthly or quarterly meetings in line with the needs of the affected people with the aim of informing project-affected people concerning the Project.
- Organizing focus group meetings for the sensitive groups in order to obtain information on the thoughts and feelings of PAPs, arranging meetings with PAPs and the stakeholders.
- Regularly preparing presentations regarding the progress of the Project for the governmental institutions and organizing meetings if demanded.
- Cooperating with the local press and closely monitoring the news related to the Project. Organizing press meetings for the local and national press if deemed necessary.
- Organizing official Project status meeting to give information regarding the important project developments to the academic bodies, communities and complaint holder local residents. If deemed appropriate, these meetings will be arranged to respond to the concerns and include every kind of concern into the decision making process.

The recording the complaints and requests, determining the necessary actions and ensuring/monitoring its performance will be the duty of Public Relations Officers. All the complaints, requests, concerns, feedback and conducted public relations activities related to the project will be monitored and recorded by the Public Relations Officer of the Project.

10.5 Remediation of Possible Discontent

The Project owner should act on complaints of project-affected people as soon as possible to eliminate improper situation and disconformities. In such a way, the discomforts and complaints will be avoided before reaching a big scale and before the emergence of any incidents. All of the disputes to arise as a result of disinformation due to improper and misdirected communication between local community and stakeholders should be foreseen to take immediate corrective measures.

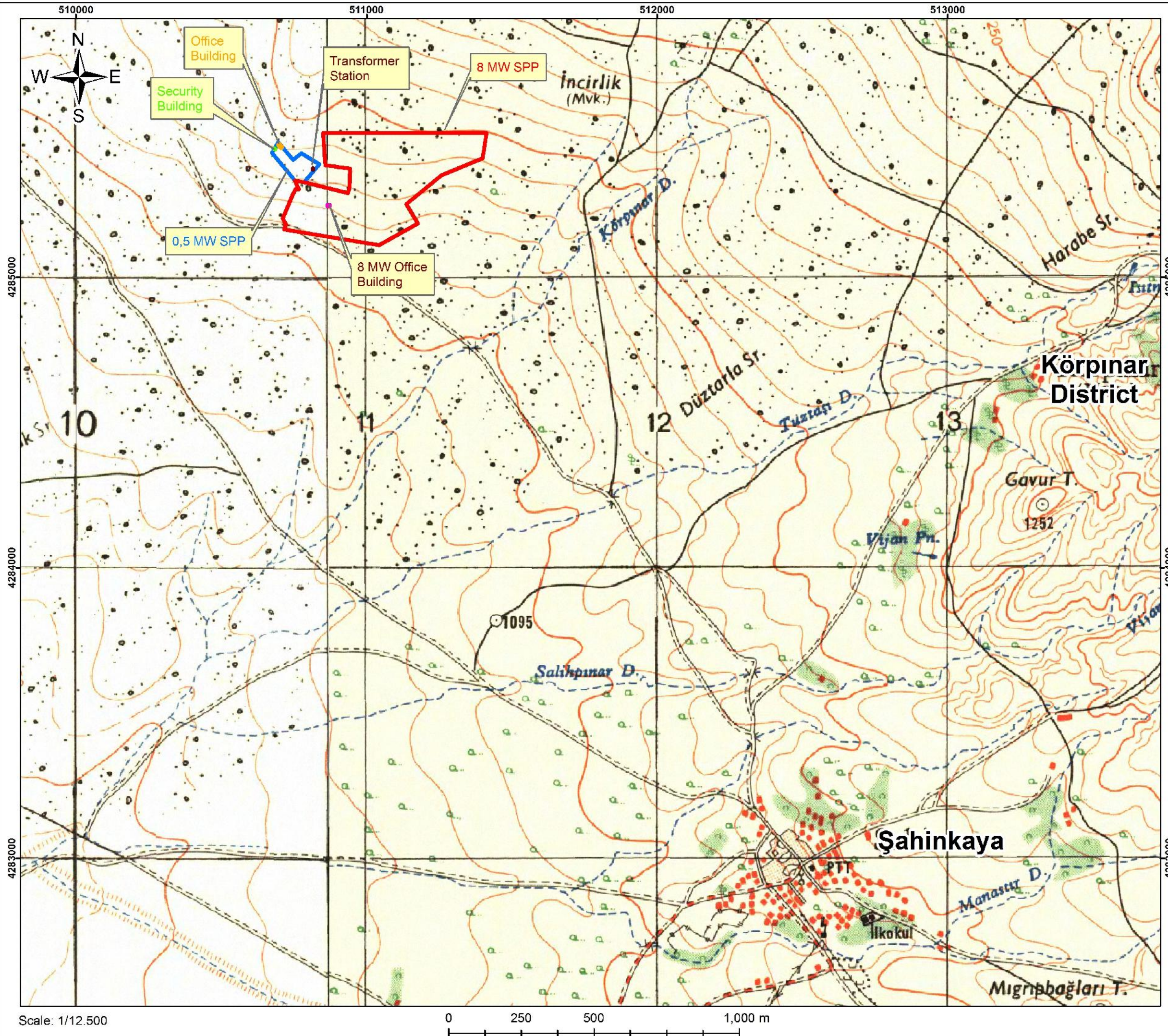
11 REFERENCES

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ANNEXES

ANNEX 1

Topographical Map of Project Site



LEGEND

- 0,5 MW SPP
- 8 MW SPP
- Security Building
- Office Building
- Transformer Station
- 8 MW Office Building

Map : Topographical Map
 Project : Solentegre SPP Project

Drawing No: 106-07-01-GIS-DKC-002-R00

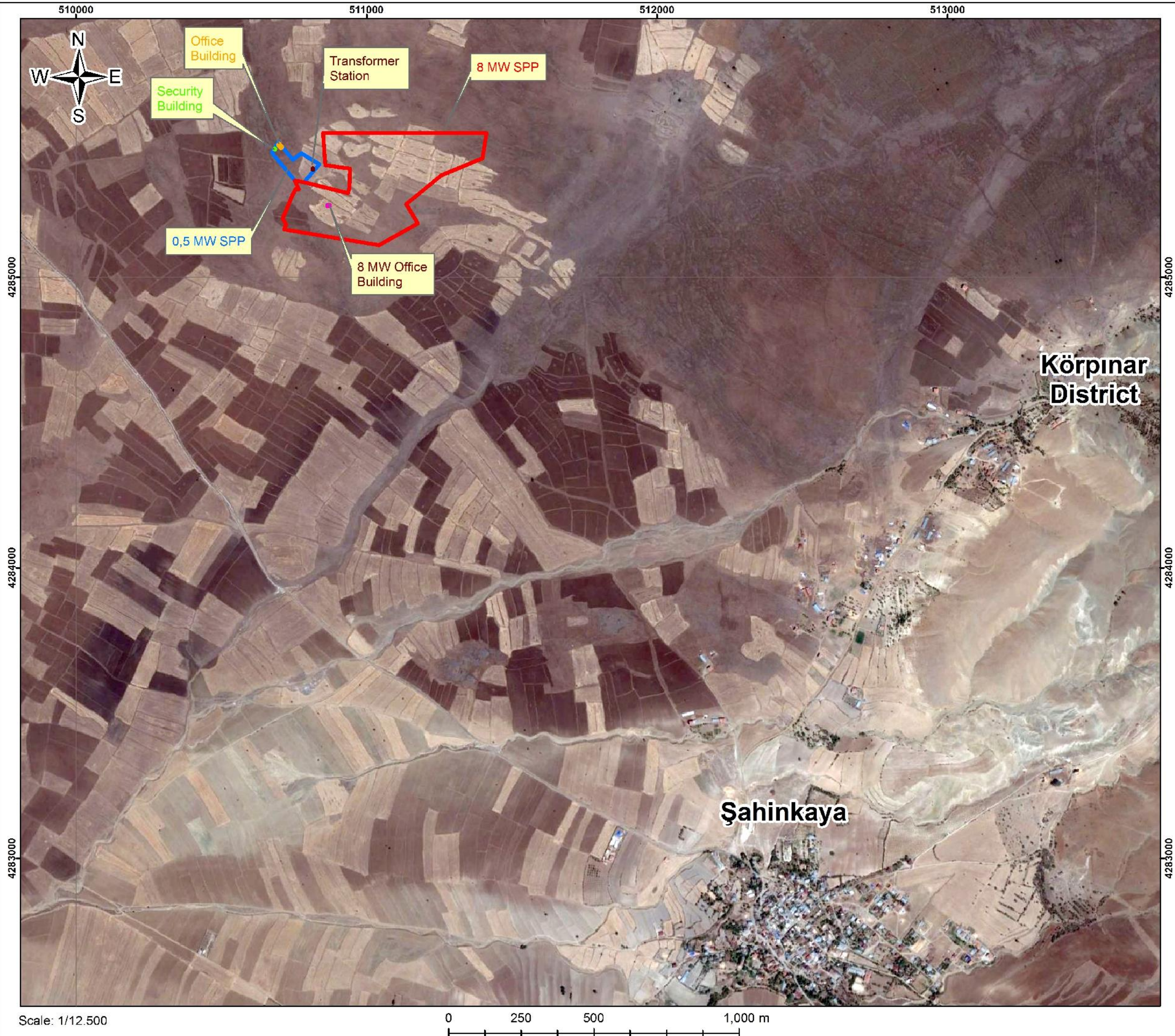
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Prepared by	Approved by	Date/Revision
I.A.	E.Ö.	05.06.2015/R00

ANNEX 2

Satellite View of Project Site



Scale: 1/12.500

0 250 500 1,000 m

LEGEND

- 0,5 MW SPP
- 8 MW SPP
- Security Building
- Office Building
- Transformer Station
- 8 MW Office Building

Map : Satellite Image
Project : Solentegre SPP Project

Drawing No: 106-07-01-GIS-DKC-004-R00

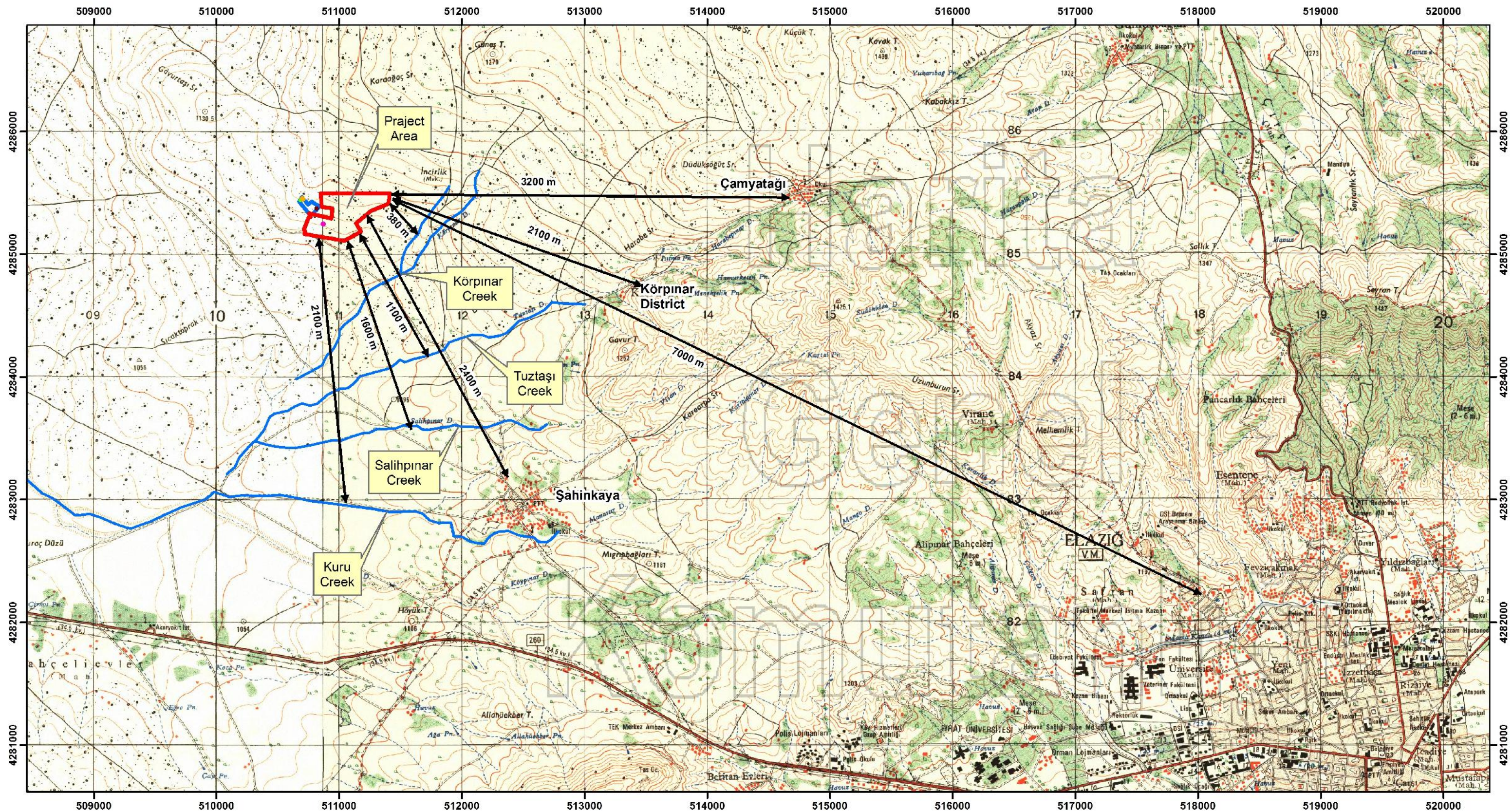
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I.A.	E.Ö.	05.06.2015/R00

ANNEX 3

The Nearest Settlement and Surface Water to Project Site



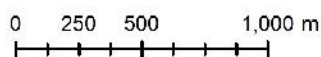
LEGEND

- Surface Waters
- 0,5 MW SPP
- 8 MW SPP
- Security Building
- Office Building
- Transformer Station
- 8 MW Office Building

Körpınar Creek	: 380 m
Tuztaşı Creek	: 1100 m
Salihpınar Creek	: 1600 m
Kuru Creek	: 2100 m
Çamyatağı Köyü	: 3200 m
Körpınar District	: 2100 m
Şahinkaya Village	: 2400 m
Elazığ	: 7000 m



Scale: 1/30.000



Map : Topographical Map

Project : Solentegre SPP Project

Drawing No: 106-07-01-GIS-DKC-008-R00

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İ.A.	E.Ö.	08.06.2015/R00

ANNEX 4

EIA Exemption Decision



T.C.
ÇEVRE ve ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi, İzin ve Denetim Genel Müdürlüğü

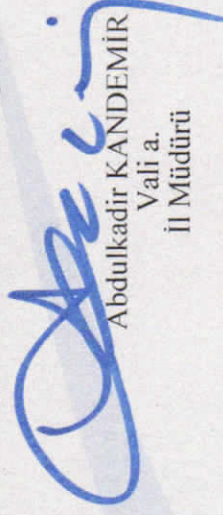


T.C.
ELAZIĞ VALİLİĞİ
ÇEVRE ve ŞEHİRCİLİK İL MÜDÜRLÜĞÜ

Karar Tarihi : 18-03-2015
Karar No : 14698725 220-02 E-2015179

ÇEVRESEL ETKİ DEĞERLENDİRME BELGESİ

25.11.2014 tarih ve 29186 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren Çevresel Etki Değerlendirmesi Yönetmeliği'nin Ek-II listesinde yer alan **'8 MW (Lisanslı) ve 0,5 MW (Lisanssız) Güneş Enerjisi Santrali'** projesi ile ilgili olarak inceleme-değerlendirme yapılmış ve Proje Tanıtım Dosyasında çevresel etkilere karşı alınması öngörülen önlemler yeterli görülmüştür. Ayrıca ÇED Raporu hazırlanmasına gerek bulunmadığı tespit edilmiş olup, söz konusu projeye ÇED Yönetmeliğinin 17. Maddesi gereğince Valiliğimizce **"Çevresel Etki Değerlendirmesi Gerekli Değildir"** kararı verilmiştir.


Abdulkadir KANDEMİR
Vali a.
İl Müdürü

Proje Sahibi : Solentegre Enerji Yatırımları Ticaret A.Ş.
Proje Yeri : Elazığ İli, Merkez İlçesi, Şahinkaya Köyü, Holoşnut Mevkii, 110 Ada, 19-28-29-31 Nolu Parseller
Kapasite : 8 MW (Lisanslı) ve 0,5 MW (Lisanssız) Güneş Enerjisi Santrali (koordinatlar arka sayfasındadır)

ANNEX 5

Electricity Generation Pre-License



**T.C. ENERJİ PİYASASI
DÜZENLEME KURUMU**

ÖNLİSANS

**Bu önlisans kapsamındaki üretim tesisi
Yenilenebilir Enerji Kaynağı kullanmaktadır.**

(5346 Sayılı Kanunda yer alan, "Bu Kanun kapsamındaki yenilenebilir enerji kaynakları" tanımı çerçevesinde olan üretim tesisleri için)

Lisans No : ÖN/5307-6/03170

Tarih : 20/11/2014

Bu önlisans, **Solentegre Enerji Yatırımları Ticaret Anonim Şirketi**'ne, Elazığ İli'nde kurulması planlanan **Solentegre GES** üretim tesisinin yatırıma başlanabilmesi için gerekli onay, izin, ruhsat ve benzerlerinin alınabilmesi amacıyla 20/11/2014 tarihinden itibaren 30 ay süreyle, 6446 sayılı Elektrik Piyasası Kanunu ve ilgili mevzuat uyarınca Enerji Piyasası Düzenleme Kurulu'nun 20/11/2014 tarihli ve 5307-6 sayılı Kararı ile verilmiştir.

Mustafa YILMAZ
Başkan

ÖZEL HÜKÜMLER

Bu önlisans Solentegre Enerji Yatırımları Ticaret Anonim Şirketi'ne aşağıda bilgileri verilen üretim tesisi için aşağıda belirtilen koşullarda verilmiştir.

1- Üretim tesisine ilişkin bilgiler

Proje/Tesis Adı	: Solentegre GES
İli	: Elazığ
İlçesi	: Merkez
Tesis tipi	: Güneş
Tesis toplam kurulu gücü	: 8 MW
Yıllık elektrik enerjisi üretim miktarı	: 15.752.000 kWh
Sisteme bağlantı noktası ve gerilim seviyeleri	: 154/33 kV Hankendi TM'nin OG barası

2- **Bildirim adresi:** Koza Sokak No:22 Gaziosmanpaşa 06700 Çankaya ANKARA

3- Önlisansın yürürlüğe girmesi ve süresi

Bu önlisans, 20/11/2014 tarihinde yürürlüğe girer ve önlisans sahibinin bu önlisans kapsamındaki hak ve yükümlülükleri, önlisansın yürürlük tarihinden itibaren geçerlilik kazanır. Bu önlisans, yürürlük tarihinden itibaren 30 ay için geçerlidir.

4- Tüzel kişilikte yüzde on (halka açık şirketlerde yüzde beş) ve üzerinde doğrudan veya dolaylı pay sahibi olan gerçek ve tüzel kişiler

Doğrudan Pay Sahibi Ortaklar	Hisse Oranı (%)
➤ Karine Enerji Üretim Sanayi ve Ticaret A.Ş.	90
➤ Asunim Yenilenebilir Enerji Teknolojileri İnşaat Mühendislik Sanayi ve Ticaret Limited Şirketi	10
Dolaylı Pay Sahibi Ortaklar	Hisse Oranı (%)
➤ Selim AKIN	90

5- Tesis yerine ait pafta adı/adları ile santral sahası köşe koordinatları ve/veya ünite koordinatları

1/25.000 lik pafta adı: K42-D1/D-2

Üretim Tesisi Sahası Köşe Koordinatları:

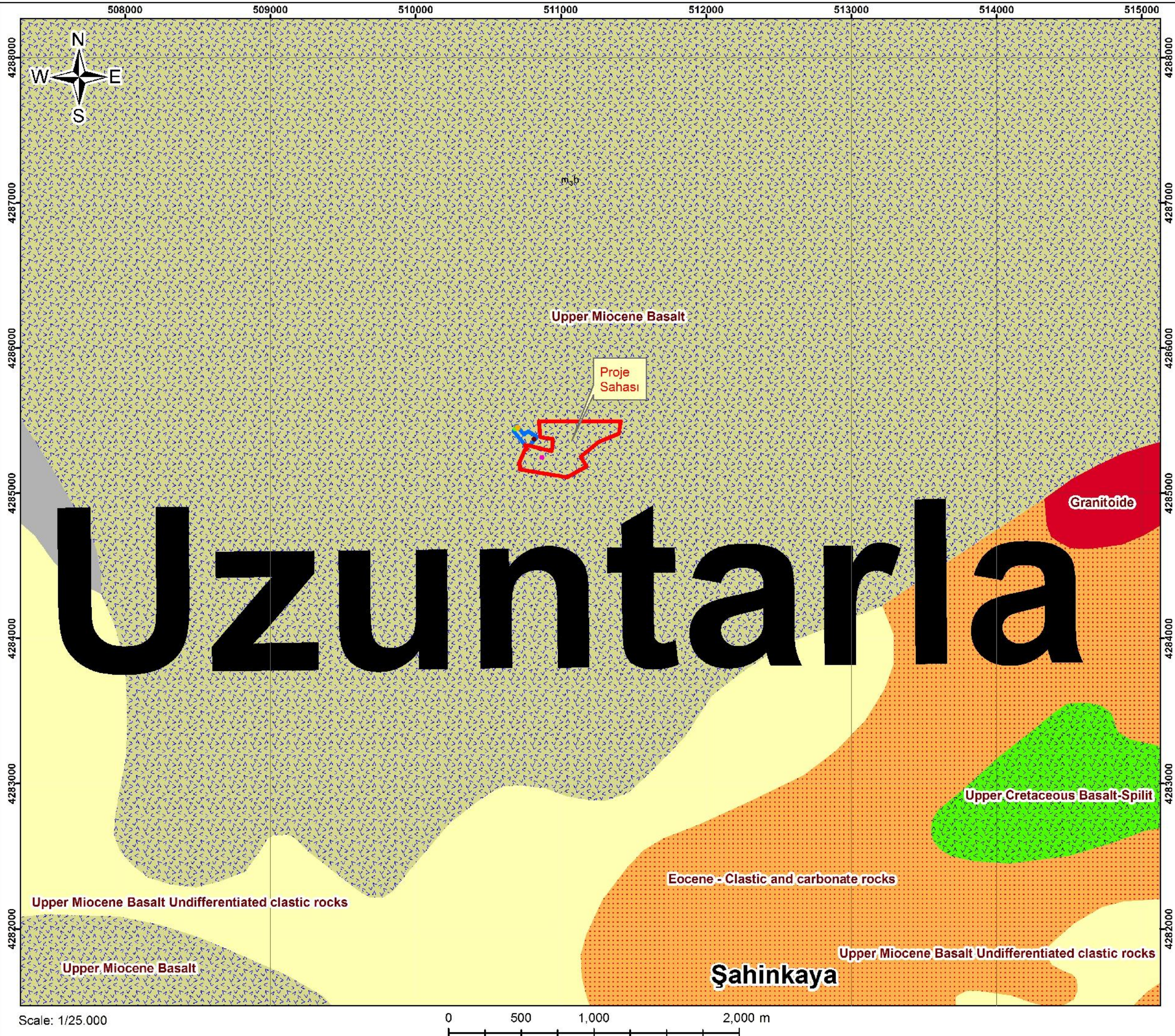
	E	N		E	N
K1	510849.87	4285496.74	K13	510740.65	4285272.83
K2	511413.09	4285496.74	K14	510757.93	4285307.11
K3	511399.25	4285410.34	K15	510766.06	4285302.79
K4	511257.31	4285351.35	K16	510752.86	4285333.49
K5	511136.89	4285252.64	K17	510743.51	4285345.43
K6	511176.34	4285185.35	K18	510792.12	4285336.27
K7	511042.62	4285111.02	K19	510784.68	4285327.50
K8	510716.05	4285164.86	K20	510935.57	4285290.61
K9	510717.71	4285173.22	K21	510940.99	4285310.50
K10	510722.94	4285181.87	K22	510942.67	4285374.90
K11	510711.06	4285203.09	K23	510857.72	4285386.51
K12	510720.09	4285220.41			

6- Mevzuata uyma yükümlülüğü

Lisans sahibi, Elektrik Piyasasına ilişkin ilgili mevzuat ile lisans kapsamındaki faaliyetin gerektirdiği diğer mevzuat hükümlerine uymak ile yükümlüdür.

ANNEX 6

Geological Map of Project Site



LEGEND

- 0,5 MW SPP
- 8 MW SPP
- Security Building
- Office Building
- Transformer Station
- 8 MW Office Building

Map : Geological Maps
Project : Solentegre SPP Project

Drawing No: 106-07-01-GIS-DKC-010-R00

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I.A.	E.Ö.	08.06.2015/R00

ANNEX 7

The Permit Regarding the Change of Attribute of the Pasture Land



T.C.
ELAZIĞ VALİLİĞİ
İl Gıda, Tarım ve Hayvancılık Müdürlüğü

Sayı : 58308238-115.02-1485
Konu : Tahsis Amacı Değişikliği

002908

06 Mart 2015

VALİLİK MAKAMINA

İlimiz Merkez İlçe Şahinkaya köyü 110 ada 19 nolu mera parselinin 129.864,69 m²'lik kısmının 'Güneş Enerji Sistemleri' yapılması amacıyla Enerji Piyasası Düzenleme Kurumu Kamulaştırma Dairesi Başkanlığı tarafından tahsis amacı değişikliği talebinde bulunulmuştur.

Konuyla ilgili olarak İlimiz Mera Komisyonunun 27.02.2015 tarih ve 2015/4 sayılı kararı, Defterdarlık Milli Emlak Müdürlüğünün 29.01.2015 tarih ve 1115 sayılı uygun görüşleri doğrultusunda, talepte bulunulan Merkez İlçe Şahinkaya köyü 110 ada 19 nolu mera parselinin 129.864,69 m²'lik kısmının; 4342 sayılı Mera Kanununa bağlı çıkarılan Mera Yönetmeliğinin 8. maddesinin (ğ) bendi gereğince tahsis amacı değişikliğine ruhsat süresince izin verilmesi hususunda;

Olur'larınıza arz ederim.

İsmail GÜRBÜZ
İl Müdürü V.

Uygun görüş ile arz ederim.
.../03/2015

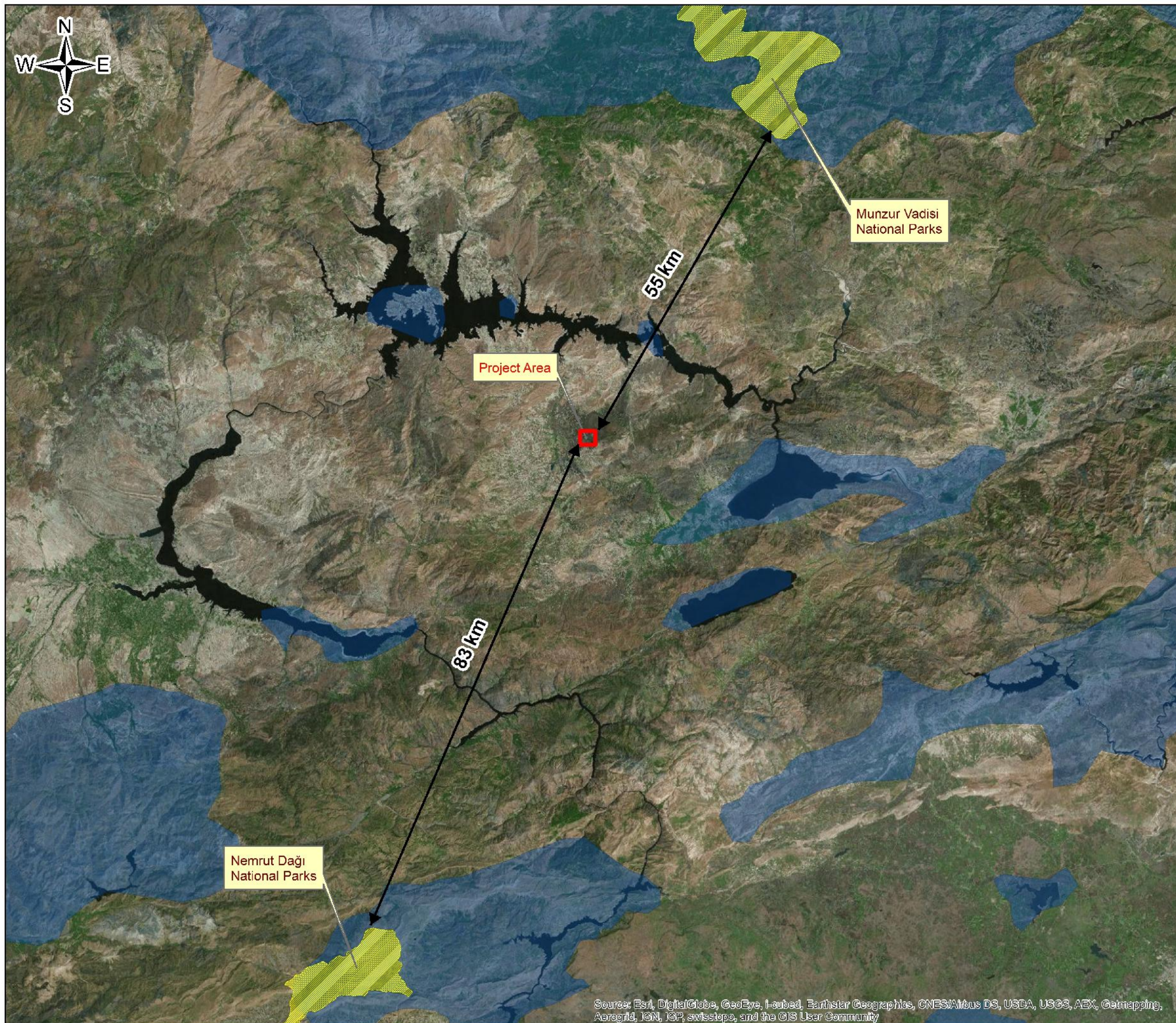
Üzeyir YILMAZ
Vali Yardımcısı
Mera Komisyonu Başkanı

OLUR
.../03/2015

Üzeyir YILMAZ
Vali V.

ANNEX 8

Protected Areas nearby the Project Site



Ölçek: 1/600.000

0 10 20 40 km

LEGEND

-  Project Area
-  National Park
-  Key Biodiversity Area

Map : Protected Area Maps
Project : Solentegre SPP Project

Drawing No: 106-07-01-CBS-DKÇ-014-R00

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I.A.	E.Ö.	08.06.2015/R00

ANNEX 9

Documentation of Public Consultation Meeting

SOLENTGREG ENERJİ ÜRETİM SANAYİ VE TİCARET A.Ş.
Koza Sokak No:22 Gaziosmanpaşa 06700 Ankara
Tel: (312) 408 10 00 Faks: (312) 441 42 11
e-mail:akfen@akfen.com.tr. www.akfen.com.tr

Tarih : 04.06.2015
Sayı : ENERJİ.SOL.033 - 125
Konu : Solentegre GES Projesi Bilgilendirmesi Hk.

T.C. ELAZIĞ İLİ ŞAHİNKAYA MAHALLESİ MUHTARLIĞI

Elazığ İli, Merkez İlçesi, Şahinkaya Mahallesi sınırları içerisinde yapılması planlanan, Solenteğe GES Projesi'nin tanıtımı yapmak ve proje hakkında genel bilgi vermek, çevre değerlendirmesi hakkında karşıdaki fikir ve bilgi alışverişinde bulunmak üzere, Halkın da katılımıyla 23.06.2015 tarihinde saat 13:00 da Şahinkaya köy kahvesinde Solenteğe Enerji Üretim Ş. ve Tic. A.Ş. tarafından bir bilgilendirme toplantısı düzenlenecektir. Toplantıya tüm yöre halkı davetlidir. Toplantıya katılım konusunda gereken ilginin gösterileceğini umuyor ve halkımıza saygıyla duyuruyoruz.

Bu ilan çağrısı 23.06.2015 taribine kadar askıda kalmak üzere Şahinkaya Muhtarlığı panosunda duyurulmak üzere askıya çıkarılmıştır.

SOLENTESRE ENENJI TAYHIMLARI YIG. A.B
Koca Sok. No:22 G.O. Samsun ANKARA
Tel: 0312 408 10 00 Faks: 0312 441 07 82
Merkezi No: 0-7750-5391-9100014
V.B. Cumhuriyet - V.No. 773 033 9191

Muhtar 04.06.2015
Mühür / Kaşe / İmza
Feyzi GÜVENÇ
Şahinkaya Köyü
Muhtarı

Şirket

Kaşe / İmza




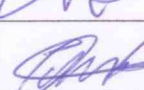
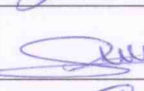


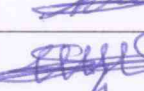
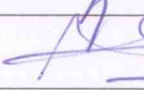
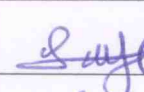



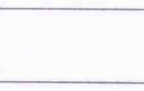
SAHİNKAYA
MUHTARLIĞI







Solentegre Güneş Enerji Santrali Projesi Halkın Katılımı Toplantısı**Yer: Elazığ İli, Merkez İlçesi, Şahinkaya Mahallesi, Şahinkaya Köy Kahvesi**

No	İsim	Mahalle-Köy	İmza
1	Özgürcon Türk	Şahinkaya köyü	
2	Fatih Dümer	Şahinkaya mah.	
3	Süleyman Dümer	" "	
4	Ali Asker Yıldız	" "	
5	Mürşel Alt	" "	
6	Mevlüt Kan	" "	
7	Rüstem Kan	" "	
8	Erdal Aktepe	" "	
9	Özgen Altın	" "	
10	İsmail Şen	" "	
11	Feyzi Güvenc	" "	
12	Mehmet Aksoy	" "	
13	Fikret Zorlu	" "	
14	Baki Yıldoğlu	" "	
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Solentegre GES için Elazığ İli, Merkez İlçesi, Şahinkaya Köyü, Köy Kahvesinde 13.30'da başlayan Halkın Katılımı Toplantısına dair tutanaktır.

Toplantı öncesinde 45 dakika kadar Kahve bahçesindeki masalarda oturulmuş ve yöre halkı ile sohbet edilmeye başlanmıştır. 13.30 itibari ile toplantıya başlanmış olup, Solentegre GES Proje Yöneticisi Kürşat TEZKAN tarafından, yatırımcı firma hakkında bilgi verilmiş. Sonrasında güneş enerjisi santrallerinin dünyadaki dağılımları ile solar paneller hakkında bilgiler bir sunum eşliğinde aktarılmıştır.

Sonrasında DOKAY-ÇED firması çevre mühendisi Derya Erika ÇAMURDANOĞLU tarafından projenin inşaat ve işletme dönemlerindeki faaliyetlerden kaynaklanabilecek çevresel ve sosyal etkilerin değerlendirildiği bir sunum gerçekleştirilmiştir.

Sunumun ertesinde katılımcılara görüş ve önerilerini paylaşımları ve soru sormaları için söz hakkı verilmiştir. Bu kısımda sorulan sorular ve Proje Yöneticisi Kürşat TEZKAN tarafından verilen cevaplar aşağıda sunulmaktadır.

Muhtar Feyzi Güvenç:

Köyümüze ne gibi faydası olacak, ileride köye elektrik verilebilecek mi?
Köyden işsiz çok, iş verebilecek misiniz?

Proje Yöneticisi Kürşat Tezkan:

İnşaat aşamasında eğer varsa öncelikle projenin yapılacağı Şahinkaya köyünden, yakın köylerden, Elazığ'da veya çevresinde personel temin edilmesi planlanmaktadır. 5 ay civarında çalışacak bu personel maaş alacaktır. Ayrıca personelin ihtiyaçları köyün bakkalından karşılanacaktır, esnafa ekonomik olarak katkı sağlanacaktır. İş bittikten sonra çalışacak 6 personel yine öncelikli olarak köyden seçilmesine özen gösterilecek, İş Kanununa göre gerekli özellikleri sağlayan personel var ise çalışılacaktır. Vakıf olarak Üniversite ile çok ciddi çalışmalarımız vardı. Elazığ bizim için önemlidir. Türkiye'nin ilk lisanslı projesi Elazığ'da kurulacak olup sizin köyünüzde yer alacak bu projedir.

Elektrik vermek mümkün değil, Çünkü bu lisanslı proje ihale ile alındı, üretilen elektrik devlete verilmektedir. Fakat avantaj olarak, barajların çalışmadığı durumda, her hangi bir arızada GES'in trafo merkezi ve tesis bu köye yakın olduğu için köy bu arıza veya kesintilerden etkilenmeyecektir.

Daimi Aydoğdu (Şahinkaya Köyü):

Kaç MW, ne kadar alana yapılacak, ömrü nedir?

Proje Yöneticisi Kürşat Tezkan:

8,5 MW yaklaşık 5000-6000 aileye yetecek elektrik anlamına gelmektedir. 16 hektarlık alana yapılacaktır. Ekonomik ömrü yaklaşık 25 yıldır. Siz biraz geç geldiniz herhalde. Bunları sunumda anlatmıştık ama tekrar edelim. 25 yılın sonunda paneller yenilenerek elektrik üretimine devam edilecektir. Ekonomik ömrünün

tamamlanmasından sonra paneller üretici firma tarafından geri alınır ve içerisindeki kum malzeme kullanılarak yeniden üretilir. Paneller geri dönüştürülebilir ekipmanlardır.

Daimi Aydoğdu (Şahinkaya Köyü):

Ben Almanya'dan geldim. Güneş enerjisi orada çok kullanılmaktadır. Fakat 25 yıl uzun bir süre, şehir bu tarafa doğru büyümekte, köylü istediği zaman toprağını geri alabilecek mi?

Proje Yöneticisi Kürşat Tezcan:

Burası hazine arazisidir, hazine arazisi üzerine yapılmaktadır. Şahıs arazisi kullanılmamaktadır. Almanya'da görmüşsünüzdür, insanlar evlerinin üzerlerine yapmaktalar, kendi elektriklerini kendilerini üretmekteler, Türkiye'de ise Lisanslı proje kapsamında devlet için elektrik üretilmektedir.

Daimi Aydoğdu (Şahinkaya Köyü):

Hazine arazisi köylülerin değil mi?

Proje Yöneticisi Kürşat Tezcan:

Hazine arazisi devletin malıdır. Elektrik üretimi devlet için yap-işlet şeklinde yapılan yatırımlardır. Arazi belirli süreliğine devletten kiralanmaktadır. GES projesine devlet hazine arazisi için kira almaktadır, teşvikli olduğundan kira bedelleri teşvik kapsamında ödenmektedir.

Soru:

İlk geldiğiniz de bize zamanında şahıs parselleri sorulmuş idi?

Proje Yöneticisi Kürşat Tezcan:

Sormuştuk, lisanssız güneş enerji santralleri fizibilite çalışmalarımız vardı. . Satmak isteyenlerden iki parsel alınmıştır . Ancak devletin lisanssız projeler için tahsis etiği trafolar dolduğundan artık şahıs parselleri ile ilgilenmiyoruz

Soru:

Projenin vatandaşlara zararı var mı?

Proje Yöneticisi Kürşat Tezcan:

Sunumda gösterdiğim gibi Almanya'da insanlar evinin üstüne kuruyorlar. Gürültü yok, atık su yok, kimyasal madde yok, güneş enerji santrallerinin olumsuz herhangi bir etkisi yoktur. İnsanlar ve çevre üzerinde olumsuz etkileri söz konusu değildir. Yalnız bahsettiğimiz gibi inşaat aşamasında panellerin taşınması esnasında taşıyıcı kamyonların geçmesi sebebi ile bir miktar gürültü meydana gelecektir. Bu da yalnızca inşaat dönemi ile sınırlıdır. Keza mevcut yol da bizim araçların geçişi sebebi ile bozulur ise, yollar tadil edilecek, düzeltme yapılacaktır.



Burası Türkiye'nin ilk lisanslı güneş enerji santrali olacak. Bizim misafirlerimiz olacak, yurtdışından , yurtiçinden, ortaklarımızı buraya getirip gezdireceğiz, bu gezilerimize Elazığ'nın yetkilileri de katılacaktır, onların geçmesi ile yolların durumu görülecektir, böylece mevcut yolların yenilenmesi sağlanabilir.

Muhtar Feyzi Güvenç:

Cemevi'ne katkı sağlarsanız seviniriz.

Proje Yöneticisi Kürşat Tezkan:

Elektrik üretimine başladıktan ve gelir elde edildikten sonra komşuluk ilişkileri çerçevesinde özellikle okula gerekli yardımların yapılması planlanmaktadır. Cemevine de elimizden gelen katkı yapılmaya çalışılacaktır.

Daimi Aydoğdu (Şahinkaya Köyü):

Neden Elazığ, neden bu alan?

Proje Yöneticisi Kürşat Tezkan:

İhaleler açılırken devlet belirli yerlerde ölçüm yapmış, bir ölçümde burada yapılmış, Elazığ'ın başka bölgelerinde de yapılan ölçümler var. Biz ihaleye girerken şehre yakın olması sebebi ile burayı tercih ettik . Başka illerde de projelerimiz de var. Ancak Elazığ ihalesi lisanslı ilk güneş enerjisi projesi olması nedeniyle önemlidir.

Daimi Aydoğdu (Şahinkaya Köyü):

Hangi şirket?

Proje Yöneticisi Kürşat Tezkan:

Akfen Holding'in bir alt şirketi olan Solentegre Enerji.

Soru:

İnsanların sorunları var. Köyün sorunları var. Kim gelse sorunlar konuşuluyor tabi. Genelde yaşlılar çok tedirgin bu durumdan. Sizin sözünüz geçebilir devlet büyüklerine, Elazığ'daki büyüklere diye bunları söylüyorlar.

Proje Yöneticisi Kürşat Tezkan:

Bizde köyün diğer sorunlarını yol, su gibi konuları gerekli devlet yetkililerine ulaştırmak için elimizden geleni yapacağız. Proje ile ilgili ise tedirgin olacak bir durum yok, keşke herkes kendi evinin üzerine kurabilse bunun için teşvikler verilse de elektriğimizi kendimiz üretebilsek.



Aslında bizim projemiz için bu tür Halkın Katılımı Toplantıları, Türk Mevzuatına göre yapılması gereken toplantılar değil, Amacımız mümkün olduğu kadar proje konusunda bilgi vererek varsa tedirginlikleri önlemek . Çevre yönetim planı hazırladığımız için sizlerle iletişime geçmeyi tercih ettiğimiz, sizlerin de görüşlerini almak istediğimiz için burada sizlerle toplandık. Çok da verimli bir toplantı oldu, kulaktan duyma şeyler yerine, bizim anlattıklarımızı dinleme şansınız oldu, bizler de sizin sorunlarınızı dinledik, sorularınıza cevap verdik. Daha da cevap verimiz. Aklınıza takılan olur ise muhtarımız bize ne zaman isterse ulaşabilir. Biz yeniden gelir anlatırız. Katılımınız için teşekkür ederiz.

Muhtar Feyzi Güvenç:

Başka soru soracak olmadığından, biz de teşekkür ederiz.

Soru ve cevap kısmının ertesinde yerel halkın memnun olduğu gözlenmiştir. Katılım listesine 14 kişi imza atmış olup sonradan katılım gösterenler veya imza atmayanlar ile birlikte toplam kişi sayısı 18'dir. 20 dakika süren sunumların ardından, yaklaşık 45 dakika soru cevap kısmı sürmüştür. Toplantı 14.40 civarında dağılmıştır.

Muhtarımıza verimli toplantıya imkan sağladığı için teşekkürü borç biliriz.

Muhtar

Mühür / İmza / Kaşe

29.6.2015
Feyzi GÜVENÇ
Şahinkaya Köyü
Muhtar

Şirket

Kaşe / İmza
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