



BAĞYURDU ORGANİZE SANAYİ BÖLGESİ

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

BAĞYURDU ORGANIZED INDUSTRIAL ZONE 1.6 MW SOLAR POWER PLANT, 2500 kVA TRANSFORMER AND FAST CHARGING STATION INSTALLATION PROJECT



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ABBREVIATIONS

AC	Alternating Current
BAYOSB	Bağyurdu Organized Industrial Zone
DC	Direct Current
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EEP	Eco Industrial Park
EHS	Environment Health and Safety
EMRA	Energy Market Regulatory Authority
ESMP	Environmental Social Management Plan
ESMS	Environmental Social Management System
ESPO	European Sea Ports Organization
EU	European Union
FTA	Federal Transit Administration
HSMS	Health and Safety Management System
IA	Impact Area
IFC	International Financial Institution
ILO	International Labor Organization
MoIT	Ministry of Industry and Technology
OG	Official Gazette
OHS	Occupational Health and Safety
OIZ	Organized Industrial Zone
PM	Particulate Matter
PS	Performance Standard
REPEMS	Renewable Energy Projects Evaluation Monitoring System
ROCIAP	Regulation on Control of Industrial Air Pollution
SEP	Stakeholder Engagement Plan
SPP	Solar Power Plant
TurkStat	Turkish Statistical Institute
UCTAE	Union of Chambers of Turkish Architects and Engineers
UN	The United Nations
WB	World Bank
WBG	World Bank Group
WDA	Wildlife Development Area
WHO	World Health Organization

EXECUTIVE SUMMARY

The danger of depletion of natural resources and global warming bring the concepts of sustainability and renewable energy to the forefront with each passing day.

Bağyurdu Organized Industrial Zone (OIZ) plans to establish a Solar Power Plant on its own parcel of land within the boundaries of the OIZ in order to provide some of the energy it needs from renewable energy.

The Solar Power Plant planned to be realized at Bağyurdu OSBOIZ, 110 Block, 1 Parcel will have a capacity of 1.6 MW. As an integral part of the project, it is planned to establish a 2500 Kva kVA Substation.

In addition, in order to serve the industrialists in the region and to encourage the use of electric vehicles, it is still planned to establish an electric vehicle fast charging station on 104 island and 27 parcels within the OIZ.

This ESMP identifies the potential impacts that may arise during construction and operation phases of the Project and proposed appropriate mitigation measures to effectively address these impacts. As part of the construction phase; ESMP has been prepared in order to determine the environmental and social impacts that are likely to occur during the preparation of the area where the SPP project is planned, the driving of solar panel legs into the ground, the installation of panels, cabling operations, transformer and fast charging station construction and to determine the measures to be taken to prevent or mitigate these impacts.

In the project area, which is currently an industrial parcel and does not have any flora fauna on it, it is thought that there will be no soil loss or flora fauna loss as only land arrangement will be made.

The fact that the panel legs can be driven into the ground will not have a negative impact in terms of excavation and soil loss, but there is likely to be noise and vibration during the driving process. This phase will involve daytime work and the use of protective equipment and monitoring of impacts on surrounding landscapes.

Waste such as packaging and cable waste is likely to be generated during panel assembly and cabling stages. In this context, waste management will be implemented by sorting waste and sending it to licensed facilities.

There is no settlement around the project area, which will not have an impact during the construction phase. No negative impact is expected during the operation phase as it is an environmentally friendly project.

Bağyurdu OIZ is located on the edge of İzmir and Manisa highways. Therefore, there will be no negative traffic impact on settlements during transportation to the project area. Uninspected vehicles will not be used in terms of vehicle emissions.

Modeling and calculations have been made for emissions from vehicles and dust that may be generated during the construction phase.

Stakeholders likely to be socially affected by the Project have been identified and potential impacts on them have been assessed. In this context, stakeholders were informed about the project, their opinions and suggestions were received, and a grievance mechanism was established during the project process. A Stakeholder Engagement Plan has been prepared. No socially negative impact has been identified.

During the operating period; the impacts will be low, as the access of foreigners to the area will be prevented by wire fence, there will be no working personnel, and absorbent panels will be used. Moderate impacts during operation will occur during maintenance and repair. The water to be used in the washing of the panels and the wastes that will occur due to panel changes are possible effects.

Procedures, control plans will be prepared and monitoring will be carried out in order to reduce the impacts during the construction and operation phases.

ESMP is considered as living document that requires regular review and update with respect to the potential changes in environmental and social conditions as the project progresses. The Bağyurdu OIZ together with its sub-contractors are responsible for the implementation of the ESMP. The Bağyurdu OIZ is committed to follow WB ESSs, IFC PS, as well as the Guidelines of the World Bank Group (IFC Environmental, Health and Safety Guidelines (EHSs)).

It is thought that the project will have positive effects as the energy need will be provided from renewable energy and it will be an incentive for the industrialists of the region and other OIZs.

1. INTRODUCTION

1.1 General Information

Since the 1960s, Organized Industrial Zones (OIZs) have played an important role in Turkey's transformation into a production-based economy. Starting with the establishment of the first Organized Industrial Zone in Turkey in 1961 and now numbering 345 in 81 provinces, OIZs provide employment for approximately 2,000,000 people in 55,000 enterprises. In addition to contributing to industrialization and technological developments, OIZs have an important position in country development and employment creation.

Factors such as global warming and depletion of natural resources have created a growing trend towards greening existing industrial areas and establishing new Green OIZs.

The Green OIZ concept, which includes content such as increasing resource efficiency, zero waste and pollution reduction, efficient use (water, energy, infrastructure and natural resources), use of renewable energy, industrial symbiosis and development of the circular economy concept, will contribute to climate change targets.

The World Bank Group (WBG) provides credit support for project ideas developed to support OIZ basic infrastructure investments, green infrastructure investments, innovation centers investments using green solutions as much as possible

The World Bank-financed "Türkiye Organized Industrial Zones Project" aims to increase the efficiency, environmental sustainability and competitiveness of selected (OIZs), while setting an example for other OIZs.

"1.6 MWe Solar Power Plant and 2500 kVA Transformer and Fast Charging Station Installation Project" will be established within Bağıurdu OIZ as a sub-project of "Türkiye Organized Industrial Zones Project", which carried out in cooperation with the Ministry of Industry and Technology and the World Bank.

Bağıurdu OIZ carries out activities in line with eco-production and Eco Industrial Park (EEP) approach both in terms of its own OIZ management and with the companies within it. The ongoing "Company-Based Analysis of Environmental Criteria for Bağıurdu OIZ Green OIZ and Road Map Project" is one of these projects.

Within the scope of this project, "1.6 MWe Solar Power Plant and, 2500 kVA Transformer and to install a Fast Charging Station to provide some of the energy needed in Bağıurdu OIZ from renewable energy.

Since the installation of the (SPP) within the scope of the Project is included in the Annex-2 List Article 45 (Solar power plants with a project area of 2 hectares or more or with an installed capacity of over 1 MWe) of the repealed EIA Regulation dated 25.11.2014 and numbered 29186, with the amendment made on 26.05.2017, the Project Introduction File was prepared and an "EIA NOT REQUIRED" decision was obtained from Izmir Provincial Directorate of

Environment, Urbanization and Climate Change with decision number 48657465 dated 04.04.2022 (see. Annex-3). Fast Charging Stations are not covered by the EIA Regulation.

1.2 Purpose

The ESMP document aims to determine the social and environmental impacts that are likely to occur during the construction and operation phases of the Project, to evaluate these impacts, and to take actions to mitigate and/or prevent negative impacts.

Within the scope of the ESMP, information was provided regarding the work items planned to be fulfilled in the contract packages, the methodologies to be applied and the working areas, determining the social and environmental impacts that are likely to occur during both construction and operation phases. Potential impacts occurring during all phases of contract packages were described, and measures were taken to prevent impacts and/or minimize negative impacts. To prevent and minimize the impacts described in this ESMP, the responsible project stakeholders were identified, and it was intended to monitor and control the impacts determined in ESMP during the implementation of the Project.

In this ESMP, environmental risks are assessed in terms of potential impacts to air, water and soil in the physical environment and potential impacts to the biological environment. Measurement, analysis and modeling and legal requirements are taken as basis when determining risks. In social impacts, different categories of stakeholders people and institutions likely to be affected by the project and who may have influence on the project are identified. Factors such as legal compliance, socio-economic impacts , traffic and visual pollution are taken into account. Since the use of the electric vehicle fast charging station within the scope of the project is open to everyone, socio-economic impacts are foreseen.

The ESMP is to outline the measures to be taken by the Contractor during construction phase and by the BAYOSB during operation phase, and to ensure that the Project will:

- Comply with all applicable laws, implementing regulations, financing agency obligations (World Bank), permit obligations and good international industry practice (GIIP);
- Not cause undue harm or damage to natural resources, life (including human and wildlife), property or sites, structures or objects of historical or archaeological significance;
- Not to harm the safety of employees and local people during the construction and operation phase.
- Shape the overall program for environmental and social management throughout the construction and operation phases of the project;
- Respect the nearby community and fulfill commitments made in information disclosure and consultation activities; and
- Provide a framework for contractors to implement environmental and social (E&S), OHS, labor and safety measures on site during construction.

1.3 Scope

This ESMP has been prepared within the scope of managing the environmental and social impacts of the Electric Vehicle Fast Charging Station Project with 1.6 MWe Solar Power Plant and 2500 kVA Transformer, which is planned to be realized in two separate parcels within the borders of İzmir province, Kemalpaşa district, Bağyurdu OIZ.

The ESMP applies to project activities associated with the Project construction sites and the local community, including the (Solar Panel Installation Site, Transformer unit and Charging Station Site), access roads to the Project site, transportation and delivery of materials to and from the site.

The management of the impacts of Operations during the pre-construction, construction phase and operational phase of the Project will be determined through separate management plans. The Contractor is responsible for developing an Environmental and Social Management System (ESMS) as well as Health and Safety Management Systems (HSMS) and all supporting site procedures and method statements to implement the requirements of this Plan. The Contractor is responsible for ensuring that all subcontractors comply with the Project specific ESMS and support thematic plans.

2. REGULATORY AND INSTITUTIONAL FRAMEWORK

2.1 National Requirements

National laws that govern the protection and conservation of the environment, resources and cultural and natural assets, the prevention and control of pollution, the implementation of measures for the prevention of pollution, health and safety, labor issues and operation of OIZs are listed as follows:

- Environmental Law No. 2872 OG Dated 11.08.1983 And and Numbered 18132
- Forest Law No. 6831 OG Dated 8.09.1956 And and Numbered 9402
- Law No. 167 On on Groundwater Law Dated 23.12.1960 And and Numbered 10688 OG
- Law No. 2863 On on the Protection oOf Cultural And and Natural Assets OG Dated 23.07.1983 And and Numbered 18113
- Labor Law No. 4857 OG Dated 10.06.2003 And and Numbered 25134
- Law No. 6331 On on Occupational Health and Safety, OG Dated 20.06.2012 And and Numbered 28339
- Law No. 5403 On on Soil Conservation and Land Use OG Dated 19.07.2005 And and Numbered 25880
- Law No. 5393 On on Municipalities OG Dated 13.07.2005 aAnd Numbered 25874
- Law No. 5216 Oon Metropolitan Municipalities OG Dated 23.07.2004 aAnd Numbered 25531
- Law No. 2873 oOn National Parks OG Dated 11.08.1983 aAnd Numbered 18132
- Law No. 1593 oOn Public Hygiene OG Dated 06.05.1930 aAnd Numbered 1489
- Law No. 5543 oOn Settlement Dated 26.09.2006 aAnd Numbered 26301 OG
- Law No. 5627 oOn Energy Efficiency OG Dated 02.05.2007 aAnd Numbered 26510
- Law No. 5510 oOn Social Security and General Health Insurance OG Dated No. 16.06.2006 and Numbered , 26200 OG

- Law No. 4562 on Organized Industrial Zones OG Dated 15.04.2000 and Numbered 24021

The regulations listed below set out the management principles, rules, standards, preventive and protective measures, as well as the permits required to achieve the objectives set by the Environmental Law and other complementary laws related to the Project. The implementation of the policies, standards and measures required by these laws and regulations are registered and committed during the national EIA process. The national EIA process is governed by the EIA Regulation published in the (Official Gazette 29.07.2022 and numbered 31907)

The Environmental Permit and License Regulation (Official Gazette 25 November 2014 and numbered 29186) guarantees the management of the environmental impacts of the project, and the Environmental Inspection Regulation (Official Gazette 21 November 2008 and 27061) guarantees the monitoring of these environmental impacts.

The management of matters related to labor and working conditions is carried out in accordance with the Labor Law (Law No. 4857, Approval Date: 2003) published by the Ministry of Labor and Social Security and the relevant regulations published according to this law. Regulations applicable to the implementation of the Project and their implications are presented in Table 1 below.

Table 1: National Requirements (Regulations)

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project
Water Pollution Control Regulation	12/31/2004-01/10/2016	25687 29589	Management and discharge of wastewater generated during construction and operation
Waste Management Regulation	04/02/2015	29314	Management and disposal of waste generated during construction and operation phase Hazardous waste management
Regulation on Landfilling of Wastes	03/26/2010 03/11/2015	27533 29292	Disposal of waste
Waste Oil Management Regulation	07/30/2008 11/05/2013	26952 28812	Management of waste oils generated during construction and operation phases
Regulation on Control of Vegetable Waste Oils	06/06/2015	29378	Management of waste vegetable oil generated during construction and operation phases
Packaging Waste Control Regulation	08/24/2011	28035	Management of packaging waste generated during construction and operation phases
Regulation on Control of Medical Waste	01/25/2017	29959	Management of medical waste generated during construction and operation phases
Regulation on the Control of End-of-Life Tires	11/25/2006 03/11/2015	26357 29292	Waste management of End-of-Life Tires generated during construction and operation phases
Regulation on Control of Waste Batteries and Accumulators	08/31/2004 12/23/2014	25569 29214	Management of battery and accumulator wastes produced during construction and operation phases

Regulation on Noise Emission in the Environment Generated by Outdoor Equipment	12/30/2006	26392	Management of noise sources used during construction and operation phases. Noise limits and standards
Environmental Noise Control Regulation	11/30/2022	32029	Ambient noise management Ambient noise standards Modeling requirement
Regulation on Control of Industrial Air Pollution	07/03/2009 12/20/2014	27277 29211	Management of air emission sources during construction and operation phases. Dust emission control during construction phase Emission Monitoring
Regulation on Evaluation and Management of Air Quality	06/06/2008	26898	Management of ambient air quality Ambient air quality standards Modeling Requirement
Regulation on Soil Pollution Control and Point Source Contaminated Sites	6/8/2010- 07/11/2013	27605 28704	Soil contamination risks during construction and operation phases Remediation of contaminated sites
Regulation on Control of Excavation Soil, Construction and Destruction Wastes	03/18/2004	25406	Transportation and disposal of excavation waste and construction debris during construction phase
Environmental Permit and License Regulation	10/10/2014	29115	Other permits such as authorization for temporary storage of waste, authorization for temporary storage of waste, etc
Environmental Audit Regulation	11/21/2008	27061	Implementation and monitoring of the measures envisaged in the EIA Report Monitoring the operation of facilities in accordance with laws and regulations in terms of environmental legislation.
Regulation on Workplace Opening and Operation Licenses	09/10/2005	25902	Operation of facilities
Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals	06/23/2017	30105	Management of chemicals used during construction and operation
Regulation on Occupational Health and Safety in Construction Works	10/05/2013	28786	Fulfillment of minimum occupational health and safety requirements for construction works
Personal Protective Equipment Regulation	05/01/2019	30761	Use of PPE suitable for the work to be done during construction and operation
Health and Safety Signs Regulation	09/11/2013	28762	To comply with health and safety signs during construction and operation
Regulation on Occupational Health and Safety in Temporary or Fixed Term Works	08/23/2013	28744	Ensuring that all employees have equal rights
Regulation on Emergency Situations in Workplaces	06/18/2013	28681	Responding to emergencies that may occur during construction and operation
Regulation on the Procedures and Principles of Occupational Health and Safety Training of Employees	05/15/2013	28648	Organizing trainings during construction and operation
Regulation on Health and Safety Conditions in the Use of Work Equipment	04/25/2013	28628	To determine the minimum conditions to be complied with during construction and operation
Occupational Health and Safety Risk Assessment Regulation	12/29/2012	28512	Determine the risk assessment requirements during construction and operation
Regulation on Overtime and Overtime Working Regarding Labor Law	04/06/2004	25425	Determination of working hours

Communiqué on List of Hazard Classes for Occupational Health and Safety	03/29/2013	28602	Determination of the hazard class of the activity
First Aid Regulation	07/29/2015	29429	Identifying the people who need first aid training according to the number of employees
Regulation on Classification, Packaging and Labeling of Dangerous Substances	12/26/2008	27092	Packaging and labeling of hazardous materials to be used during construction and operation
Regulation on the Protection of Employees from Noise-Related Risks	07/28/2013	28721	Ensuring that employees are protected from hearing-related risks
Regulation on the Protection of Workers from Risks Arising from Vibration	08/22/2013	28743	Ensure that workers are protected from risks related to exposure to vibration
Regulation on Dust Control	11/05/2013	28812	Identifying and preventing risks that may arise from dust during construction and operation
Regulation on Emergency Situations in Workplaces	06/18/2013	28681	Planning of emergency situations in workplaces
Subcontracting Regulation	09/27/2008	27010	Regulating the principal employer-subcontractor relationship
Regulation on Suspension of Work in Workplaces	03/30/2013	28603	When a hazardous situation is detected during construction and operation, stopping and resuming the work until the hazard is eliminated
Regulation on Vocational Training of Those to be Employed in Dangerous and Very Dangerous Classes of Work	07/13/2013	28706	To determine the procedures and principles of vocational training of employees working in hazardous and very hazardous jobs

The Solar Power Plant within the scope of the project is included in the Annex-2 List article 45 of the Environmental Impact Assessment Regulation. For this reason, Project Introduction File was prepared for the relevant project and submitted to İzmir Provincial Directorate of Environment, Urbanization and Climate Change. As a result of the evaluations, it was decided that Environmental Impact Assessment is not Required with the decision number 202282 dated 04.04.2022. (Annex-3)

The electric vehicle fast charging station, which is the other component of the project, is not within the scope of the Environmental Impact Assessment Regulation. The evaluation on this subject has been documented with the letter numbered 5212662 of the İzmir Provincial Directorate of Environment, Urbanization and Climate Change.(Annex-6)

2.2 International Requirements

Turkish national policy on the protection of the environment, cultural heritage and conservation of biological resources is formulated on the basis of relevant international agreements signed or ratified by Turkey.

The relevant environmental, OHS and international labor conventions and agreements ratified by Turkey are listed below:

- International Convention for the Protection of Birds, Paris 1959 (Turkey OG 17.12.1966, no. 12480)
- Convention on the Establishment of a European and Mediterranean Plant Protection Organization (Amended), Paris 1951 (Turkey 10.8.1965)
- European Cultural Agreement 19.12.1954 (Turkey OG 17.6.1957, no. 9635)
- Convention on the Protection of the World Cultural and Natural Heritage, Paris 1972 (Turkey OG 14.2.1983, no. 17959)
- Convention for the Conservation of European Wildlife and Natural Habitats, Bern 1979 (Turkey OG 20.2.1984, no. 18318)
- Convention for the Protection of the Mediterranean Sea against Pollution, Barcelona 1976 (Turkey OG 12.6.1981, no. 17368)
- Protocol on the Protection of the Mediterranean Sea against Land-Borne Pollutants, Athens 1980 (Turkey OG 18.3.1987, no. 19404)
- Protocol on Specially Protected Areas in the Mediterranean Sea, Geneva 1982, (signed 6.11.1986) (OG 23.10.1988, No. 19968)
- Convention on Long-Range Transboundary Air Pollution, Geneva 1979 (Turkey OG 23.3.1983, no. 17996)
- On the Long-Term Financing of the Cooperation Program for Monitoring and Evaluation of Long-Range Transmissions of Air Pollutants in Europe (EMEP) 1979
- Additional Protocol to the Convention on Long-Range Transboundary Air Pollution, Geneva 1984 (OG 23.7.1985, No. 18820)
- Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer, (OG 8-9.9.1990, no. 20629)
- Convention on Biological Diversity, Rio de Janeiro, 5.6.1992 (Official Gazette dated December 27, 1996 and numbered 22860)
- Convention on Wetlands of International Importance, Especially as Waterfowl Habitats (RAMSAR), (OG 17.5.1994, no. 21937)
- CITES Convention on International Trade in Endangered Species of Animals and Plants (Official Gazette dated June 20, 1996)
- ILO Framework Convention No. 187 on Occupational Health and Safety (OG dated 29.05.2013 and numbered 28661)
- ILO Convention No. 167 on Safety and Health in Construction Work (OG dated 29.11.2014 and numbered 29190)
- ILO Convention No. 155 on Occupational Health and Safety and Working Environment (OG dated 13.01.2004 and numbered 25345)
- ILO Convention No. 111 on Discrimination (Employment and Occupation) (OG dated 22.12.1966 and No. 12484)
- ILO Forced Labor Convention No. 29 (OG No. 23243 dated January 27, 1998)
- ILO Unemployment Convention No. 2 (OG No. 7346 dated 18.02.1950)
- ILO Weekly Rest (Industry) Convention No. 14 (OG No. 4634 dated February 16, 1946)
- ILO Wage Protection Convention No. 95 (OG dated 28.10.1960 and numbered 10641)
- ILO Convention No. 105 on the Abolition of Forced Labor (OG No. 10686 dated 21.12.1960)

2.3 World Bank Requirements

The World Bank Environmental and Social Standards (ESS) set out the requirements to be met by Borrowers with respect to the identification, assessment and mitigation of social and environmental risks and impacts associated with projects supported by the Bank through Investment Project Financing.

Seven of the ten ESSs set out the standards that the Borrower and the project will meet throughout the project lifecycle, as follows

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts;
Evaluation of the effects of the activities in the construction and operation phase of the project on air, water, soil and social sense
Environmental and social risks will be determined and necessary actions will be determined to reduce them.
- ESS2: Labor and Working Conditions;
Establishing suitable working conditions to ensure the safety of those who will work during the construction and operation phases of the project.
By determining the risks for the employees, these risks will be prevented by training, protective equipment, measurement and analysis.
- ESS3: Resource Efficiency and Pollution Prevention and Management;
Efficient use of natural resources to be used within the scope of the project
Establishing and monitoring plans and procedures to avoid unnecessary use of natural resources during the construction and operation phases of the project.
- ESS4: Public Health and Safety;
During the construction and operation phase of the project, the local people are not adversely affected in terms of health and safety.
During the construction and operation phases of the project, necessary precautions should be taken to ensure that the people of the region are not adversely affected in terms of health and safety, and the people of the region are informed about the project.
- ESS6: Conservation of Biodiversity and Sustainable Development of Living Natural Resources Management; and
Conservation of existing biodiversity in and around the project area
Taking measures to determine the existing biological diversity in the project area, to protect it in case of endemic species and to prevent damage to the biological diversity around the project area.
- ESS10: Stakeholder Engagement and Information Disclosure.
Involving and informing the person organizations that are likely to be affected by the project, establishing a suggestion and complaint mechanism
Identifying the person organizations likely to be affected by the project, informing the stakeholders about the project, and establishing a system where they can report their suggestions and complaints during the construction and operation phases of the project.

In accordance with the ESSs, the World Bank Group's Environment, Health and Safety (EHS) Guidelines should be applied to the project. Therefore, this project will implement the relevant requirements of the EHS Guidelines. In cases where Turkish requirements differ from the levels and measures presented in the EHS Guidelines, the more stringent one (such as the most stringent discharge and emission standards) will be applied in the project specifications.

Table 2: Comparison between the World Bank ESSs and the National Legislation

WB Environmental and Social Standards (ESS)	Gaps	ESF Documents/study to fill the Gaps
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	<p>The major gaps between national EIA and ESS1 are as follows:</p> <ul style="list-style-type: none"> - Social impact assessment is not completely integrated to the Turkish EIA and this results in the absence of proper social baseline, identification and assessment of the project induced social impacts including impacts on disadvantaged or vulnerable and gender related issues, - The absence of an executive summary and information on the legal and institutional framework in the Turkish EIA (Technical level of information in the non-technical summary required in the Turkish EIA may not meet WB requirements); - Limited or no requirement to cover cumulative impacts with other projects in the Turkish EIA; and - Limited emphasis on the associated facilities. - Limited information regarding sub-management plans such as Water Quality Management Plan, Air Quality Management Plan, Noise Management Plan, Hazardous Waste Management Plan, Community Health and Safety Management Plan etc. 	<p>Sub-project specific Environmental and social assessment studies regarding ESIA or ESMP will be prepared in line with ESS1. In this respect, as it is defined in ToC provided in Annex 2 of Environmental and Social Management Framework (ESMF) that was approved by WB for Turkey OIZs Project, potential social impacts of the sub-projects will be the part of the assessment.</p> <p>The environmental and social assessment will include impacts of the associated facilities and potential cumulative impacts.</p> <p>Depending on the level of the impacts and proposed mitigation measures together with residual impact analysis, sub-management plans will be annexed to the ESIA/ESMP.</p>
ESS2: Labour and Working Conditions	<p>In general, Turkish national laws and regulations regarding labour and working conditions satisfies ESS2 requirements. Worker grievance mechanism is the main gap between national legislative requirement and ESS2. Per the Turkish national legislation on labour and working conditions, there is no specific requirement related to grievance mechanism that allow workers to communicate their complaints to the employer.</p>	<p>Labor Management Procedure (LMP) is developed as a part of ESF documents. LMP will also provide guidance on the required mitigations or management implementations such as workers GM, code of conduct etc. stipulated by ESS2 and relevant WB EHS guidelines.</p>
ESS3: Resource Efficiency and Pollution Prevention and Management	<p>Most of the relevant national legislations regarding laws and regulations are in line with EU directives. There is no major gap between ESS3 and legislative requirements. Local EIA does not provide detailed management perspective on potential impacts, mitigation measures and residual impacts and monitoring. In other words, sub-management plans are not specifically defined in local EIA process.</p> <p>Additionally, the specific studies regarding resource use and pollution prevention such as Water Source Vulnerability Analysis (WSVA), Greenhouse Gas (GHG) estimations etc. are not specifically included in local EIA Process.</p>	<p>Sub-management plans will be developed as a part of ESIA/ESMP. These management plans also provide requirement stipulated in relevant WB EHS Guidelines.</p> <p>In case a requirement, additional studies (i.e WSVA, GHG etc.) will be performed in the scope of ESIA/ESMP.</p>
ESS4: Community Health and Safety	<p>In general, there is no gap in terms of policy level. On the other hand, project level management of specific risks such as labour influx, sexual exploitation and abuse and sexual harassment are the key gaps in terms of ESS4.</p>	<p>The plans such as Traffic Management Plan and Community Health and Safety Plan etc. will be prepared as a part of ESIA/ESMP.</p>

WB Environmental and Social Standards (ESS)	Gaps	ESF Documents/study to fill the Gaps
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Turkish legislation on land acquisition mainly corresponds to requirements stipulated by ESS5. However, some differences include; preparation of a Resettlement Plan (RP), compensation at replacement costs, continuous consultation during RP implementation, impact assessment on informal land users, vulnerable groups and land based livelihood restoration are the major gaps in terms of ESS5 requirement.	The specific Resettlement Framework (RF) is prepared to provide a guidance to assess any risk of resettlement and to prepare sub-project specific RP in case a requirement.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	There is no gap in terms of policy level. On the other hand, in some cases, level of the considerations of not legally protected sensitive ecological areas such as Key Biodiversity Areas in local EIA Process are not sustain the requirements stipulated by ESS6. Furthermore, management and monitoring of potential impacts, mitigation measures and residual impacts are not detailed in general.	Depending on the location of the sub-project and sub-project level of the impact, Biodiversity Management Plans can be annexed to the ESIA/ESMP.
ESS10: Stakeholder Engagement and Information Disclosure	Effective and transparent stakeholder engagement is the main gap in terms of ESS10 requirement. Within this scope, a Stakeholder Engagement Plan required to identify the different stakeholders (project-affected parties and other interested parties including disadvantaged or vulnerable). Stakeholder engagement should be a continuous process.	Project specific SEP is prepared and included in ESF documents. The SEP will be implemented sub-project level.

All phases of the project will also comply WBG guidelines.

- EHS General Guidelines of the World Bank Group
- World Bank Group's EHS Guidelines for Electric Power Transmission and Distribution,
- World Bank Group's EHS Guidelines for Waste Management Facilities,

The Project would build on an existing technical assistance relationship between the MoIT and the World Bank Group (WBG) that helped develop a national framework for Green OIZs in Turkey and carried out preliminary assessments of the potential impact of OIZ investments.

In this context, as an implementing agency for the project is MoIT will provide loans to borrowing OIZs, as a sub-borrower and the Project as a selected Project will use a loan.

3. INTRODUCTION OF THE PROJECT OWNER

3.1 History of the Institution

The foundation of Bağyurdu Organized Industrial Zone was laid in 2006 when a group of approximately 100 industrialists from the region (SS KOBİSAN Land and Housing Construction Coop) came together.

With the Site Selection Commission Report dated 29.05.2007 and the letter of the Ministry of Industry dated 24.12.2007, the proposed site for the OIZ has been approved as OIZ land and on 15.07.2008, Organized Industrial Zones were approved as an OIZ area according to the 22nd Article of the Site Selection Regulation.

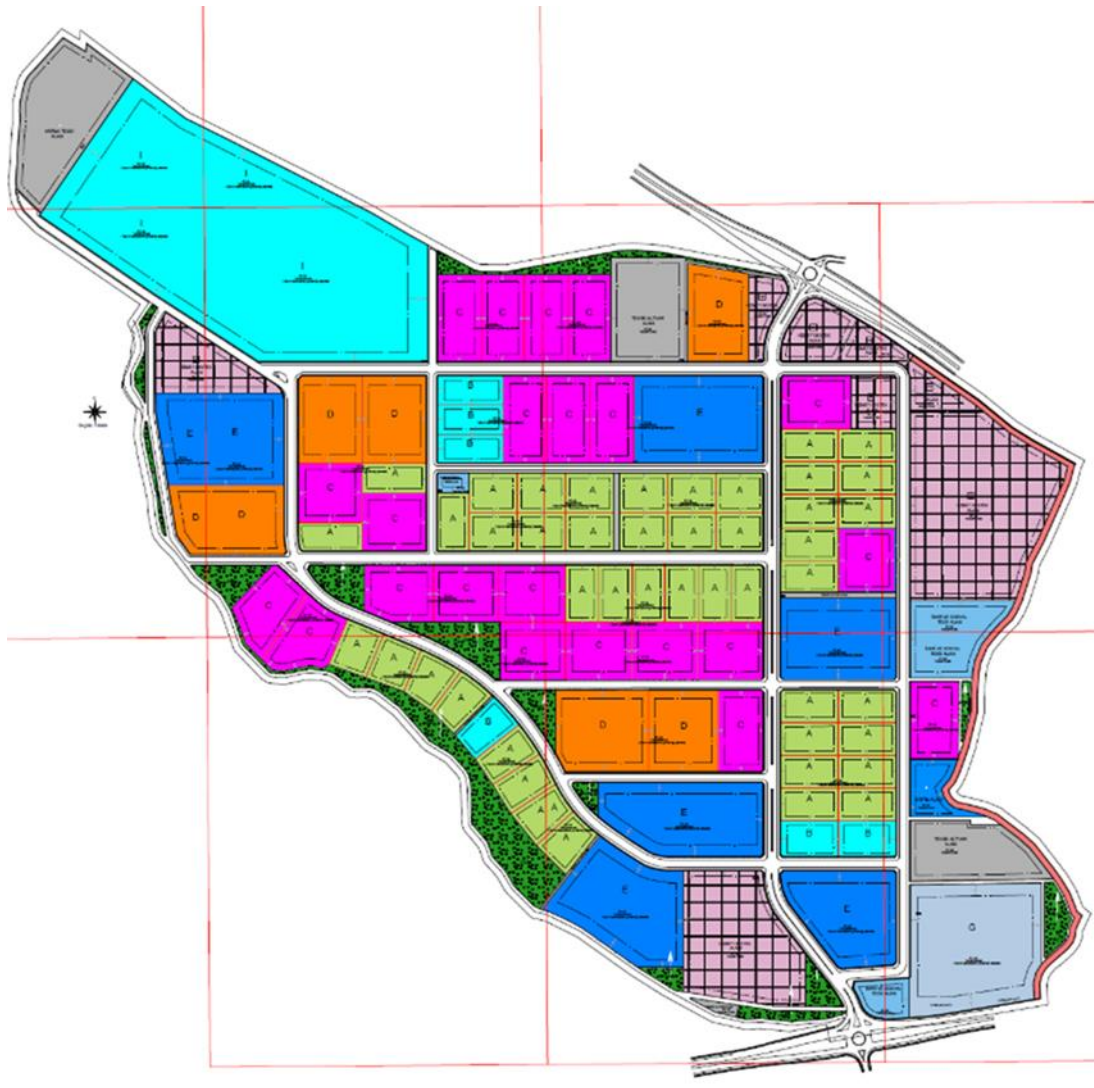
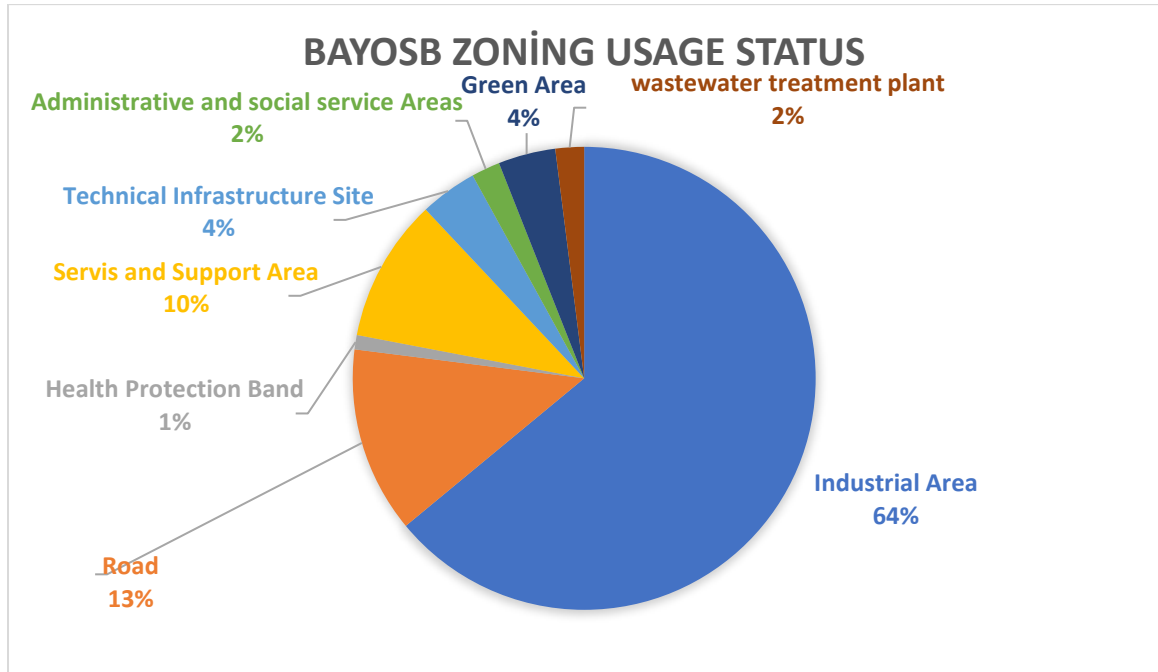


Figure 1: BAYOSB Site Plan

On 27.10.2008, it was registered within the framework of the law numbered 4562 and legal entity was acquired. Following the completion of the establishment process, infrastructure works were initiated in 2011. The site plan of BAYOSB is given is Figure 1.

3.2 Institution Land Use

Located on an area of approximately 1,500,000 m², BAYOSB has 87 parcels of various sizes. Land uses are planned as industrial area, treatment plant, green area-park, administrative and social facility area, technical infrastructure area, service support area and health protection band.



Graphic 1: BAYOSB Zoning Usage Status

In the current situation, the land uses in the OIZ are industrial use, roads, service and support area, technical infrastructure, green area, administrative and social service area, treatment plant, and health protection band. The largest land use is for industrial purposes with 64% (see Graphic 1). Land uses are depicted on the general site plan given in Figure 1

3.3 Organization Chart

Staff Capacity; A total of 15 personnel work in Bağyurdu OIZ. Projects are carried out by administrative staff. There are 8 personnel in the Administrative Staff. Information is listed below.

Name	Title
Figen AKDEMİR	Industrial Zone Manager
Ayşe GÖLGE	Project Specialist
Serdar ŞENOL	Finance Specialist
Numan BİLGİN	Civil Engineer
Cem ŞAHİN	Electrical Engineer
Fatih GÜÇLÜ	Administrative Affairs Manager
İnanç BABACAN	Survey Technician
Zerniřan ÖZTÜRK	Manager Assistant

Furthermore, a project implementation unit (PIU) was established in the OIZ. Project implementation experiences of the personnel are detailed in the table.(Table 3)

Table 3: Project implementation experiences of the staff

Name	Title	Responsibilities in the previously implemented projects in OIZ
Figen AKDEMİR	Industrial Zone Manager	Figen Akdemir, worked as the project coordinator in 4 projects of Bağıurdu Organized Industrial Zone. 1- Bağıurdu Organized Industrial Zone Vocational Training Center Project 2- BAYOSB Energy Paths 3- Green OIZ Roadmap Project 4- BAYOSB Sustainable Training Center
Ayşe GÖLGE	Project Specialist	Ayşe Gölge, worked as a project specialist in 3 projects of Bağıurdu Organized Industrial Zone. 1- Bağıurdu Organized Industrial Zone Vocational Training Center Project 2- Green OIZ Roadmap Project 3- BAYOSB Sustainable Training Center
Serdar ŞENOL	Financial Management Specialist	Serdar Şenol, worked as a financial management specialist in 4 projects of Bağıurdu Organized Industrial Zone. 1- Bağıurdu Organized Industrial Zone Vocational Training Center Project 2- BAYOSB Energy Paths 3- Green OIZ Roadmap Project 4- BAYOSB Sustainable Training Center
Numan BİLGİN	Civil Engineer	Numan Bilgin, will work as a civil engineer in this project.
Cem ŞAHİN	Electrical Engineer	Cem Şahin, will work as an electrical engineer in this project.
Fatih GÜÇLÜ	Administrative Services Manager	Fatih Güçlü, worked as administrative services manager in 3 projects of Bağıurdu Organized Industrial Zone. 1- Bağıurdu Organized Industrial Zone Vocational Training Center Project 2- Green OIZ Roadmap Project 3- BAYOSB Sustainable Training Center
İnanç BABACAN	Survey Technician	İnanç Babacan, worked as a survey technician in below mentioned projects carried out by Bağıurdu Organized Industrial Zone.
Zernişan ÖZTÜRK	Manager Assistant	Zernişan Öztürk, worked as an assistant in below mentioned projects carried out by Bağıurdu Organized Industrial Zone.

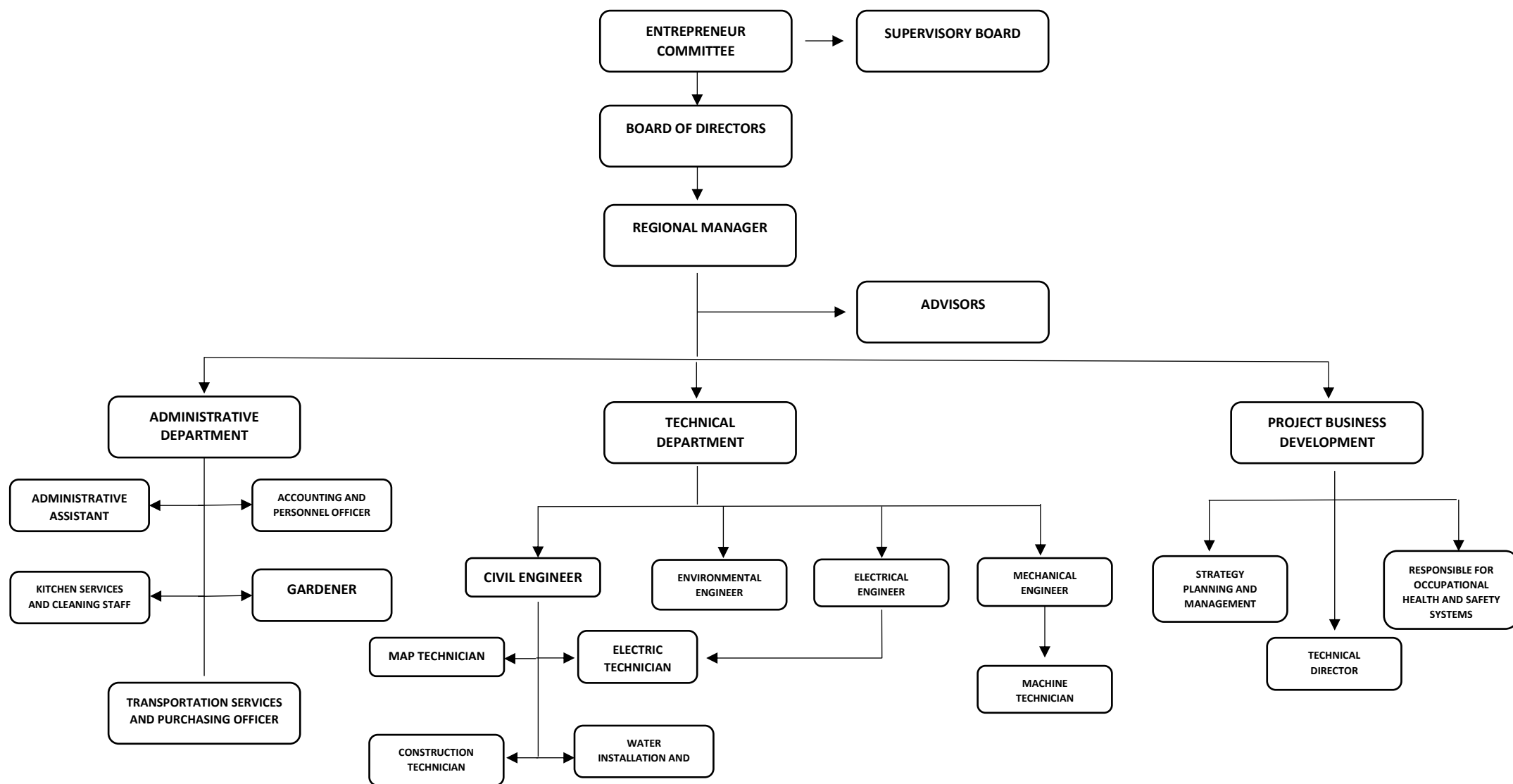


Figure 2: Bağyurdu OIZ Organization Ch

4. PROJECT INTRODUCTION

4.1 Solar Power Plant

It is planned to establish a solar power plant with a capacity of 1.6 mW by Bağyurdu OIZ. As the project area, parcel no. 1 of block 110 has been determined in İzmir province, Kemalpaşa district, in Bağyurdu OIZ and its ownership belongs to the OIZ Directorate. See Figure-4

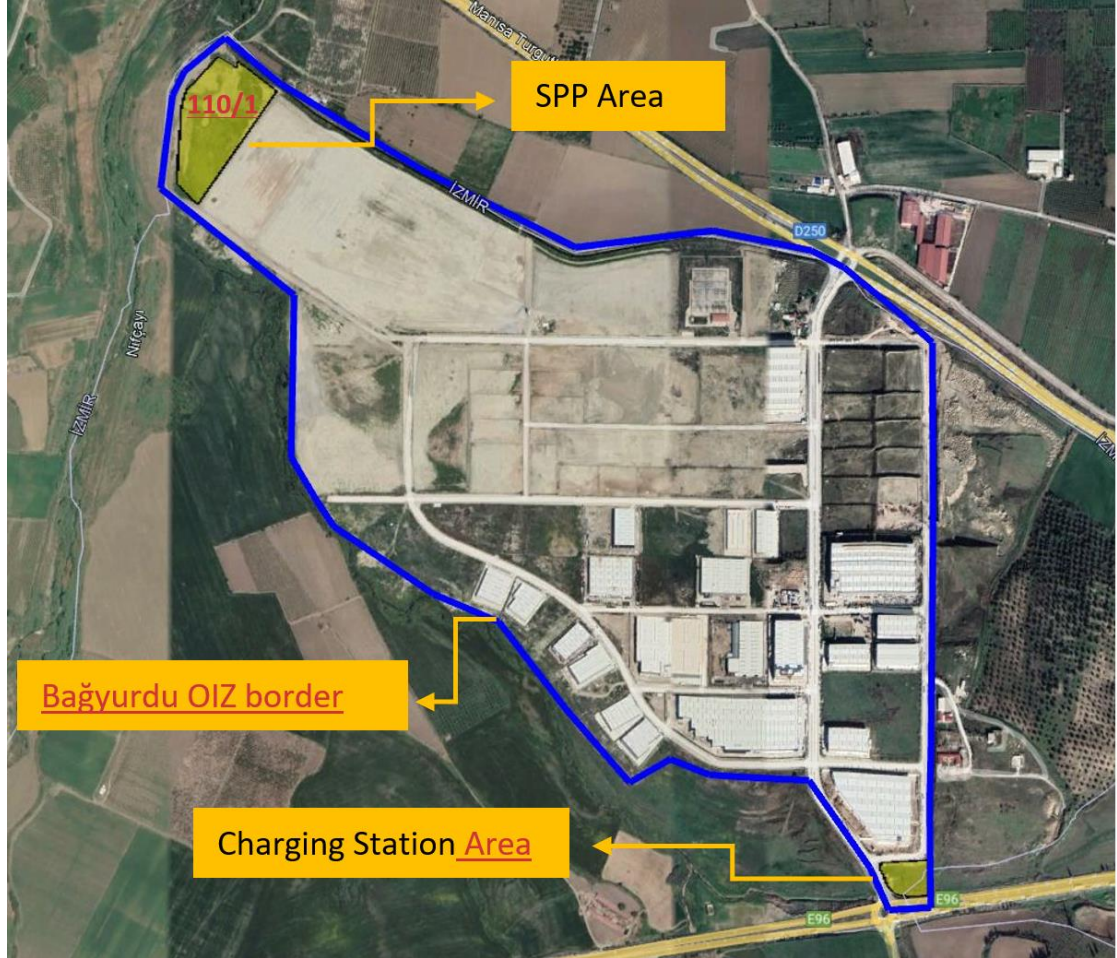


Figure 3: Project Area Title Deed Information

The parcel size is 29,491.62 m². However, the project will be realized in 18,555.44 m² of this area. A wastewater treatment plant will be built later in the remainder of the area. Monocrystalline solar panels or polycrystalline solar panels will be preferred as solar panels in the project.

4.2 Transformer

Within the scope of the project, a transformer center with a power of 2500 kVA will be built in order to convert the quantities of electrical energy to the desired value. Cabling operations between the panels and the transformer will be laid underground. Likewise, grounding cables will be underground. (see Figure 4)

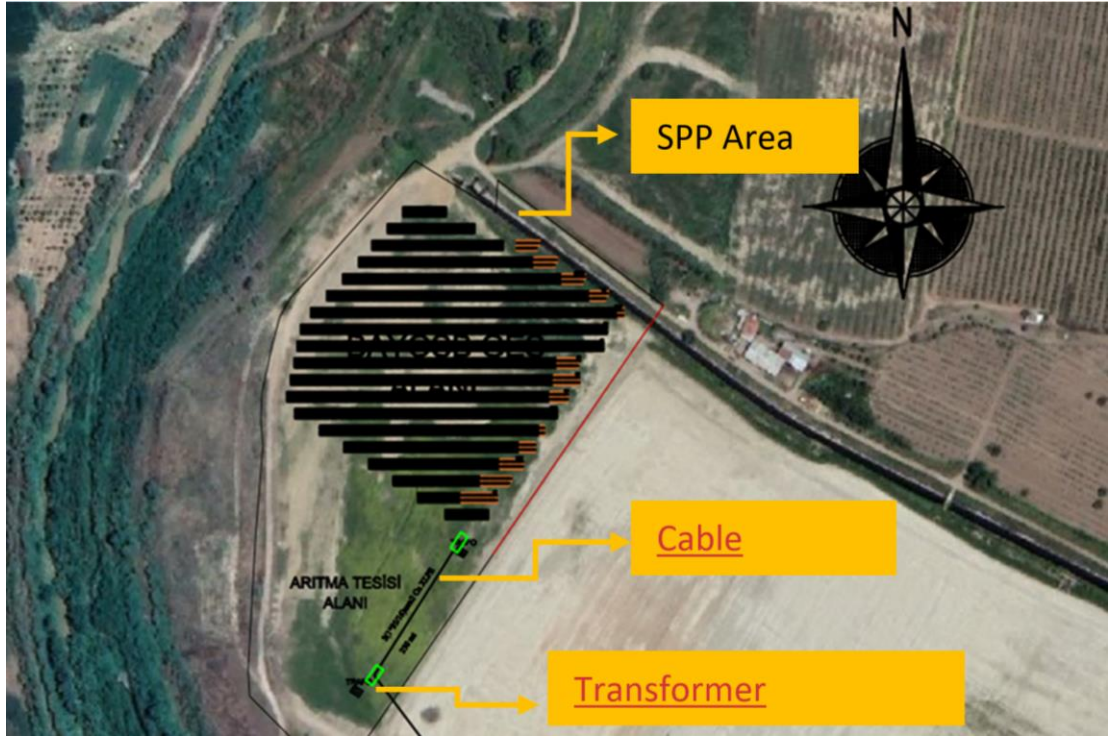


Figure 4: SPP and Transformer Layout Satellite Image

4.3 Elektrik Vehicle Quick Charge Station

Within the scope of the project, it is planned to establish a charging station for rapid charging of both the electric vehicles in the OIZ and the electric vehicles of the people of the region. For the charging station, parcel no. 27, block 104, with an area of 5,258.47 m², located within the borders of Bağıyurdu OIZ and owned by the OIZ directorate, was selected. A charging unit will be installed where two vehicles can be charged at the same time. (see Figure 5-6)

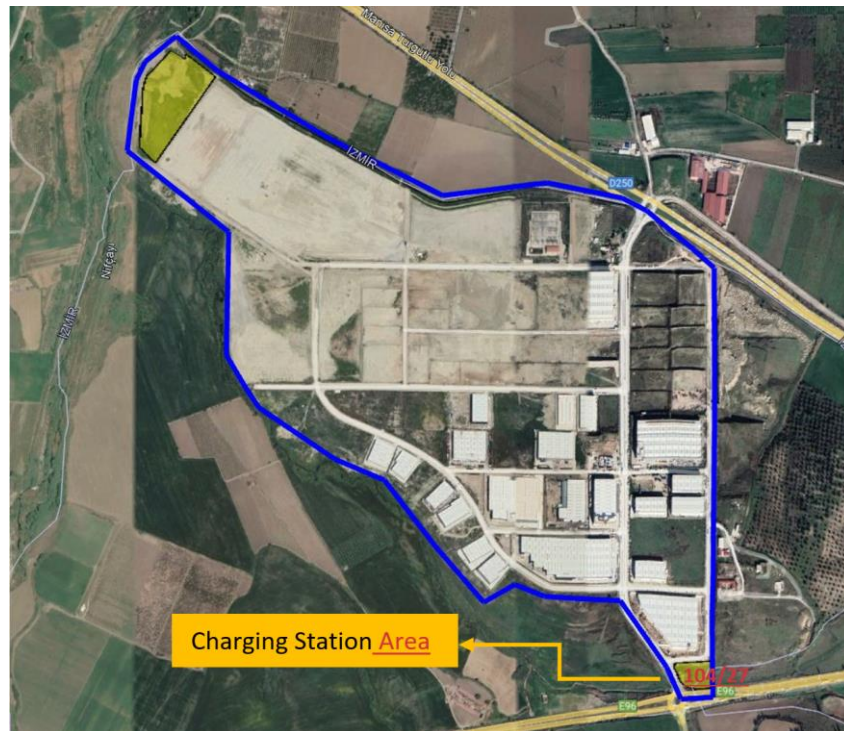


Figure 5: Charging Station Area Satellite Image



Figure 6: Charging Station Area Layout Plan

When choosing a location for solar power plant, the following issues have been taken into consideration;

- The fact that the plant site is a region suitable for generating electricity from solar energy,(see Figure 7 and 8)
- There are no legal obstacles or restrictions on use within the scope of the applicable legislation in and around the power plant site, and
- The fact that İzmir province has a production capacity in the average of Turkey in terms of solar energy

In addition to the above-mentioned data, data on global radiation values(Graph 2, Graph 5), sun exposure times(Graph 3, Graph 6), and energy production capacities according to panel types (Graph 4, Graph 7) in Turkey and İzmir were taken into account.

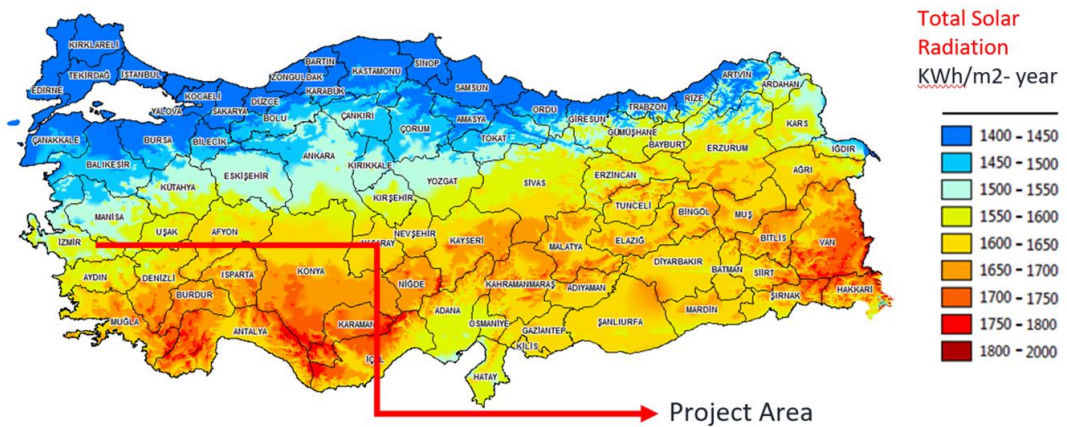
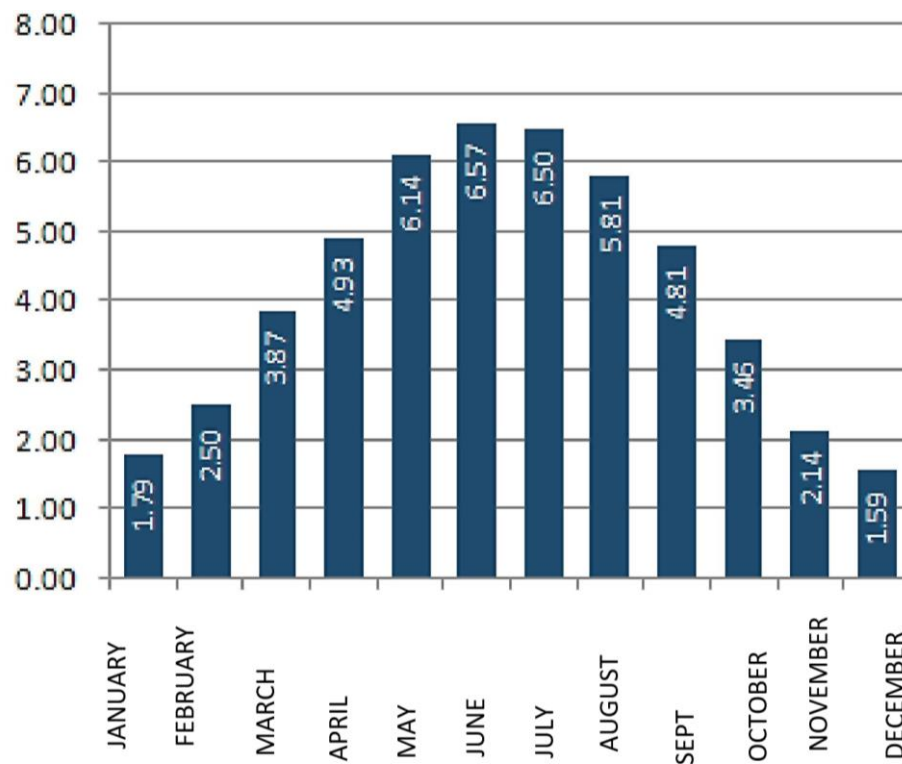
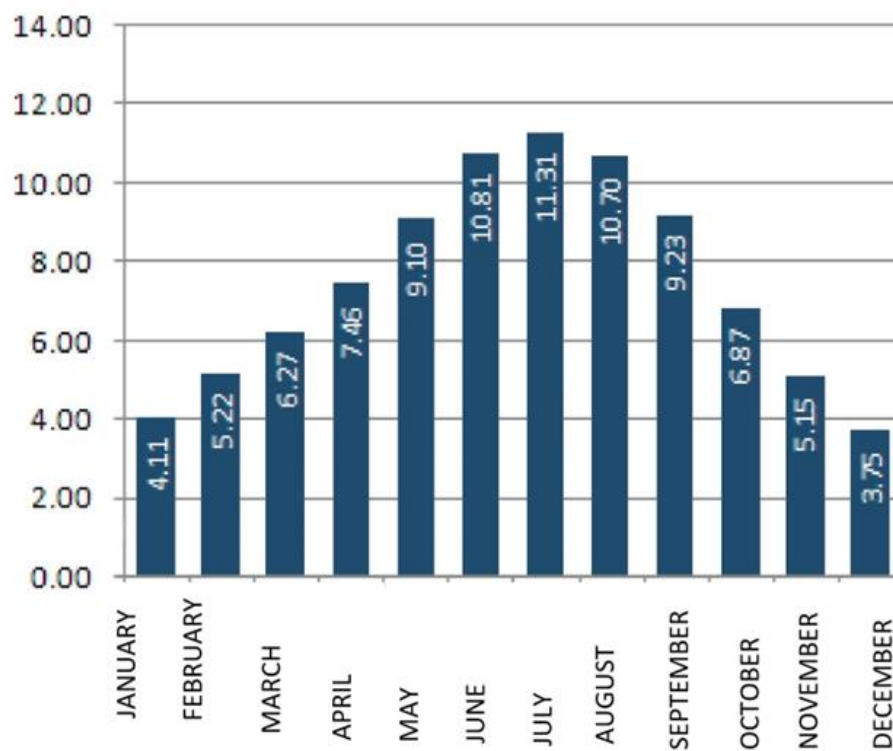


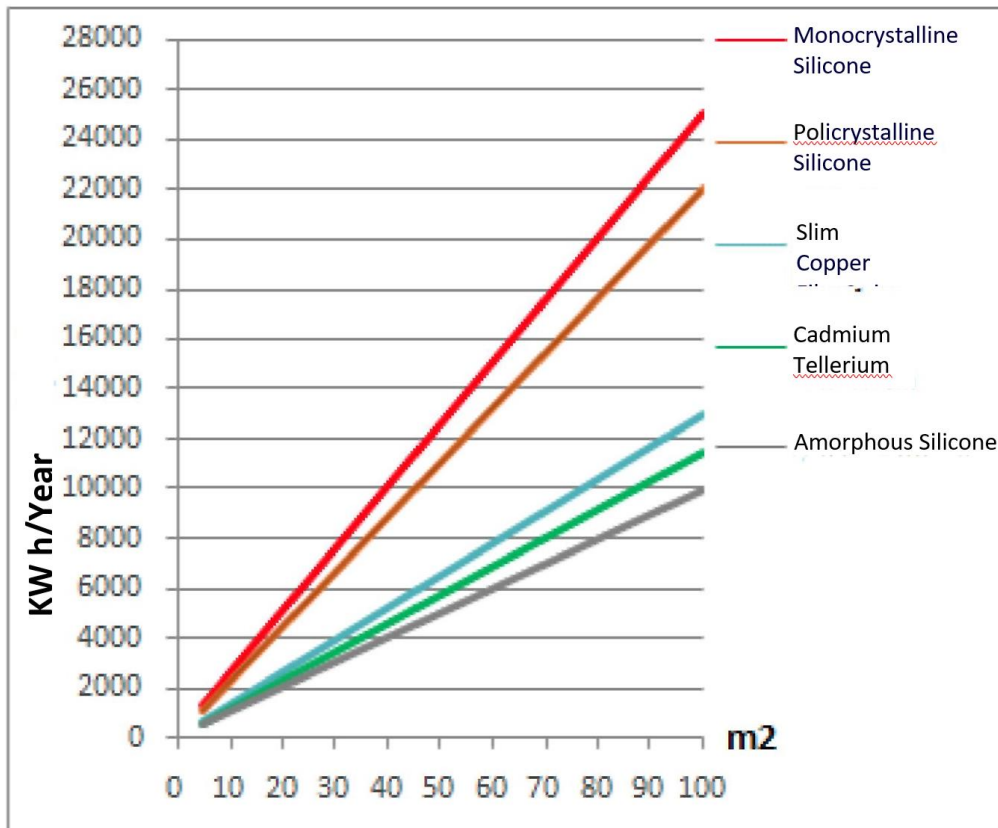
Figure 7: Turkey Solar Energy Potential Atlas (Source: gepa.enerji.gov.tr/MyCalculator/)



Graphic 2: TURKEY Global Radiation Values (KWh/m²-day)



Graphic 3: TURKEY Sunbathing Hours (Hours)



Graphic 4: TURKEY PV Type-Area-Producible Energy (KWh-Year)

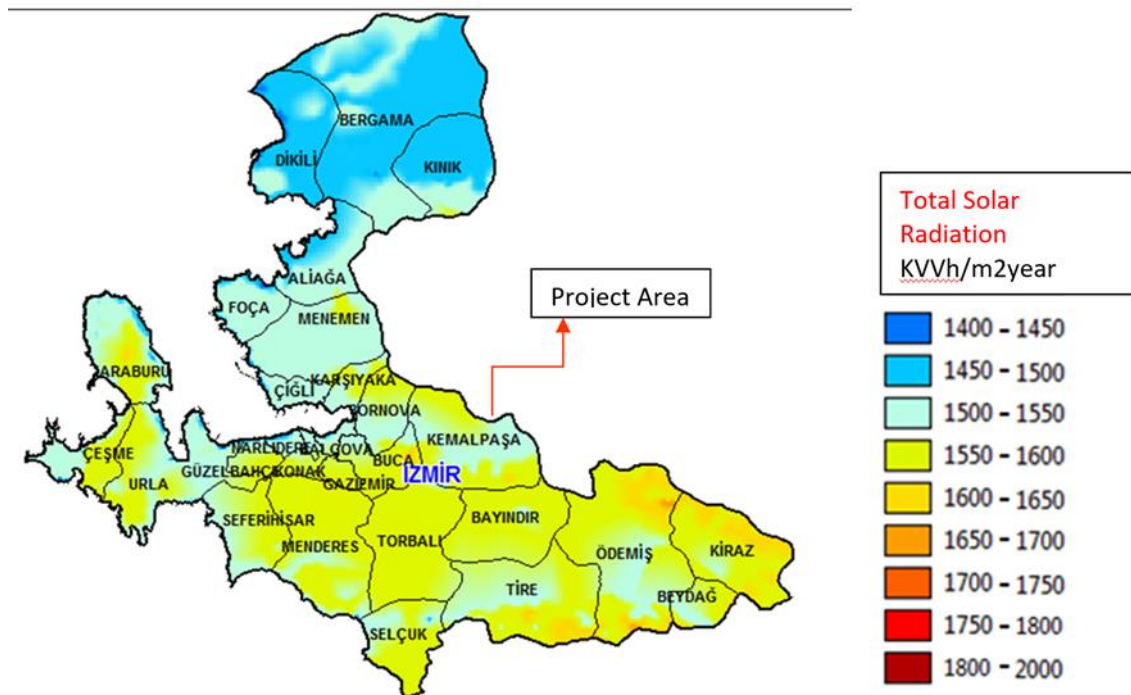
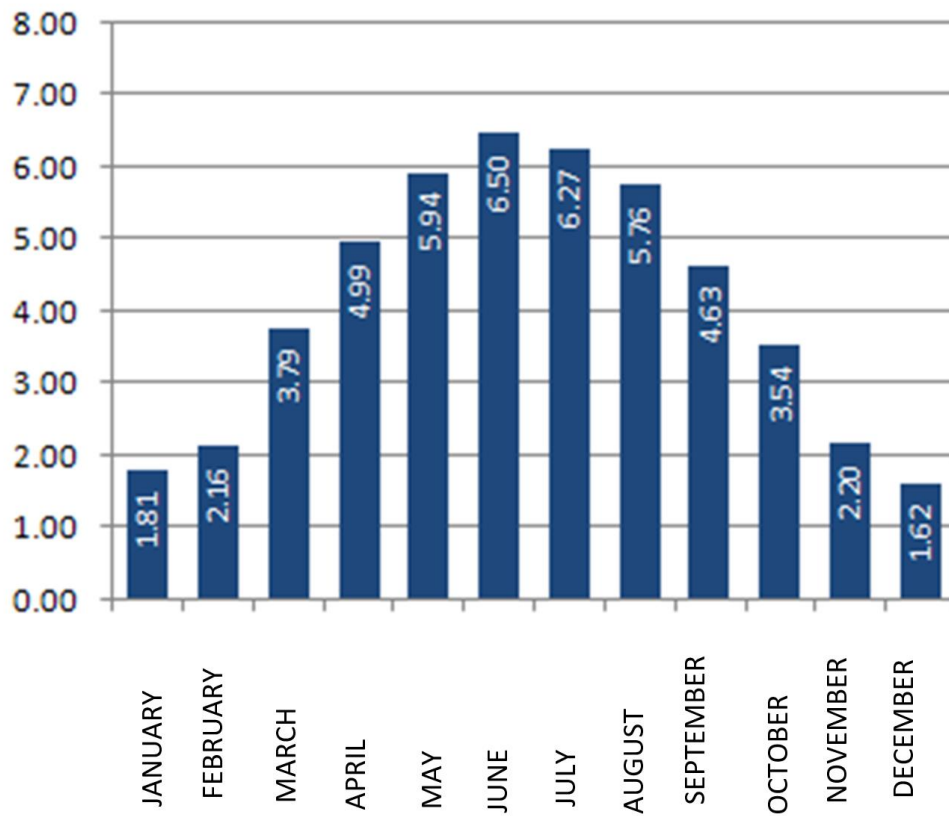
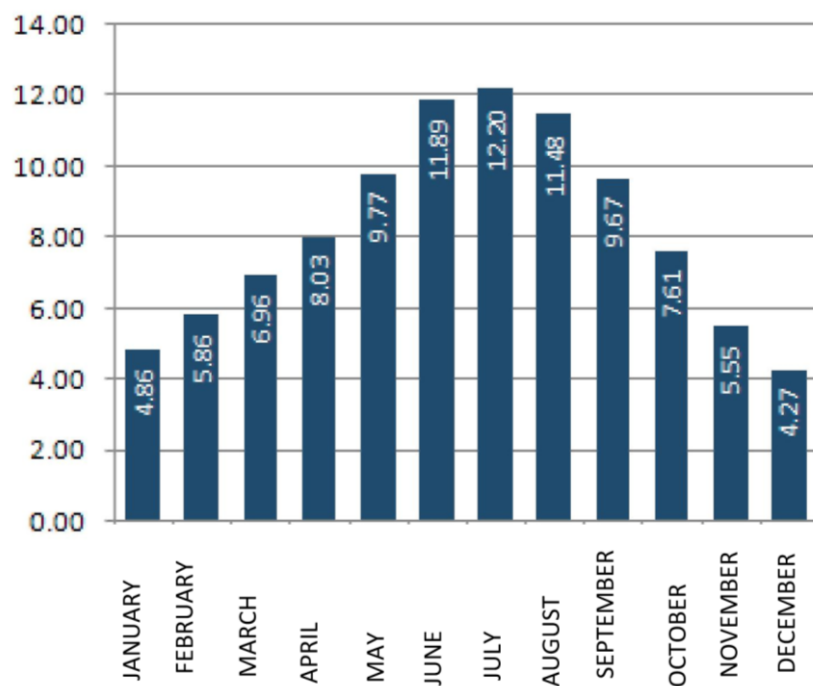


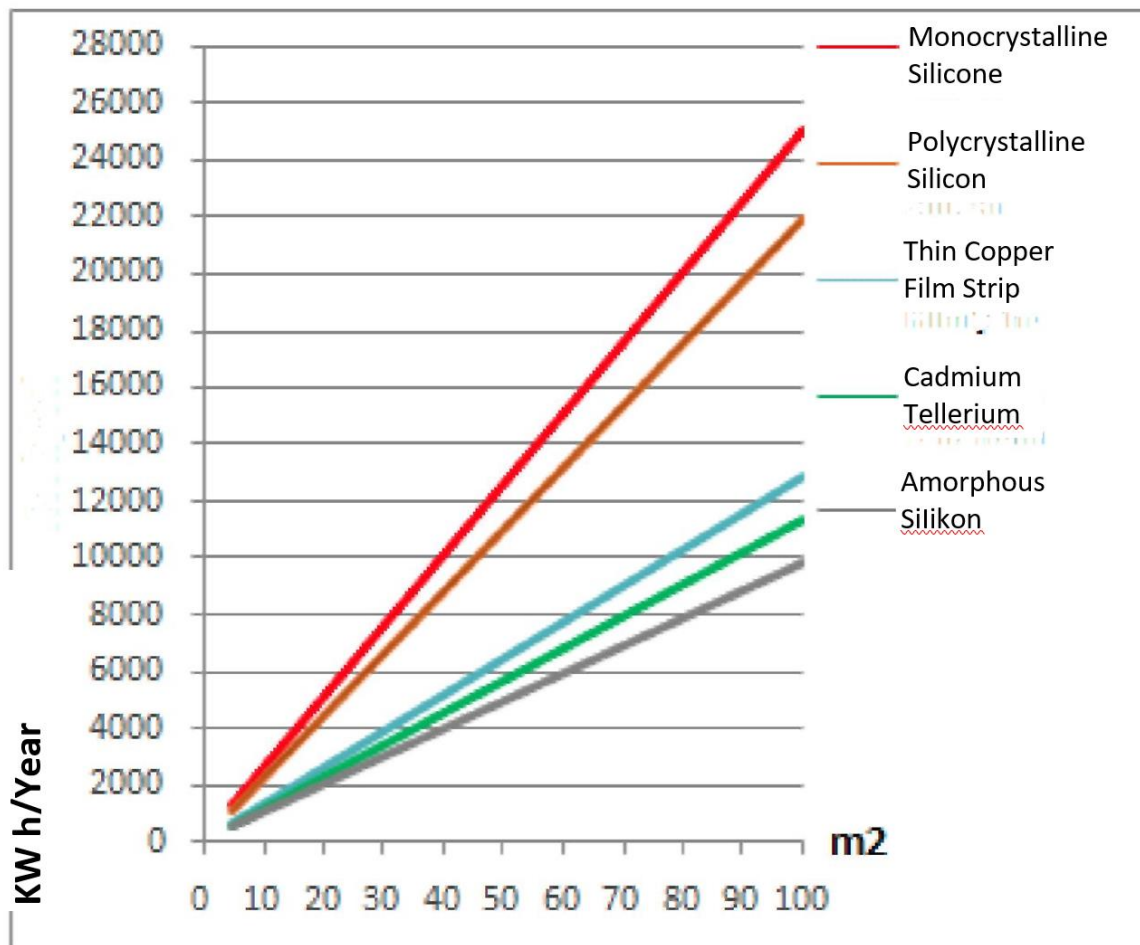
Figure 8: Solar Energy Potential Atlas of Izmir Province (Source: gepa.energy.gov -tr)



Graphic 5: IZMIR Global Radiation Values (KWh/m²-day)



Graphic 6: IZMIR Insolation Periods (Hours)



Graphic 7: IZMIR PVType-Area-Produducible Energy (KWh-Year)

What needs to be done to realize electricity generation with solar energy is the installation of solar panel systems. The solar cells in the solar panels absorb the incoming energy and the absorbed energy is transmitted to the generator through certain parts of the system. Absorption refers to the absorption of light energy at a certain rate.

Solar cells (photovoltaic cells) are semiconductor materials that convert sunlight incident on their surface directly into electrical energy. Solar cells, whose surfaces are shaped as square, rectangular or circular, usually have an area of around 100 cm² and a thickness of 0.1-0.4 mm. Solar cells work on the photovoltaic principle, which means that when light falls on them, an electrical voltage is generated at their terminals.

The source of the cell's electrical energy is the solar energy incident on its surface. Solar energy can be converted into electrical energy with an efficiency between 5% and 30% depending on the structure of the solar cell. A typical solar power plant operation scheme is shown in Figure 9.

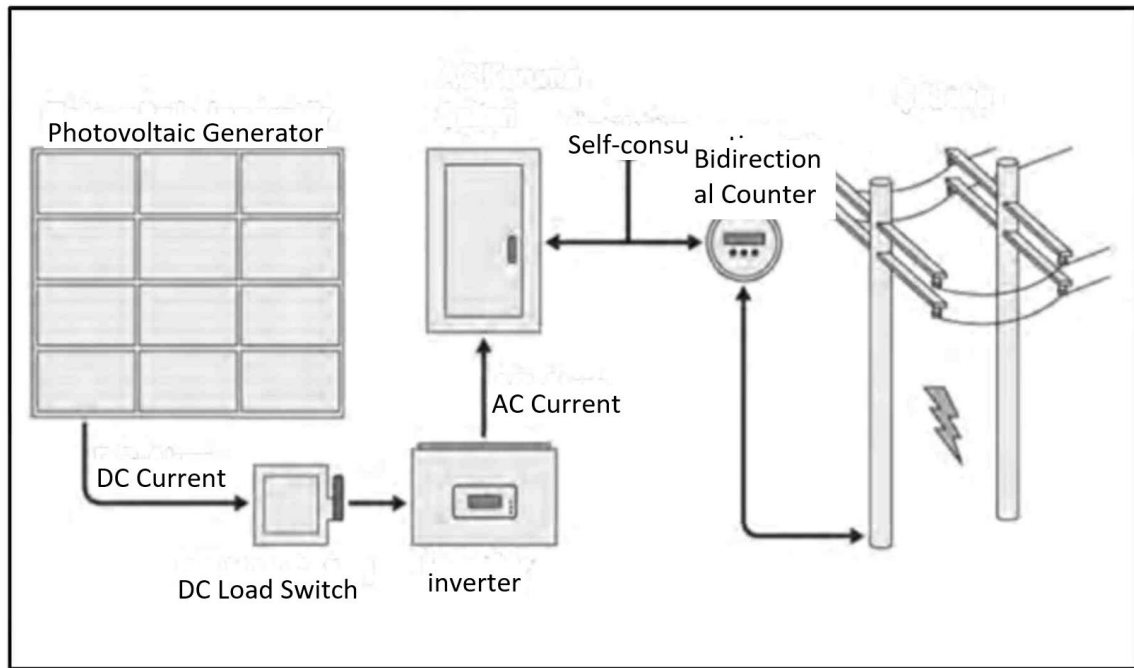


Figure 9: Solar Power Plant Operation Scheme

Photovoltaic Panel:

It is a panel formed by the combination of small cells, where electric current is created with the effect of sun rays.

Inverter:

Solar panels produce direct current. The electricity coming from the direct current load switch to the inverter is converted into Alternating Current Electric Current. The device that performs this process is called an inverter.

In the planned project, it is planned to establish a Photovoltaic Solar Power Plant (SPP) with a total installed capacity of 1.6 MW AC (alternating current).

Energy Generation:

Energy production will be realized by installing 3500 photovoltaic panels with 540 Wp power and monocrystalline structure and 16 inverters with 100 kW power.

Measurement of Energy:

With the 16 inverters' remote monitoring module, the daily generated energy, instantaneous power, current and voltage supplied to the system can be seen for each phase, and the energy produced and consumed will be recorded through the bidirectional meter in the low voltage measurement cell in the transformer building.

Synchronization and Inverting:

DC (direct current) power generated from photovoltaic panels will be converted to AC power through inverters and connected to the grid after passing through appropriate protection

equipment. Inverters shall provide all the protection system required by the Regulation on Unlicensed Electricity Generation in the Electricity Market and the relevant technical legislation.

In addition, the low voltage protection relay to be located in the AC Main Panel on the low voltage side will ensure that the main switch of the solar power plant is turned on when the grid connection is disconnected.

Photovoltaic Panels - Inverters :

The panels to be used for energy generation in the facility will be a single type 540 Wp Photovoltaic Module. Inverters will be 16 units of 100 kW capacity. Inverters with a total AC power of 1.6 MW will be used. There will be protection against islanding present in the inverter. DC protection fuses shall be provided at the positive and negative ends of all strings in the DC section of the inverter.

Construction:

Photovoltaic panels will be installed on the roof type construction system.

Project construction is expected to be completed in approximately four (4) months. The planned time schedule is given in Table 4.

It is anticipated that approximately 10 workers will be employed during the construction phase of the project. No camping area will be created for these workers in or around the project area. Their daily needs will also be met at the OIZ Directorate facilities. During the operation phase of the project, there will be no work other than maintenance and repair times.

Table 4: Time Schedule[illegible]

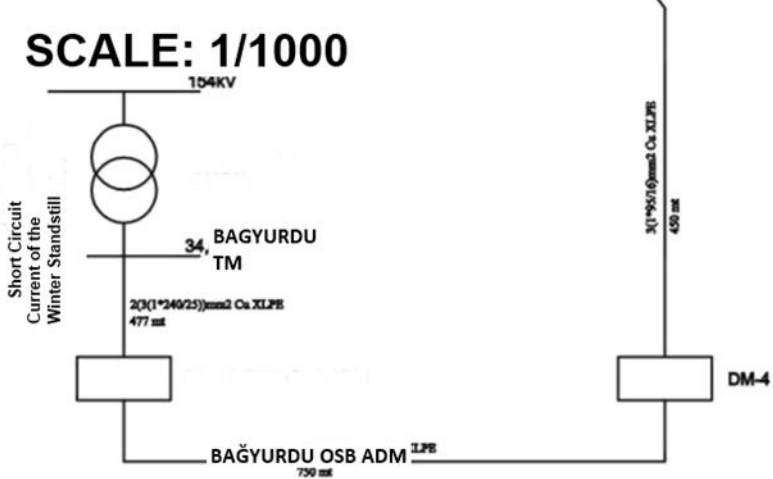
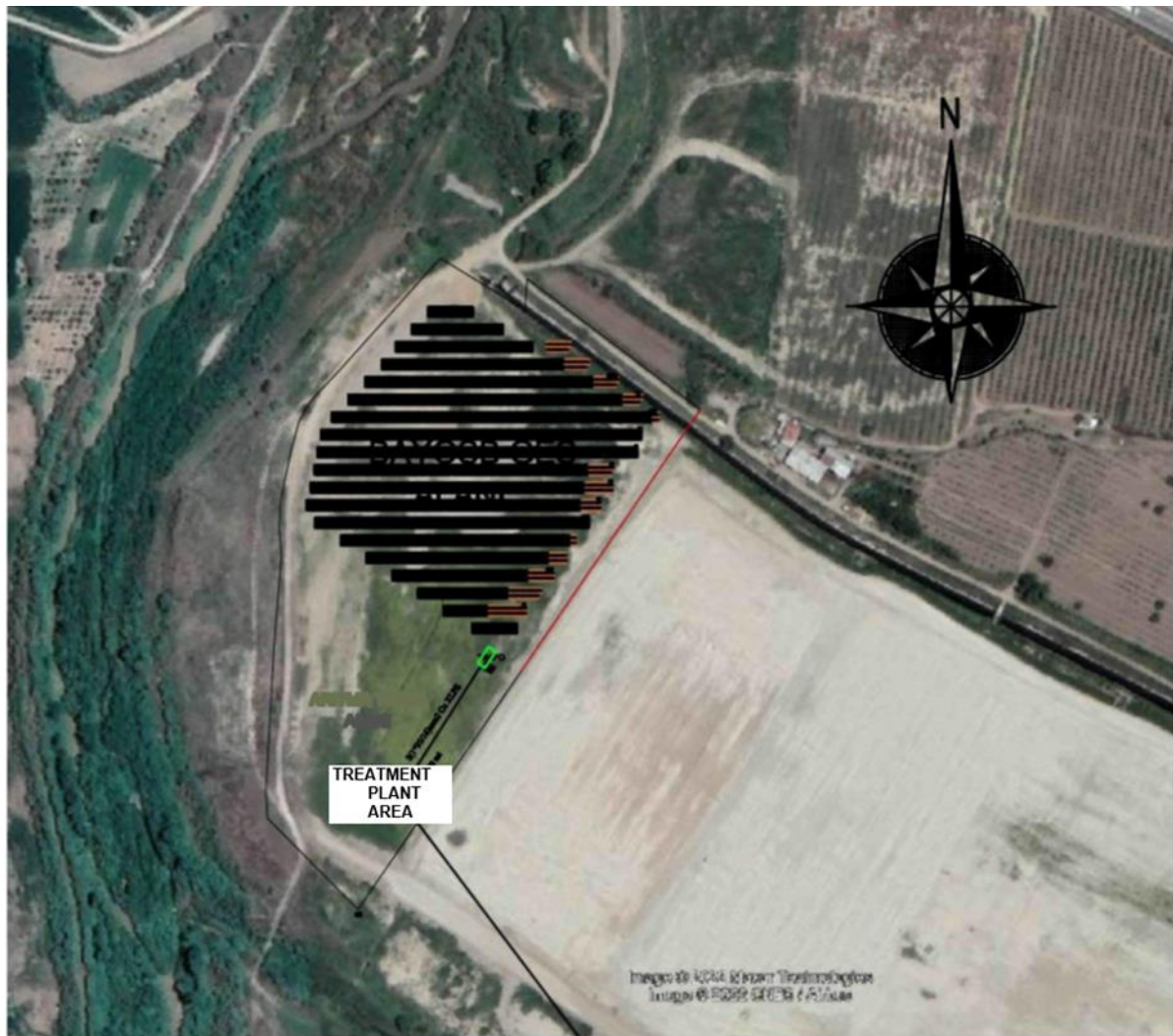


Figure 10: Solar Panels and Transformer Layout Plan

As a result of the examinations carried out for the planned Solar Power Plant, it was determined by REPEMS (Renewable Energy Projects Evaluation Monitoring System) that it is appropriate to establish a Solar Power Plant on the site whose coordinates are given below (see Figure-12). The report on the ground suitability for driving the panels is given in Annex-5.

8.09.2022 09:37

BA ĖYURDU-OSB-GES-2_2022_9_8_9_37_26

TECHNICAL ASSESSMENT REPORT ON SOLAR ENERGY BASED PRODUCTION FACILITY		
APPLICATION NUMBER	BAĞYURDU -OSB -GES -2	
NAME AND CONTACT INFORMATION OF THE APPLICANT	BAĞYURDU ORGANIZED INDUSTRIAL REGION İzmir Ankara Cad. No: 5 Kemalpasa IZMIR	
FACILITY NAME	BAYOSB GES POWER PLANT	
APPLICATION DATE TO THE DISTRIBUTION COMPANY	1.8.2022	
LOCATION OF PRODUCTION FACILITY	PROVINCE	İzmir
	DISTRICT	Kemalpasa
	VILLAGE/QUATER	OIZ
TECHNOLOGY TYPE	Photovoltaic Systems; Photovoltaic systems sited at optimum angle Other Systems;	
APPLICATION LOCATION	Land	
CELL TYPE TO BE USED IN PHOTOVOLTAIC SYSTEMS	Photovoltaic Cells; Single crystal structure	
Total installed capacity of the eligible facility AC (kWe) / DC (kWp)	1600/ 1630.64	
Name of the substation and connection point whose connection is deemed appropriate	BAĞYURDU	
1/25000 scale map name	K19D4	
Projection System	GK Central 27 (ITRF - 3°)	
Area of the power plant site {m2}	14.5S7.41	
CORNER POINTS OF THE LAND WHERE THE FACILITY WILL BE BUILT		
CORNER NUMBER OF THE LAND WHERE THE FACILITY WILL BE BUILT	East (right value)	North (up value)
K1	553687,379	4263341,093
K2	553687,752	4263348,311
K3	553697,015	4263368,51
K4	553695. 08	4263380,099
K5	553699,031	4263387 062
K6	553749,331	4263442,302
K7	553792,982	4263415,456
K8	553793,837	4263427,162
K9	553847,078	4263386,894
K10	553774,762	4263281,267

Date Issued

8.9.2022

1903

APPROPRIATE

Figure 11: Technical Evaluation Report

Calculations related to the solar panel feet during the construction phase of the project, mounting patterns and cross-section images are given below.(Figure 12, 13, 14)

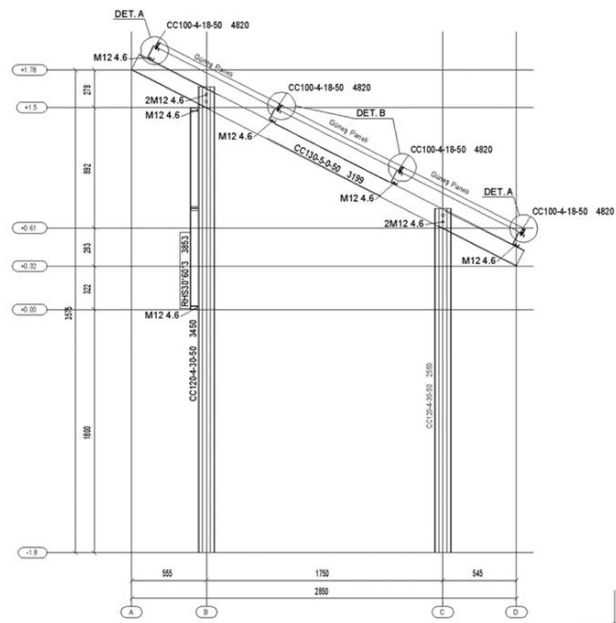


Figure 12: Reference Section Drawing

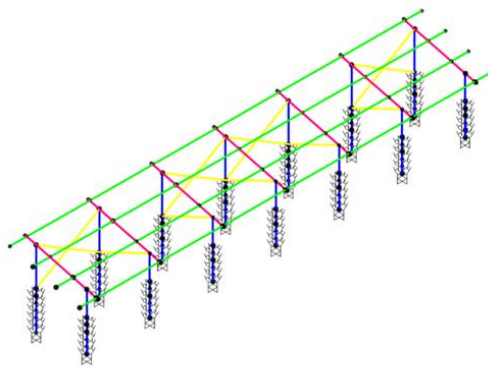


Figure 13: Carrier System 3D View

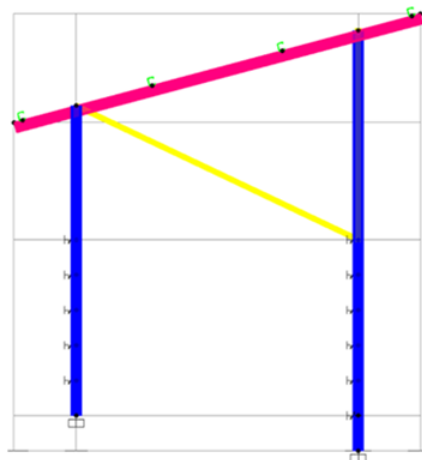


Figure 14: Carrier System Sectional View

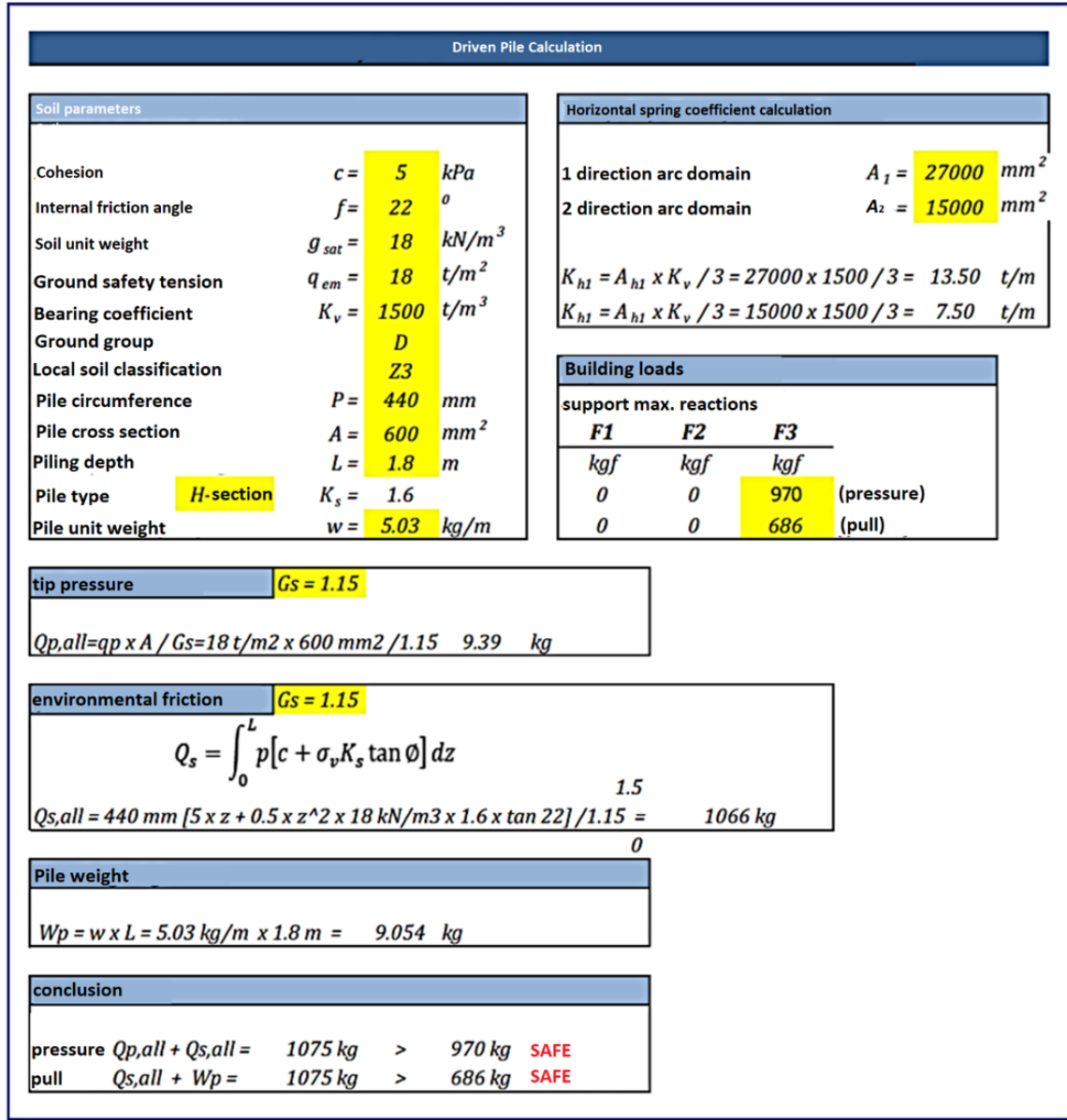


Figure 15: SPP Project Static Calculation Report

As a result of the static calculations made in line with the Soil Investigation Report, it was determined that the panel legs of the project area were suitable for the project area to be constructed by graveling. As can be seen from the above-mentioned calculations, it is found to be SAFE to have double-legged panel feet and to install these panels on the land by hammering. Therefore, (see Figure 15)

Potential environmental and social impacts of panel legs driving during the construction phase have also been considered within the scope of this management plan.

Within the scope of the project, 1 Electric Vehicle Fast Charging Station is planned on the parcel no. 27 on block 104, the ownership of which belongs to the OIZ Directorate. The location of the designated area for the electric vehicle charging station is shown in figure 16.

In addition, the current situation of the project area is given in figures 18 and 19. A sample picture of the planned charging station is also given in figure 17. Electric Vehicle Fast Charging Station is not within the scope of EIA Regulation and Environmental Permit Certificate. The letter of İzmir Provincial Directorate of Environment, Urbanization and Climate Change regarding this subject is given in Appendix 6



Figure 16: Electric Vehicle Charging Station Area



Figure 17: Sample Electric Vehicle Charging Station



Figure 18: Electric Vehicle Charging Station Parking Lot



Figure 19: Electric Vehicle Charging Station Parking

The Electric Vehicle Fast Charging station will have the following features.

1. Electric vehicle charging units will be DC voltage type and will have a power range of 120 and 180 kW.
2. Electric vehicle charging station input voltage will be 380-400 Vac for three-phase
3. The electric vehicle charging station will comply with CCS and CHAdeMO standards.
 - a. It shall be able to support IEC62196-1/3, IEC 61851-1/23/24 standards for CCS.
 - b. It will be equipped to support 200-920Vdc and 200A capacity for CCS.
 - c. It shall have IEC62196-1/ 3, IEC 61851-1/ 23 / 24, ISO 15118-1/ 2 / 3, DIN 70121 standards for CHAdeMO
 - d. It will be equipped to support 150-500Vdc and 125A capacity for CHAdeMO.
4. Electric vehicle charging units will be able to operate in the frequency range of 50-60 Hz.
5. Electric vehicle charging units will be able to operate smoothly between -25 C + 50 C.
6. Type-2 43kW output in the electric vehicle charging unit shall be capable of supporting 400Vac 50/60hz and 63A capacity and IEC62196-1/2, IEC61851-1 standards.
7. The electric vehicle charging unit will have 1 Type-2 socket supporting 22kW power capacity.
8. The electric vehicle charging unit shall be protected by a locking mechanism against non-user intervention and the cable connections shall not be disconnected without user authorization.
9. Electric vehicle charging units shall be metal or steel type.
 - a. The units shall have at least IP54-55 protection class and IK10 mechanical strength.
 - b. The charging station shall have IEC Class-1 protection level.
10. Electric vehicle charging stations will be equipped with Mode 3 and also with Mode 2 Schuko Type sockets for Bicycle and Scooter Charging.
 - a. Mode 2 Charging socket shall be capable of magnetic presence detection in accordance with NFC61-314 and IEC 60884-1 standard when operating in 3.7 kW mode.
 - b. The Mode 3 and Mode 2 charging socket will also be suitable for simultaneous use.
11. Electric vehicle charging units will be able to charge at least 2 and at most 4 electric vehicles at the same time with the same energy where necessary.
12. As an option, there will be a panel display on the front panel of the electric vehicle charging unit showing the charging status to the user.
 - a. The display will be visible on the front panel of the unit as a warning if the charging cable between the electric vehicle is not correctly connected.
 - b. The display shall be selected so that it can operate smoothly over the operating temperature range of the unit.
13. The product range of the electric vehicle charging unit manufacturer will also include low voltage distribution and protection products.

Fuse and residual current protection relay shall be installed to protect the electric vehicle charging unit(s).
14. Product wear class shall be 3C2 according to IEC 60721-3-3 standard.
15. Electric Vehicle Charging Station will be Class 1 in IEC 61140 standard for electrical safety.
16. Charging units shall comply with IEC/EN 61851-1, IEC/EN 61851-22, IEC/EN 62196-1, IEC/EN 62196-2, EV/ZE Ready 1.4 standard. It will be covered by a 2-year warranty against production defects.

5. ENVIRONMENTAL AND SOCIAL BASELINE OF PROJECT AREA

5.1 Environmental Baseline of Project Area

5.1.1 Geographical Location

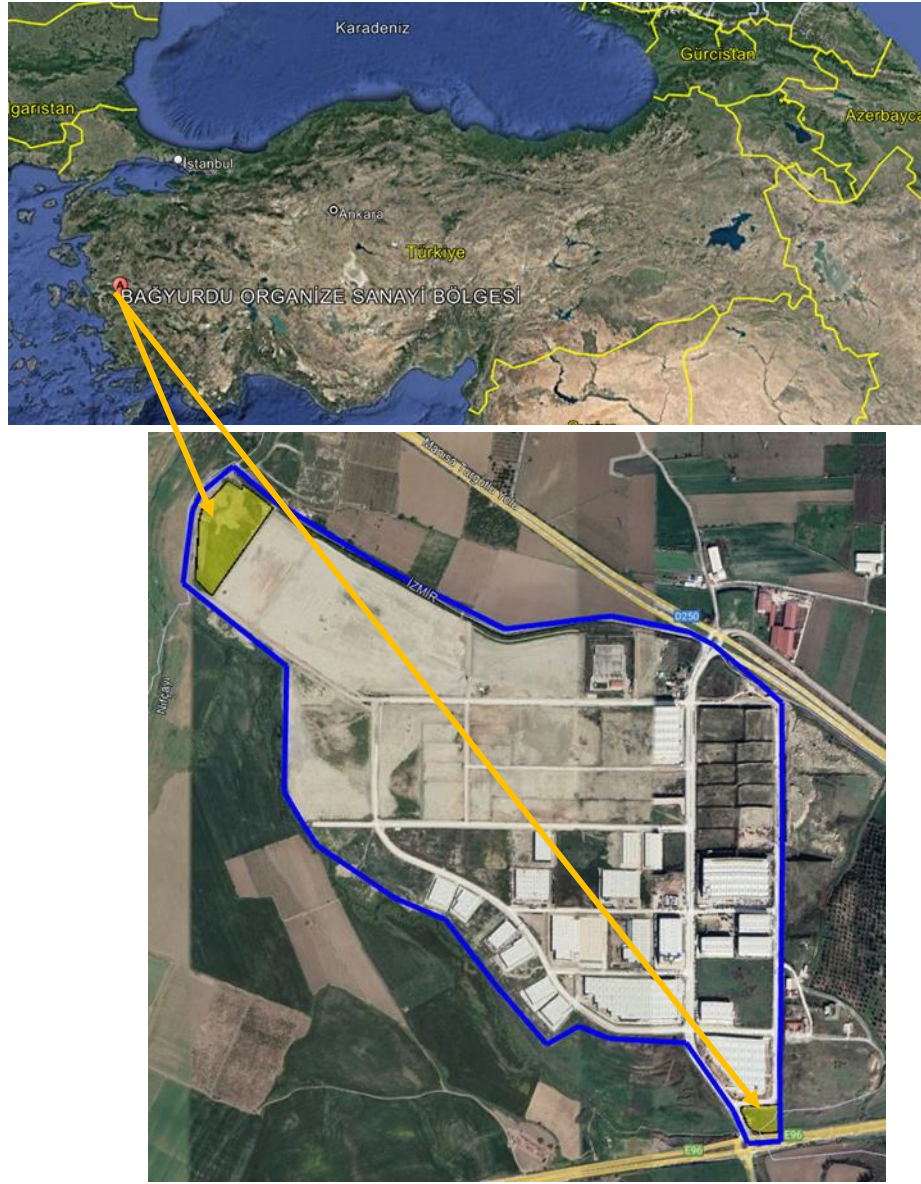


Figure 20: Geographical Location of Project Area

The project area is located within the borders of İzmir province, Kemalpaşa district, Bağyurdu OIZ. Kemalpaşa district, where the project area is located, is 29 km from İzmir. east of the İzmir-Ankara Highway, 8 km. is located in the south. It is surrounded by Turgutlu in the east, Manisa in the north, Bornova and İzmir in the west, Torbalı and Bayındır in the south.

Kemalpaşa District is established on a very fertile plain between the Nif Mountains, whose highest point is 1510 meters in the south-west, and the Manisa Mountains in the north. The most important stream of the district is Nif Stream. This stream enters the district borders from the west of Ulucak and flows from Kemalpaşa Plain to the east and pours into the Gediz River in Manisa.

The map shows the layout of the project area, including the 'GES AREA' and 'GES ALANI'. A blue line indicates the 'Activities subject to the project'. A table of coordinates is provided at the bottom right.

Node	X	Y
84	553860.718	4263389.116
85	553711.497	4263171.158
88	553672.008	4263210.870
532	553785.202	4263446.231
534	553784.206	4263432.593
574	553678.045	4263325.109
577	553674.767	4263284.679
579	553671.290	4263222.647
580	553677.166	4263337.246
581	553677.806	4263349.610
582	553682.283	4263370.823
583	553685.744	4263383.908
584	553690.948	4263393.080
585	553701.526	4263404.123
586	553747.471	4263455.186
600	553677.708	4263347.714
601	553783.014	4263275.617
K1	553723.920	4263207.004
K2	553682.036	4263235.678
K3	553687.379	4263341.093
K4	553774.762	4263281.267
K5	553687.752	4263348.311
K6	553687.185	4263337.349
K7	553688.075	4263325.086
K8	553684.744	4263283.995
P43	553719.823	4263327.999

Figure 21: Project Area Application Sketch

5.1.2 Land Use

The Solar Power Plant within the scope of the project is planned within the boundaries of Bağyurdu OIZ, on block 101, parcel no. 1, with an area of 29.491.62 m². However, not all of this space will be used. The Solar Power Plant will be built in 18,555.44 m² of this area. The electric vehicle fast charging station is also planned on the parcel no. 27 of the 104 block, which is 5,258.47 m² in Bağyurdu OIZ.

Project areas are under the ownership of Bağyurdu OIZ. There will be no additional land acquisition within the scope of the project.

5.1.3 Climate Characteristics

Summers in the Izmir region are hot, dry and clear and winters are long, cold, wet, windy and partly cloudy. During the year, the temperature normally varies between 3°C and 35°C, and is rarely below -2°C and above 38°C (see also Figure-22).

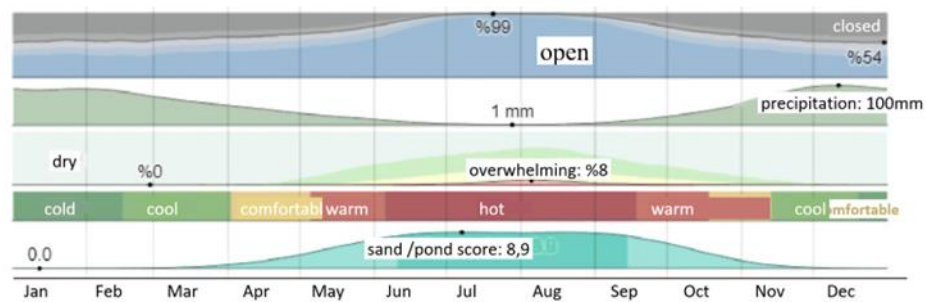


Figure 22: Izmir Monthly Weather (Average between 2014-2022) (Source: WeatherSpark.com)

The warm season is 3.2 months long and starts on June 8 and lasts until September 14, with an average daily high temperature of over 30°C. The hottest month in Izmir is July, with an average high temperature of 35°C and an average low temperature of 22°C.

The cool season is 3.9 months long and starts on November 24 and lasts until March 21, with an average daily high temperature below 16°C. The coldest month in Izmir is January, with an average low temperature of 3°C and an average high temperature of 12°C.

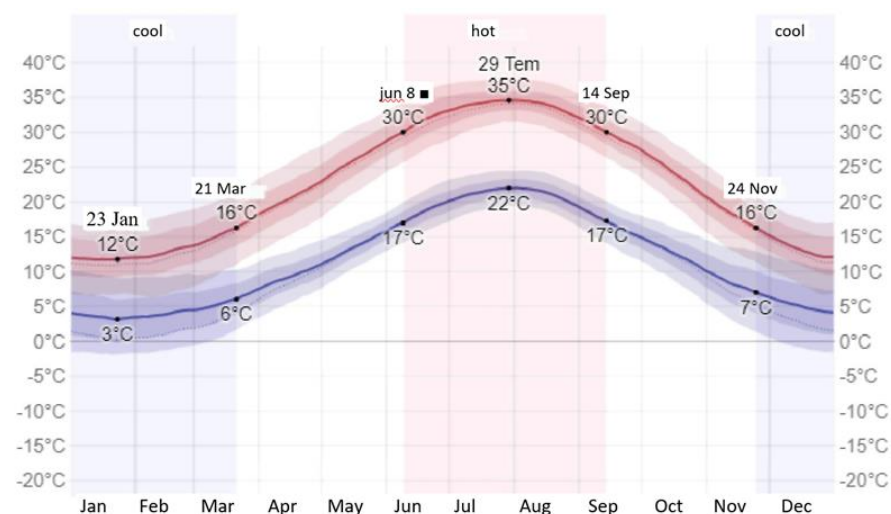


Figure 23: Izmir Region Temperature Situation (Average for 2014-2022) (Source: Weather Spark.com)

The figure below shows a summary of hourly average temperatures for the whole year. The horizontal axis shows the day of the year and the vertical axis shows the time of day. The color indicates the average temperature for that hour and day.

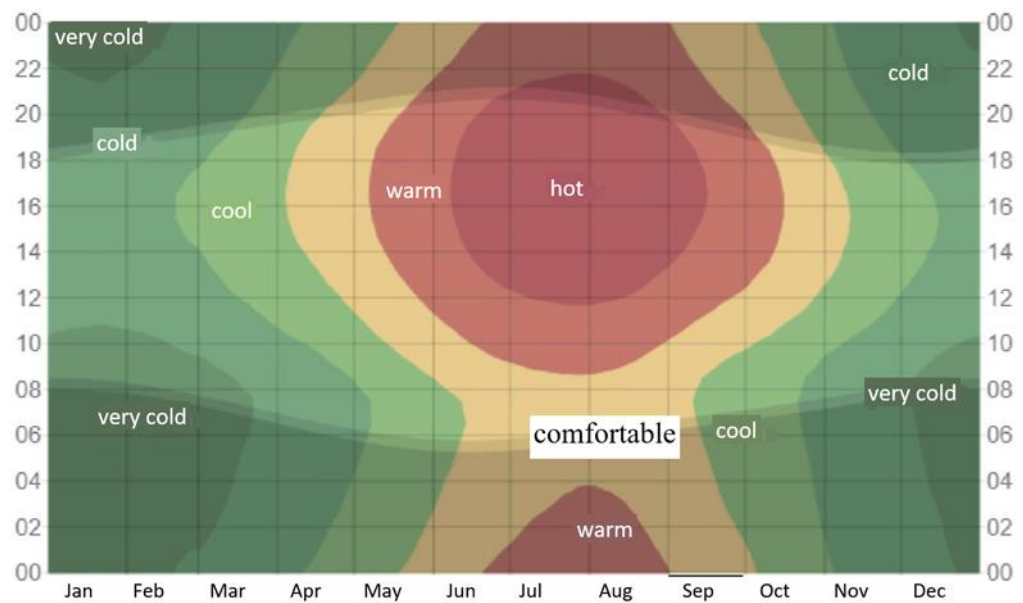


Figure 24: Izmir Average Hourly Temperature (2014-2022 Average)

Izmir day length varies considerably throughout the year. In 2022, the shortest day is December 22 with 9 hours and 29 minutes of daylight, while the longest day is June 21 with 14 hours and 51 minutes of daylight (see Figure-25).

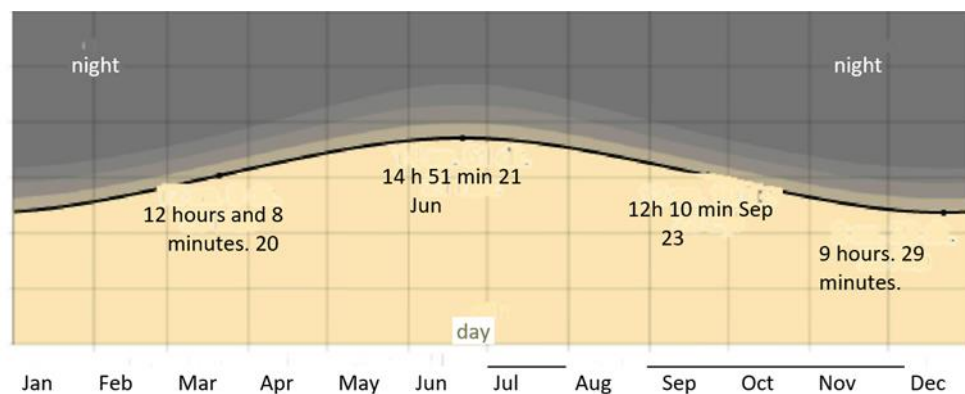


Figure 25: Daylight and Twilight Hours in Izmir region

The figure below represents the solar elevation (the angle of the sun above the horizon) and azimuth (compass direction) for each hour of each day during the reporting period. The horizontal axis shows the day and the vertical axis shows the time of day. The background color indicates the current azimuth of the sun for a given day and time of day. The black equivalent lines are the contours of the permanent solar elevation.

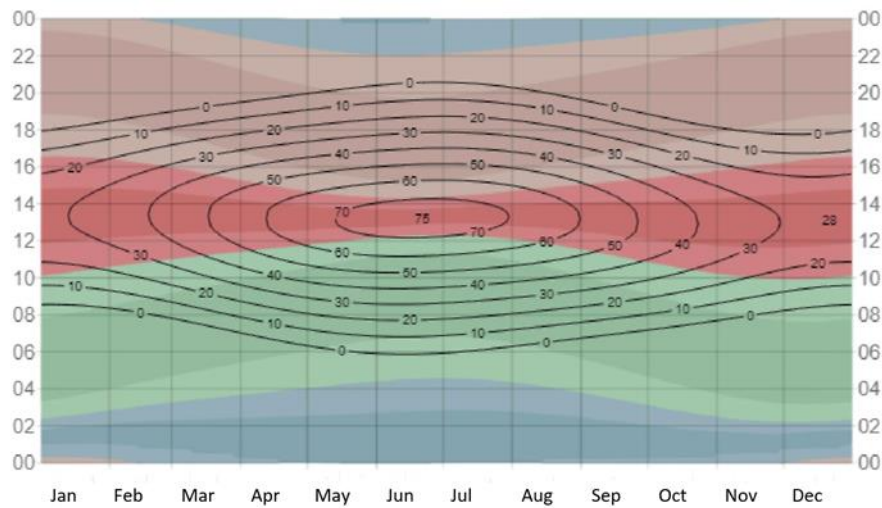


Figure 26: Solar Rise and Azimuth in Izmir

Solar Energy:

This section deals with the total daily shortwave solar energy reaching the surface over a large area, taking into account the length of the day, the height of the Sun above the horizon, and seasonal effects on absorption by clouds and other atmospheric components. Shortwave radiation includes visible and ultraviolet radiation.

Average daily shortwave solar energy shows extreme seasonal variations throughout the year.

The sunnier period of the year lasts for 3.4 months, from May 12 to August 24, with average daily incident shortwave energy above 7.1 kWh per square meter. The sunniest month in Izmir is July, with an average of 8.3 kWh during this period.

The darker period of the year lasts for 3.4 months, from November 4 to February 16, with average daily shortwave energy below 3.3 kWh per square meter. The darkest month in Izmir is December, with an average of 2.0 kWh (see Figure-27).

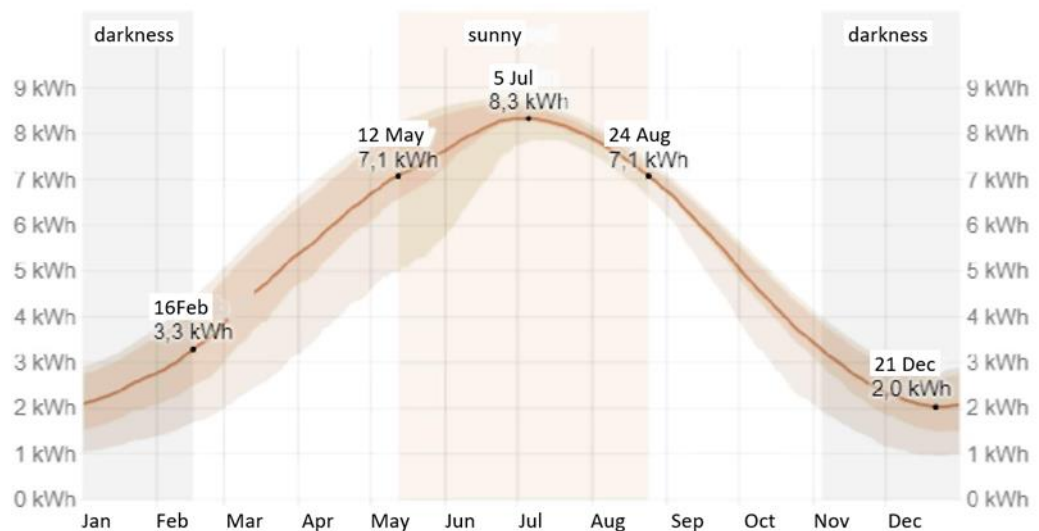


Figure 27: Daily Average Short Wave Solar Energy in Izmir Region

5.1.4 Flora and Fauna

Information on the flora and fauna species identified as a result of literature review in the region where the project areas are located is given below.

Flora

Species and Populations

Izmir Province and the project site are located in square B1 according to Davis' Grid quadratic system in our country (see Figure-28).



Figure 28: Location of the Project Site according to Davis' Grid Quadrature System

Hazard classes according to the Red Data Book (RDB) are given. Davis' 'Flora of Turkey', Prof. Dr. Ertan Tuzlacı's 'Dictionary of Plants of Turkey', Prof. Dr. Osman Ketenöğlu's 'Environmental Impact Assessment', 'Red Data Book of Turkish Plants, Ankara 2000', TUBITAK's Turkish Plants Database (TUBIVES) were also scanned and the flora table was arranged according to these data.

Izmir Provincial State of Environment Report was also utilized. In addition, the taxa present in the tables were searched in the official website of the Red Data Book <http://www.iucnredlist.org> and their IUCN threat categories were determined.

The project area shows the typical geographical character of the Aegean region and there are no plant species in the study area that need to be protected according to the Annex-1 list of the "Convention for the Conservation of European Wildlife and Habitats (Bern Convention)" and that are included in the "Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention)".

In Table 5, the floristic status of the project area and its surroundings in Izmir province is given and the plants are specified at the family and species level, their Turkish names, endemism status, habitats, minimum and maximum altitudes where they grow, and their status according to the Bern Convention and IUCN endangerment categories.

According to the risk assessment (according to IUCN and BERN) of the endemic species identified in and around the Project site; the activity is not expected to have a direct negative impact on the survival of these species.

Turkey is very rich in endemic plants because it is a country in the transition zone between continents. Approximately 3000 plant species within the borders of Turkey have been identified as endemic. These endemic species constitute about 33% of the flora of Turkey.

The species in the project area are common herbaceous species and no endemic plant species were found as a result of the literature studies.

Table 5: Plant Species Likely to be Found in Izmir Province where the Project Area is Located

FAMILY NAME	SPECIES NAME	ENGLISH NAME	ENDEMISM	LIFE FORM	LIFE	PHYTOCOLOGICAL REGION	RED DATA BOOK	BERN:	HABITAT								MIN - MAX. HEIGHT
									1	2	3	4	5	6	7	8	
Apiaceae	<i>Sanicula europaea</i> L.	-	-	herbace	Perennial	Europe-Siberia	-	-	+								0-2200 m
	<i>Echinophora tenuifolia</i> L. sub sp. <i>sib thorpiana</i> (GUSS.) KEEP	Hyssop	-	Bush	Perennial	Iran-Turanian	-	-					+	+	+		0-1100 m
	<i>Eryngium cam pestre</i> L. var. <i>virens</i> LINK	Milk thistle	-	herbace	Perennial	-	-	-	+		+		+				0-1800 m
	<i>Eryngium creticum</i> LAM.	Eye thorn	-	herbace	One Year	Mediterrane	-	-			+		+	+			0-750 m
	<i>Lagoecia cum inoides</i> L.	-	-	herbace	One Year	Mediterrane	-	-			+			+	+		0-1100 m
	<i>Scandix ib erica</i> BIEB.	grass	-	herbace	One Year	-					+				+		500-2000 m
	<i>Torilis leptophylla</i> (L.) REICHB.	-	-	herbace	Perennial	-	-	-					+		+		0-2500 m
Asteraceae	<i>Calendula arvensis</i> L.	field marigold	-	herbace	One Year	-	-	-		+	+				+		0-2000 m
	<i>Bellis perennis</i> L.	Common daisy	-	herbace	Perennial	Europe-Siberia	-	-	+			+					0-200 m
	<i>Centaurea urvillei</i> DC. sub sp. <i>urvillei</i> DC.	-	-	herbace	Perennial	Iran-Turanian	-	-	+					+	+		0-2000 m
	<i>Cichorium intyb us</i> L.	Wild chicory	-	herbace	Perennial	Europe-Siberia	-	-			+		+			+	0-3050 m
	<i>Matricaria chamom illa</i> L. var. <i>chamomilla</i> L.	Chamomile	-	herbace	One Year	-	DD	-			+		+				10-50 m
	<i>Senecio vulgaris</i> L.	Common	-	herbace	One Year	-	-	-						+			0-700 m
Boraginaceae	<i>Alkanna tinctoria</i> (L.) TAUSCH sub sp. <i>tinctoria</i> (L.) TAUSCH	Dyer's alkanet	-	herbace	Perennial	Mediterrane	-	-		+				+	+		0-800 m
	<i>Anchusa azurea</i> MILLER var. <i>azurea</i> MILLER	herb	-	herbace	Perennial	Mediterrane	-	-					+				0-2500 m
Caprifoliaceae	<i>Lonicera etrusca</i> SANTI var. <i>etrusca</i> SANTI	honeysuckle	-	Bush	Perennial	Mediterrane	-	-						+			250-1200 m
Glossy panulaceae	<i>Campanula b etonicifolia</i> SM.	flower	+	herbace	Two	Mediterrane	LR/Lc	-	+		+						600-1800 m
Caryophyllaceae	<i>Agrostem ma gracilis</i> BOISS.	-	-	herbace	One Year	Mediterrane	-	-			+		+		+		200-1600 m
	<i>Dianthus calocephalus</i> BOISS.	grenadin	-	herbace	Perennial	-	-	-		+	+		+	+	+		400-2300 m
Ericaceae	<i>Erica arb oreia</i> L.	Tree heather	-	Bush	Perennial	-	-	-	+					+			0-900 m
	<i>Arbutus unedo</i> L.	Arbutus	-	Bush	Perennial	-	-	-	+					+			0-300 m
	<i>Arbutus andrachne</i> L.	Sandalwood	-	Bush	Perennial	-	-	-	+	+				+			0-800 m
Euphorbiaceae	<i>Euphorbia helioscopia</i> L.	Euphorbia	-	herbace	One Year	-	-	-		+		+			+		0-1400 m
	<i>Andrachne telephioides</i> L.	-	-	herbace	Perennial	-	-	-		+					+		0-1800 m
Fabaceae	<i>Spartium junceum</i> L.	Woodwaxen	-	Bush	Perennial	Mediterrane	-	-						+	+		0-600 m
	<i>Trifolium arvense</i> L. var. <i>arvense</i> L.	Alfalfa	-	herbace	One Year	-	-	-					+				0-2300 m
	<i>Trifolium fragiferum</i> L. var. <i>fragiferum</i> L.	clover	-	herbace	Perennial	-	-	-					+	+			0-1350 m
	<i>Genista anatolica</i> BOISS.	-	-	Bush	Perennial	D.	-	-						+			0-1350 m
	<i>Ononis spinosa</i> L. sub sp. <i>antiquorum</i> (L.) BRIQ.	Restharrow	-	herbace	Perennial	Mediterrane	-	-	+					+	+		0-1200 m

FAMILY NAME	SPECIES NAME	ENGLISH NAME	ENDEMISM	LIFE FORM	LIFE	PHYTOGEOGRAPHIC	RED DATA	BERN:	HABITAT								MIN - MAX. HEIGHT
									1	2	3	4	5	6	7	8	
Fagaceae	<i>Quercus cerris</i> L. var. <i>austriaca</i>	Oak	-	Tree	Perennial	Europe-Siberia	-	-	+								0-1900 m
	<i>Quercus coccifera</i> L.	Kermes oak	-	Bush	Perennial	Mediterrane	-	-	+						+		0-1500 m
Lamiaceae	<i>Calamintha nepeta</i> (L.) SAVI sub sp. <i>glandulosa</i> (REQ.) P: W. BALL	-	-	herbace	Perennial	-	-	-	+	+		+				+	0-1200 m
	<i>Origanum vulgare</i> L. subsp. <i>hirtum</i> (LINK) JETSWAART	Black coral	-	herbace	Perennial	D.	-	-	+						+	+	0-2500 m
	<i>Origanum onites</i> L.	Izmir thyme	-	Bush	Perennial	D.	-	-		+						+	0-1400 m
	<i>Salvia verbenaca</i> L.	Sage	-	herbace	Perennial	Mediterrane	-	-			+	+			+	+	0-900 m
Lauraceae	<i>Laurus nobilis</i> L.	Laurel	-	Bush	Perennial	Mediterrane	-	-							+		0-1200 m
	<i>Smilax excelsa</i> L.	Anatolian Sapanara	-	Bush	Perennial	Mediterrane	-	-	+						+		0-760 m
Loranthaceae	<i>Viscum album</i> L. subsp. <i>album</i> L.	Mistletoe	-	Bush	Perennial	-	-	-	+							+	300-1500 m
Oleaceae	<i>Olea europaea</i> L. var. <i>europaea</i> L.	Olive	-	Tree	Perennial	Mediterrane	-	-									
Pinaceae	<i>Pinus nigra</i> ARN. sub sp. <i>Pallasiana</i> (LAMB.) HOLMBOE	Black pine	-	Tree	Perennial	Europe-Siberia	-	-	+								300-1200 m
	<i>Pinus sylvestris</i> L.	pine	-	Tree	Perennial	Europe-Siberia	-	-	+							+	1000-2500 m
Poaceae	<i>Phleum pratense</i> L.	Timothy	-	herbace	Perennial	Europe-Siberia	-	-	+							+	420-2500 m
	<i>Brachypodium pinnatum</i> (L.) P: BEAUV.	tor-grass	-	herbace	Perennial	Europe-Siberia	-	-								+	0-2400 m
	<i>Cynodon dactylon</i> (L.) PERS. var. <i>dactylon</i> (L.) PERS	couch	-	herbace	Perennial	-	-	-	+			+				+	0-3050 m
	<i>Polygala vulgaris</i> L.	comm	-	Bush	Perennial	Europe-Siberia	-	-							+		1650-1650 m
	<i>Dactylis glomerata</i> L. sub sp. <i>hispanica</i> (ROTH) NYMAN	milkwort	-	herbace	Perennial	-	-	-	+		+	+	+	+		+	0-2900 m
	<i>Horsdeum bulbosum</i> L.	bulbous barley	-	herbace	Perennial	-	-	-	+			+	+		+	+	0-2250 m
	<i>Poa bulbosa</i> L.	tussac grass	-	herbace	Perennial	-	-	-					+		+	+	0-3000 m
Pteridaceae	<i>Pteris cretica</i> L.	Fern	-	striped-herbac	-	-	-	-				+					0-700 m
Urticaceae	<i>Urtica dioica</i> L.	Nettle	-	herbace	Perennial	Europe-Siberia	-	-	+	+		+					500-2700 m
Violaceae	<i>Viola tricolor</i> L.	Mountain violet	-	herbace	One Year	-	-	-				+		+	+		0-2200 m
	<i>Viola odorata</i> L.	Violet	-	herbace	Perennial	-	-	-	+								0-1600 m

1- Forested areas

2- Rocky areas

3- Roadside

4- River banks, humid areas

5- Steppe, degraded areas

6- Scrub and scrub areas

7- Especially rocky slopes

8- Meadow areas

LC: Least Concern

DD: Data Deficient

Fauna

Species and Populations

In order to determine the fauna species living or likely to live in and around the project area, a wide literature study was utilized. As a result of this study, the Red Data Book Category of each species, the 'Central Hunting Commission Decisions of the Ministry of Agriculture and Forestry for the 2021-2022 Hunting Period' and the additional lists of the Bern Convention are indicated in the tables below.

Individuals of amphibians and reptiles found and likely to be found in Izmir Province, where the project areas are located, were evaluated in terms of reproduction. These species can produce dozens of individuals during their reproductive period. Therefore, the lives of individuals will not be endangered by the activity and there will be no extinction.

Table 6: Amphibian Species Possibly Found in Izmir Province

FAMILY NAME	SPECIES NAME	ENGLISH NAME	IUCN	BERN:	DISTRIBUTION
Bufonidae	<i>Bufo viridis</i>	European green toad	LC	ANNEX-2	Whole Turkey
Hylidae	<i>Hyla arborea</i>	Tree frog	LC	ANNEX-2	Western and Northern Anatolia
Pelobatidae	<i>Pelobates syriacus</i>	Earth frog	LC	ANNEX-3	Eastern Thrace
Ranidae	<i>Rana macrocnemis</i>	Striped frog	LC	ANNEX-3	Western and Central Anatolian mountains
Salamandridae	<i>Ommatotriton vittatus</i>	scalloped newt	LC	ANNEX-3	Northern Anatolia, Gaziantep, Hatay, Adana, Bursa, Izmir

LC: Least Concern

Table 7: Reptilia likely to be found in Izmir Province

FAMILY NAME	SPECIES NAME	ENGLISH NAME	IUCN	BERN	DISTRIBUTION
Testudinidae	<i>Testudo graeca</i>	Common tortoise	VU	Annex2	Almost all of Turkey
Typhlopidae	<i>Typlops vermicularis</i>	Blind snake	-	Annex3	It is found in Large part of Turkey
Colubridae	<i>Elaphe situla</i>	Zamenis situla	LC	Annex2	Whole Turkey
	<i>Elaphe quatu orlineata</i>	The four-striped snake	NT	Annex2	Whole Turkey
	<i>Natrix tesellata</i>	Water snake	NT	Annex3	Whole Turkey
	<i>Eirenis modestus</i>	ring-headed dwarf	LC	Annex2	Whole Turkey
	<i>Natrix natrix</i>	ringed water snake	LC	Annex3	Whole Turkey
Gekkonidae	<i>Cyrtopodion kotschyi</i>	Slender - toed	LC	Annex2	Whole Turkey
Scincidae	<i>Ablepharus kitaibeili</i>	Slender lizard	LC	Annex2	It is widespread in Western Anatolia, Thrace and Central and Anatolia.
Lacertidae	<i>Lacerta viridis</i>	Green lizard	LC	Annex2	It lives on the Thrace, Northwestern Anatolia and Black Sea coast.
	<i>Lacerta saxicola</i>	Rock lizard	LC	Annex3	It is found in Large part of Turkey

VU: Vulnerable

LC: Least Concern

NT: Near Threatened

Table 8: Mammal (Mamalia) Species Detected in Izmir Province

TEAM - FAMILY NAME	SPECIES NAME	ENGLISH NAME	IUCN	BERN:	AVK
Felidae	<i>Felis silvestris</i>	Wildcat	LC	ANNEX-3	-
Mustelidae	<i>Martes foina</i>	Rock marten	LC	ANNEX-3	ANNEX-2
	<i>Vormela peregusna</i>	Marbled polecat	VU	-	-
Muridae	<i>Mus domesticus</i>	House mouse	LC	-	-
	<i>Apodemus flavicollis</i>	Forest mouse	LC	-	-
	<i>Rattus rattus</i>	House rat	LC	-	-
Sciuridae	<i>Spermophilus citellus</i>	Field squirrel	VU	ANNEX-2	-
	<i>Sciurus vulgaris</i>	Squirrel	LC	ANNEX-3	-
Spalacidae	<i>Spalax leucodon</i>	Blind rat	DD	-	-
Soricidae	<i>Sorex araneus</i>	Forest shrew	LC	ANNEX-3	-
	<i>Sorex minutus</i>	Eurasian pygmy shrew	LC	ANNEX-3	-
	<i>Crocidura russula</i>	white-toothed shrew	LC	ANNEX-3	-
Erinaceidae	<i>Erinaceus concolor</i>	Hedgehog	LC	ANNEX-3	-
Talpidae	<i>Talpa caucasica</i>	Mole	LC	-	-
Vespertilionidae	<i>Pipistrellus pipistrellus</i>	Dwarf bat	LC	ANNEX-3	-
Molossidae	<i>Tadarida teniotis</i>	Tailed bat	LC	-	ANNEX-1
Leporidae	<i>Lepus europaeus</i>	Hare	LC	ANNEX-3	ANNEX-2

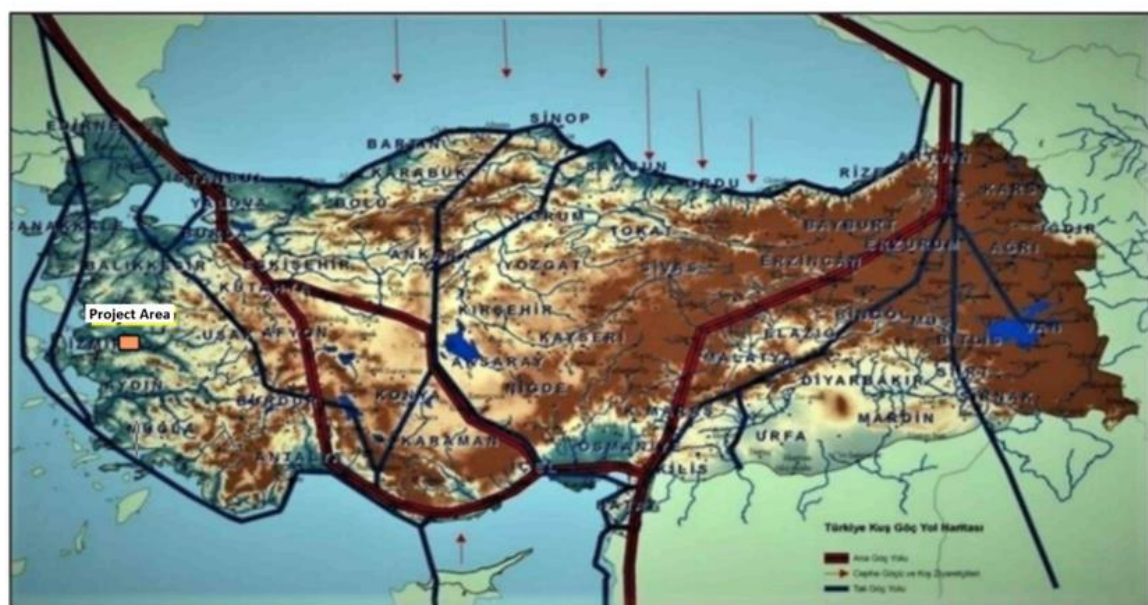
VU: Vulnerable

LC: Least Concern

DD: Data Deficient

The project area is not located on bird migration routes. The bird migration routes identified in Turkey are given below.

MAP SHOWING BIRD MIGRATION ROUTES IN AND AROUND THE PROJECT AREA



 Project Area

Map of migratory bird routes passing through Turkey (Kiziroglu et al., 2011).

Figure 29: Turkey Bird Migration Routes Map

The orthinofauna (bird list) of the activity area consists of bird species present and likely to be present in the area. Although the status of the detected bird species in the area is different, they were also evaluated according to the Red Data Book classification and Central Hunting Commission Decisions and presented in Table 9.

Table 9: Bird (Aves) Species Detected in Izmir Province and Surroundings

FAMILY	SPECIES NAME	ENGLISH NAME	REGION STATUS	BERN:	RDB	AVK
ACCIPITRIDAE - Peckers	<i>Accipiter gentilis</i>	Jackdaw	L	ANNEX-3	A-3	-
	<i>Milvus milvus</i>	Red rookie	Y,T	ANNEX-3	A-3	-
VULTURIDAE - Vultures	<i>Gypaetus barbatus</i>	Bearded	G,Y	ANNEX-3	A-2	-
FRINGILLIDAE - Finches	<i>Carduelis carduelis</i>	Saka	L	ANNEX-2	A-4	-
	<i>Fringilla coelebs</i>	Finch	L	ANNEX-3	-	ANNEX-1
	<i>Carduelis chloris</i>	Greenfinch	L	ANNEX-2	A-4	-
STURNIDAE - Starlings	<i>Sturnus vulgaris</i>	Starling	G	-	-	ANNEX-1
CORVIDAE - Crows	<i>Pica pica</i>	Magpie	L	-	-	ANNEX-2
	<i>Corvus corax</i>	Raven	L	-	A-4	ANNEX-1
	<i>Corvus monedula</i>	Little crow	L	-	A-4	ANNEX-2
	<i>Corvus frulilegus</i>	-	Y, KZ	-	A-4	ANNEX-2
	<i>Garrulus glandarius</i>	-	G	-	-	ANNEX-2
SITTIDAE - Nuthatches	<i>Sitta europea</i>	-	L	ANNEX-2	-	-
PARIDAE -Monarchs	<i>Parus ater</i>	-	L	ANNEX-2	-	-
REMIZIDAE - Sandpipers	<i>Remiz perdulinus</i>	-	L	ANNEX-3	A-2	-
SYLVIDAE - Warblers	<i>Remiz perdulinus</i>	-	L	ANNEX-3	A-2	-
MOTACILLIDAE -Wagtails	<i>Cettia cetti</i>	-	L	ANNEX-2	A-4	-
	<i>Anthus spinoletta</i>	-	L	ANNEX-3	A-4	-
	<i>Motacilla cinerea</i>	-	L	ANNEX-3	A-4	-
COLUMBIDAE - Pigeons	<i>Streptopelia</i>	-	L	ANNEX-3	-	ANNEX-1
	<i>Columba livia</i>	-	L	ANNEX-3	-	ANNEX-2
ALAUDIDAE - Hooves	<i>Alauda arvensis</i>	-	L	ANNEX-3	-	ANNEX-1
TURDIDAE - Blackbirds	<i>Turdus merula</i>	-	L	ANNEX-3	-	ANNEX-2
PRUNELLIDAE - Mountain warblers	<i>Prunella collaris</i>	-	Y,KZ	ANNEX-3	A-4	-
CHARADRIIDAE -Rainbirds	<i>Vanellus vanellus</i>	-	L	ANNEX-3	A-4	Annex-1
PICIDAE Woodpeckers	<i>Dendrocopos minor</i>	-	L	ANNEX-2	A-4	-

L: Literature

H: Habitat Suitability

G: observation

Y: Common Endemic

T: Transit type

KZ: winter visitor

A-2: in great danger

A-3: exposed to danger

A-4: Potentially threatened

Although there is information on the flora and fauna of Izmir province and its immediate surroundings mentioned above in the literature, there are currently no flora and fauna species in the project area. The fact that the project area is an industrial area has also been decisive in this regard (see Figures 33 to 36).

Flora and fauna literature information of İzmir province and its surroundings, where the project area is located, is given above. However, in the Project area, infrastructure and land preparation works were carried out during the OIZ formation. As it was determined in the field observations, there are no endemic or sensitive species in the project area. Images of the Project Area are given in figures 30 to 33. In these images, it is seen that there are no flora and fauna species on the project area.



Figure 30: Current (02.11.2022) View of the Project Area (Flora-Fauna)-1



Figure 31: Current (02.11.2022) View of the Project Area (Flora-Fauna)-2



Figure 32: Current (02.11.2022) View of the Project Area (Flora-Fauna)-3



Figure 33: Current (02.11.2022) View of the Project Area (Flora-Fauna)-4

5.1.5 Project Area Surroundings

The Project Area is located in the Organized Industrial Zone area, but since it is the last parcel of the OIZ, it is adjacent to non-OIZ parcels. Neighboring parcels outside the OIZ are agricultural areas. Although the project is not expected to have an impact on neighboring parcels due to its nature, it is under pressure from neighboring parcels.

Nif Stream passes near the project area. Nif stream passes through residential areas and industrial areas until it reaches this area. Water quality deteriorates due to inappropriate discharges in these areas.

In the observations made in the Nif Stream around the project area, it can be seen that the water quality is not suitable in terms of color and odor. The location of Project Area and Nif Stream is shown in Figure-34.



Figure 34: Project Area (SPP) and Nif Stream

5.1.6 Sensitive and Protected Areas

There are no sensitive or protected areas designated by national legislation and international conventions around the Project area. The fact that the project is designated as an OIZ area in the plans is evidence in this regard. In addition, there is no known protected cultural property in the project area.

There are also no internationally recognized areas of high biodiversity value (such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites) within the Project Area and its vicinity.

However, in line with the literature research, the closest National Park to the project area is Spil Mountain National Park, 11.10 km away. The closest wetland to the project area is the Marmara Lake Wetland, 26.2 km away. The nearest wildlife development area is Ovacik Wildlife Development Area, 14.5 km away (see Figure-35).

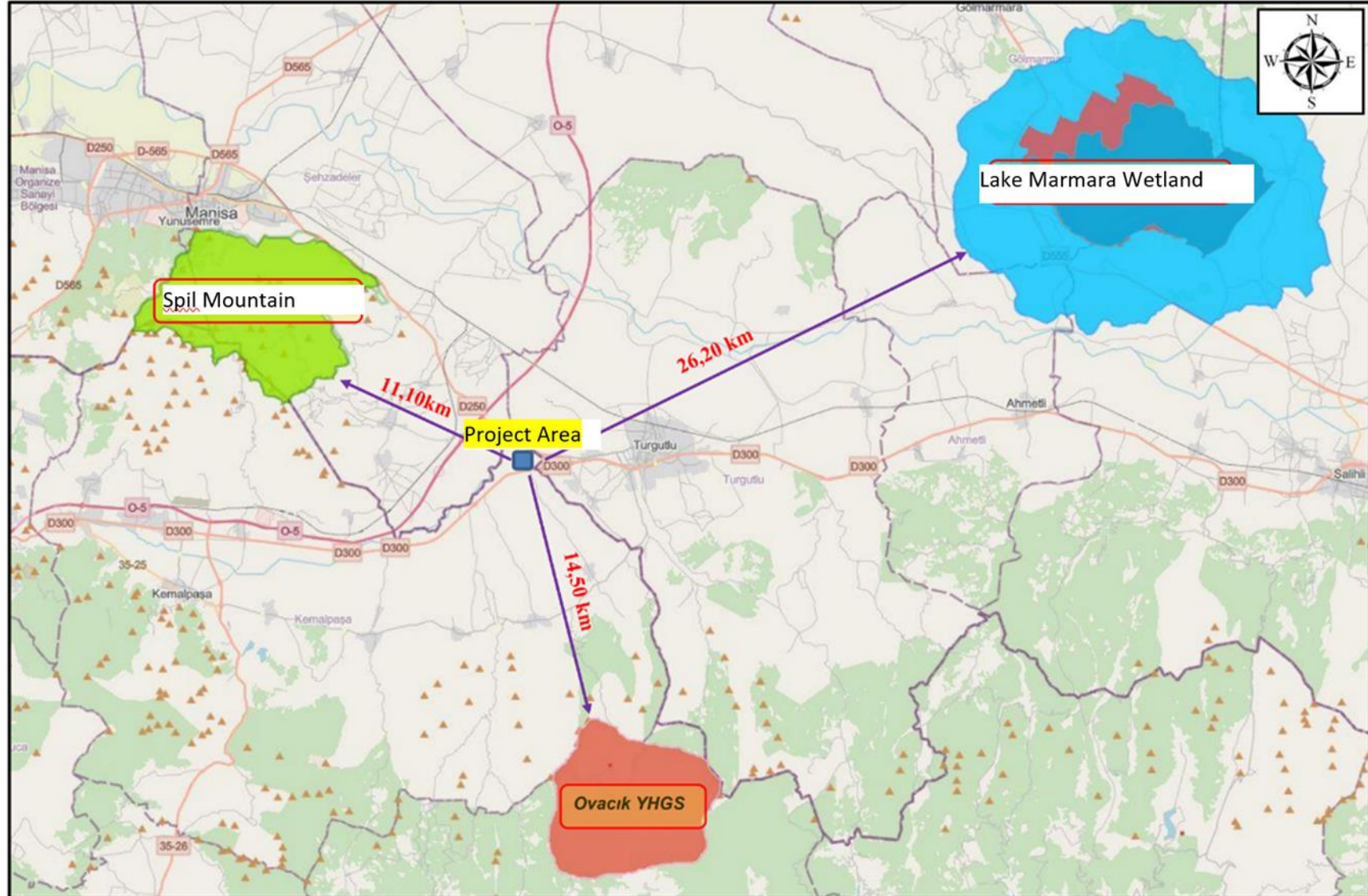


Figure 35: Sensitive and Protected Areas Map

5.1.7 Current Status of the Project Area

The project area is currently an empty parcel within the boundaries of Bağyurdu OIZ. It is reserved as Treatment Plant area in the OIZ Zoning Plan. Arrangements were also made for this parcel during the land arrangements and infrastructure works.

There is no vegetation in the project area. It has the appearance of clay soil. However, the parcel is the last parcel on the border of the OIZ. For this reason, there are agricultural areas within the neighboring parcels and the Nif Stream passing around the OIZ.

Crops such as tomatoes, grapes and peaches are grown in neighboring parcels outside the OIZ.. For this reason, there is no activity around the project area that will adversely affect the air quality of the project area. In addition, there are no activities that will adversely affect the air quality in the industrial parcels around the project area.

Nif Stream passes near the project area. Nif stream passes through residential areas and industrial areas until it reaches this area. Water quality deteriorates due to inappropriate discharges in these areas.

In the observations made in the Nif Stream around the project area, it can be seen that the water quality is not suitable in terms of color and odor.

Although the project area is within the boundary parcels of the OIZ, both the Nif Stream and the DSI irrigation canal form a natural embankment. Therefore, it prevents access to the project area from outside the OIZ. In addition, the protection bands of these areas create a distance between the project area and the neighboring parcels.

Factory construction is still ongoing in the neighboring parcel of the project area within the OIZ. There is a distance of approximately 40 m from this parcel due to the parcel protection bands. In addition, there is approximately 2 m elevation difference with this parcel. The existing noise in the Project area is caused by the construction on the neighboring parcel.



Figure 36: Current Status of the Project Area

5.1.8 Soil Quality

The existing soil in the project areas is filled with soil due to the land arrangement and infrastructure works during the OIZ formation. There is no natural vegetation. The general soil structure of the region is also clayey soil.

There is no waste dumping site or any unreduced waste storage area in and around the project area. Therefore, there is no possibility of leakage that may cause soil pollution.

There are no activities that may cause soil pollution during the construction and operation phase of the project. Waste that may occur during the construction phase will not be stored on site

5.2 Social Baseline Of The Project

5.2.1 Cultural Heritage

There is no known cultural heritage in and around the project area.

5.2.2 Traffic and Transportation

It will not have a negative impact in terms of traffic since high tonnage materials will not be transported during the construction and operation phase of the project, the project area has highway access, and it will not pass through the settlements. General mitigation measures such as driver training, speed limits, limiting unnecessary use of noisy equipment, etc. are considered to be sufficient to minimise traffic impacts.

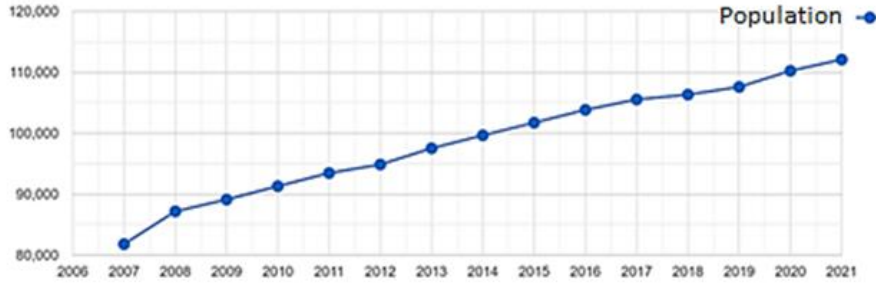
5.2.3 Demography and Population

The project area is located within the borders of Kemalpaşa district of İzmir province. Population information of Kemalpaşa district is given in Table-10 whereas population growth of the Project Area is shown in Graph-8.

(Source: <https://www.nufusubu.com/kemalpasa-izmir-nufusu>)

Table 10: Project Area Population Information

Year	Population	Male Population	Female Population	Increase Rate
2021	112.049	56.978	55.071	1,67
2020	110.209	55.918	54.291	2,47
2019	107.556	54.758	52.798	1,18
2018	106.298	53.975	52.323	0,75
2017	105.506	53.575	51.931	1,64
2016	103.806	52.709	51.097	2,08
2015	101.693	51.607	50.086	2,07
2014	99.626	50.552	49.074	2,18
2013	97.499	49.572	47.927	2,81
2012	94.831	48.073	46.758	1,50
2011	93.431	47.389	46.042	2,36
2010	91.276	46.231	45.045	2,46
2009	89.084	45.046	44.038	2,22
2008	87.147	44.346	42.801	6,57
2007	81.777	41.338	40.439	0,00



Graphic 8: Project area Population Growth

According to the results of the general census of 2021, the total population of Kemalpaşa District of Izmir Province is 112,049. It is seen that the population of Kemalpaşa district has increased compared to previous years. This population consists of 56,978 (50.85%) men and 55,071 (49.15%) women. Kemalpaşa population increased by 2,021% or 1,840 people compared to the previous year.

The number of industrial parcels in Bağyurdu OIZ is 90, of which 52 are allocated and 38 are pre-allocated. Production has been started in 22 parcels. The number of employees in these companies is 1200, and with the subcontractors working in construction, etc., approximately 2500 people work in the region.

The demographic structure of the region's employees shows that the majority of blue-collar employees are from Turgutlu, Kemalpaşa and Izmir, while white-collar employees are mostly from Izmir.

Kemalpaşa district is exposed to intensive migration due to its structure suitable for development, its location in the mass housing area and industrial developments. In this respect, problems such as infrastructure, economic inadequacies, health and literacy negatively affect social life.

5.2.4 Means of Livelihood and Employment

According to Kemalpaşa district governor's data; The livelihoods of the district are agriculture, animal husbandry and industry. 60% of the district's population is engaged in agriculture and animal husbandry, while 40% work in the many industrial facilities and fattening farms established within the borders of the district.

5.2.5 Education

The structural characteristics of the population in Kemalpaşa are changing as a result of the industrialization process. Kemalpaşa, which was an agricultural town for years, has moved away from this identity with industry. The age structure of the population has changed with migration, and while the child and adult population has increased, the proportion of elderly population has increased at the same rate.

Although schooling rates of nearly 100% in primary education and 40% in pre-school education have been reached, the rate and speed of formation of urban culture is very

low due to rapid migration. The level of education in the district is high and the literacy rate is 99%. There are 74 schools in the district, including 2 Kindergartens, 35 Primary Schools, 25 Secondary Schools and 12 High Schools. (Source: T.R. Kemalpaşa District Governorship- Web page Primary data)

5.2.6 Vulnerable Groups

Since the project area is far from settlements, schools and health institutions, there are no vulnerable groups that may be adversely affected by the project.

The following assessments have been made in terms of the social background of the project. The Project Area is located within Bağyurdu OIZ and there are no settlements in the vicinity. The closest settlement to the project area is Çepnidere village (see Figure-37).

There are no sensitive receptors around the Project area. In this context, the closest sensitive receptors are located in Turgutlu district. Turgutlu State Hospital is 5900 m away as a sensitive area.

The Project area is located in an industrial area and is surrounded by industrial and agricultural areas. Karpuz Kaldıran Park can be considered as a sensitive receptor but it is 7050 m away.

There are no units where vulnerable people such as schools, hospitals, kindergartens, elderly care homes, etc. are located in the vicinity of the project area.

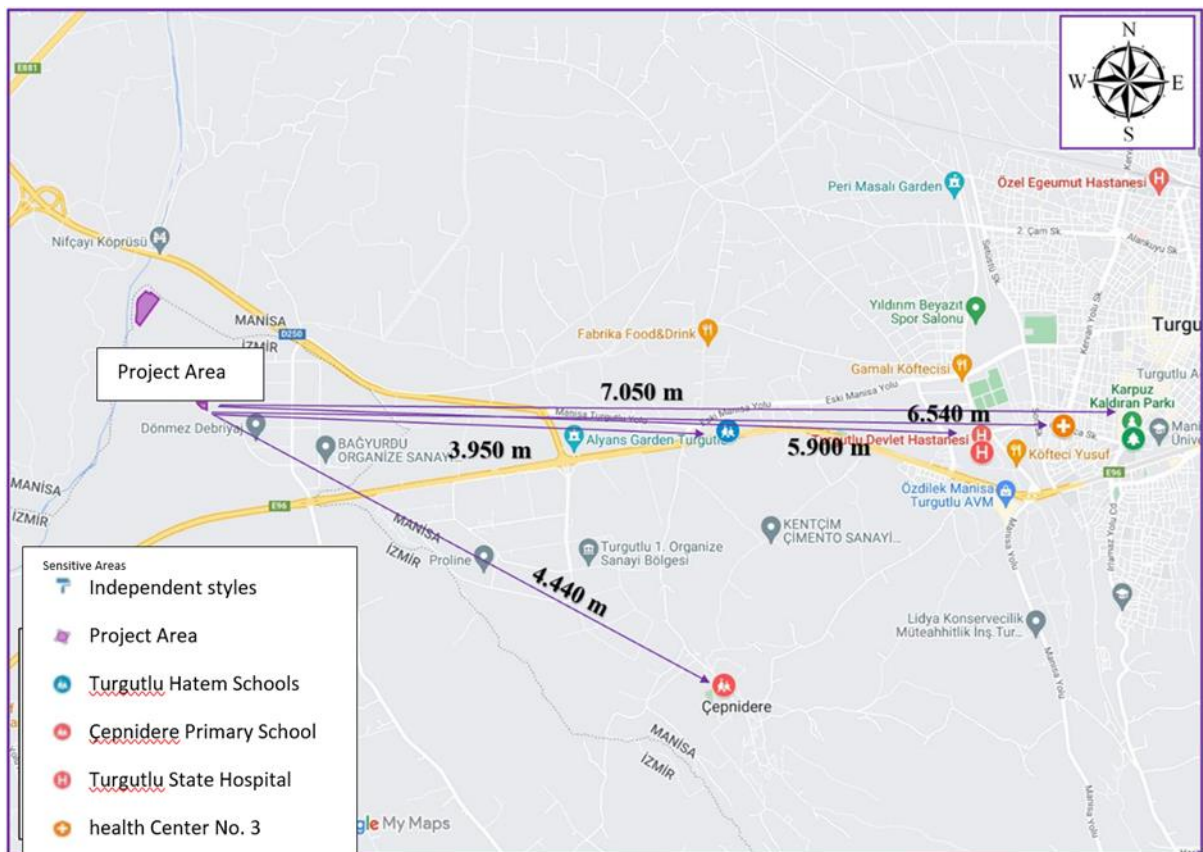


Figure 37: Sensitive Receptors Map showing the Project Area and Vicinity

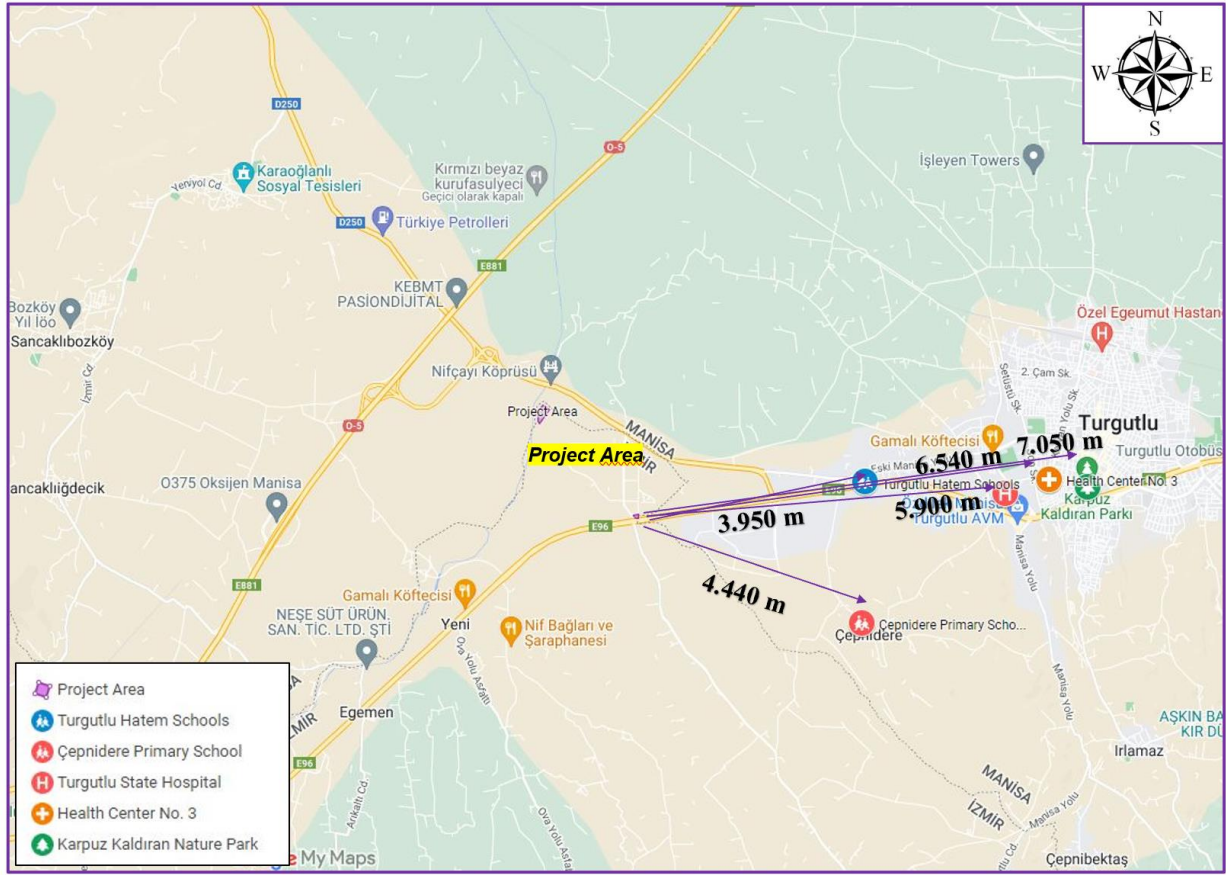


Figure 38: Sensitive Receptors Map showing the Project Area and Vicinity

6. ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

6.1 Impact Area

The definition of the area that may be affected by the project is defined in the definitions section of the Environmental Impact Assessment Regulation as follows "The area affected by a planned project before, during and after its operation".

The impact area can be different for different types of impacts and different environmental components (physical, biological, social).

Impact area is defined in IFC Performance Standard 1 (Assessment and Management of Environmental and Social Risks and Impacts) as:

"Where the project involves specifically identified physical elements, aspects, and facilities that are likely to generate impacts, environmental and social risks and impacts will be identified in the context of the project's area of influence. This area of influence encompasses, as appropriate:

- The area likely to be affected by: (i) the project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project; (ii) impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.
- Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted."

The impact area of the project was evaluated from the closest to the farthest. In this context, first of all, the location of the Project Area in the OIZ is given in figure 39. Then, the parcels adjacent to the project area were evaluated. Figure-40. In Figure 41, the closest settlements likely to be affected by the project are given.

In this context, it is considered that the project impact area will be limited to the project parcel and the Organized Industrial Zone when evaluated in terms of the location, construction type and process. The fact that a new route will not be opened for transportation to the project area and the existing infrastructure will be used plays an active role in this idea.

Although not legally registered near the project area, there is a temporary structure for the security of neighboring agricultural lands. This area has been taken into account especially in the noise calculation.

The grievance and recommendation mechanism for unforeseen impacts will be open.

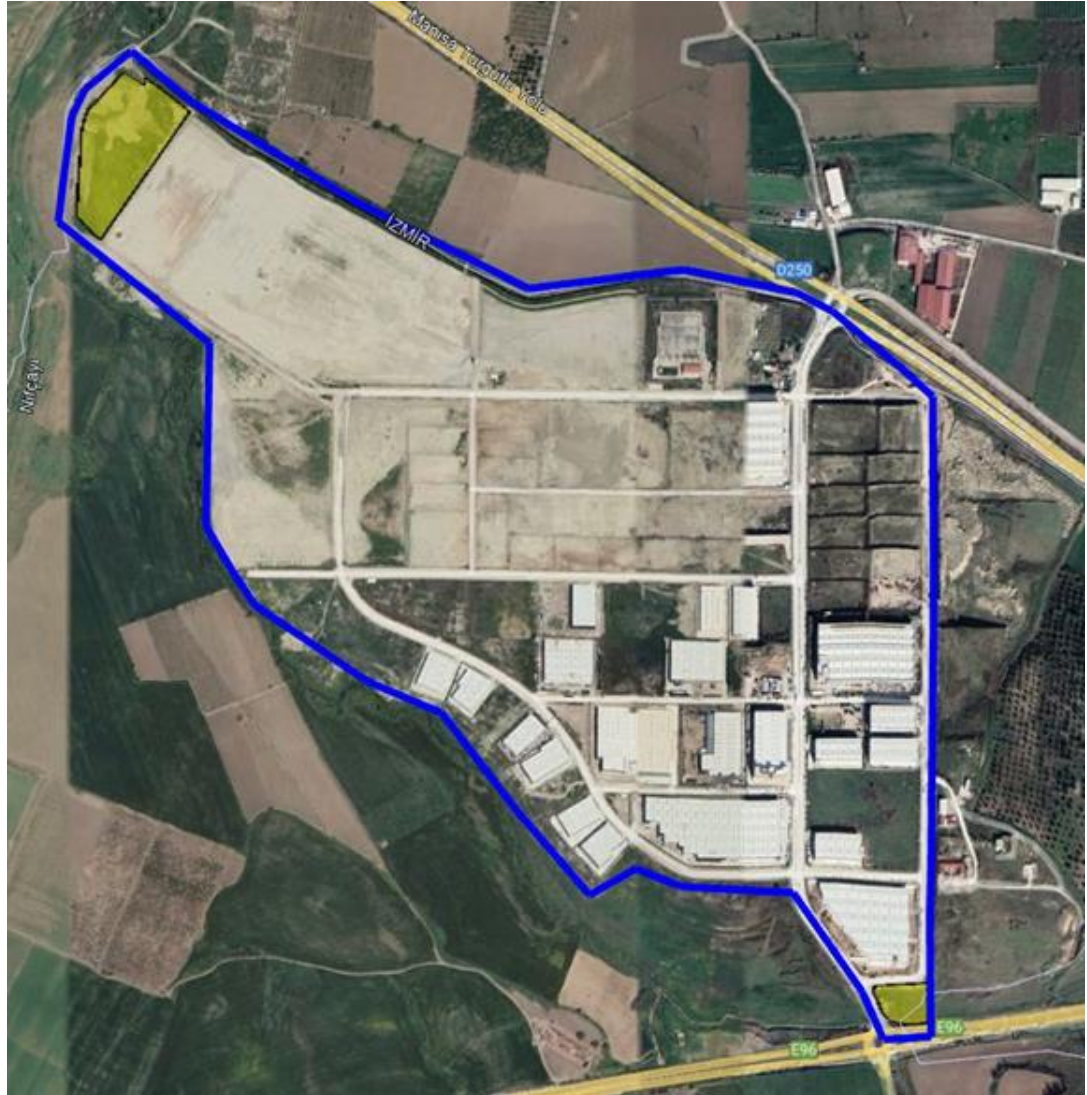


Figure 39: Satellite View of the Project Area (Near Surroundings)

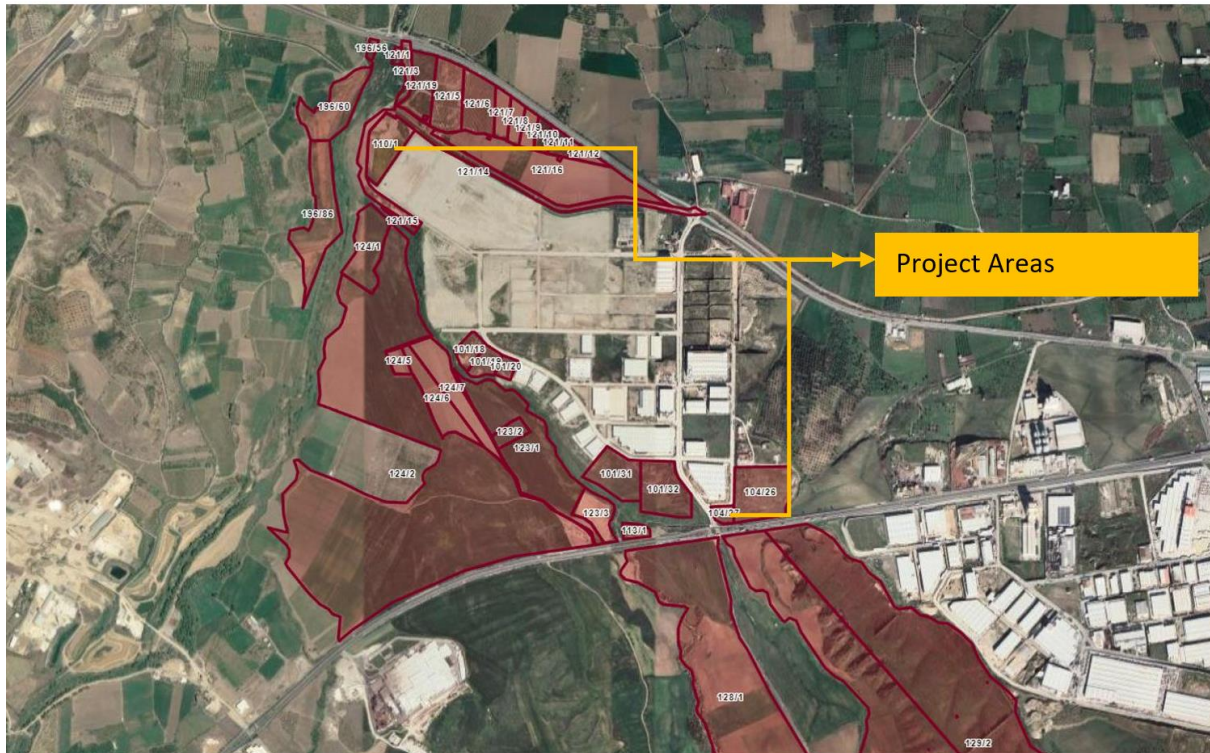


Figure 40: Project Impact Area



Figure 41: Project Impact Area-1

Table 11: Property Information around the Project Area (Source: official land registry and parcel records)

Block	Parcel	Area (m2)	Qualification	Current situation	Property
121	1	2.202,08	Field	No Agriculture	Bağyurdu OSB
	2	2.324,29	Field	No Agriculture	
	3	8.264,41	Irrigation Canal-Service Road	DSİ Canal and Road	DSİ
	4-19	24.424,42	Vineyard	No Agriculture	Bağyurdu OSB
	5	31.215,14	Vineyard	Peach Tree Available	Koçali AL
	6	28.181,04	Vineyard	Peach Tree Available	Koçali AL
	7	10.727,26	Field	Vineyard and Field	İlhan SEMİZLER, Kamil Oğuz SEMİZLER, Yavuz SEMİZLER, Aslıhan BEKİT
	8	8.957,27	Peach Orchard	Vineyard and Field	Kamil Oğuz SEMİZLER, Yavuz SEMİZLER, Aslıhan BEKİT
	9	8.274,81	Vineyard	Field	İlhan SEMİZLER
	10	6.936,56	Vineyard	Field	Hızır SİLPAĞAR
	11	7.999,58	Peach Orchard	Field	
	12	6.356,06	Peach Orchard	Field	
	13(16)	102.943,79	Field	Field	İlker ERKÜÇÜK, Abide ERKÜÇÜK, Gülnihal KILIÇ, Neval EPÖZDEMİR, Zuhai ERKÜÇÜK, Hasibe Sündüz DEMİRAYAK, Hüseyin ERKÜÇÜK
	14	52.004,14	Irrigation Canal-Service Road	Irrigation Canal	DSİ
	15	2.390,82	Field	Field	İlker ERKÜÇÜK, Abide ERKÜÇÜK, Gülnihal KILIÇ, Neval EPÖZDEMİR, Zuhai ERKÜÇÜK, Hasibe Sündüz DEMİRAYAK, Hüseyin ERKÜÇÜK
124	1	34.811,54	Field	Field	Hasan CELEP, Mehmet CELEP, Adnan CELEP, Vildan BAYRAM, Meral CANDESTEÇİ, Emine CELEP, Hasan CELEP, Hatice CELEP, Osman CELEP, Zinnur CELEP, Zafer CELEP, Aslı CELEP
	2	675.286,99	Vineyard and Field with a Carved House	Field	
196	56	2.196,69	Vineyard	Field	Manisa Land Registration Area
	58	1.259,91	Field	Field	
	60	38.241,95	Raw Soil	Raw Soil	
	86	53.229,12	Raw Soil	Raw Soil	

6.2 Impacts on the Physical Environment

6.2.1 Soil, Land Use and Landscape

6.2.1.1 Construction Stage

The project area is a flat land. There is no elevation difference. However, during the adjustment of the panel legs and the angles of the panels, the ground will be leveled. No excavation soil will come out during this phase. Therefore, there will be neither excavation soil to be disposed of nor vegetative top-soil loss.

The legs of the solar panels will be mounted on the land by hammering (see Figure-42 for the machinery to be used). There will be no land acquisition for the project. Soil taken during cable line laying and transformer building ground preparation will be used again for land leveling. According to the static report prepared, concrete pouring will not be made for the panel legs since the ground in the

project area is suitable for graveling. The Project is not expected to have an impact on soil either in the Project area or in the vicinity of the Project area.

In terms of land use, the entire project has been allocated as an industrial zone and its ownership belongs to the Bağyurdu OIZ Directorate. It will be realized in the treatment parcel belonging to Bağyurdu OIZ Directorate. Since transportation to the project area will be provided from the existing roads within the OIZ, there will be no land use for transportation purposes. Within the scope of the project, 18,555.44 m² of land will be used within the 29,491.62 m² land owned by Bağyurdu OIZ Directorate.

Landscaping will not be done in the project area. The land will be preserved in its current state and solar panels will be placed on it. Therefore, there will be no landscaping.



Figure 42: Machine to be Used for Fastening Panel Legs

The project's Electric Vehicle Fast Charging Station will be built in the area currently used as a parking lot (see Figure-43). The floor in this area is covered with concrete paving stones. Since the station will sit on approximately 1 m² of ground, there will be no excavation and soil loss in this area.



Figure 43: Fast Charging Station Area

6.2.1.2 Operation Stage

As in the construction phase, no negative impact is expected on soil in and around the project area during the operation phase. Since there will be no waste generation, air emissions or wastewater discharge during the operation of solar power plant, no soil contamination or pollution is expected.

Likewise, there will be no changes or additions to land use and landscaping during the operation phase.

Since the entire project area belongs to Bağyurdu OIZ Directorate, there will be no land purchase or expropriation.

6.2.2 Air Pollution

6.2.2.1 Construction Stage

Emissions during the construction of the Project will be generated from the fuels used in construction machinery and transportation vehicles. The calculation of the emissions from the fuels of the construction machinery and transportation vehicles to be used is given below.

Gas Emissions from Vehicles:

Within the scope of the activity, 1 mobile pile driving machine, 1 truck and 1 mobile crane will be used in the area where solar panels will be installed. Dust and gas emissions will be generated from the machinery to be used in this scope. Machinery and equipment specifications to be used during the construction phase is given in Table 12.

Table 12: Machinery and Equipment Specifications to be used during the Construction Phase

Unit	Engine Power (HP)	Working Hours
Truck (1 piece) *	165 HP	8
Mobile Pile Driving Machine (1pcs) **	47 HP	8
Mobile Crane (1 unit)	165 HP	8

Source:

*Medium Dump Truck-18Ton 165HP Diesel Engine, Vehicle Catalog

** Mitsubishi-34.6 kW-S4Q2 Model (CPA Certification Tier IIIA), Vehicle Catalog

Diesel fuel will be used as fuel for the work machines to be used. The properties of diesel fuel are given below.

Table 13: Characteristics of Vehicle Fuel to be Used During the Construction Phase

Features	Diesel
Appearance	Liquid
Colour	Yellow-pale straw color
Odor	Characteristic
Boiling Point (°C)	170-390
Relative Density (15°C) kg/m3	820-845
Vapor Pressure (20°C)kPa	0.01
Viscosity (40°C) cSt	2-4.5
Spontaneous ignition temperature (°C)	220
Flammability Limit	Alt: 1%(V) - Top: 5%(V)
Lower heating value*	10.200 kcal/m3

Source: Petrol Ofisi A.Ş., Diesel SDS, 20.07.2017

* <https://enerji.gov.tr>

The diesel fuel requirement for the running vehicle is calculated approximately from the formula below.

Fuel Consumed = HP x Run Time x 0.18

Fuel Consumed = (165 + 47 + 165) x 1 hour x 0.18

Fuel Consumed = 68 lt/hour

Emission factors used in the calculation of gas emissions are provided in Table 14.

Table 14: Emission Factors of Emitted Pollution from Diesel Vehicles

Pollutant	Diesel (kg/ton)
NOx	0,081
CO	0,017
SOx	0,005
PM	0,006
TOC	0,006

Source: <https://www.epa.gov/sites/default/files/2020-10/documents/c03s03>

Within the scope of the Project, the provisions of the Regulation on the Control of Industrial Air Pollution (Table 2.2 Air Quality Limit Values in the Plant Impact Area given in Annex 2) published in the Official Gazette dated 03.07.2009 and numbered 27277 and the Regulation on Air Quality Assessment and Management published in the Official Gazette dated 06.06.2008 and numbered 26898 and the "Regulation on Exhaust Gas Emission Control and Gasoline and Diesel Fuel Quality" published in the Official Gazette dated 30.11.2013 and numbered 28837 will be complied with.

Construction Phase Dust Emission from the Site:

During the construction phase of the Project, dust emissions from dirt roads during the movement of transport vehicles on site are also expected. The calculation of dust emissions expected to occur during the construction phase of the Project is also given below.

The dust emission expected to be generated by the movement of vehicles in the project area during the construction phase of the Solar Power Plant within the scope of the project are calculated by using the emission factors provided in Table 12.6 of Annex 12 of the Regulation on the Control of Industrial Air Pollution, which entered into force after being published in the Official Gazette dated 03.07.2009 and numbered 27277. Accordingly, dust emissions that will occur in case of controlled and uncontrolled work in the project area have been calculated by using emission factors given in Table 15.

Table 15: Emission Factors to be Used in Dust Emission Mass Flow Calculations

Resources	Uncontrolled	Controlled	Unit
Transportation (total round trip distance)	0,7	0,35	kg/km-vehicle

The movement distance in the project area is 150 m. In the dust emission calculation from vehicle movements in the project area, the emission factor is taken as 0.7 kg/kg-vehicle (uncontrolled) and 0.35 kg-vehicle (controlled) and calculated as follows;

Uncontrolled:

Emission Flow Rate:

$$0.70 \text{ kg/km-vehicle} \times 0.15 \text{ km} \times 3 \text{ vehicles/hour} \times 2 \text{ (round trip)} = 0.63 \text{ kg/hour}$$

Controlled:

Emission Flow Rate:

$$0.35 \text{ kg/trip.km} \times 0.15 \text{ km} \times 3 \text{ vehicles/hour} \times 2 \text{ (round trip)} = 0.32 \text{ kg/hour}$$

Within the scope of the project, the mass flow rate of dust emission expected to be generated by the movement of vehicles in the project area during the construction phase of the Solar Power Plant is calculated as 0.32 kg/hour in case of controlled operation and 0.63 kg/hour in case of uncontrolled operation.

According to Annex 2-1 of the Regulation on Control of Industrial Air Pollution;

- a. The hourly mass flow rates of the emissions given to the atmosphere from the facilities are determined by measuring from the chimneys for existing facilities and by using emission factors for non-stack sources and new facilities to be established.
- b. If the hourly mass flow rate (kg/hour) values exceed the values given in Table 2.1, the Air Pollution Contribution Value (APV) of the emissions in the plant impact area is calculated hourly if possible, otherwise daily, monthly and annually.

Since the dust emission value calculated using the emission factors for the Project does not exceed the limit value of 1 kg/hour for dust emissions from places other than stacks given in Annex 2 - Table 2.1 of the subject regulation, there is no need to calculate the air pollution contribution value. Therefore, the air quality effect was determined to be low.

In this context, WBG General EHS Guidelines and Turkish Legal limit values are given below. Turkish legislation is in line with international legislation. As can be seen in the tables below, the limit values of both institutions are compatible with each other. Only the national regulation does not specify a limit value for PM2.5. WBG General EHS Guidelines values will be applied if necessary. However, these values are valid in cases where the limit values given in Table 2.1 of Annex 2 of the Turkish legislation are exceeded. Because, according to Turkish legislation, as stated in Table 16, calculations are required to be made if the calculations are above the legal limits. It is seen in table 16 that the limits are not exceeded. Therefore, the tables given below are for information purposes.

Table 16: WBG General EHS Guidelines Ambient Air Quality Limit Values

WHO Ambient Air Quality Guidelines		
	Average Period	Guideline value µg/m3
Sulfur dioxide (SO ₂)	24 hours	125 (Interim target-1) 50 (Interim target-2) 20 (guideline)
	10 minutes	500 (guideline)
Nitrogen dioxide (NO ₂)	1 year	40 (guideline)
	1 hours	200 (guideline value)
Particulate Matter PM ₁₀	1 year	70 interim target-1 50 interim target-2 30 interim target-3 20 (guideline)
	24 hours	150 (interim target-1) 100% interim target-2 75% (interim target-3) 50 (-guideline)
Particulate Matter PM _{2.5}	1 year	35 interim target-1 25 interim target-2 15 (interim target-3) 10 (guideline)
	24 hours	70 (interim target-1) 50 interim target-2 37.5 (interim target-3) 25 (guideline)

Ozone	8-hour daily maximum	160 interim target-1) 100 (guideline)
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Table 17: Turkish legislation Air Emissions Limit Values

Parameter	Time	Unit	Limit value
SO ₂	Hourly (not exceeded more than 24 times in one year)	µg/m ³	350
	24 HOURS		125
	UVS		60
	**Annual and winter period (October 1-March 31)		20
NO ₂	Hourly (not exceeded more than 18 times in one year)	µg/m ³	200*
	annual		40
Air Suspended Particulate Matter (PM 10)	24 HOURS (not exceeded more than 35 times in one year)	µg/m ³	50
	Annual		40

Source:

<https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=13184&MevzuatTur=7&MevzuatTertip=5>

Accordingly, the pollutant values to be caused by construction machinery are calculated and given below.

Table 18: Construction Machinery Pollutant Values

Pollutant	Diesel (kg/ton)	
NO _x	0.081 kg/m ³ x 68 lt/h x 1m ³ /1000lt	0.0055 kg/hour
CO	0.017 kg/m ³ x 68 lt/h x 1m ³ /1000lt	0.0012 kg/hour
SO _x	0.005 kg/m ³ x 68 lt/h x 1m ³ /1000lt	0.0003 kg/hour
PM	0.006 kg/m ³ x 68 lt/h x 1m ³ /1000lt	0.0004 kg/hour
TOC	0.006 kg/m ³ x 68 lt/h x 1m ³ /1000lt	0.0004 kg/hour

Table 19: Construction Machinery Pollutant Values-Boundary Value comparison

	CO (kg/hour)	HC (kg/hour)	NO _x (kg/hour)	PM (kg/hour)	SO _x (kg/hour)
Total Pollutant Value	0,0012	0,0004	0,0055	0,0004	0,0003
Legal Limit Value	50	3	4	1	6

There will be no excavation process in the construction of the project. For dust emissions from vehicles within the scope of the project, the provisions of the "Industrial Air Pollution Control Regulation" published in the Official Gazette dated 20.12.2014 and numbered 29211 will be complied with.

6.2.2.2 Operation Stage

No emissions are expected during the operation phase. No air pollution impact is expected due to the nature of the process.

6.2.3 Noise Pollution and Vibration

6.2.3.1 Construction Stage

Noise generation is expected during the construction of the Project, especially during the driving of the panel legs into the ground. Noise generation is also expected from vehicles during the transportation of panels and during material unloading. The calculation of the noise that may occur during the construction phase is given below.

Noise from Vehicles

Within the scope of the activity, 1 mobile pile driving machine, 1 truck and 1 mobile crane will be used in the area where solar panels will be installed. Noise will be generated from the machines to be used in this scope.

The closest settlement to the project area is the vineyard house located 62 m northeast of the project area. The noise level value of the noise level expected to occur at the source, which will reach the vineyard house 62 m away, is calculated as 62.23 dBA.

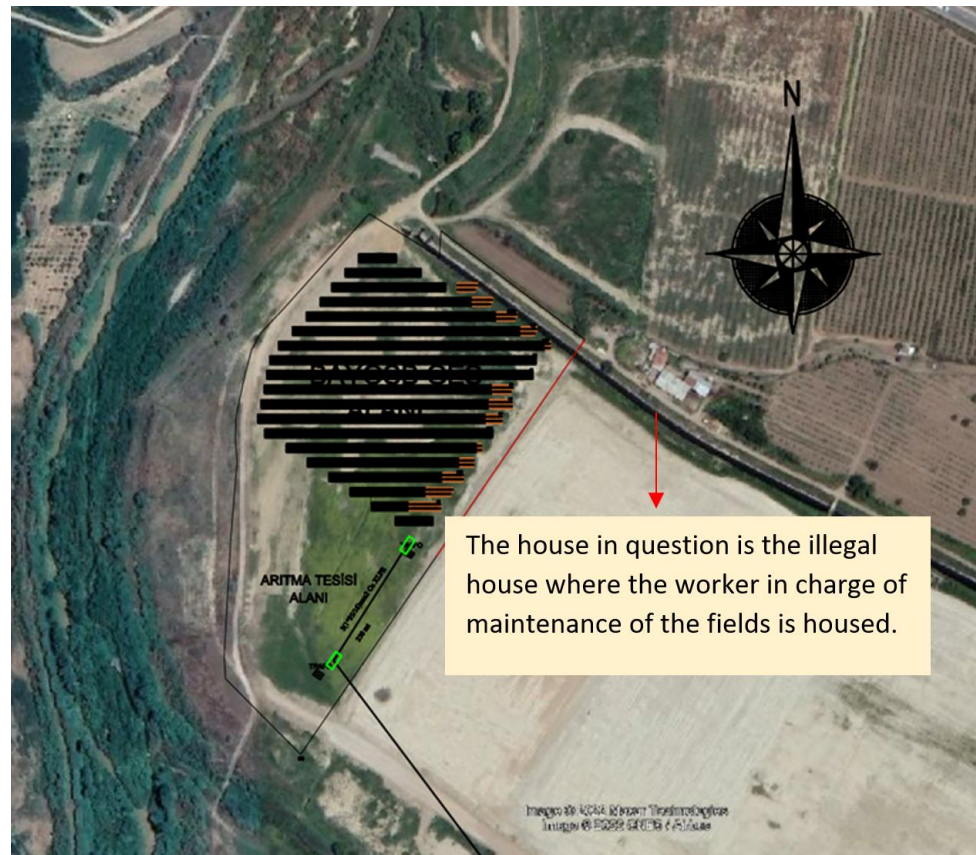


Figure 44: Project Area Nearest Settlement

Motor Powers in kW were calculated according to the motor powers in HP to be used within the scope of the activity. Engine powers are converted from HP to kW by unit conversion (1 HP = 0.7457 kW) as shown in Table-20.(Source: <https://convertlive.com/tr/>)

Table 20: Machinery and Equipment Specifications to be used during the Construction Phase

Unit	Engine Power (HP)	Engine Power (kW)
Truck (1 unit)	165 HP	123 kW
Mobile Pile Driving Machine (1 piece)	47 HP	35 kW
Mobile Crane (1 unit)	165 HP	123 kW

Permissible sound power levels and noise marking within the scope of Article 5 of the Ministry of Industry and Trade Regulation No. 26392 dated 30.12.2006 on Noise Emission in the Environment Created by Outdoor Equipment

$P=104$ kW if $P<55$ HP

If $P>55$ HP, $P= 85 + 11 \log P$ is accepted.

Accordingly, the sound power levels of the machinery and equipment to be used are calculated and presented below.

Table 21: Number of Machinery and Equipment to be used and Sound Power Levels

Machine Equipment Name	Pcs.	Sound Power Level (dB)
Truck	1	105
Mobile Pile Driving Machine	1	104
Mobile Crane	1	105

Noise propagation calculation was made by considering the atmospheric absorption values (average humidity was taken as 60%) and using the formulas given below. The relative humidity used in the formula is the average annual humidity.

Table 22: Noise Sources and Sound Levels According to 4 Octave Band

Noise Sources	Sound Level Power (dB)				
	Total	500 Hz	1000 Hz	2000 Hz	4000 Hz
Truck	105	99	99	99	99
Mobile Pile Driving Machine	104	98	98	98	98
Mobile Crane	105	99	99	99	99

The following table is created using the formula $L_p = L_w + 10 \log(Q/4\pi.r^2)$.

L_p = Sound pressure level of the source (dB)

L_w = Sound power level of the source (dB)

Q = Orientation coefficient (taken as 1)

r = Distance from the source (m)

Table 23: Sound Levels of Noise Sources according to Distances

Noise Sources	Sound Level Power (dB)				
	Distance	500 Hz	1000 Hz	2000 Hz	4000 Hz
Truck	10	68,01	68,01	68,01	68,01
	20	61,99	61,99	61,99	61,99
	30	58,47	58,47	58,47	58,47
	50	54,03	54,03	54,03	54,03
	62	52,16	52,16	52,16	52,16
	100	48,01	48,01	48,01	48,01
	250	40,05	40,05	40,05	40,05
Mobile Pile Driving Machine	10	67,01	67,01	67,01	67,01
	20	60,99	60,99	60,99	60,99
	30	57,47	57,47	57,47	57,47
	50	53,03	53,03	53,03	53,03
	62	51,16	51,16	51,16	51,16
	100	47,01	47,01	47,01	47,01
	250	39,05	39,05	39,05	39,05
Mobile Crane	10	68,01	68,01	68,01	68,01
	20	61,99	61,99	61,99	61,99
	30	58,47	58,47	58,47	58,47
	50	54,03	54,03	54,03	54,03
	62	52,16	52,16	52,16	52,16
	100	48,01	48,01	48,01	48,01
	250	40,05	40,05	40,05	40,05

in the frequency range 500 Hz to 4000 Hz, the correction factors are given below.

Table 24: Correction Factors

Center Frequency (Hz)	Correction Factor
500	-3,2
1000	0
2000	1,2
4000	1

After applying the correction factor, the sound levels generated by distance and hertz are given below.

Table 25: Sound Levels by Distance and Hertz after Correction Factor

Noise Sources	Distance (m)	Sound Level (dBA)			
		500 Hz	1000 Hz	2000 Hz	4000 Hz
Truck	10	10	64,81	68,01	69,21
	20	20	58,79	61,99	63,19
	30	30	55,27	58,47	59,67
	50	50	50,83	54,03	55,23
	62	62	48,96	52,16	53,36
	100	100	44,81	48,01	49,21
	250	250	36,85	40,05	41,25
Mobile Pile Driving Machine	10	63,81	67,01	68,21	68,01
	20	57,79	60,99	62,19	61,99
	30	54,27	57,47	58,67	58,47
	50	49,83	53,03	54,23	54,03
	62	47,96	51,16	52,36	52,16
	100	43,81	47,01	48,21	48,01
	250	35,85	39,05	40,25	40,05
Mobile Crane	10	64,81	68,01	69,21	69,01
	20	58,79	61,99	63,19	62,99
	30	55,27	58,47	59,67	59,47
	50	50,83	54,03	55,23	55,03
	62	48,96	52,16	53,36	53,16
	100	44,81	48,01	49,21	49,01
	250	36,85	40,05	41,25	41,05

The atmospheric absorption values for each frequency were calculated according to the formula $A_{atm}=7.4 \cdot 10^{-8} (f^2 \cdot r / \phi)$ and the table below was created.

f= Transmitted sound frequency

r= Distance from the source (m)

ϕ = Relative humidity of air (58.9%)

A_{atm} = Decrease in sound pressure level with atmospheric absorption (dBA)

Table 26: Atmospheric Absorption Values by Frequency and Distances

Frequency (Hz)	Distance (m)	Atmospheric Ingestion
500	10	0,00
	20	0,01
	30	0,01
	50	0,02
	62	0,02
	100	0,03
	250	0,08
1000	10	0,01
	20	0,02
	30	0,04
	50	0,06
	62	0,08
	100	0,12
	250	0,31
2000	10	0,05
	20	0,10
	30	0,15

	50	0,25
	62	0,31
	100	0,49
	250	1,23
4000	10	0,20
	20	0,39
	30	0,59
	50	0,99
	62	1,22
	100	1,97
	250	4,93

After deducting the atmospheric absorption values, the net sound level of each noise source in the 4 octave band was calculated with the formula $L=L-A_{atm}$ and $L_T=Total\ Sound\ Level\ LT=10\log\sum 10L_i/10$ and the following table was created.

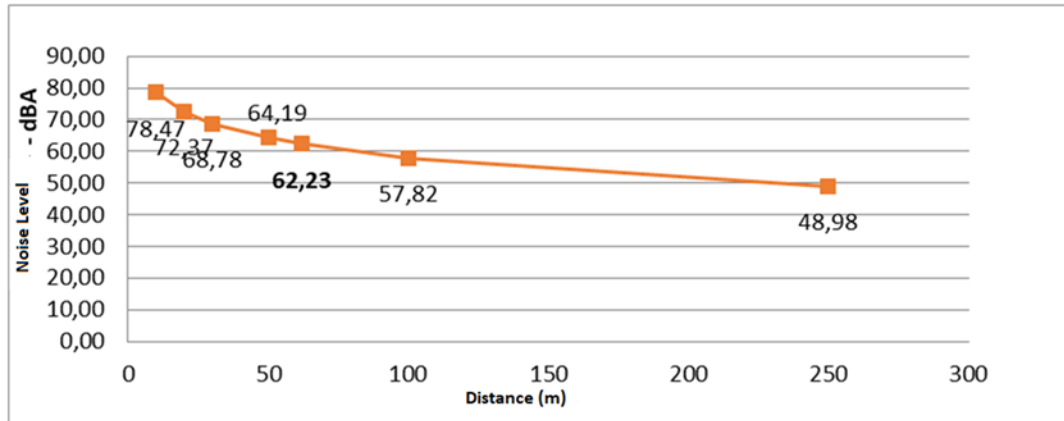
Table 27: Net Sound Levels by Distance

Noise Sources	Sound Level Power (dB)					Total Sound Level (dBA)
	Distance	500 Hz	1000 Hz	2000 Hz	4000 Hz	
Truck	10	64,81	68,00	69,16	68,81	74,01
	20	58,78	61,96	63,09	62,59	67,91
	30	55,26	58,43	59,52	58,88	64,31
	50	50,82	53,97	54,98	54,04	59,73
	62	48,94	52,09	53,06	51,94	57,77
	100	44,78	47,89	48,72	47,04	53,35
	250	36,77	39,74	40,02	36,12	44,52
Mobile Pile Driving Machine	10	63,81	67,00	68,16	67,81	73,01
	20	57,78	60,96	62,09	61,59	66,91
	30	54,26	57,43	58,52	57,88	63,31
	50	49,82	52,97	53,98	53,04	58,73
	62	47,94	51,09	52,06	50,94	56,77
	100	43,78	46,89	47,72	46,04	52,35
	250	35,77	38,74	39,02	35,12	43,52
Mobile Crane	10	64,81	68,00	69,16	68,81	74,01
	20	58,78	61,96	63,09	62,59	67,91
	30	55,26	58,43	59,52	58,88	64,31
	50	50,82	53,97	54,98	54,04	59,73
	62	48,94	52,09	53,06	51,94	57,77
	100	44,78	47,89	48,72	47,04	53,35
	250	36,77	39,74	40,02	36,12	44,52

The total sound level was calculated using the formula $L_{eq}=10\log\sum 10L_T(i)/10$, assuming that all equipment is operating at the same time. Accordingly, the sound level according to distances is as follows:

Table 28: Sound Level over Distances

Distance (m)	LDay (dBA)
10	78,47
20	72,37
30	68,78
50	64,19
62	62,23
100	57,82
250	48,98

**Graphic 9: Noise Level by Distances**

The closest settlement to the project area is the vineyard house located 62 m northeast of the project area. The noise level calculated at a distance of 62 m is 62.23 dBA.

Within the scope of the activity, the Limit Values of the " Environmental Noise Control Regulation" dated 30.11.2022 and numbered 32029 will not be exceeded. Since the project area is within the OIZ and work will be carried out only during the daytime period, the daytime working hours limit value of 70 dBA for "each facility within the Organized Industrial Zone or Specialized Industrial Zone" in the table below will be provided.

Table 29: Environmental Noise Limit Values for Industrial Facilities

FIELDS	Ldaytime (dBA)	Levening (dBA)	Lnighttime (dBA)
Noise-sensitive uses such as education, culture and health areas and areas where summer houses and camping sites are concentrated	60	55	50
Areas where commercial buildings and noise-sensitive uses coexist, and areas with a high concentration of residential buildings	65	60	55
Areas where commercial buildings and noise-sensitive uses coexist, including areas where workplaces are densely populated	68	63	58
For each facility within an Organized Industrial Zone or Specialized Industrial Zone	70	65	60

Table 30: Environmental Noise Limit Values for Construction Site

TYPE OF ACTIVITY (Construction, Demolition and Repair)	L _{daytime} (dBA)
Building	70
Path	75
Other sources	70

Vibration is expected to occur during the driving of the panels into the ground within the scope of the Project.

FTA (Federal Transit Administration) Transit Noise and Vibration Impact Assessment Manual September 2018 was used as a reference for vibration calculation. The formulations mentioned in this source are as follows.

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

PPV_{equip} = Maximum particle velocity of the equipment adjusted by distance, in/sec

PPV_{ref} = Source reference vibration level at 25 ft, in/sec

D = distance from equipment to receiver ft

Vibration calculations are conducted by using the formula provided above and the vibration source levels of construction equipment provided in Table-30. The results of calculations are given in Table-32, Table-33 and Table-34.

Table 31: Vibration Source Levels for Construction Equipment

Equipment		pPV in/sec at 25 ft	approx. Lv* at 25 ft
Pile driving (Impact)	Higher Tier	1.518	112
	Normal	0.644	104
Pile driving (sonic)	Higher Tier	0.734	105
	Normal	0,17	93
		0.202	94
Aqueous mil	In soil	0.008	66
	On the rock	0.017	75
Vibrator Cylinder		0,21	94
Anchor		0.089	87
Big Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Crusher		0.035	79
Small bulldozer		0.003	58

Table 32: Vibration Calculation (inc/sec)

<i>PPV_{equip}</i>	1m	10m	20m	50m	100m
	31,943	1,010	0,357	0,090	0,032
inc/sec	13,551	0,429	0,152	0,038	0,014
	15,445	0,488	0,173	0,044	0,015
	3,577	0,113	0,040	0,010	0,004

Table 33: Vibration Calculation (mm/sec)

<i>PPV_{equip}</i>	1m	10m	20m	50m	100m
	811,343	25,657	9,071	2,295	0,811
mm/sec	344,206	10,885	3,848	0,974	0,344
	392,310	12,406	4,386	1,110	0,392
	90,862	2,873	1,016	0,257	0,091

Table 34: Vibration Result Values

Impact driver max.	1,518 mm/sn
Impact driver ave.	0,644 mm/sn
Normal driver max.	0,734 mm/sn
Normal driver ave.	0,17 mm/sn

Table 35: Limit value (at the nearest very sensitive use area) (peak value mm/sec)

	Continuous	Discrete
In residential areas	5	10
In industrial and commercial zones	15	30

Source:

Regulation on Assessment and Management of Environmental Noise (04.06.2010, OG.27601)

Environmental Noise Control Regulation" dated 30.11.2022 and numbered 32029

The construction uses used against the calculation values given in 33 and the limit values given in the table 34 will not have a negative impact. Therefore, the evaluation effect was targeted as low.

6.2.3.2 Operation Stage

There are no activities that may cause noise and vibration during the operation of the Solar Power Plant. Therefore, no noise and vibration impacts are expected during the operation phase of the Project.

6.2.4 Water Resources

6.2.4.1 Construction Stage

There is Nif Stream as a surface water source near the Project area. However, the SPP project will be constructed in the region of the project area far from the Nif Stream. Likewise, there is a DSI Irrigation channel for irrigation of the agricultural areas in the region. There will be no impact on existing water resources due to the nature of the project.

During the construction phase of the Project, water use by personnel is expected, but water use by process is not expected. Since the panel legs will be driven into the ground, concrete will not be poured, vehicle maintenance, repair and cleaning will not be carried out in the project area, there will be no process-related water use.

A team of approximately 10 people is expected to work on the construction of the project. The water requirement calculation for the people who will work in the project is given below.

Drinking and Potable Water Needs:

A total of 10 personnel is planned to work in the facility. Daily water consumption per capita is taken as 208 lt/person.day (Source: TURK STAT 2018). Accordingly, the calculation of the amount of drinking and potable water required is given below.

Current Daily Water Requirement;

$208 \text{ lt / person.day} \times 10 \text{ people} \times \text{day}/24\text{h} \times 8\text{h} = 693 \text{ L/day} = 0,69 \text{ m}^3/\text{day},$

Project construction workers will meet their daily needs at the OIZ Directorate facilities. Bağyurdu OIZ Directorate meets its water needs from underground water wells with legal permission. Therefore, no drinking and potable water facility will be provided in the project area during the construction phase, even temporarily. Employees will meet all their daily needs, including food needs, at the OIZ facilities. As the construction period is planned to take approximately three months, it is assumed that the process can be carried out in this way.

Domestic wastewater generated within the body of Bağyurdu OIZ is sent to Kemalpaşa OIZ central wastewater treatment plant in accordance with the protocol signed. Kemalpaşa OIZ has a wastewater treatment plant with a capacity of 20,000 m³. All legal permits for the facility in question have been completed.

6.2.4.2 Operation Stage

Since there will be no permanent personnel during the operation phase of the Project, water use by personnel is not expected. However, during the operation phase, solar panels need to be washed once or twice a year. Clean water will be used here. There will be no use of chemicals/detergents together with water. Therefore, there will be process-induced water use during the operation phase. The amount of water to be used at this stage is calculated as approximately 4 m³ for each wash.



Figure 45: Panel cleaning equipment

The water to be used in this context will be supplied from the OIZ network. In this context, no groundwater resources and surface water will be used. Since this panel washing process is in the form of water spraying, the amount of water usage is minimal. Since the panel washing process will be in the form of spraying and brushing, no wastewater will be generated

6.2.5 Wastes

6.2.5.1 Construction Stage

Within the scope of the Project, during the construction of the SPP and the Electric Vehicle Fast Charging Station, waste generation from materials, installation and personnel is expected. Possible wastes are given below.

The policy for the wastes to be generated during the construction and operation phase of the project is as follows. First of all, necessary measures will be taken to prevent waste. For the wastes to be generated, a waste site will be created according to the waste types. Soil impermeability of this area will be provided.

The resulting wastes will be collected separately according to their types and sent to licensed recycling facilities. Records of these submissions will be kept.

A zero waste system has been established and implemented within the body of Bağyurdu OIZ. In this context, a waste collection center was established within the OIZ. Participants can bring their paper, plastic, glass, metal, battery, medical and electronic wastes to the waste collection center.

Wastes brought here are sent to licensed facilities.

Domestic wastes generated in Bağyurdu OIZ are placed in containers placed by Kemalpaşa Municipality and collected by Kemalpaşa Municipality and sent to the Regular Waste Storage Area.

Table 36: Construction Phase Waste Table

POSSIBLE WASTES DURING CONSTRUCTION				
WASTE TYPE	WASTE CODE			
Domestic Wastewater	-			
Household Waste	20 03 01			
Plastic packaging	15 01 02			
Glass Packaging	15 01 07			
Metal Packaging	15 01 04			
Paper and cardboard packaging	15 01 01			
Wooden packaging	15 01 03			
Mixed Metals	17 04 07			
Packages containing residues of dangerous substances or contaminated with dangerous substances	15 01 10 *			
Metallic packaging containing hazardous porous solid structure (e.g. asbestos), including empty pressure containers	15 01 11*			
Absorbents contaminated with hazardous substances, filter materials, (oil filters if not otherwise specified) cleaning cloths protective clothing	15 02 02*			
Absorbents, filter media, cleaning cloths, protective clothing other than 15 02 02	15 02 03			
Other engine, transmission and lubricating oils	13 02 08*			
Oil filters	16 01 07*			
Discarded electrical and electronic equipment containing hazardous parts other than 20 01 21 and 20 01 23	20 01 35*			
Electronic waste	20 01 36			
Source Waste	12 01 03			
Cables containing oil, tar and hazardous substances	17 04 10*			
cables other than 17 04 10	17 04 11			
Other batteries and accumulators	16 06 05			
End-of-life tire	16 01 03			
soil and rocks other than 17 05 03	17 05 04			
Soil and rocks containing hazardous substances	17 05 03*			
Wastes subject to special treatment for collection and disposal to prevent infection	18 01 03*			
Vegetable waste oil	20 01 26*			

■ unexpected
 ■ Likely
 ■ expected

6.2.5.2 Operation Stage

Waste generation from maintenance and repair activities is expected during the operation phase of the SPP and Fast Charging station. Possible wastes are given below. Waste generation due to maintenance and repair is expected during operation. For these wastes, they will be stored separately within the waste management system of Bağyurdu OIZ Directorate and sent to licensed facilities.

Table 37: Operation Phase Waste Table

POSSIBLE WASTES DURING OPERATION				
WASTE TYPE	WASTE CODE			
Domestic Wastewater	-			
Household Waste	20 03 01			
Plastic packaging	15 01 02			
Glass Packaging	15 01 07			
Metal Packaging	15 01 04			
Paper and cardboard packaging	15 01 01			
Wooden packaging	15 01 03			
Mixed Metals	17 04 07			
Packages containing residues of dangerous substances or contaminated with dangerous substances	15 01 10 *			
Metallic packaging containing hazardous porous solid structure (e.g. asbestos), including empty pressure containers	15 01 11*			
Absorbents contaminated with hazardous substances, filter materials, (oil filters if not otherwise specified) cleaning cloths protective clothing	15 02 02*			
Absorbents, filter media, cleaning cloths, protective clothing other than 15 02 02	15 02 03			
Other engine, transmission and lubricating oils	13 02 08*			
Oil filters	16 01 07*			
Discarded electrical and electronic equipment containing hazardous parts other than 20 01 21 and 20 01 23 *	20 01 35*			
Electronic waste	20 01 36			
Source Waste	12 01 03			
Cables containing oil, tar and hazardous substances	17 04 10*			
cables other than 17 04 10	17 04 11			
Other batteries and accumulators	16 06 05			
End-of-life tire	16 01 03			
soil and rocks other than 17 05 03	17 05 04			
Soil and rocks containing hazardous substances	17 05 03*			
Wastes subject to special treatment for collection and disposal to prevent infection	18 01 03*			
Vegetable waste oil	20 01 26*			

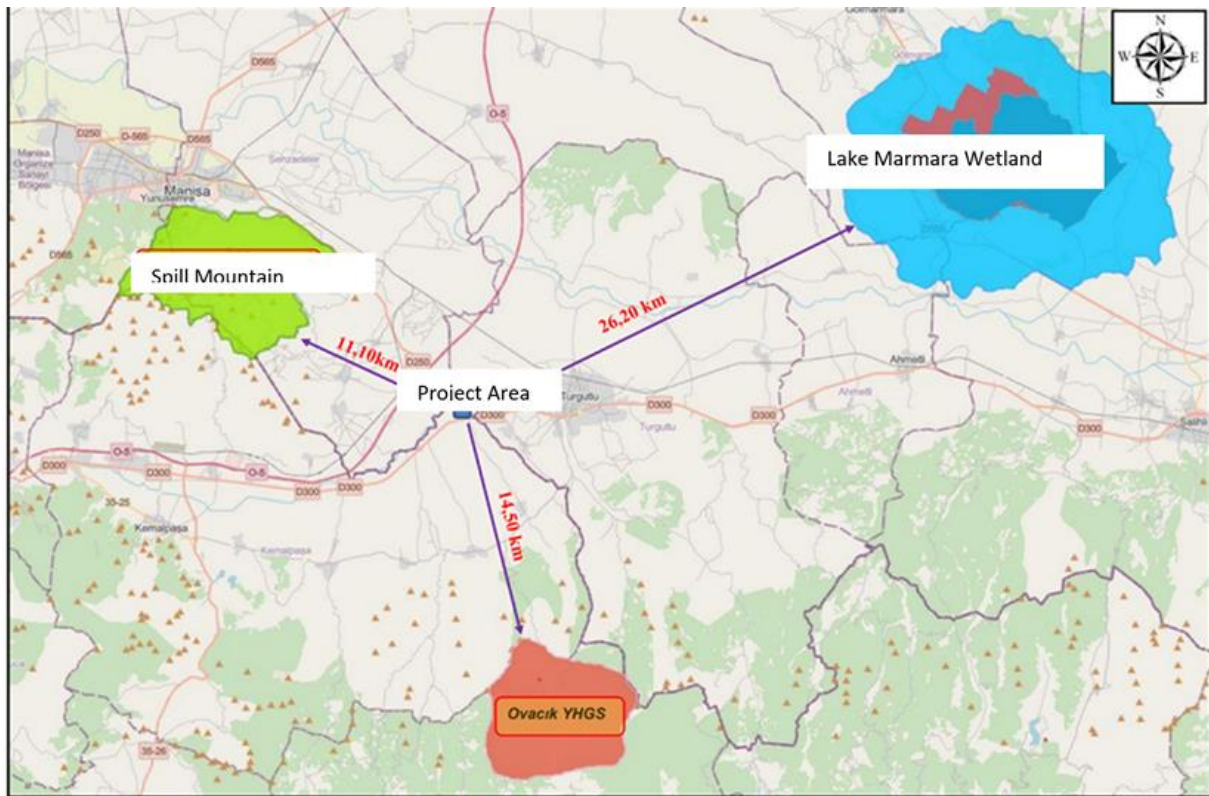
*Damaged solar panels will be evaluated in this category during the construction and operation phase of the project.

6.2.6 Protected Areas

The project area has been declared as an industrial area by the Ministry of Industry and Technology and has been registered as Industrial Area in the Plans. Therefore, the project area does not fall within any protected area boundaries.

There are also no internationally recognized areas of high biodiversity value (such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites) within the Project Area and its vicinity.

The Project Area is 11.1 km from Spil Mountain National Park, 26.2 km from Marmara Lake Wetland and 14.5 km from Ovacık Wildlife Development Area (see Figure-46). Due to the nature of the Project and distances to these areas, the Project is not expected to have a negative impact on these areas.



As the existing landscape will not be disturbed during the construction phase, no significant negative impact on the landscape is expected.

6.2.7.2 Operation Stage

Within the scope of the project, solar panels with a maximum height of 3575 mm will be installed. Since there is no settlement around the project area, it is not possible to block the view or to block the view of the existing lands.

No changes will be made to the landscape structure during the construction phase of the project. Therefore, the landscaping in and around the project area will not change. There is a level difference with the neighboring parcel in the OIZ. The project area is located at a lower elevation. There will be no negative impact on this parcel either.

6.3 Effects on the Biological Environment

6.3.1 Construction Stage

The project area is weak in terms of flora and fauna, as evidenced by the fact that the project area is located in the industrial area, not in protected and sensitive areas, and the existing field surveys.

There is no vegetation or trees on the land and it has the appearance of clay and sandy soil. Therefore, since the construction technique is to nail the solar panel legs, there will be no activities that will have a significant biological impact on the land. Since there is no endemic, critical or sensitive flora and fauna in the current situation, it is thought that there will be no significant impact.

The project will not have any impact on the biological environment of the surrounding lands with the construction work as the construction works and related possible impacts will be mainly limited to the project area.



Figure 47: Project Area View (Biological Impact)

6.3.2 Operation Stage

No impact of solar panels on flora is expected during the operation phase of the Project. In the literature research on this subject, no proven effect of solar panels on flora was found.

However, migratory birds have been observed to be affected due to the reflection and mirror function of solar panels that were produced with former technologies. However, in the new technology, this effect has been eliminated with the studies carried out to increase the absorption feature of solar panels.

In the project, state-of-the-art, non-reflective glass will be used to both prevent biological effects and increase absorption efficiency. Moreover, the project area is not located on bird migration routes (see Figure-48).

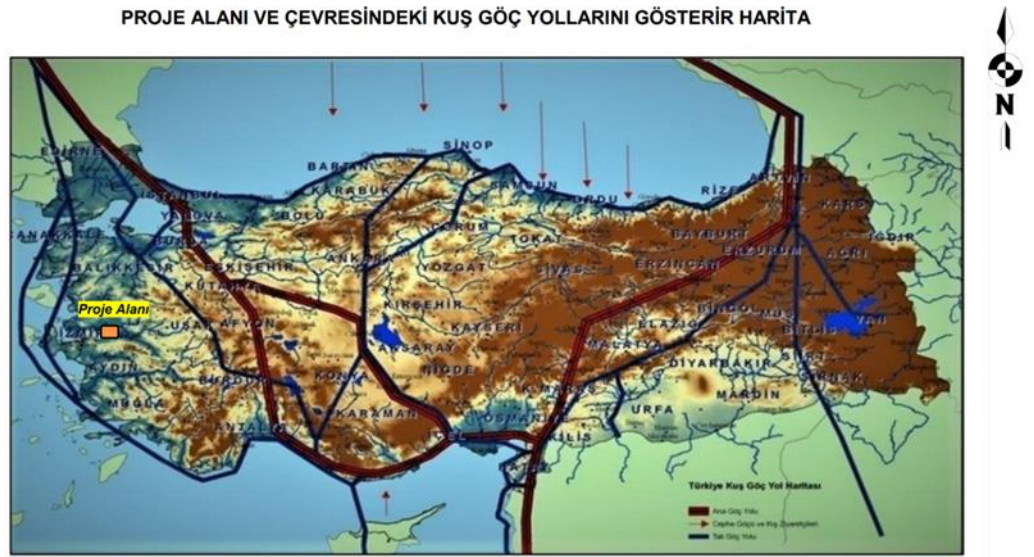


Figure 48: Map of Migratory Bird Routes through Turkey (Kiziroğlu et al., 2011)

As a result, no significant negative impact on the biological environment is expected during the operation phase

6.4 Impact on Social Environment

Kemalpaşa district, where the project will be located, is 29 km east of İzmir and 8 km south of the İzmir-Ankara Highway. Turgutlu to the east, Manisa to the north, Bornova and İzmir center to the west, Torbalı and Bayındır to the south. Its area is 658 km² and its altitude is 225 meters.

Kemalpaşa District is located on a highly fertile plain between the Nif Mountains, the highest point of which is 1510 meters in the southwest, and the Manisa Mountains in the north.

The most important river of the district is Nif Stream. This stream enters the borders of the district from the west of Ulucak and flows eastward through the Kemalpaşa Plain and flows into the Gediz River in Manisa.

Administrative Structure and Administrative Division of the Region in terms of the settlement status of the neighborhoods;

They are concentrated on the İzmir - Ankara Highway, Kemalpaşa - Turgutlu Road and Kemalpaşa - Torbalı Road.

Kemalpaşa district is subject to intensive migration due to its structure suitable for development, its location in the mass housing area and industrial developments. In this respect, problems such as infrastructure, economic inadequacies, health and literacy negatively affect social life.

The livelihoods of the district are agriculture, animal husbandry and industry. 60% of the district's population is engaged in agriculture and animal husbandry, while 40% works in many industrial facilities and fattening farms (Sheep and cattle farms) established within the borders of the district.

Since the district is close to İzmir, the fact that the people meet their social needs from İzmir is to the detriment of Kemalpaşa in a way.

There are two Organized Industrial Zones within the borders of the district, namely Kemalpaşa Organized Industrial Zone and Bağyurdu Organized Industrial Zone, and there are more than 500 industrial enterprises operating inside and outside the organized industrial zones. Total employment is over 25,000, with approximately 20% of the employment coming from Kemalpaşa and the remaining 80% from İzmir.

There will be no positive impact on the socio-economic environment of the region due to the fact that the project area is within the OIZ, there are agricultural areas on the border of the project area, and there are no employment opportunities during the operation phase of the project. Likewise, it is not expected to have a negative impact. Approximately 10 people will work during the construction phase of the project. Assembly weight will not be available from the region as qualifications are required for this workforce.

In addition, it is expected to encourage industrialists in the region to use renewable energy. Likewise, the creation of an Electric Vehicle Fast Charging Station is expected to encourage people in the region to use electric vehicles.

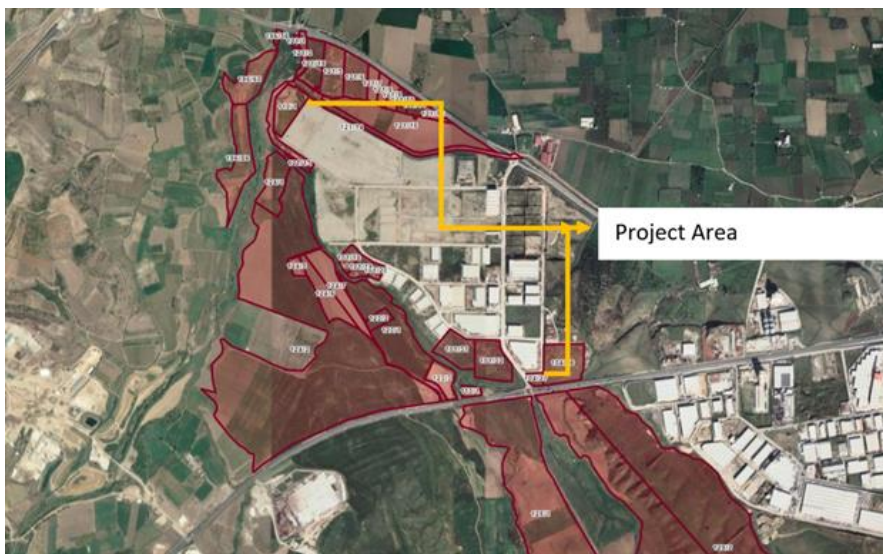


Figure 49: Property Status around the Project Area

There are no settlements close to the SPP Area that will be affected by the project. The distances of the project area to the residential areas are given below. The settlements close to the project area are Çepnidere village at a distance of 5300 m, Sancaklıbozköy village at a distance of 6100 m, Turgutlu district at a distance of 6250 m and Sancaklığdecik village at a distance of 6600 m.

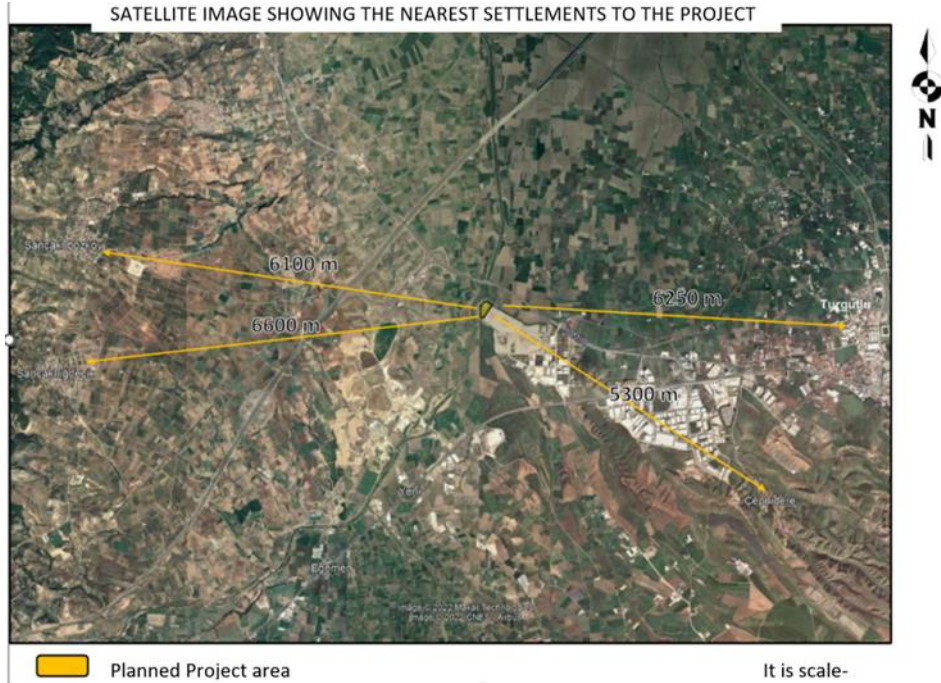


Figure 50: SPP Settlement Distances

The nearest settlements to the Electric Vehicle Fast Charging Station area are Çepnidere village at a distance of 3350 m, Turgutlu district at a distance of 4550 m, Sancaklıbozköy village at a distance of 6100 m and Sancaklığdecik village at a distance of 6600 m.

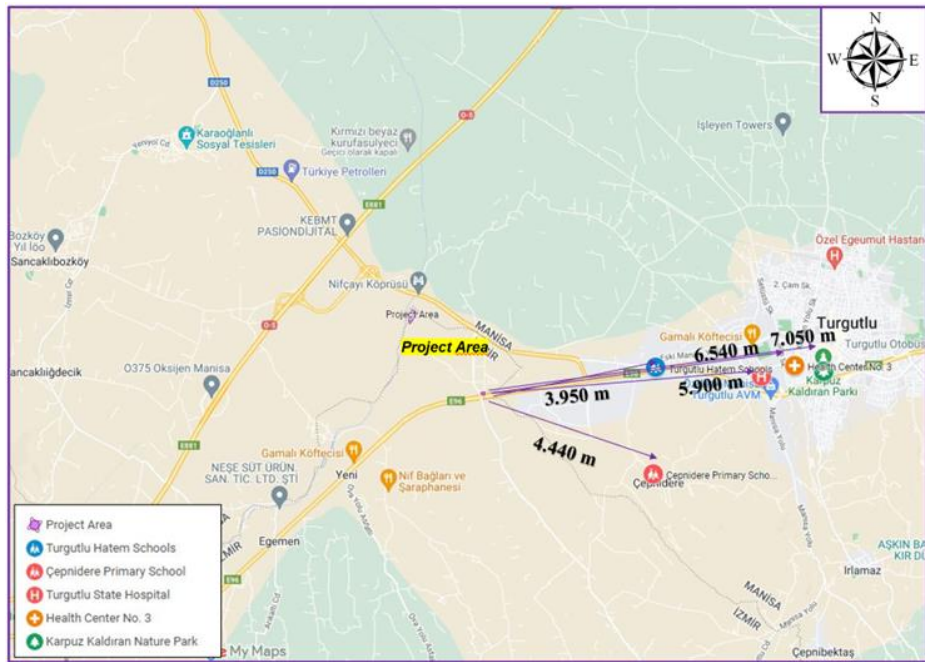


Figure 51: Fast Charging Station Settlement Distances

It is considered that there will be no negative impact on the socio-economic environment due to the fact that the construction phase of the project will be completed in a short period of approximately 1.5 months, being far from settlements and the process characteristics.

6.4.1 Traffic Impact

6.4.1.1 Construction Stage

During the construction phase of the project; there will be traffic impact due to the transportation of construction machinery, solar panels to be used and employees. However, this impact will be limited to 1 graving machine to be used in the project, 1 work machine to be used in the site arrangement and the vehicles to be used to bring the materials to the site. This impact is expected to be negligible considering the use of highways where the increase in traffic density due to the Project will be insignificant

The transportation route to be used for these operations is shown in Figure-52.

As shown in the transportation route, the project area is surrounded by the Manisa and Izmir highways. Therefore, whether the transportation operations are carried out by Izmir or Manisa, the highway will be used and will not pass through any settlement.

Vehicles arriving at the Bağyurdu OIZ area using these highways will reach the project area by using the road within the OIZ. The distance within the OIZ is 2 km.

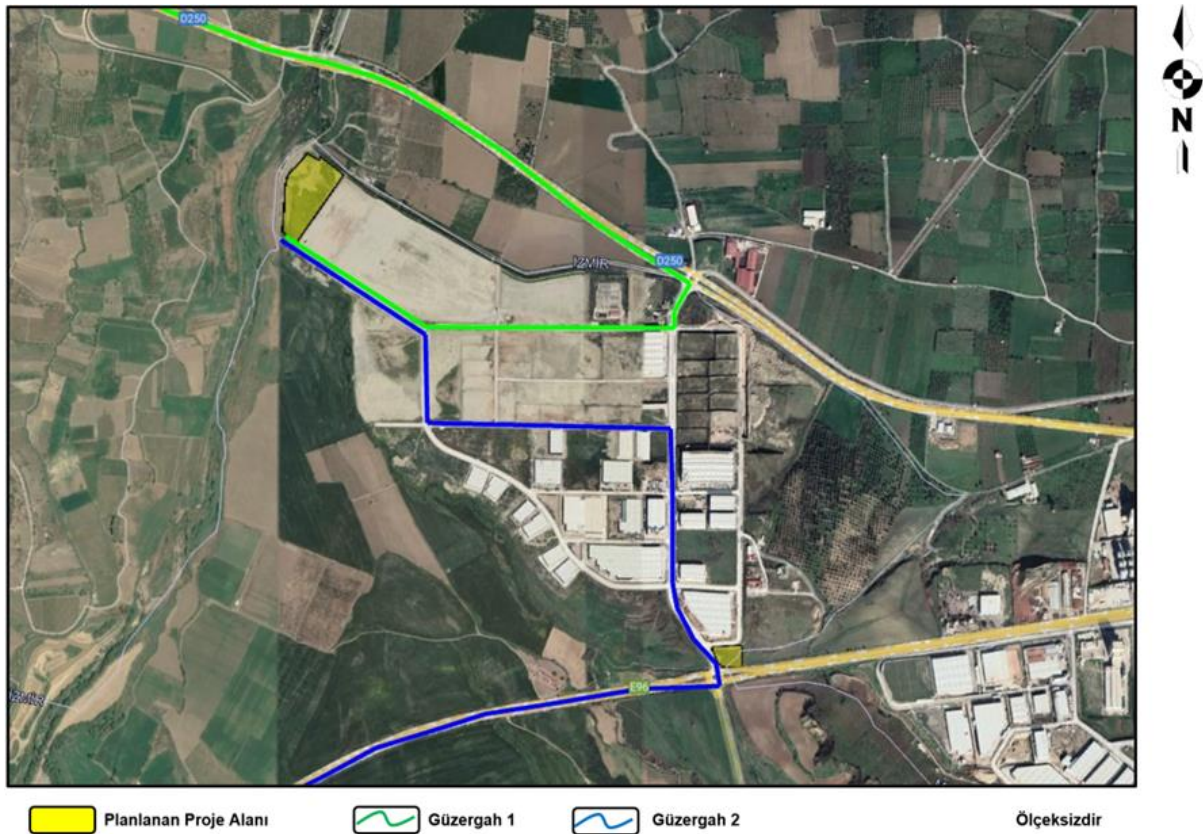


Figure 52: Project Area Traffic Route

6.4.1.2 Operation Stage

During the operation phase of the project, there will be no fixed personnel working in the project area. The area secured with a wire fence will be checked during routine patrols by the security unit within the OIZ.

The Project area will only be visited during maintenance and repair and panel washing operations, which will be carried out once or twice a year. Therefore, no traffic impact is expected during the operation phase of the Project.

6.4.2 Occupational Health and Safety

6.4.2.1 Construction Stage

Within the scope of the construction phase of the project, it is planned to level the site, drive the panel legs into the ground, install the panels, and install cables and transformers.

Prior to the commencement of land preparation and construction works, the Contractor shall prepare a site specific Occupational Health and Safety and Safety Management Plan (including Emergency Preparedness and Response) for the Project, based on risk assessment to be carried out for all works, in accordance with Turkish legislation and international standards.

During the construction phase, the Occupational Health and Safety Regulation in Construction Works dated 05.10.2103 and numbered 28786 will be complied with and in this context, the contractor will provide the following conditions, but not limited to:

- a. The project area will be kept tidy and sufficiently clean,
- b. In the selection of working places in the construction area; access to these places and the designation of areas or paths for equipment, movement and passages will be considered,
- c. Regulation of the conditions of use and transportation of the material will be provided,
- d. Technical maintenance and controls of facilities and equipment will be conducted before they are put into use and periodically,
- e. Appropriate storage areas for various materials, especially hazardous materials and substances, will be allocated and boundaries of these areas will be determined,
- f. Regulation of the use of hazardous materials and the conditions for their removal will be provided,
- g. Appropriate storage, disposal or removal of waste and residues will be performed,
- h. The time periods for various works or phases of work according to the status of the work at the construction site will be redefined as needed,
- i. Cooperation between subcontractors and self-employed persons will be provided,

- j. Interaction with industrial activities in or near the construction area will be considered,
- k. Regulation on the Use of Personal Protective Equipment in Workplaces published in the Official Gazette dated 02.07.2013 numbered 28695 and harmonized national standards will be complied with and the use of personal protective equipment by employees will be ensured.

Project Manager and Contractor Responsibilities:

The Contractor may fulfill OHS obligations personally or may appoint one or more project managers with the necessary scientific competence to act on his behalf.

The appointment of one or more health and safety coordinators will not relieve the project officer or contractor of their responsibilities in occupational health and safety matters. A full-time Occupational Health and Safety Specialist, who is responsible for the contractor's occupational health and safety, has relevant documents and experience, and will control and monitor the field applications.

The appointment of health and safety coordinators and their performance of their duties will not affect the responsibility of subcontractors. All units involved in the project will fully implement occupational health and safety practices.

The OHS performance of the Project will be examined under the following headings:

- suitability of working conditions,
- personnel selection,
- personnel training,
- identification of OHS risks,
- use of appropriate protective equipment,
- availability of appropriate warning signs,
- safety of the work site.

The contractor shall fulfill these conditions.

In addition, precautionary plans/procedures, including the specific measures presented below, will be prepared and implemented during the construction and operation phases of the project to prevent potential project impacts related to the COVID-19 pandemic.

During the preparation of these plans and procedures, official announcements of the institutions, WHO and WB standards will be taken into account. As these documents and announcements are updated, plans and procedures will be regularly updated accordingly.

If a person develops a fever, cough or other COVID-19 symptom, that person will immediately stop work, stay at home (except to seek medical care or testing if recommended) and withdraw from others.

In this context, work will be carried out in accordance with the following regulations:

- 05.10.2103 dated 28786 numbered Regulation on Occupational Health and Safety in Construction Works
- 02.07.2013 dated and 28695 numbered Regulation on the Use of Personal Protective Equipment in Workplaces
- 29.12.2012 dated 28512 numbered Occupational Health and Safety Risk Assessment Regulation
- 24.05.2018 dated 30430 numbered Regulation on the Procedures and Principles of Occupational Health and Safety Trainings of Employees
- 11.09.2013 dated 28762 numbered Regulation on Health and Safety Signs
- 24.05.2018 dated Working Time Regulation on Labor Law
- 24.12.2013 dated 28861 numbered Regulation on Supporting Occupational Health and Safety Services
- 23.08.2013 dated 28744 numbered Regulation on Occupational Health and Safety in Temporary or Fixed Term Works
- 24.07.2013 dated 28717 numbered Regulation on Manual Handling Works
- 18.06.2013 dated 28681 numbered Regulation on Emergency Situations in Workplaces
- 15.05.2013 dated 28648 numbered Regulation on the Procedures and Principles of Occupational Health and Safety Trainings of Employees
- 25.04.2013 dated 28628 numbered Regulation on Health and Safety Conditions in the Use of Work Equipment
- 18.01.2013 dated 28532 numbered Regulation on Occupational Health and Safety Boards
- 06.04.2004 dated 25425 numbered Regulation on Working Hours Related to Labor Law

In addition, no work will be carried out in violation of international conventions such as Convention No. 161 on Occupational Health Services and Convention No. 155 on Occupational Health and Safety and the Working Environment.

6.4.2.2 Operation Stage

All OHS measures and organization related to the maintenance and repair team that will work during the operation phase will be carried out by Bağyurdu OIZ Directorate. All issues such as the security of the project area, selection and training of personnel to work in maintenance and repair, identification of risks and use of appropriate protective equipment will be organized by the OIZ Directorate.

Risks related to maintenance and repair activities that may occur during the operation phase will be managed by Bağyurdu OIZ Directorate through the establishment of work permit systems, locking and labeling systems, informing and training employees on workplace-specific hazards and risks, selection of competent personnel, use of appropriate PPE, and work entry and periodic health checks by the workplace physician. During the operation phase of the project, an Occupational Health and Safety Management Plan (including Emergency

Preparedness and Response) will be created and implemented, based on the risk assessment to be made in all works, in accordance with Turkish legislation and international standards.

6.4.3 Community Health and Safety

6.4.3.1 Construction Stage

The following potential impacts were identified during the construction phase of the Project.

- Speed and road damage in transport and traffic; increased risk of traffic and road traffic accidents and injuries,
- Risk of spread of infectious diseases, including COVID-19,
- Damage to existing underground utility cables and pipes and disruption of services,
- Noise and vibration,
- Increased demand on existing community health and sanitation infrastructure due to the influx of temporary workers and camp followers,
- Threat to community culture, safety and security linked to the presence of construction workers and business opportunists, 10 people will work in the construction of the project and there will be no accommodation in the project area.
- Risk of infectious diseases such as sexually transmitted diseases due to labor flows and interaction of temporary workers with host communities,
- Impact of the project area on accessibility for the community
- Impact of construction on potentially vulnerable groups.

Since the highway and OIZ internal roads will be used for transportation and traffic to the project area, no increase in traffic will be caused. Since the project area is within the OIZ and infrastructure works have been completed, there is no situation that will disrupt public services in the project area. There will be no impact on community culture and safety as there will be no camps or construction sites for the project workers. There will also be no interaction with society. As the Project area is located within the OIZ, no impact on community transportation and sensitive groups is expected.

There are no settlements around the Project area. The noise and vibration that may occur during the construction of the Project have been modeled and determined to meet the limit values. Therefore, no significant impact is expected on community health and safety resulting from noise and vibration during construction phase.

The SPP Project area will be surrounded by a wire fence to prevent access and negative impacts on public health will be prevented with warning signs and additional security measures.

Awareness raising activities will be organized for workers and security personnel in order to prevent cultural problems due to rude behavior of workers and/or security personnel towards the industrialists in the region and attitudes that disrupt the environment such as noise. In particular, topics related to GBV and SE&AH will be emphasized.

In addition, all measures and protective equipment will be provided according to the development of the Covid-19 pandemic process.

Workers who do not have the covid 19 vaccine will not be employed. Daily body temperature checks will be made. In case of symptoms, the worker will not be employed and other workers will be tested.

6.4.3.2 Operation Stage

During the operation phase of the project, there will be no potential impacts mentioned above as there will be no permanent employees within the scope of the project and the SPP will be in a fenced area within the OIZ. Entry to the project area will be prevented except for authorized persons. Wire fences to be created for this purpose will be checked. Thus, the negative effects that may occur due to uncontrolled entry will be prevented.

6.4.4 Working Conditions and Labor Management

Law No. 6331 on Occupational Health and Safety regulates the duties, authorities, responsibilities, rights and obligations of employers and employees to ensure occupational health and safety in workplaces and to improve existing health and safety conditions.

Bağyurdu OIZ will contact consultants and contractors to address environmental, social and occupational health and safety issues arising from the project.

The OIZ Liaison Unit will be responsible for the following:

- Ensure that contractors prepare labor management procedures (Contractor's LMP) in line with the LMP and ESMF (including Occupational Health and Safety requirements) for approval prior to the construction phase,
- Monitor that contractors/subcontractors fulfill their obligations to contracted workers as set out in the ESMF and relevant procurement documents in accordance with ESS2, national labor and OHS laws,
- Keeping records of recruitment and employment processes of direct reports,
- Monitor the potential risks of child labor, forced labor and serious safety issues in relation to primary support workers,
- Monitor the training of relevant project staff,
- Ensure that a grievance mechanism for project workers is established and implemented and that workers are informed about it,
- To monitor the compliance of the employees with the rules of business conduct and other behavior,
- Monitor that occupational health and safety standards are met in workplaces in line with national occupational health and safety legislation, ESS2 OHS requirements, occupational health and safety plan and WHO and WB guidelines on COVID-19 prevention,
- Monitor the training activities of project staff on OHS, prevention of sexual harassment/sexual abuse and other necessary trainings, Monitor the

functioning of the Grievance Mechanism for the public, that is properly announced, used and functioning

- Ensure that a grievance mechanism for project staff is in place and monitor and report on its implementation,
- Monitoring employees' compliance with work behavior rules,
- Establish and implement a procedure for documenting specific project-related incidents such as occupational accidents, illnesses and time-loss accidents. Such records must be kept and maintained by all third parties and primary suppliers. Such records will serve as data for regular reviews of OHS performance and working conditions.
- In cases of severe, fatal and mass accidents, informing law enforcement, Labor Inspectorate and MoIT,
- Ensure that project contractors take COVID-19 precautionary measures in line with WB and WHO guidelines.

In addition to legal requirements and the OIZ's Labor Management Procedure, project contractors will be responsible for the following:

- Employ or engage qualified social, labor and occupational safety experts to implement the project specific labor management procedure, occupational health and safety plans and manage the performance of subcontractors,
- Adapt the OHS plan to be applied to contract and subcontracted workers. These procedures and plans will be submitted to the OIZs for review and approval before the contractor commences pre-construction site set-up and field work.
- Supervise subcontractors' adherence to the IYP and OHS plans,
- Keeping records of the recruitment and employment processes of contracted employees,
- Follow up the employment process of subcontracted workers to ensure that it is carried out in accordance with this labor management procedure and national labor law,
- Contracted workers should receive written contracts with job description, wages, working hours, rights and duties fully described.
- Developing and implementing a grievance mechanism for employees, evaluating complaints from contracted and subcontracted workers,
- Establish a system for regular review and reporting on labor and OHS performance,
- Provide regular induction trainings to employees, including but not limited to OHS, social familiarization, Code of Conduct, Sexual Harassment/Sexual Abuse prevention trainings,
- Ensure that all contractor and subcontractor employees understand and sign the Code of Business Conduct before starting work,
- Establish and implement a procedure for documenting specific project-related incidents such as occupational accidents, illnesses and time-loss accidents. Maintain such records and require all third parties and key suppliers to maintain them. Such records will serve as data for regular reviews of OHS performance and working conditions.

- Notify law enforcement, Labor Inspectorate and OIZ in case of severe, fatal and mass accidents,
- Train staff on current WHO recommendations on the prevention of COVID-19 infection,
- Ensure all employees participate in trainings and raise awareness to reduce the spread of COVID-19,
- Conducting health checks of workers to prevent COVID-19,
- Monitor, audit and report on health and safety issues related to COVID-19 (COVID-19 focal point),
- Ensuring that workers are provided with PPE (face protection, gloves, disinfectants) to prevent COVID-19 and that hand washing facilities are available.

6.4.4.1 Construction Stage

Personnel will be employed by the Contractor during the construction phase of the Project.

Where possible, options for employment of local labor will be considered. Child labor and forced labor shall be prohibited. All Turkish Laws and International Labor Organization (ILO) Conventions on child labor, forced labor, discrimination, freedom of association and the right to collective bargaining will be complied with.

Labor flow is a risk arising from the prolonged stay of workers during construction. However, since the number of personnel to work in the project is limited to 10 people, no labor flow is expected. Due to the nature of the project, 10 workers will be employed. Qualified labor is required because it is mainly assembly. Therefore, no workers will be employed around the project area.

No camps or construction sites are envisaged during the construction phase and therefore impacts that may arise from these conditions have not been assessed.

On-the-job and OHS trainings of all employees will be given and recorded within the scope of the Regulation on the Procedures and Principles of Occupational Health and Safety Trainings of Employees published in the Official Gazette numbered 30430 and dated 05.2018.

6.4.4.2 Operation Stage

During the operation phase of the project, there will be no permanent employment as there will be work only during maintenance and repair. Security will be provided by routine security patrols within the OIZ.

6.4.5 Cultural Assets

The project area is within the boundaries of OIZ. Necessary evaluations were made by the authorized institutions and organizations related to Cultural Assets during the selection of the OIZ location. Therefore, there are no known cultural assets in or around the project area.

If any cultural property is found during construction (excavation) works ("chance find"), the Chance Find Procedure will be implemented and any findings will be reported to the local authorities. In such cases, construction works will be stopped immediately, the area will be taken under protection, and the Provincial Directorate of Culture will be notified. The construction works will not resume unless permitted by the relevant authority.

6.4.6 Land Acquisition and Livelihood Loss

The project area is under the ownership of Bağyurdu OIZ. Therefore, there will be no expropriation or land purchase under the project. In addition, all stages related to the Zoning Status of the project area have been completed. Transportation of materials and employees to the project area will be provided via the highway. The highways have a direct connection to the OIZ. In addition, no excavation will be carried out during land preparation. Therefore, there is no erosion risk on the surrounding lands.

Therefore, there will be no loss of land, assets and livelihoods of local communities due to construction needs during the project construction phase.

6.4.7 Vulnerable Groups

As the project will take place in a narrow framework within the OIZ, there will be no impact on vulnerable groups during the construction phase, such as persons with disabilities, children or elderly, refugees, groups with livelihood dependency in the project areas. The project will be constructed in a part of two parcels within the OIZ.

Since there are no schools around the project area and it is not on the school route, there will be no impact on children's transportation or especially on women.

Necessary measures will be taken against sexual exploitation and abuse and sexual harassment. (such as Code of Conduct, and trainings of work force)

The fact that the project area is located on an independent parcel within the OIZ, that there will be a small number of 10 employees in the project construction, that there will be no camps or construction sites in and around the project area, so the workers will not reside here, and the project construction period is very short which reduces the risks in this regard.

Nevertheless, a grievance mechanism for workers will be established and updated. Procedures will be established to promptly notify both the MoIT and the World Bank of complaints in this regard.

Likewise, it will be ensured that both Bağyurdu OIZ and all contractors and subcontractors have a Code of Conduct and that it is signed by each worker and that they understand and sign the Code of Conduct before work commences.

7. ENVIRONMENTAL AND SOCIAL MITIGATION PLAN

The environmental and social mitigation plans for the preparation, construction and operation phases are presented in Table 38, Table 39 and Table 40 respectively. During the implementation of the mitigation plans, the most stringent among the national legislation and WB standards and also the most up-to-date legislation will be complied with

Table 38: Preparation Phase Environmental and Social Mitigation Plan

No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
PREPARATION PHASE					
1	Legal Compliance-ESS1 Project stalled due to lack of legal permits	<ul style="list-style-type: none"> Obtaining EIA Certificate within the scope of EIA Regulation and EMRA License Preliminary Permits 	Bağyurdu OIZ	Equities	EIA Certificate EMRA Permission
2	Stakeholder Engagement-ESS10 Objections and obstruction efforts during the project/design phase due to lack of information to the people who are likely to be affected by the project	<ul style="list-style-type: none"> Organizing a Stakeholder Participation Meeting, establishing a grievance and suggestion mechanism in order to inform the persons and organizations that are likely to be affected by the Project as specified in the SEP, about any adverse env and social risks and how to submit any grievances, if required. 	Bağyurdu OIZ	Equities	Minutes of the Meeting Complaint and Suggestion Mechanism
3	ESMP-ESS1, Occupational Health and Safety-ESS2 and Community Health and Safety-ESS4 Environmental pollution or social damage or OHS accidents/incidents caused by the Contractor's lack of awareness of Environmental and Social Impacts	<ul style="list-style-type: none"> Preparation of the following plans and procedures for the approval of Bağyurdu OIZ and the Supervision Consultant by the Contractor before the commencement of construction works: <ul style="list-style-type: none"> Occupational Health and Safety (OHS) Plan based on construction site OHS risk assessment, including work procedures (such as permit to works etc.), checklists and daily record forms Accident/incident Investigation and Reporting and Root Cause Analysis Procedure, including accident/incident record forms including corrective and preventive actions determined after root cause analysis for OHS and ES Corrective and Preventive actions and methods will be included in the procedures. Non-Conformity / Non-Compliance and Corrective / Preventive Action Procedure, including corrective / preventive actions forms for OHS and ES and non-conformity / non-compliance record forms Emergency Preparedness and Response Plan, including community health and safety issues Labor Management Plan (LMP) (including Worker Code of Conduct) (taken from the Project's Labor Management Procedure) Grievance Mechanism Procedure including Grievance Register 	Contractor	Included in construction costs	Management Plans and Procedures
4	Stakeholder Engagement-ESS10 Project stalled due to lack of Stakeholder Engagement Process and failure to receive suggestions and complaints	<ul style="list-style-type: none"> Organizing a Stakeholder Engagement Meeting Informing the persons or organizations likely to be affected by the project about the project Collection and evaluation of suggestions and complaints about the project 	Bağyurdu OIZ	Equities	Public Participation Meeting Minutes

Table 39: Construction Phase Environmental and Social Mitigation Plan

No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
CONSTRUCTION PHASE					
1	Community Health and Safety-ESS4 Access from outside and accidents that may occur due to lack of security of the project area	<ul style="list-style-type: none"> The perimeter of the construction areas (i.e. SPP area) will be blocked with a wire fence and a security strip to the Fast Charging Station area will be provided. Warning signs will be hung. 	Contractor	Included in construction costs	Wire Fence and Security Strip Warning Signs
2	Labor and Working Conditions-ESS2 and Pollution Prevention-ESS3 Environmental and occupational accidents due to lack of competent and sufficient labor force.	<ul style="list-style-type: none"> Providing necessary induction trainings on environmental, social and OHS issues to all personnel at the beginning of the project and recording them 	Contractor	Included in construction costs	Training Participation Forms Training registrations
3	Labor and Working Conditions-ESS2 Work stoppage due to legal non-compliance in Human Resources and Workforce Management	<ul style="list-style-type: none"> Concluding written contracts with workers upon recruitment, including terms and conditions of employment and rights in accordance with national legislation Keeping personnel data files including contracts, training records, signed codes of conduct, health reports Keeping database records for employees, workers and subcontractors such as contracts, ID numbers, SSI numbers, age, gender, health reports Payment of contractual wages to workers in full and on time Carrying out controls related to the employment of unregistered workers 	Contractor	Included in construction costs	Personnel Contracts Personnel Files Payrolls Number and nature of work related grievances
4	Occupational Health and Safety-ESS2 Work stoppage due to work accident (lack of appropriate OHS measures/unsafe work environment)	<ul style="list-style-type: none"> Implementing OHS Plan, Emergency Preparedness and Response Plan, Accident/incident Investigation and Reporting and Root Cause Analysis Procedure, and Non-Conformity / Non-Compliance and Corrective / Preventive Action Procedure Placing safety barriers and warning signs around work areas Conducting occupational safety meetings/toolbox talks with workers before starting work every day Providing appropriate type and number of fire extinguishing equipment in each working area Providing periodic training to the workers on OHS issues including emergency response such as fire-fighting and recording all provided trainings Legal periodic inspection of work equipment at the construction site by an authorized expert 	Contractor	Included in construction costs	Number of warning lights Number of occupational safety meetings Number of checklists for fire fighting equipment Number of personnel trained in fire fighting Number of personnel assigned to the fire fighting team

		<ul style="list-style-type: none"> • Daily control of work equipment by its operators • First aid boxes for each work team for first aid response • Providing certified first aid training to workers • Establishment of a first aid team consisting of workers for each work zone • Providing workers with Personal Protective Equipment (PPE) specific to their tasks • Provide a safe and healthy work environment for the workers. • Provide equipment that meets international standards in terms of performance and safety • Inform all workers about the required safety rules, risks, and related regulations to be followed at the construction site throughout the construction period • Establish emergency teams and carry out training/drills according to the emergency scenarios • Record all accidents and incidents (fatalities, lost time incidents, any significant events including spills, fire, pandemic outbreak or infectious diseases, social unrest, etc.) as well as near misses. • Project owner will ensure that all OHS measures are taken by the Contractor and enforce necessary actions/sanctions in case lack of these measures on sites • Contractor will have a full-time Occupational Health and Safety Expert with relevant certification and experience in charge of occupational health and safety and s/he will control and monitor the site implementations. • The Contractor will promptly notify the OIZ in case of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public and workers such as OHS accidents or that result in threatening community health and safety and the OIZ will immediately (not later than 48 hours) inform MoIT, and MoIT will inform the World Bank. In such cases, the OIZ will provide sufficient details regarding the incident or accident, findings of the Root Cause Analysis (RCA), indicating immediate measures taken or that are planned to be taken to address it, compensation paid, and any information provided by any contractor and supervising entity/consultant, as appropriate. The OIZ will submit the incident report, including root cause analysis, precautions and compensation measures taken, to MoIT within 30 business days. 			
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		<p>MoiT will forward the incident report to the Bank immediately upon receipt from the OIZ.</p> <ul style="list-style-type: none"> • Traffic Safety will be provided. • Necessary safety markings will be made in the working environment. • Manual Transport, Uninstallation and Installation Procedures and Employees will be trained about Mobile Equipment Safety and necessary precautions will be taken. • Within the scope of Electrical Safety, work will not be carried out other than authorized and competent persons. 			
No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
CONSTRUCTION PHASE					
5	Traffic and Pedestrian Safety-ESS4 Social negativities and complaints due to traffic obstruction within the OIZ	<ul style="list-style-type: none"> • No material storage on the roads within the OIZ • Vehicles carrying construction machinery and materials will not park outside the project area and parking lot • Setting speed limits • Protectors carrying work machines and materials must have appropriately qualified persons. • Hanging warning signs about speed limit in the Project Area 	Contractor	Included in construction costs	Number of complaints Driver's licenses Warning signs on speed limits
6	Pollution Prevention-ESS3 and Community Health and Safety-ESS4 Air pollution that may occur due to vehicles to be used during material transportation and installation phase	<ul style="list-style-type: none"> • Periodic maintenance and exhaust inspections of all vehicles to be used within the scope of the project • Use of new and well-maintained vehicles • Avoid unnecessary use of machinery and equipment causing emissions • Training of workers on management of air emissions • Implement grievance mechanism • Carrying out periodic inspection of exhaust emissions of work equipment • Speed limit for trucks that will create dust on the terrain • Systematic water spraying in work areas 	Contractor	Included in construction costs	Inspection record Exhaust Inspection record Number and nature of related grievances Training records Visual controls Vehicle exhaust emission control documents Number of open complaints regarding dust emission
7	Land Use-ESS3 Soil loss due to unnecessary and wrong excavation	<ul style="list-style-type: none"> • No excavations other than land remediation within the scope of the project • Not taking unnecessary soil, not bringing soil from outside to the project area and not sending soil to outside • No work outside the designated Project area • No excavation that will create erosion hazard in the surrounding lands 	Contractor	Included in construction costs	Visual controls Excavation Waste Records

		<ul style="list-style-type: none"> Although there will be limited soil to be excavated, in case excavation waste is generated, it will be transported to one of the licensed excavation waste storage areas designated by the Municipality in compliance with the national legislation and WB standards. Topsoil will be stripped about 25 cm and stored separately for landscaping activities, if need be. 			
8	Resource Efficiency, Pollution Prevention-ESS3 Environmental and legal non-compliances due to the use of groundwater and surface water	<ul style="list-style-type: none"> No extraction of water from the project site or use of surface water from areas close to the project during the construction phase of the project Meeting the water needs of the personnel not from the project area but from the OIZ facilities Meeting the drinking water needs of the staff with bottled water 	Bağyurdu OIZ Contractor	Equity Included in construction costs	Facility Usage Information Water Bills
9	Pollution Prevention-ESS3 Soil and water pollution caused by wastewater generation due to improper practices during the construction phase	<ul style="list-style-type: none"> No operations such as work machine and vehicle washing in the project area No discharge to any receiving environment Preventing wastewater generation from personnel Employees use the OIZ facilities and the OIZ does not discharge untreated water 	Contractor	Included in construction costs	Visual controls
10	Pollution Prevention-ESS3 Air pollution due to dust emission during land leveling	<ul style="list-style-type: none"> Dust suppression by water spraying in case of dusting during land leveling Water to be used for dust suppression will be provided by water tankers Ensure compliance with the air emission limit values addressed in "Regulation on Assessment and Management of Air Quality" and WBG General EHS Guidelines. If excavation waste/soil or similar material will need to be transported, the trucks will be covered to decrease dust emission. Training of workers on management of air emissions Implement grievance mechanism Dust measurements will be conducted by an authorized laboratory if any grievance regarding dust generation is received from the nearest receptors. If measured levels reveal any indication for possible pollution due to the Project, mitigation measures here will be enhanced in this respect such as use of wind shield and barriers, protective covers or curtains for the areas where most of the dust is formed. 	Contractor	Included in construction costs	Number of water spray vehicles Total km/day of water spray vehicles Number and nature of related grievances Training records
11	Pollution Prevention-ESS3	<ul style="list-style-type: none"> Observation of the areas likely to be affected before and after driving the panel legs 	Contractor	Included in construction costs	Number and nature of Complaints

	Complaints of vibration during the driving of panel legs into the ground and damage to surrounding buildings	<ul style="list-style-type: none"> In case of a complaint, not to carry out driving the panel legs without taking the necessary precautions Training of workers on vibration management Implement grievance mechanism Limit working hours Inform nearby sensitive receptors about the time and content of construction activities Vibration measurements will be conducted by an authorized laboratory if any grievance regarding vibration is received from the nearest receptors. If measured levels reveal any indication for possible vibration impact due to the Project, mitigation measures here will be enhanced in this respect. 			Observation Records, Employee overtime chart,
12	Pollution Prevention-ESS3 Noise complaints and negative impact on employee health caused by construction machinery during the driving of panel legs into the soil	<ul style="list-style-type: none"> According to the modeling, the noise level will be around 62 dBA at the nearby receptor. For this reason, works will be carried out during only the daytime, not at night. Noise measurements will be conducted by an authorized laboratory if any grievance regarding noise is received from the nearest receptors. If measured levels reveal any indication for possible noise impact due to the Project, mitigation measures here will be enhanced in this respect. Further limit working hours, if need be. Inform nearby sensitive receptors about the time and content of construction activities. Training of workers on noise management. Implement grievance mechanism. Provide appropriate ear protection equipment to the workers. Ensure compliance with the noise limit values provided in national legislation and WBG General EHS Guidelines. Do not operate construction equipment simultaneously. 	Contractor	Included in construction costs	Number and nature of Complaints Noise Measurement Report Headset Delivery Record Employee overtime chart,
No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
CONSTRUCTION PHASE					
13	Pollution Prevention-ESS3 Soil pollution due to domestic wastes from workers in the project area	<ul style="list-style-type: none"> Undertake measures for minimum waste generation such as training personnel to raise awareness and manage in accordance with waste management hierarchy (prevent, reduce, reuse, recycle, recover, dispose). Providing food and beverage needs of the employees in the OIZ facilities 	Contractor	Included in construction costs	OIZ food registrations Domestic Waste Containers Training records

		<ul style="list-style-type: none"> Not allowing activities that may generate domestic waste in the project area Placing separate collection containers for domestic waste to be generated against the measures and sending it to the waste site within the OIZ Although no domestic waste is expected to be generated at the project site, domestic wastes are stored in OIZ containers. It is sent to Kemalpaşa Municipality. Wastes other than domestic waste are collected separately and sent to licensed facilities within the OIZ and recorded. 			
14	Stakeholder Engagement-ESS10 Failure to fulfill project requirements due to lack of communication with legal authorities and communities	<ul style="list-style-type: none"> Keeping the Complaint and Suggestion mechanism open at all times Paying attention to Notification and Reporting periods Implementing SEP 	Bağyurdu OIZ	Equities	Number and nature of Suggestions and Complaints
			Contractor	Included in construction costs	
15	Pollution Prevention-ESS3 Negative impact on the cyclical economy due to the fact that the recyclable wastes that may occur within the scope of the project are not stored separately.	<ul style="list-style-type: none"> Providing training to employees on waste management Contracting with licensed facilities Establishment of separate and defined waste containers for recyclable waste Separate collection of recyclable waste and sending these to licensed recycling facilities. Performing controls to prevent incorrect assembly or panel damage during the installation of solar panels 	Contractor	Included in construction costs	Training registrations Licensed Facility Agreements Waste Shipment records Number of damaged panels
16	Pollution Prevention-ESS3 Soil pollution and risk of occupational accidents due to storage of metal wastes from panel legs and assembly equipment on the land	<ul style="list-style-type: none"> Not leaving metal wastes in the area at the end of the work during construction Not mixing metal waste with other wastes 	Contractor	Included in construction costs	Visual controls
17	Pollution Prevention-ESS3 Soil and water pollution due to hazardous wastes in the project area	<ul style="list-style-type: none"> Collection of hazardous wastes that may occur in the project area in defined separate containers The technical requirements for the temporary waste storage area will be provided. (impermeable floor, roofed, spill kits, suitable firefighting equipment, labeled, separate compartments, etc.) Preventing the formation of contaminated waste by mixing with other wastes Ensuring disposal by sending to licensed disposal facilities via licensed waste transportation companies Carrying out Hazardous Waste Financial Liability Insurance Providing training to employees on waste management 	Contractor	Included in construction costs	Visual controls Waste Site Licensed Facility Agreements Financial Liability Insurance Training records

18	Pollution Prevention-ESS3 Soil and water pollution caused by substances such as oil, filters, etc. from maintenance and repair of construction machinery and vehicles	<ul style="list-style-type: none"> • Work machine and vehicle maintenance and repair operations will not be carried out in the project area. • Maintenance and repair operations will be carried out at the services. 	Contractor	Included in construction costs	Maintenance and repair records
No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
CONSTRUCTION PHASE					
19	Pollution Prevention-ESS3 Soil pollution due to leakages such as diesel oil and oil due to malfunctions of vehicles used in project construction (accidental spillages/leakages)	<ul style="list-style-type: none"> • Periodic maintenance and repair of vehicles on time • Availability of intervention kits to be used in emergencies in the field • Training employees on spills and leakages • Disposal of the waste as hazardous waste • Keeping records related to emergencies 	Contractor	Included in construction costs	Emergency response kits Training registrations Emergency Records
20	Labor and Working Conditions-ESS2 Work stoppages and slowdowns due to workers' unhappiness with inappropriate working conditions	<ul style="list-style-type: none"> • Implementation of the Grievance Mechanism Procedure for workers • Keeping a record of all verbal and written complaints • Responding to complaints in a timely manner and implementing corrective actions where necessary 	Contractor	Included in construction costs	Number and nature of complaints received Number of responses to complaints
21	Community Health and Safety-ESS4 Social discomfort due to rude behavior of workers in Project Construction	<ul style="list-style-type: none"> • Training employees on codes of conduct and on prevention of GBV, SE & AH • Preventing recurrence by taking action in case of complaints 	Contractor	Included in construction costs	Training registrations Number and nature of complaints
22	Pollution Prevention-ESS3 Soil and water pollution due to waste site non-compliance, legal non-compliance	<ul style="list-style-type: none"> • Establishment of a covered temporary waste storage area with impermeable floor • Locking of waste storage area appointment of a competent worker specifically trained in hazardous waste • Ensuring separate storage of hazardous and contaminated waste • Avoid mixing of hazardous wastes with other type of waste • Collection of all hazardous waste from work areas at the end of the working day and transportation to hazardous waste storage areas • Collection of medical waste in red bags and red containers labeled as medical waste • Collection of sharps medical objects in sharps boxes (Within the OIZ) • Placement of warning signs, labeling, fire extinguishers of appropriate size and type It will be kept in the project area at the entrance of the temporary storage area and a sign will be hung for easy viewing. • Liability Insurance for Hazardous Wastes 	Contractor	Included in construction costs	Training registrations Waste Management Plan Financial Liability Insurance Licensed facility agreement Waste shipment records

		<ul style="list-style-type: none"> Contracting with licensed hazardous waste disposal facilities Disposal of waste in accordance with national laws and regulations and WGG General EHS Guidelines. Keeping waste records Training of employees on waste management Spill response kits will be available at the temporary waste storage area. 			
23	Labor and Working Conditions-ESS2 Negative environmental and social impacts due to unforeseen emergencies	<ul style="list-style-type: none"> Implementation of Emergency Preparedness and Response Plan Training of employees on emergency situations Establishing emergency teams Providing training on Dangerous Goods Signs Conducting emergency drills according to the emergency scenarios 	Contractor	Included in construction costs	Emergency Plan Training registrations Drill recordings

Table 40: Operational Phase Environmental and Social Mitigation Plan

No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
OPERATION PHASE					
1	Pollution Prevention-ESS3 Soil contamination from cleaning of solar panels	<ul style="list-style-type: none"> No chemical substances such as detergents will be used in panel cleaning. Cleaning will be provided with pure water and by spraying equipment. Number of cleanings will not be more than twice a year. Unnecessary water usage will be avoided. 	Bağyurdu OIZ	Equities (Included in operation costs)	Cleaning Procedure Cleaning records
2	Pollution Prevention-ESS3 Soil and water pollution due to wastes from maintenance, repair and replacement of inverters and collectors	<ul style="list-style-type: none"> Maintenance and repair operations will be carried out by authorized personnel. The contact of the waste with the soil ground will be prevented. Segregated waste will be temporary stored at designated waste storage site (Use of the temporary waste storage area within the OIZ) Separately collected recyclable waste will be sent to licensed recycling facilities Hazardous wastes will be stored separately and sent to licensed disposal facilities. Separate storage of damaged solar panels and sending them to licensed recycling facilities 	Bağyurdu OIZ	Equities (Included in operation costs)	Maintenance and repair records Waste Shipment Records Licensed facility agreements
3	Pollution Prevention-ESS3 Air pollution and biological losses due to fire caused by electric arc	<ul style="list-style-type: none"> Preparation of periodic maintenance plans Performing periodic maintenance at specified times Availability of appropriate firefighting equipment in the project area Preparation and implementation of Emergency Preparedness and Response Plan Establishing emergency teams Training of employees on emergency situations and conducting fire extinguishing drills 	Bağyurdu OIZ	Equities (Included in operation costs)	Periodic Maintenance Plan Periodic Maintenance Records Fire Extinguishing Equipment Fire extinguishing drill records
4	Community Health and Safety-ESS4 Negative impacts on public health due to accidents caused by unauthorized persons entering the SPP area	<ul style="list-style-type: none"> Preventing unauthorized persons from entering the area by surrounding the SPP area with a wire fence and periodic control and maintenance of the fence Conducting security checks Laying of grounding channel around the project area Hanging warning signs 	Bağyurdu OIZ	Equities (Included in operation costs)	Wire Fence Warning Signs Security Control Records

5	Pollution Prevention-ESS3 Soil pollution due to waste from maintenance and repair of the Fast Charging station	<ul style="list-style-type: none"> Maintenance and repair operations will be performed by authorized persons Wastes generated during maintenance and repair will be sent to the OIZ waste site without leaving them at the station(Use of the temporary waste storage area within the OIZ) 	Bağyurdu OIZ	Equities (Included in operation costs)	Maintenance and repair records
6	Stakeholder Engagement-ESS10 Failure to monitor the social impacts of the project due to lack of communication with stakeholders and employees	<ul style="list-style-type: none"> Keeping the grievance mechanism open Review of complaint records and evaluation of complaints Providing feedback 	Bağyurdu OIZ	Equities (Included in operation costs)	Grievance Mechanism Records related to complaints (number and nature of complaints, and percentage resolved within appropriate time)
7	ESMP-ESS1 Loss of license due to legal non-compliance, project stoppage	<ul style="list-style-type: none"> Establishing a system for monitoring legal compliance Identify responsible staff for follow up of permits that need to be repeated periodically 	Bağyurdu OIZ	Equities (Included in operation costs)	Procedure for Monitoring Legal Compliance Legal Permissions
No	Description of Potential Impact	Mitigation Measures	Responsibility	Cost	Performance Indicator
OPERATION PHASE					
8	Labor and Working Conditions-ESS2 Occupational accidents due to non-application of OHS measures during electricity generation, maintenance-repair and cleaning phases	<ul style="list-style-type: none"> Conducting orientation, induction and hazard class trainings within the scope of the regulation on the procedures and principles of occupational health and safety training of employees Provision of appropriate personal protective equipment Keeping OHS records Preparation and implementation of OHS Plan (including work procedures, checklists and daily record forms) based on site specific risk assessment Ensuring compliance with applicable national OHS legislation through regularly completed checklists, audit forms and follow-up records 	Bağyurdu OIZ	Equities (Included in operation costs)	OHS Training Records Protective Equipment Records
9	Labor and Working Conditions-ESS2 Negative environmental and social impacts due to unforeseen emergencies	<ul style="list-style-type: none"> Preparation and implementation of Emergency Preparedness and Response Plan Training of employees on emergency situations Establishing emergency teams Providing training on Dangerous Goods Signs Conducting emergency drills according to the emergency scenarios 	Bağyurdu OIZ	Equities (Included in operation costs)	Emergency Plan Training registrations Drill recordings
10	Community Health and Safety-ESS4 Access from outside and accidents that may occur due to lack of security of the project area	<ul style="list-style-type: none"> Access to the SPP Area will be blocked with a wire fence and the Fast Charging Station area with a security strip Warning signs will be hung. 	Bağyurdu OIZ	No additional cost	Wire Fence and Security Strip Warning Signs

		<ul style="list-style-type: none"> Hanging of warning signs regarding the speed limit on the Project Area road within the OIZ 			
11	Community Health and Safety-ESS4 Traffic at the Electric Vehicle Fast Charging Station	<ul style="list-style-type: none"> Placing the charging station so as not to obstruct traffic Providing traffic markings Parking lot entrance-exit arrangements 	Bağyurdu OIZ	No additional cost	Traffic Signs Entry-exit separation

8. ENVIRONMENTAL AND SOCIAL IMPACT MONITORING PLAN

Monitoring in this section Specific description and technical details of the measures will be given.parameters to be measured methods, sampling locations, frequency of measurements, etc.

Table 41: Environmental and Social Impacts Monitoring Plan

No	Phase	What parameter is to be monitored	Where is the parameter to be monitored	How is the parameter to be monitored// Type of monitoring equipment	When is the parameter to be monitored – frequency of measurement or continuous	Why is the parameter to be monitored	Corporate Responsibility	Financing Cost / Source
1	Preparation Phase	ESMP-ESS1 Permits/approvals/certifications/official letters	Bagyurdu OSB OIZ Office	The Supervision Consultant reviews and checks permits/approvals/certifications/official correspondence received	Before construction starts	To ensure that documents are available and valid	Supervision Consultant Bağyurdu OIZ	Supervision cost includes Equities
2	Preparation Phase	Stakeholder Engagement-ESS10 Establishing and maintaining the functionality of the Stakeholder Grievance Mechanism	Bağyurdu OIZ Office	Bagyurdu OIZ web page, mobile phone,	Before construction starts and during the project	To ensure stakeholders' participation in the project process	Bağyurdu OIZ	Equities
3	Preparation and Construction Phases	Labor and Working Conditions-ESS2 Appointment and employment records of the Contractor's EHSS Officer / Team	Contractor office	Review of the assignment and employment records of the EHSS Officer / Team	Before construction starts and every three months	To make sure they are assigned and retained during the construction works	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes
4	Preparation and Construction Phases	ESMP-ESS1 ESMP, Management Plans and Procedures	Contractor and Bağyurdu OIZ office	The Contractor reviews the ESMP Review of the Management Plans and Procedures developed by the Contractor	Once a month Before the start of construction and quarterly if there will be any revisions	To make sure they are available and up to date	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
5	Construction Phase	Labor and Working Conditions-ESS2 emergency records	Contractor Office	The contractor reviews the emergency reports. Bagyurdu OIZ and Supervision Consultant review and check the urgent information process and contractor's reports	Immediately after the accident/incident and in the first week of each month during construction	To make sure reports are available	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
6	Construction Phase	ESMP-ESS1 Monthly monitoring reports	Contractor, Consultant and Bağyurdu OIZ office	Bağyurdu OIZ and the Supervision Consultant review and check the monthly progress reports prepared by the construction contractor.	In the first week of each month during construction	To ensure that reports are available and adequately prepared	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost
7	Construction Phase	Stakeholder Engagement-ESS10 Number of posters hung Number of verbal briefings Number of stakeholder engagement activities carried out Number of announcements made on the Bağyurdu OIZ website Number of grievances received and resolved within stipulated time	Construction area Contractor Office Bağyurdu OIZ website	The contractor records the parameters and archives the materials a copy as evidence. Bağyurdu OIZ and Supervision Consultant; <ul style="list-style-type: none"> Examines the posters hung by the contractor in the area of the construction to be started. Examines whether verbal notifications have been made by the contractor regarding the interruption of access. Examines whether records of stakeholder engagement are kept by the contractor. Supervision Consultant examines the website for announcements under the responsibility of Bağyurdu OIZ	Once a month	To ensure that records are available and information on the construction plan and any access disruption due to construction is publicized	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
8	Construction Phase	Pollution Prevention-ESS3 Number of water spray vehicles Total km/day of water spray vehicles Dust suppression implementations	Construction sites	The contractor records the parameters and archives a copy as evidence. Bağyurdu OIZ and Supervision Consultant review the record and check that construction sites are frequently sprayed with water against dust	In the first week of each month during the construction phase Daily visual inspection	To ensure that water sprays are carried out against dust formation caused by the vehicle used	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Supervision cost includes Equities

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
9	Construction Phase	Labor and Working Conditions-ESS2 Contractor's Workforce Management Procedure Number of labor contracts Number of personnel records Number of employees Number of records for payment of fees	Contractor Office	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and the Supervision Consultant check the following: <ul style="list-style-type: none"> ○ Contractor's Labor Management Procedure ○ Workforce Management Procedure ○ Implementation ○ Labor Contracts ○ Personnel records ○ Employee database ○ Records of fee payments 	In the first week of each month during construction	To ensure that records are available. To ensure that the Contractor's employment records are available and compliant	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
10	Construction Phase	Stakeholder EngagementESS10 Number and nature of complaints received Number of corrective actions implemented Number of open complaints Number of employees trained on grievance mechanism	Contractor Office	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and the Supervision Consultant examine the following: <ul style="list-style-type: none"> ○ Complaint logs with response details, nature of complaint, timing and corrective actions ○ Training records and training realization log 	Conducting inspections during the construction phase in the first week of each month During the construction phase in the first week of each month	To ensure that records are available. To ensure that complaints are lodged and resolved in a satisfactory manner within stipulated time frame	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
11	Construction Phase	Pollution Prevention-ESS3 and Community Health and Safety-ESS4 Number of reports on the condition of the houses Number of complaints received during driving of panel legs	Construction sites Contractor offices	The contractor records the parameters and archives a copy as evidence. Vibration measurement is carried out by the contractor upon any complaint made. Bagyurdu OIZ and Supervision Consultant visually check near settlements (sensitive receptors) for vibration-induced effects.	In the working area close to the settlement Upon complaint Before and after panel foot nailing continually	To ensure that records are available. To ensure that the vibration does not adversely affect the community's property	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
12	Construction Phase	Occupational Health and Safety-ESS2 Number of personnel receiving OHS training Number of accident and near misses and accident investigation reports Number of corrective/preventive actions Number of recorded non-conformities/non-compliances Number of checklists/audit forms Number of risk assessments Number of deliveries of procedures to suppliers	Contractor Office	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and the Supervision Consultant will ensure that the following are checked to ensure that documents are available and ready for review, whether they are logically completed and understandable or carefully recorded: <ul style="list-style-type: none"> ○ OHS Plan ○ Training records and training realization log ○ Accident and near miss records ○ Accident/Incident investigation Reports including root cause analysis and identified actions ○ Accident/Incident Records with corrective/preventive actions ○ Non-Compliance/Non-Compliance Records ○ Records of checklists and inspection forms and follow-up records ○ Corrective/preventive action records ○ Risk assessment records ○ Records of demonstrations of procedures to suppliers ○ Records on the performance of subcontractors and primary suppliers on OHS 	In the first week of each month during construction	To ensure that records are available. To ensure that the Contractor's OHS records are available and compliant	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
13	Construction Phase	Occupational Health and Safety -ESS2 Number of warning lights Number of occupational safety meetings/toolbox talks Number of checklists for fire fighting equipment Number of personnel trained in fire fighting Number of personnel assigned to Emergency Response Team Number of periodic control forms Number of daily control forms Number of staff trained on diseases, including COVID-19 measures Number of personnel infected with COVID-19 Number of personnel with first aid certificate Number of PPE records provided Number of incident reports OHS implementations	Construction area Contractor Office	<p>The contractor records the parameters and archives a copy as evidence.</p> <p>The Bagyurdu OIZ and Supervision Consultant visually inspects the construction site for OHS implementations and check the followings:</p> <ul style="list-style-type: none"> Visual controls of the provision of safety barriers and warning lighting. Attendance lists of occupational safety meetings indicating the relevant topic related to occupational safety Monthly checklist of firefighting equipment showing which team is using the equipment Records of fire fighting trainings Assignment records of the fire-fighting team Signed periodic control forms Signed daily control forms Training records on diseases and COVID-19 measures First aid certificates Records of deployment of first aid teams Approved records of PPE provision Training records and training log 	<p>In the first week of each month during the construction phase</p> <p>Continuous/Daily visual inspection</p>	<p>To ensure that the Contractor's OHS records are available and compliant.</p> <p>To ensure safety barriers and lighting are provided.</p> <p>To ensure OHS implementations are compliant with project requirements.</p>	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
14	Construction Phase	Pollution Prevention-ESS3 Number of complaints regarding dust emissions Exhaust emission control documents Number of periodic maintenance records Number of trainings on air pollution management Number of corrective/preventive actions implemented in response to complaints	Construction sites In the area subject to the complaint	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and the Supervision Consultant visually monitor dust formation. Bagyurdu OIZ and the Supervision Consultant examine the following; <ul style="list-style-type: none"> Exhaust emission inspection records of each vehicle Periodic maintenance records of all vehicles and machines Number of trainings on air pollution management for employees Upon complaint, PM10 and settled dust measurements will be carried out by the contractor.	In the first week of each month during the construction phase Continuous visual inspection Upon complaint	To ensure that records are available. To ensure that dust emissions do not have a negative impact on society and the environment	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
15	Construction Phase	Labor and Working Conditions-ESS4 Number of signs placed Number of lighting systems in work areas Number of safety barriers in work areas Number of transportation work schedules prepared Number of emergency drills Number of staff trained on community health and safety, including COVID-19 measures Number of activities carried out to provide information to the public Number of personnel infected with COVID-19	Construction sites Contractor offices	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and Supervision Consultant visually check traffic plans, signage, safety barriers, lighting, transportation schedule and the availability of pedestrian paths, sidewalks and bus stops in the work area. Bagyurdu OIZ and the Supervision Consultant examine the following: <ul style="list-style-type: none"> Emergency drill reports Training records and training log Evidence of information made available to the public 	In the first week of each month during the construction phase Continuous visual inspection	To ensure that records are available. To ensure that community health and safety is not adversely affected by project works.	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
16	Construction Phase	Pollution Prevention-ESS3 Number of trained and appointed mechanics Number of work equipment and vehicles Number of maintenance and repair records Number of secondary collection containers provided to the repair team		The contractor records the parameters and archives a copy as evidence. The Bagyrdu OIZ and Supervision Consultant visually check the provision of secondary collection containers for machine oil and waste oil during maintenance and repair. Bagyrdu OIZ and Supervision Consultant cross-check whether the mechanics encountered are on the mechanic list and examine the following: <ul style="list-style-type: none"> ○ List of work equipment and tools ○ Mechanic list ○ Maintenance and repair records and related list 	In the first week of each month during the construction phase Continuous visual inspection	To ensure that records are available. To manage maintenance and repairs in a way that does not cause any harm to the environment and society	Contractor Bağyrdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
17	Construction Phase	Pollution Prevention -SS3 Number of waste containers in the work area for non-hazardous waste Number of personnel trained on waste management Number of delivery records of household and recyclable waste by waste type Waste management practices	Construction sites Contractor offices	The contractor records the parameters and archives a copy as evidence. Bagyrdu OIZ and Supervision Consultant visually control the use of separate waste containers in the area and waste management practices implemented. Bagyrdu OIZ and Supervision Consultant examine the following: <ul style="list-style-type: none"> ○ Training records and training log ○ Delivery records of household and recyclable waste 	In the first week of each month during the construction phase Continuous visual inspection	To ensure that records are available. To manage household and recyclable waste in a way that does not cause any harm to the environment and society.	Contractor Bağyrdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
18	Construction Phase	Pollution Prevention -SS3 Number of temporary hazardous waste storage areas Number of secondary collection containers used for hazardous waste storage Number of waste containers for hazardous waste in landfill Number of waste containers for hazardous waste in work areas Number of fire extinguishers in the storage area Number of personnel trained on hazardous substance management Number of personnel assigned for hazardous waste management Number of records on hazardous waste disposal Number of waste oil recycling forms Hazardous waste management practices	Construction sites Contractor offices	<p>The contractor records the parameters and archives a copy as evidence.</p> <p>The Bagyrdu OIZ and Supervision Consultant visually check the temporary hazardous waste storage area, secondary collection container, separate waste containers and their labeling in the area, warning signs, labels, fire extinguishers, and ensure that waste is not mixed, that there are secondary collection containers in the work areas, that there is not any hazardous waste in the work area at the end of the working day.</p> <p>Bagyrdu OIZ and the Supervision Consultant examine the following: Training records of staff on duty</p> <ul style="list-style-type: none"> Records of waste management training and training log Hazardous waste records of hazardous wastes taken to hazardous waste storage area Records of disposal of hazardous waste in licensed facilities Waste oil recycling form received from the recycling facility 	<p>In the first week of each month during the construction phase</p> <p>Continuous visual inspection</p>	<p>To ensure that records are available.</p> <p>To manage hazardous waste, and waste oil in a way that does not cause any harm to the environment and society.</p>	Contractor Bağyrdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
19	Construction Phase	Pollution Prevention-ESS3 and Community Health and Safety-ESS4 Number of project vehicles violating the speed limit Number of work equipment and vehicles Number of complaints about noise Number of open complaints about noise Number of noise measurements performed Number of trainings on noise management	Construction sites Contractor offices	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and the Supervision Consultant monitor the contractor's working hours and compliance with speed limits for project vehicles. Bagyurdu OIZ and Supervision Consultant review the list of work equipment and tools. Noise measurement is carried out by the contractor upon any complaint made.	In the first week of each month during the construction phase Continuous visual inspection Upon complaint	To ensure that records are available. To ensure that noise generated do not have a negative impact on society and the environment	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
20	Construction Phase	Community Health and Safety-ESS4 Number of staff trained on code of conduct for community members Number of complaints received from local communities about workers' behavior	Construction sites Contractor offices	The contractor records the parameters and archives a copy as evidence. Bagyurdu OIZ and Supervision Consultant visually control workers' behavior towards community members. Bagyurdu OIZ and Supervision Consultant review training records, training log and complaint records.	In the first week of each month during the construction phase Continuous visual inspection	To ensure that records are available. To ensure that community health and safety is not adversely affected by project works.	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
21	Construction Phase	Stakeholder Engagement - SS10 Number of stakeholder engagement activities Number of activities to explain the grievance mechanism Number and nature of complaints received Number of corrective actions implemented Number of open complaints	Bağyurdu OIZ	The contractor records the parameters and archives a copy as evidence. Bağyurdu OIZ and Supervision Consultant visually check whether a community information system (signage, verbal information etc.) is in place before work starts. Bağyurdu OIZ and Supervision Consultant examine the following: <ul style="list-style-type: none"> ○ Announcement of the grievance mechanism ○ Number and nature of grievances, including responsive action, timing and corrective actions ○ Records ○ Stakeholder engagement records ○ Public disclosure of SEP and ESMP 	In the first week of each month during the construction phase Continuous visual inspection Carrying out inspections in the first week of every month during the construction phase	To ensure that records are available. To ensure effective and robust stakeholder engagement and information during the construction phase.	Contractor Bağyurdu OIZ Supervision Consultant	Construction cost includes Equities Supervision cost includes
22	Construction Phase	Community Health-ESS4 Number of signs placed Number of lighting systems in work areas Number of safety barriers in work areas Number of emergency drills Number of staff trained on community health and safety, including COVID-19 measures Number of activities carried out to provide information to the public	Bağyurdu OIZ	Bağyurdu OIZ visually checks signage, safety barriers, lighting and the transportation schedule in the work area and the presence of pedestrian paths, sidewalks and bus stops in the repair areas. Bağyurdu OIZ examines the following: <ul style="list-style-type: none"> ○ Training records and training log ○ Emergency drill reports ○ Evidence of information made available to the public 	Visual inspection when necessary Quarterly review during the repayment period	To ensure that community health and safety is not adversely affected by project works.	Bağyurdu OIZ	Equities

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
23	Operation Phase	Occupational Health and Safety and Labor and Working Conditions-ESS2 Number of warning lights Number of occupational safety meetings Number of checklists for fire fighting equipment Number of personnel trained in emergency situations Number of personnel assigned to the fire fighting team Number of periodic control forms Number of daily control forms Number of personnel with first aid certificate Number of PPE records provided	Bağyurdu OIZ	Bağyurdu OIZ visually checks whether safety barriers and warning lighting are placed around the repair area as a precautionary measure. Bağyurdu OIZ examines the following: <ul style="list-style-type: none"> Attendance lists of occupational safety meetings indicating the relevant topic related to occupational safety Checklist of firefighting equipment indicating which repair team is using the equipment used Records of emergency trainings Assignment records of fire-fighting officers Signed periodic control forms Signed daily control forms First aid certificates Records of deployment of first aid teams Approved records of PPE provision Records related to cleaning, maintenance and repair 	Visual inspection when necessary Quarterly review during the repayment period	To ensure that safety barriers and lighting OHS records are available and compliant.	Bağyurdu OIZ	Equities
	Operation Phase	Occupational Health and Safety and Employment Conditions-ESS2	Bağyurdu OIZ	Bağyurdu OIZ controls and inspects the following: <ul style="list-style-type: none"> OHS Plan Risk Assessment report 	Quarterly during the repayment period	To ensure that the Bağyurdu OIZ's OHS records, plans and	Bağyurdu OIZ	Equities

	Number of personnel receiving OHS training Number of staff trained on diseases, including COVID-19 measures Number of risk assessments Number of accident/incident forms Number of checklists/audit forms Number of personnel infected with COVID-19		<ul style="list-style-type: none"> ○ Emergency Preparedness and Response Plan ○ Training records and training realization log ○ Accident/incident forms Records of checklists and inspection forms and follow-up records		procedures are available and compliant			
24	Operation Phase	Labor and Working Conditions-LSS2 Number of designated assembly points	Bağyurdu OIZ	Bağyurdu OSB examines the following: <ul style="list-style-type: none"> ○ Emergency Preparedness and Response Plan ○ Assignment documents of Emergency Response Team members ○ Training records of emergency response team members ○ Records of trainings provided to employees ○ Current Emergency Information Form ○ 	Quarterly during the repayment period	To ensure that emergency safeguards are in place and compliant.	Bağyurdu OIZ	Equities

No	Stage	Parameter to monitor	Where to monitor the parameter	Method of monitoring the parameter / Type of monitoring equipment	Parameter monitoring time	Reason for monitoring the parameter	Corporate Responsibility	Financing Cost / Source
25	Operation Phase	Stakeholder Engagement - SS10 Number and nature of complaints received Number of corrective actions implemented Number of open complaints Number of employees trained on grievance mechanism Response time for complaints	Bağyurdu OIZ	Bağyurdu OIZ examines the following: <ul style="list-style-type: none"> Complaint logs with response details, timing and corrective actions Training records and training realization log 	During the repayment period Once a month	Ensure that complaints are logged and grievance mechanism trainings are conducted.	Bağyurdu OIZ	Equities
26	Operation Phase	Pollution Prevention-ESS3 Number of maintenance, repair, cleaning and emergency response procedures Number of personnel assigned for water quality control and management Number of personnel trained on water quality control and waste management Number of personnel assigned for waste management	Bağyurdu OIZ	Bağyurdu OIZ examines the following: <ul style="list-style-type: none"> Water registration documents to be used in panel cleaning Maintenance procedures Emergency response procedures Appointment document of authorized personnel Training records Hazardous waste records of hazardous wastes taken to hazardous waste storage area It keeps records of all wastes taken to the Temporary Waste landfill.(Packaging, metal, wood, etc.) Records of disposal of hazardous waste in licensed facilities records of recycling of waste at licensed facilities 	Visual inspection when necessary Quarterly review during the repayment period	To ensure that pure water is used for panel cleaning and that no unnecessary water is used To manage all type of waste in a way that does not cause any harm to the environment and society.	Bağyurdu OIZ	Equities

9. STAKEHOLDER MANAGEMENT UNDER ESMP

A stakeholder is defined as any individual, organization or group that may be affected by the project or has an interest in the project and its impacts. Stakeholder identification is an ongoing process and will require regular review and updating. The Stakeholder Engagement Plan (SEP) has been prepared for this project to identify project stakeholders and determine the methods of engagement for the future of the project. More detailed information is provided in the SEP.

Informing the stakeholders and their participation in the process during the preparation, construction and operation phases of the project will be provided by Bağyurdu OIZ.

In this context, an information meeting was held on 25.11.2022 at the Bağyurdu OIZ Directorate building. Participants consisting of village headmen, regional industrialists and OIZ employees were informed about the project. (Figure-53) In addition to the information, their opinions and suggestions were also received.



Figure 53: Stakeholder Briefing meeting

A suggestion and complaint mechanism will be established by Bağyurdu OIZ and it will be kept open throughout the project. Information on this issue was also provided at the meeting.

The contact information determined by Bağyurdu OIZ for suggestions and complaints was communicated to the participants and also announced on the website.

Table 42: Grievance Mechanism Contact Information

Bağyurdu PMU	OIZ	Address	Bağyurdu Organize Sanayi Bölgesi İzmir- Ankara Caddesi No:5 Kemalpaşa /İZMİR
		GM focal point	ZERNİŞAN ÖZTÜRK
		Phone	0530 782 69 08
		E-mail	info@Bağyurdu OIZ.org
		Web	https://www.Bağyurdu OIZ.org/
		Online communication form	https://www.Bağyurdu OIZ.org/iletisim.html
MoIT PMU		Address	Mustafa Kemal Mahallesi Dumlupınar Bulvarı (Eskişehir Yolu 7.km) 2151. Cadde No:154/A 06530 Çankaya/ANKARA
		Phone	444 6 100
		E-mail	dboneri@sanayi.gov.tr
		Web	https://www.sanayi.gov.tr
		Online communication form	https://www.sanayi.gov.tr/iletisim/iletisim-formu
CİMER		Phone	150
		Web	https://www.cimer.gov.tr/

APPENDIX

Annex 1	Title Deed Register
Annex 2	Title Deed Register
Annex 3	EIA Certificate
Annex 4	Solar Power Plant Site Plan
Annex 5	Technical Review Report
Annex 6	EIA Out of Scope letter