OMV

OMV Samsun Elektrik Üretim Sanayi ve Ticaret A.Ş.

380 kV SAMSUN NGCCP –(Çarşamba-Tirebolu)
Twr. No.66 OVERHEAD LINE
NON-TECHNICAL SUMMARY

Province of Samsun, Terme District and
Province of Ordu, Ünye and İkizce District

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TÜV SÜD

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SUMMARY of THE PROJECT

OMV Samsun Elektrik Üretim Sanayi ve Ticaret A.Ş. (OMV) is planning to launch an Over Head Line project within the borders of Terme District of Samsun Province and Ünye and İkizce Districts of Ordu Province.

Energy produced at this Samsun NGCCP will be transferred to Çarşamba-Tirebolu Overhead Line (Twr. No. 66) by the planned 380 kV OHL having a length of 14.979,69 m (Pls. See Figure 1). 7.873,87 m. The proposed OHL is in the boundaries of Samsun Province and in the boundaries of Ordu Province. After that point energy will be connected to the interconnected system.

This project is included in the list of "Projects for which Selection and Elimination Criteria will be Applied" under Appendix – II Article 32 of By-law on Environmental Impact Assessment" (EIA).

In the scope of EIA studies 1 km to the right and to the left of the OHL route has been determined as the survey area which is totally on a 2 km corridor for the proposed project. Totally 32 towers are planned to be used along the transmission line. 13 of them will be tension towers and 18 of them will be suspention towers and 1 of the will be the terminal post The planned OHL route passes usually from hazelnut areas and orchards and through the forest areas when approaching to the Çarşamba-Tirebolu OHL and project route goes along the I., III. VI., and VII. class areas. Areas, where towers will be located, will be expropriated and for areas, which will remain under the conductors, land use cost will be paid. Total expropriation area of the project is determined as 11.729 m2 and 678.610 m2 is determined as right of way area. After the construction stage, agricultural activities will continue in the expropriated agricultural fields that will remain underneath the cables.

This report presents the environmental and social impacts and mitigation measures for these impacts concerning the proposed overhead line.

In general environmental and social impacts resulting from overhead lines are assessed by taking construction and operational phases into consideration. Land use, landscape and visual impact, ecology, noise, cultural heritage and archeology, water environment, local settlements/communities, dust emissions, electromagnetic field are the main subjects required to be examined by one one in order to be able to define environmental and social impacts of the project. Mitigation measures are determined accordingly.

Construction phase will consist of three parts. These are excavation of foundation, preparation of footing and tower erection and cabling. The durations of the subject phases of the project are 3 months, 2 months and 1 month respectively. 15 employees for the excavation of foundations, 15 employees for the steel construction and 20 employees for cabling will be employed.

The existing work site of Samsun NGCCP will be used as a management office and a house will be rented for the accommodation and other needs of the employees during the construction phase.

The proposed OHL passes over two vineyard houses. These houses are only used for taking rest, not used for continious residential purposes during farming. When considering the heights of the towers to be used for the project, heigths of the towers are at least 25 m above the subject houses. The closest residential property to the Tower no.16 and Tower

no.23 is 20 m far away from the subject towers. All residential buildings are 20 m far from the towers of the OHL.

There exists a 1st Degree Natural and Archeological Site Area (Gençağa Castle/ Ordu-İkizce between S7-S8 turning points,), on 105 m northeast side of OHL. During the construction phase of the project, in case that any historical, cultural and archaeological assets are encountered during excavation works, Province Directorate of Culture and Tourism will be informed. Besides, protected areas are shown in Figure 2.

Study area is in second and third degree of earthquae damage according to Seismicity maps of Samsun and Ordu Provinces that taken from Earhtquake Department General Direcorate of Disaster Affair of Turkish Republic Ministry of Public Works and Settlement.Therefore the tower types are selected by taking the study corridor as second degree of earthquake.

The route of the project crosses Terme Project Main Canal between S1-S2 turning points. Besides, it crosses Düzinhan Creek between S7-S8 turning points and Kutluca Creek between S 8B-S9 turning points. During the construction phase of the project solid and liquid waste will not be discharged into surface waters, waste deposition will not be done near water surfaces, water channels will be protected against erosion while excavating for foundation and site camp has been selected to be placed far away from any water surfaces and flood areas.

Adverse environmental impacts arising from the construction of OHL are dust formation, waste water, noise, solid wastes and land use. Dust formation and noise will arise from the construction vehicles to be operated during the excavation of tower foundations and excavations. Waste water will be only domestic waste water generated by the employees. Solid waste will be municipal wastes generated by employees and pieces of material used for the assembling of tower. These pieces of materials generated during the fitting with the economic value to be sold as scrap materials will be recovered and backed to the economy. These wastes will be produced only at construction stage and will disappear during operational stage.

Dust emissions will be formed during the excavation of tower foundations. Dust to be formed will affect the air quality temporarily because these emissions will be short-term and amount will be very low. These excavations will be done one by one so dust generated during the construction activities will remain under the limits determined in the By-law on Control of Air Pollution Originated from Industrial Plants.

Potable water need of employees will be provided from the present water works. Drinking water needs of employees will be provided by buying bottled water. Domestic waste waters generated by employees will be discharged to the sewer system of the rented houses. Domestic wastewaters of the site will be discharged to the septic tank and will regularly be emptied by the Kozluk Municipality.

Solid wastes to be generated during construction are municipal wastes generated by employees and waste from the construction activities like paper, plastics, cement bag, wire, etc. Packaging waste will be collected separately from the municipal waste and given to the producer firm or a licensed recycling firm according to By-law on Control of Packing Waste.

Noise may be formed mainly because of the construction vehicles operating during the construction phase of the project. In order to be able to evaluate the noise impact of the proposed project during construction and operation objectively, background noise

measurements have been performed by SELİN Measurement Laboratory Services Data Processing Engineering Consultancy Construction Industry and Trading Inc. Some of the calculated sound levels for the Lower Fitting-Excavation, Upper Fitting and Cabling are higher than the limit values. But construction vehicles will not be operated at the same time and noise measurements will be done during all phase of the construction at the houses under the OHL in order to check the compliance with the regulations.

In the design of the project horizontal and vertical distances indicated on the "Electrical Power Installation Regulation" has been taken into consideration. Besides EMF level resulting from the OHL is under the limits indicated on the Regulation on "Measures to be taken for Protecting the Environment and Public Health from the Negative Effects of Non-İonizing Radiation" and the reference values determined by WHO and EU directives (1999-519-EC).

A social study has been conducted for the proposed project and the results and the mitigating measures to be taken in the scope of the subject study is given in the report.

After commissioning, TEİAŞ will be responsible for the operation of the subject OHL.

With the realization of the proposed project, the energy from the interconnected system will be supplied to the regions which are in need of energy. The supply of reliable, uninterrupted, and high quality electricity to the consumers in Turkey at a 380 kV voltage level is aimed with this planned line. Therefore, establishment of the project will affect both the regional and the national economy positively.

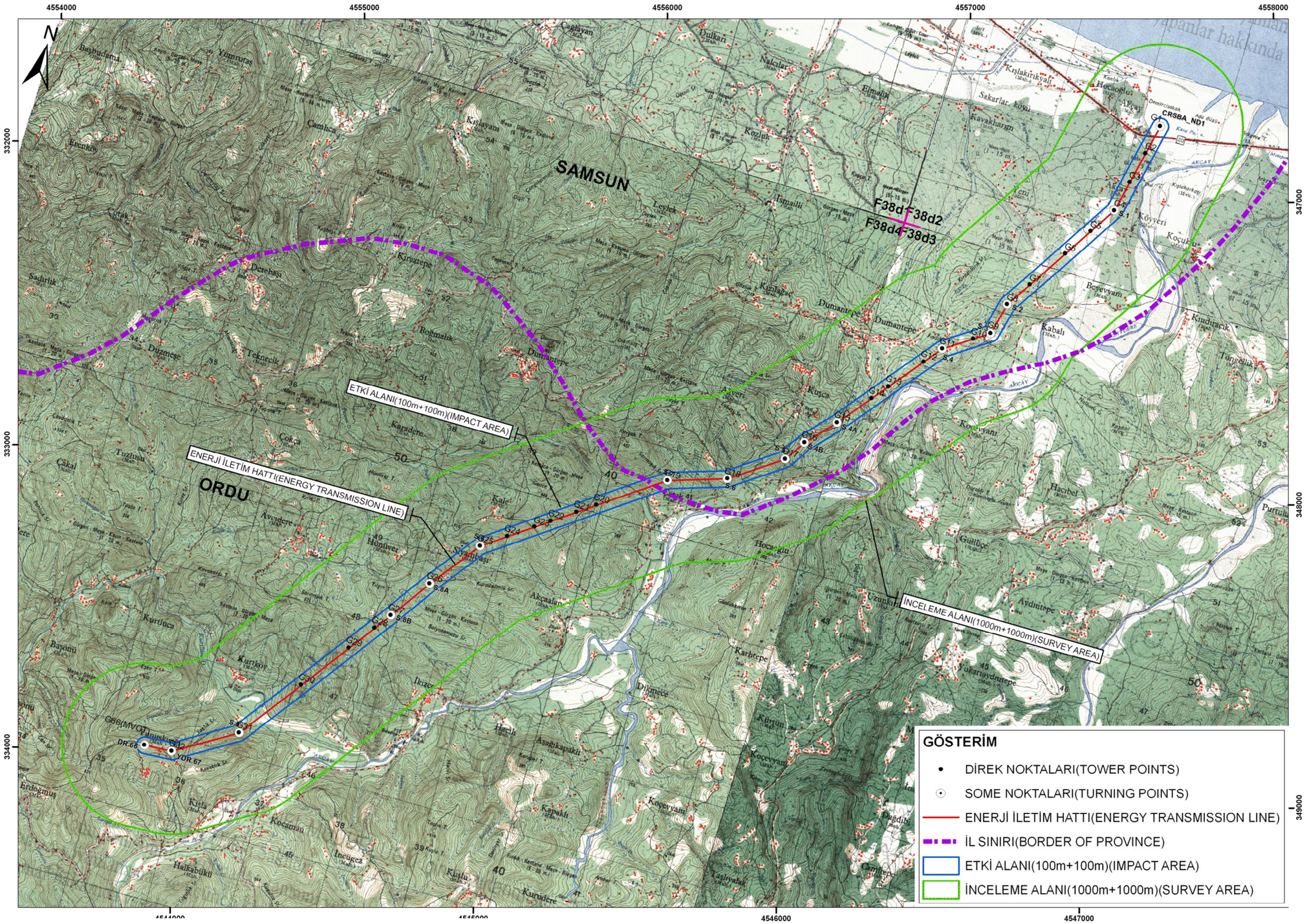

Figure 1: Topographical Map

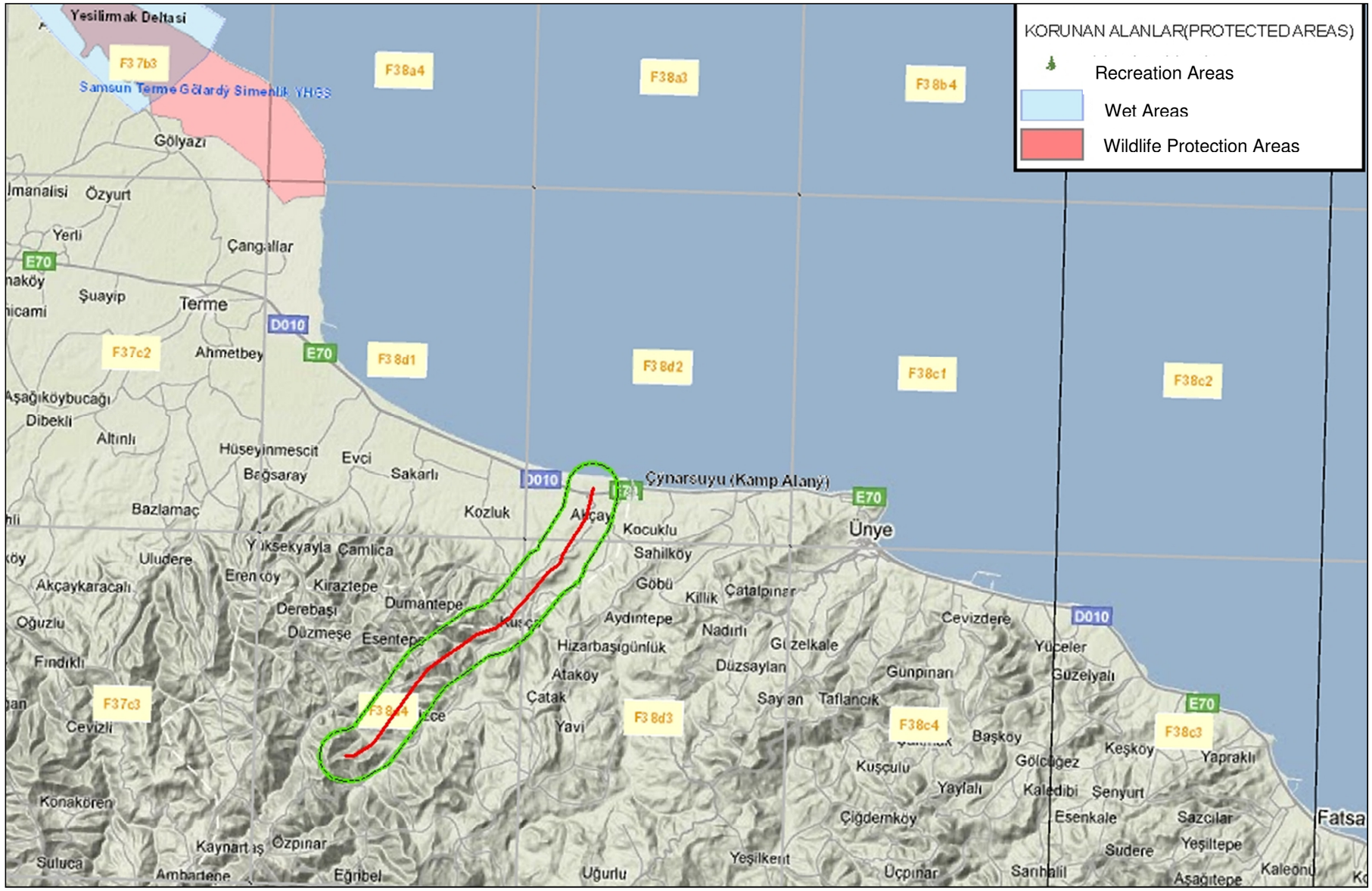

Figure 2: Map of Protected Areas

SUMMARY of MITIGATION MEASURES

The project will have some environmental aspects during project preparation, routing, mobilization, construction and operation phases. Mitigation measures and proposals for prevention of these of adverse effects are given below.

Table 1: Mitigation Measures

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
Project Preparation	Preparation of Final Project	The following aspects are taken into consideration while studying route alternatives. . • Route will be far from settlement areas as much as possible • Ease of transportation for operation, maintenance purposes,	No additional cost (included in Project budget)	Turkish Electricity Transmission Company Co. Inc. (TEİAŞ)	When field studies started after signing Contract with TEİAŞ for connection	When final projects are completed and expropriation works finished
Routing	Routing studies	• The route will not pass over protected areas. • Contact with Ministry of Culture and Tourism for cultural/tourism protection and/or development regions	No additional cost (included in Project budget)	Turkish Electricity Transmission Company Co. Inc. (TEİAŞ)	When field studies start	When final projects are completed and expropriation works finished
Routing	Effect on Landscape	• OHL route will avoid wide range visual perspectives • As much as possible natural properties will be used to conceal the structures.	No additional cost (included in Project budget)	Turkish Electricity Transmission Company Co. Inc. (TEİAŞ)	When field studies start	When construction works start
Mobilization	Dust-particulate matter	• New vehicles will be used as much as possible and their exhaust emission should be controlled • Track carrying soil, sand and cement will be covered and traffic rules will be obeyed.	No additional cost (included in Project budget)	EPC Contractor	When mobilization starts	When construction works completed
Mobilization	Public Safety	• In order to prevent work accidents warning signs will be provided. Entrance to work site will be prevented. Neighboring people will be informed • Fire Response plans, work accident plan and spill /leakage response plans will be applied in case of any fire or spill/leakage accidents	No additional cost (included in Project budget)	EPC Contractor	When mobilization starts	When construction works completed
Mobilization	Driving Safety	• In order to prevent any accidents drivers will have proper driving licence to the vehicles they used. • A training programme regarding traffic rules and general health and safety subjects for the drivers will be provided • Emergency response plans including fire response plans, accident, flooding and spill /leakage response plans will be applied	No additional cost (included in Project budget)	EPC Contractor	When mobilization starts	When construction works completed

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
		• Periodic maintenance of the vehicles will be done.				
Mobilization	Local informing	• The locals will be informed before commencing of the material and workforce transportations along the OHLs, eg.in schools, mosques, village cafes, Muhtar's etc.	No additional cost (included in Project budget)	EPC Contractor	When mobilization starts	When construction works completed
Construction	Historical, Cultural and Archeological Wealth's	• In case that any historical, cultural and archeological Wealth's are encountered during excavation works Province Directorate of Culture and Tourism will be informed	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Erosion / Treatment of Mud	• Water channels will be protected against erosion while excavating for foundation	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Cut of trees	• Permission will be taken from related Forestry Operation Office	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Waste water	For the discharge of waste waters generated by employees will be discharged to the sewer system. Domestic wastewaters of the site will be discharged to the septic tank and will regularly be emptied by the Kozluk Municipality.	No additional cost	EPC Contractor	When construction works start	When construction works completed
Construction	Dust-particulate matter	• New vehicles will be used as much as possible and their exhaust emission should be controlled Track carrying soil, sand and cement should be covered and traffic rules will be obeyed • Workers will wear personal protective equipments if necessary (dust mask, hard hat, eyeglasses) • In arid seasons working area will be sprayed with water.	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Grounding	• Grounding will be provided during construction of OHL. Since energy leakages are the most dangerous thing for public health.	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Excavation	• When excavation is done, excavated top soil will be	No additional cost	EPC Contractor	When	When

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
	Waste	stored separately and will be spread on backfill material after construction works completed (if topographical conditions are suitable) • Surplus excavation material will be used for land leveling after erection of poles and there will be no excavation waste. • Cut grasses will be planted at places where there is no danger of fire. • There will be no solid or liquid waste disposal on soil • Excavated material will not be poured into any surface water sources (such as; rivers, lakes, pond, etc) .	(included in Project budget)		construction works start	construction works completed
Construction	Public Safety	• In order to prevent work accidents warning signs will be provided. Entrance to work site will be prevented. Neighboring people will be informed about the prohibition of the entrance to the work site. • Border of security will be marked with painted, phosphoric or reflecting glands	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Solid Waste	• Solid wastes and construction wastes will be transferred to the main work site, temporarily stored there and transferred to the licensed firms for recycling purposes from main work site. • Oil, dye and any other waste classified as dangerous waste will be transferred to main work site, temporarily stored there and transferred to the licensed firms from main work site • Solid wastes will be treated according to the Regulation for Control of Solid Wastes dated March.14, 1991 having no of 20814.	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Leakage of oil, fuel to soil, surface and under ground water	• Procedures to prevent and control leakage will be prepared and will be followed during operation (Oil-fuel supply for work machines should be provided at service station. If this is not possible oil-fuel supply will be done over non-leakage plates.	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
	Hazardous	• Hazardous Wastes will be treated according to the	Cost for transfer of	EPC Contractor	When construction	When

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
Construction	Wastes	'Regulation for Control of Hazardous Wastes' and transferred to the main work site, temporarily stored there in non leakage containers and then transferred to licensed (licensed from MOEF) firms from main work site.	Licensed firms (not so expensive)		works start	construction works completed
Construction	Expropriation	• Will be done according to Law of Expropriation. • Construction will not start at land if its expropriation price had not been paid. • Before entering forest area, permission will be taken from related Forestry Operation Office and tree cost will be paid. • Before the construction of OHL starts, permission for non-agricultural use will be taken from the Provincial Directorate of Agriculture according to 5403 numbered Law of Soil Protection (Official Gazette: 19 July 2005, no 25880) and Land Use and also By-law on Implementation of Law of Soil Protection and Land Use (Official Gazette: 15 December 2005, no 26024). Some part of the pathway passes through the pasture. For these areas, required permission will be taken according to Law of Pasture	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Construction	Occupational Health and Safety	• During all phases of the project Law of Work and regulations for Occupational health and Safety Regulation of TEİAŞ (dated2 7.11.2002 and numbered 37-265) will be followed . • Warning sign such as; Be careful, Don't Enter, Wear Your Personal Protective Equipment, etc will be provided at site. • A training programme for worker will be provided. It will include fire fighting, working at height, first aid, emergency case actions, general safety ,etc. • Risk analysis for occupational health and safety, training plan, OHS Management plan , Monitoring and measurement plan , emergency action plans for fire, first aid and accident, periodical control plans (plans prepared after periodical controls of lifting equipment such as cranes, pressure vesssels such as boilers, electric installations resistance measurements and grounding measurements) will be prepared to meet the requirements of Law of Work and related regulations. PPE will be defined and provided to workers. • Cabling machines to be used for upper fitting (cabling) will be grounded when they mobile.	No additional cost.	EPC Contractor	When construction works start	When construction works completed

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
		• During protectice conducter cabling works there won't be any personal in the 5 m safety distance of protective conducter drums. • Personnel protective equipments such as helmet, safety glass, visible vest, S3 type safety boats, lifelines and safety belts, will be mandatory for the workers working height nets. Working at heights will be restricted when climatic conditions are not suitable. • Protective equipment and tools will be propoer to CE ,TSE and international standards. • Emergency reponse plans including fire response plans, work accident plan, earthquake, flooding spill /leakage response plans will be applied and site appropriate emergency response plans will be prepared by the EPC Contractor. • Excavated pits, holes, foundations will be covered with hard or soft barriers. • All of the excavation, fitting and cabling works will be performed during daytimes. In case of working in extended hours lightening will be provided.The night Works are forbidden along the OHL Works. However, in case of deviation in some extended taks such as concrete pouing, the all needed TR regulational requirements/permits will be taken from the Local Labour Directorate and Environmental Directorate of Samsun or Ordu. Besides, HS safe system of work tool called Night work permit to Work will be applied; health reports of the workmen also required. • Fishing will be prohibited during the construction phase • Ear protectors will be used as PPE for personel exposed to noise between 80-87 dBA and noise minimizing measures will be taken for the working areas having Noise level higher than 87 dBA. Besides, noise exposure measurements will be done .				
Construction	Driving Safety	• In order to prevent work accidents warning signs will be provided along the site roads and speed limits will be restiricted • In order to prevent any accidents, drivers will have proper driving licence to the vehicles they used. • A training programme regarding traffic rules and general health and safety subjects for the drivers will be provided • Periodic maintenance of the vehicles will be done. • Journey management information and defensive driving will be applied.	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
Construction	Damages on local and economical activities	• Construction work on private land will not start before expropriation procedure finishes. • No damage will be done to existing roads and agricultural land. • If any damage is done to roads and agricultural land contractor will pay for the recovery of damage.	Cost may change according to the severity of damage given.	EPC Contractor	When construction works start	When construction works completed
Construction	Risk of fire and corona effect	• Trees that may reach wires of OHL should be determined and cut or trimmed • OHL will provide fire safety the requirements of the Regulation for High Tension Current Structures and will be checked regularly and maintenance work will be done .	No additional cost	Contractor gained tender for three surgery and cutting	When construction works start	When construction works completed
Construction	Noise	• Noise level will be measured during the construction phase at one of the the 11st, 16th, 23rd and tower no. 67 during excavation of foundations, erection of towers and cabling phases of the construction and checked if the requirements of "By-Law on Evaluation and Management of Environmental Noise" will be met. • Site work will be performed in day time and between 07:00am and 19:00 pm. In case that additional time is required necessary permits should be taken from local government one week before. • People living in nearest settlement areas will be informed about construction period. • Vehicles and work machines having low noise level will be used as much as possible. • If necessary workers will be provided protective ear plugs.	No additional cost	EPC Contractor	When construction works start	When construction works completed

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
Construction	Disturbance of habitat and/or loss	• During foundation works excavated top soil will be stored separately (if topographical conditions are suitable) • Excavated material will be used for backfilling and land leveling purposes. There will be no excavation waste. No solid and liquid waste should be discharged on soil or in surface waters. No waste deposition will be done near water surfaces. • Bird spikes will be assembled to the wires at frequent intervals	No additional cost (included in Project budget)	EPC Contractor	When construction works start	When construction works completed
Operation	Electromagnetic Field (EMF)	• Requirements of Turkish Standard on Exposure to Electromagnetic Fields (0Hz-10Hz) will be provided and electromagnetic field value of each material will be tested.	Not expensive	TEİAŞ	After commissioning of OHL	When service life of OHL is completed
Operation	Public Safety	• Warning signs such as; Death Hazard should be provided on poles and other standard signs will be provided for safety	No additional cost (included in Project budget)	TEİAŞ	After commissioning of OHL	When service life of OHL is completed
Operation	Solid Wastes	• Isolators will be replaced if they are broken, wires will be repaired if they loosen more than acceptable levels, and wastes due to maintenance worNs are placed in warehouses and then sold. So there will be no wastes produced during these works.	No additional cost (included in Project budget)	TEİAŞ	After commissioning of OHL	When service life of OHL is completed
Put off operation	Dust – particulate material	• When pole foundations are dismantled, its place will be backfilled and surface leveled. These works may cause dust . To control dust formation work area will be sprinkled with water.	Not expensive	TEİAŞ Contractor (*)	When service life of OHL is completed	Till put off operation procedure completed
Put off operation	Noise	• Work machines to be used during dismantling and leveling works will cause noise. In case of a complaint about noise, measurement measures will be taNen to reduce noise level	Expensive	TEİAŞ Contractor (*)	When service life of OHL is completed	Till put off operation procedure completed
Put off operation	Waste water	• Waste water to be produced during dismantling works will be stored in non leakage type septic tanks and the delivered to municipality periodically.	Not expensive	TEİAŞ Contractor (*)	When service life of OHL is completed	Till put off operation procedure completed
Put off operation	Solid waste due to site activities.	• Solid waste produced at site due to workers will be kept in in bags and will be disposed to the containers in municipal disposal area.	Not expensive	TEİAŞ Contractor (*)	When service life of OHL is completed	Till put off operation procedure

Phase	Subject	Measures to be Taken	Cost	Responsible Institution	Start Date	Finish Date
						completed
Put off operation	Wastes of OHL	• Reusable wastes are stored in warehouses of Group Directorate and the rest will be sold.	Not expensive	TEİAŞ Contractor (*)	When service life of OHL is completed	Till put off operation procedure completed
Put off operation	Hazardous Wastes	• Hazardous wastes produced during dismantling works will be collected and stored in temporary stock areas for hazardous wastes. Later they are transferred to licensed firms licensed by MOEF) for disposal.	Not expensive	TEİAŞ Contractor (*)	When service life of OHL is completed	Till put off operation procedure completed
Put off operation	Improvement of Land	• When poles are dismantled foundation holes will be filled and top soil will be spread over.	Expensive	Operator Contractor (*)	When service life of OHL is completed	Till put off operation procedure completed

(*): The responsibility of the EPC contractor; responsible for the construction of OHL; finishes when construction works completed. The Contractor to be responsible for the put off operation will be decided by TEİAŞ when OHL finished its economical life. Therefore TEİAŞ Contractor is different from the EPC Contractor.