BREBEX SOLAR POWER PLANT, SERBIA

Environmental and Social Impact Assessment

Non -Technical Summary

April 2025

Contents

Figures

Tables

1 Introduction

Sage Solutions (referred to in this document as “Sage” or “the Developer”) has been contracted by Brebex doo to progress the development of the Brebex Solar Power Plant to Ready-to-Build status. The SPP will be constructed by Brebex doo.

The Project will need the financial support from an International Finance Institute or a major commercial bank. It is a requirement of these Lenders that the projects that they finance adopt Good International Industry Practice in the assessment of the environmental and social impact. These standards have been applied to the Brebex Solar Power Plant. This means that in addition to the regulatory requirements of Serbia, an Environmental and Social Impact Assessment was completed to ensure compliance with the requirements of the Equator Principles and the environmental and social guidelines published by the International Finance Corporation.

This Non-Technical Summary (“NTS”) describes the key findings of the Environmental and Social Impact Assessment of the proposed Brebex Solar Power Plant (referred to in this document as the “Project” or “Brebex” or the “SPP”). The NTS includes a description of the Project, its location and design, the benefits of the development to Serbia and the region, as well as the mitigation of any potentially significant negative environmental and social impacts identified during the impact assessment.

Further information can be obtained from the project website at www.brebex.rs or by contacting Marija Senić Andrić by email at:

Postal Address: Beograd-Zemun, Autoput za Zagreb 22, 11080 Beograd, Serbia

E-mail: marija.senic@sagesolutions.rs

2 Project Description

The site of the proposed Brebex SPP is about 6km to the northeast of the town of Dimitrovgrad. One of the main border check-points into Bulgaria is at Dimitrovgrad, on national highway E-80.

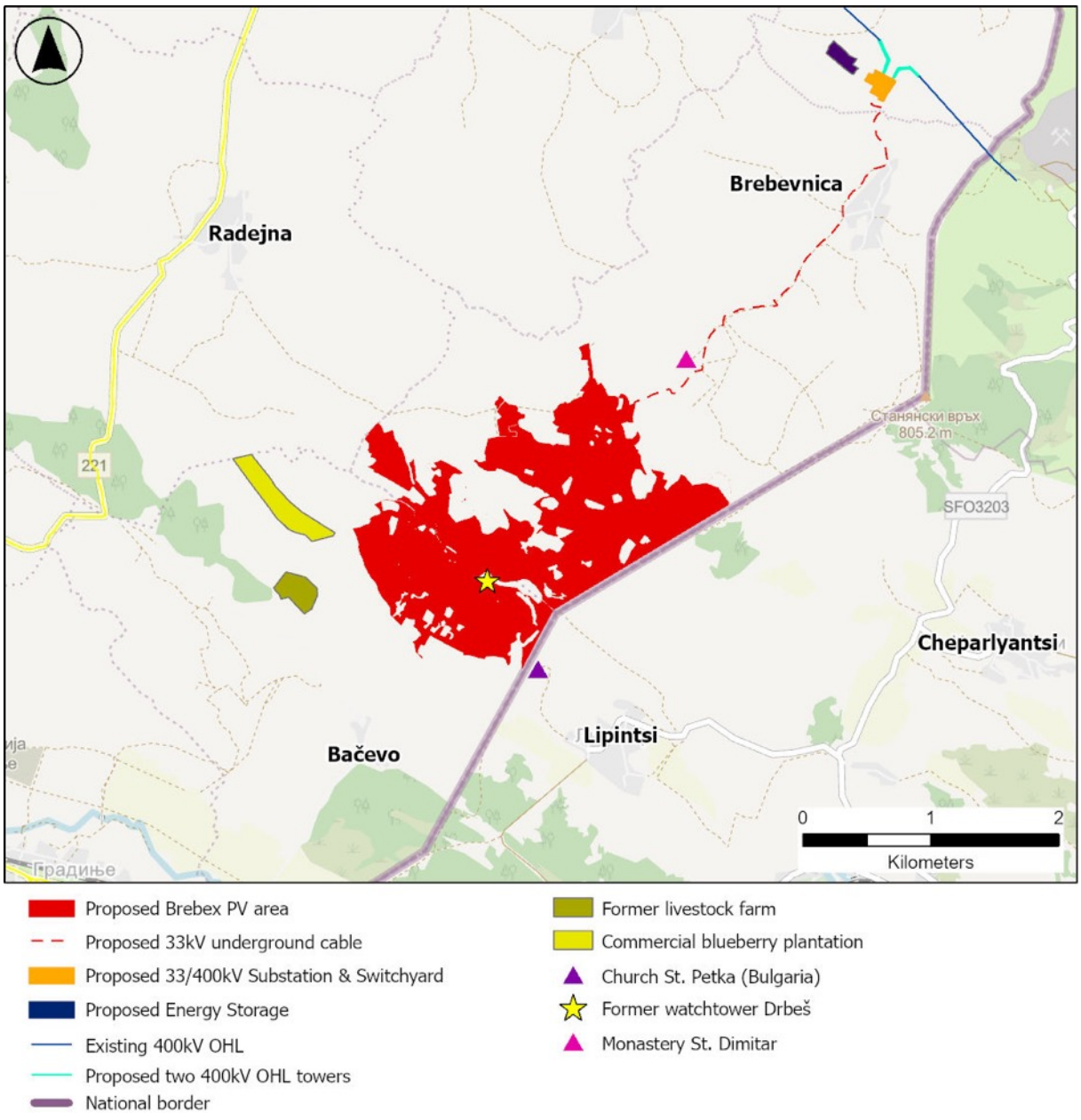
The development site is in a mountainous area between Vidlič mountain in the north and the Nišava River valley in the south. Vidlič is part of the Western Balkan Mountain range that extends in a south-easterly direction between Serbia and Bulgaria. The closest settlements are Bačevo village, about 650m to the south-west and Lipintsi (in Bulgaria) about 800m to the south. Brebevnica village is about 2 km to the north-east and is closest to the proposed OHL. See Figure 2-1. The SPP site occupies an upland area of gently rolling hills and valleys.

The SPP will be built on land leased from the Serbian Ministry of Agriculture, Forestry and Water Management. These land plots are within 100m of the national border with Bulgaria and, due to the proximity with the border, these plots have never been developed. There are no buildings or structures on these plots and there is no-one living or working within the site boundary. The land plots are not used for agriculture or forestry and are covered with scrub and grassland. The site is accessed by a single, narrow track. The land plots are crossed a small number of rough tracks. Some of these tracks are used by the border guards to patrol this part of the border.

The land leased from the Ministry covers a total area of 305 ha. The ESIA identified several areas of valued natural habitats within the boundary of the Brebex SPP site, including marshland around Lipinsko Pond, that cover an area of about 20 ha. These habitats are protected under Serbian law and have been excluded from the development area. The creation of a biodiversity protection zone means that area of land available for the solar plant is about 273 ha (about 89% of the total area). Of this, about 150 ha will be covered with PV panels and electrical equipment. The remaining 123 ha includes the tracks that run between the panels, as well as land between the panels and the boundary fence.

The Brebex Solar Power Plant will be able to deliver a maximum of 300 MW to the grid. This limit was set by a Grid Connection Study. The SPP includes PV panels, with an installed power of about 350MWp, and an Energy Storage Facility with an installed storage capacity of 160 MWh and installed power of 80MW. The Energy Storage Facility (“ESF”) is a battery storage system that will be used to help manage the flow of electricity to the grid. In simple terms, the batteries will be charged during the day and discharged during the early evening when there is a peak demand on the grid (i.e., between 6pm and 7.30pm),

Figure 2-1 Location of the Brebex SPP



The photovoltaic ("PV") panels will be placed in lines or "strings" (these strings are also referred to as solar arrays). The panels will be double-sided and mounted at about 20degrees from the horizontal. This angle will vary a little as the slope changes across the site.

The PV panels are very light-weight and only require minimal foundations. The panels will be mounted on galvanised steel frames that can be pushed directly into the ground. Where the ground is harder, holes will be drilled for the frames. In some instances, the steel frames will be fixed to reinforced concrete foundations. The distance between the strings of panels is likely to be between 3 to 4 metres.

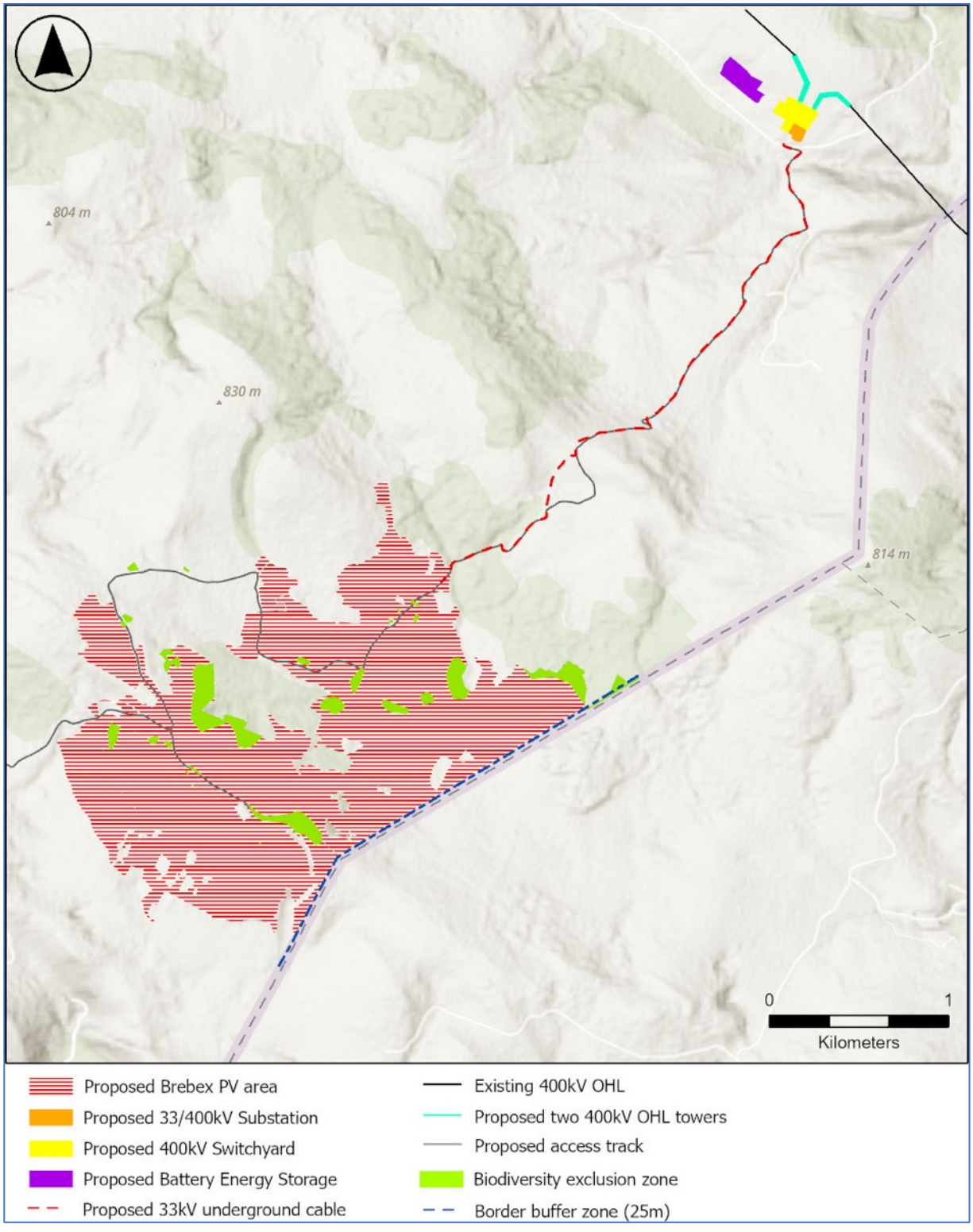
The PV strings will be connected to a number of electrical inverters. These inverters will convert the DC electricity produced by the panels into AC electricity that can be exported to the grid. An underground cable will connect the inverters to the substation. For the majority of its length, this cable will be buried beneath the dirt track that crosses the site (see Figure 1-2). The substation, switchyard and the ESF will be positioned close to the existing 400kV overhead line ("OHL") about 4km north-east of the PV area. The substation will increase the voltage to 400kV through a number of step-up transformers. This substation will have the required the metering equipment and grid interface switchgear such as circuit breakers for the protection and isolation of the power plant.

The PV panels, inverters, and the PV array transformers are expected to be sourced from China. The Chinese suppliers will not send any workers to site to install any of the equipment that they provide.

The construction and operation of the substation is the responsibility of the Developer, whilst Elektromreža Srbije or "EMS" (the Serbian TSO) will own and operate the switchyard.

The entire SPP will be fenced and the substation, switchyard and the ESF will be enclosed by a security fence. None of the on-site structures are expected to be higher than the boundary fence. It is highly unlikely that the finished SPP will be visible from any nearby settlements.

Figure 2-2 Layout of the Brebex SPP



2.1 Construction

It is Brebex's current intention to appoint an Engineering, Procurement and Construction ("EPC") contractor to construct the SPP on their behalf. It is likely that one or more separate contractors will also be employed to undertake the civil work including the construction of the access roads, the electrical substation and the overhead power line to connect the SPP to the grid.

The construction of the SPP is expected to require:

- Site mobilisation will include the establishment of the construction compound and laydown area, as well as the widening and reinforcing of the site access track. The compound will include site offices, welfare facilities, vehicle parking, temporary stores and a lay-down area for PV panels and other electrical equipment. The compound will be fenced and covered with compacted, broken stone. In addition to site offices and materials stores, the construction compound will include storage areas for hazardous materials and wastes.
- Site preparation activities will be limited to the clearance of vegetation. If any topsoil is removed, then this will be stockpiled for future landscaping of the completed SPP. Land outside the construction area will be fenced off and will not be accessed during construction.

Formal construction is likely to begin with the preparation of internal tracks and the erection of the perimeter fence. The fence will provide the necessary level of security required during construction. It is not yet known if the access tracks will be surfaced. It is likely that the construction of the solar arrays, substation and the inter-connection to the national electricity grid will be undertaken at the same time.

On the completion of construction, the construction compound will be removed, and PV panels will be installed on the area.

A 33-kV underground power transmission line (that will connect to the transformer station) will be buried beneath the main access track. These cables will be armoured with woven metal and buried to a depth of about 1.5m. Trenches will be approximately 2m wide. Excavated material will be used to backfill the trenches, with stockpiled topsoil and subsoil placed on the surface.

2.2 Operation

The SPP will operate for 25 to 30 years. Fixed panels will be used (rather than panels that track the sun). As the Brebex panels are static they will not require high levels of maintenance.

The operation of the SPP will be monitored continuously from an off-site Control Room that will be staffed on a 24-hour basis. It is currently anticipated that Brebex doo will employ a small team of technicians (2 or 3) to undertake the day-to-day maintenance of the PV element of the SPP. It is likely that a small workshop/ storage area and welfare facilities will be provided for the technicians within the substation building. It is likely that the service technicians will only attend site between 08:00 to 16:00 from Monday to Friday. The maintenance team will also operate an out-of-hours standby system to manage breakdowns or emergencies.

The development team are considering the use of a combination of periodic dry, cleaning of the panels (mechanised dry-brush several times per year) with a manual, wet clean every 5 years.

The operation of the substation is the responsibility of the owner, while the Interconnection infrastructure is the responsibility of the Serbian statutory transmission Electricity Supply operator, Elektromreža Srbije ("EMS").

2.3 Decommissioning or Re-powering the SPP

As the Solar Power Plant approaches the last few years of operation the owner will consider the closure or continued operation of the facility, i.e., will it be decommissioned, or will the PV panels be replaced with new ones.

The decommissioning of a SPP is not a complicated process and largely comprises the dismantling of the panel frames, and the removal of the panels and electrical equipment. The site will be landscaped to reflect its original condition. Steel and other useful materials will be recycled. Inert materials that cannot be re-used or recycled (this includes the PV panels themselves) will be taken to a suitable landfill.

The substation may continue to be occupied, and the transmission line may continue to be used. This will be decided by the TSO and will reflect the needs of the local grid at that time. If not required, they will be dismantled, and metals recycled.

As the operation of the SPP does not involve the use of hazardous materials it will not be necessary to conduct an extensive post-operational clean-up. The design of hazardous materials storage areas and the secondary containment placed around the transformers should ensure that no polluting materials enter the ground beneath the site. Basic operational control measures will be included in the design to ensure ease of decommissioning.

2.4 Project Timeline

At the time of writing, the construction timeline is expected to be:

- Plan of Detailed Regulation ("PDR") agreed: January 2024 for the Solar Power Plant and October 2024 for the connection facilities.
- Location Conditions agreed: October 2024 (solar panel area) – December 2024 (connection facilities).
- Obtain the building permit: June 2025.
- Start of construction: summer 2025.
- Access tracks for the substation: summer 2025.
- Installation of Solar PV strings: second half of 2025 to early 2026.
- OHL 400 kV and substation 33/400kV construction: mid 2025 to early 2026.
- Start of commercial operation: autumn 2026.

3 Why is the Brebex SPP Needed?

The purpose of the Brebex SPP is to generate renewable electricity that will be supplied to the Serbian national grid. The Serbian energy sector is very dependent on fossil fuels and the use of reliable, renewable power will help Serbia reduce its reliance on fossil fuels. In summary, the Brebex SPP will:

- Generate renewable energy that will contribute to national targets for reducing carbon emissions into the atmosphere;
- strengthen Serbia's energy sector by helping to diversify its energy sources (which proved to be of great importance after the floods in May 2014);
- reduce the need for Serbia to import energy from neighbouring countries.

4 Project Alternatives

The following alternatives were considered in the ESIA:

1. No Project Scenario: If the SPP is not built, then Serbia will continue its' reliance on fossil fuels. If the Project does not go ahead the minor negative environmental impact associated with the loss of habitat (resulting from the Project) will not occur. Perhaps more importantly, the positive financial benefits of the SPP to the local communities will not be realised (through taxes paid, social investment, and employment).
2. Alternative technology: The size and ground conditions of the project site are not favourable for wind development or other renewables projects. Tracking solar panels were not considered by Sage as these would have dramatically increased the cost of the project. The benefit from a higher level of electricity generation would not offset the higher capital cost.
3. Alternative location: The land that will be used for the Project was offered for lease by Ministry of Agriculture, Forestry and Water Management through public auction. The land has been used a buffer strip along the national border for many years and construction, agriculture or other development was not permitted on the land. This meant that Sage did not need to buy or lease land from private owners and, as the land is not occupied or cultivated, there would be no issues of ownership, displacement or loss of livelihood. The land was leased from the Ministry with the specific intention of developing the SPP.
4. Alternative layout: Sage do not require the whole site to achieve a capacity of 300MW and the project design will avoid valuable habitats, such as the marshy areas (covering about 20 ha), and the remaining "margins" of the site will be used to maintain and manage the scrub habitat. This is the primary mitigation

that was established by the ESIA. The tracks between the strings will be encouraged to grow native grasses. It is likely that sheep and or goats might be used to graze this grass.

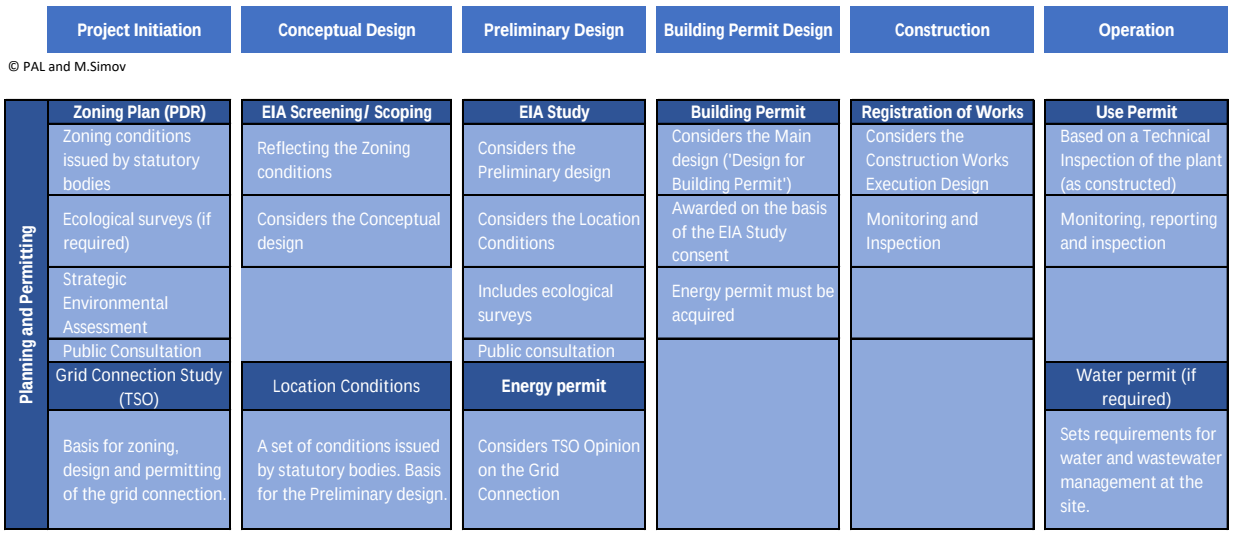
In summary, Brebex d.o.o. have leased the land from the government for the specific purpose of generating renewable energy using solar photovoltaics. The ESIA concluded that the use of Solar PV is the most appropriate renewable technology for the site. The land has never been developed there are no buildings or structures and there is no-one living or working within the site boundary. The land plots are not used for agriculture or forestry. No-one will lose their livelihood as a result of the development. This site is covered with scrub and grassland and there is some biodiversity value in these habitats. The ESIA concluded that the careful arrangement of the PV arrays on site will limit the impact on these habitats. The biodiversity management plan for the site will ensure that the wetland areas are excluded from the development and the value of the habitats outside the used areas will be managed to improve their biodiversity.

5 Meeting Serbian Regulations

To initiate the Project development process, the Municipality of Dimitrovgrad had to develop and adopt a Zoning Plan, or in Serbian, a "Plan of Detailed Regulation" (PDR) for the Project. This is a spatial Plan is based on the Conceptual Design of the Project and a Strategic Environmental Assessment of the Zoning Plan. The approval of the Zoning Plan includes consultation with a series of national and regional statutory bodies that provide their conditions for the development of the Project.

The permits for SPP developments (Location permit, Building permit, Operation permit, Energy Permit) are awarded by national authorities. The graphic shown in Figure 5-1 shows the complex links between spatial planning, and general project permitting. It is noted that there is no need to complete an EIA for SPP projects.

Figure 5-1 Links between Spatial Planning and Permitting



Once the Zoning Plan has been agreed, the Developer can start the procedure for acquiring the Location Conditions for the project; these Locations Conditions are essentially an environmental permit. The Location conditions ensure that the project can be connected to the existing infrastructure. The Location conditions are provided by the same statutory stakeholders involved in the development of the Zoning Plan.

To initiate the Project development (and the Serbian EIA process), the local authorities, in this case the Municipality of Dimitrovgrad had to develop and adopt a Zoning Plan that included a basic description of the project (the Conceptual design).

The approval of the Zoning Plan required consultation with a series of national and regional statutory bodies that provided their conditions under which a development was possible. The consultees highlighted potential conflicts with existing or planned infrastructure, required pre-construction investigations and studies and described technical and management measures that must be implemented as part of the project development.

At the same time as the development of the Zoning Plan, the maximum installed capacity of 300 MW was agreed with the TSO ('EMS'). The Zoning Plan for Brebex SPP was adopted in January 2024 and considered

the area of 625.5 hectares for development of the SPP. A subsequent Strategic Environmental Assessment (as required under Serbian regulation) was also approved by the Municipality of Dimitrovgrad in January 2024.

Once the Zoning Plan was agreed, the Developer was given the Location conditions in October 2024 (in practical terms a Location permit). The Location conditions confirmed the land plots allowed for the installation of the SPP. The total surface area proposed for installation of the solar panels is c. 305 hectares. By law, the land take for the panels must not exceed 80% of the total site area, i.e. c. 248 hectares of land is available for solar panels.

The Location conditions were provided by the same statutory stakeholders involved in the development of the Zoning Plan. The list of statutory bodies involved with the planning (including Zoning and Location permitting) is provided in Table 5-1.

Table 5-1 E&S Conditions in Permits

Permit	Date Obtained	E&S Conditions
Energy Permit	Phase I - March 2025 Phase II - February 2025	No E&S conditions are included in the Energy Permits.
Zoning Plan for the solar panel component	January 2024	The Zoning Plan defined the area of 625.5 hectares for development of the SPP. The maximum installed capacity of 300 MW was subsequently agreed with the TSO 'EMS'. **Design / Pre-Construction:** • Conduct a 12-month ecological survey of the Project area ('Specialist Ecological Study') to identify, map, and assess the potential adverse impacts on habitat types and habitats of protected species. • If the ecological survey confirms presence of common reed and protected and strictly protected species (autumn lady's-tresses (*Spiranthes spiralis*), pheasant's eye (*Adonis vernalis*), balkan lizard orchid (*Himantoglosssum calcaratum rumelicum*) in the areas indicated by the IfNC, exclude these areas from the Project site. • The land take by solar panels should not exceed 80% of the total site area. The distance between solar panel rows should be 6 m. The final solar panel layout has to include the limitations which will be identified by the ecological survey. • The solar panels should be mounted at a height that allows mowing and/or the passage of small and large livestock. Grazing and mowing should be considered as a measure for conservation of priority habitat types (dry carbonate meadows, true bulrush (*Scirpus lacustris*)) and to prevent succession in meadows and loss of native vegetation. • The SPP components should be designed in a manner to prevent congregation of birds or bats in them; lighting of the SPP structures must be minimised and directed towards the ground. • All installations must be grounded, secured and insulated to prevent or minimise animal electrocution and mortality. • Conduct geotechnical investigations to inform the design and prevent potential geotechnical or other degradation processes. **Construction:** • The construction activity should be undertaken outside the vegetative and reproductive periods (before 1st April and after 1st July). • Preserve and protect agricultural land and woodland (high vegetation and single trees), forest ecosystems, meadows, and pastures. • Levelling and ploughing of the site is not allowed, except in areas which will be identified by the 'Specialist Ecological Study' as areas where such activity would not contradict the objectives of conservation of natural values of the ecological network.

Permit	Date Obtained	E&S Conditions
		• Existing trees in the vicinity of the construction site must be protected from damage by the mechanisation, vehicles or stored material. • Existing tracks should be used as much as possible in order to avoid additional fragmentation of natural and semi-natural habitats. • Single rocks removed from the site during the construction should be stack in piles to provide natural shelters for reptiles and protect them from predators. • Implement the waste management in line with the regulation. • In case a pollution accident occurs, the works must be suspended and the competent authorities and institutions notified. • All degraded areas must be restored. • If potentially valuable geological or paleontological features are discovered during the excavation works (e.g. fossils, minerals, crystals), the Developer must immediately notify the national Ministry of Environment. **Operation:** • Collection, catching or killing of strictly protected or protected species at the SPP site is prohibited. • Use of chemical means for vegetation and pest control is forbidden. • If depleted or damaged solar panel is replaced, it must be disposed of to a place agreed with the competent utility service, outside of the SPP site, to prevent any adverse ecological or environmental impact.
Location Conditions for the solar panel component	October 2024	**Design/ Pre-Construction:** • The distance between solar panel rows must be sufficient to avoid complete shading of the ground. • The solar panels should be mounted at a height that allows mowing and/or the passage of small and large livestock. • To conserve priority habitat features and habitats of strictly protected species, all mitigation measures identified in the 'Specialist Ecological Study of the SPP 'Brebex' Area' page 108-127 must be implemented. • The SPP components should be installed in a manner to prevent congregation of birds or bats in them and consequential bird or bat injuries or fatalities. • All installations must be grounded, secured and insulated to prevent or minimise animal electrocution and mortality. **Construction:** • The construction activity must be limited during the reproductive and migration periods, in order to mitigate the potential adverse impacts on sensitive biological processes. • Levelling and ploughing of the site is not allowed, except along the designed roads and areas of low risk for biodiversity. • Existing trees in the vicinity of the construction site must be protected from damage by the mechanisation, vehicles or stored material. • Existing high vegetation, mature native trees, single trees and especially groups of trees must be preserved as much as possible. If this is not possible, tree felling must be reduced to minimum and approved by the forest management company 'Serbia Forests'. • The noise levels during the construction must not exceed the permitted occupational noise limits. • The construction compound should be minimised as much as practicable. The site vehicles movement areas should be minimised. • Servicing and maintenance of vehicles and mechanisation is prohibited at the construction site, in order to protect the soil, surface water and groundwater. Oil and fuel from equipment and vehicles

Permit	Date Obtained	E&S Conditions
		must not be discharged into the soil and watercourses. In case a pollution accident occurs, the works must be suspended and the competent authorities and institutions notified. • The construction waste should be properly disposed in interim dedicated areas. The interim disposal period should be as short as practicable, to prevent congregation of reptiles or other animals in these areas. • Domestic waste including the non-hazardous solid waste should be properly managed and disposed in interim dedicated areas prior to being delivered to a licensed contractor. • Existing tracks should be used as much as possible in order to avoid additional fragmentation of natural and semi-natural habitats. • Upon completion of the construction works, all structures and equipment must be removed, and the site must be completely restored. • Only native broad-leaved and grass plants should be used in restoration of degraded areas. Introduction of invasive or non-native species is prohibited. • Single rocks removed from the site during the construction should be stack in piles at the boundary of the SPP site. • Archaeological supervision must be conducted throughout the earthworks phase. • In case of chance finds, all work must be immediately halted and the area protected until the Institute for Cultural Heritage secures the findings. • If potentially valuable geological or paleontological features are discovered during the excavation works (e.g. fossils, minerals, crystals), the Developer must immediately notify the national Ministry of Environment. **Operation:** • Take all measures to prevent contamination and degradation of aquatic ecosystems within the SPP site. • Collection, catching or killing of strictly protected or protected species at the SPP site is prohibited. • Use of chemical means for vegetation and pest control is forbidden. • Lighting of the SPP structures must be minimised and directed towards the ground. • If depleted or damaged solar panel is replaced, it must be disposed of to a place agreed with the competent utility service, outside of the SPP site, to prevent any adverse ecological or environmental impact. **Decommissioning:** • In the case of the SPP decommissioning, all solar panels and associated structures and equipment must be removed, and the site must be completely restored.
Building Permit for the solar power component	Expected in June 2026	No E&S conditions are set by the Building Permit. The competent environmental authority did not require an EIA for the solar power component.
Water Permit for each component of the SPP (7 in total)	Upon completion of construction (expected mid 2026).	The Water Permits will set requirements related to wastewater management during the SPP operation.
Zoning Plan for the connection facilities (substation, underground connecting cable, ESF, and OHL)	October 2024	The Zoning Plan defined the area of 99 hectares for development of the SPP connection facilities. **Desing / Pre-Construction:** • As a nature conservation measure, especially in order to conserve the existing orchid habitats, implement mitigation measures identified in the 'Specialist Ecological Study of the SPP Brebex Connection

Permit	Date Obtained	E&S Conditions
		Corridor', page 77, section related to potential destruction and damage of wet meadows. • The underground cabling route should follow the existing road as much as possible. Where not possible, the route should blend into the surroundings. • The SPP connection facilities should be designed in a manner to prevent congregation of birds or bats in them; Lighting of the structures must be minimised and directed towards the ground. • All installations must be grounded, secured and insulated to prevent or minimise animal electrocution and mortality. **Construction:** • To conserve wet meadow ecosystems which are habitats of protected and strictly protected species, any works undertaken south of the dirt track (plot no. 2902) must not go beyond a 5m corridor of the dirt track. The dirt track bounds the site where the 33/400kV substation and 400kV switchyard are proposed. • To protect the ecological network, the following measures must be implemented: o Habitats of wild species present along the ecological corridor of the Zabrdska River must not be damaged or disturbed. o The morphological and hydrological features which determine the functionality of the ecological area must not be modified. o Any activity that may lead to introduction of invasive and non-native species into the ecological corridor is prohibited. o Implement active protection measures aimed to preserve and improve natural and semi-natural habitats in accordance with the local landscape and vegetation. o Measures to prevent, reduce, control, and remediate pollution in the ecological corridor must be implemented. • During the vegetative and reproductive periods (1st April to 1st July) any construction-related activity which may impact the habitats or species of nature conservation value (e.g. bird nests, burrows of ground mammals, habitats of rare or endangered species) which were not identified in the 'Specialist Ecological Study of the SPP 'Brebex' but will have been identified during the works – must be suspended and the Institute of Nature Conservation notified to decide on further actions. • Existing high vegetation, mature native trees, single trees and especially groups of trees must be preserved as much as possible. If this is not possible, tree felling must be reduced to minimum and approved by the forest management company 'Serbia Forests'. • Existing trees in the vicinity of the construction site must be protected from damage by the mechanisation, vehicles or stored material. • The topsoil (hummus) layer removed during the excavation works must be preserved and used in the post-construction phase for site restoration and landscaping. • Existing tracks should be used as much as possible in order to avoid additional fragmentation of natural and semi-natural habitats. • Implement the waste management in line with the regulations. • In case a pollution accident occurs, the works must be suspended and the competent authorities and institutions notified. • Archaeological supervision must be conducted throughout the earthworks phase. • In case of chance finds, all work must be immediately halted and the area protected until the Institute for Cultural Heritage secures the findings.

Permit	Date Obtained	E&S Conditions
		• If potentially valuable geological or paleontological features are discovered during the excavation works (e.g. fossils, minerals, crystals), the Developer must immediately notify the national Ministry of Environment. **Operation:** • Use of chemical means for vegetation and pest control is forbidden.
Location Conditions for the connection facilities (substation, underground connecting cable, ESF, OHL)	December 2024	**Design / Pre-construction:** • The OHL pylons should be designed in line with the Recommendation No. 110 (2004) on Minimising Adverse Effects of Above-ground Electricity Transmission Facilities (Power Lines) on Birds adopted by the Bern Convention on the Conservation of European Wildlife and Natural Habitats. This includes installation of appropriate insulators or additional protections (e.g. insulator covers) to protect birds from incidental contact. Electric conductors should be appropriately spaced to minimize the risk of short-circuit and electrocution of birds. • Habitats of conservation value recorded in the 'Specialist Ecological Study of the SPP Brebex Connection Corridor', at plot no. 2499 and part of plot no. 2449, should be fenced off and marked with tape prior to the construction. **Construction**: • If natural values such as bird nests, mounds of underground mammals, habitats of rare or endangered species are detected during the construction, the works must be temporarily halted and the Institute for Nature Protection of Serbia notified for action. • Existing bird nests on the OHL route must not be destroyed. If the nest must be removed, the IfNC must be notified and the removal carried out under the conditions set by the IfNC. • To preserve the ecologically important area "Stara planina" and the IBA "Stara planina" the following measures should be implemented: o Provide ecological corridors within the construction areas by creating the continuity of natural areas to support these corridors. o In areas where ecological corridors intersect the construction works, provide technical measures to prevent barrier effect and ensure wildlife crossings. o The OHL pylons must be secured from collapse; in case of conductor breakage, ensure automatic disconnection of the OHL; • Ensure the preservation of fringe habitats, hedges, boundaries, individual trees or groups of trees, as well as ecosystems with natural or semi-natural wood, scrub and meadow vegetation. • Only native, fast-growing species with a pronounced aesthetic value should be used for the site restoration and landscaping. Planting of non-native species is prohibited. **Operation**: • In case that bird nesting on the pylons is observed, the IfNC must be notified and any further action (e.g. installation of nesting platform) undertaken in cooperation with the IfNC. • To reduce the risk of collision, installation of bird diverters should be considered, if necessary.
Building Permit for the connection facilities	Expected in June 2025	No E&S conditions are set by the Building Permit. The competent environmental authority did not require an EIA for the ESF but an EIA (screening phase) was required for the 33/400kV substation, switchyard and the OHL.

6 Preparation of the ESIA

In line with Lender requirements, an ESIA Scoping Study was completed in August 2023. The purpose of the Scoping Study was to identify the environmental and social impacts and benefits of the Brebex SPP and to plan the completion of the ESIA.

The Scoping Study indicated that the development of the SPP could lead to a number of environmental and social impacts, both negative and positive. The ESIA considered each impact and proposed a series of design changes and control measures to mitigate the negative impacts. The ESIA was prepared in the second half of 2024 and issued in spring 2025.

6.1 Baseline Studies

A series of surveys and studies were planned to obtain the information that would be assessed during the ESIA. A summary of these surveys is provided in Table 6-1, below.

Table 6-1 ESIA Surveys

Key Issues for the ESIA	ESIA Surveys Undertaken
Ecology and Nature Conservation – Habitats and plant species of conservation concern	Extensive survey work was undertaken throughout one vegetation season. The surveys included: • Flora and Habitats Walkover Surveys, • Detailed Habitat Mapping of the SPP site area and OHL route, • Mapping of core site populations of plant species of conservation concern and estimation of their population abundance. The ESIA considered the significance of any impacts and appropriate mitigation has been developed to reduce any adverse impacts.
Ecology and Nature Conservation – Birds	Extensive survey work was undertaken over a full year and included: • Vantage Point Surveys, • Breeding Raptor Surveys (walkover, total count). • Breeding Nocturnal Species (Owls) Surveys (walkover, total count), • Breeding Common Bird Surveys (sampler points, Snapshot Method and Distance Sampling). The surveys considered the IBA species populations individually. Specific wintering bird surveys are not included as the Scoping Study indicated only negligible occurrence of wintering (and migrating) birds.
Landscape and Visual Impact	The landscape and visual assessment was based upon a desk study and field observations. A study area of 2.5km radius was used. Zone of Theoretical Visibility (ZTV) models was calculated using the ArcGIS software for a proposed solar PV layout: • The LVIA will examine the potential effects of the Project on the landscape and visual amenity of the Study Area; • Fieldwork will be undertaken to select the relevant viewpoints and take viewpoint photographs as a basis for visualisations; A range of visualisations (up to 5) was produced (photographs, photomontages and wirelines) using the WindPro software in accordance with Guidelines for Landscape and Visual Impact Assessment (GLVIA3 – UK Landscape Institute, 2013).
Construction Traffic and Transport Impact	The desk-based assessment of transport and traffic impacts followed the Guidelines for the Assessment of Road Traffic (UK IEMA, 1993) to: • Establish the baseline traffic conditions along the routes, • Estimate the traffic levels likely to be generated during the construction phase, • Conduct qualitative assessment of potential impacts, and • Propose control and mitigation measures. Based on the assessment, mitigation measures has been proposed.

Key Issues for the ESIA	ESIA Surveys Undertaken
Ecology and Nature Conservation – Fauna species of conservation concern other than birds	Only limited survey work was required over a one-year period to ensure that a sufficient impact assessment and mitigation strategy can be developed within the ESIA. Full compliance with PS6 NPC and relevant best practice and guidance (Bennun et al. 2021, NatureScot 2022) will be ensured. Fauna surveys included: • Desk studies, • Investigation of potential bat roosting sites, • Walkover Surveys (driven and walking transects, day and night). The ESIA considered the significance of any impacts and appropriate mitigation has been developed to reduce any adverse impacts.

It is noted that extensive surveys were not required for the remaining topics. The information required for these assessments was based on design data and information available in the public domain.

6.2 Findings of the Scoping Study

The Scoping Study established the key effects of the Project that should be considered during the ESIA, both positive and negative, and the level assessment required within the ESIA. The level of significance allocated to each impact has been broken-down into three categories that relate to the seriousness of the potential impact and the data or information required to undertake an appropriate assessment.

The links between impact significance attributed by the Scoping Study, the level of analysis required within the ESIA, and management controls to be established is shown in Figure 6-1.

Figure 6-1 Mitigation Hierarchy

Impact Significance	Level of Assessment	Level of Mitgation	Management Control
Level 1 Risk to project viability	In-depth surveys and analysis	Design change	ESMMP ESMS MPs
Level 2 Moderate or undefined	Data collection and indicative assessment	Design modification	ESMMP ESMS MPs
Level 3 Generic or well known	Application of GIIP		ESMMP ESMS MPs

The Scoping Study categorised the impacts of Brebex SPP as:

1. **Significance Level One Issues**: Requiring a detailed assessment of environmental and social issues which have the potential to create a major impact or could significantly risk the viability of the project. These detailed assessments usually require the completion of extensive survey work.
   - Ecology and Nature Conservation – potential impacts on habitats and plant species of conservation concern;
   - Ecology and Nature Conservation –potential impact on birds, including IBA populations.

It is noted that following the completion of the Scoping Study, Sage modified the Conceptual Design by increasing the grid supply capacity of the SPP from 200MW to 300MW and adding a 80MW Energy Storage Facility to the Project. This increase in capacity was achieved by the leasing additional land (from the State) and placing the ESF on land plots that were part of an area set aside for the sub-station and transmission yard. The designation of the Significance Level One Issues were not changed by this expansion and the main assessment was complete on the basis of the larger scheme.

2. **Significance Level Two Issues**: Requiring an indicative assessment of environmental and social issues which have the potential to create a moderate, or undefined levels of impact. These indicative assessments often require additional data collection or limited survey work to fill any gaps in the existing data set.
   - Landscape and Visual (including the transboundary impact);

- Socio-economic (including land acquisition and supply chain risks);
- Construction Traffic and Transport.

3. **Significance Level Three Issues**: Requiring limited assessment of environmental and social issues which are likely to create a limited negligible impact. These impacts are often readily mitigated and managed using well known techniques that will be described in the Project ESMS and the associated Management Plans.
   - Ecology and Nature Conservation – potential impacts on fauna species other than birds;
   - Noise during construction, operation and decommissioning
   - Glare and Glint;
   - Ecosystem Services;
   - Climate Change;
   - Environmental pollution;
   - Archaeology and Cultural Heritage;
   - Community Health, Safety and Security.

The Scoping Study confirmed that there are no Indigenous Peoples within the Area of Influence, and this topic has been screened out of the ESIA process.

The impact mitigations and management controls required by the ESIA are summarised in the Environmental and Social Management and Monitoring Plan, or "ESMMP", and will be delivered within the framework of the Project Environmental and Social Management System. The ESMMP is very detailed and is included in the main ESIA report.

7 Potential Benefits and Impact of the Brebex SPP

The Brebex SPP site has been leased from the Ministry of Agriculture, Forestry and Water Management with the specific intention of developing the SPP. The land has been used a barrier strip along the national border for many years and construction, agriculture or development was not permitted on the land. There are no residential properties within the boundary of the SPP site, either permanently occupied or weekend houses, and there will be no physical displacement of people or households will occur as a result of the Project. In addition, the land to be occupied by the SPP is not currently farmed and there will be no loss of livelihood as a result of the Project.

The primary purpose of the Brebex SPP is to reduce the national reliance on fossil fuels, in particular national coal resources and the import of natural gas. The Brebex SPP will generate about 473,400 MWh/per annum, providing enough electricity to power 99,000 homes; displacing about 585,600 tonnes of carbon dioxide during every year of its operation. This calculation is based on the NowTricity grid assessment for 2024.

In addition, the Brebex SPP will reduce the annual emissions from existing coal fired power plant by 24,600 tonnes of sulphur dioxide, 2,850 tonnes of oxides of nitrogen and 990 tonnes of fine dust.

7.1 Ecology and Nature Conservation

The ESIA has confirmed that main impact of the SPP will be on the ecological value of the development site. There will be a loss of these natural and semi-natural habitats because of the construction of the SPP, mainly in the area where the PV panels will be placed.

The ESIA identified a number of valuable natural habitats within the boundary of the Brebex SPP site. These habitats, such as the marshy areas, have been avoided entirely (about 20 ha) and the remaining "margins" of the site will be used to maintain and manage the scrub habitat. The SPP site is located within the boundary of the Gornji Visok and Vidlič IBA. Of the species that triggered the IBA designation, only Red-backed Shrike was recorded nesting within the Project area, and only individual flights of Short-toed Snake-eagle and Long-legged Buzzard were observed over the survey period. The total SPP site area constitutes a negligible part (0.31%) of the IBA, which is vast.

The ESIA surveys found that:

- The potential impact on 12 plant species of conservation concern (Green-winged Orchid, Bug Orchid, Bee Orchid, Burnt-tip Orchid, Pheasants Eye, Eastern Cornflower, Balkan Lizard Orchid, Autumn Lady's Tresses, Fragrant Orchid, Three-toothed Orchid, Lady Orchid and Golden Feather Grass). However, the removal and relocation of infrastructure away from sensitive plant species means that the impact overall is not significant.
- Five species of amphibian were recorded at the Lipinsko Pond. One of these, Buresch's Crested Newt is considered Vulnerable in Serbia. This species spends the terrestrial phase of its life cycle away from water in wooded areas. Impacts to this species are expected to be negligible as construction activities will only be undertaken away from the pond and areas of woodland.
- A single reptile species of conservation concern, Hermann's Tortoise (IUCN NT), was recorded. This species was found within areas of Oak woodland but as a wide-ranging species it has potential to occur in other parts of the Project area. As such there are potential for some local short-term impacts of minor significance.
- Seven bat species of conservation concern were recorded foraging and migrating over the site. A single roost, used by up to three individual Lesser Horseshoe bats, was found in a building adjacent to site. No roosts were found on site. Most of the bat foraging activity was recorded close to the Lipinsko Pond area of the site, away from areas being cleared for Project infrastructure. Impacts to bats resulting from construction of the SPP are expected to be negligible.
- The breeding birds that use the site are mainly small passerine species, with 45 species recorded breeding within the site boundaries. The Red-backed Shrike were found to be breeding at low densities across the site; a total of 45 pairs bred across the site. There are no bird migration or commuting routes in the site are.
- No terrestrial mammal species of conservation concern were identified during on site surveys.

The majority of the biodiversity impact will occur during construction. The ESIA considers that:

- The removal of lower quality scrub habitat will impact the Red-backed Shrike as this species has a preference for nesting in tall scrub and hedgerows.
- To ensure active nests are not disturbed or destroyed no clearance works will be undertaken during the Red-backed Shrike nesting period (March to July inclusive), or if within this period, any areas being cleared will first be checked by a suitably qualified ecologist. If active nests are present these will be protected to allow chicks to fledge.
- It is estimated that about 154ha (51% of the total Project area) of shrub habitat will be lost or degraded as a result of construction activities. Existing grassland habitats on the site will be largely maintained with only about 17ha impacted by the proposals. Significant improvements to other areas of grassland will be made as a result of works i.e., with the removal of poor-quality successional scrub from parts of the site containing more valuable grassland and also reverting grazed pasture to a more diverse and valuable grassland habitat. These actions will result in net increases in grassland habitats by approximately 109 ha.
- To mitigate for the removal of scrub habitat across the entire site, about 8 ha of grassland and arable land will be managed to allow succession to scrub habitat, and a minimum of 22 ha of existing scrub will be managed for Red Backed Shrike to allow the vegetation to grow taller and more dense. In addition to the above improvements, scrub cut during the site clearance works will be collected and piled into dense brash piles across the site (about 120 piles). These piles would be monitored and maintained for a minimum of 5 years while additional scrub establishes.
- The on-site conservation of forest habitat will ensure that there is no reduction in available habitat for Hermann's Tortoise over the lifespan of the Project. All clearance work in areas of suitable habitat will be completed at a time of year when tortoises are unlikely to be hibernating (March-November).

The construction of the Brebex SPPs will be carried out in phases, so only a portion of the site is expected to be exposed to disturbance at any time. Although the construction will cause localised and short-term disturbance, it is unlikely that disturbance/ displacement will take place beyond the relatively short construction period (about 14 months).

The ESIA considers that there will be negligible negative impact of operation on all valued flora and fauna species populations as:

- There are no direct impacts of SPP operation on designated sites.

- There are no bird migration or commuting routes in the site are. Therefore, any barrier effect can be excluded, and no impact is ascertained for all bird species populations.
- The majority of the bird populations using the habitats within the site for nesting and/ or foraging are unlikely to be susceptible to the disturbance that will be caused by maintenance since this will be infrequent and brief when required.
- Collision risk posed by solar panels is considered to be extremely low. All cabling between panels and between the solar site and grid connection will be buried meaning there are also no risks posed by OHLs. Based on this no negative impacts are anticipated because of collision with Project infrastructure throughout the operation of the SPP.
- Habitats on the site will be managed to ensure that there will be long-term improvements to Steppic Grassland over the whole Project area, as well as the inclusion of new areas and enhanced areas of scrub, and newly planted forest areas. These habitats will provide long term nesting and foraging opportunities for multiple bird species, including IBA citation species such as Red-backed shrike.

In summary, the ESIA concludes that:

- The creation of a biodiversity protection zone means that area of land available for the solar plant is about 273 ha (about 89% of the total area). Of this, about 150 ha will be covered with PV panels and electrical equipment. The remaining 123 ha includes the tracks that run between the panels, as well as land between the panels and the boundary fence. The high value biodiversity areas have been avoided and the design of the SPP has been changed as a consequence of the biodiversity assessment.
- The remaining habitats can be managed so that the impact of the Brebex SPP can be successfully mitigated and that No Net Loss can be demonstrated. The layout of the SPP was modified following the consideration of the impact on biodiversity.

7.2 Landscape and Visual

Development of the Brebex SPP would introduce solar PV modules, substation, switchyard, and ESF into a rural, pastoral landscape. The Project would result in a change to a gently rolling hills covered by grassland, meadow and woodland. The tranquil and largely undeveloped landscape and the sensitivity of the landscape at the site is assessed as medium.

The visual impact of the Project will be limited and most prominent within a distance of 500m of the site. At this distance there are no residential receptors, and the majority of people that might see the SPP may be recreational walkers or people working in the open areas. The impact on these individuals will be short-term and minor adverse. Beyond 500m, the visibility of the Project will be significantly reduced due to the landform and vegetation, the solar panels will be either barely perceptible or not visible at all.

As there are no residential areas with direct view of the development site, the short-term visual impact on local residents would be of a low magnitude, resulting in a minor adverse significance impact and negligible adverse significance for road users, visitors and workers in the open areas / farmers.

Landscape and visual mitigation measures during construction should include but not be limited to:

- All ground disturbances should be confined to the construction compound, access tracks, PV modules areas, substation compound, route for underground cables and OHL pylons.
- Existing vegetation should be suitably protected; land clearance/ vegetation removal should be minimised.
- The areas disturbed during the construction should be successively restored and reinstated.

Once completed, the Project would lead to a partial loss of the landscape elements (grassland, meadow, woodland) and long-term introduction of features uncharacteristic for the local landscape. However, the key landscape elements are common and widely available within the existing landscape of Zabrđe Limestone Valley. The Project will impact only a small part of this landscape. The magnitude of impact is assessed as minor. For the medium-sensitive landscape, the resulting impact significance is minor adverse and not significant.

7.3 Socio-economic

The land to be occupied by the Brebex SPP has been in the long-term ownership of the Serbian state has been used a barrier strip along the national border. As a consequence, agriculture or development was not permitted on the land. There are no residential properties within the boundary of the SPP site, either permanently occupied or weekend houses, and there will be no physical displacement of people or households will occur as a result of the Project. In addition, the land to be occupied by the SPP is not currently farmed and there will be no loss of livelihood as a result of the Project.

Although the project requires the use of a significant area of land, as is the case with all SPP projects, the Developer has secured use of approx. 305ha of public land and 7ha of privately owned land (securing an additional 6ha of public land is in process at the time of developing this document). The public land is not in use in any way and of the acquired privately owned land, an estimated 1.3ha of land were used for agriculture. All privately owned land, including these 1.3ha has been acquired through a voluntary process and has been compensated above full replacement cost, with no impacts on livelihoods.

The project will create minor employment and procurement opportunities, in the short term, during construction as well as in the decommissioning phase and any benefits will be felt by a limited number of local people and their households, not communities as a whole or the municipality. Positive and negative impacts on community infrastructure are also not expected, including any significant impacts on local roads. Nevertheless, some good practice measures will be employed for all impacts to ensure that the negative ones do not escalate and that the positive ones are enhanced to the extent possible.

The most significant, moderately beneficial socio economic impact of the project, during operation, is the increase in the local budget stemming from the lease of public land needed for the project, which will continue for a period of 30 years. The budgetary income at the municipal level accounts for 1.5% of the current municipal budget, which is not insignificant and will enable the municipality to make important investments and will improve the delivery of certain services to citizens, enhancing their quality of life.

7.4 Supply Chain Risk

The PV panels, inverters, and the PV array transformers are expected to be sourced from China. The Chinese suppliers will not send any workers to site to install any of the equipment that they provide. However, the use of a Chinese supply chain introduces the potential for labour violations to occur. This includes, for example, poor working conditions, a lack of written worker contracts being used, low-levels of occupational health and safety, child labour, forced labour and other forms of labour-related exploitation.

At the time of writing, it is likely that the PV panels will be supplied by Hanersun, and the inverters from Goodwe. Neither company is based in Xinjiang province. Hanersun is headquartered in Nanjing province and GoodWe is located in the Suzhou New District in Jiangsu province.

The Hanersun website includes the statement that they will: Make affordable solar power within reach and create a better life for customers, employees and society. However, the website does not describe how they intend to deliver this mission. There are no references to ESG or Sustainability reports on the website and an internet search has not found a link to any such reports. Fundamentally, it is not known if the minerals used in their PV panels are sourced from mines in Xinjiang.

In contrast, GoodWe signed up to the SDG goals and they have produced an annual ESG report since 2021. Their intention to comply with the SDG goals appears to be genuine.

Brebex doo do not have the ability to manage the E&S activities of their Chinese suppliers as they have no direct control over them. However, the Brebex procurement team have developed a questionnaire to prospective suppliers to assess employment conditions and the general labour risk. The questionnaire will require the potential suppliers to submit documentary evidence to support any statements on E&S performance that they make. The questionnaire will include a position statement that sets out Brebex doo's policy that forced, and child labour is unacceptable, in the hope that Brebex doo can positively influence the potential suppliers.

It is recommended that the supplier questionnaire to Hanersun includes a request that the company confirm if the Xinjiang region is the source of raw material or major components that are to be used by the Project. The supplier questionnaire should also be sent to GoodWe to obtain their signed commitment to the Brebex ESHS and employment policies.

7.5 Traffic and Transport

The transport of construction materials and SPP components for the Brebex SPP would contribute to a significant increase (more than 90%) in local HGVs movements during the construction period. The roads most effected would be the 7km-long route between Dimitrovgrad and the solar PV area and 24km-long route between Dimitrovgrad and the connection facilities site. These routes pass through 3 small, local communities that have a total of about 145 residents. The potential impact on traffic and transportation would be temporary and short-term, with minor adverse significance impact on severance and driver delay in summer and negligible adverse significance impact in other seasons. The impact on pedestrian delay and amenity would be negligible adverse.

The transport of abnormal loads (two power transformers) is a one-off short-term activity of a low magnitude and a negligible adverse significance impact.

A Construction Traffic Management Plan should be developed in consultation with Roads of Serbia, Traffic Police Department in Dimitrovgrad and the local municipality of Dimitrovgrad. The plan should include but not be limited to:

- Proposed route for delivery of the power transformers;
- proposed routes for other construction traffic;
- arrangements and timing restrictions for construction traffic;
- procedure on advance notification of local communities on the power transformers delivery;
- route signing and public warning;
- on-site traffic arrangements, monitoring and repair of tracks, parking areas;
- procedure for regular road cleaning and maintenance including wheel cleaning, road sweeping in the vicinity of the site access point, etc..

Increase of traffic flows of heavy vehicles would add to the risk of road wear and tear. No significant residual impacts are anticipated during the construction transport for the project.

7.6 Stakeholder Engagement Plan

An initial Stakeholder Engagement Plan (“SEP”) was prepared at the same time as the Scoping Study. The purpose of the initial SEP was to identify, and then guide the consultation, with project stakeholders. The key stakeholders were invited to contribute their views on the project and to provide any information that they considered would be important in the preparation of the ESIA.

The Brebex SPP SEP includes the following information:

- public consultation and information disclosure requirements according to national legislation and international requirements;
- identification of stakeholders and other affected parties;
- overview of previous engagement activities carried out for the project;
- future stakeholder engagement programme including methods of engagement and resources; and
- a grievance mechanism that can be used by stakeholders to record and manage complaints, concerns, queries and comments.

The SEP is a “living document” and will be reviewed and updated throughout the construction and operation of the solar power plant. A project website has been created (www.brebex.rs) where the SEP is available for review, while further information can be obtained from Marija Senić Andrić by email to marija.senic@sagesolutions.rs.

All stakeholders are invited to read, and comments upon the SEP if they wish. Reports from various stakeholder engagement activities will also be available on the project website.

At the end of each year, an appendix will be added to the SEP which describes the stakeholder events that were held, comments made by the attendees, and a summary of any grievances raised during the year.

In preparing the SEP, the Developer, with assistance from the consultants, identified that the key stakeholders are the residents of the municipality Dimitrovgrad, in particular the villages surrounding the project site, Bačevo and Brebevnica, as well as the villages which are located along the road which will be used for a part of

construction related transport (Radejna, Smilovci and Protopopinci. In addition, stakeholders included any people that may have been affected by land acquisition, an active hunting association, representatives of relevant municipal departments and institutions, as well as other statutory stakeholders.

Document End