



Appraisal Environmental and Social Review Summary

Appraisal Stage

(ESRS Appraisal Stage)

Date Prepared/Updated: 10/23/2023 | Report No: ESRSA03081



I. BASIC INFORMATION

A. Basic Operation Data

Operation ID	Product	Operation Acronym	Approval Fiscal Year
P181434	Guarantee	USRES	2024
Operation Name	Uzbekistan Solar and Renewable Energy Storage		
Country/Region Code	Beneficiary country/countries (borrower, recipient)	Region	Practice Area (Lead)
Uzbekistan	Uzbekistan	Europe and Central Asia	Energy and Extractives
Borrower(s)	Implementing Agency(ies)	Estimated Appraisal Date	Estimated Board Date
Republic of Uzbekistan	Ministry of Economy and Finance	27-Nov-2023	03-Jan-2024
Estimated Decision Review Date	Total Project Cost		
02-Nov-2023	12,000,000.00		

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Proposed Development Objective

PDO is to increase private sector led renewable energy supply in Uzbekistan.

Financing (in USD Million)

Financing Source	Amount
Total Project Cost	316.00
Equity financing	119.00
USD-denominated Long-Term Debt	197.00
IDA Guarantee	12.00

B. Is the operation being prepared in a Situation of Urgent Need of Assistance or Capacity Constraints, as per Bank IPF Policy, para. 12?

No

C. Summary Description of Proposed Project Activities



1. In 2019, the Government of Uzbekistan (GoU) approved the Strategy for Uzbekistan’s Transition to a Green Economy for 2019-2030. The Strategy aims to decarbonize the Uzbekistan economy through (i) a reduction of emissions of GHG per unit of GDP by 10 percent of the 2010 level; (ii) a twofold increase in energy efficiency indicators and a decrease in the carbon intensity of GDP; (iii) further development of renewable energy sources, with coverage of more than 25 percent of the total volume of electricity generation; and (iv) increase of the energy efficiency of industrial enterprises by at least 20 percent. In 2021, Uzbekistan strengthened its ambition through updated Nationally Determined Contribution (NDC) to reduce CO2 emissions per unit of GDP by 35 percent below 2010 levels by 2030.
2. The USRES Project will be supported by an IBRD payment guarantee and comprises one hybrid power plant containing solar PV plant (250 MW) with BESS component of (63MW/126 MWh). A Special Purpose Vehicle namely Bukhara Solar IPP, incorporated by the sponsor in Uzbekistan, will develop the hybrid power plant. The power plant site covers 645-hectares (ha) in Alat District of the Bukhara region. In addition to providing RE generation, the Bukhara Solar IPP will be a first-of-its-kind project to solve the intermittency issues resulting from renewable integration by coupling the 250 MW solar PV plant with 63 MW/126 MWh of BESS. The RE generation over 25 years is expected to be on average 606 GWh/year (250MWac/290MWp, with 25.2% capacity factor), while BESS operation is expected to be up to 600 cycles per year and will provide necessary ancillary services and time shifting of generation given the increasing share of intermittent renewables on the grid. The Project is expected to avoid 68.3 thousand tons GHG emissions per year on average during its lifetime. IFC Transaction Advisory assisted the GoU with the due diligence process, transaction structure and tendering processes. The commercial close for the project was completed in April 2023 with an expected financial close date of January 2024. The private developer Masdar won the bid with a tariff of US\$3.044 per kWh for the Solar PV and USD16.555 per MW per hourly availability for BESS under a 25-year PPA term with a 10-year operating term for the BESS under the same PPA.
3. The amount of equity to be provided to the Bukhara Solar IPP Project Company (Project Company) by Masdar is expected to be approximately US\$119 million in total. A total debt financing package of US\$197 million is expected to be provided by DFIs and bilaterals including IFC, ADB and FMO. The provision of the up to US\$ 12 mln WB-guaranteed LC (sized based on peak 3 month revenues of the Solar PV and BESS component) is a condition precedent to the disbursement of the debt. The table below reflects indicative project costs, financing structure, and the IBRD guarantee for the Project.

Project Location:

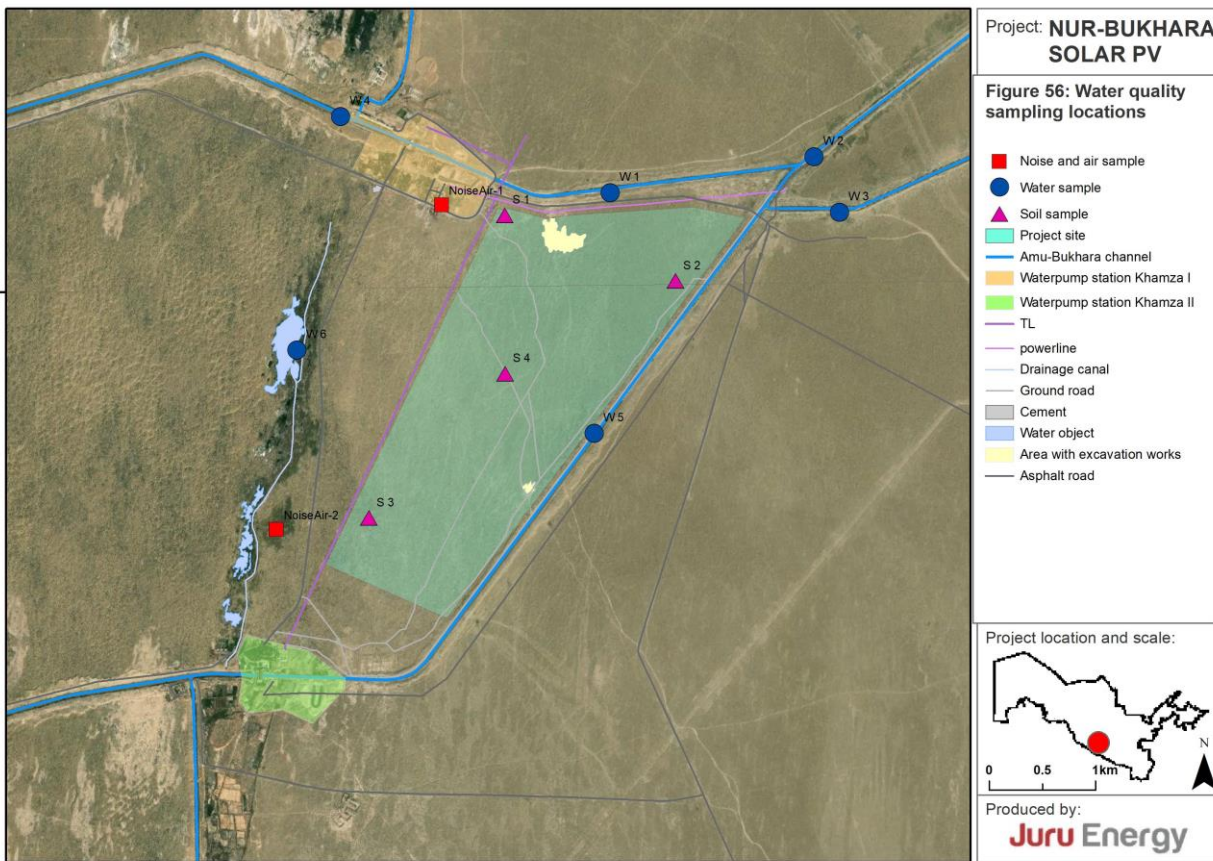
4. The project will be in the Bukhara region, located 24 km southeast of the town of Alat, close to the border with Turkmenistan, which at the closest point lies around 25 km southeast of the Site. The proposed Site is flat and is surrounded by the Amu-Bukhara canal to the north, south, and east. The location of the Project is illustrated in the figure below: The project site covers approximately 691 ha of land in the Alat district.
5. The selected site has not been identified as an area of critical natural habitat and or sensitive to biodiversity. Some agricultural lands are used for agricultural production in the vicinity of the Bukhara site; however, no significant terrestrial biodiversity or cultural heritage features have been identified on-site or nearby. The Bukhara site ESIA does not identify a significant negative impact in the selected project area.
6. The mobilization phase and construction activities are likely to cause moderate environmental and social impacts.

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During the construction works, several types of environmental and social impacts may occur during the project implementation phase, such as (a) increased environmental pollution from waste; (b) noise propagation; (c) air pollution from dust and combustion residues; d) increased pollution of groundwater and surface water resulting from inappropriate handling of machinery oil and chemicals; (e) soil degradation and contamination; (f) risk of surface water contamination for machinery cooling purposes, (h) damage to human health resulting from improper handling of heavy equipment during construction activities; (g) temporary restrictions on access to private and public assets (land, commercial facilities, roads, markets, trees etc.); (h) land take necessitated by construction activities. Social risks are related to labor conditions, supply chain issues, economic displacement/livelihood restoration and community concerns about the landscape. These impacts will be mitigated by the application of an environmental and social action plan (ESAP).

Figure 1: General Project Location Nur-Bukhara



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D. Environmental and Social Overview

D.1 Overview of Environmental and Social Project Settings

The Project’s environmental and social risk is assessed as Category B in accordance with the World Bank’s Operational Policy on Performance Standards for Private Sector Activities (OP 4.03). As this is a guarantee, the project will apply the World Bank’s Performance Standards (PSs), including relevant WBG Environment, Health, and Safety (EHS) Guidelines, to all the activities implemented by the Borrower. The project activities have the potential to cause limited adverse E&S



impacts that are few, site specific, largely reversible and readily addressed through existing mitigation measures and good international industry practices (GIIP).

D.2 Overview of Borrower’s Institutional Capacity for Managing Environmental and Social Risks and Impacts

1. **Bukhara Solar PV Plant and BESS Site.** IFC has conducted the due diligence and review of the Environmental and Social Impact Assessment (ESIA) and other E&S instruments. The World Bank has also reviewed the instruments, concurs with IFC’s review and due diligence and will conduct joint supervision and monitoring of the project with IFC. IFC’s appraisal of this proposed investment consisted of a review of available environmental, social and health and safety (E&S) documents, as well as the company’s responses to an E&S questionnaire. Documentation reviewed included: Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plans (ESMPs), Stakeholder Engagement Plan (SEP) including the project grievance mechanism, Livelihood Restoration Plan (LRP), Human Rights Impact Assessment (HRIA), Critical Habit Assessment (CHA), Climate Change Risk Assessment (CCRA), Biodiversity Management Plan (BMP). The project’s existing ESHS policies, procedures, and management plans were also reviewed.
2. Further, IFC (jointly with other potential lenders) engaged a Lender’s Environmental and Social Advisor (LESA) to conduct an Environmental and Social Due Diligence (ESDD) of the project. The ESDD included a two-day site visit completed in July 2023, consultations with public stakeholders and Project Affected Persons (PAPs), technical review of project ESIA and associated deliverables, and assessment of Masdar’s corporate environmental and social (E&S) capacity. Identified supplementary actions needed to bring the project in line with IFC E&S requirements have been agreed upon in the ESAP, which is disclosed along with this ESRS. The E&S instruments were disclosed at IFC’s website on October 10, 2023 ; they were disclosed in-country by Masdar in August 2023. The World Bank disclosed the ESIA, SEP and LRP at its website in November 2023.
3. Contextual risk screening was conducted, including utilizing a gender risk assessment tool to screen the project for gender-related risks, and a high-level contextual risk screening conducted at the country level. Contextual risks identified, that could be pertinent to this type of project and location, included water stress/shortages exacerbated by climate change, as well, as labor and working conditions-related risks in the PV panel and BESS supply chains, such as forced labor and child labor.
4. As Masdar is an existing IFC client, IFC’s appraisal also considered their ESHS performance on existing investments under supervision (links to project disclosures below). Other than one project, current ESHS performance of existing investments under supervision is deemed satisfactory. Existing Masdar projects in IFC portfolio include:
 - a. <https://disclosures.ifc.org/project-detail/ESRS/44364/zarafshon-wind>
 - b. <https://disclosures.ifc.org/project-detail/ESRS/42525/navoi-scaling-solar>
 - c. <https://disclosures.ifc.org/project-detail/ESRS/39339/masdar-jordan>



- d. <https://disclosures.ifc.org/project-detail/ESRS/33839/dolovo-wind>
 - e. <https://disclosures.ifc.org/project-detail/ESRS/31627/tafila-wind>
5. Masdar is an existing IFC client with five projects currently under supervision. Masdar's E&S performance is presently considered satisfactory (ESRR2) for all projects in the portfolio.

II. SUMMARY OF ENVIRONMENTAL AND SOCIAL (ES) RISKS AND IMPACTS

A. Environmental and Social Risk Classification (ESRC)

Moderate

A.1 Environmental Risk Rating

Moderate

The project activities have the potential to cause limited adverse E&S impacts that are few, site specific, largely reversible and readily addressed through existing mitigation measures and good international industry practices (GIIP).

(i) Lack of a Project Environmental and Social Management System (ESMS): Masdar has a corporate ESMS but has yet to establish a project-level ESMS. Also, the EPC contractor does not yet have a project-specific ESMS developed for the project. Prior to the commencement of construction activities, Masdar and the EPC need to develop and implement an ESMS appropriate for the scale & complexity of the project, per the general requirements of PS1.

(ii) Project Organizational Capacity: Masdar's and the EPC contractor's E&S staff have not yet been appointed for the project. Masdar has committed to employing a site-based Environmental Health and Safety (EHS) Manager as well as a Community Liaison Officer (CLO). Also, the EPC Contractor has committed to employ a competent Health, Safety, Social, and Environment (HSSE) manager, an HSSE deputy manager, a CLO, as well as an E&S advisor with experience working with international lenders.

(iii) Contractor Management. For project construction, the EPC contractor will hire multiple sub-contractors including local ones with limited E&S capacity and understanding of local and international E&S standards such as the PSs. The company and the EPC will develop, as part of their ESMS, a Subcontractors and Suppliers Management Plan defining their approach to managing the EHS performance of their contractors, subcontractors, and other third parties during the various phases of the project. The company will also include legally binding obligations in the EPC contract (and subcontractor contracts) to ensure compliance with the requirements of all relevant E&S plans contained within the project ESIA and ESMP, project ESMS, the PSs, and national regulations. The EPC will do the same on legal contracts for its sub-contractors.

A.2 Social Risk Rating

Moderate

The project does not have significant social risks or impacts. Key issues are:

(i) Labor Conditions: Contextual risk screening performed during appraisal identified labor and working conditions as significant. Masdar will closely monitor compliance against the requirements defined within their human resources procedures and will implement corrective measures when needed. Additionally, Masdar will hire a suitably qualified

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and experienced independent consultant, to undertake a labor audit during the construction phase of the project to assess contractor and sub-contractor adherence to local labor laws and PS2 requirements.

(ii) Supply Chain: Masdar has shortlisted Astronergy (Chint Group) and Longi as the Solar PV Suppliers for the projects. For both these suppliers, some manufacturing facilities are located in China. Some Chinese provinces, (particularly Xinjiang) have received media attention due to allegations concerning the use of forced labor. The BESS component will be sourced directly by the EPC contractor. Masdar will maintain and implement the Company's supply chain management system to identify, manage, and remediate supply chain risks associated with forced labor, as well as any other significant environmental and human rights risks and impacts. IFC's E&S due diligence of Masdar's supply chain concluded that the company is complying with PS2 requirements. Masdar requires its tier 1 and tier 2 suppliers to comply with its Business Partner Code of Conduct which prohibits the use of child labor and forced labor and requires them to comply with all applicable occupational health and safety laws and regulations. Masdar has provided due diligence documents for its shortlisted Solar PV Suppliers - Astronergy (Chint Group) and Longi assuring that their solar PV modules are not produced with forced labor. For equipment and supplies that will be procured by the EPC, Masdar requires the implementation of a Subcontractor and Supplier Management Plan which will be prepared as part of the Construction ESMS. This plan requires the screening of suppliers, maintaining supporting documentation, and compliance with the Code of Conduct. Masdar's internal audit team will review documentation related to EPC's due diligence regarding their suppliers.

(iii) Livelihood Restoration: The project Bukhara project site area has no permanent users, and it is only used as an alternative grazing site during the spring months. No physical displacement impacts will result from the project activities, but a portion of land was formally leased for a short period (ten months) by a herder and his partner, who will be impacted by project development. The other land users expected to be affected by project development are the seven households from the Kirilishon community who informally use this land to graze their livestock during the spring months. Masdar has developed a comprehensive livelihood restoration plan (LRP) to address adverse impacts and losses related to the decrease in available farmland areas. The LRP has been disclosed to the project-impacted people, and a thorough engagement process was undertaken. To ensure the successful implementation of the LRP, Masdar will monitor its implementation, providing bi-annual monitoring reports to the lenders during the construction phase and annual reports during operations. Additionally, Masdar will engage a third-party consultant within one year after the completion of LRP activities to undertake an independent completion audit to assess if all the LRP provisions have been met and LRP mitigation measures implemented.

B. Performance Standards that Apply to the Activities Being Considered

B.1 Relevance of Performance Standards

PS 1: Assessment and Management of Environmental and Social Risks and Impacts

Relevant

The E&S disclosure package shared with this E&S review summary comprises a project focused Environmental and Social Impact Assessment (ESIA) and Non-Technical Summary (NTS), Environment and Social Management Plan (ESMP), Stakeholder Engagement Plan (SEP), Livelihood Restoration Plan (LRP), Critical Habitat Assessment (CHA), Climate Change Risk Assessment (CCRA), a Human Rights Impact Assessment (HRIA), Biodiversity Management Plan (BMP). The E&S disclosure documents have been completed in accordance with IFC PS and are fit-for-purpose for a solar project of this scale and character, i.e. covering all relevant E&S risks and impacts at an appropriate level of detail. The ESIA and relevant documents are being disclosed with this ESRS. The Project has received the first two stages of approval of the



national EIA for construction and will obtain the final approval for operation from relevant regulatory authority (as per ESAP#1) as well as all relevant E&S permits required under local law.

Masdar has a corporate Environmental & Social Management System (ESMS). Masdar’s corporate management system is ISO certified (14001, 6001, 45001) with current certification valid until May 2025. A project ESMP has been prepared, as part of the ESIA which outlines key mitigation measures and processes that will be implemented during the project construction and operations phases to meet national and IFC E&S requirements including the WBG EHS Guidelines. The company has also developed a draft overarching project Construction Environmental & Social Management System (cESMS) for the project. As per ESAP#2, the company will finalize a project construction Environmental & Social Management System (cESMS) for the project company and EPC, appropriate for the scale and specificities of the project, per the general requirements of IFC PS1 and consistent with the ESIA and ESMP. The final cESMS will include an overarching E&S policy defining the project company’s and EPC’s E&S objectives and principles and incorporates relevant policies, procedures, and plans including site-specific construction management plans. These plans will be approved by the company and lenders, prior to their implementation by the EPC contractor. The cESMS will also include EHS monitoring requirements for construction such as monitoring frequency, performance indicators and targets. Contractors/sub-contractors will be contractually bound to follow applicable project E&S requirements, including those requirements within the project ESIA, IFC PS and WBG EHS Guidelines. The company will have the systems and capacity to supervise the EPC contractor's performance while the EPC will do the same on its subcontractor's performance.

The bulk of the project workforce will consist of contractor and sub-contractor workers. As part of its corporate ESMS, Masdar has developed a Consultants’ & Contractors’ Management Procedure to outline a systematic approach in the tendering, selection, management, commissioning, and demobilization of contractors. The objective of this procedure is to minimize the QHSE risks to employees, contractors, visitors, local communities, and the environment from the work activities of contractors. The company has developed a draft “Subcontractor and Supplier Management Plan” for the project defining their approach to managing the ESHS performance of their contractors and subcontractors during the various project phases. As per ESAP#3a, this Plan will be finalized by the EPC and will be consistent with the general principles described within IFC’s Good Practice Note: Managing Contractors' Environmental and Social Performance. During the construction phase, the company will conduct monthly monitoring to assess adherence to local labor laws, PS requirements, and project labor and working condition commitments (ESAP#3b). The company will include legally binding obligations in the EPC contract (and subcontractor contracts) to ensure compliance with the requirements of all relevant ESHS management plans contained within the cESMS as well as national and IFC PS requirements (ESAP#3c). The EPC will do the same for its sub-contractors (ESAP#3d).

Before commercial operations, as per ESAP#4, the company will develop and implement an Operations Environment & Social Management System (oESMS) acceptable to IFC and consistent with the project ESIA, IFC PS, and national requirements. The oESMS will address all relevant E&S risks including, at a minimum, pollution prevention; water management; hazardous materials; waste management; emergency response; community health; safety & security; biodiversity management; environmental monitoring; stakeholder engagement (including grievance management).

Masdar has a corporate E&S Manager and E&S Experts at the corporate level, but project-specific and site-based staff are in the process of being hired. The EPC contractor has yet to hire relevant E&S staff members. Stakeholder engagement has been carried out by the ESIA consultant. The company will ensure that sufficient staff and contractor resources are allocated to manage the project’s E&S performance at all times. As per ESAP#5 a) the company shall appoint the following qualified E&S related personnel for the project: i) E&S Manager (site-based) who has overall responsibility for environmental, social and health and safety management, compliance and implementation of the cESMS ii) Community Liaison Officer (site-based). 5b) Company shall require EPC contractor to appoint and retain appropriate counterparts to its E&S staff including: i) competent and qualified Health, Social, Safety, and Environment



(HSSE) manager and ii) deputy HSSE manager iii) qualified CLO and iv) HSE Officers - the EPC Contractor shall ensure that there is at least one dedicated competent safety professional at a ratio of one (1) for every forty (40) personnel at the site; v) support from an ecologist to implement the BMP; vi) international and local E&S advisor who can support the development of the cESMS; 5c) the Project Management Company (PMC) shall appoint a HSSE Manager for the construction phase. There will also be a Lenders Environment and Social Advisor (LESA) engaged to monitor construction and operations ESMS implementation and make recommendations to the Lenders on any corrective measures needed.

Masdar has developed a robust Supply Chain Management System (SCMS) to identify, manage and remediate supply chain risks associated with labor exploitation, as well as any other significant environmental and human rights risks and impacts. Masdar is familiarized with labor risks (forced labor and child labor) associated with PV solar panel supply chains from previous projects including with the IFC. The SCMS includes a responsible sourcing policy; mapping and risk assessment of PV solar panel suppliers; specific measures to be implemented in case the mapping reveals potential exposure to forced labor; inclusion of appropriate clauses in procurement notices and contracts with EPC contractors and suppliers on labor risks and management thereof. Records are monitored and audited by Masdar’s Clean Energy E&S team. Per contract, Masdar is entitled to change PV solar suppliers if issues are found and left unresolved. As per ESAP#6, the company will maintain and implement Masdar’s supply chain management system to identify, manage and remediate supply chain risks associated with forced labor, as well as any other significant environmental and human rights risks and impacts. For equipment and supplies which will be procured by the EPC, the company requires implementation of Subcontractor and Supplier Management Plan which will be prepared as part of the Construction Environmental and Social Management System (cESMS). This plan requires the screening of suppliers, maintaining supporting documentation (E&S Questionnaire, Supplier Checklist, and Screening Register) and compliance with the Code of Conduct. Masdar internal audit team will review documentation related to EPC’s due diligence regarding their suppliers.

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PS 2: Labor and Working Conditions

Relevant

During construction, the number of workers at the site will vary according to the activities that are being undertaken. The EPC is expected to hire the construction workers (some through sub-contractors) which will number up to 600 at the peak of construction. This construction workforce will consist of approximately 60% local and 40% foreign workers. During project operations, the O&M Contractor’s (MSTS) direct workforce will be up to 25 people. Masdar has developed several policies defining its commitment to adhere to international labor laws and regulations at a corporate level. At a project level, the company has developed a draft HR Policy. As per ESAP#7a, the company will finalize this human resources (HR) policy and associated plans/procedures according to IFC PS2, International Labor Organization (ILO) requirements, and local labor codes. The policy/procedures will define the company's commitments with respect to labor and working conditions, maximizing local employment, equal opportunities and non-discrimination, anti-sexual harassment and gender-based violence, prohibition of child and forced labor, whistleblower protection, freedom of association, and collective bargaining. As per ESAP #7b, the company will engage dedicated local HR resources to support the implementation of the project’s HR policies and procedures and the internal grievance resolution mechanism. The dedicated in-country HR resources will be supported by the company’s Corporate HR team. In addition, as per ESAP#7c, the company will finalize an enforceable code of conduct (CoC), which will include measures for preventing Gender Based Violence and Harassment. This CoC will be applicable to all workers, including contracted workers and site workers and also apply to worker conduct within project worker accommodation facilities. All project workers will receive regular training relating to the project's human resources policy, including mandatory training on the Worker CoC. The company will ensure that the HR Policy, as well the



grievance forms, contracts, and other worker-related policies and forms are translated into the language(s) spoken by the workforce (including contracted workers) and shared with all employees. In addition, EPC will finalize a Labor and Working Conditions Management Plan (LWCMP) as part of the Construction cESMS (ESAP#2) while the O&M Contractor will develop one for the operations phase (ESAP#4) aligned with IFC PS2.

The draft cESMS Labor and Working Conditions Management Plan includes the establishment and implementation of a worker's grievance mechanism (WGM) aligned with IFC PS2, the implementation of which will be led by the EPC. The project WGM will be finalized and made available to all project workers, including contracted workers. The project E&S staff will disseminate information about its use to the workforce (in a language the workers understand). The WGM will include specific considerations related to the gender-based violence and sexual harassment (GBV/SEA/SH) grievances, as well as an option to file anonymous complaints (ESAP#8).

The company will closely monitor compliance to ensure the EPC and its subcontractors' adherence to local labor laws, lender requirements, company policies, and project construction management plans. The PMC shall appoint an HSSE Manager for the construction phase who will be responsible for overseeing that occupational health and safety aspects are satisfactorily being managed by the EPC. Appropriate corrective measures will be implemented when non-conformances are identified. An independent Lenders Environmental and Social Advisor (LESA) has been engaged during the construction and early operations phases to monitor ESMS implementation. Additionally, the company will hire a suitably qualified and experienced independent consultant to undertake a labor audit during construction phase to assess contractor and sub-contractor adherence to local labor laws and lender requirements (ESAP#9).

There will be some migrant workforce who will be housed in an accommodation camp to be constructed on site (with 250 person capacity), as well as in rented accommodations in the nearby villages. As outlined in the project ESIA, the cESMS and in the EPC contract (as a mandatory requirement), the accommodation facilities will be compliant with the applicable standards, including the Guidance Note by IFC and EBRD on Worker's Accommodation: Processes and Standards (2009). A draft Workers Accommodation Management Plan has been developed by the company which will be finalized by the EPC as part of the construction management plans (ESAP#2), and will include specifications for the design and management of worker accommodation. The EPC and contractors shall comply with this plan when housing their workforce. Furthermore, as per ESAP#10, the company will conduct an audit of the project-provided worker accommodation facilities before occupancy to assess the accommodation facilities' compliance with lender requirements, and internationally recognized life & fire safety standards. All material non-compliances identified will be addressed before the use of accommodation facilities.

As mentioned under PS1, Masdar has a corporate Occupational Health and Safety Management System (OHS MS) accredited with ISO 45001. The company has developed a draft OHS management plan for the project. The EPC and O&M contractors will finalize and implement site-specific occupational health and safety (OHS) management system, including plans and procedures of a scale appropriate to their scope of work (ESAP #11). The requirements defined within these documents will apply to all project workers, including sub-contractors. All workers will complete basic OHS training, and supervisory staff and employees undertaking high-risk activities will complete specific OHS training.

PS3: Resources Efficiency and Pollution Prevention

Relevant

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The project is estimated to generate 589 GWh/ year, with greenhouse gas emission reductions of 328,638 tCO₂ equivalent per year using a grid emission factor of 0.558 tCO₂e/MWh.

For the project, water will be sourced offsite from locally permitted water suppliers, or from municipal water sources, and delivered to site in tankers. No ground water or canal water will be extracted. Based on the project ESIA, the estimated water consumption during the construction phase is expected to be approximately 15,752 m³ per year. The EPC contractor will develop, as part of its cESMS (ESAP#2), a Water Management Plan including measures for efficient use of water. During the operation phase, the estimated water consumption is estimated at 110 m³ per year. To minimize water consumption during operations, the PV modules will be cleaned using dry cleaning techniques. As per ESAP #12a, the EPC will request a confirmation of capacity from municipal water sources to supply water for the project needs without interruption to any local water users.

The project is expected to generate minor to moderate amounts of pollution to air, noise, and soil, during the construction phase which are anticipated to be readily mitigated through the implementation of standard pollution prevention and control measures, defined within the cESMS. As outlined earlier, the EPC contractor will finalize a Project specific Construction Environmental Management Plan (CEMP) in alignment with specification in ESIA and ESMP (ESAP#2). While baseline noise data was collected near the project site during ESIA investigations, adequate noise sampling was not conducted near the access road. As per ESAP#12b, the EPC will collect additional baseline noise sampling data near the project access road for receptors from the Kirlishon and Kulchovdur communities, which may experience increased traffic noise during project construction.

Volumes of liquid, solid, and hazardous waste generated by the project during construction and operations are expected to be low. Domestic wastewater generated will be collected in a septic holding tank and removed by authorized contractors for offsite disposal in a licensed wastewater treatment plant. Solid waste disposal will be managed through licensed third-party waste contractors approved or contracted by the company. The nearest landfill to the project site is located approximately 36 km to the north-west of the project site, and only household waste is currently disposed of at the landfill. The nearest hazardous waste disposal and municipal wastewater treatment options are in Bukhara region. As per ESAP#12c, the EPC will assess suitability of local waste facilities, with respect to wastewater disposal capacity and hazardous waste. The project will only approve facilities that are licensed by government regulatory body and operated to acceptable standards of safety for human health and the environment. Moreover, as part of the project cESMS (ESAP#2), the EPC will finalize a project specific Hazardous Material, Waste and Wastewater Management Plan (HMWWP) aligned with local legal requirements, IFC PS3, and WBG EHS general guidelines. The plan will include measures to ensure no contaminated water is discharged to surface or ground water. The project will also identify suitable PV and battery buyback / take back schemes to ensure appropriate disposal / treatment of damaged or end-of-life equipment, if required.

PS4: Community Health, Safety and Security

Relevant

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The closest populated areas to the Project site are the Kirlishon and Kulchovdur communities (10 and 11km from the site respectively) as well as the Jiydali settlement – small community within the existing Khamza 1 substation compound comprising approximately 7 households (400 m north of the site). According to a letter from the relevant government authority, the Sanitary Protection Zone for the project is 250 m. No communities currently reside inside this zone. Risks and impacts to these communities were assessed during the ESIA process and are not expected to be significant during the operations phase. To minimize any impacts to the local communities during construction, the EPC will incorporate relevant measures in the suite of construction management plans outlined in ESAP#2.

Traffic and transportation risks will also be present mainly during construction phase. These risks may include community health and safety risks from the volume of vehicles and traffic-related accidents along the R78 when delivering materials, personnel and equipment to the site. The traffic impact assessment and consultation have identified the need to manage routing traffic along the R78 highway between Alat and the project site, specifically when travelling through Kirlishon and Kulchovdur communities. The company has developed a draft Traffic and Transportation Management Plan (TTMP) as part of the cESMS. As per ESAP#13a, the EPC will finalize this plan to avoid traffic and transport related risks to project workers and communities during construction, promote safe driving awareness among the project staff, and establish best practices on vehicle management.

The EPC will engage a security contractor to provide security personnel during the construction and operational phases of the project. The EPC will ensure that their security contractors' personnel are appropriately screened, trained and competent for their scope of work. If security guards are required to be armed, this will be only with the advance approval of the project company and security guards will be subject to additional requirements such as training on use of force, etc. A draft Security Management Plan has been developed by the company. The company will require its EPC to carry out a security risk assessment and finalize the cESMS Security Management Plan aligned with IFC PS4 and the Voluntary Principles of Security & Human Rights. The plan will include a Code of Conduct for site security personnel, incident reporting, and investigation process. The company will monitor the implementation of this management plan via regular audits. The project's community grievance mechanism will be available for members of the community or employees in the event of a violation of the CoC by security personnel or other grievance related to security personnel (such as GBVH) (ESAP#13b).

PS5: Land Acquisition and Involuntary Resettlement

Relevant

There will be no physical displacement of households as a result of the project activities, however there will be some economic displacement. The land plot allocated to the project has an area of 649 hectares and is a deserted cropland area mainly covered with shrubs. The plot is owned by the State Committee for Sericulture and Wool Industry Development (SWID) which administers pastureland for the Government of Uzbekistan. The company will obtain the

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servitude/lease rights for the land 30 days after the issuance of Presidential decree. The land lease will be 25 years for the PV project, and 10 years for the BESS component.

Socioeconomic and census surveys of the Project Affected Households (PAH) were undertaken in June 2023. In total, 43 people from nine PAHs were identified as being impacted by the project – one herder and his partner who have a short-term agreement for land use at the project site, as well as seven village households who informally use the project land for grazing without a permit or formal agreement.

The project site area has no permanent users but is used as an alternative seasonal grazing site during the spring months. A portion of land is formally leased for short-term (ten months) by a herder and his partner, who will be impacted by project development. The total size of land they use for grazing is approximately 1,000 ha (which includes the project site). The other land users expected to be affected by project development are the seven households from the Kirilishon community who informally use this land to graze their livestock during the spring months. PS5 requirements will apply to those households who are affected by economic displacement and use the land formally or informally for animal grazing.

The project developed a comprehensive Livelihood Restoration Plan (LRP) during the ESIA process in July 2023 to address any adverse impacts related to the loss of available grazing areas. This LRP is in compliance with PS5. As per ESAP#14, the company will implement key mitigation measures included in the LRP before start of any works on site.

The company will monitor the implementation of the LRP, providing bi-annual monitoring reports to the lenders during the construction phase, and annual reports during operations (as part of annual E&S monitoring reporting). The company will engage a third-party consultant within one year after completion of LRP activities to conduct an audit to assess if all the LRP provisions have been met. The completion audit will include, at a minimum, a review of the LRP mitigation measures implemented by the company, a comparison of implementation outcomes against agreed objectives, as well as verification of whether livelihoods have been restored to pre-project levels (ESAP#15).

PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Relevant

The project site lies in a natural habitat according to IFC PS6 with three priority biodiversity features (plants): the *Calligonum matteianum*, *C. molle*, and *C. paletzianum* with elevated status on both national and international red lists. *Calligonum matteianum* and *C. molle* are listed as Endangered while *C. paletzianum* is listed as Vulnerable in the IUCN Red List. The construction, operation, and decommissioning of the project may generate a number of impacts on sensitive biodiversity receptors, including Priority Biodiversity Features and on the Natural Habitat. Impacts may include introduction of invasive species, habitat loss and degradation, disturbance to terrestrial animals, as well as bird collision with OHTL. No impact is expected on national or international protected areas, and no features were identified as Critical Habitat triggers for the project as defined by Lender standards.

The company has developed a Biodiversity Management Plan (BMP) as part of the ESIA package which describes the key mitigation and monitoring measures for biodiversity management as well as the conceptual framework of “No Net Loss” for Natural Habitat and

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the Calligonum species. As per ESAP#16, the company will finalize the BMP in line with lender comments.

PS7: Indigenous Peoples

Not Currently Relevant

PS8: Cultural Heritage

Not Currently Relevant

Stakeholder Engagement

A Stakeholder Engagement Plan has been developed for the project, consistent with IFC's PSs and includes a functioning Grievance Mechanism (GM). The SEP includes the mapping, identification, and analysis of stakeholders, including vulnerable groups. The company has implemented a robust stakeholder engagement program throughout the ESIA process, including in-person meetings with key local stakeholders such as relevant government departments and members of the Kirlishon and Kulchovdur communities affected by the project. These included public hearings, focused group discussions and business correspondence. During the development of the ESIA, stakeholder engagement and receipt of grievances was done by the ESIA consultant. However, the GM has now been revised and the company will be managing the GM moving forward. As per ESAP#17, the company will update its existing SEP and GM three months before commercial operations to describe the engagement program and grievance management system that will be implemented during the operations phase.

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B.2 Legal Operational Policies that Apply

OP 7.50 Operations on International Waterways

No

OP 7.60 Operations in Disputed Areas

No

B.3 Other Salient Features

Use of Borrower Framework

No

N/A

Use of Common Approach

No



N/A

C. Overview of Required Environmental and Social Risk Management Activities

C.1 What Borrower environmental and social analyses, instruments, plans and/or frameworks are planned or required by implementation?

The E&S instruments have been disclosed in-country and at the IFC and IBRD websites. Following is the Environmental and Social Action Plan.

No.	Description	Completion Dates	Indicator of Completion
1.	National Permits – The company will obtain the final approval for National EIA for operations from relevant regulatory authority, as well as all relevant E&S permits required for the project.	Prior to Operations	Operational E&S Permits from regulatory authority
2.	Construction ESMS – Finalize an overarching project construction Environmental & Social Management System (cESMS) for the Project company and EPC, appropriate for the scale and specificities of the project, per the general requirements of IFC PS1 and consistent with the ESIA and ESMP. The final cESMS will include an overarching E&S policy defining the Project company’s and EPC’s E&S objectives and principles and incorporates relevant policies, procedures, and plans including site-specific construction management plans viz: Site Mobilization Plan; Subcontractor and Supplier Management Plan; E&S Training Management Plan; Stakeholder Engagement Plan; External Grievance Mechanism; Livelihood Restoration Plan; Community Development Plan; Labor and Working Conditions Management Plan; Worker Accommodation Management Plan; Occupational Health and Safety (OHS) Management Plan; Emergency Preparedness and Response Plan; Traffic and Transportation Management Plan; Security and Human Rights Management Plan; Hazardous Material and Waste Management Plan; Water Management Plan; Biodiversity Management Plan ; Emissions Management Plan; Chance Find Procedure; Gender Management Plan.	One month prior to mobilization	Final construction ESMS for the company and EPC including management plans acceptable to IFC
3.	Contractor Management: a) The EPC will finalize as part of the cESMS, a Subcontractors and Suppliers Management Plan defining their approach to managing the EHS performance of their contractors, subcontractors, and other third parties during the various phases of the project. The contractor management approach will be consistent with the general principles described within IFC Good Practice Note: Managing Contractors' Environmental and Social Performance.	a) 30 days before mobilization b) Monthly during construction c) at time of EPC final contract signing d) at time of sub-contractor hiring	a) Subcontractors and Suppliers Management Plan acceptable to IFC b) evidence of the satisfactory completion of monthly labor audits c) contractual provisions added to agreements with EPC contractor, and sub-contractors to

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	<p>(b) During the construction phase, the company will conduct monthly monitoring to assess adherence to local labor laws and project labor and working condition commitments.</p> <p>(c) The company will include legally binding obligations in the EPC contract (and subcontractor contracts) to ensure compliance with the requirements of all relevant E&S and H&S plans contained within the project ESMS as well as national and IFC PSs.</p> <p>d) The EPC will include legally binding obligations in subcontractor contracts to ensure compliance with the requirements of all relevant E&S and H&S plans contained within the project ESMS as well as national and IFC PSs.</p>		<p>ensure alignment of HR policies and procedures with PS2.</p> <p>d) contractual provisions added to agreements with sub-contractors to ensure alignment of HR policies and procedures with PS2.</p>
4.	<p>OESMS - The company will develop and implement an Operations Environment & Social Management System (OESMS) acceptable to IFC and consistent with the project ESIA, IFC PS, and national requirements. The OESMP will include a suite of sub-plans, including, at a minimum, pollution prevention; water management; hazardous materials; waste management, emergency response; community health, safety & security; biodiversity management; environmental monitoring; stakeholder engagement (including grievance management).</p>	Two months before operations	OESMS, including sub-plans acceptable to IFC
5.	<p>Organizational Capacity: The company shall appoint to the Project the following sufficiently experienced / knowledgeable E&S related personnel: i) E&S Manager (site-based) who has overall responsibility for environmental and social management, compliance and implementation of the ESMS ii) Community Liaison Officer (site-based). CLOs shall speak the local language(s) and demonstrate good cross-cultural communication skills and gender awareness.</p> <p>b) Company shall require EPC contractor to appoint and retain appropriate counterparts to its E&S staff including: i) competent and qualified Health, Social, Safety, and Environment (HSSE) manager and ii) deputy manager iii) qualified CLOs and iv) E&S Supervisors at a ratio of one (1) for every forty (40) personnel at the site; v) ecologist (if required); vi) international and local E&S advisor who can support the development of the Construction ESMS; 5c) the Project Management Company (PMC) shall appoint a HSSE Manager for the construction phase.</p>	One month prior to mobilization	TORs, CVs, and appointment letters acceptable to IFC
6.	<p>Supply Chain – Company will maintain and implement the Company’s supply chain management system to identify, manage and remediate supply chain risks associated with forced</p>	One month prior to mobilization	Evidence of the Company’s supply chain management system in place and



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	labor and child labor, as well as any other significant environmental and human rights risks and impacts.		implementation of its components, which also includes the application of supply chain mapping, verification of evidences and traceability requirements across key suppliers.
7.	<p>Human Resources – (a) The company and EPC will finalize the project human resources (HR) policy and associated plans/procedures according to IFC PS2, International Labor Organization (ILO) requirements, and local labor codes. The policy/procedures will define the company's commitments with respect to labor and working conditions, maximizing local employment, equal opportunities and non-discrimination, anti-sexual harassment and gender-based violence, prohibition of child and forced labor, whistleblower protection, freedom of association, and collective bargaining.</p> <p>(b) The EPC will engage dedicated local HR resources to support the implementation of the project's HR policies and procedures and the internal grievance resolution mechanism. The Company will supervise the compliance of all Project personnel with the HR Policy.</p> <p>(c) The cESMS Code of Conduct will be applicable to all Project workers and contractors and includes elements on labor and working conditions, interaction with affected communities, behavior after working hours in the labor accommodation etc. All project workers will receive regular training relating to the project's human resources policy, including mandatory training on the Worker Code of Conduct.</p>	One month prior to mobilization	<p>a) Final HR Policy and associated procedures acceptable to IFC.</p> <p>b) Employment contract template demonstrating compliance with national & PS2 acceptable to IFC</p> <p>c) Worker code of conduct, including associated training package acceptable to IFC</p>
8.	<p>Worker's Grievance Mechanism: The EPC will finalize the cESMS worker's grievance mechanism, in accordance with IFC's PS2 standards. The WGM will be made available to all project workers, irrespective of their employer. The company will disseminate information about its use to the workforce (in a language the workers understand). The WGM will include specific considerations related to the harassment/gender-based violence grievances. This includes multiple entry points to raise and address allegations including options to report anonymously if preferred. The company will appoint a designated officer to coordinate the</p>	One month prior to mobilization	<ul style="list-style-type: none"> - Workers Grievance Mechanism acceptable to IFC - Training records on WGM



	implementation of the WGM. All project workers will be informed of the grievance mechanism at the time of recruitment and all staff from project company and EPC workers and subcontractor workers will be trained in the workers grievance mechanism.		
9.	Labor audit: The company will hire a suitably qualified and experienced independent consultant, to undertake a labor audit during the construction phase of the project to assess contractor and sub-contractor adherence to local labor laws and project labor and working condition commitments.	6 months after start of construction	- TORs for labor audit - Labor audit report
10.	Worker Accommodation - The company will conduct an audit of project provided worker accommodation facilities prior to occupancy. The auditors will be supported by a life and fire safety expert with relevant experience. The audit will assess the accommodation facilities compliance with IFC/EBRD 'Workers' accommodation: processes and standards, internationally recognized life & fire safety standards, and ensure adequate considerations have been made related to health and safety, and gender aspects. All material non-compliances identified will be addressed prior to use of accommodation facilities.	One month prior to mobilization	Evidence of review of accommodation facilities acceptable to IFC
11.	OHS: a) The company will ensure through contractual clauses that its EPC finalizes and implements a site-specific Occupational Health and Safety (OHS) management system, including plans and procedures of a scale appropriate to their scope of work and to the risks associated with construction. The requirements defined within these documents will apply to all project workers, including sub-contractors. b) The company will ensure through contractual clauses that its O&M contractor finalizes and implements site-specific Occupational Health and Safety (OHS) management system, including plans and procedures of a scale appropriate to their scope of work and to the risks associated with operations	a) 30 days prior to mobilization b) 30 days before operation	a) OHS plan for construction b) OHS Plan for operations
12.	Pollution Prevention: a) The EPC will request a confirmation of capacity from municipal water sources to supply water for the Project needs without interruption to any local water users, b) Noise baseline: The EPC will conduct additional baseline noise sampling data for receptors from the Kirlishon and Kulchovdur communities located near the project access road, which may experience increased traffic noise during construction c) The EPC will assess suitability of local waste facilities, with respect to wastewater disposal capacity and hazardous waste. The Project will only approve facilities that are licensed by government regulatory body and operated to acceptable	a) One month prior to mobilization b) One month prior to mobilization c) One month prior to mobilization	a) Water confirmation letter acceptable to IFC b) Noise sampling data and report acceptable to IFC c) Waste Disposal Facility Inspection Form (as per cESMS) acceptable to IFC

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	standards of safety for human health and the environment.		
13.	<p>Community Health and Safety</p> <p>a) Traffic and Transportation Management: The company will require its EPC will finalize the Traffic and Transportation Management Plan (TTMP) as part of the cESMS to avoid traffic and transport related risks to project workers and communities during construction, promote safe driving awareness among the project staff, and establish best practices on vehicle management</p> <p>b) Security Management – The company will require its EPC to finalize the Security Management Plan aligned with IFC PS4 and the Voluntary Principles of Security & Human Rights. The plan will include a Code of Conduct for site security personnel, a security risk assessment and incident reporting, and investigation process. The EPC will ensure that reasonable inquiries are taken to ensure private security personnel are not implicated in past crimes/abuses and are appropriately trained. The company will monitor the implementation of this management plan via regular audits.</p> <p>The project's community grievance mechanism will be available for members of the community or employees in the event of a violation of the code for security personnel or other grievance related to security personnel (including GBVH).</p>	<p>a) One month prior to mobilization</p> <p>b) One month prior to mobilization</p>	<p>a) Traffic and Transport Management Plan acceptable to IFC</p> <p>b) Security Management Plan acceptable to IFC</p>
14.	LRP implementation: The company will implement key mitigation measures included in the LRP before start of any works on site	One month prior to mobilization	Evidence of LRP implementation
15.	LRP Monitoring: The company will a) monitor the implementation of the LRP, providing bi-annual monitoring reports to the lenders during the construction phase, and annual reports during operations (as part of annual E&S monitoring reporting). b) engage a third-party consultant within one year after the completion of LRP activities to undertake an independent completion audit to verify whether livelihoods have been restored to pre-project levels or improved	<p>a) Semi-annual monitoring starting six months after site mobilization</p> <p>b) One year after the completion of LRP activities</p>	<p>a) Biannual monitoring reports</p> <p>b) TORs and third-party audit report</p>
16.	Biodiversity Management Plan – the company will finalize the Biodiversity Management Plan (BMP)	July 2024 (updated baseline)	Final BMP
17.	Stakeholder Engagement - The company will update its existing Stakeholder Engagement Plan (SEP) and external Grievance Mechanism to describe the engagement program to be executed during the operations phase.	3 months prior to the start of the operations phase	Revised SEP, including GM acceptable to IFC



III. CONTACT POINT

World Bank

Task Team Leader: Ferhat Esen Title: Senior Energy Specialist

Email: fesen@worldbank.org

TTL Contact: Philip Lam Job Title: Senior Infrastructure Finance Specialist

Email: plam@worldbank.org

IV. FOR MORE INFORMATION CONTACT

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: <http://www.worldbank.org/projects>

V. APPROVAL

Task Team Leader(s): Ferhat Esen, Philip Lam

Practice Manager (INF) Stephanie Gil Cleared 07-Nov-2023
Practice Manager (ENR/Social) Varalakshmi Vemuru Recommended on 14-Nov-2023
Environmental and Social Standards Advisor (ESSA) Abdoulaye Gadiere Concurred on 14-Nov-2023

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