



# Environmental and Social Review Summary

## Appraisal Stage

### **(ESRS Appraisal Stage)**

Date Prepared/Updated: 04/16/2019 | Report No: ESRSA00130



**BASIC INFORMATION**

**A. Basic Project Data**

Country	Region	Project ID	Parent Project ID (if any)
China	EAST ASIA AND PACIFIC	P163679	
Project Name	China Renewable Energy and Battery Storage Promotion Project		
Practice Area (Lead)	Financing Instrument	Estimated Appraisal Date	Estimated Board Date
Energy & Extractives	Investment Project Financing	5/20/2019	8/19/2019
Borrower(s)	Implementing Agency(ies)		
People's Republic of China	Huaxia Bank		

Proposed Development Objective(s)

The project development objective is to improve the integration of renewable energy (RE) and increase RE utilization in China through the deployment of battery storage systems and innovative RE technology applications.

Financing (in USD Million)	Amount
<b>Total Project Cost</b>	<b>645.24</b>

**B. Is the project 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 [including overview of Country, Sectoral & Institutional Contexts and Relationship to CPF]**

The proposed project is to finance the investment of battery storage systems and promote innovative applications of renewable energy by an IBRD loan of US\$300 million and co-financing of US\$450 million from Huaxia Bank.

**D. Environmental and Social Overview**

D.1. Project location(s) and salient characteristics relevant to the ES assessment [geographic, environmental, social]  
The Project will be implemented nationwide. The environmental and social (E&S) contexts will therefore differ among subprojects. Most subprojects at grid side and demand side are expected to be located in central and eastern China (e.g. Henan, Jiangsu, Hunan, Hubei, Zhejiang, etc.) which have more advanced economic and industrial development

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and more urgent need to stabilize power supply while reducing carbon emissions through increasing use of renewable energy (RE). Subprojects on the generation side are intended to be located in the northern and western provinces (such as Gansu, Qinghai, Xinjiang, Inner Mongolia, Shanxi, etc.). These provinces are leading in renewable energy (RE) development but now face grand challenges to explore innovative and emerging solutions to increase RE efficiency by reduction of serious curtailment problems. China's landscapes vary significantly over its vast area: extensive and densely populated alluvial plains in the east, broad grasslands in the northern Mongolian plateau, hills and low mountain ranges in the south and the deltas of China's two major rivers (Yellow River and Yangtze River) in the central-east region. Also, the climate and natural conditions in China differs from region to region because of the country's highly complex topography. In terms of socio-economic conditions, China's central and eastern provinces are generally more advanced in terms of economic development and are more densely populated compared with the northern and western provinces. Most of the central and eastern provinces are Han Chinese dominated, whilst northern and western provinces have a comparably higher population of ethnic minority groups. For example, as of 2017, ethnic minorities in Qinghai comprise of 48% of its total population, 27% in Ningxia, 64% in Xinjiang, and 23% in Inner Mongolia, compared with 8 % on national average. Though no specific sub-project is identified at Appraisal stage, the market survey conducted during project preparation showed that anticipated investments under this project would focus on installations added to existing facilities. Most of installations will be minor in dimensions compared to existing premises and will be implemented within existing footprints or within the perimeters of existing facilities (such as solar/wind power generation facilities, substations or consumers). No significant expansion or additional land take or conversion is expected to be required. Upon sub-project identification during implementation, further analysis of environmental and social baseline will be conducted as part of assessment process specific to individual investment.

#### D. 2. Borrower's Institutional Capacity

Huaxia Bank (HXB) is the responsible Financial Intermediary (FI) for implementing the project, who has worked with World Bank and other international financial institutions (e.g., AFD) since 2008 in the areas of renewable energy, energy efficiency and air pollution control. By 2017, a total investment of 7.2 billion RMB has been made through HXB on 66 nationwide subprojects with international financing, contributing to energy saving of 4.25Mtce and emission reduction of 9.59million tCO<sub>2</sub>e by estimate. These investments fit HXB's consistent efforts to offer green and innovative financial services. Following China's Green Credit policy, HXB has started the development of green finance business since 2012 with the issuance of "Interim Measures of HXB for the Management of Green Credit Business", which was revised and formalized in August 2016; in 2017, HXB was honored with the "Best Green Finance Award" by the China Banking Association. HXB has acquired extensive experience on E&S risk management through preceding World Bank and AFD funded projects. Since 2008, HXB has started to develop its ESMS system under the Bank-financed CHEEF program (Phase I) by adopting the World Bank's safeguards policies and mainstreaming the E&S requirements into the project Operational Manual (OM). During the preparation of second Bank-financed PforR program, its ESMS was reviewed with recommendations proposed for further strengthening, including the establishment of Green Credit Center. The PforR program is still being implemented with satisfactory E&S performance. HXB's institutional arrangements for E&S management has substantially enhanced since the establishment of Green Credit Center at the head office in December 2016, along with its extension to relevant units at the branches. The center takes the primary responsibilities to (a) lead and coordinate bank-wide green financing activities (b) set up internal green lending procedures; (c) liaise with government and financial agencies on the updates of green finance policies and regulations; and (d) provide training to staff responsible for green finance business. In addition to the full-time E&S management staff in the center, external specialists have been engaged to provide technical supports for E&S management and monitoring of Bank-financed activities. Currently, the E&S management procedure is embedded in the normal loan operation process, from loan application, to loan approval,



and until implementation supervision. Staff representatives from HXB participated in the ESF awareness training organized by the World Bank in July 2018. Nevertheless, staff expertise and capacity to meet the latest ESF requirements needs to be further developed. A value addition of the Project will be the enhancement and maintenance of HXB's existing ESMS to assure it is in alignment with ESF and proportionate to project risks. For the new business line of energy storage, a comprehensive review of HXB's current ESMS against the new ESF (especially ESS9) has been carried out and the appraisal stage ESCP has specified the actions to enhance E&S management capacity in response to the ESF requirements. The enhanced ESMS has been designed prior to Appraisal to guarantee the management commitments to provide adequate financial and human resources for ESMS implementation; part of the GEF-financed TA activities under this Project (Subcomponent 2.2) is also designed to support HXB to further strengthen internal and external expertise and capacity on E&S management; and the ESMS will also include the requirements and procedures to assess, monitor and report the sub-borrower's capacity for, commitment to and performance on E&S management in alignment with relevant ESSs throughout the subproject lifecycle.

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

### A. Environmental and Social Risk Classification (ESRC)

Substantial

#### Environmental Risk Rating

Substantial

Energy storage systems can provide indirect environmental benefits through the improvements of energy resilience and efficiency and the increased use of clean electricity from renewable sources. Potential negative impacts of the anticipated BESS (Battery Energy Storage System) investments will depend on the type and efficiency of storage technology throughout battery lifecycle. Based on current project design and the findings of market investigation conducted during project preparation, most of the anticipated investments will focus on the installation of BESSs with the capacity of 1MWH~400MWH. Only mature and commercialized technologies will be accepted for project financing following the screening criteria established in the Operational Manual. The environmental risks anticipated are mainly fire and explosion risks during BESS operation and environmental hazards related to the disposal of used batteries containing hazardous waste.

Since the specific information on subprojects such as location and scale remain unknown at the appraisal stage, the rating of fire and explosion risk during BESS operation was conducted by reviewing current practice of E&S management for existing BESSs in China. According to the field visits, the design of existing BESSs has followed national design standards with safety considerations, including placement criteria, fire and explosion prevention measures and emergency response requirements; battery installation and operation is highly standardized with batteries installed in tamper-proof containers that are accessible only to specialized service personnel. The risks around installation and operation can thus be managed with simple measures. For the proposed project, key placement criteria - such as distance from human settlements or sensitive receptors - are easily verifiable by the FI's ES staff following the screening criteria established under the ESMS.

For project implementation, HXB, as the responsible FI, has tracked experiences for successfully implementing World Bank projects. Its institutional arrangements for managing E&S risks have been substantially enhanced since the establishment of Green Credit Center under World Bank funded PforR program in Dec. 2016. HXB has also mainstreamed most of World Bank safeguard requirements into its own lending risk management. Although HXB is among the first to implement ESF requirements in China, the management is highly committed to provide financial



resources and mobilize both in-house and external specialists to bridge gaps in terms of E&S management and ensure the project follows both domestic legal regulations and the new ESF. A comprehensive review of HXB's current ESMS against the new ESF (especially ESS9) was carried out and the ESMS was enhanced in response to the ESF requirements and proportionate to the project risks and impacts. To support sustainable operation of the project, institutional strengthening and capacity building program has been developed as an important and integral part of the ESMS and ESCP, covering both HXB and its future sub-borrowers and external E&S consultants. HXB will designate a senior management representative to have overall accountability for E&S performance of FI subprojects, including the implementation of ESS9 and ESS2 and resources necessary to support such implementation.

The sector review conducted during project preparation found that batteries for the proposed BESS sub-projects will be manufactured, delivered, installed and recycled by the primary producers, who would therefore play a critical role in the appropriate management of E&S risks and impacts. Due diligence was conducted during project preparation to review the overall E&S performance of existing battery manufacturers and disposal facilities in China. It was noted from the visits and investigation that major battery manufacturers and battery recycling facilities in China have attached importance to their consistent safety and environmental performance during operation for long-term sustainable development, targeting at the international standards (e.g. ISO standards, EU directives, etc). To support the industry development, Chinese government has promulgated and enforced regulations on the implementation of Extended Producer Responsibility (EPR) and responsible life cycle management for battery products since 2016, pressing large-scale battery makers to establish their own recycling facilities and forcing the polluting backyard recyclers to close. According to the site visits during project preparation, these stringent standards are enforced throughout the battery lifecycle and largely prevent potential environmental and safety risks. However, since the energy storage sector is still at the initial stage in China, more technology-specific policies and standards remain to be developed to enhance regulation enforcement, in particular, among SMEs and individuals involved in the sector. Thus, the overall environmental risk is rated substantial considering the sub-project uncertainty at this stage, plus the needs for further development of battery recycling facilities and supportive technical standards to enhance safety management and environmental management of the emerging energy storage sector in China.

**Social Risk Rating**

Moderate

Social risks and impacts identified for this project include: displacement impact, direct adverse impact on ethnic minorities, social risks associated with labor and workings for contracted workers and primary supply workers, and community safety risk. Most of the proposed BEES subprojects are to be installed in the footprints or parameters of existing facilities in industrial and developed areas . The spatial demands of the project investments are likely minor and the project will result in limited new land acquisition. A due diligence review of prior resettlement reasonably close to the subprojects is required to be carried out to identify complaints, grievances and other outstanding issues and determine mitigation measures. Some BESS may be installed for existing solar/wind farms in northern and western areas with the presence of ethnic minorities around for grazing. Impact and risk related to ethnic minority will be identified and managed on a basis of case-by-case following the requirements of ESMS. Labor and working conditions related risk is considered low in nature for contracted workers and direct workers of BESS. Due diligence during preparation to selective lead-acid and lithium-on battery manufacturers identified that labor and working conditions of primary suppliers is low risk, considering China's sophisticated labor management framework, level of law enforcement and more stringent supervision. During operation, community safety risks are linked to explosion, fire and electric shock, which will be strictly managed under China current regulatory framework and ESSs. A multitude of projects located close to vulnerable communities may give rise to limited degree of social conflict, harm, human security risk associated with perceptions of community endangerment and non-receipt of benefits. HXB is the



responsible FI and has enhanced its ESMS in consistency with applicable national regulations and relevant ESSs (particularly ESS9) and proportionate to the risk profile of the project. Useful tools have been developed and annexed to the ESMS to facilitate ESMS implementation. A timebound capacity development plan has been developed as an important and integral part of the ESMS and ESCP, which will be enforced during project implementation. Based on experience and lessons learned from the preceding Bank-financed programs, HXB is committed to mobilize adequate human and financial resources to develop and maintain organizational capacity and competency for ESMS implementation. With in place these measures, the social impacts and risks are generally site specific, low probability of serious effects to people, and can be easily mitigated in a predicable manner following the enhanced ESMS. According to the Environmental and Social Directive for Investment Project for Financing, the overall social risk for the project is deemed as “Moderate”.

## B. Environment and Social Standards (ESSs) that Apply to the Activities Being Considered

### B.1. General Assessment

#### ESS1 Assessment and Management of Environmental and Social Risks and Impacts

##### **Overview of the relevance of the Standard for the Project:**

To better understand potential E&S risks associated with proposed investments through FI, E&S due diligence was conducted during project preparation based on desk review, field visits and consultation of industry specialists to review: i) current practice of E&S management for BESS during preparation and operation ; (ii) current E&S management performance of primary suppliers (battery production and recycling and disposal facilities) for BESS in China; (iii) existing Chinese legal framework and anticipated developments relevant to energy storage and (iv) HXB’s existing ESMS and E&S performance. Based on the key findings of E&S due diligence, an enhanced Environmental and Social Management System (ESMS) has been designed as the safeguards instrument for the project following the ESF requirements (especially ESS9 for FI projects), along with a Stakeholder Engagement Plan (SEP) as one of its appendices. The Environmental and Social Commitment Plan (ESCP) has been developed to integrate all agreed actions to ensure the ESMS implementation. Prior to project appraisal, HXB has prepared an Operational Manual (OM) incorporating ESMS principles and procedures and commit to the ESMS implementation in the ESCP. Among others, the ESMS (including the SEP) was drafted and disclosed in January 2019 at both HXB’s website (in Chinese) and the World Bank’s external website (in English). This revised ESMS (including SEP) and ESCP will be again disclosed in April 2019. The following summarizes the key conclusions and recommendations from E&S due diligence and safeguards documents. Environmental: The proposed energy storage investments are anticipated with overall environmental benefits, including the improvements of energy resilience and efficiency and the decrease of CO2 emission through the integration of more clean electricity from renewable sources. Meanwhile, potential negative environmental impacts and safety risks are also expected depending on the type and efficiency of energy storage technology to be adopted. For BESS, if without appropriate management, different battery technologies could involve distinct environmental and safety hazards throughout their lifecycle, such as fire and explosion hazards, chemical toxicity, accidental pollution, electrical shock risks and so on. For example, the Li batteries have limited environmental impacts but present high fire and explosion risks during manufacture, storage, transportation, use, recycling and disposal; the traditional Lead-acid batteries use lead with significant toxicity and must be recycled. Based on collected information and field visit observations, current safety and environmental management during the production, use, recycling and disposal of batteries for BESSs was deemed satisfactory, as elaborated below: • Battery production: Battery production is restricted to large-scale, highly specialized companies with high quality standards, cutting edge production facilities, good/best practice systems in place for E&S management and OHS, and

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stringent oversight, monitoring and auditing by both domestic authorities (EPB, DRC, Work Safety Administration and Supervision Bureau) and international auditors (e.g. for the ISO 14000 and OSHAS 18000 certification). For Li Batteries with higher safety concerns, the production technology is highly automated and well operated and maintained; all critical manufacturing processes with potential OHS or environmental hazards are performed in shielded rooms by robotic devices, minimizing human risk exposure; all processes are seamlessly monitored, and connected to automatic warning and emergency shutoff systems; there is EHS staff on site in sufficient numbers, well trained and aware of risks; there is tight regulatory oversight, with sensors and monitoring devices installed by the authorities, which are continuously remotely monitored; the quality assurance processes during production minimize the risks of malfunction and fires during operation; • Battery use: The design of existing BESSs has followed national design standards with safety considerations, including placement criteria, fire and explosion prevention measures and emergency response requirements; battery installation and operation is highly standardized with batteries installed in tamper-proof containers that are accessible only to specialized service personnel. Key placement criteria - such as distance from human settlements or sensitive receptors - are easily verifiable by the FI's ES staff following the screening criteria established under the ESMS. The risks around installation and operation can thus be managed with simple measures. • Battery recycling and disposal: Despite the existence of unsound "backyard" recyclers (mainly targeting at used lead-acid batteries), there are a number of large operations throughout China that disassemble used batteries with cutting edge technologies, reclaim the major part of the components, separated into reusable substances, and work closely with battery producers and users on an efficient circular economy. These large, high-tech companies have all required permits and licenses by the authorities, as well as international certifications (ISO 14,000, OSHAS 18,000). The screening procedures established for the project under ESMS require that the sub-borrowers are only eligible with prior commitment to acquire battery collection, recycling and disposal services from certified and licensed entities. Started in 2010 and experiencing a booming growth in the last three years, China's energy storage sector has drawn the government's attention to its sustainable development during the commercialization and scaling-up process, including safety and environmental management of BESSs. Since 2016, China has implemented regulations on the life cycle management of batteries and other electrical/electric devices, along with technical standards to support safety design and operation of BESS which have been applied appropriately to existing BESSs according to the visits in Qinghai, He'nan, Hu'nan and Jiangsu during project preparation. During project implementation, it is anticipated that more stringent technology-specific environmental and safety standards (some currently being developed) and their enforcement will further eliminate disqualified SMEs and individuals from the market if without appropriate technical expertise and oversight. As part of the parallel TA activities, policy and institutional strengthening activities were agreed to support sustainable development of battery energy storage in the medium and long run through further development of standards on battery safety, reuse and disposal. With the ESMS implementation and strengthened regulation enforcement, the overall environmental risks associated with the project are expected to be manageable during implementation. Social: Most of installations will be minor in dimensions compared to existing premises and will be implemented within existing footprints or within the perimeters of existing facilities (such as power generation facilities, substations or consumers). Potential displacement impact, direct adverse impact on ethnic minorities, risks associated with labor and working conditions of construction related workers is considered low risk during construction period. During operation, community safety risks are linked to explosion, fire and electric shock, which will be strictly managed under China current regulatory framework and ESSs. A multitude of projects located close to vulnerable communities may give rise to limited degree of social conflict, harm, human security risk associated with perceptions of community endangerment and non-receipt of benefits. According to due diligence review, social impacts and risks are generally site specific, low probability of serious effects to people and can be mitigated through strict eligibility criteria of subprojects, as well as



enforcement of culturally appropriate stakeholder engagement and appropriate standards and regulations. HXB is the responsible FI and has enhanced its ESMS in consistency with applicable national regulations and relevant ESSs (particularly ESS9) and proportionate to the risk profile of the project. The ESMS includes subproject exclusion list, procedures for screening and classifying all subprojects for E&S risks and impacts and designing assessment and mitigation for subprojects, institutional arrangements for staffing and capacity building and a framework for monitoring and reporting on ESMS implementation. Useful tools for supporting ESMS implementation are developed and included in the appendixes of the ESMS, including E&S Risk Screening Sheet, Indicative Outline of ESIA, Resettlement Framework (RF), Ethnic Minority Development Framework (EMDF) and SEP. Following the ESMS procedure, all subprojects will be firstly screened against the exclusion list and assessed for their E&S risks prior to financing under this project. All supported subprojects will be prepared and implemented according to national regulations and ESMS requirements. Safeguard documents of subprojects, following the ESMS, will be prepared by the sub-borrowers, disclosed locally, and revised as needed. The approved documents should be submitted to the Bank for disclosure. Regular clearance of safeguard documents will rest with the responsibilities of HXB's in-house safeguards specialist, subject to spot check by the Bank as needed. Any subprojects involving potential land acquisition and resettlement; or adverse risks or impacts on Indigenous Peoples; or significant risks or impacts on the environment, community health and safety, labor and working conditions, biodiversity or cultural heritage are to be classified as substantial risk, which will be subject to the WB's prior review and clearance until HXB can demonstrate its capacity to manage safeguard issues on its own.

#### ESS10 Stakeholder Engagement and Information Disclosure

Though no specific subproject could be identified by project appraisal, HXB developed the list of potential stakeholders considering their influence and interest in the project which was documented in the SEP. According to the SEP, primary stakeholders identified for the Project include the responsible FI (HXB), sub-borrowers under this project, entities to be installed with energy storage systems (e.g. grid company, RE developers, etc.), communities located close to the subprojects, suppliers of batteries and equipment, contractors for construction and equipment transportation, vendors for disposal of waste batteries, project beneficiaries, sector specialists and relevant government authorities for approval of subprojects. Namely, the responsible government bureaus will include, but not limited to Power Bureau (for approval of grid access), Ecological and Environmental Protection Bureau, Fire-fighting Brigade, Administration of Work Safety, Natural Resources Bureau and Ethnic Minority and Religious Bureau (for confirming status of ethnic minorities in subproject areas). Due diligence during project preparation identified grid companies, big data centers, industrial parks, enterprises and the public will benefit substantially from the Project. As part of the ESMS, HXB has established procedures for stakeholder engagement and external communications (SEP) on E&S matters proportionate to the risks and impacts of project activities, which is deemed consistent with the requirements of ESS9 and ESS10. Key provisions stipulated in the ESMS include (a) information disclosure and public consultation conducted by HXB for the ESMS and SEP; (b) requirement and procedures on stakeholder engagement for subprojects; (c) HXB's procedure for responding to public inquiries and concerns during project implementation; and (d) grievance redress mechanism for the project. A standalone SEP was attached to the ESMS. In addition, procedures on disclosure of specific sub-project safeguard documents (e.g. RAP, EMDP, etc.) are specified in respective procedure frameworks (e.g. RF, and EMDF) attached to the ESMS. During preparation, the SEP and the ESMS were disclosed on HXB website (in Chinese) on January 21, 2019 and the Bank's external website (in English) on January 22, 2019. Two rounds of consultations on the SEP and ESMS were carried out by HXB, respectively





in January and February 2019. The updated SEP and ESMS have considered the feedbacks from the consultation process. The revised ESMS (including SEP) and ESCP will be available for disclosure in April 2019.

## B.2. Specific Risks and Impacts

**A brief description of the potential environmental and social risks and impacts relevant to the Project.**

### ESS2 Labor and Working Conditions

This project is classified as a FI project and ESS2 applies HXB. HXB has a designated HR department at headquarter and branches to handle labor related issues. HXB, a listed financial institution on Shanghai stock exchange, has published comprehensive labor management policies that are provided to all employees at the time of employment that describe rights and responsibilities. HXB has established comprehensive labor management systems, including HXB Labor Contract Management Measures (effective as of 2010), HXB Leave and Attendance Management Measures (effective as of 2009), Notice on Social Security and Housing Fund Policy, effective as of 2011, HXB Employee Training Management Measures (effective as of 2013), HXB Employee Congress Management Policy, effective as of 2014; and HXB Staff Hiring Policy (effective as of 2015). The scope of HXB's labor management policies includes procedures in relation to employee hiring, labor contract management, employee training, wage payment and welfare, social security and pension benefits, health examination, worker's organization, non-discrimination and equal opportunity and grievance redress. A thorough review of HXB's labor management system against ESS2 was carried out as part of the ESMS, which concluded that (a) HXB's labor management system is following PRC's regulations, including the PRC Labor Law (1995) and the Labor Contract Law (2012), which is also generally in conformance with relevant requirements on direct workers under ESS2; and (b) HXB has put in place multiple well-functioning grievance redress channels which are deemed equally accessible to all workers and adequate to resolute their complaints and grievance. This project will reply on HXB's existing labor management system to manage labor related issues of direct workers. China has a relatively sophisticated framework of laws and regulations governing labor and working conditions, inter alia on preventing child labor and forced labor and regulating workplace health and safety, which apply to all types of labor including direct workers, contacted workers, community workers and primary supplier workers. Under current context, supervision to factories by local labor and work safety authorities are enforced more stringently. By Appraisal, the investment of the project primarily focuses on installation of BESS. Construction of a typical BESS (10MW/20MWh) will only last 1-2 months with the involvement of very few construction workers. Once entering full operation, the BESS will be monitored through remote control without on-duty staff at the station. The ESMS concluded that labor and working conditions related risk is considered low in nature for contracted workers and direct workers of BESS. Community workers will not be engaged in consideration of technical nature for constructing and operating BESS. Due diligence during Preparation to selective lead-acid and lithium-on battery manufacturers identified that labor and working conditions of primary suppliers is low risk, which was extensively assessed in the Initial E&S Due Diligence of Battery Primary Suppliers (as part of the ESMS). The ESMS sets out provisions for screening of risks and impacts on labor and working conditions in subproject E&S Screening process. HXB will contractually require that the sub-borrowers should procure services and goods from the contractors and primary suppliers that respect China labor laws and working conditions. Relevance of ESS2 will be further reviewed during subproject preparation and implementation. When significant risk on labor and working conditions is identified during future FI subproject screening, this ESMS will be further reviewed and upgraded as necessary to ensure relevant requirements of ESS2 are met.



### **ESS3 Resource Efficiency and Pollution Prevention and Management**

The proposed energy storage investments are designed to reduce curtailment and deploy new emerging use of RE in China, which is thus anticipated with overall positive impacts on the improvements of energy efficiency and the reduction of greenhouse emission. However, used batteries are identified as hazardous waste with damage to humans and environment if without proper disposal. During preparation, relevant domestic regulations and their enforcement has been reviewed against the requirements of ESS3 and the World Bank’s applicable Environmental, Health and Safety Guidelines, and the initial Due Diligence (DD) was conducted to review overall E&S performance of main battery producers and battery disposal sites in the market to support the assessment and mitigation measures proposed in the ESMS/ESCP. According to the DD report, the visited/investigated battery producers and recyclers showed satisfactory E&S performance as the major players in the supply chain, in full compliance with existing requirements (both national legislation and applicable international conventions) for hazardous waste management (including storage, transportation and disposal). At the same time, notable efforts have been made by China’s government in recent years to strengthen environmental regulation of numerous SMEs in this emerging market. Since 2016, Chinese government has implemented the regulations on the life cycle management of batteries and electrical apparatus to promote the implementation of extended producer responsibility system and ensure appropriate recycling and disposal of used batteries by manufacturers and competent vendors, and the development and enforcement of more stringent sector policies/permission standards currently under preparation are expected to result in the elimination of SMEs with poor environmental performance in the near future. During project design, environmental issues associated with battery recycling and disposal have been identified as one of the major barriers for long-term sustainable development of the sector, and part of the GEF-funded TA activities in parallel to the project have been proposed to support policy/standard development to address this issue. In addition, as part of the ESMP, HXB had made commitment to ensure the incorporation of pollution control compliance requirements in loan agreements with sub-borrowers to ensure the environmental compliance of sub-projects during implementation.

### **ESS4 Community Health and Safety**

Some of the project investments on grid-side and demand-side BEESs will possibly be located adjacent to residential areas. The project-resulted disturbance to local communities will be very limited during construction phase given the small size of subprojects and the small number of workers involved in limited civil works and installation of pre-fabricated containers during a very short period (1-2 months). However, the operation of neighboring energy storage system may expose nearby communities to additional fire, explosion and electrical shock hazards associated with batteries and electrical systems. In addition, the operation of BESS will lead to limited increase of noise level around the station. Following current practice in China, safety assessment, firefighting review and environmental impact assessment (when applicable) are required for BEES project, which should be approved by/registered at relevant authorities prior to project implementation to ensure the integration of all the necessary safety measures into the project design and operation. According to the visits in Qinghai, Hu’nan, He’nan, Zhejiang, Jiangsu and Guangdong during project preparation, adequate measures have been taken for existing BEESs to minimize safety risks during operation, including minimum safety distance, container requirements, illumination system, air-conditioning and ventilation system, noise abatement measures, fire-extinguishing system, control system, earthing system, access control measures, electrical wiring, safety manual, emergency response plan, etc. However, apparatus due to the absence of technology-specific safety standards for BESS, many safety measures were now designed with reference to technical specifications for substations or other electrical. Along with the sector development, it is understood that relevant Chinese safety standards are being developed and will be issued soon to guide safety management during



BEES operation, maintenance and emergency response. With the enhancement of Chinese legal framework and its enforcement in the near future, the project's risks on community health and safety are considered moderate during operation. In addition, as specified in the ESMS and ESCP, the sub-project with substantial risk will be subject to the World Bank's prior safeguards review and clearance (until HXB can demonstrate its capacity to manage safeguard issues on its own), when its compliance with the ESS4 requirements and the World Bank's Environmental, Health and Safety (EHS) Guidelines will also be checked to confirm the adequacy of safety management measures in the ESIA and EMP as applicable. Also, the ESCP also requires Huaxia Bank to ensure all the sub-projects meet any applicable safety assessment requirements in compliance with national laws/regulations requirements at loan approval stage. The implementation and effectiveness of safety measures for subprojects will be regularly checked by internal and external E&S specialist of the HXB and reported to the World Bank during construction and operation. HXB will immediately notify the World Bank of any environmental and social accidents/incidents following the World Bank requirements as specified in the Environmental and Social Incident Response Toolkit (ESIRT).

### ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

Except for installing BESS, other categories of project investment activities don't have implications on the physical footprint. Assessment of land acquisition and resettlement risks by this project was carried out through infield to selective different types of BESS at generation side, grid side and customer side. BESS has limited displacement impact because it is intended to be installed within existing footprint or within the perimeters of existing facilities (e.g. substations, plants, industrial parks, solar/wind farm sites). When existing land does not have appropriate size to site proposed BESS, leasing adjacent municipal or industrial land (if possible) is preferred than acquiring new land. In case new land acquisition happens, the displacement risks and impacts by installation of BESS are anticipated to be low to moderate in consideration of the general nature, size and location of BESS. Batteries are housed for safety in multiple-storied warehouses or in containers. The former situation almost always happens at demand side, for example in industrial parks, for saving land. Due diligence found that one typical 10 MW/20MWh lithium-ion BESS housed in containers occupies a footprint area ranging from 900 -1,300 m<sup>2</sup>. Lithium-ion batteries has the smallest installation footprint when compared to other technologies (e.g. lead-acid battery, lead-carbon battery or flow battery) for a similar energy capacity. Several distributed BESS can integrate into a larger utility-scale system. Minor temporary displacement may also arise in case new designated power transmission lines are required to be built to connect BESS to substations/power distribution grids. The policy framework established as part of HXB's ESMS includes provisions on due diligence review for existing land as well as a stand-alone Resettlement Framework (RF) taking into account of potential new land acquisition. The ESMS defines resettlement impact is considered "Minor" if new land acquisition does not exceed 50 mu (~3.33 ha) and fewer than 5 households are physically displaced in consideration of solar and wind sector context. The RF as an annex to the ESMS was disclosed on HXB's website on January 21, 2019 and the Bank's website on Jan. 22, 2019. Both the ESMS and RF were updated accordingly per the feedbacks. During implementation, the screening and due diligence review carried out by HXB will verify the compliance status of land acquisition and resettlement of existing land against national regulations and specify timebound remedial actions for addressing legacy land issues (if any). For new land acquisition, all subprojects involving minor resettlement will be prepared and implemented according to national regulations. For subprojects with the resettlement risk classified higher than minor, a Resettlement Action Plan (RAP) should be prepared by the sub-borrower in alignment with the RF. The RAP should be disclosed locally and on Bank's website and revised in accordance with feedbacks for the disclosure. Clearance of RAP will be managed by HXB's in-house safeguards specialist, subject to spot check by the Bank as needed. The Bank will clear the first RAP prepared under this project



and will retain the right to review and clear RAPs until the Bank Team is convinced that HXB demonstrates adequate capability to screen and manage safeguards issues. Resettlement should be carried out in alignment with the ESMS and the cleared RAP. HXB will monitor project land acquisition and report its performance to the Bank through the semi-annual Environmental and Social Reports as set out in ESS9.

#### **ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources**

Based on field visits and sector survey, most of the BEES projects are to be installed in existing facilities in industrial and developed areas, which are likely to be away from environmentally sensitive areas. Under the proposed ESMS, all subprojects will be screened against the exclusion list to eliminate the activities situated in any nature reserves (existing or planned), scenic areas, forest parks, protected water sources and other areas with high ecological value. Generally speaking, it is unlikely that the project implementation will involve adverse impacts on biodiversity and living natural resources; however, considering the uncertainties of sub-project location and size at this stage, the relevance of ESS6 remains to be further reviewed during sub-project preparation, and necessary ecological impact assessment will be conducted as part of the ESIA if applicable.

#### **ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities**

The Project will have a national wide coverage and several western and some northwestern regions (e.g. Qinghai, Ningxia, Xinjiang, Inner Mongolia, etc.) with a higher composition of ethnic minorities will be potentially involved inter alia. Due diligence and desktop study indicate solar/wind farms in western areas are prone to be sited in undeveloped areas or Gobi-desert, away from communities. In some circumstances, the solar/wind farms will have the presence of ethnic minorities around (e.g. for grazing). As spatial demand of BESS is generally small, and the BESS are to be installed within the existing boundaries solar/wind projects, potential adverse impacts on ethnic minorities are considered low risks. The policy framework established as part of HXB's ESMS includes provisions on screening and identification of ethnic minorities as well as a stand-alone Ethnic Minority Development Framework (EMDF). The EMDF as an annex to the ESMS was disclosed on HXB's website on January 21, 2019 and the Bank's website on January 22, 2019. Both the ESMS and EMDF were updated accordingly per the feedbacks. The screening carried out by HXB will identify the potential risks and impacts on ethnic minorities that will trigger free, prior and informed consent (FPIC). The loan applicants, with the assistance of independent specialists, are required to obtain FPIC from the ethnic minorities when any subjects (i) having adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation; (b) causing relocation of ethnic minorities from land and natural resources subject to traditional ownership or under customary use or occupation; or (c) having significant impacts of ethnic minorities' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected ethnic minorities' life. HXB is required to establish capable and dedicated in-house human resources to identify and manage safeguard issues. Due diligence review carried out by HXB will identify ethnic minorities and screen potential adverse impacts on ethnic minority. Once ethnic minority is identified within the area of influence of the subproject, the Bank will confirm the screening results. If one subproject poses adverse impact on ethnic minority, an Ethnic Minority Development Plan (EMDP) will be prepared by the sub-borrower in accordance with the provisions set out in EMDF. Clearance of EMDP will be managed by HXB's in-house safeguards specialist, subject to spot check by the Bank as needed. The Bank will clear the first EMDP prepared under this project and will retain the right to review and clear EMDP until the Bank Team is convinced that HXB demonstrates adequate capability to screen and manage safeguards issues. HXB will monitor the project performance in relation to managing



adverse impact on ethnic minorities and report it to the Bank through the semi-annual Environmental and Social Report as set out in ESS9.

### **ESS8 Cultural Heritage**

Subprojects at grid and demand sides unlikely involve risks or impacts on tangible or intangible cultural heritage because they are usually installed on existing municipal and industrial land. Regarding subprojects at generation side, potential impacts on cultural heritage (if any) can be identified during subproject screening and due diligence review and should be avoided or otherwise mitigated during preparation. HXB's ESMS is required to screen for risks and impacts on cultural heritage in its E&S Screening process and to apply the relevant requirements of ESS8 where subprojects are found to have significant risks and impacts on cultural heritage. Relevance of ESS8 will be further reviewed during FI sub-projects preparation.

### **ESS9 Financial Intermediaries**

This project is classified as a FI project and HXB is the responsible FI. During Preparation, for the new business line of energy storage, a comprehensive review of HXB's current ESMS against the new ESF (especially ESS9) was carried out and the ESMS was enhanced in response to the ESF requirements and proportionate to the project risks and impacts. When appropriate, this ESMS will be further expanded to cover other projects under HXB's portfolio on a progressive basis, subject to necessary review and updates with reference to experience and lessons learned from current project and proportionate to the risks in HXB's portfolio. The enhanced ESMS for HXB includes (a) a summary of HXB's existing E&S policies, (b) current E&S procedure and proposed enhancements for the identification, assessment and management of E&S risks and impacts of sub-projects, including E&S risks screening, due diligence, risk classification, safeguard documentation preparation, loan processing (i.e. from loan approval to agreement signing and loan disbursement) and post-loan E&S supervision, (c) current organizational capacity and competency of HXB and proposed enhancements on E&S management, both internally and externally, (d) requirements on the monitoring and reporting of E&S performance of the FI sub-projects, including periodic review of the ESMS effectiveness, and (e) external communication mechanism for the project. For the external communication mechanism, the ESMS specifies the requirements of stakeholder engagement by HXB and the sub-borrowers throughout the project cycle and proposes to establish a Grievance Redress Mechanism (GRM) to facilitate resolution of concerns in a timely, transparent and culturally appropriate manner. Tools have been developed and annexed to the ESMS to facilitate ESMS implementation, including the exclusion list, environmental and social screening sheet, indicative outline of environmental and social impact assessment, resettlement framework, ethnic minority development framework, and stakeholder engagement plan. The Green Credit Center at HXB's headquarter takes the primary responsibility to coordinate the ESMS implementation. A timebound capacity development plan has been developed as an important and integral part of the ESMS and ESCP. Based on experience and lessons learned from the preceding Bank-financed programs, HXB is committed to mobilize adequate human and financial resources to develop and maintain organizational capacity and competency for ESMS implementation, including: (a) a representative of the senior management to have overall accountability for E&S performance of the FI sub-projects, (b) a dedicated staff to be responsible for day-to-day implementation of the ESMS, (c) both in-house and external technical expertise to carry out due diligence and E&S risk management, (d) strengthened capacity among sub-project management teams in bran offices, (e) training programs with proper budget for HXB direct employees, external consultants and sub-



borrowers, as specified in the ESMS and ESCP. HXB will submit to the Bank Semi-annual Environmental and Social Reports on the ESMS implementation.

**B.3 Other Relevant Project Risks**

At this stage, there are no other specific risks of relevance for the project.

**C. Legal Operational Policies that Apply**

**OP 7.50 Projects on International Waterways** No

**OP 7.60 Projects in Disputed Areas** No

**III. BORROWER’S ENVIRONMENTAL AND SOCIAL COMMITMENT PLAN (ESCP)**

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DELIVERABLES against MEASURES AND ACTIONs IDENTIFIED	TIMELINE
<b>ESS 1 Assessment and Management of Environmental and Social Risks and Impacts</b>	
Environmental and Social Management System (ESMS) to be established and maintained by Huaxia Bank throughout the life cycle of the Project, which will be applied to all sub-borrowers under the Project.	06/2019
Annual environmental and social monitoring reports that show status of compliance with the ESMS and the ESCP.	06/2020
Environmental and Social Risk Screening Forms for potential sub-project to be filled in at the screening stage following ESMS procedure	12/2019
Environmental and Social Impact Assessment and/or other applicable safeguards documents for selected sub-projects prior to sub-project loan approval	12/2019
<b>ESS 10 Stakeholder Engagement and Information Disclosure</b>	
Stakeholder Engagement Plan	06/2019
Establishment of grievance redress mechanism	06/2019
Implementation of stakeholder engagement consistent with ESMS and ESS10 for the subprojects with moderate and substantial E&S risks	12/2019
<b>ESS 2 Labor and Working Conditions</b>	
Maintenance and implementation of HXB labor management system to ensure compliance with legal requirements and ESS2	06/2019



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Provisions in subproject loan agreements to ensure labor management requirements consistent with national laws and ESS2	06/2019
<b>ESS 3 Resource Efficiency and Pollution Prevention and Management</b>	
Provisions in sub-project loan agreements to ensure incorporation of pollution control compliance requirements	12/2019
<b>ESS 4 Community Health and Safety</b>	
Safety assessment approval document from relevant authorities to ensure sub-projects meet any applicable safety assessment requirements in compliance with national laws/regulations requirements at sub-project loan approval stage.	12/2019
<b>ESS 5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</b>	
Environmental and Social Risk Screening Forms and Due Diligence reports for sub-projects	12/2019
Resettlement Action Plan consistent with HXB ESMS and ESS5 for the subprojects involving resettlement with risk higher than minor (land acquisition with a size less than 3.3. ha and less than 5 households physically displaced)	12/2019
<b>ESS 6 Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>	
Environmental and Social Risk Screening Form of ESMS and Environmental and Social Impact Assessment when applicable	12/2019
<b>ESS 7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</b>	
Environmental and social due diligence report including identification of ethnic minorities	12/2019
Ethnic Minority Development Plan consistent with HXB ESMS and ESS7 for the subprojects resulting in adverse impacts on ethnic minorities	12/2019
<b>ESS 8 Cultural Heritage</b>	
Provisions in sub-project loan agreement requiring compliance with chance-finds procedures	12/2019
Cultural heritage management plan for sub-projects when applicable	12/2019
<b>ESS 9 Financial Intermediaries</b>	
ESMS for the project	06/2019

**B.3. Reliance on Borrower’s policy, legal and institutional framework, relevant to the Project risks and impacts**

**Is this project being prepared for use of Borrower Framework?**

In Part



**Areas where “Use of Borrower Framework” is being considered:**

Along with the development of energy storage in China, Chinese E&S legal framework for the emerging sector is being developed to support its sustainable development. Since 2016, China has promulgated the regulations on the life cycle management for batteries and electrical apparatus, along with technical standards to support reliable design and operation of BEES whose application was deemed appropriate and sufficient according to the visits of existing BEES projects. However, more technical standards on safety and environmental management are being developed or remain to be developed for specific BEES technologies in the near future. A value addition of this project will be the enhancement of HXB’s exiting ESMS and strengthening of HXB’s E&S capacity consistent with the requirements of the ESF and commensurate with the level of risk, under which all subprojects will be prepared and implemented in accordance with national laws and regulations, with relevant ESS requirements applying to subprojects classified as high or substantial risk. In addition, to address any potential gaps beyond HXB’s capacity, an institutional strengthening component has been designed as part of the project with GEF financing to strengthen the legislation in battery energy storage sector and to provide technical assistance on battery manufacturing and recycling, and the National Energy Administration will be responsible for the implementation of this component.

**IV. CONTACT POINTS**

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**Borrower/Client/Recipient**

Borrower: People's Republic of China

**Implementing Agency(ies)**

Public Disclosure





Implementing Agency: Huaxia Bank

**V. FOR MORE INFORMATION CONTACT**

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**VI. APPROVAL**

Task Team Leader(s):	Ximing Peng
Safeguards Advisor ESSA	Peter Leonard (SAESSA) Cleared on 16-Apr-2019 at 11:28:45
Practice Manager	Jie Tang (PMGR) Approved on 16-Apr-2019 at 15:04:13