

BAC AI PUMPED-STORAGE HYDROPOWER PLANT PROJECT

TERMS OF REFERENCE

SUPERVISION AND SUPPORT CONSULTANT (SSC)

v3

December 2024

REVISION

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B v1	18/10/2023	After onsite visit and meetings in October 2023
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PART I. INTRODUCTION OF THE PROJECT

1. General Information of the Project

Bac Ai pumped-storage hydroelectric project is the first pumped-storage hydroelectric project in Vietnam that has completed the investment preparation steps. The project includes " Investment project to build a pumped-storage hydropower plant" and "Component project to connect Bac Ai PSHP to the power system".

The Bac Ai PSHP project has been approved by the Ministry of Industry and Trade to be added to the List of Power Plants operating in coordination with large power plants, which have particularly important meaning in socio-economy and national security and defense in Decision 1385/QĐ-BCT dated June 12, 2023.

The Bac Ai pumped storage hydropower project belongs to the List of important national and key energy programs, works and projects approved by the Prime Minister in Decision No. 270/QĐ-TTg dated 02/4/2024.

The project location is about 20km from Bac Ai town to the northwest, 65km from Phan Rang city to the northwest. Construction investment project of storage hydroelectric power plant is located in two communes Phuoc Tan and Phuoc Hoa, Bac Ai district, Ninh Thuan province.

1.1. Project Design

The Bac Ai PSHP project includes the following main components:

- Pumped storage hydropower plant: Capacity 1200 MW (including 04 units, 300 MW/unit).
- 500 kV distribution station.
- Power transmission line: Connecting Bac Ai Pumped Storage Hydropower Plant to Ninh Son 500kV Substation using a double-circuit 500kV line, length of about 2x19km.
- Upper reservoir.
- Lower reservoir (the Ministry of Agriculture and Rural Development is the project investor).
- Waterway, including: Water intake, upstream valve tower, water tunnel, upstream surge tower, vertical pressure tunnel, underground plant, downstream pressurization tower, factory discharge tunnel and lower valve tower reservoir, factory construction and operation tunnel, factory downstream tunnel, downstream pressurization tower operation tunnel, outlet, discharge channel... built in Phuoc Hoa commune, Bac Ai district, Ninh Thuan province.

These project's components that has been developed in various phases:

Phase 1:

- The lower reservoir is Song Cai reservoir, which is a component of the Tan My Irrigation System project, invested by the Ministry of Agriculture and Rural Development. Currently, the lower reservoir has been completed and stored water from April 2022.
- The outlet cluster of Bac Ai pumped-storage hydropower project includes outlet and discharge channel located in Song Cai reservoir, so it will be flooded about 50m below normal water level of Song Cai reservoir. These works have been completed by EVN before storing water in April 2022.

Phase 2:

- Stage 1 : Works on the waterway from upstream to downstream with following items: Water intake gate, upstream valve tower, upstream pressure tunnel, upstream surge tower, vertical pressure tunnel, connected to the powerhouse having 4 units with a total capacity of 1200 MW, connected to downstream pressure tunnels, downstream valve towers and a cluster of outlets and discharge channels.

In addition, there are other auxiliary works to ensure the normal operation of the project such as the system of construction and operation roads, emergency exits, power cable tunnels, water drainage, etc. The detailed technical design for this component has been approved by EVN after review of Ministry of Industry and Trade (MoIT)

- Stage 2 : The headwork of the upper reservoir such as the concrete face rockfill dam, the gravity concrete dam on the left bank in combination with the spillway; water intake, upstream valve tower, 500kV switchyard (construction and installation work). Technical design of this component is being developed;

The double circuit transmission line connecting Bac Ai PSHP to the national power system at 500kV substation will be precisely defined in 2026/2027; its main characteristics are:

- Total length: about 25 km,
- Starting point: The 500kV busbar of the 500kV Bac Ai PSHP Switchyard,
- End point: Connect to the 500kV Van Phong - Vinh Tan line.
- Based on approved Power Development Plan VIII, , Bac Ai Pumped Storage Hydropower Plant is connected to the Ninh Son 500kV Substation by a double-circuit 500kV line, with a length of about 25km.

1.2. Task of the project

The main task of the Bac Ai Pumped-Storage Hydropower Project is to overlay the load graph of the power system and contribute to reducing the difference (flattening) of the load graph by using pump capacity during off-peak hours and power generation during peak hours.

The project's tasks are consistent with the Decision No. 3837/QĐ-BCN dated November 22, 2005, of the Ministry of Industry and Trade on approving the national master plan of pumped-storage hydropower potential.

1.3. Type and grade of work design

1.3.1. Grade of works in service of design

The grade of Bac Ai pumped-storage hydroelectric project is a special grade, which has been determined in Decision No. 99/QĐ-EVN dated 12 May 2015 of the Electricity of Vietnam on the approval of the investment project to build the Bac Ai pumped-storage hydroelectric project.

1.3.2. Grade of works in service of construction investment

According to the Circular 06/2021/TT-BXD dated June 30, 2021 of the Ministry of Construction, stipulating the decentralization of construction works and guiding their application in construction management. Management of construction investment activities, in Clause 1-Article 4, it is stipulated that "The grade of works under the construction investment project which has been decided on investment before the effective date of this Circular shall be determined according to the provisions of this Law. Provisions of law at the time of approval of the work construction investment project". Therefore, the determination of construction management level of Bac Ai pumped storage hydropower plant is based on Circular 10/2013/TT-BXD dated July 25, 2016 (Appendix I), hydropower plants with installed capacity $N_{lm} = 1200$ MW, according to section II.1.5.3.2a, Table II.1, is Special Class.

On the basis of the above analysis, to ensure the general safety of the project, the general design level of the work is Special grade.

Accordingly, the guaranteed design frequencies are as follows:

- Sedimentation time: $T=100$ years
- Designers: $P=0.1\%$ ($T=1,000$ years)
- Test flood: $P=0.02\%$ ($T=5,000$ years)
- Flooding for construction diversion: $P=2\%$ (for two or more dry seasons)

1.4. Project implementation schedule

The current tentative planning is the following:

- Start construction of main works: December 2024;
- Commercial power generation Unit 1: December 2029;
- Commercial power generation Unit 2: April 2030;
- Commercial power generation Unit 3: August 2030;
- Commercial power generation Unit 4: December 2030.

1.5. Main technical parameters of the Project

(For detailed parameters, please refer to the attached Annex §1)

1.6. Information of Project Owner and Implementing Agency

Power Project Management Board 3 (EVNPMB3) acts as the project implementing agency on behalf of Vietnam Electricity (EVN) – the Project Owner, to manage projects invested by EVN and carries out study and investment preparation for projects, as assigned by EVN.

Power Project Management Board 3 was established in Decision No. 307/QĐ-EVN dated November 22, 2018 of the Board of Members of Vietnam Electricity Group on the basis of human resources, assets and facilities of Hydropower Project Management Board 5, Hydropower Project Management Board 6 and Ninh Thuan Nuclear Power Project Management Board.

- Name:
 - + Full name: Power Projects Management Board 3 – Branch of Vietnam Electricity.
 - + International transaction name: Vietnam Electricity Power Projects Management Board No.3.
 - + Abbreviated name: EVNPMB3
- Type of enterprise: Dependent accounting unit (branch) of Vietnam Electricity.
- Head office: No. 25 Thach Thi Thanh, Tan Dinh ward, District 1, Ho Chi Minh City.

Projects completed by PMB3 under the role of project management:

- Tri An hydropower plant (400MW);
- Thac Mo1 hydropower plant (150MW);
- Ham Thuan hydropower plant (300MW);
- Da Mi hydropower plant (175MW);
- Dai Ninh hydropower plant (300MW);
- Dong Nai 3 hydropower plant (180MW);
- Dong Nai 4 hydropower plant (340MW);
- Buon Kuop hydropower plant (280MW);
- Buon Tua Srah hydropower plant (86MW);
- Srepok 3 hydropower plant (220MW);
- Thac Mo hydropower plant expansion (75MW);
- 110kV lines and stations supply power for construction of Ninh Thuan nuclear power project;
- Phuoc Thai 1 solar power plant (50MWp);
- Increasing capacity of 220/110kV Tri An substation.

Projects under implementation by PMB3:

- Bac Ai Pumped Storage Hydropower Project (1200 MW);
- Expansion of Tri An Hydropower Project (200 MW);
- Power transmission project for Con Dao island district;
- O Mon III, IV thermal power project (1050 MW/Plant) (Projects are transferring to PVN);

1.7. Project institutional counterparts

Vietnam Electricity (EVN) was established by the Government of Vietnam as a State-owned company in 1994, and officially operated as a one-member limited liability company in 2010.

Entrusted with the mission of ensuring sufficient power supply for national socio-economic growth and meeting customers' demands with continuously improved quality and services, EVN secures power investment and development while serving the Government of Vietnam as a macro regulatory tool.

EVN wholly owns the national power transmission and distribution system through the National Power Transmission Corporation and five power corporations for power distribution. EVN also holds strategic and multipurpose hydropower plants, and the majority of the three power generation corporations (GENCOs 1, 2, 3) and sells electricity to nearly 30 million customers.

Two EVN's entities will at least be directly involved:

- The Power Project Management Board 3 (EVNPMB3)
- The Power Construction Consulting Joint Stock Company 4 (EVNPECC4)

The Ministry of Agriculture and Rural Development is in charge of the Tan My irrigation system project (lower reservoir).

The French Development Agency (AFD) is a public financial institution that implements the France's development policy, acts to fight poverty, and promote sustainable development. Present in Vietnam since the 1994, AFD is one of major partners of the country and of EVN. In line with national priorities, it supports its political, economic, and social transition. AFD is positioning itself as a leader among Co-financiers to the Project.

The European Investment Bank (EIB) is a financial institution of the Member States of the European Union. It works closely with the other European institutions to implement EU policy. It will co-finance the project and maybe part of the preparatory studies.

The Kreditanstalt für Wiederaufbau (KfW) is a German financial Institution. It will co-finance the Project and also probably part of the preparatory studies.

The Japan International Cooperation Agency (JICA) will co-finance the project and already provided financing for the preparatory studies.

Cassa Depositi e Prestiti (CDP), a public and private sector entity based in Italy that is a financial institution, part of the EDFIs network.

Proparco, a subsidiary of AFD Group and part of the EDFIs.

The Bac Ai project will be co-financed by the EU's non-refundable grant through the EVN - Team Europe Energy Transition Facility and loans from a consortium including at least AFD/KfW/EIB/JICA.

Co-financiers' requirements are defined as stipulated in the Loan Agreements to be signed between Co-financiers and EVN. The terms "requirement of the Lenders" or 'Co-financiers' requirements" systematically refer to this Loan Agreement clauses. These requirements will be discussed in advance between Co-financiers and EVN/PMB3.

The European Union is an economic and political union of 27 European countries. It is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. It acts globally to promote sustainable development of societies, environment and economies, so that everyone can benefit.

2. Scope of the Project

2.1. Main items of the project

- Pumped storage hydropower plant: Capacity 1200 MW (including 04 units, 300 MW/unit).
- 500 kV distribution station.
- Power transmission line: Connect Bac Ai Pumped Storage Hydropower Plant to Ninh Son 500kV Substation using a double-circuit 500kV line, length of about 2x25km.
- Upper reservoir.
- Lower reservoir (the Ministry of Agriculture and Rural Development is the project investor).
- Waterway includes: Water intake, upstream valve tower, water tunnel, upstream surge tower, vertical pressure tunnel, underground plant, downstream pressurization tower, factory discharge tunnel and lower valve tower reservoir, factory construction and operation tunnel, factory downstream tunnel, downstream pressurization tower operation tunnel, outlet, discharge channel... built in Phuoc Hoa commune , Bac Ai district, Ninh Thuan province.

2.2. Contractor selection plan (please refer to Annex)

Planned contractor selection plan; still subject to potential changes.

2.3. Scope of work of bidding packages (please refer to Annex)

Planned scope of work; still subject to potential changes.

PART II. WORKSCOPE OF SUPERVISION AND SUPPORT CONSULTANT

3. The need for a consultant to supervise and support the implementation of the Project

3.1. Background

Bac Ai PSHP is a large-scale power plant construction and is the first type of storage hydroelectric power plant to be built in Vietnam.

About construction works: The feature of the project is that the waterway is designed underground in the mountain bed with a very large size and volume of rock excavation and concrete construction, especially the powerhouse space and vertical shaft with high length of approx. 500m. Regarding the experience of hydropower plant construction with underground work in Vietnam up to now, many plants have been built including Hoa Binh, Ialy, Huoi Quang, Thuong Kon Tum, Da Nhim, ban Ve, Hua Na, A Vuong, Song Tranh 2, Buon Kuop, Srepok 3, Dakring, etc., in which the designs of 2 hydroelectric plants Hoa Binh and Ialy are completely supported by the Soviet Union (former); and designs of Huoi Quang and Thuong Kon Tum hydropower plants was carried out by Power Engineering Construction Joint Stock Company 1 with the support of foreign consultants.

About technological equipment: Bac Ai PSHP is the first project, so the domestic consultants do not have practical experience to design, especially the technology of integrated equipment of Pump-Turbine and Motor-Generator, and a special downstream valve system, the deep level of underground powerhouse compared to the downstream water level.

The Project Management is performed by Power Project Management Board 3 (PMB3 of EVN) according to EVN's assignment. Technical Design, bidding documents, bidding process support is performed by PECC4 (local consultant). Preparation of Construction Drawing Design (for 3-step design) and construction supervision will be carried out by the Local Consultant but the contract has not yet been signed (duties of the Local Consultant: refer to the chapters below).

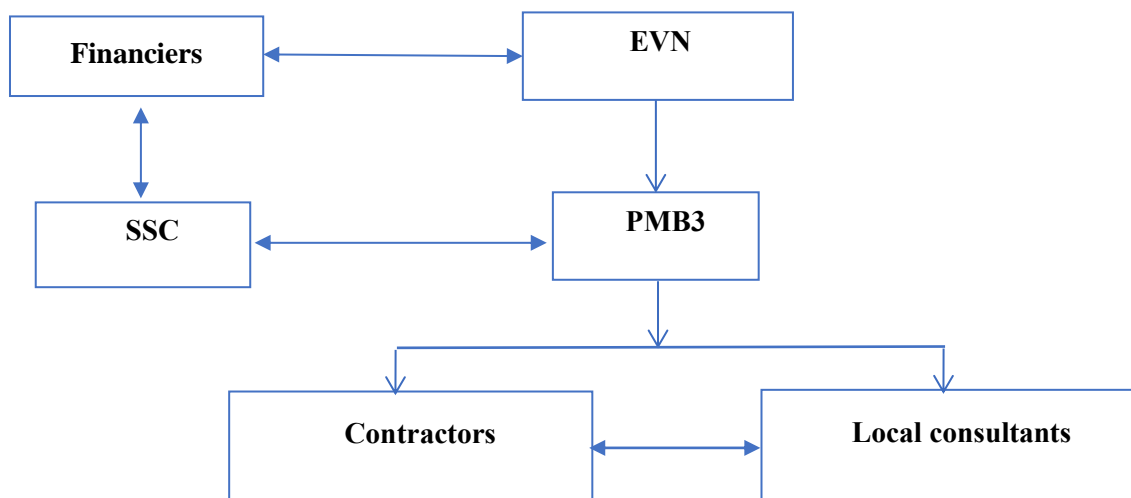
With the above special reasons, during the preparation stage, EVN agreed that it is necessary to have the support of foreign consultants to EVN/PMB3 and local consultants during the process of implementing the design, the bidding documents, the construction drawing designs, construction supervision and commissioning, as well as ESHS Management and Monitoring.

In this context, and with funds provided by the Facility (ETEF), EVN and the Co-financiers agreed to hire a **Supervision and Support Consultant for the construction period**.

The Supervision and Support Consultant (SSC) to be selected in this tender will supervise and supports the implementation of the Project in the following stages: (1) Preparation of bidding documents and bidding; (2) Construction drawing design; (3) Supervision of the construction of works & commissioning in order to ensure the effective implementation and progress of the project in compliance with laws, regulations and requirements of the Co-financiers.

3.2. Organizational chart between stakeholders (PMB3, consultants, contractors)

Coordination diagram of the Project Owner, Consultants and Contractors :



Role of SSC	Role of EVN/PMB3 on the SSC activities	Role of AFD on the SSC contract and activities
(1) Support PMB3 in implementing the project in the following phases: - Phase 1: Prepare the bidding documents and bidding (10 packages expected for financing), including: Prepare the qualification criteria; Review the bidding documents (international technical standards and ESHS specifications); Bidding and contract negotiation - Phase 2: Design construction drawings, including Checking construction drawings, workshop drawings - Phase 3: Construction supervision & commissioning of the project, including Construction Quality Supervision; Supervision schedule; Testing and operation; As-built documents and completion reports.	(1) Management of experts and other personnel as required.	(1) Management of Contract
(2) Support: ESHS management; Disbursement support; Coordination and public relations activities of relevant parties; Support PMB3 in implementing ESCP and E&S progress assessment and E&S compliance monitoring.	(2) Management and tied coordination between SSC and PMB3 based on Co-financiers' requirement.	(2) Management of contract and experts

3.3. Scope of work of Local Consultants (LC)

For better understanding of SSC's scope of work and the clarity of work division among the SSC, the local consultants and PMB3, the role of the **Local Consultants (LC)** is defined as follows:

- (1) prepare Detailed Design and Tender Documents
- (2) prepare the various tender documents and work in close cooperation with PMB3 through the complete tender process as well as contract negotiation
- (3) undertake the work as Main Employer's Consultant and take the role equal/ similar as the FIDIC Engineer for the construction supervision, including but not limited to the main following responsibilities/Tasks:
 - a. Coordination and liaison with the Employer, Contractor(s) and other relevant institutions including:
 - Organisation of weekly/ bi-weekly/ monthly site-meetings with the Contractor(s), the Employer's representatives and other key-stakeholders concerned.
 - Preparation and circulation of minutes of meetings
 - b. Take the role of the Employer's Engineer and carry out all tasks of the Engineer including but not limited to:
 - Contract and claim management, in close cooperation with the SSC and PMB3
 - Control of the validity of the Contractor's documents such as insurance policies, bank guarantees, transport documents, etc.
 - Quality and quantity control for all works and supplies via day-to-day inspection of the Contractor's work
 - Provide guidance to the Contractor to conform to the specifications
 - Ensure that the Contractor is only using permanent and temporary construction materials in compliance with the technical specifications and works requirements
 - Time and expenditure control

- Review and approval of the Contractor's invoices and issuance of the corresponding "Payment Certificates" to the Employer
- Assistance to the Employer in dealing with any variation orders to the Works Contract
- **Quality and Safety Assurance:** The LC has to define the standards, measures and methods for quality and safety assurance during design, construction, installation and operation phase for a reliable and sustainable HPP; The LC shall develop with support by the SSC a Quality and Safety Management Strategy that defines the quality techniques and standards to be applied and the various responsibilities for achieving the required levels during the project
- Setting up a Monitoring and Evaluation System (see further details below)
- Ensuring visibility according to donors' requirements, in close cooperation with the SSC and PMB3
- Review of the Contractor's reports, shop drawings; as-built drawings, operation manuals, maintenance plans, etc.
- Supervise the Contractor's testing and commissioning of the constructed works and Contractor's supply
- Preparation of a snag list and assistance to the Employer in the preparation of provisional acceptance
- Participation in the acceptance of works

The duties of Local Consultants must comply with current Vietnamese regulation and PMB3 as follows:

- (1) Bidding phase (local consultant contract was signed with PECC4): Prepare bidding documents, support bid evaluation and contract negotiation.
- (2) Construction phase (the contract with a local consultant is not signed yet¹) according to Article 19, Decree 06/2021/ND-CP, including but not limited to the following main contents:
 - a) Supervise construction quality
 - Check the conditions for starting construction works according to the provisions of law;
 - Check the compatibility of the construction contractor's capacity with the bid documents and construction contract, including:
 - + Check the human resources and construction equipment brought into the construction site by the contractor;
 - + Check the contractor's quality management system;
 - + Check the license to use machinery, equipment, and materials with safety requirements for construction works;
 - + Inspect the contractor's laboratories and facilities producing materials, components, and construction products for construction.
 - Inspect and monitor the quality of supplies, materials and equipment installed in the project by construction contractors and equipment supply contractors according to design requirements, including:
 - + Check the manufacturer's quality certificate, test results of standard-compliant laboratories and equipment quality testing results of organizations recognized by competent state agencies for materials, components, construction products, equipment installed for the project before being put into the project;

¹ EVN may assign PMB3 to supervise the construction by itself

- + In case of doubt about the results of quality inspection of materials and equipment installed in the project carried out by the construction contractor or equipment supplier, the Consulting Contractor shall report to the Investor for implementation. Physical inspection of materials and equipment installed in construction projects.
- Carry out inspection and supervision of general construction contractors, including:
 - + Check construction methods of construction contractors;
 - + Regularly and systematically inspect and supervise the process of construction contractors carrying out work on site. Inspection results must be recorded in the Owner's supervision log or inspection record according to regulations;
 - + Gather and check documents for acceptance of construction work, construction parts, construction stages, equipment acceptance, acceptance of completion of each construction item and completion of construction work erect;
 - + Detect errors and irrationalities in the design to request the Owner to adjust or request the design contractor to adjust;
 - + Coordinate with investors to organize quality inspection of construction parts, construction items and construction works when there are doubts about quality;
 - + Coordinate with investors and related parties to resolve problems that arise during construction work.
- During the construction process, including:
 - + Check, supervise and approve construction organization measures and construction methods of each job by the contractor compared to the requirements of the project and the signed contract;
 - + Check certificates, quality of materials, components, construction products and test results at standard laboratories stated in the contract or approved by the investor presented by the contractor before entering. used for construction projects;
 - + Participate in supervising the testing and inspection process of materials, structures, products, and construction equipment when necessary;
 - + Supervise the contractor's construction process to comply with the design and current legal regulations;
 - + Inspect and accept construction work in accordance with design requirements and current legal regulations;
 - + When discovering that construction equipment, human resource arrangement, materials, construction equipment and technological equipment are not in accordance with the signed contract, the contracted consultant has the right to: Request the contractors to perform properly the contract signed with the Owner; Make a record and request the contractor to perform the work until the contractor properly implements the provisions of the contract. In case the contractor does not comply, the consultant will report to the Owner to handle the violations of the contractors; Refuse to accept construction work, construction stages, and test runs when they do not meet the requirements according to the contract signed with the Owner; The refusal to accept work must be expressed in writing to be sent to the Owner and the contractors, clearly stating the reason for refusal to accept.
 - + Proposing measures to handle defects discovered during construction, testing and acceptance;
 - + Check and review the design to promptly report to the Investor any conflicts and unreasonableness in the design.
- b) Project management support
 - Prepare weekly, monthly, quarterly and unexpected reports as required by the investor;
 - Gather all payment documents and bureaucratic certificates (eg handover certificate);
 - Review, evaluate and propose to handle arising issues and changes compared to the contract (if any);
 - Review the validity of all Guarantees and Performance Assurances submitted by the contractor;

- Plan meetings, prepare information and documents for meetings, assist the Investor in adjusting meetings, and prepare minutes/announce meeting conclusions.
- c) Design approval work
 - Establish design document approval process;
 - Support investors in organizing and chairing design approval meetings;
 - Approve drawings, design documents, and as-built documents.
- d) Control progress and costs
 - Control overall project progress;
 - Control project costs.
- e) Quality Assurance System
 - Set up QA program for the project;
 - Control QA activities.
- f) Process and supervision of construction and equipment installation
 - Establish monitoring procedures;
 - Check the equipment before Ex-work;
 - Check materials and equipment upon arrival at the construction site;
 - Monitor customs declaration procedures when exporting and importing materials and equipment;
 - Construction supervision;
 - Supervision of testing and acceptance;
 - Prepare to issue handover acceptance certificate;
 - Confirm the quantity and type of spare materials according to the contract/materials recovered after construction to hand over to the agency in charge of operations;
 - Issuing the final completion report (describing the entire progress of the contract implementation, the main progress milestones implemented, incidents that occurred during the erection and acceptance process if any, the value of the completed items, list of spare equipment and supplies).
- g) Construction
 - Check and approve survey results performed by contractors;
 - Check and approve documents and drawings submitted by contractors;
 - Check and approve construction materials before putting them into construction;
 - Check and confirm test results of concrete, steel structures, foundation bolts... submitted by the contractor;
 - Check and approve construction structures submitted by contractors;
 - Check payment documents submitted by the contractor;
 - Supervise construction implementation;
 - Handle technical issues that arise.
- h) Equipment installation, testing and commissioning
 - Check and approve documents and drawings submitted by contractors;
 - Inspect and approve programs and procedures for inspection and testing of main equipment during the manufacturing and assembly process before start-up and trial operation;
 - Supervise all installation, testing and commissioning of equipment in accordance with approved drawings/processes and ensure compliance with current standards and regulations;
 - Coordinate and witness all inspections of equipment, safety, environment, and fire prevention by competent authorities; Supervise start-up and commissioning at the construction site;
 - Handle technical issues that arise;
 - Supervise testing programs, check and confirm test reports submitted by the Contractor;
 - Check and approve the operation and maintenance procedures for the entire equipment system established by the contractor.

- i) Environmental issues and construction site safety
 - Organize safety and environmental inspection during the construction process.
- j) Completion report
 - Provide basic requirements in preparing the Completion Report and guide the contractor in preparing the Completion Report.

3.4. Scope of work of the Owner (EVN/PMB3)

In accordance with Article 14, Decree 06/2021/ND-CP as follows:

1. Select organizations and individuals with qualified qualifications according to regulations to carry out construction work, supervise construction work (if any), experiment, and inspect construction quality. project (if any) and other construction consulting work.
2. Hand over the site to the construction contractor in accordance with the construction progress and regulations of the construction contract.
3. Check the conditions for starting construction works as prescribed in Article 107 of Law No. 50/2014/QH13 amended and supplemented in Clause 39, Article 1 of Law No. 62/2020/QH14. Carry out the notification of construction commencement according to the provisions of construction law; The sample notice of commencement of construction is specified in Appendix V of this Decree. In case the project is subject to acceptance inspection according to the provisions of Clause 1, Article 24 of this Decree, the construction commencement notice must be sent at the same time to the specialized construction agency according to hierarchy.
4. Organize the implementation of construction supervision according to the content specified in Article 19 of this Decree.
5. Establish a construction management system and notify about the duties and powers of individuals in the construction management system of the investor or construction supervision contractor (if any) to relevant contractors. Arrange enough appropriate human resources to carry out safety management in construction; Check the mobilization and arrangement of human resources of the construction supervision contractor compared to the requirements of the construction contract (if any). The person performing the investor's labor safety management must be trained in labor safety or construction engineering and meet other legal regulations on labor safety and hygiene.
6. Check and approve the overall and detailed construction progress of construction items prepared by the contractor to ensure compliance with the approved construction schedule. Adjust construction progress when necessary according to the provisions of the construction contract.
7. Check and confirm the accepted volume according to regulations and the arising volume according to the provisions of the construction contract (if any).
8. Report on safety measures to specialized construction agencies according to the provisions of Clause 4, Article 52 of this Decree in case of construction of works with dangerous areas that greatly affect public safety.
9. Organize control experiments and quality inspection of construction parts, construction items, and construction works according to the provisions of Article 5 of this Decree.
10. Organize acceptance of construction works.
11. Organize preparation of construction completion documents.
12. Temporarily suspend or suspend construction for construction contractors when it is deemed that the quality of construction does not meet technical requirements, construction methods do not ensure safety, or violate regulations on Labor safety management causes or has the risk of occupational accidents or incidents causing loss of labor safety.
13. Preside and coordinate with relevant parties to resolve problems that arise during construction work; Declare, handle and overcome consequences when construction incidents or incidents causing unsafe labor occur; Coordinate with competent authorities to resolve construction site incidents and investigate machine and equipment incidents according to the provisions of this Decree.
14. Organize the implementation of regulations on environmental protection in construction works according to the provisions of law on environmental protection.

15. Prepare a report to send to the specialized construction agency to inspect the acceptance work according to the provisions of this Decree.
16. The investor has the right to do it himself if he meets the qualifications or hire a consulting organization that meets the qualifications according to regulations to supervise one, some or all of the contents specified in Clause 3. to Clause 7 of this Article; is responsible for inspecting this contractor's performance according to the requirements of the construction contract and relevant legal regulations.
17. The person performing the investor's labor safety management is responsible for:
 - a) Organize and monitor the implementation of safety regulations in construction by contractors;
 - b) Organize coordination between contractors to implement safety management and resolve issues that arise regarding labor safety during construction;
 - c) Temporarily stop or suspend construction when detecting signs of violation of safety regulations in construction work.

4. SSC's Overall scope of work

4.1. General

SSC's overall scope of work consists of 2 lots of 1 bidding package as follows:

Lot 1: Support to PMB3 to implement the project in following phases:

- Phase 1: Preparation of bidding documents and bidding;
- Phase 2: Construction drawing design;
- Phase 3: Supervision of the construction of works & commissioning

For this lot, PMB3 will be the main operational point of contact of the SSC.

Lot 2: Support to the Co-financiers and PMB3 to perform the followings:

- ESHS management, and site works preparation;
- Disbursement assistance;
- Stakeholders coordination and public relation activities
- Supporting PMB3 in implementing the ESCP (Environmental & Social Commitment Plan)
- E&S progress review and E&S conformance monitoring

For this lot, AFD, on behalf of the Co-financiers, with the support of PMB3, will be the main point of contact of the SSC.

Objectives of the Assignment of the SSC is as follows:

1. To support EVN / PMB3 and the LC during the period of bidding, construction drawing design, construction and commissioning, ensuring that:
 - (a) the PSHP is designed in an optimised way in accordance with Vietnam National Technical Regulations, and the List of Vietnam National Standards, International Standards approved/accepted by EVN and commitments between EVN and the Co-financiers;
 - (b) the PSHP is built to assure a sustainable operation;
 - (c) construction works are done while respecting the timeline and the planned budget and application of corresponding applicable national and international standards and norms; and
 - (d) the requirements of Co-financier's guidelines are complied with throughout all stages of the project.
2. To support the Co-financiers during the period of bidding, construction drawing design, construction and commissioning, ensuring that:
 - (a) All technical aspects comply with Vietnam National Technical Regulations and the List of Vietnam National Standards, International Standards approved/accepted by EVN and sustainability requirements of the Co-financiers;
 - (b) The environmental and social assessment studies and management plans meeting the expected environmental and social provisions to be included in the Loan Agreement and ESCP, in line with ESMP and other plans, documents agreed upon by EVN and the Co-financiers.
 - (c) The ESHS management and monitoring are performed properly in compliance with the Co-financiers' guidelines, including establishment of PA-ESMP & HSE Monitoring Plan, and HSE supervision and control at site;
 - (d) The requests for payment from EVN are properly made and conformed with the progress of works;
 - (e) The Stakeholder Coordination and Public Relation Activities will comply with the applicable international standards (as defined by the Co-financiers).

4.2. Study of Project's Document and Inception Report

The SSC shall familiarize itself with the documents made available to SSC by the PMB3 and/or the Co-financiers, which are inclusive but not limited to the technical design, design drawings, cost estimates, E&S documentation, supplementary studies, and bidding documents. The SSC shall coordinate with PMB3 for arranging a kick-off meeting and a site visit with the Owner, the Co-financiers and the local consultants (if any).

The SSC may identify required additional on-site investigations and, if considered reasonable, the SSC may provide design proposals and adjusted methodologies to optimize and improve layout and design of the PSHP.

Based on collected information, the SSC shall conduct a risk analysis and advise PMB3 on potential risks during the design, construction, commissioning and operational phases of the project.

All findings and analysis will be recorded in an inception report. The SSC shall consider in the inception report the recommendations of the Panel of Experts (PoE) on Dam Safety and Technical Design review if those are available by the time of compiling the inception report.

4.3. Review of bidding documents and bidding assistance

For this part, objectives of the SSC will be as follows:

- Check, comment and support in the process of finalizing the Bidding Documents;
- Checking and evaluating that the Detailed Design / Tender Design is complying with Vietnamese regulations and the provisions agreed by the parties in relation with bidding process;
- Checking and evaluating for Environmental and Social plans and studies in the Bidding Documents in accordance with the Co-financiers' requirements. Provide a summary of ESCP compliance (including timeliness of implementation) in the periodic review/monitoring reports.
- For ESHS related clauses, the ESHS related sections of KfW's Standard Bidding Documents shall serve as basis.
- Support EVN/PMB3 to publish ads on the procurement platform in accordance with the Co-financiers' requirements;
- Assist in the organization of the bidding process, bid evaluation, contract negotiation and signing, including the preparation of Pre-Bid Conferences (if necessary) to ensure compliance with Vietnamese regulations and in accordance with the Co-financiers' requirements

4.4. Construction Drawing Design

For this part, objectives of the SSC will be as follows:

- Support EVN/PMB3 to review and provide recommendation on the design of construction drawings of the Project's work items, such as upper reservoir, waterway, powerhouse, tunnel, switchyard, etc.
- Review and recommend on the design of equipment manufacturing drawings provided by the equipment contractors to support PMB3's approval process.

4.5. Supervision of construction and equipment supply

For this part, objectives of the SSC will be as follows:

- Participate in monthly site meetings with Contractors, representatives of the Lenders and other relevant stakeholders;
- Support quality control and supervision during construction;
- Ensure that the requirements of the Co-financiers and EVN's commitments are met;

- Report on the progress and risks of the project in accordance with the Co-financiers' requirements on reporting;
- Check that the agreements applicable to disbursement procedures agreed between EVN/PMB3 and the Co-financiers in accordance with the Co-financiers' requirements stipulated in the Loan Agreements are fully implemented.
Check and confirm the Recurring Payment Records are correct and the payment amount corresponds to the work progress. (The responsibility for detailed control of invoices belongs to PMB3 and the local Construction Supervision Consultant, SSC only verifies the correctness of invoices at the request of the Co-financiers in accordance with the Co-financiers' requirements).

4.6. Environmental, Social, Health and Safety Management (ESHS)

Applicable environmental and social standards include: (i) Legal documents and current standards and regulations on ESHS in Vietnam; (ii) ESHS standards agreed upon by EVN and the Co-financiers.

In this section, SSC has following duties:

- The SSC will support to review of ESHS Planning Documents prepared by the contractors to ensure its compliance with ESHS Specification, i.e. the Project Area Environmental and Social Management Plan (PA-ESMP), which includes Occupational Health and Safety aspects (OHS) and other sub-plans.
- The SSC will support to supervise and monitor during entire construction phase to ensure the compliance to the approved PA-ESMP including sub-plans in general and OHS Plan in particular.
- Support the control of technical and ESHS requirements to ensure compliance with Co-financiers' requirements and international technical practices as well as compliance with the signed ESCP.
- Support to inspect and assess the compliance of RAP, and conduct resettlement completion audits.
- Provide recommendations and where needed support to PMB3 and/or the Local Consultant to achieve or maintain conformance of the Project with the applicable standards and the ESCP.

4.7. Support in reviewing the progress of implementation of E&S commitments and documents prepared, applied or implemented by EVN/PMB3 and include the results in periodic reports. Applicable Environmental & Social Standards

The SSC shall carry out the Environmental and Social tasks in accordance with the relevant environmental and social standards ("Applicable Standards") of the Co-financiers' E&S requirements. Namely, the Applicable Standards consist of:

- Applicable local and national laws, regulatory requirements and policies of Viet Nam, including those related to concessions, land acquisition, resettlement, ethnic minorities / Indigenous Peoples, social and environmental protection, environmental and social impact assessments and operations of transmission lines;
- International law, including conventions and treaties adopted by Viet Nam and applicable to the Project;
- World Bank Environmental and Social Standards dated 2017, including applicable World Bank Group guidelines (including General EHS Guidelines, EHS Guidelines for Electric Power

Transmission and Distribution²; Good Practice Handbook on Environmental Flows for Hydropower Projects, Good Practice Handbook on Cumulative Impact Assessment and Management and any other relevant EHS Guidelines, as Good Practice Note on Dam Safety, 2020);

- Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation³;
- All core labour standards of ILO (ten conventions and a protocol)⁴ and ILO conventions signed and ratified by the country.
- For the resettlement aspects, in addition to WB ESS 5 on Resettlement the UN Basic Principles and Guidelines on Development-based Evictions and Displacement, (namely §§ 42, 49, 52, 54 and 60)⁵;
- For land tenure issues the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT)⁶.
- In case there are camps for construction workforce: IFC Guidance “Workers’ accommodation: processes and standards”⁷
- Co-financiers’ guidelines for Environmental and Social Considerations namely AFD E&S Risk Management Policy, EIB E&S Standards, JICA’s guideline (Jan 2022), and KfW Sustainability Guideline.

4.8. Coordination mechanism

Coordination mechanism between PMB3, SSC, and the Co-financiers are included in this Terms of Reference as follows:

- PMB3 has the right to review SSC experts’ work, and suggest AFD the replacement of any expert who does not meet criteria on professional qualifications or professional ethics.
- PMB3 has the right to request to mobilize experts to the construction site at any time to support PMB3 when situations arise that must be handled immediately to ensure the quality and safety of the project.
- PMB3 takes part in the evaluation of experts’ work and signs their monthly work volume table.
- PMB3 has the right to request SSC to prepare documents, to support any activity and to explain to competent authorities about ongoing activities.
- Contract will be Purchase Order based.

² https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

³ [Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation, 2013.](#)

⁴ [Ratifications of fundamental conventions \(ilo.org\)](https://www.ilo.org/publications/016/i2801e/i2801e.pdf)

⁵ http://www.ohchr.org/Documents/Issues/Housing/Guidelines_en.pdf

⁶ <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

⁷ https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_workersaccommodation

- Regarding lot1: PMB3 and SSC will jointly establish PO's draft to be validated by Co-financiers (lead AFD).
- Regarding lot2: Co-financiers and SSC will provide PO's draft and notify PMB3 for further coordination.

5. Specific tasks of SSC

5.1. Review of project's documents

As stated above, the SSC shall familiarize itself with the documents made available to SSC by the PMB3 and/or the Co-financiers, which are inclusive of, but not limited to the technical design, design drawings, cost estimates, supplementary studies, E&S studies and various E&S instruments prepared for the Project and bidding documents. All findings will be recorded in an inception report.

The SSC shall check and evaluate the existing ESHS documents and refer in the inception report the compliance of such documents with National and International (as defined by the financing Banks) OHS, environmental and social standards. The SSC shall evaluate if the E&S schedule aligns with the overall project timeline or if there are any risks that E&S works have not been adequately considered. The SSC shall make suggestion on how to include findings from ESIA or requirement form ESMP and other E&S instruments in the detailed design and timeline if necessary.

In the inception report, the SSC shall point out advantages and disadvantages of the proposed detailed design and layout; the SSC shall identify required additional on-site investigations and, if considered reasonable, the SSC may provide design proposals and adjusted methodologies to optimise and improve layout and design of the PSHP.

The SSC shall consider in the inception report the recommendations of the Panel of Experts regarding the review of Detailed Design and E&S if such are available by the time of compiling the inception report.

Based on the findings in the inception report, a meeting shall take place to discuss possible optimization options and if and how such shall be included in the next (construction) design phase. This shall enable EVN/ PMB3 and the Local Consultant to be fully aware of the Co-financier's requirements and be in accordance with International Engineering Practice.

In case of changes to the project design, undertake an assessment of E&S impacts and risks.

5.2. Review bidding documents and bidding support

The SSC will make sure that all the bidding procedure respect both the Vietnamese bidding Law and the Co-financiers' procurement guidelines.

5.2.1. Procurement Plan / Tender Packages:

Expected packages to be reviewed by the SSC are as follow:

- Construction and installation of phase 2.1 of Bac Ai PSHP project⁸ (Not applicable);

⁸ Due to the package's timeline, short-term expertise was mobilized to review the bidding document of this package.

- Construction and installation of phase 2.2 of Bac Ai PSHP project;
- Supply and transportation of electro-mechanical equipment;
- Supply and transportation of 500kV step-up transformers;
- Supply and transportation of hydro-mechanical equipment;
- Supply and transportation of 500kV power cable;
- Supply, construction and installation of 500kV switchyard.

SSC will review ICB packages for equipment supplies, and eventually HSE procurement in national bidding procedure.

5.2.2.Prepare Qualification Criteria (if applicable)

Support EVN/PMB3 and coordinate with the Local Consultant in determining the qualification criteria, evaluation matrix and minimum requirements on technical, financial and ESHS capabilities of the Contractor. Criteria should be commensurate with the requirements of the task and should not be constructed in a way that unnecessarily restricts the competition (Criteria for assessment may be a combination of minimum pass/fail criteria, and quantifiable criteria for giving scores to certain expertise levels).

5.2.3.Preparation of Bidding Documents:

- Review and support EVN/PMB3 in coordination with the Local Consultant to finalize the Bidding Documents including technical requirements, ESHS requirements, ESHS capacity of the bidder, draft of contract, evaluation criteria and method in accordance with the corresponding Lender's Procurement Guidelines and Standard Bidding Documents (SBD) as stipulated in the Loan Agreements.
- Check the detailed evaluation criteria and scoring system for the evaluation of the Bids (evaluating matrix) to be prepared by the Local Consultant before providing as a separate file to the Co-financiers in accordance with the Co-financiers' requirements stipulated in the Loan Agreements.

And for ESHS related tasks:

- Support EVN/PMB3 in adjusting specific contract requirements to suit requirements of the applicable ESHS Standard;
- Verify the level of ESHS risk of specific Contracts
- Assist EVN/PMB3 in adjusting specific requirements for ESHS including ESMP preparation and other work in the Bidding Documents accordingly; Check and support EVN/PMB3 to ensure all ESMP requirements are stated in the bidding documents/contract.
- Make sure that the costs for staff, measures and works related to the implementation of required ESHS measures are included in the overall cost estimation and in the Bill of Quantities. As appropriate this may include ESHS supervisors and managers, ESHS liaison officers in charge of relations with external stakeholders and project affected people, equipment related to ESHS tasks (e.g. for transport, computers, communication)
- Fill in the bidding checklist for each bidding package, in accordance with the Co-financiers' requirements.

5.2.4.Procurement process

- Assist EVN/PMB3 in preparing to post notices or invite qualified bidders to prepare bids: Ensure that bidding notices are posted on the website in accordance with the Co-financiers' requirements (in the case of International Competitive Bidding) and in at least one national newspaper in the Employer's Country or in the Official Gazette, or on a widely used website or portal with free domestic and international access;

- Ensure that notice is given in sufficient time [minimum 45 to 60 days] to allow Bidders to prepare and submit Bids (applicable for complicated packages).
- Supporting EVN/PMB3 with ESHS-specific issues highlighted and informed that when awarding the contract, the winning Contractor must comply with the agreed Code of Conduct;
- Support EVN/PMB3 to respond in a timely manner with the coordination of the Owner and the Co-financiers from the Contractor's requests for clarification.

5.2.5. Bid evaluation, Contract negotiation:

- Support PMB3 in evaluating bids against agreed criteria, determining whether bidders have substantially responded (i.e. **no major deviation**) to the requirements, the request of Lenders in accordance with the Co-financiers' requirements;
- Support the Local Consultant and PMB3 in the preparation of the Assessment Report in accordance with the reporting requirements of the Lender in accordance with the Co-financiers' requirements. Ensure that the report is transparent and complete, rather than simply stating "complied", "yes" or "no" and complies with the Lender in accordance with the Co-financiers' requirements.
- Assist PMB3 in the preparation of contract documents including all annexes;

ESHS related tasks:

- Assist PMB3 in the preparation of the bidding documents, anticipating the Works to be conducted;
- Assist PMB3 in determining a Contractor's substantial response (without major deviations) to the Lender in accordance with the Co-financiers' as set forth in a valid version of the Lender in accordance with the Co-financiers' requirements. This includes the evaluation of the Contractor's proposed ESHS Alternative, Management Strategy and Replenishment Plan, the suitability of the Code of Conduct, and the availability of suitably qualified ESHS professionals;
- Assist PMB3 in checking to ensure that all relevant ESHS matters are covered in the Contract. In addition, it co-guarantees that the Contractor will not proceed with any Work unless PMB3 verifies that appropriate measures are in place to address the risks and impacts of ESHS.

5.3. Review of drawings

5.3.1. Review of construction drawing design

Based on PMB3's request, the SSC shall review the construction drawing design (for 3-step design items) of major construction items submitted by the contractors and local consultants to ensure the conformity with technical requirements, specifications in the construction contracts, and recommend adjustments, if necessary, to the construction drawing design for PMB3's review and decision.

Main construction items are inclusive, but not limited to the followings:

- Pressure tunnel, Surge tank, Powerhouse, Tailrace Tunnel, Downstream Valve Tower, Tunnel for Construction & Operation, Power Cable Tunnel, Operation Tunnel at downstream of Powerhouse, Drainage Tunnel; Synchronous construction tunnels and adits, Air supply house, Exhausted Air house, Diesel House;
- Upper reservoir dam (CFRD; Spillway; Earthfill dam; reservoir; Road VH5A, Management and operation house); Diversion Culvert; Water intake; Upstream valve tower;
- 500kV switchyard;
- Roads VH2, VH3A, VH6A.

5.3.2. Review of workshop drawings

The SSC shall review the workshop drawings submitted by equipment supply contractors to ensure the conformity with technical requirements, specifications in the equipment supply contracts, and recommend adjustments, if necessary, for the Owner's review and decision.

The workshop drawings of equipments and systems to be reviewed are inclusive, but not limited to the followings:

- Hydro-mechanical equipments: Intake, Upstream Valve Tower, Steel lining, Powerhouse Downstream Valve Tower, Downstream Valve Tower,
- Electro-mechanical equipments: Motor-Generator and auxiliaries, Turbine-Pump and auxiliaries;
- 500kV Step-up Transformer and switchyard;
- Balance of Plant and other auxiliary equipment systems.

5.4. Supervision of construction works & supply of goods

The SSC shall support PMB3 in the project supervision including general and site supervision of Works, continuous project management and monitoring, periodic reporting, and participation in construction meetings at site. General supervision and site supervision of Works shall be performed on a continuous basis by the SSC staff being located at site in close coordination with LC and PMB3.

Assistance to PMB3 and LC in Quality and Safety Assurance: The SSC shall support PMB3 in developing a Quality and Safety Management Strategy that defines the quality techniques and standards to be applied and the various responsibilities for achieving the required levels during the project. It will be the responsibility of the SSC to propose process and specific set-ups (likewise security briefings for external companies' employees), in accordance with Co-financiers' E&S standards.

The SSC shall monitor the quality of works and report on technical aspect to PMB3 to ensure that the works comply with national regulations, international engineering practice and the defined technical specifications.

In particular, the SSC shall support PMB3 to perform the followings:

- Construction Quality Supervision: checking the conditions for starting construction, checking the conformity of contractors' capacity, check and monitor the quality of materials and equipment installed in the project, check and supervise the contractors work, including check and approve construction method, supervise entire construction process to assure compliance with design & specifications;
- General project management support;
- Overall schedule monitoring and interfaces;
- Quality assurance system;
- Tests and commissioning of works;
- Check the as-built documents and completion reports;
- Other necessary works as per requests of PMB3 and/or the Co-financiers.

ESHS related tasks:

- The SSC will review of ESHS Planning Documents prepared by the contractors to ensure its compliance with ESHS Specification, i.e. the Project Area Environmental and Social Management Plan (PA-ESMP), which includes Occupational Health and Safety aspects (OHS) and other sub-plans.
- Based on baseline studies and a project risk analysis, the SSC will prepare a Monitoring and Evaluation System and discuss the draft with PMB3 and Co-financier for the approval.
- The SSC will supervise and monitor during entire construction phase to ensure the compliance to the approved PA-ESMP in general and OHS Plan in particular.
- The SSC shall monitor and report on environmental, social, OHS to PMB3 and the Co-financiers to ensure that the works comply with national ESHS regulations and ESHS Specifications.

The SSC will support the Local Consultant and PMB3 to:

- Inform the Contractor that relevant sub-works shall not commence prior to the Consultant's approval and satisfaction of appropriate measures in place to address ESHS risks and impacts;
- Approve after due revision Contractor's Environmental and Social Management Plan (PA-ESMP) and, during the execution of the works, instruct the Contractor to update the PA-ESMP if it becomes necessary. The revised version shall highlight the new elements incorporated in the document;
- Supervise the Contractor's implementation of the PA-ESMP and report on compliance of the Contractor with the ESMP and ESHS Works Requirements; This includes health and safety performance and conformance with labour and working condition standards in case of severe ESHS violations (and in particular OHS risks to life), the Consultant shall suspend (sub-)works until the Contractor has rectified the situation
- Document Contractor's non-conformances. Review and approve the Contractor's proposals for remedial action(s) and their timeframe that PMB3 approve the Contractor's proposals for corrective action and their implementation timeframe. Follow-up on correction/remediation;
- Follow up on the results of any inspections or audits by labour, health and safety or environmental regulatory authorities;
- Check if the Contractor provides instructions and trainings to workers, Subcontractors and Suppliers (in particular those for major supply items) to assure that they understand the relevant ESHS requirements and that the Contractor complies with the Code of Conduct;
- Advise the Contractor on the ESHS risks and impacts of any design change proposals and the implications for compliance with ESIA, ESMP, consent/permits and other relevant project requirements;
- Review the Contractor's progress reports, and check if detected nonconformities are documented and analyzed and are addressed by corrective actions; Documentation shall include a digital photograph with captions to provide a visual illustration, explicitly indicating the location, date of inspection and the non-conformity in question;
- Follow-up on the resolution of any complaints or grievances in relation to ESHS;
- Inform the Employer on any ESHS related situation that might arise which could jeopardize the successful completion of the Project. Reflect such situations in the periodic reporting.
- Supervise that non-conformities are addressed through measures adapted to the severity of the situation and which include but are not limited to the suspension of (sub-)works and/or of payments in accordance with the Contract.
- Check supply chain regarding any shortcomings regarding ESHS standards, where the relevant recommendations of the PoE shall be taken into account and reflected.

5.5. ESHS Monitoring requirements and conformation to ESCP;

In addition to the specific ESHS contents in the above project phases, the SSC is responsible for

regularly supporting the review of the progress of ESCP implementation and the project's compliance with current ES&S standards.

- The SSC shall review the progress on the commitments and E&S instrument prepared, applied or implemented by PBM3/EVN and include the outcomes in the periodic reporting.
- The SSC shall review reports and additional E&S Study results conducted by ISL-OB Consultant; gives recommendations to PMB3 on how to handle ISL-OB Consultant's proposals in all research scopes on: RAP, SEP, Biodiversity, ethnic minorities...
- The SSC is responsible to prepare reports on ESCP implementation and ESHS related reports (including monthly and ad-hoc reports) which content-wise shall follow the requirements of the Co-financiers;
 - (a) Provide a summary of ESCP compliance (including timeliness of implementation) in the periodic review/monitoring reports.
 - (b) Issue environmental and social compliance supervision reports (E&S Compliance Reports) on quarterly basis as required. The E&S Compliance Report shall include corrective actions, if required, to ensure project compliance with Applicable Standards and the Lenders' ESCP.
 - (c) Assess and monitor the compliance to RAP. During the period of RAP implementation, compliance will be evaluated during the site visit by: spot-check reviews of relevant agreements and other documentation for a small sample of individual PAPs; and interviews with selected Project Affected People (PAPs) complainants under the grievance mechanism and relevant local Authorities, Assemblies, Community Representatives, NGOs and any other independent third parties involved in monitoring of RAP and LRP implementation. Information will be sought from PAPs, grievant and the Authorities/Assemblies/Community Representatives on the community's perception of the RAP implementation process and feedback on any issues that could indicate non-compliance with the RAP.
 - (d) Conduct a Resettlement completion auditProvide recommendations and where needed support to PMB3 and/or the Local Consultant to achieve or maintain conformance of the Project with the applicable standards and the ESCP.
- Based on the basic research and project risk analysis, SSC will develop a Monitoring and Evaluation System; then discuss with EVN/PMB3 and the Co-financiers for consensus and approval.
- SSC will support the Co-financiers in managing the coordination and public relations activities of the relevant parties.
- The SSC will prepare Environmental and Social Compliance Certificates associated with each disbursement of the Loan Agreement, Project Completion, or as requested by the Lenders based on the review of the relevant documentation and the Project's E&S demonstrated performance.

5.6. Scope of Work for Environment, Social, Health and Safety Aspects

The SSC will review of ESHS Planning Documents prepared by the contractors to ensure its compliance with ESHS Specification, i.e. the Project Area Environmental and Social Management Plan (PA-ESMP), which includes Occupational Health and Safety aspects (OHS) and other sub-plans.

Based on baseline studies and a project risk analysis, the SSC will prepare a Monitoring and Evaluation System and discuss the draft with PMB3 and Financier for the approval.

The SSC will supervise and monitor during entire construction phase to ensure the compliance to the approved PA-ESMP in general and OHS Plan in particular.

The SSC shall monitor and report on environmental, social, OHS to PMB3 and the Financiers to ensure that the works comply with national ESHS regulations and ESHS Specifications.

5.7. Support to the Co-financiers

The SSC will review requests for payment from PMB3 and verify the conformity with work progress before submission to the Co-financiers for disbursement.

The SSC will support the Co-financiers to manage stakeholders' coordination and public relation activities.

5.8. Reporting requirements (number, type, frequency of the reports to be presented by the consultant)

The SSC shall prepare and submit reports and documents to PMB3 and the Co-financiers as shown in table below. All reports will be written in English and Vietnamese, and will be delivered in both paper copies and editable electronic files.

Category	Type of report	Timing	No. of copies
Inception	Inception Report	Within 1 month after commencement of the services	
Progress reports	Monthly Report	Monthly, before 28 th day of the month.	
	Quarterly Report	Quarterly, before 28 th day of the last month of the quarter.	
	Yearly Report	Yearly, before 28 th October and update/supplement before 25 th December (if requested by PMB3)	
Bid document review (To add Bid proposal evaluation review report/ Bid selection result report)	Bid Document Review Report	Each package, within 15 days after receipt of bid document/ Bid proposal evaluation report / Bid selection result report.	
Design Drawing Review	Construction Drawing Design Review Report	within 15 days after receipt of drawings	
	Workshop Drawing Design Report	Each package, within 15 days after receipt of drawings	
Construction Supervision	Quality control report	Monthly, before 28 th day of the month	
	Construction Item Completion Report / Works Completion Report	Within 30 days after completion of construction works	

ESHS Supervision	PA-ESMP Monitoring Report	Quarterly, before 26 th day of the last month of the quarter.	
	OHS Monitoring Report	Monthly, before 28 th day of the month	
	E&S Compliance Report (incl. progress reports on all E&S instruments defined in ESCP)	Quarterly, before 26 th day of the last month of the quarter..	
	Ad-hoc ESHS reporting: When a serious ESHS violation is detected or as required by PMB3.	As required upon request	
Other Report	Technical Report: During the monitoring process, if SSC detects any differences in geological and structural issues, etc. compared to the design, affecting the quality and safety of the project, a timely report must be sent to PMB3 for consideration and coordination with relevant parties for handling.	As required upon request	

The format and major content of each type of report will be proposed by the SSC and agreed between the SSC and PMB3.

PART III. REQUIREMENTS ON CONSULTANT'S EXPERIENCE AND PERSONNEL

6. Required Experience of SSC

The selected consultant must be a consulting organization/firm with extensive experience in the field of consulting at all the above mentioned stages for similar pumped storage hydropower projects.

A similar project means the project completed within the last 15 years, which has at least one of three criteria below:

- PSHP with minimum total capacity of 1,200 MW;
- PSHP with minimum unit capacity of 300 MW, with traditional technology and/or speed regulation technology;
- Hydropower project with underground powerhouse with approx. dimension (LxWxH): 150m x 20m x 50m.

Companies that have international experience, especially in Vietnam, with the project knowledge will be prioritized for selection.

7. SSC personnel requirements

An estimated number of 10 experts positions and a back office team also able to mobilize additional on-demand expertise. :

7.1. International team leader

Position	Major tasks and duties	Qualification
Expert team leader	<ul style="list-style-type: none">- Main contact for PMB3 and Co-financiers- Lead, manage and coordinate the team to perform bidding, design review, construction supervision work;- Mainly responsible for supporting the review of the layout design of the powerhouse area, directing geotechnical experts and structural experts to accurately calculate the structure of construction items in the transformer area, turbine and generator areas; accurately calibrate anchor force during field testing for the load-bearing capacity of cable anchors and accurately calibrate rock mass stress during construction, evaluate rock fill materials, filter to determine the rock fill structure of CFRD Dam...- At the request of PMB3, support and recommend appropriate design solutions to ensure stability and safety in all construction and operation conditions;	<p><u>Education:</u> Graduate in construction engineering</p> <p><u>Experience:</u> - Experience in hydropower design/construction: 15 years; - Experience in PSHP construction: 1 project within last 15 years; Experience as the team leader or Project Director: 1 project;</p> <p>Experience in power plant projects applying international standards in the field of ESHS such as WB, IFC, ADB... will be a plus.</p>

	<ul style="list-style-type: none"> - Acting as focal point for coordination and problem solving between EVN/PMB3 and SSC; - Acting as focal point for coordination and problem solving between home office and site office; - Support PMB3 in all phases, as described in Specific Tasks of SSC. 	
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7.2. International Expert for electro-mechanical equipment:

Position	Major tasks and duties	Qualification
Expert for PSHP electro-mechanical equipment: turbine-pump, generator-motor, cooling system, BOP, transformers, CB, DS, auxiliary system... - Deputy Team Leader	<ul style="list-style-type: none"> - On behalf of the Team Leader, lead, manage and coordinate teams to carry out bidding, design review, construction supervision and equipment supply when the Team Leader is absent; - At the request of PMB3, support to review design documents in: - Selection of Turbine-pump and governor, synchronous equipment in accordance with pumped-storage hydropower technology; - Selection of generator-motor, excitation system, starting synchronous motor in accordance with pumped storage hydropower technology - Construction method, supervising installation, testing, and commissioning of the plant to ensure design standards, safe construction, quality, and on schedule. - Support PMB3 in all phases, as described in Specific Tasks of SSC. 	<u>Education:</u> Graduate in electrical, mechanical and machinery engineering <u>Experience:</u> <ul style="list-style-type: none"> - Experience in hydropower construction: 15 years; - Experience in relevant PSHP electro-mechanical work of P-T, M-G: 1 project within last 15 years;

7.3. International Expert for Geotechnical Engineering

Position	Major tasks and duties	Qualification
Expert for Geotechnical Engineering	<ul style="list-style-type: none"> - Support in analysis of overall geological conditions, assessment of faults that may affect waterway and powerhouse, and water loss possibility of the upper reservoir; - At the PMB3's request, support, recommend and review followings: <ul style="list-style-type: none"> + Provide solutions to handle faults or local weak reduction zones, if any; + Analysis of the status of groundwater pressure acting on the plant and other 	<u>Education:</u> Graduate in geotechnical engineering; <u>Experience:</u> <ul style="list-style-type: none"> - Experience in geo-engineering field: 15 years; - Experience to chair geotechnical calculations: one similar project in the last 15 years.

	<p>underground programs. Recommend coefficient of underground water pressure acting on the structure;</p> <p>+ Calculation using geotechnical software to review construction method and recommend: Excavation sequence, optimal temporary and permanent reinforcement solutions, underground water drainage plan to reduce pressure for the plant structure;</p> <p>- Support PMB3 in all phases, as described in Specific Tasks of SSC.</p>	
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7.4. International Expert for hydro-mechanical equipment:

Position	Major tasks and duties	Qualification
Expert for hydro-mechanical equipment	<p>- Support to review workshop and manufacturing design, check the calculation and selection of types and geometric dimensions of hydro-mechanical equipment, lifting equipment, machine room cranes, hydraulic cylinder equipment and pressure tunnel lining steel.</p> <p>- Support to review construction methods, supervise the installation of hydro-mechanical equipment to ensure design standards, safe construction, quality and on schedule.</p> <p>- Support PMB3 in all phases, as described in Specific Tasks of SSC.</p>	<p><u>Education:</u> Graduate in mechanical and machinery engineering</p> <p><u>Experience:</u> - Experience in hydropower construction: 15 years; - Experience in relevant PSHP hydro-mechanical work: 1 project within last 15 years;</p>

7.5. International Expert for underground structures

Position	Major tasks and duties	Qualification
Expert for underground structures	<p>- Support to review the design, assess and ensure the structure of the tunnels, vertical shaft and powerhouse meeting design standards, safe construction, schedule and quality.</p> <p>- Support to examine the construction method in accordance with latest advanced technology options, ensuring the construction of waterway (including over 400m vertical wells and underground powerhouse), ventilation, drainage, fire prevention, ensuring safety, schedule and quality.</p> <p>- Coordinate to establish progress charts to ensure the harmonious coordination of construction and</p>	<p><u>Education:</u> Graduate in construction engineering of underground structure</p> <p><u>Experience:</u> - Experience relevant to applied position: 10 years; - Chair the calculation of structure works of similar project: 1 project within last 15 years;</p>

	<p>installation works to meet schedule and target.</p> <p>-At the PMB3's request, Support to calculate 2D and 3D structures for underground powerhouse with appropriate software, preferably using ANSYS or PLAXIS 3D software. The calculation must have good coordination with geotechnical engineers to achieve the most reasonable solutions.</p> <p>- Support PMB3 in all phases, as described in Specific Tasks of SSC.</p>	
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7.6. International Environmental and Biodiversity Expert

Position	Major tasks and duties	Qualification
Environmental and Biodiversity Expert	<ul style="list-style-type: none"> - Examine and analyse the results of environmental studies carried out by the Consultant during the FS and Technical Design phases in accordance with international standards and requirements of the Co-financiers; - Support PMB3 in the process of implementing environmental and social commitments with the Co-financiers; - Evaluation of the Contractor's ESMP submitted during construction. - Monitor the Contractor's implementation of ESMP and report on the Contractor's compliance with related environmental requirements. - Recommend to the Contractor cases that may have impacts on the environment and residential communities during construction period to comply with the regulations; - Review the requirements for environmental protection in the project completion report; - Support PMB3 and Co-financiers in all phases, as described in Specific Tasks of SSC. - Check and support PMB3 to ensure all ESMP requirements are stated in the bidding documents/contract. 	<p><u>Education:</u> Bachelor in Environment & Social Field</p> <p><u>Experience:</u> - Experience in power plant projects applying international standards in the field of environment such as World Bank, IFC, ADB: 10 years.</p>

7.7. National Social Expert

Position	Major tasks and duties	Qualification
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Social Expert	<ul style="list-style-type: none"> - Examine and analyse the results of social research conducted by the Consultant during the FS and Technical Design stages in accordance with international standards and requirements of the Financiers. - Review the implementation of the Stakeholder Engagement Plan, the Ethnic Minorities Management Plan and the Resettlement Action Plan and report on the compliance with the relevant social requirements. - Recommend to PMB3 the cases where social mitigation measures need completion or reinforcement. - Review the social requirements in the project completion report. - Support PMB3 and Financiers in all phases, as described in Specific Tasks of SSC. - Assist in auditing the completion of compensation and resettlement work. - Check and support PMB3 to ensure all ESMP requirements are stated in the bidding documents/contract. 	<p>Bachelor in Environment & Social Field</p> <p><u>Experience:</u></p> <ul style="list-style-type: none"> - Experience in power plant projects applying international standards in the field of social such as World Bank, IFC, ADB: 10 years.
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7.8. International OHS Expert

Position	Major tasks and duties	Qualification
OHS Expert	<ul style="list-style-type: none"> - Design safety procedures and requirements as regards the Contractors, in accordance with EVN & Co-financiers standards; - Evaluation of the Contractor's Occupational Health and Safety Plan, as a part of PA-ESMP submitted during construction by contractors; - Monitor the Contractor's implementation of OHS Plan and report on the Contractor's compliance with the relevant requirements. - Warning the Contractor the cases that may affect the safety during the construction process and request for correction measure; - Recommend PMB3 or LC to temporary Stop the construction work, if necessary, waiting for remedial actions taken; - Review the OHS requirements in the project completion report. - Organize competence transfer to stakeholders and make them gain knowledge and awareness on EHS; 	<p><u>Education:</u></p> <p>Bachelor in Health and Safety Field;</p> <p><u>Experience:</u></p> <ul style="list-style-type: none"> - Experience in power plant projects applying international standards in the field of OHS such as World Bank, IFC, ADB: 10 years. - Experience in underground infrastructure : 15 years

	<ul style="list-style-type: none"> - Monitor activities of the ESHS Specialist; - Support PMB3 and Co-financiers in all phases, as described in Specific Tasks of SSC. 	
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7.9. National ESHS Specialist

Position	Major tasks and duties	Qualification
ESHS Specialist (National)	<ul style="list-style-type: none"> - Assist SSC in supporting PMB3 in reviewing documents and records during the bidding process to ensure compliance with ESCP and applicable E&S regulations and standards. - - Evaluation of the Contractor's PA-ESMP submitted during construction by contractors; - Monitor the Contractor's implementation of ESMP and OHS Plan and report on the Contractor's compliance with the relevant requirements. - Support monitoring of ESMP implementation and reporting on Contractor compliance with E&S requirements. - Recommend to the Contractor the cases that may affect the environment and residential community during the construction process. - Warning the Contractor the cases that may affect the safety during the construction process and request for correction measure; - Advise PMB3 to temporary stop the construction work, if necessary, waiting for remedial actions taken; - Review ESHS requirements in the project completion report. - Support PMB3 and Co-financiers in all phases, as described in Specific Tasks of SSC. 	<p><u>Education:</u> Engineer / Bachelor in Environment, Social, Health and Safety Field;</p> <p><u>Experience:</u> - Experience in power plant projects applying international standards in the field of ESHS such as World Bank, IFC, ADB: 10 years.</p>

7.10. National Payment Assistance Specialist

Position	Major tasks and duties	Qualification
Payment Assistance Specialist (National)	<ul style="list-style-type: none"> - Review requests for payment from EVN/PMB3 and verify the conformity with work progress before submission to the Co-financiers for disbursement. - Support the Co-financiers to manage stakeholders' coordination and public relation activities; - Support PMB3 and Co-financiers in all phases, as described in Specific Tasks of SSC. 	<p><u>Education:</u> Bachelor in Economics, Finance, Accounting;</p> <p><u>Experience:</u> - Experience in disbursement of construction projects financed by development partners, such as WB, ADB, AFD, JICA, KfW, EIB: 10 years.</p>

7.11. Back office and Supporting Expert at the SSC's Head Office

Position	Major tasks and duties	Qualification
Supporting Expert Team at SSC's Head Office	<ul style="list-style-type: none"> - Provide technical and professional support from Head Office to the field supervision team as proposed by the Team Leader; ensure complex technical issues are resolved in a timely and effective manner. - As required by PMB3, inspect construction structures, select types, geometric parameters, characteristics, equipment specifications, etc. - Provide strategic advice on planning, risk management and process optimization; Adjust project strategies to achieve efficiency goals. - SSC must have a detailed list of Supporting Experts at the Head Office. Mobilization is based on actual situation. 	<p><u>Highly specialized personnel, suitable for actual work requirements. SSC must arrange specialized personnel and calculation tools suitable for actual work requirements.</u></p>

Regarding the capacity and experience of SSC experts, EVN will review, detail and agree with the Co-financiers during the process of preparing the SSC Request for Proposal.

8. Estimated number of person-months and service duration

Estimated duration of consulting services:

- Phase 1: 5 months
- Phase 2: 7 months
- Phase 3: 73 months

No.	Expert	Phases 1 & 2	Phase 3	Total	Remark
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1	Expert Team Leader	3	73	76	01 expert
2	Expert for PSHP electro-mechanical equipment, Deputy Team Leader	3	24	27	01 expert
3	Expert for Geotechnical Engineering	1	11	12	01 expert
4	Expert for PSHP hydro-mechanical equipment	1	13	14	01 expert
5	Expert for underground structures	1	12	13	01 expert
6	Environmental and biodiversity Expert	1	14	15	01 expert
7	Social expert (National)	1	14	15	01 expert
8	OHS Expert	1	14	15	01 expert
9	ESHS Specialist (National)	1	73	74	Group of 02 experts
10	Payment Assistance Specialist (National)	0	19	19	01 expert
11	Back office and Supporting Expert at the SSC's Head Office		19	19	Group of experts
Total		13	286	299	

The expert mobilization plan attached to the ToR is tentative only. The contract is based on purchase orders. Based on the progress and actual construction situation, PMB3 may mobilize experts differently to meet the requirements of quality, safety, and construction progress of the Project.

Note:

- Phase 1: Preparation of bidding documents and bidding;
- Phase 2: Construction drawing design;
- Phase 3: Supervision of the construction of works & commissioning

ANNEXES

1. Main parameters of the Project

The main current parameters of the Bac Ai Storage Hydropower Plant Project (Phase: Technical Design - Phase 2) are as follows:

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
I	WATERSHED				
A	Upper Reservoir				
1	Catchment area Flv	km2	2,4	2,4	1.65
2	Main river length	kilometer	1.47	1.47	0.72
3	Tested flood flow (0.02%)	m3/s	176	176	150
4	Total flood volume checked	106m3	1.33	1.33	0.95
5	Design flood flow (0.1%)	m3/s	138	138	116
6	Total design flood volume	106m3	1.06	1.06	0.75
B	Lower reservoir (Song Cai irrigation reservoir)				
1	Catchment area Flv	km2	750	750	750
2	Main river length	kilometer	56.3	56.3	56.3
3	Average rainfall over many years Xo	mm	1685	1685	1685
4	Average annual flow Qo	m3/s	18.6	18.6	18.6
5	Total annual flow volume Wo	106m3	587	587	587
II	RESERVOIR				
A	Upper Reservoir				
1	Normal water level elevation NWL	m	602.8	602.8	602.8
2	Calculated water level of the above reservoir	m	598.5	598.5	593.4
3	Dead water level DWL	m	580	580	563.0
4	Reservoir surface area corresponds to NWL	km2	0.63	0.63	0.29
5	Capacity corresponding to NWL (Wbt)	106m3	10.58	10.58	9.34
6	Capacity corresponding to DWL (Wc)	106m3	1.58	1.58	0.35
7	Useful capacity (Whi)	106m3	9.0	9.0	8.99
B	Lower Reservoir (Song Cai Reservoir)				
1	Test water level P=0.02%	m	196.76	196.76	196.76
2	Test water level P= 0.1%	m	196.33	196.33	196.33
3	Design flood level P=0.5%	m	194.12	194.12	194.12
4	Normal rising water level	m	192.8	192.8	192.8
5	Water level calculates for pumped storage	m	182.2	182.2	175.5
6	Dead water level used for irrigation	m	163.25	163.25	163.25
7	The dead water level of PSHP	m	159.80	159.80	159.80
8	The lowest water level, stable at the outlet	m	158.75	159.51	159.51

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
9	Instantaneous lowest water level	m		159.43	159.43
10	The water level corresponds to the sand and mud elevation	m	158.1	158.1	158.1
11	Total capacity (Wbt)	106m3	219.8	219.8	219.8
12	Irrigation useful capacity (Whitl)	106m3	199.5	199.5	199.5
13	Reservoir dead capacity (Wc), in which:	106m3	20.3	20.3	20.3
14	Capacity for energy storage plants	106m3	10.3	10.3	10.3
III	WORKS ON PRESSURE ROUTE				
A	Main dam of Song Cai reservoir				
1	Dam crest elevation	m	197.50	197.50	197.50
B	Spillway on Song Cai reservoir surface				
1	Number of spillway compartments		5	5	5
2	Width x height of a spillway compartments	mxm	10x11.5	10x11.5	10x11.5
3	Elevation of spill threshold	m	181.3	181.3	181.3
4	Discharge capacity with design flood P=0.5%	m3/s	4,358.7	4,358.7	4,358.7
5	Discharge capacity with test flood P=0.02%	m3/s	6,094.6	6,094.6	6,094.6
C	Deep spillway in Song Cai reservoir				
1	Number of overflow compartments		3	3	3
2	Width x height of an overflow compartment	mxm	5x4.5	5x4.5	5x4.5
3	Elevation of spill threshold	m	153.0	153.0	153.0
4	Discharge with flood checks	m3/s	1,342.3	1,342.3	1,342.3
D	Upper reservoir dam				
1	Elevation of the top of the parapet wall	m	607.3	607.3	607.3
2	Dam crest elevation	m	606.3	606.3	606.3
3	Dam crest length	m	1130.0	1130.0	1018,1
4	Dam crest width	m	8.0	8.0	8.0
5	Upstream slope coefficient		1,405	1,405	1,405
6	Downstream slope coefficient		1.5	1.5	1.5
7	Maximum dam height	m	71.8	71.8	52.3
8	Dam type		CFRD	CFRD	CFRD + Earthfill dam
E	Flood discharge spillway		No	No	
1	Overflow type				Free
2	Number of spill compartments				2
3	Width of 1 spill compartment	m			14.5
4	Elevation of overflow threshold	m			602.85
5	Flood discharge flow check	m3/s			150
F	Incident discharge				No

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
1	Discharge flow at NWL	m ³ /s	176	176	
2	Number of convert		1	1	
3	Culvert size (bxh)	m	2.6 x 3.0	2.6 x 3.0	
4	Elevation of convert sill	m	546	546	
5	Downstream Valve gate	m	2.6x3.0	2.6x3.0	
6	Convert length	m	190	190	
7	Lining steel thickness	mm	8	8	
8	Valve door	Set	01	01	
9	Hydraulic Cylinders	Set	02	02	
IV	WATERWAY WORKS				
A	Water intake				
1	Elevation of entrance threshold	m	570.5	570.5	549.0
2	Number of water intakes	unit	2	2	2
3	Number of compartments of 1 intake	unit	4	4	4
4	Clearance width of 1 compartment	m	7.0	7.0	6.8
5	Clearance height at LCR	m	9.0	9.0	9.0
6	Length of one intake	m	48	48	44.7
7	Flow rate of 1 water intake (generation)	m ³ /s	174	174	172.66
8	Trashrack	Set	8	8	8
B	Upstream valve tower				
1	Elevation at the tower	m	570.41	570.41	548.90
2	Valve tower floor elevation	m	606.0	606.0	606.3
3	Valve tower diameter	m	7.5	7.5	8.5
4	Valve tower height	m	37.09	37.09	57.4
5	Height x valve width	m	7.5x7.5	7.5x7.5	7.5x7.5
6	Quantity	set	2	2	2
7	Electric winch	Set	2	2	2
8	Valve	Set	2	2	2
C	Upstream surge tower				
1	Diameter of surge tower	m	14	14	14
2	Height of surge tower	m	64	64	77.2
3	Steel lining the inside of the surge tower	mm	12	12	No steel lining
4	Throat diameter	m	3	3	4
5	Throat height	m	9	9	27.9
6	Thickness of steel lining at bumper throat	mm	8	8	16
7	Maximum water level elevation in the tower	m	615.37	615.74	619.68

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
8	Minimum water level elevation in the tower	m	575.57	575.83	548.99
9	Quantity	set	2	2	2
D	Pressure tunnel (HAL)				
1	Quantity	set	2	2	2
D.1	Pressure tunnel section 1		HAL1	HAL1	
1	Total length of pressure tunnel	m	1053.0	1053.0	1098.65
2	Tunnel diameter	m	7.5	7.5	7.5
3	Flow rate of 1 tunnel	m ³ /s	174	174	172.66
4	Tunnel slope	%	3	3	2.5
5	Lining steel length/thickness	m/mm	26/22	26/22	No steel lining
6	Reinforcement thickness	m	0.8	0.8	0.7
D.2	Pressure tunnel section 2		HAL1	HAL1	
1	Tunnel diameter	m	5.5	5.5	5.5÷7.5; 5.5
2	Tunnel length	m	251.73	50.81	51.944
3	Steel lining thickness	mm	24	22	18-:-20
D.3	Pressure tunnel section 3		HAL1	HAL1	
1	Tunnel diameter	m	5.5	5.5	5.5
2	Tunnel length/height	m	200.32	407.89	375.728
3	Lining steel thickness	mm	34	28	22 ÷ 40
D.4	Pressure tunnel section 4		HAL1	HAL1	
1	Tunnel diameter	m	5.5	5.5	5.5
2	Tunnel length	m	159.43	31,42	30.417
3	Lining steel thickness	mm	38	44	44
D.5	Pressure tunnel section 5		HAL1	HAL1	
1	Tunnel diameter	m	5.5	5.5	5.5
2	Tunnel length	m	78.81	72.5	68.355
3	Lining steel thickness	mm	46	44	38; 44
D.6	Pressure tunnel section 6		HAL1	HAL1	
1	Transition horizontal tunnel diameter	m	5.5÷3.8	5.5÷3.8	5.5; 3.8; 2.6
2	Tunnel length	m	57.5	57.5	93.03/95.876
3	Lining steel thickness	mm	34	44÷30	36 ÷ 46
E	Underground powerhouse (4 fixed speed units)				
1	Center distance of the unit	m	25	25	31
2	Total powerhouse length	m	183	183	207.8
3	Powerhouse width	m	23	23	29.0
4	Maximum height	m	52.31	52.31	51.0
5	Assembly floor elevation	m	116.5	109.5	110.5

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
6	Machine installation level	m	101.0	94.0	94.0
7	Calculated water head (Htnor)	m	403.05	403.05	405.27
8	Maximum water head (Htmax)	m	441.73	441.73	440.64
9	Minimum water head (Htmin)	m	375.65	375.65	359.23
10	Plant capacity (Nlm) 4 Units*300 MW	MW	1200	1200	1200
11	Powerhouse flow (Phat)	m3/s	348	348	345.32
12	Turbine:				
	- Type		Francis	Francis	Francis
	- Turbine capacity at calculated water head	MW	306,122	306,122	305.0
	- Turbine capacity at the smallest water head	MW	266,163	266,163	242.5
	- Synchronous rotation speed	rpm	375	375	375
	Maximum rotation speed/speed cage	rpm			544
13	Pump:				
	- Pump flow at the point of highest efficiency	m3/s	69.59	69.59	68.8
	- The pump's water head is at the point of highest efficiency	m	391.84	391.84	382.11
	- Maximum water head of the pump	m	453.92	452.02	448.75
	- Pump flow at maximum pump water head	m3/s	75.28	67.27	56.55
	- Smallest pumped water column	m	389.36	389.80	380.95
	- Flow through the pump at the smallest pump water head	m3/s	70.35	76.35	79.33
	- Maximum power consumption of the pump	MW	291	328	332
14	Generator:				
	- Rated power	MVA	355	355	300
	- Rated voltage	kV	16.5	16.5	18
	- Frequency	Hz	50	50	50
	- Rated speed	rpm	375	375	375
	- Efficiency	%	98	98	98.4
15	Motor:				
	- Rated power	MW	332	332	332
	- Rated voltage	kV	16.5	16.5	18
	- Power factor (pfm)		0.95 leading	0.95 leading	0.95 leading (auto mode)
	- Frequency	Hz	50	50	50
	- Rated speed	rpm	375	375	375
	- Efficiency	%	98.2	98.2	98.5
16	Step-up transformer:				
	- Quantity	Set	02	02	02

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
	- Type		3 phase 3 windings	3 phase 3 windings	Oil-soaked, 3-phase 3 phases (3 phases combined into individual phases or 3 core phases)
	- Rated power	MVA	355/355/710	355/355/710	355/355/710
	- Rated voltage ratio	kV	16.5/16.5/500	16.5/16.5/500	18/ 18/500
	- Adjustment range of voltage regulator under load		500 ±(8x1.25%) kV	500 ±(8x1.25%) kV	500 ±(8x1.25%) kV
F	Powerhouse downstream valve gate				
1	Quantity (valve gate + hydraulic cylinder)	set	4	4	4
2	Valve bottom elevation	m	93.65	86.65	86.95
3	Floor elevation	m	103.65	96.65	97.35
4	Valve well top elevation	m	116.5	109.5	110.5
5	Valve well cross section	m	6.94x7.0	6.94x7.0	7.0x7.0
6	Height x valve width	m	7.0x5.0	7.0x5.0	5.0x5.0
G	Surge tower at powerhouse downstream	m		round	Two floors: round/rectangular
1	Number of towers	set		2	2
2	Elevation of the tower's dome top	m		225	214.1
3	Tower diameter (round/rectangular LxWxH)	m		8.0	8.0/ 30x13x8
4	Tower height	m		133	91.9
5	The highest water level in the tower	m		216.5	204.85
6	Minimum water level in the tower	m		133.27	125.99
7	Throat diameter	m		5	22.28/5
8	Throat lining steel thickness	mm			28
H	Tailrace tunnel (HX)				
1	Quantity	set	2	2	2
H.1	Discharge tunnel section 1				
1	Total length of 1 discharge tunnel	m	86.28	86.28	95.44
2	The diameter of the discharge tunnel changes	m	5.0÷7.5	5.0÷7.5	5.0÷7.5
3	Tunnel slope	%	8	6.25	6.25
4	Lining steel thickness	mm	32	22	28; 32
H.2	Discharge tunnel section 2 (HX.02)		HAL1	HAL1	
1	Total length of 1 discharge tunnel	m	585.71	944.25	920/888.2

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
2	Diameter of discharge tunnel	m	7.5	7.5	7.5
3	Flow rate of 1 tunnel (generation)	m ³ /s	174	174	172.66
4	Tunnel slope	%	6.4	6.25	5.96; 6.25/6.22; 6.25
H.3	Discharge tunnel No. 1, section 3 (HX1.03)				Built
1	Total length of 1 discharge tunnel	m	256	50	
2	Diameter of discharge tunnel	m	7.5	7.5	
3	Flow rate of 1 tunnel	m ³ /s	174	174	
4	Slope	%	6.4	6.25	
I	Downstream valve tower		Combined with downstream surge tower	Do not incorporate a downstream surge tower	Do not incorporate a downstream surge tower
1	Threshold elevation at the tower	m	136.36	134.14	138.13
2	Valve tower floor elevation	m	204	218	201
3	Valve tower height	m	69.24	83,86	64.37
4	Tower cross section	m	7.5x7.5	D =7.5	D =8.5
5	Height x valve width	m	7.5x7.5	7.5x7.5	7.5x7.5
5	Gantry crane	Set	01 CT of goat's leg	01 CT of goat's leg	02 Electric winches
6	Valve	Set	2	2	2
K	Outlet				Built
1	Stable minimum water level	m		159.51	
2	Instantaneous minimum water level	m		159.43	
3	Elevation of discharge sill	m	148.6	149.5	
4	Length of discharge port	m	48	44.7	
5	Number of compartments of 1 discharge door	m	4	4	
6	Clearance width 1 compartment	m	7.0	6.8	
7	Clearance height at LCR	m	9.0	9.0	
8	Flow through an outlet (generation)	m ³ /s	174	174	
9	Sewer grates	Set	8	8	
10	Valve	Set	8	8	
L	Pressure tank				Built
1	Tank width	m	80-120	80	
2	Total tank length	m	115	82	
3	Tank bottom elevation	m	147.6	146.5	
M	Discharge channel				Built
1	Channel length	m	362.2	322.91	
2	Elevation of the bottom of the canal head	m	157.3	157.25	

No.	PARAMETER	UNIT	Value in approved Basic Design	Value in the Technical Design phase 1	Value in Technical Design phase 2
3	Bottom elevation at the end of the canal	m	158.1	158.0	
4	Width of discharge channel	m	120	80	
5	Channel bottom slope	%	0.25	0.25	
6	Canal roof coefficient		1	1.5	
N	Sand mud barrier				Built
1	Threshold peak elevation	m		158.5	
2	Threshold height	m		0.5	
3	Threshold length	m		143.73	
O	500kV switchyard				SF6 insulation
1	Type		Outdoor	Outdoor	Outdoor
2	Applicable Single-line diagram		Diagram 3/2	Diagram 3/2	Diagram 3/2
3	Switchgear/bay		9/6	9/6	6/4
4	Area LxW	m2	290x112	290x112	253X82

2. Contractor selection plan

TT	Investor	Bidding package name		Bidding package price (106 VND)	Capital	Form of contractor selection	Method of contractor selection	Time to organize contractor selection	Time to start organizing contractor selection	Contract type	Duration of contract	Additional purchase options	Supervise bidding activities
		Bidding package name	Main work content of the bidding package										
A		Phase 2, stage 1 (2.1)		10,590,240									
I		Consulting service bidding packages (07 bidding packages)		82,548									
1	EVN	Package No. 01TV-BA: Consulting on surveying, preparing technical construction plans - estimating and supervising construction of bomb, mine and explosive material clearance phase 2	- Survey, prepare technical plans and estimates for RPBVMN phase 2 (including phase 2, phase 1 and phase 2, phase 2) - Submit to competent authorities for appraisal and approval of technical plans and RPBVMN budget; - Supervision of RPBVMN construction.	316	Own capital and capital arranged by EVN	Appoint a shortened contract for Brigade 7/Army Corps 3		0.5 months	March 2024	All in one	05 months (April-:-November 2024); In which: + Surveying, preparing PAKT and Estimate for RPBVMN: 01 month; + Submitting for appraisal and approval: 01 month; + Supervising RPBVMN construction: 03 months; (Excluding waiting time for LCNT construction package of RPBVMN to deploy RPBVMN construction: 02 months)	Do not apply	EVN
2	EVN	Package No. 02TV-BA: Supervision of construction and installation of construction equipment for phase 2	Supervise construction and equipment installation of phase 2 investment items (Phase 1), including items: - Pressure tunnel Sections 1 ÷ 6; Upstream pressurization tower; Factory, downstream pressurization tower, downstream valve tower, discharge tunnel sections 1 & 2, discharge tunnel section 3 phase 2, wind supply house, air intake house, diesel generator plant;- Leveling the 500kV distribution station;- Ventilation + Electric Cable Tunnel, Drainage Tunnel, Operational Construction Tunnel, Construction Tunnel, Construction Alley; - Road system VH1, VH2A, open outer road VH3A, construction road TC1 phase 2; - Construction protection fence; - Auxiliary works, camps serving the	41,650	Own capital and capital arranged by EVN	Do it yourself		0.5 months (May 2024)	May 2024	All in one	79 months (June 2024-:-December 2030)	Do not apply	EVN

			construction of projects/classes Construction items under the Technical Design Phase 2 (phase 1); - Housing and work of the Project Management Board at the site.										
3	EVN	Package No. 03TV-BA: Environmental monitoring during construction of phase 2	Supervise and monitor the environment during the phase 2 investment phase construction (including phase 2, phase 1 and phase 2), tasks include: Collecting samples, checking and monitoring quality solid waste, liquid waste (domestic water, construction wastewater), air environment, water environment, ecological environment, ...	5,179	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (April:-May 2024)	April 2024	All in one	79 months (June 2024:-December 2030)	Do not apply	EVN
4	EVN	Bidding package No. 04TV-BA: Consulting on design of financial protection for 03-step design work items, phase 2	- Prepare the design of financial protection works for 03-step design work items in phase 2 (phase 1), including: Pressure tunnel Sections 1 ÷ 6; Upstream pressurization tower; Factory, downstream pressurization tower, downstream valve tower, discharge tunnel sections 1 & 2, discharge tunnel section 3 phase 2, wind supply house, air intake house, diesel generator house; 500kV cable system; 500kV distribution station floor; Ventilation + Electric Cable Tunnels, Drainage Tunnels, Operational Construction Tunnels, Construction Tunnels, Construction Alleys, other items requiring 3-step design; - Design and manufacture of steel road lining	23,221	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (April:-May 2024)	April 2024	All in one	79 months (June 2024:-December 2030)	Do not apply	EVN
5	EVN	Bid package No. 05TV-BA: Consulting on design verification of financial protection for 3-step design items, phase 2	Verification of financial design of project design items in 03 steps of phase 2 (phase 1), including: - Pressure tunnel Sections 1 ÷ 6; Upstream pressurization tower; Factory, downstream pressurization tower, downstream valve tower, discharge tunnel sections 1 & 2, discharge tunnel section 3 phase 2, wind supply house, air intake house, diesel generator house; 500kV cable system; Leveling 500kV Distribution Station; - Ventilation tunnel + Electric cable, Drainage tunnel, Operational tunnel, Construction tunnel, Construction niche, other items requiring 3-step design	646	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (April:-May 2024)	May 2024	All in one	79 months (June 2024:-December 2030) <i>(verification carried out in phases of financial design and completion of the verification after 30 days from the date of receipt of the financial design documents)</i>	Do not apply	EVN
6	EVN	Package No. 06TV-BA: Consulting on equipment quality assessment for phase 2	Equipment quality inspection for phase 2.1 of the project (mechanical and electromechanical equipment, 500kV step-up transformer, 500kV cable system), inspection content includes: goods origin; Quantity of goods in accordance with the Contract; Quantity and quality of equipment; Open inspection, check and evaluate equipment condition upon arrival at the construction site	6,857	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (10:-11/2026)	October 2026	All in one	49 months (December 2026-December 2030)	Do not apply	EVN
7	EVN	Bid package No. 07TV-BA: Consulting on price adjustment for phase 2	Determining the construction price index to calculate price adjustment according to the method of determining the construction price index of the Ministry of Construction guidelines for establishing the unit price adjustment method applicable to the type of	4,679	Own capital and capital	Open domestic bidding (applying online	One stage, two bags of documents	02 months (May:-June 2024)	May 2024	All in one	78 months (July 2024:-December 2030)	Do not apply	EVN

			phase adjustment unit price contract. Phase 2 of the project (including phase 2, phase 1 and phase 2, phase 2).		arranged by EVN	bidding process)							
II		Non-consulting service bidding packages (02 bidding packages)		124,641								Do not apply	EVN
1	EVN	Package No. 01PTV-BA: Equipment calibration experiment and relay adjustment phase 2	- Calibration testing of electromechanical equipment, electrical equipment, hydromechanical equipment; hydraulic mechanical equipment and factory auxiliary equipment, communication equipment, control equipment, relays; - Calibration experiment and SCADA signal pairing test, calibration experiment of the Project's power measurement system - Participate and coordinate with the Contractor to provide electromechanical equipment to test the performance of the power unit.	117,347	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	03 months (May-:-July 2026)	May 2026	Fixed unit price	53 months (August 2026-:-December 2030)	Do not apply	EVN
2	EVN	Package No. 02PTV-BA: Contrast inspection of equipment welding lines in phase 2	- For hydraulic mechanical equipment and tunnel lining steel: Ultrasonic testing (UT) and radiography (RT) to detect internal defects; Magnetic powder (MT) and liquid penetrant (PT) testing to check for external defects. - For hydraulic mechanical equipment: + Pneumatic system: Radiographically check (RT) all type A welds and other welds at the construction site; + Turbine: Radiographically check (RT) and X -optical torsion chamber	7,294	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (November-:-December 2026)	November 2026	All in one	48 months (January 2027-:-December 2030)	Do not apply	EVN
III		Construction and installation bidding packages (04 bidding packages)		4,734,917								Do not apply	EVN
1	EVN	Package No. 01XL-BA: Construction of bomb, mine and explosive material clearance phase 2	Construction of bomb, mine and explosive material clearance for phase 2 of Bac Ai Pumped-Storage Hydropower Plant Project. Work content includes: Detecting bombs, mines and explosives to a specified depth; Digging and processing signals; Transporting bombs, mines and explosives, establishing procedures for destruction, and destroying detected bombs, mines and explosives according to current regulations; Quality inspection and appraisal.	9,719	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (June-:-July 2024)	June 2024	According to fixed unit price	03 months (8-:-10/2024)	Do not apply	EVN
2	EVN	Package No. 02XL-BA: Residential area, office of Project Management Board & Field Consultant (Phase 1)	- Construction and installation of the Project Management Board's house on site with the following scale: + Housing area: Phase 1 invests in synchronous construction of project items, including: 5-room housing block, collective dining room , garage, security house, sample storage, fence gate, flagpole, road to the house and all technical infrastructure. Total construction land area: 13,058 m2+ Construction and installation of synchronous items: Fence gate, guard house; Drilled well and 7m³ water tower; Yards, roads;	11,080	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (April-:-May 2024)	April 2024	All in one	05 months (June-:-October 2024)	Do not apply	EVN

			Power supply for outdoor lighting + Construction of 22kV line and transformer station: 22kV line, starting point of pillar No. 125 of the 22kV line supplying power to Bac Ai TPP, end point of 22/0.4kV transformer station, Line length 1,339m; 160kVA outdoor transformer station, 3-phase transformer with line voltage 22/0.4kV; - Construction insurance.										
3	EVN	Package No. 03XL-BA: Construction and installation of VH1 operational construction road	- Construction of VH1 construction and operation road from Phuoc Tan commune to the left shoulder of Auxiliary Dam No. 4, route length 3.55km; - Construction work insurance.	19,643	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (April:-May 2024)	April 2024	Fixed unit price	06 months (6:-11/2024)	Do not apply	EVN
4	EVN	Package No. 04XL-BA: Construction and installation of phase 2.1 of Bac Ai pumped storage hydropower plant project	- Construction work: + Main project items: Pressure tunnel, Pressurization tower; Factory, Discharge Tunnel, Downstream Valve Tower, TCVH Tunnel, Electric Cable Tunnel, Factory Downstream TCVH Tunnel, Drainage Tunnel; Synchronous construction of tunnels and niches, Air supply house, Air intake house, Diesel power plant; + Leveling 500kV distribution station; + TCVH roads VH2, VH3A, VH6A. - Installation of construction equipment, including: + Installation of hydraulic equipment (including lining steel): Upstream pressurization tower, pressure tunnel section 2:-6, downstream valve tower and downstream of the plant, downstream pressurization tower, discharge tunnel sections 1&2, Clearing the discharge tunnel; + Installing pressure tower monitoring equipment and factory monitoring equipment; + Installation of hydraulic and electromechanical equipment, transformers, 500kV underground cables; + Installation of grounding, lightning protection, communications, lighting, ventilation, air conditioning, fire protection (not including Cranes) machine room, factory elevator), other synchronous materials and equipment; - Construction of works for construction: Supplying electricity and water for construction and daily life within the scope of the bidding package; Ventilation for construction in tunnels, auxiliary areas (material warehouses, explosives warehouses, construction of shelters, machine foundations). - Construction work insurance.	4,694,475	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	03 months (April:-June 2024)	April 2024	Mixed price (fixed unit price + adjustable unit price + package)	78 months (July 2024:-December 2030)	Do not apply	EVN
IV		Goods procurement packages (08 bidding packages)		5,648,134								Do not apply	EVN

1	EVN	Package No. 01TB-BA: Supply and transportation of electromechanical equipment	- Supply (Design, manufacture, manufacturing/Procurement), assembly, inspection and testing at the Packaging Factory, transportation of equipment to the site, transportation insurance: + Machine equipment generator; Turbine-pump; Turbine front valve (Globe valve); Hydraulic turbine automatic control system; Speed regulation system for turbines; Generator terminal circuit breaker and phase isolation busbar system; + Auxiliary equipment system (Draining system of the unit; factory drainage system; cooling water system (including unit cooling, MBA, SFC, air compressor); compressed air system; system Oil system (including oil storage and supply system); environmental sanitation; Ventilation and air conditioning system;...); + Factory downstream valve system; + AC 24kV/10.5kV/0.4kV self-use power system for underground factories, wind supply/exhaust houses, Diesel generators,... (including self-use transformers for generator sets, self-use Power supply from 22kV grid, diesel backup generator); Factory DC-UPS power; Excitation transformers, control and protection systems, monitoring and protection of measurement relays; power measurement system at the factory; Communication system + SCADA except TPP 500kV (coordinate with installation unit and Calibration Experiment); Auxiliary electrical system; Camera surveillance system; Grounding and lightning protection system according to equipment; + Fire protection system for the Factory part; Turbocharged MBA; 500kV cable tunnel; + Cables of all kinds. - Providing technical services.	4,228,089	Own capital and capital arranged by EVN	International bidding	One stage, two bags of documents	4 months (September 2025-:- December 2025)	September 2025	All in one	60 months (January 2026-:- December 2030).	Do not apply	EVN
2	EVN	Package No. 02TB-BA: Supply and transportation of 500kV step-up transformer	- Supply (Design, manufacture, manufacturing/procurement), packaging, transportation of equipment to the construction site, transportation insurance 500kV step-up transformer (02 step-up transformers with capacity of 355/355/710MVA, transformer ratio 18/18/500±8x1.25%; accompanying accessories and MBA installation rails); - Inspection and testing at the manufacturing plant; - Implementation of technical services. - Instructions for connecting 500kV cables and 500kV power cables to ensure MBA safety.	650,807	Own capital and capital arranged by EVN	International bidding	One stage, two bags of documents	03 months (01-:- 3/2027)	January 2027	All in one	36 months (April 2027-:-April 2030).	Do not apply	EVN
3	EVN	Package No. 03TB-BA: Supply, transportation, steel lining of pressure pipes phase 2	- Design, manufacture, transport to the construction site, and insure the transportation of pressure pipe steel lining phase 2.1 for the following items: Upstream pressurization tower; Pressure tunnel sections 2 ÷ 6; Downstream of the factory; Downstream pressurization tower; Downstream valve tower and discharge tunnel 1, 2. - Testing before shipment, finishing, painting,	533,456	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	03 months (04-:- 6/2026)	April 2026	All in one	54 months (July 2026-:-December 2030).	Do not apply	EVN

			packaging, preservation, testing to check the quality of welds and welds. - Coordinate and test before and after the pumping process.										
4	EVN	Package No. 04TB-BA: Supply and transportation of hydromechanical equipment phase 2	- Design, manufacture, fabricate, transport to construction site, insure the transportation of CKTC equipment for the downstream valve tower. - Testing before shipment, finishing, painting, packaging, preservation, testing to check the quality of welds and joints, no-load and load testing of equipment at the site. - Inspection and certification Certificate of technical safety inspection of pressure equipment/lifting equipment of the bidding package according to regulations.	13,883	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	03 months (04-:-6/2026)	April 2026	All in one	36 months (July 2026-:-June 2029).	Do not apply	EVN
5	EVN	Package No. 05TB-BA: Supply, transport and installation of machine room cranes	- Design, manufacture, supply, transport, transport insurance to the construction site and install 02 sets of machine gantry cranes with lifting capacity 1x290T+1x60T+1x5T (including cylinders and synchronous load testing equipment). - Testing before shipment, finishing, painting, packaging, preservation, - Inspection and issuance of crane safety technical inspection certificates according to regulations.	113,319	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one profile	03 months (01-:-3/2027)	January 2027	All in one	25 months (April 2027-:-April 2029).	Do not apply	EVN
6	EVN	Package No. 06TB-BA: Supply, transport and installation of elevators for the Factory	- Design, manufacture, supply, transport, transport insurance and installation of 02 sets of factory elevators; - Testing before shipment, finishing, packaging, and preservation;	3,028	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months, (01-:-02/2029)	January 2029	All in one	12 months (March 2029-February 2030).	Do not apply	EVN
7	EVN	Package No. 07TB-BA: Supply and transportation of phase 2 monitoring equipment	- Supply and transport of monitoring equipment for the upstream pressurization tower and factory, monitoring equipment for the upper reservoir dam - Instructions for installation and operation.	11,239	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (01-:-02/2025)	January 2025	All in one	34 months (March 2025-:-January 2028)	Do not apply	EVN
8	EVN	Package No. 08TB-BA: Supply and transportation of 500kV power cables	- Procurement/fabrication, transportation to construction site, insurance for transportation of 500kV cable and accessories; - Inspection and testing at the Factory, packaging; - Instructions on the installation process and cable connection to the transformer transformer	94,312	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (01-:-02/2028)	January 2028	All in one	24 months (March 2028-:-February 2030)	Do not apply	EVN
B		Phase 2, stage 2 (2.2)		2,836,743									
I		Consulting service bidding packages		22,417									

		(05 bidding packages)											
1	EVN	Package No. 09TV-BA: Consulting on surveying and preparing design plans for the headquarters of Bac Ai pumped storage hydropower production operator	Survey, establish basic design and estimate construction investment costs for the headquarters of Bac Ai pumped storage hydropower production operator. Prepare and submit to students Survey reports, TKCS & DTXDCT; Explaining to the Public Advisor, Investor and Competent Authority in the process of appraisal and approval of CS design.	1,439	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (October:- November 2024)	October 2024	Contract based on combined price (fixed unit price + package)	03 months (December 2024:-February 2025)	Do not apply	EVN
2	EVN	Package No. 10TV-BA: Consulting on verification of TKCS for the headquarters of Bac Ai pumped storage hydropower production operator	Verify students' survey reports, TKCS&DTXDCT; Prepare and submit a Report on inspection results of CS; Participate in explaining the Investor and the Competent Authority in the process of appraisal and approval of CS design documents	84	Own capital and capital arranged by EVN	Short appointment of contractors		01 month (December 2024)	December 2024	All in one	01 month	Do not apply	EVN
3	EVN	Package No. 11TV-BA: Consulting on preparation of financial documents and bidding documents for construction and installation of equipment for the headquarters of Bac Ai pumped storage hydropower production operator	Survey and design a physical hospital with a land area of about 3,900m2 and auxiliary works and technical infrastructure according to regulations in accordance with planning, design, meeting functions and usage needs; Prepare and submit survey reports, construction drawing design-DTXDCT & Bidding documents to students; Explaining to the General Counsel, Investor and Competent Authority in the process of appraisal and approval of construction drawing design; Supervise the author.	2,022	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (February:- March 2025)	February 2025	All in one	03 months (April:-June 2025)	Do not apply	EVN
4	EVN	Package No. 12TV-BA: Consulting on verification of construction drawing design-DT of headquarters of Bac Ai pumped storage hydropower production operator	Verifying students of construction drawing design-DTXDCT; Prepare and submit a Report on the results of examination of construction drawing design-DTXDCT students; Participate in explanations during the process of appraisal and approval of construction drawing design-DT documents	310	Own capital and capital arranged by EVN	Short appointment of contractors		01 month (May 2025)	May 2025	All in one	1.5 months	Do not apply	EVN

5	EVN	Package No. 13TV-BA: Audit of the final settlement report of construction investment capital of Bac Ai pumped storage hydropower project	Auditing the final settlement report of investment capital for construction of Bac Ai pumped storage hydropower project.	18,561	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	02 months (November-December 2030)	November 2030	All in one	06 months (January-:June 2031)	Do not apply	EVN
II		Non-consulting service bidding packages										Do not apply	EVN
III		Construction and installation bidding packages (04 bidding packages)		2,556,026								Do not apply	EVN
1	EVN	Package No. 05XL-BA: Construction and installation of phase 2.2 of Bac Ai pumped storage hydropower plant project	- Construction work: + Main project items: Upper reservoir dam (Concrete surface dam; Spillway dam; Earth dam; VH5A road; Reservoir; HLVH management house); Stream sewer; Water intake door; Upstream valve tower; 500kV distribution station.- Equipment installation: + Electrical equipment installation for the upper reservoir dam, TVGS House; + Installation of monitoring equipment; + Installation of hydraulic mechanical equipment: Water intake; Upstream valve tower; + Installation of distribution station. - Construction and installation of shared, auxiliary items, serving construction. - Construction insurance.	2,450,936	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, two bags of documents	03 months (December 2025-February 2026)	December 2025	Contract based on combined price (fixed unit price + adjustable unit price + package)	44 months (March 2026-:November 2029)	Do not apply	EVN
2	EVN	Package No. 06XL-BA: Construction of residential and working areas of the Project Management Board and on-site Consulting (phase 2)	- Working house, 7-room house. - Construction work insurance.	10,868	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (November-December 2025)	November 2025	All in one	03 months (January-:March 2026)	Do not apply	EVN
3	EVN	Package No. 07XL-BA: Construction and installation of materials and equipment warehouse (Warehouse A)	-Construction of VTTB warehouse on a land area of about 6,000m2, scale is determined on the basis of technical requirements according to quantity and requirements of the manufacturer - Construction insurance.	1,753	Own capital and capital arranged by EVN	Open domestic bidding (applying online bidding process)	One stage, one bag of documents	02 months (November-December 2025)	November 2025	All in one	03 months (January-:March 2026)	Do not apply	EVN
4	EVN	Package No. 08XL-BA: Construction and installation of the headquarters of Bac Ai pumped	-Executive Headquarters; Infrastructure; View; Communication system (including surveillance camera system) - Construction work insurance.	92,468	Own capital and capital	Open domestic bidding (applying online	One stage, one bag of documents	02 months (August-:September 2025)	August 2025	Fixed unit price	12 months (September 1025-:September 2026)	Do not apply	EVN

		storage hydropower production operator			arranged by EVN	bidding process)							
IV		Bidding package for supplying VTTB and construction - Mixed bidding package (01 bidding package)		258,300								Do not apply	EVN
1	EVN	Package No. 09HH- BA: Supply of materials and equipment and construction and installation of 500kV distribution station	- Scope of work includes: + Procurement, manufacturing, quality assurance, assembly, inspection and testing at the manufacturing factory, packaging, transportation to the construction site of Bac Ai Pumped Storage Hydropower Project (including including loading, unloading and shipping insurance).+ Performing technical services such as testing and calibration instructions; Operation and maintenance training in accordance with plans, procedures, technical requirements, drawings, standards, codes and other documents as prescribed. Such technical requirements include, but are not limited to, the provision of services for design, engineering, manufacturing and delivery; Provide technical documents and drawings; and services Investor witnesses testing + Construction and installation of all equipment of the package - Supply includes: a) First system+ First equipment for the station;+ Gate column system, truss columns;+ busbar system; racks, cable ladders; + Electrical cables of all kinds; conductor; ceramic insulators,... and accompanying connection accessories;+ AC/DC self- use system;+ Fiber optic connection cabinet (located at the Factory);+ Measurement system;+ Grounding and protection system lightning according to the device.b) Secondary system+ Secondary equipment for the station;+ Camera system; Anti-intrusion system; + Communication system and SCADA (coordinate with installation unit and Calibration Experiment); + Service of connecting the 500kV TPP control DCS system with the underground factory DCS system.	258,300	Own capital and capital arranged by EVN	International bidding	One stage two envelopes of documents	03 months (October-:- December 2025)	October 2025	All in one	24 months (January 2026-:- January 2028)	Do not apply	EVN