

BIDDING DOCUMENTS

Procurement's name: Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system as per SR 00308/1100003765/ĐH-CNTT and Implement a Digital Twin solution for Profit Optimization of the RFCC Unit as per SR 327/1100003814/ĐH-CNTT

Issued on:

Purchaser



TABLE OF CONTENTS

Abbreviations	3
Part I. BIDDING PROCEDURES	4
Chapter I. Instructions to Bidders	4
Chapter II. Bid Data Sheet	22
Chapter III. Evaluation and Qualification Criteria	25
Chapter IV. Bidding Forms	50
Part II. SUPPLY REQUIREMENTS	76
Chapter V. Scope of supply	76
Part III. CONTRACT AND CONTRACT FORMS	80
Chapter VI. Contract	80
Chapter VII. Contract forms	89
Part IV. Evaluation Criteria and Instruction for Online Submission	98
Chapter VIII. Validity Checking and Evaluation Criteria for Adjusted Bids Submitted via E-Procurement System.....	98
Chapter IX. Instruction for Submitting Bids through the Bidding Document System.....	99



ABBREVIATIONS

PR	Petrovietnam Refining and Petrochemical Corporation Procurement Regulations, issued under Decision No. 1402/QĐ-BSR dated April 22, 2025
BSR	Petrovietnam Refining and Petrochemical Corporation
BOD	Board of Directors
ITB	Instructions to Bidders
BDS	Bid Data Sheet
CC	Contract Conditions
VND	Vietnamese Dong
Bid Closing Date	The official date and time at which bid submission is closed



Part 1. BIDDING PROCEDURES

Chapter I. Instructions to Bidders.

A. GENERAL

Section 1. Scope of Bid

1. The Purchaser, as specified in the Bid Data Sheet (BDS), issues these Bidding Documents for the supply of Services incidental thereto as specified in **Part 2 - Supply Requirements**, in compliance with the Procurement Regulations (QCMS) of Petrovietnam Refining and Petrochemical Corporation (BSR), issued under Decision No. 1402/QĐ-BSR dated April 22, 2025.

2. The name and number of lots (if the procurement is divided into independent lots) of the procurement are provided in the BDS.

3. The contract execution period shall be specified in the BDS.

Section 2. Sources of Funds

Sources of Funds to be used for the procurement are specified in the BDS.

Section 3. Fraud and Corruption

1. Corrupt practice.

2. Take advantage of positions, powers aiming to interfere illegally in a procurement process or the execution of a contract.

3. Collusive practice, including the following acts:

a) Arranging, conspiring, or coercing one party or parties to prepare or withdraw bidding documents so that one party may win bid;

b) A bidder who meets the technical and experience requirements deliberately refrains from submitting evidence of their qualifications when requested by the Procuring Entity to facilitate another bidder's selection.

4. Fraudulent practice, including the following acts:

a) Forging or falsifying information or documents during bid submission;

b) Intentionally providing untruthful or biased information or documents in the Bid Submission to distort the Bid Evaluation Result.

5. Interference, including the following acts:

a) Destroying, cheating, changing, hiding proof or reporting contrary to the truth; threatening, or suggesting with any Bidder with the aim to prevent the clarification of corrupt, fraudulent or conclusive practice with authorities in charge of supervisions, inspections and audit;

b) Obstructing the Purchaser or Bidders during the contractor selection process;



c) Obstructing authorized agencies from supervising, inspecting, auditing the contractor selection process;

d) Deliberately lodging false complaints, accusations, or petitions to hinder the contractor selection process;

6. Inequality and intransparency, including the following acts:

a) The Purchaser makes a Bid as a Bidder or perform tasks of a Bidder for its own Invitation for bids;

b) Formulating and assessing the Bidding Documents of the same procurement;

c) Engaging in evaluation of the Bidding Documents and assessing the results of Bidder selection of the same procurement;

d) Any individual of the Purchaser, Expert Group, or Appraisal Committee participates in the Bidder selection process, where the bidder or legal representative of the bidding entity has a family relationship (his or her natural parent, parent-in-law, spouse, natural child, adopted child, son or daughter-in-law or sibling);

e) Any individual makes a bid in his/her name for the procurement of a project whose Company is his/her workplace within 12 months, from the date on which he/she quits his/her job from such workplace;

g) A supervision consultant also concurrently acting as an independent verification consultant for the same package.

7. Disclosing documents or information regarding the Bidder selection process prior to the official announcement or issuance as prescribed, or disclosing other documents determined to contain state secrets under the law.

8. Bid transfer, including the following acts:

a) Any Bidder transfers to another Bidder more than 10% of the contract value (after deducting the value of designated subcontractors or special subcontractors)..

b) The Purchaser approves such assignment as specified in point (a), except in justified cases approved by the Competent person during contractor selection result approval.

Section 4. Eligible Bidders

1. A bidder that is an organization shall be considered legally eligible if it satisfies all of the following conditions:

a) **For domestic bidders:** the bidder must be an enterprise, cooperative, union of cooperatives, cooperative group, public service unit, or an economic organization with foreign-invested capital, duly established and operating in accordance with the laws of Vietnam; **For foreign bidders:** the bidder must be duly established and operating in accordance with the laws of the country of its incorporation;

b) The Bidder is keeping independent accounting records;



c) The Bidder is not in the process of dissolution or subject to revocation of its enterprise registration certificate, cooperative registration certificate, union of cooperatives registration certificate, or cooperative group registration certificate; and it is not undergoing insolvency or bankruptcy proceedings in accordance with applicable laws on bankruptcy;

d) The Bidder is not currently subject to any ban from participating in bidding as per the PR;

e) The Bidder is not under criminal investigation or prosecution;

g) The Bidder is listed on the Shortlist (applicable in cases where a shortlist is used).

2. A bidder that is a household business shall be considered legally eligible if it satisfies all of the following conditions:

a) The bidder holds a valid household business registration certificate in accordance with applicable laws;

b) The bidder is not in the process of ceasing operations or having its registration certificate revoked; and the owner of the household business is not under criminal investigation or prosecution;

c) The bidder meets the conditions specified in Points d and g, Clause 1 of this Section.

3. A bidder that is an individual shall be considered legally eligible if he/she satisfies all of the following conditions:

a) The bidder has full legal capacity in accordance with the laws of the country of which he/she is a citizen;

b) The bidder holds a relevant professional certificate where required by law;

c) The bidder meets the conditions specified in Points d and e, Clause 1 of this Article.

Section 5. Contents of Bidding Documents

1. The Bidding Documents consist of the following Parts in conjunction with any Addendum issued in accordance with ITB Section 7, (if any):

Part 1. Bidding Procedures - Chapter I. Instructions to Bidders (ITB);

- Chapter II. Bid Data Sheet (BDS);

- Chapter III. Evaluation and Qualification Criteria;

- Chapter IV. Bidding Forms.

Part 2. Supply requirements - Chapter V. Scope of supply.

Part 3. Conditions of Contract and Contract Forms:

- Chapter VI. Contract;

- Chapter VII. Contract Forms.



Part 4: Evaluation Criteria and Instruction for Online Submission.

1. The Invitation to Bid (for open bidding) or the Letter of Invitation (for restricted bidding) issued or provided by the Purchaser shall not form part of the Bidding Documents.
2. The Purchaser shall not be held responsible for the accuracy or completeness of the Bidding Documents, any clarifications thereto, pre-bid meeting minutes (if any), or amendments issued pursuant to Section 7 of the ITB, if such documents are not provided directly by the Purchaser .
3. The Bidder is required to study all instructions, forms, scope of supply requirements, and other conditions specified in the Bidding Documents to prepare their Bids.

Section 6. Clarification of Bidding Documents

1. A prospective Bidder requiring any clarification of the Bidding Documents shall contact the Purchaser in writing or ask questions in the pre-bidding convention (if any). The Purchaser will respond in writing to any request for clarification, provided that such request is received no later than a given days prior to the bid closing time as specified in BDS. The Purchaser shall forward copies of its response to all those who have acquired the Bidding Documents directly from it, including a description of the inquiry but without identifying its source. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB Section 7.

2. The Purchaser may hold a pre-bidding convention to discuss any clarification required by Bidders where necessary. The discussion shall be recorded by the Purchaser in writing, made in the form of Clarification of Bidding Documents and forward to every Bidder that acquires the Bidding Documents. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a pre-bidding convention, it shall do so following the procedure under ITB Section 7, the minutes of the pre-bidding convention is different from the addendum of Bidding Documents. Absence from the pre-bidding convention is not a reason for disqualifying the Bidder.

Section 7. Amendment of Bidding Documents

1. At any time prior to the bid closing time, the Purchaser may amend the Bidding Documents by issuing addendum.

2. Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents directly from the Purchaser and shall be published on the BSR website (<http://www.bsr.com.vn>).

3. Each addendum shall be sent to all Bidders who have obtained the Bidding Documents directly from the Purchasers within a given time as specified in the BDS. To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may extend the bid closing time,



pursuant to ITB Section 21.2. The Bidder must notify the Purchaser of the receipt of the addendum in writing, by post, by fax or email.

Section 8. Cost of Bidding

The Invitation to Bid shall be published on the website of BSR (<http://www.bsr.com.vn>) and on the National Bidding Network System. The Bidder shall bear all costs associated with the preparation and submission of its bid. The Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

Section 9. Language of Bid

The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in English or English and Vietnamese. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into English/Vietnamese. In case of absence of the translation, the Purchaser may request the Bidder to supplement when necessary..

Section 10. Documents comprising the Bid The Bid shall comprise the following:

1. Bid Submission Form, in accordance with ITB Section 11.
2. Consortium agreement (for any Bidder in a Consortium) using form No. 03 Chapter IV - Bidding Forms.
3. Bid Security, in accordance with ITB Section 18.
4. Documentary evidence in accordance with ITB Section 16 establishing the Bidder's qualifications to perform the contract if its bid is accepted.
5. Technical Proposal and Related documentary evidence in accordance with ITB Section 15.6. Alternative Technical Proposal, in accordance with ITB Section 12;
7. Price Schedules and Tables, in accordance with ITB Section 11 and Section 13.
8. Any other document specified in the **BDS**.

Section 11. Bid Submission Form and Tables

The Bidder shall submit the Bid Submission Form and equivalent Tables using the forms furnished in Chapter IV - Bidding Forms..

Section 12. Alternative Technical Proposal

1. If the Bidder may make Alternative Technical Proposal as prescribed in the BDS of the Bidding Documents, the new Proposal shall be considered.
2. Alternative technical proposals shall only be considered if the base proposal meets the requirements and the Bidder is ranked first. In this event, the Bidder must provide all essential information about: description, drawings, technical specifications, delivery schedule and other relevant information in order the Purchaser to evaluate the Alternative Technical Proposal. The evaluation of Alternative Technical Proposal in the Bid shall



comply with Section 5 of Chapter III - Evaluation and Qualification Criteria.

Section 13. Bid Prices and Discounts

1. Bid price means the price to be quoted in the Bid Submission Form, including the total price of the bid (excluding any discounts offered), in accordance with Part 2 – Supply requirements.

The Bid Price quoted by the Bidder shall include all taxes, fees and charges (if any) determined at 28 days prior the bid closing time. In case the Bid Price is not inclusive of taxes, fees and charges (if any), the Bid of the Bidder shall be rejected..

2. The Bidder shall submit the Bid with all lots and items specified in ITB Section 1 and the Bid unit price and amount of all lots and items using the forms prescribed in Chapter IV – Bidding forms.

In case Good or Service is not priced (leave blank or insert “0”) in the columns “Unit Price” and “Total Price”, it’s price deem to be allocated to another Good or Service of the procurement.

3. Discount offered by the Bidder shall be written on a separate Letter of Discount. The Bidder shall specify the discounting method and discounted items mentioned in the scope of work. If discounting method is not specified, it will be understood all items mentioned in the scope of work receive equal discounts. The Letter of Discount may be submitted separately or together with the Bid as long as it is received by the Purchaser before the bid closing time. Any Letter of Discount separately submitted shall comply with ITB Sections 20.2 and 20.3. The Letter of Discount shall be preserved as part of the Bid and opened together with the Bid at the bid opening.

4. In case the Bid contains abnormal unit prices, the Purchaser may request the Bidder to clarify these unit prices in accordance with ITB Section 26.5. In the event that the procurement is divided into independent lots and each lot is eligible for bid, the Bidder may make a Bid for one or multiple lots of the procurement. If the Bidder proposes a discount, the discounting method and discounted items shall be specified in accordance with ITB Section 13.5.

6. If the Bidder detect the inaccuracy in quantity of the items mentioned in the tables under Section IV. Bidding Forms in comparison with the requirements prescribed in Section 1 of Part 2 – Supply Requirements, the Bidder may notify the Purchaser of making a separate Price Schedule of the inaccurate quantity which may not be included in the Bid Price.

Section 14. Bid currency and Payment currency payment

The Bid currency is USD for foreign bidder and VND for domestic bidder.

The Payment currency payment is USD for foreign bidder and VND for domestic bidder, or another currency in accordance with applicable laws.

The bidding price shall be converted to USD for purpose of financial evaluation and ranking, at the selling rate of JOINT STOCK COMMERCIAL BANK FOR FOREIGN TRADE OF VIET NAM (Vietcombank) announced as of bid closing time.

Section 15. Documents Establishing the Conformity of the Services



1. To establish the conformity of the Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Chapter V – Scope of Supply.

2. The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Services, demonstrating substantial responsiveness of the Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of Chapter V - Scope of Supply.

3. Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in Chapter V - Scope of Supply, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in Chapter V - Scope of Supply.

Section 16. Documents Establishing the Qualifications of the Bidder 1. The Bidder shall fill essential information in the forms mentioned in Chapter IV – Bidding Forms to establish the Bidder's qualifications to perform the contract in accordance with Chapter III - Evaluation and Qualification Criteria. The Bidder shall prepare original documents for verification at the request of the Purchaser.

2. Documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall comply with the BDS.

Section 17. Period of Validity of Bids

1. Bids shall remain valid for the period which is not shorter than the period specified in the BDS. A bid valid for a shorter period shall be rejected by the Purchaser as non responsive.

2. In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser may request bidders to extend the period of validity of their bids. If a Bid Security is requested, it shall also be extended for a corresponding period (equivalent to the extended validity period plus 30 days). If the Bidder refuse the request, its Bid shall not be kept considering and the Bid Security shall be returned. The Bidder accepting the request may not change any content of the Bid. The request and the responses shall be made in writing.

Section 18. Bid Security

1. When submitting a bid, the Bidder shall furnish a Bid Security before the bid closing time in the form of either a deposit or a letter of credit or a bank guarantee from a bank or credit institution or a foreign bank branch lawfully operating in Vietnam. The bank guarantee shall comply with form No. 04(a) and 04 (b) of Chapter VI – Bidding Forms. In the event that the validity period of the bid is extended as prescribed in ITB Section 18.2, the Bid Security is also extended with the same validity period.



If a Consortium make a bid, it may perform the Bid Security following one of two methods below:

a) Every member in Consortium may perform separate Bid Security provided that total value of the Bid Security is not lower than that mentioned in ITB Section 18.2; if the Bid Security is not valid, the Bid of the Consortium shall be rejected as non-responsive. If any member in Consortium violates law on bidding leading its Bid Security is not returned as prescribed in ITB Section 18.5, and the Bid Security of all members in Consortium shall not be returned.

b) If all Consortium members conclude an agreement in which one member will be responsible for its Bid Security or for Bid Security of other members in Consortium. The Bid Security shall be in the name of the Consortium or the Consortium member in charge provided that the total value is not lower than that mentioned in ITB Section 18.2.

2. Value, currency and validity period of the Bid Security shall be specified in the BDS.

3. A Bid Security shall be not considered valid if it does not comply with the Bid Security Form prescribed in Section IV – Bidding Forms and falls under any of the following cases: have lower value, shorter validity period as required in ITB Section 18.2, inaccurate the Purchaser's name (beneficiary), non-original paper and Issued before the date of issuance of the Bidding Documents or accompanied by conditions that are disadvantageous to the Purchaser.

4. The unsuccessful Bidder shall be either returned or released the Bid Security within the deadline as prescribed in the BDS, from the date on which the notification of the Bidder selection is sent. With regard to the successful Bidder, the Bid Security shall be returned or released after the Contract becomes effective, except for cases stipulated in ITB Section 18.5.

5. The Bid Security shall not be returned in one of the following cases:

a) The Bidder withdraws the Bid or issues a written refusal to perform one or more of the works proposed in the Bid as required by the Bidding Documents after the bid closing date and during the validity period of the Bid;

b) The Bidder violates the PR leading to contract cancellation as prescribed in ITB Section 33;

c) The successful Bidder fails to provide the performance security as required in ITB Section 38;

d) The Bidder does not proceed or refuses to proceed with contract finalization within 20 days from the date of receiving the invitation notice to finalize the contract from the Purchaser, or having finalized the contract but refuses to sign the contract finalization minutes, except in cases of force majeure;

e) The Bidder fails to sign the contract within the timeframe specified in the Purchaser's Notice of Award from the date of contract finalization completion, except in cases of force majeure.

Section 19. Format and Signing of Bid



1. The Bidder shall prepare one original of the documents comprising the bid as described in ITB Section 10 and a number of photocopies of the Bid as prescribed in the BDS. The cover of the documents comprising the bid shall be clearly marked “ORIGINAL” OR “COPY”.

If there any is amendments to or replacement for the Bid, the Bidder shall prepare one original and a number of photocopies of the Bid as prescribed in the BDS. The cover of documents shall be clearly marked “ORIGINAL MODIFICATION”, “COPY MODIFICATION”, “ORIGINAL SUBSTITUTION”, and “COPY SUBSTITUTION”.

If there is an Alternative Technical Proposal in the Bid as prescribed in ITB Section 12, the Bidder shall prepare one original and a number of photocopies of documents as prescribed in the BDS. The cover of documents shall be clearly marked “ORIGINAL OF ALTERNATIVE TECHNICAL PROPOSAL”, “COPY OF ALTERNATIVE TECHNICAL PROPOSAL”..

2. The Bidder shall be responsible for the discrepancy between the original and the copies. In the event of any discrepancy between the original and the copies which does not affect the rank of the Bidder, the original shall prevail. In the event of any discrepancy between the original and the copies which does not affect the rank of the Bidder, the Bid shall be rejected.

3. The original of the bid shall be typed or written in indelible ink and have page numbers. Bid Submission Form, Letter of Discount (if any), additional documents, clarifying documents, Price Schedule and other forms prescribed in Chapter IV - Bidding Forms must bear the signature and seal of the Bidder’s legal representative or authorized representative (if any). The authorized representative must obtain a Power of Attorney using form No. 02 of Chapter IV – Bidding Forms or a copy of the Company Charter, a certified Decision on Establishment of branch or other documents proving the competence of the authorized representative, and it shall be submitted together with the bid.

4. If the Bidder is a Consortium, the Bid must bear the signatures of legal representatives or all Consortium members or the member that represents the Consortium according to the Consortium agreement. In order to ensure that all Consortium members are legally bound, the Consortium agreement must bear the signatures of legal representatives of all Consortium members.

5. Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

Section 20. Sealing and Marking of Bids

1. The bid envelope contain the original and the copies and clearly mark it “BIDS”.

If there is any revision or replacement of the bid, the modified or alternative documents (including the original and the copies) shall be put into separate envelopes and clearly mark it “MODIFICATION”, “SUBSTITUTION”.

If the Bidder has an alternative Technical Proposal which conclude technical proposal and price proposal, it shall be put into a separate envelope and clearly mark it



“ALTERNATIVE TECHNICAL PROPOSAL”.

These envelopes, including Bid, Modification, Substitution (if any); Alternative Technical Proposal (if any), shall be sealed. The sealing of envelopes shall comply with regulations provided by the Bidder.

2. The outer envelopes shall:

- a) Bear the name and address of the Bidder;
- b) be addressed to the Purchaser in accordance with ITB;
- c) bear the name of the procurement in accordance with ITB.

3. If the envelopes are not sealed or the seals thereof are lost during the process they are transferred to the Purchaser, or they are not marked as required in ITB Sections 19.1. and 19.2, the Bidder shall be responsible for those violations. The Purchaser will assume no responsibility for the confidentiality of the bid if the Bidder fails to comply with above regulations.

Section 21. Deadline for the submission of bids

1. Bids must be received by the Purchaser at the address or via the Purchaser’s bidding system and no later than the bid closing time specified in the BDS. The Purchaser shall receive Bids of all Bidders submitted before the bid closing time, including those who have bought or received the Bidding Documents from the Purchaser. Any Bidder that has not bought the Bidding Documents must pay the Purchaser an amount equal to the selling price for a set of Bidding Documents before their Bid envelopes are received (For the Bidding Documents issued with a fee).

2. The Purchaser may extend the bid closing time by amending the Bidding Documents in accordance with ITB Section 7, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

Section 22. Late Bids Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected and returned unopened to the Bidder.

Section 23 Withdrawal, Substitution, and Modification of Bids

1. A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by a legal representative or an authorized representative, and shall include a copy of the Power of Attorney in accordance with ITB Section 19.3. The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

a) submitted in accordance with ITB Sections 19 and 20, and in addition, the respective envelopes shall be clearly marked “MODIFICATION”, “SUBSTITUTION”, or “WITHDRAWAL”; and b) received by the Purchaser prior to the deadline prescribed for submission of bids, in accordance with ITB Section 21.

2. Bids requested to be withdrawn in accordance with ITB Section 23.1 shall be returned unopened to the Bidders.

3. No bid may be withdrawn, substituted, or modified in the interval between the



deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Submission Form or any extension thereof.

Section 24. Bid Opening

1. Except for cases prescribed in ITB Sections 22 and 23, the Purchaser shall conduct the public bid opening at the time and place specified in the **BDS**, in the presence of representatives of Bidders attending the bid opening ceremony and representatives of related agencies and organizations, regardless of the attendance or absence of the Bidders' representatives. The Purchaser open each Bid and read aloud the information specified in ITB Section 24.3 of all Bids received before the bid closing time as regulated in ITB Section 21.1.

2. First, envelopes marked "WITHDRAWAL" shall be opened and read out and the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at the bid opening.

Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding substitution Bid being substituted. The substituted Bid shall not be opened but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at the bid opening.

Envelopes marked "MODIFICATION" be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at the bid opening. Only envelopes that are opened and read out at the bid opening shall be considered further.

3. The bid opening shall be conducted to every Bid according to the alphabet order of the Bidders' names and following procedures:

a) Request the Bidder's representative (if present) to confirm whether there is a Letter of Discount included with their Bid;

b) The seals shall be checked;

c) All other envelopes, including original, modified or substituted bid (if any) shall be opened and reading out: the name of the Bidder, the number of the original and the copies, the Bid Prices mentioned in the Price Schedule, discount value in the Letter of Discount (if any), bid validity period, the performance period of procurement and the value and validity period of the Bid Security and other details as the Purchaser may consider appropriate. If the procurement is divided into independent lots, the information for each part shall be read as for a procurement not divided into parts. Only discounts read out at Bid opening shall be considered for evaluation;

d) The representative of the Purchaser shall countersign original copy of Bid Submission Form, Bid Security, Price schedule, Power of attorney (if any), Letter of Discount (if any), and Consortium Agreement (if any). No Bid shall be rejected at Bid



opening except for late bids, in accordance with ITB Section 22.

4. The Purchaser shall prepare a record of the Bid opening that shall include prescribed in ITB Section 24.3. The record of Bid opening shall be countersigned by the representative of the Ministry of Trade and the Bidders participating in the Bid opening. If any signature of the Bidders is left in the record, it shall be invalid. A copy of the record shall be distributed to all Bidders who participate in the bid opening.

Section 25. Confidentiality

1. Information relating to the evaluation of bids, and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with such process until publication of the Contract Award. No information mentioned in the bid of the successful Bidder is disclosed to any other bidders, except for information disclosed at the bid opening.

2. Except for case of the bid clarification prescribed in ITB Section 26, the Bidder is not permitted to contact to the Purchaser on any matter related to its bid and the procurement from the bid opening time until the publication of Contract Award.

Section 26 Clarification of Bids

1. After opening the bid, the Bidder is responsible for clarifying the bid at the request of the Purchaser. Any request for clarification of the Purchaser and any response of the Bidder shall be in writing. In the event that there is no documentary evidence establishing the Bidder's qualifications (including the sale permit issued by the Producer or the certification of Consortium relationship or any other equivalent documents, if required by the Bidding Documents) in the Bidding Documents, the Purchaser shall request the Bidder to clarify and supplement that documentary evidence. Regarding technical and financial proposals mentioned in the Bid, the clarification may not change essential information about the Bidder, bid and bid price. The Bidder shall notify the Purchaser of the receipt of the request for clarification of the Bid by one of the following means: in writing (delivered by hand or post), by fax, or by e-mail. .

2. The Clarification of Bids between the Bidder and the Purchaser shall be conducted either directly or indirectly.

3. In case, after bid closing, there is no documentary evidence establishing the Bidder's qualifications in the Bidding Documents, the Bidder may supplement that documentary evidence. The Purchaser shall receive the Clarification of Bids sent by the Bidder; documentary evidence establishing the Bidder's qualifications shall be an integral part of the Bid. The Purchaser shall notify of receipt of Clarification of Bids in writing (delivered by hand or post), by fax or email.4. The Clarification of Bids shall only be made between the Bidder and the Purchaser having the bid that needs clarifying. The contents of the Clarification of Bids shall be treated as an integral part of the Bid by the Purchaser. Regarding clarification in terms of the Bidder's qualification, technical requirements or financial requirements, if the deadline for clarification expires, but the Bidder fails to send any clarification or the clarification



does not satisfy requirements of the Purchaser, the Purchaser shall evaluate the Bid sent prior to the bid closing time by the Bidder.

Section 27 Determination of Responsiveness

1. The Purchaser shall determine a bid's responsiveness as prescribed in ITB.

2. A substantially responsive bid means one that it passes the technical evaluation in accordance with the technical evaluation criteria specified in Section III – Evaluation Criteria.

3. If a bid is not substantially responsive to the requirements of the Bidding Documents, it shall be rejected shall not be further evaluated. The Bidder shall not be permitted to amend the Bid in order to make it substantially responsive.

Section 28. Nonmaterial Nonconformities

1. Provided that a bid is substantially responsive, the Purchaser may accept minor, non-material deviations or errors in the Bid.

2. Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information and documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.

3. Provided that a bid is substantially responsive, the Purchaser shall rectify nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only on the same basis, to ensure the consistency of the Bid Price, to reflect the price of a missing or nonconforming item or component.

Section 29. Subcontractor

1. The Contractor is entitled to enter into agreements with subcontractors mentioned in the list as prescribed in Form No. 12 of Chapter IV – Bidding Forms. There is no change to the responsibilities of the primary Contractor in spite of employment of any subcontractor The Contractor shall be responsible for quantity, quality, schedule and other responsibilities performed by the subcontractor. The subcontractor's qualifications shall not be considered during the contractor's bid evaluation. The Contractor is required to meet all qualification requirements (not considering qualification of subcontractors).

If the Contractor does not propose any subcontractor for any task, the whole procurement shall under responsibilities of the Contractor.

2. In the event of being awarded the contract, during the contract execution, the Contractor shall not use subcontractors for any work other than those declared in the bid submission; any replacement or addition of subcontractors beyond the list stated in the bid shall only be carried out with justified and reasonable reasons and with the approval of the Purchaser.



Section 30. Bid Evaluation Before evaluating the Bid, the number of original and copy bids must be checked, along with the components of the Bid as stipulated in ITB Section 10, including administrative documents, legal documents, and documents proving qualifications and experience, such as: Bid Submission Form; Consortium Agreement (if any); Power of Attorney for signing the Bid Submission Form (if any); Bid Security; Documents proving eligibility; documents proving qualifications and experience.

The evaluation of Bids shall be conducted based on the Bid Evaluation Criteria stipulated in Chapter III – Bid Evaluation Criteria, following the sequence below:

1. Inspection and evaluation the validity of the Bids:

a) The validity of the Bids shall comply with Section 1 of Chapter III - Evaluation and Qualification Criteria;

b) The bidders having valid Bids shall be considered further.

2. Qualification evaluation:

a) The evaluation of Bidder's qualification shall comply with Section 2 of Chapter III - Evaluation and Qualification Criteria;

b) The bidders satisfying qualification requirements shall be considered further.

3. Technical evaluation:

a) The Technical evaluation shall comply with Section 3 of Chapter III - Evaluation and Qualification Criteria;

b) The bidders satisfying technical evaluation shall be considered further.

4. Price evaluation:

a) The Price evaluation shall comply with Section 4 of Chapter III - Evaluation and Qualification Criteria, for ranking the Bidders.

5. If the procurement is divided into independent lots as prescribed in ITB Section 13.5, the bid evaluation shall comply with Section 6 of Chapter III - Evaluation and Qualification Criteria equivalent to the lot in which the Bidder participates.

Section 31. Correction of Errors and Adjustment of Deviations

Corrections and adjustments shall be performed only for Bids that have passed the technical evaluation, including:

1. Correction of Errors refers to the rectification of mistakes in the Bid, including arithmetic errors and other errors, conducted under the following principles:

a) Arithmetic Errors include errors in addition, subtraction, multiplication, or division when calculating the Bid price. In case the Bidding Documents require detailed unit price analysis, the data in the detailed unit price breakdown shall be the basis for correcting arithmetic errors. In case of inconsistencies between the unit price and the extended amount, the unit price shall be the basis for correction; however, if



the unit price exhibits abnormal deviations due to decimal system errors (e.g., factors of 10, 100, or 1,000), then the extended amount shall be the basis for correction. If the unit price or the extended amount column is left blank or marked as “0,” it shall be considered that the Bidder has allocated the price of this item to other items within the contract package. The Bidder shall be responsible for completing these works as required in the Bidding Documents and shall not be paid by the Purchaser during contract execution.

b) Other Errors:

- If the extended amount column is filled but the unit price is missing, the unit price shall be supplemented by dividing the extended amount by the quantity; if the unit price is filled but the extended amount is blank, the extended amount shall be supplemented by multiplying quantity by unit price; if both unit price and extended amount are filled but quantity is missing, quantity shall be supplemented by dividing the extended amount by the unit price. If the supplemented quantity differs from the quantity specified in the Bidding Documents, such difference shall be regarded as a deviation in scope of supply and adjusted accordingly as per this Section;

- Errors in units inconsistent with the Bidding Documents shall be corrected to comply with the Bidding Documents;

- Errors in punctuation (using “,” comma instead of “.” period or vice versa) shall be corrected according to Vietnamese writing standards. If the Purchaser considers that the comma or period in the bid price is misplaced, the extended amount shall be decisive and the unit price corrected accordingly;

- If errors are found in totaling amounts, the total amount shall be corrected based on the item amounts;

- In case of discrepancies between technical and financial proposals, the technical proposal shall be the basis for correction.

- If there is a discrepancy between numerical figures and words, the words shall be taken as the legal basis for correction. If the words are incorrect or meaningless, the figures shall be used.

2. Adjustment of Deviations

a) If deviations in scope of supply are identified compared to the requirements in Part 2 of the Bidding Documents, the bid price shall be increased by the value of the missing portion and decreased by the value of the excessive portion at the corresponding unit prices in the Bid containing the deviation;

If the Bid with missing deviations does not include unit prices, the highest unit price for that item among other technically qualified Bids shall be used for adjustment; if none of the technically qualified Bids include unit prices, the unit price forming the contract package price shall be used as a basis for adjustment;



If there is only one Bid passing the technical evaluation, the adjustment shall be made using the unit prices from that Bid; if the Bid does not include unit prices, the unit prices forming the contract package price shall be used;

b) If a Bidder with an adjusted Bid ranks first but the Bid lacks unit prices for deviations, when determining the proposed winning price, the highest unit price among other technically qualified Bids shall be used for excessive deviations, and the lowest unit price among other technically qualified Bids shall be used for missing deviations.

After corrections and adjustments are made as prescribed, the Purchaser shall notify the Bidder in writing of the corrections and adjustments to their Bid. Within 03 working days from receipt of such notice, the Bidder shall notify the Purchaser in writing of their acceptance of the corrections and adjustments. If the Bidder does not accept the corrections and adjustments, their Bid shall be rejected.

Section 32. Conditions for successful bidder

A bidder shall be proposed for contract award when following conditions are satisfied:

1. The bidder has a valid bid as prescribed in Section 1 of Chapter III - Evaluation and Qualification Criteria;
2. The bidder is qualified as required in Section 2 of Chapter III - Evaluation and Qualification Criteria;
3. The bidder has a satisfactory technical proposal as prescribed in Section 3 of Chapter III - Evaluation and Qualification Criteria;
4. The shortfall deviations is not more than 10% of the bid price;
5. The total score is highest;
6. The successful bid (including taxes, fees and charges (if any)) does not exceed the approved procurement price.

Section 33. Bidding cancellation

The bidding cancellation shall be carried out in the following cases:

1. All Bids fail to meet requirements mentioned in the Bidding Documents.
2. The Purchaser changes objectives and scope of work result in alterations to the volume of work or evaluation criteria specified in the Bidding Documents.
3. Bidding Documents fail to comply with the PR leading the nonsatisfaction of the successful bidder.
4. The Bidder commits a prohibited act as specified in Article 69 of the PR.
5. An organization or individual, other than the Bidder, commits a prohibited act as specified in Article 69 of the PR, resulting in a distortion of the bid evaluation outcome.
6. Bid cancellation shall be carried out during the period from the issuance date of the Bidding Documents until before the signing of the Contract/Framework Agreement.



Section 34. Publishing of bidder selection result

1. Before the deadlines prescribed in the BDS, the Purchaser shall send notifications of bidder selection result to related bidders by post or fax and post it on BSR's bidding network (<https://www.bsr.com.vn>).

2. Regarding bidding cancellation prescribed in Point a ITB Section 33, the explanation for the bidding cancellation shall be provided in the notification of bidder selection result.

Section 35. Change in quantity of Goods and Services

Before contract signing, based on the scale and nature of the package, the Purchaser may increase or decrease quantity of the relevant scope of work mentioned in Chapter V, Part 2 – Scope of Supply provided that it does not exceed the rate specified in the BDS and there is no change to unit price, other conditions or terms of the Bidding Documents or the Bid.

Section 36. Notification of Contract Award

Together with the notification of bidder selection result, the Purchaser shall send a Notice of Award to the winning Bidder, including requirements pertaining to performance security, time for completion and conclusion of contract prescribed in form No. 14 of Chapter VII – Contract Forms. In the event that the successful bidder fails to complete and conclude the contract before the deadline mentioned in the Notification of Contract Award, such bidder shall be rejected without Bid Security return as prescribed in Point e ITB Section 19.5.

Section 37. Conditions for signing of contract

1. The Bid of the Bidder shall remain valid at the time of signing of contract.

2. At the time of signing of contract, the successful Bidder shall be determined to have technical and financial qualification to perform the contract. In case the Bidder is no longer qualified as prescribed in the Bidding Documents, the Purchaser shall refuse to conclude the contract with the Bidder. Then, the Purchaser shall cancel the decision on approval for bidder selection result and send the Notification of Contract Award to the next ranked bidder.

Section 38. Performance Security

1. Before signing the contract or before the contract becomes effective, the successful bidder shall furnish a Performance Security issued by a bank, or credit institution, or a foreign bank branch lawfully operating in Vietnam with a value equal to 5% of the contract value. The Bidder shall, if applicable, use the Bank Guarantee form prescribed in form No. 15 of Chapter VII - Contract Forms (or in the Contract) or another form which is approved by the Purchaser.

2. The Bidder shall be not be returned the Performance Security in one of the following cases:

a) Refuse to perform the contract on the effective date of the contract;



- b) Violate terms and conditions of the contract;
- c) Perform the contract behind the schedule and refuse to extend the validity period of the Performance Security.

Section 39. Handling complaints in bidding

Bidders are entitled to file complaints against the bidder selection progress (prior to the announcement of the selection result) and result to the Purchaser, the Competent person for review and resolution, at the address prescribed in the BDS when they found their lawful rights and interests are infringed.

Section 40. Monitoring bidder selection progress

When any act or content unaccordant with the PR, the Bidder shall notify organizations or individuals of monitoring bidder selection progress as prescribed in the BDS.



Chapter II. BID DATA SHEET (BDS)

ITB 1.1	The Purchaser is: Petrovietnam Refining and Petrochemical Corporation
ITB 1.2	<p>The procurement's name: Implement a Digital Twin solution for Profit Optimization of the RFCC Unit as per SR 327/1100003814/ĐH-CNTT and Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system as per SR 308/1100003765/ĐH-CNTT</p> <p>Contract type: Lump sum.</p>
ITB 1.3	<p>The maximum contract implementation period is:</p> <ul style="list-style-type: none">- Part 1 (Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system as per SR 308/1100003765/ĐH-CNTT): 07 months from the contract signing date, in which:<ul style="list-style-type: none">+ Service completion time: 06 months from the contract signing date;+ Estimate completion time: 01 month.- Part 2 (Implement a Digital Twin solution for Profit Optimization of the RFCC Unit as per SR 327/1100003814/ĐH-CNTT): 11 months from the contract signing date, in which:<ul style="list-style-type: none">+ Service completion time: 10 months from the contract signing date;+ Estimate completion time: 01 month.
ITB 2	Sources of Funds: Operation cost of BSR
ITB 6.1	The Purchaser shall receive the request for Clarification of Bidding Documents not later than 5 working days before the bid closing time.
ITB 7.3	<p>The Purchaser shall send Amendment of Bidding Documents to all bidders received the Bidding Documents from the Purchaser before the bid closing time at least 10 working days.</p> <p>In case the time for sending Amendment of Bidding Documents does not comply with above regulations, the Purchaser shall extend the corresponding deadline for the submission of bids.</p>
ITB 12.1	Alternative Technical Proposal <i>shall not be</i> considered.



ITB 13.5	Parts of the package: 02 Parts. Detailed in Chapter V. Scope of supply
ITB 16.2	Documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted contains: as detail Chapter III. Evaluation and qualification criteria.
ITB 17.1	The bid validity period shall be: ≥ 120 days from the bid closing time.
ITB 18.2	<p>Contents of the Bid Security:</p> <ul style="list-style-type: none"> - Value and currency of the Bid Security: <ul style="list-style-type: none"> + Part 1: <ul style="list-style-type: none"> For foreign bidders: 9.810,00 USD (in words: nine thousand eight hundred and ten US Dollars). For domestic bidders: 260.000.000 VND (In words: two hundred and sixty million Vietnamese Dong). + Part 2: <ul style="list-style-type: none"> For foreign bidders: 16.110,00 USD (in words: sixteen thousand one hundred and ten US Dollars). For domestic bidders: 425.000.000 VND (In words: four hundred and twenty-five million Vietnamese Dong). + Both Parts: <ul style="list-style-type: none"> For foreign bidders: 25.920,00 USD (in words: twenty-five thousand nine hundred and twenty US Dollars). For domestic bidders: 685.000.000 VND (In words: six hundred and eighty-five million Vietnamese Dong). - The validity period of the Bid Security shall be: ≥ 150 days, from the bid closing time.
ITB 18.4	The unsuccessful bidders may be either returned or released their Bid Security within 14 days, from the date on which the bidder selection results are approved.
ITB 19.1	<p>The number of copies of the Bid is: 01. The number of copies of the Bid and the number of copies of modified or substituted Bid or Alternative Technical Proposal are the same.</p> <p>In addition to the number of copies specified above, the Bidder shall attach one USB containing scanned files of the entire Bid Submission Documents as instructed in Point (a), Section I – Chapter IX – INSTRUCTIONS FOR SUBMITTING BIDS THROUGH THE BIDDING DOCUMENT SYSTEM, along with the Excel file of the bid price schedule.</p>



Chapter III. EVALUATION AND QUALIFICATION CRITERIA

Section 1. Evaluation criteria of validity of the Bid

A Bid is considered valid when all of the conditions below are satisfied: The Bidder shall be deemed **Responsive** if all evaluation criteria are assessed as “**Responsive.**”, The Bidder shall be deemed **Non-Responsive** if any evaluation criterion is assessed as “**Non-Responsive.**”

Details are as follows:

No	Content	Responsive	Non-Responsive	Notes
1	There is an original Bid or the Bid Submission Documents submitted via BSR's e-bidding system.			
2	There is an original Bid Submission Form signed and stamped (if applicable) by the legal representative of the Bidder as required by the Bidding Documents; The Bid Submission Form must be signed after the issuance date of the Bidding Documents; the Bid must not contain multiple bid prices or include any conditions that are unfavorable to the Purchaser Regarding Consortium, the Bid Submission Form shall be signed and stamped (if applicable) by legal representative of every Consortium member or signed by the member authorized on behalf of the Consortium in accordance with the Consortium agreement.			
3	The validity period of the Bid satisfies requirements in ITB.			
4	A valid original Bid Security is required (in terms of value, validity period, beneficiary, and the signatory must be the legal representative of a domestic credit institution or a branch of a foreign bank legally operating in Vietnam).			
5	The Bidder shall not have its name included in multiple Bids as an independent Bidder or a Consortium member for the same procurement.			
6	There is a valid original Consortium Agreement. The agreement shall clearly specify detailed tasks and value thereof performed by each Consortium member. The division of work must be based on the items listed in the Bid Price Schedule.			



No	Content	Responsive	Non-Responsive	Notes
7	The Bidder's status is valid as prescribed in Article 4 of the PR.			
8	Within 03 years prior to the bidding closing date, the Contractor has no personnel (who signed a labor contract with the Contractor at the time the personnel committed the violation) convicted by the Court of violating bidding regulations causing serious consequences according to the provisions of criminal law with the aim of allowing that Contractor to win the Bid. (The Bidder shall include a written statement/document of commitment with the Bid).			

*** For Bidders submitting their Bids via BSR's e-bidding system, the criteria for evaluating the validity of the Bid shall be applied in accordance with Part 4 – Evaluation Criteria and Instruction for Online Submission.**

Section 2. Qualification criteria

Qualification of a Consortium provided that each member is qualified to perform their tasks in the Consortium; if any member is not qualified to perform their tasks in the Consortium, the Consortium shall be considered not qualified. Regarding the procurement being divided into independent lots, the Bidder's qualification shall be evaluated in proportion to the lot for which it make a bid.

The Bidder (whether an independent Bidder or a member of a Consortium) must independently meet the Evaluation Criteria for Qualification as specified in Section 2 – Evaluation Criteria for Capacity and Experience. The Qualification of subcontractors or nominated subcontractors (if any) shall not be considered as a substitute for the Qualification of the Bidder.

In case of application of the prequalification, if there is any change to the information about the Bidder's qualification between the Bid and the application for prequalification, the new information shall be updated; if not, the Bidder shall issue a commitment to satisfy all the procurement's criteria.

In case of non-application of the prequalification, the Bidder's qualification shall be evaluated as follows, the qualified Bidder is the one satisfying all criteria; then the Bid will be further considered and evaluated technically.



2.1. Qualification criteria:

The evaluation of qualification shall be conducted according to the following “Table of Qualification criteria”:

The evaluation criteria for the Bidder’s Qualification shall be applied using the ratings “Pass” or “Fail.” The Bidder must receive a “Pass” rating for all items listed in the table below to be considered as meeting the qualification requirements.

If any item below is rated as “Fail” or “Non-Responsive,” the remaining items will not be considered.

TABLE OF QUALIFICATION CRITERIA

Criterion			Requirement			Required document
No	Description	Requirement	Independent bidder	Consortium bidder		
				All Consortium members	Each Consortium member	
1	Tax obligation fulfillment	Fulfilled the tax obligations for the most recent fiscal year as of the bid closing date.	Satisfied	Not applicable	Satisfied	Supporting documents to prove them (as noted in the remarks section below)
2	Financial capacity					
2.1	Financial outcome	The Bidder’s net asset value in the most recent fiscal year as of the bid closing date must be positive. (Net asset value = Total assets – Total liabilities)	Satisfied	Not applicable	Satisfied	Form No. 11 and attached supporting documents as instructed in this form
2.2	Annual average revenue from business (excluding VAT)	The Bidder's average annual revenue (excluding VAT) for the 03 most recent fiscal years as of the bid closing date must be at least:	Satisfied	Satisfied	Not applicable	Form No. 11 and attached supporting documents as instructed in this form



Criterion			Requirement			Required document
No	Description	Requirement	Independent bidder	Consortium bidder		
				All Consortium members	Each Consortium member	
		<ul style="list-style-type: none"> - Part 1: 17.600.000.000 VND (In words: Seventeen billion six hundred million Vietnamese Dong) for domestic bidders or 700.000,00 USD (In words: seven hundred thousand US Dollars) for foreign bidders. - Part 2: 29.000.000.000 VND (In words: Twenty-nine billion Vietnamese Dong) for domestic bidders or 1.100.000,00 USD (In words: One million one hundred thousand US Dollars) for foreign bidders. - Both parts: 46.600.000.000 VND (In words: Forty-six billion six hundred million Vietnamese Dong) for domestic bidders or 1.800.000,00 USD (In words: One million eight hundred thousand US Dollars) for foreign bidders. 				
3	Experience to perform contracts of	<p>1. Part 1: The Bidder has completed at least 01 similar contract as a main contractor (independent or Consortium member)</p>	Satisfied	Not applicable	Satisfied (equivalent to their tasks)	Form No. 07 and attached supporting documents (Contracts, Completion



Criterion			Requirement			Required document
No	Description	Requirement	Independent bidder	Consortium bidder		
				All Consortium members	Each Consortium member	
	provision of similar Services	<p>or subcontractor during the period from 01 January 2022 to the deadline for submission of bids.</p> <p>In which similar contracts are:</p> <ul style="list-style-type: none"> - Similar properties: Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system. - Completed with minimum scale (value): 345.000,00 USD (In words: Three hundred and forty-five thousand US Dollars) for foreign bidders or 9.100.000.000 VND (in words: Nine billion one hundred million Vietnamese Dong) for domestic bidders. <p>2. Part 2</p> <p>The Bidder has completed at least 01 similar contract as a main contractor (independent or Consortium member) or subcontractor during the period from 01 January 2022 to the deadline for submission of bids.</p> <p>In which similar contracts are:</p> <ul style="list-style-type: none"> - Similar properties: Supply Digital Twin solution for Profit Optimization 			performed)	Certificates/Acceptance Minutes/Settlement Minutes, Invoices, etc.)



Criterion			Requirement			Required document
No	Description	Requirement	Independent bidder	Consortium bidder		
				All Consortium members	Each Consortium member	
		<p>of the RFCC Unit.</p> <ul style="list-style-type: none"> - Completed with minimum scale (value): 564.000,00 USD (In words: Five hundred and sixty-four thousand US Dollars) for foreign bidders or 14.900.000.000 VND (in words: Fourteen billion nine hundred million Vietnamese Dong) for domestic bidders. <p>3. Both parts:</p> <p>The Bidder has completed at least 01 similar contract as a main contractor (independent or Consortium member) or subcontractor during the period from 01 January 2022 to the deadline for submission of bids.</p> <p>In which similar contracts are:</p> <ul style="list-style-type: none"> - Similar properties: Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system and Supply Digital Twin solution for Profit Optimization of the RFCC Unit - Completed with minimum scale 				



Criterion			Requirement			Required document
No	Description	Requirement	Independent bidder	Consortium bidder		
				All Consortium members	Each Consortium member	
		(value): 909.000,00 USD (In words: Nine hundred and nine thousand US Dollars) for foreign bidders or 24.000.000.000 VND (in words: Twenty-four billion Vietnamese Dong) for domestic bidders.				



Notes:

The most recent financial year is determined based on the date of issuance of the Bidding Documents (BD). If the BD is issued after March 31, the most recent financial year is the year adjacent to the bid closing year. If the BD is issued on or before March 31, the most recent financial year is the year prior to the year adjacent to the bid closing year.

For bidders who are household businesses, they are not required to submit financial statements but must provide documents proving revenue within the period required by the BD.

Bidders must provide documents proving fulfillment of tax declaration and payment obligations for corporate income tax (or personal income tax for household business bidders) for the most recent financial year relative to the bid closing date, to be verified if invited to do so (if necessary). Tax declaration and payment obligations must be completed before the bid closing date. Tax payment obligations refer to the payment of tax corresponding to the declared tax rate, taxable income, and taxable revenue on the electronic tax system (the amount of tax paid corresponds to the amount of tax due). In cases of delayed tax payment, tax exemption, or tax reduction under State policies, these regulations apply accordingly.

The bidder shall submit the following documents:

- ✓ Tax declaration (or tax payment notice from the tax authority for household businesses) and payment receipt certified by the tax authority, printed from the electronic tax system; or
- ✓ Tax declaration (or tax payment notice from the tax authority for household businesses) and certification from the tax authority confirming fulfillment of tax obligations.

In case the contract value stated in similar contracts, payment confirmation by the project owner for goods or services supply contracts performed, tax declarations, or other relevant documents proving the bidder's capacity and experience are not in VND, the bidder must convert these amounts to VND when preparing the Bid. The conversion shall be based on the selling exchange rate of Vietcombank on the date of signing the similar contract.

2.2. Key Personnel Evaluation Criteria:

Depending on the scale and nature of the bidding package, the bidder may be required to propose key personnel for certain important tasks of the package as specified in Chapter 5: Scope of Supply.

In this case, the Bidding Documents must specify the key personnel requirements for the bidder to propose in the Bid. The bidder must demonstrate that they have sufficient personnel for the key positions meeting the following requirements:

For Part 1: Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's



overhead system as per SR 308/1100003765/DH-CNTT (I030846).

No.	Position	Quantity	Years of experience in similar jobs (at least ___ years)	Qualification (Minimum qualification)
1	Project Manager (PM)	01	<p>≥ 5 years in managing digital transformation projects, process optimization projects, industrial IT/OT projects, or projects in refineries.</p>	<ul style="list-style-type: none"> - Bachelor's degree in Engineering or IT. - PMP / Prince2 certification is preferred (not mandatory). <p>Required Evidence:</p> <ul style="list-style-type: none"> - CV signed by the proposed PM. - Experience Certificate / Employment Contract / Assignment Decision OR Contract + Acceptance Minutes for projects where the candidate served as PM. - Copy of Bachelor's degree (Engineering/IT). - PMP or Prince2 certificate (if available)
2	Solution / Technical Lead (Hybrid Twin Lead)	01	<ul style="list-style-type: none"> - ≥ 05 years of experience in OT/IT solution architecture, real-time simulation systems, hybrid twin / physics + data-driven modeling, or integration of refinery digital twins/simulation platforms. - Experience in deploying systems connected to PI System and/or APC controllers. 	<ul style="list-style-type: none"> - Bachelor's degree in Engineering, Automation, Instrumentation, Chemical Engineering, or Information Technology. <p>Preferred:</p> <ul style="list-style-type: none"> - TOGAF or other architecture-related certifications. <p>Required Evidence:</p> <ul style="list-style-type: none"> - Signed CV detailing experience in solution architecture, hybrid twin systems, real-time simulation, or refinery digital modeling. - Experience Certificate / Assignment Letter / Project Contract + Acceptance Minutes. - Copy of Bachelor's degree. - TOGAF/Architect certifications (if any).
3	Senior Corrosion & Digital Solution Specialist	01	<ul style="list-style-type: none"> - ≥ 05 years of experience in refinery corrosion assessment, corrosion modeling, corrosion prediction systems, or digital corrosion monitoring. 	<ul style="list-style-type: none"> - Bachelor's degree in Chemical Engineering, Materials/Metallurgy, Mechanical Engineering, or Process Engineering. <p>Preferred:</p> <ul style="list-style-type: none"> - Certificates: API 571



No.	Position	Quantity	Years of experience in similar jobs (at least ___ years)	Qualification (Minimum qualification)
			<ul style="list-style-type: none"> - Hands-on experience with overhead corrosion of CDU/RFCC is required. - Experience integrating corrosion models with PI System / real-time data source 	<p>Required Evidence:</p> <ul style="list-style-type: none"> - Signed CV clearly describing corrosion-related works, refinery units handled, and relevant digital corrosion projects. - Experience Certificate / Assignment Letter / Project Contract + Acceptance Minutes showing corrosion-related scope. - Copy of Bachelor's degree. - Corrosion-related certifications (if any).
4	Process Specialist – CDU Overhead	01	<ul style="list-style-type: none"> - ≥ 05 years of experience in CDU process engineering, overhead corrosion control, overhead system hydraulics/thermodynamics, and troubleshooting overhead salt/ammonium chloride issues. - Experience providing process data for simulation/digital twin/corrosion models. 	<ul style="list-style-type: none"> - Bachelor's degree in Chemical/Process Engineering. <p>Required Evidence:</p> <ul style="list-style-type: none"> - Signed CV detailing CDU overhead experience. - Experience Certificate / Assignment Letter / Project-related evidence. - Copy of Bachelor's degree
5	Process Specialist – RFCC Overhead	01	<ul style="list-style-type: none"> - ≥ 05 years of experience in RFCC process engineering, especially overhead corrosion, sour water/salt deposition behavior, and process optimization. - Experience supporting APC, simulation, or corrosion models for RFCC 	<ul style="list-style-type: none"> - Bachelor's degree in Chemical/Process Engineering. <p>Required Evidence:</p> <ul style="list-style-type: none"> - Signed CV highlighting RFCC overhead experience. - Experience Certificate / Assignment Letter / Project Contract + Acceptance Minutes. - Copy of Bachelor's degree
6	Data / Machine Learning Engineer	01	<ul style="list-style-type: none"> - ≥ 03 years of experience in developing data pipelines, ML models, predictive analytics, or anomaly detection systems for industrial applications. - Experience working with historian systems (PI System preferred) and 	<ul style="list-style-type: none"> - Bachelor's degree in IT, Data Science, Computer Science, or Engineering <p>Preferred:</p> <ul style="list-style-type: none"> - Experience with ML interpretation for corrosion/chemical processes. <p>Required Evidence:</p> <ul style="list-style-type: none"> - Signed CV describing relevant



No.	Position	Quantity	Years of experience in similar jobs (at least ___ years)	Qualification (Minimum qualification)
			processing refinery process data.	ML/data engineering roles. - Experience Certificate / Assignment Letter / Project deliverables. - Copy of Bachelor's degree
7	QA/QC – Testing Specialist	01	- ≥ 03 years of experience in software/system testing, preferably in industrial systems, simulation environments, or OT/IT platforms. - Experience validating prediction models, engineering applications, or real-time dashboards/data integrity.	- Bachelor's degree in IT, Engineering, or related fields. Preferred: - Certification in software testing (ISTQB or equivalent) Required Evidence: - CV with testing/QA roles in industrial systems. - Experience Certificate / Assignment Letter. - Copy of Bachelor's degree. - Testing certifications (if any)

For Part 2: Implement a Digital Twin solution for Profit Optimization of the RFCC Unit as per SR 327/1100003814/DH-CNTT (I030847)

No.	Position	Quantity	Years of experience in similar jobs (at least ___ years)	Qualification (Minimum qualification ___)
1	Project Manager (PM)	01	- At least 05 years of experience managing refinery digitalization projects, APC/APC+Digital Twin projects, or advanced process optimization projects. - Experience managing projects in complex units such as RFCC, FCC, or conversion units.	- Bachelor's degree in Engineering or IT. - PMP/Prince2 is preferred. Required Evidence: - Signed CV showing PM roles and scope on similar projects. - Experience Certificate / Employment Contract / Assignment Decision OR Contract + Acceptance Minutes of completed relevant projects. - Bachelor's degree scan. - PMP/Prince2 (if available).
2	Solution / Technical Lead (Hybrid Twin Lead)	01	- ≥ 05 years designing and implementing Digital Twin or Hybrid Twin systems (physics-based + data-driven models). - Experience integrating Digital Twin with PI System, APC layers, and refinery historian data.	- Bachelor's degree in Chemical Engineering, Automation, or IT/OT Engineering. Preferred: - TOGAF/Architecture certificates. Required Evidence: - Signed CV describing experience with hybrid twin / real-time models. - Experience Certificate /



No.	Position	Quantity	Years of experience in similar jobs (at least ___ years)	Qualification (Minimum qualification ___)
			<ul style="list-style-type: none"> - Prior experience with refinery modeling platforms or kinetic simulators is required. 	Assignment Letter / Project Contract + Acceptance Minutes. <ul style="list-style-type: none"> - Copy of Bachelor's degree. - Architecture certificates (if available).
3	RFCC Process Specialist (Unit SME)	01	<ul style="list-style-type: none"> - ≥ 07 years working as a Process Engineer / SME in RFCC units. - Strong experience in reactor-regenerator operation, catalyst activity management, feed behavior, product yield patterns, and energy optimization. - Experience supporting APC, Digital Twin, or advanced simulation projects. 	<ul style="list-style-type: none"> - Bachelor's degree in Chemical or Process Engineering. Required Evidence: <ul style="list-style-type: none"> - Signed CV detailing RFCC operational experience. - Experience Certificate / Assignment Letter / Project evidence. - Bachelor's degree scan.
4	RFCC Kinetics / Modeling Engineer	01	<ul style="list-style-type: none"> - ≥ 05 years of hands-on experience in kinetic modeling for RFCC/FCC or similar cracking processes. - Experience building, tuning, and validating reactor-severity or yields-prediction models. - Experience integrating model outputs into Digital Twin or real-time optimization systems. 	<ul style="list-style-type: none"> - Bachelor's degree in Chemical Engineering. Preferred: <ul style="list-style-type: none"> - Experience with Aspen FCC, PetroSim, or proprietary kinetic models. Required Evidence: <ul style="list-style-type: none"> - Signed CV describing kinetics/modeling experience. - Experience Certificate / Project documentation showing kinetic modeling tasks. - Copy of Bachelor's degree.
5	Digital Twin / Data & Machine Learning Engineer	01	<ul style="list-style-type: none"> - ≥ 03 years of experience developing ML models or predictive analytics for refinery data. - Experience building data pipelines to PI System / historians. - Experience integrating ML outputs into Digital Twin or APC layers is preferred. 	<ul style="list-style-type: none"> - Bachelor's degree in Computer Science, Data Science, AI, or Engineering. Required Evidence: <ul style="list-style-type: none"> - Signed CV describing ML and refinery-data experience. - Experience Certificate / Project-related evidence (models/dashboards/deliverables). - Copy of Bachelor's degree.
6	QA/QC – Testing Specialist	01	<ul style="list-style-type: none"> - ≥ 03 years of experience in testing or validation of engineering software, 	<ul style="list-style-type: none"> - Bachelor's degree in Engineering or IT.



No.	Position	Quantity	Years of experience in similar jobs (at least ___ years)	Qualification (Minimum qualification ___)
			simulation platforms, or digital twin applications. - Experience verifying model accuracy, scenario testing, data reconciliation, and performance benchmarking.	Preferred: - ISTQB or equivalent software testing certificate. Required Evidence: - Signed CV with relevant QA/QC roles. - Experience Certificate / Assignment Letter. - Bachelor's degree scan. - Testing certificates (if available).

The Bidder shall provide detailed information about the key personnel according to Forms 08, 09, and 10 in Chapter IV – Bid Forms.

If the Bidding Documents (BD) require key personnel, the Bidder must demonstrate the ability to mobilize the proposed key personnel. Key personnel may be either permanent employees of the Bidder or mobilized by the Bidder.

If the key personnel declared in the Bid are found not to meet the requirements or the Bidder cannot demonstrate the ability to mobilize them (including cases where the key personnel are already engaged in other contracts with overlapping work periods), the Purchaser shall allow the Bidder to supplement or replace the personnel.

The Bidder is only permitted to supplement or replace key personnel once per position within a reasonable timeframe, but not less than 03 working days from the date of receiving the clarification request from the Purchaser.

If the Bidder does not have replacement key personnel meeting the BD requirements, the Bidder shall be disqualified.

In all cases, if the Bidder dishonestly declares key personnel, no replacement personnel will be allowed, the Bid shall be rejected, and the Bidder will be considered to have committed fraud in accordance with the Procurement Regulations (PR).

Section 3. Technical evaluation criteria

- Part 1:

a) Each Technical Proposal shall be evaluated using a scoring system with a maximum of 100 points, as detailed in the table below.

The minimum score shall be not smaller than 80% (80/100) of the total technical score. The Bid having total score \geq the minimum score shall be qualified in technical aspect and considered further in financial/commercial aspect.

The Technical criteria on a scale system as below.



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
A	Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system as per SR 308/1100003765/DH-CNTT (I030846)			
1	Overall System Architecture	Submit comprehensive architecture diagrams and detail descriptions: <ul style="list-style-type: none"> - System layers and overall architecture design - Real-time data acquisition and data flows - Simulation engine (if applicable) - Integration points with plant systems (DCS/PI or equivalent) 	10	
1.1		<ul style="list-style-type: none"> - Architecture diagrams are complete, clear, and show system layers - Data flows are described in detail and logically - Integration points are clearly identified with technical illustrations or descriptions 		10
1.2		<ul style="list-style-type: none"> - Architecture diagrams are complete, but data flow or integration descriptions lack detail - Some parts may be unclear or missing illustration 		5
1.3		<ul style="list-style-type: none"> - Architecture diagrams are provided but incomplete or unclear- Data flow descriptions are superficial- Integration points not clearly addressed 		3
1.4		<ul style="list-style-type: none"> - No architecture diagrams provided - No data flow descriptions - No identification of integration points 		0
2	Commercial-Proven Solution for CDU-Overhead & RFCC-Overhead	Confirm that the proposed solution is a commercial-proven application and has been successfully deployed in similar process sections including CDU-overhead and RFCC-overhead	20	
2.1	Fully Compliant	<ul style="list-style-type: none"> - The solution is a commercial product (not a prototype or POC). - Successfully deployed in a CDU – overhead system at least once in an operating refinery. - Successfully deployed in a RFCC – overhead 		20



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
		system at least once in an operating refinery. - Deployment evidence is provided: project reports, customer reference list, certification/validation documents.		
2.2	Not Compliant	- The solution is not commercially proven, OR - Has not been deployed in CDU-overhead or RFCC-overhead, OR - Does not provide sufficient deployment evidence.		0
3	Corrosion Simulation Capability	Prediction demonstrate ability to simulate corrosion rates in real-time based on 02 data source: - Actual operating conditions (temperature, pressure, corrosive impurities contents, pH, etc.) - Parameters generated from Petrosim (temperature, pressure, corrosive impurities contents, pH, etc.)	20	
3.1		Quantitative, multi damage mechanism and dynamic simulation: Calculates/estimate corrosion rate for combined damage mechanisms including HCl, Ammonium Chloride salt, Amine Hydrochloride salt, Ammonium Bisulfide, aqueous organic acids; considers effect of neutralizer & inhibitor dosage, injection point, efficiency (including phase distribution, solubility/salt-out, pH profile); supports sensitivity analysis under varying conditions; calibrated with coupon/UT online data; provides alarms and recommends optimal setpoints.		20
3.2		Multi damage smechnism but simplified: Calculates/estimate corrosion rate for combined major mechanisms including HCl, Ammonium Chloride salt, Amine Hydrochloride salt, Ammonium Bisulfide, aqueous organic acids; considers chemicals but with fixed efficiency factors or without detailed salt/dewpoint modeling; limited calibration.		10



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
3.3		Qualitative or single damage mechanism assessment: Only calculates/estimates trend (high/medium/low) or covers few mechanisms including HCl, Ammonium Chloride salt, Amine Hydrochloride salt, Ammonium Bisulfide; no quantitative corrosion rate; ignores chemical impact; no calibration.		5
3.4		No corrosion simulation or assessment.		0
4	Integration & Connectivity		10	
4.1	Integration with plant systems	Provides ability to integrate with DCS/APC, PI System, LIMS, RBI, Maximo/SAP PM and other refinery data sources for automatic data acquisition.		10
4.2		No integration/Connection capability with DCS/APC, PI, LIMS, RBI, Maximo/SAP PM		0
5	Data Processing, Data Standardization, and Error Cleansing Capability	The Bidder shall demonstrate the capability to process data after execution, standardize data according to consistent rules, and detect and remove data errors (including missing values, duplicates, outliers, and formatting inconsistencies). The capability must ensure high-quality, reliable data output for analysis, reporting, and system integration	5	
5.1		The Bidder provides full and complete capability for data processing, automated or rule-based data standardization, and effective error detection and cleansing. All required supporting documents and evidence are submitted.		5
5.2		The Bidder provides partial capability; some functions are available but limited or manual. Evidence is incomplete or insufficient to confirm full compliance.		3
5.3		The Bidder does not provide the required capabilities or fails to submit evidence demonstrating data processing, standardization, or error cleansing capability.		0



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
6	Corrosion Control Recommendations		10	
6.1	Actionable recommendations	System should provide operational adjustments and chemical dosing recommendations to mitigate corrosion risk		10
6.2		System should provide the alarm of exceedance of monitored corrosion rate		5
6.3		No Actionable recommendations		0
7	Cybersecurity & Reliability		5	
7.1	Compliance with industrial cybersecurity standards	Provide details on security architecture, data encryption, and compliance with ISA/IEC 62443.		5
7.2		No security information		0
8	Unified Platform for Digital Twin & Corrosion Simulation	Confirm that both Digital Twin solution and Real-time Corrosion Simulation System are implemented on the same software platform and provided by the same manufacturer	5	
8.1		- Both solutions run on a unified platform with shared data architecture and visualization tools. - Provided by the same OEM/vendor. - Full interoperability without additional middleware.		5
8.2		- Solutions completely independent, no integration capability.		0
9	Product Quality Assurance – Allowed Deviation Compared to Manual Measurement and Online UT	The Bidder shall commit to the quality of the delivered product, ensuring that the measurement results generated by the system do not deviate beyond the acceptable tolerance range when compared with (i) manual measurement results and (ii) online Ultrasonic Testing (UT) results. This criterion evaluates the Bidder’s ability to guarantee accuracy, reliability, and	5	



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
		consistency of measurement outputs.		
9.1		The Bidder provides a formal commitment that the system output deviation shall not exceed the allowable tolerance ($\pm 0,01\%$) compared with manual measurement and online UT results. Full supporting evidence, methodology, and accuracy validation documents are submitted.		5
9.2		The Bidder provides a partial or general commitment to accuracy but does not clearly specify the deviation range or fails to fully demonstrate compliance through supporting documents.		3
9.3		The Bidder does not provide any commitment regarding deviation limits or fails to submit evidence proving measurement accuracy.		0
10	Roadmap, System Reliability, SLA, On-site/Remote Support, Tuning Capability, Training	The Bidder shall demonstrate capability to: <ul style="list-style-type: none"> • Provide a clear implementation and operations Roadmap; • Confirm system reliability with measurable indicators (Availability, MTBF, MTTR); • Submit Service Acceptance Criteria and SLA; • Provide qualified on-site personnel and remote support; • Perform system tuning to optimize performance and accuracy; • Deliver structured training and knowledge transfer 	5	
10.1		Fully compliant: provides all required items—complete Roadmap, quantified reliability targets, full SLA, clear on-site/remote staffing, documented tuning process, and detailed training plan with materials.		5
10.2		Partially compliant: provides some items but lacks detail (e.g., high-level Roadmap, reliability not quantified, incomplete SLA, unclear staffing, limited tuning or training content).		3



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
10.3		Non-compliant: does not provide the required items or lacks credible supporting evidence.		0
11	License and Pricing Requirement	The Bidder shall comply fully with all requirements specified in Section 3 (License Requirement) and Section 4 (Pricing Requirement for Annual Technical Support Fee) of Chapter V: Scope of Supply; I. (I030846); Compliance includes providing complete licensing information, license model, quantity, validity, and pricing details for annual technical support as required in the Scope of Work.	5	
11.1		The Bidder fully complies with all requirements stated in Section 3 and Section 4 of Chapter V. All required license information, terms, quantities, support fee structure, and pricing details are submitted clearly and completely, with no omissions or deviations.		5
11.2		The Bidder fails to meet one or more requirements in Section 3 or Section 4, or does not provide sufficient and credible documentation to confirm compliance.		0
Total			100	

- Part 2:

The first-principles component may be based on (i) the existing Petro-SIM RFCC physical-based twin Option 1 or (ii) the Bidder's own physical-based twin / process simulation engine Option 2 (Details in Chapter V. Scope of Supply).

Each Technical Proposal shall be evaluated using a scoring system with a maximum of 100 points, as detailed in the table below.

The minimum score shall be not smaller than 80% (80/100) of the total technical score. The Bid having total score \geq the minimum score shall be qualified in technical aspect and considered further in financial/commercial aspect.

The Technical criteria on a scale system as below.

No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
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No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
B	Implement a Digital Twin solution for Profit Optimization of the RFCC Unit as per SR 327/1100003814/ĐH-CNTT (I030847)			
1.	Overall System Architecture	Submit comprehensive architecture diagrams and detail descriptions: <ul style="list-style-type: none"> - Overall system layers and architecture design - Real-time data acquisition - Digital Twin engine (first-principles + data-driven) - Data flows across the system - Integration with plant systems (DCS / APC / MPC / PI / LIMS) - Closed-loop operation (not advisory only) - Compute nodes, high availability (HA), backup strategy, and on-prem deployment 	10	
1.1		<ul style="list-style-type: none"> - Architecture diagrams are complete, clear, and show system layers - Instead of advisory, it should be closed loop. - Integration points with DCS/APC/MPC/PI clearly identified with technical illustrations or descriptions. - Compute nodes, HA/backup, and on prem deployment are explicitly defined. 		10
1.2		<ul style="list-style-type: none"> - Architecture diagrams are complete, but data flow or integration descriptions lack detail. - Some parts may be unclear or missing illustration (e.g., APC/MPC handoff). 		5
1.3		<ul style="list-style-type: none"> - Architecture diagrams are provided but incomplete or unclear. - Data flow descriptions are superficial. - Integration points not clearly addressed. 		3
1.4		<ul style="list-style-type: none"> - No architecture diagrams provided. - No data flow descriptions. - No identification of integration points. 		0
2	Commercial-Proven Solution for	Confirm that the proposed solution is a commercial-proven Digital Twin capable of profit optimization for the RFCC Unit.	5	



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
	Digital Twin Solution for Profit Optimization of the RFCC Unit			
2.1	Fully Compliant	<ul style="list-style-type: none"> - Commercial product (not prototype/POC). - Successfully deployed in at least one RFCC/FCC Digital Twin or optimization project. - Includes profit optimization: economics (benefit/hr), constraints, and actionable advisory for RFCC (riser temp, C/O, regenerator air, fractionator cuts). - Provides deployment evidence (reports, references, validation results). 		5
2.2	Not Compliant	<ul style="list-style-type: none"> - Not a commercial product, OR - Not deployed in RFCC/FCC Digital Twin or optimization, OR - Does not include profit optimization capability, OR - Insufficient deployment evidence. 		0
3	Data Processing, Data Standardization and Error Cleansing Capability	<p>The Bidder shall demonstrate the capability to process raw and operational data for the Digital Twin solution of the RFCC Unit, including:</p> <ul style="list-style-type: none"> - Ability to process post-run data and convert it into structured, usable formats; - Automated or rule-based data standardization aligned with RFCC process parameters and Digital Twin modeling requirements; - Detection and removal of data errors such as missing values, duplicates, outliers, and formatting inconsistencies to ensure high-quality input for the Profit Optimization model. 	5	
3.1		The Bidder provides complete capability for data processing, standardization, and error cleansing, with clear methodology, tools, workflows, and evidence from similar Digital Twin or refinery optimization projects.		5
3.2		The Bidder provides limited or partially detailed		3



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
		capability; methods are described at a high level or lack evidence of application in similar projects.		
3.3		The Bidder fails to demonstrate the above capabilities or does not provide supporting documentation.		0
4	Digital Twin Modeling Capability	<p>Demonstrate the ability to accurately model RFCC unit behavior, including riser, reactor, stripper, regenerator, cyclones, and main fractionator, and to predict product yields and quality under varying feed and operating conditions, based on:</p> <ul style="list-style-type: none"> - First-principles or reduced-order kinetic models (8–12 pseudo-components) - Catalyst activity and deactivation - Coke formation and regenerator air/CO balance - Fractionator and unit operational constraints - High-fidelity representation of RFCC unit interactions 	15	
4.1		<ul style="list-style-type: none"> - Provides calibrated kinetics and unit models prediction with documented assumptions - Validates against historical runs with deviations $\leq 1\%$ for main yields/temperature/capacity. - Includes sensitivity of RON (deviation ≤ 0.2) and sulfur in gasoline/LPG. 		15
4.2		<ul style="list-style-type: none"> - Provides calibrated kinetics and unit models prediction with documented assumptions, but lacks some critical sub-models (e.g., catalyst deactivation or regenerator CO/O₂ slip) or incomplete validation. - Validates against historical runs with deviations $\leq 1\%$ for main yields/temperature/capacity. - Includes sensitivity of RON (deviation ≤ 0.2) and sulfur in gasoline/LPG. 		10
4.3		- Basic estimation only; no rigorous kinetics or fractionator constraints; limited validation.		5
4.4		No RFCC modeling capability.		0
5	Prediction accuracy	Overall prediction accuracy (Overall Accuracy Index – OAI)	15	



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
		<p>Guarantee the overall accuracy of the hybrid twin solution (physical-based + digital-based) compared to actual plant data.</p> <p>Note: Using the same input data (feed properties and operating parameters) and for the agreed KPI list:</p> <p>- Deviation (%) = $\text{predicted} - \text{actual} / \text{reference} \times 100$ + reference = feed rate for yield KPIs; + reference = actual KPI value for quality KPIs (e.g., RON, olefin).</p> <p>- Overall Accuracy Index (OAI, %) = max Deviation (%) across the KPI list and across the acceptance test dataset.</p>		
5.1		OAI $\leq \pm 2.0\%$		15
5.2		OAI = 2.1% – 3.5%		10
5.3		OAI = 3.6% – 5.0%		5
5.4		OAI > 5.0%		0
6	Self-adjustment / auto-calibration of physical-based twin driven by digital-based twin (automation level)	<p>Describe and demonstrate the workflow to automatically (or semi-automatically) calibrate/update the physical-based twin parameters based on plant data and digital-model outputs, including drift detection, parameter estimation, validation, governance (approval, version control, audit trail, rollback), and calibration cycle time.</p> <p>Note: calibration/validation will be done by contractor</p>	10	
6.1		Fully automatic: drift detection + parameter estimation + validation + deployment is automatic with audit trail/rollback (engineer approval optional)		10
6.2		Semi-automatic: system generates parameter update recommendations and performs validation; engineer approval required to deploy; automated workflows partially implemented		5
6.3		Manual assisted: calibration is mostly manual but system provides discrepancy tracking and calibration assistant tools; no automated parameter estimation or No		0
7	Integration & Connectivity	Provides ability to integrate with DCS, PI System, LIMS, APC/MPC for automatic data acquisition, time alignment, and advisory	5	



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
		<p>setpoint publication (read-only). Additionally, the optimization model shall support integration with higher-level planning and decision-support systems including LP, PSS, and OAS — clearly defining the scope of integration (variables, vectors exchanged) and the degree of automation (fully automated, semi-automated, or manual).</p> <p>(Note: Integration with the existing Petro-SIM RFCC physical-based twin is evaluated under the mandatory PASS/FAIL Option 1 and is not scored under Criterion 3.)</p>		
7.1		<ul style="list-style-type: none"> - Full integration with DCS/PI/LIMS/APC/MPC; automatic data acquisition & time alignment; tag-to-model mapping provided. - Full integration with LP, PSS and OAS, including: <ul style="list-style-type: none"> • Two-way data exchange with LP (feed qualities, unit capacities, yield shifts, constraint impacts, optimization targets). • Synchronization with PSS for operating modes, equipment constraints, and optimization advisories. • Automated data delivery to OAS: optimization KPIs, margin uplift, constraint advisories. • End-to-end automated workflow with data validation, transaction logging, and model version control. 		5
7.2		<ul style="list-style-type: none"> - Partial integration; some manual data handling or missing APC/MPC advisory interface. - Partial integration with LP/PSS/OAS, such as: <ul style="list-style-type: none"> • One-way exchange only (e.g., export snapshots to LP). • Limited variable/vector mapping. • No continuous synchronization or limited automation. 		3
7.3		<ul style="list-style-type: none"> - No integration capability with DCS/PI/LIMS/APC/MPC. - No data exchange with LP, PSS, OAS. 		0
8	Economic Optimization & Advisory	System should compute economic objective (benefit/hr or NPV) with constraints (equipment, safety, environment, product specs) and provide actionable advisory	5	



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
		(recommended setpoints) to operators/APC.		
8.1		- Provides actionable recommendations (e.g., riser temp, catalyst/oil ratio, regenerator air, fractionator cuts) with quantified economic impact and constraint compliance		5
8.2		-Provides generic optimization recommendations without quantified economic impact or incomplete constraint handling		3
8.3		No optimization/advisory capability		0
9	Cybersecurity & Reliability	Provide details on security architecture, data encryption, RBAC/AD/LDAP, audit trail, and compliance with ISA/IEC 62443 for on-prem deployment.	5	
9.1		Full compliance with IEC 62443; encryption standards; RBAC/AD/LDAP; audit trail; network segmentation OT/DMZ/IT		5
9.2		Mentions security but lacks full compliance or detailed evidence		3
9.3		No security information		0
10	Economic Benefit Commitment	The bidder must commit to measurable annual incremental profit generated from RFCC operational optimization and provide supporting evidence, including methodology, input data, economic analysis, and demonstrated capability to achieve the committed benefits.	10	
10.1		Commitment to annual incremental profit \geq 20 billion VND/year, with complete supporting evidence (methodology, assumptions, operational data, economic model, and references to similar proven projects).		10
10.2		Commitment to annual incremental profit from 10–19 billion VND/year, with partial evidence or lacking full justification.		5
10.3		Commitment $<$ 10 billion VND/year, or no commitment, or insufficient evidence to justify the claimed profit.		0



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
11	Unified Platform for Digital Twin & Corrosion Simulation	Confirm that both the RFCC Digital Twin and the Real-time Corrosion Simulation System are implemented on the same software platform and provided by the same manufacturer for a unified data model and visualization.	5	
11.1		- Both solutions run on a unified platform with shared data architecture and visualization tools. - Provided by the same OEM/vendor. - Full interoperability without additional middleware.		5
11.2		- Solutions completely independent, no integration capability.		0
12	Roadmap, System Reliability, SLA, On-site/Remote Support, Tuning Capability, and Training	The Bidder shall demonstrate a comprehensive capability to deliver and operate the Digital Twin solution for Profit Optimization of the RFCC Unit, including: <ul style="list-style-type: none"> • A clear and executable implementation and operations Roadmap; • Confirmed system reliability with measurable indicators; • Documented Service Acceptance Criteria and Service Level Agreement (SLA); • Provision of qualified on-site personnel and robust remote support; • Proven system tuning capability to optimize performance and accuracy; • Structured training and knowledge transfer for end users and operators. 	5	
12.1		The Bidder provides all required components: detailed Roadmap, quantified system reliability (e.g., Availability/MTBF/MTTR), complete Service Acceptance & SLA, clear on-site and remote support plan, documented tuning process with KPIs, and a full training program with materials.		5
12.2		The Bidder provides some but not all components; information is high-level, incomplete, or lacks measurable indicators or supporting evidence.		3



No	Criteria	Bidder Submission Requirement	Max Score	Detailed Scoring
12.3		The Bidder fails to provide the required components or does not demonstrate capability in the above areas.		0
13	License and Pricing Requirement	The Bidder shall comply fully with all requirements specified in Section 1.8 (License Requirement) and Section 1.9 (Pricing Requirement for Annual Technical Support Fee) of Chapter V: Scope of Supply; I. (I030847); Compliance includes providing complete licensing information, license model, quantity, validity, and pricing details for annual technical support as required in the Scope of Work.	5	
13.1		The Bidder fully complies with all requirements stated in Section 1.8 and Section 1.9 of Chapter V. All required license information, terms, quantities, support fee structure, and pricing details are submitted clearly and completely, with no omissions or deviations.		5
13.2		The Bidder fails to meet one or more requirements in Section 1.8 or Section 1.9, or does not provide sufficient and credible documentation to confirm compliance.		0
Total			100	

Section 4. Price Evaluation Criteria (Combined Method (Technical and Price))

Determination of Pricing Score:

- Part 1:

Pricing Score shall be calculated on a scale of 100 points using the following formula:

$$\text{Pricing Score}_{\text{in consideration}} = \frac{P1_{\text{lowest}} \times 100}{P1_{\text{in consideration}}}$$

Where:

- + Pricing score_{in consideration}: The pricing score of the Financial Proposal under consideration;
- + P1_{lowest}: The lowest bid price among all technically qualified Bidders, after correction of errors, adjustment for discrepancies, and deduction of any discounts (if applicable).
- + P1_{in consideration}: The bid price under consideration, after correction of errors, adjustment for discrepancies, and deduction of any discounts (if applicable).



- Overall evaluation criteria:

The Combined score is calculated as follows:

$$\text{Combined score}_{\text{in consideration}} = \text{T1} \times \text{Technical score}_{\text{in consideration}} + \text{P1} \times \text{Pricing score}_{\text{in consideration}}$$

Where:

+ Technical score_{in consideration}: The score determined during the technical evaluation phase;

+ Pricing score_{in consideration}: The score determined during the pricing evaluation phase;

+ T1: The weight of the technical score in the combined scoring system, which accounts for **30%**;

+ P1: The weight of the pricing score in the combined scoring system, which accounts for **70%**;

+ T1 + P1 = 100%;

- **Part 2:**

Pricing Score shall be calculated on a scale of 100 points using the following formula:

$$\text{Pricing Score}_{\text{in consideration}} = \frac{\text{P2}_{\text{lowest}} \times 100}{\text{P2}_{\text{in consideration}}}$$

Where:

+ Pricing score_{in consideration}: The pricing score of the Financial Proposal under consideration;

+ P2_{lowest}: The lowest bid price among all technically qualified Bidders, after correction of errors, adjustment for discrepancies, and deduction of any discounts (if applicable).

+ P2_{in consideration}: The bid price under consideration, after correction of errors, adjustment for discrepancies, and deduction of any discounts (if applicable).

- Overall evaluation criteria:

The Combined score is calculated as follows:

$$\text{Combined score}_{\text{in consideration}} = \text{T2} \times \text{Technical score}_{\text{in consideration}} + \text{P2} \times \text{Pricing score}_{\text{in consideration}}$$

Where:

+ Technical score_{in consideration}: The score determined during the technical evaluation phase;

+ Pricing score_{in consideration}: The score determined during the pricing evaluation phase;

+ T2: The weight of the technical score in the combined scoring system, which accounts for **30%**;

+ P2: The weight of the pricing score in the combined scoring system, which accounts for **70%**;

+ T2 + P2 = 100%;

Section 5. Alternative technical proposals in the Bid (if any)

Pursuant to ITB Section 12, in case an alternative technical proposal is submitted in the Bid, it shall be evaluated as follows: _____ *[insert criteria for evaluation of alternative technical proposals]*.



Section 6. The procurement is divided into independent lots (if any)

If the procurement is divided into independent lots as prescribed in ITB Section 31.6, the procedures below shall be followed:

1. The Bidding Documents shall specify: conditions of bid; measures for and value of Bid Security applied to each lot or multiple lots; standards and methods for evaluating each lot or multiple lots in order for bidders to make a plan for bid within their qualifications;

2. The evaluation of bids and approval for successful bid shall be carried out according to Clause 3, Article 39 of the PR.

3. If there a lot or a number of lots in the procurement to which there is no contractor making a bid or satisfying the Bidding Documents' requirements, Purchaser shall request the competent person to divide such lot(s) into separate procurement(s); regarding lots to which there are contractors making bids, the bidder selection and technical evaluation shall be carried out in conformity with the evaluation rules as prescribed in Clause 2 of this Section;4. In case there is only one successful bidder for all the lots, the procurement shall have one contract. In case there are multiple successful bidders for different lots, the procurement shall have multiple contracts.

Chapter IV. BIDDING FORMS

Form No. 01(a). Bid Submission Form

Form No. 02. Power of Attorney

Form No. 03. Consortium agreement.

Form No. 04 (a). Bid Security applicable to independent bidders

Form No. 04 (b). Bid Security applicable to Consortium

Form No. 05. Table of bid price

Form No. 05 (a). Table of bid price of Goods of domestically-produced and processed Goods

Form No. 05 (b). Table of bid price of overseas-produced and processed Goods

Form No. 05 (c). Table of bid price of overseas-produced and processed Goods that are imported and sold in Vietnam

Form No. 05 (d). Table of bid price for Related Services (if any)

Form No. 06 (a). Declarations of bidder information.

Form No. 06 (b). Declarations of Consortium members' information

Form No 07. Similar contracts.

Form No. 08. Table of proposed key employees

Form No. 09. Curriculum Vitae of key employees.

Form No. 10. Working experience



Form No. 11. Financial situation of bidder

Form No. 12. Scope of work items performed by subcontractors

Form No. 13. Scope of work items performed by special subcontractors

Form No. 01

BID SUBMISSION FORM ⁽¹⁾

Date: ___[insert date of signing of Bid Submission Form]

Procurement's name: ___[insert the procurement's name according to the Invitation to Bid]

Invitation to Bid No. ___[insert the number of the Invitation to Bid regarding selective bidding]

To: ___[insert the complete and accurate name of the Purchaser]

After carefully studying the Bidding Documents and revisions thereof number ___[insert the number of the revisions (if any)], we, ___[insert the name of the independent Bidder/the name of the Consortium Bidder as stated in the Consortium Agreement], pledge ourselves to perform ___[insert the procurement's name] in accordance with the Bidding Documents with the total amount ___[insert the amount in figures, in words, and currency] ⁽²⁾ together with the Table of bid price.

Contract execution period is ___[insert period of time for performing all tasks required by the procurement] ⁽³⁾.

Contract type: ___ [to be specified in accordance with the requirements of the Bidding Documents].

We hereby declare that:

1. We only participate in this Bid as primary bidder.
2. We are not undergoing dissolution process, are not thrown into bankruptcy, and do not incur bad debts as prescribed by law.
3. Not to engage in any prohibited acts as prescribed in the PR (1402).
4. We are not involved in corrupt, fraudulent or conclusive practice and other violations against law on bidding.
5. Every information provided herein is truthful to be best of our knowledge.

If the our Bid is accepted, we shall provide the Performance Security as prescribed in Instructions to Bidders of the Bidding Documents.

This Bid takes effect within ___ ⁽⁴⁾ days, from _____[date]⁽⁵⁾.

Legal representative of bidder

(Independent Contractor/Representative of the Consortium under the



Notes:

(1) Bidder must provide sufficient and accurate information including names of the Purchaser and the Bidder, effective period of the Bid, which bears the signature and seal (if any) and of the bidder's legal representative.

(2) The Bid Price mentioned in the Bid Submission Form must be detailed, in number and words, and in conformity with the total Bid Price mentioned in the Table of Bid Price, there is only one Bid Price which does not cause any disadvantage condition to the Investor or the Purchaser. In case the procurement is divided into independent lots, the Bidder shall provide bid price for each lot and total bid price for the lots for which the Bidder make bids.

In case the Bidder offers a discount separately in the Letter of Discount.

(3) The contract implementation period stated in the Bid shall be consistent with the technical proposal and the completion schedule specified in the Bid. It shall be calculated from the effective date of the contract until the date the parties sign the final acceptance certificate confirming that the Contractor has completed all contractual obligations, excluding warranty obligations (if any)..

(4) Effective period of the Bid is from the bid closing time to its expiration date as prescribed in the Bidding Documents. The period of time from the deadline time for the submission of bids to 24:00 of the deadline date is considered 01 day.

(5) Insert the deadline date as prescribed in Section 21.1 of the BDS.

(6) If the bidder's legal representative authorizes his/her subordinate to sign the Bid Submission Form, a Power of Attorney (Form No. 2 provided in this Chapter) must be enclosed. If the company's charter or another document permits such subordinate to sign the Bid Submission Form, such document shall be enclosed (In this case, the Power of Attorney is not required). Regarding Consortium, the Bid Submission Form shall be signed by legal representative of every Consortium member, unless the head of the Consortium may sign the Bid Submission Form according to the Consortium agreement as mentioned in Form No. 03 of this Chapter. Each Consortium member may give authorization similarly to an independent bidder. If the successful bidder must present certified true copies of these documents to the Investor before contract conclusion. If information provided is found inaccurate, the bidder will be considered fraudulent as prescribed in ITB Section 3.

(7) In case the Bidder submits the Bid directly, the Bidder shall submit the original Bid Submission Form together with the Bid. The Bid Submission Form shall be prepared in accordance with the format specified in the Bidding Documents, and signed and sealed (if applicable) by the Bidder's authorized representative.



POWER OF ATTORNEY ⁽¹⁾

Hôm nay, ngày ____ tháng ____ năm ____, tại ____

[Location and date] _____

I am _____ [insert name, ID/passport number, position of bidder's legal representative], the legal representative of _____ [insert name of bidder/ name of the Company if it is a member of a Consortium] at _____ [insert address of bidder/the Company if it is a member of a Consortium] hereby authorizes _____ [insert name, ID/passport number, position of authorized person] to perform the following tasks during the participation in the process of bidding for _____ [insert name of the procurement] of _____ [insert name of the project] held by _____ [insert name of the Purchaser]:

- [- Sign the Bid Submission Form;*
- Sign the Consortium agreement (if any);*
- Sign documents with the Purchaser during the short listing processing, including the request for Clarification of Bidding Documents and Bids; sign requests for bid withdrawal, modification or substitutions;*
- Participate in contract negotiation and conclusion;*
- Sign complaint letter (if any);*
- Sign contract with the Investor if the bidder is successful] (2).*

The authorized person only performs the tasks within the area of competence of a legal representative of _____ [insert name of bidder/ name of the Company if it is a member of a Consortium]. _____ [insert name of bidder's legal representative/ name of the Company if it is a member of a Consortium] is totally responsible for the tasks performed by _____ [name of authorized person] within the authorization scope.

The Power of Attorney is effective from _____ [date] to _____ [date]⁽³⁾ and is made into _____ copies with equal value. _____ copies are kept by the authorizer, and _____ copies are kept by the authorized person.

Authorized person

[Full name, position, signature and seal (if any)]

Authorizer

[Full of the legal representative of the Contractor/ of the Company (if a member of the Consortium), position, signature and seal of the legal



representative]

Notes:

(1) The original copy of the Power of Attorney shall be sent to the Purchaser in conjunction with the Bid Submission Form as prescribed in ITB Section 20.3. The Bidder's legal representative may authorize their deputies, subordinates, directors of branches, and heads of representative offices of the Bidder to perform the tasks on behalf of the Bidder. The authorized person may use the seal of the Bidder or their seal. The authorized person may not authorize another person.

(2) The area of competence of authorization shall include one or multiple tasks above.

(3) Insert the effective date and expiration date of the Power of Attorney in conformity with the bidding process.

(4) In case the Bidder submits the Bid directly to the Purchaser, the Bidder shall enclose the original Consortium Agreement with the Bid, duly signed by all members of the Consortium and affixed with their seals (if applicable).

Form No. 03

CONSORTIUM AGREEMENT ⁽¹⁾

[Location and date] _____

Procurement: _____ *[insert name of the procurement]*

In response to Bidding Documents for _____ *[insert name of procurement]* dated _____ *[insert date written on the Bidding Documents];*

Representatives of signatories to the Consortium agreement include:

Name of Consortium member _____ *[insert name of each Consortium member]*

Mr./Ms.

Position:

Address:

Phone number:

Fax:

Email:

Account:

TIN:

Power of Attorney No. _____ dated _____ (in case of authorization).



The members have reached a consensus on entering into a Consortium agreement with the following contents:

Article 1. General rules

1. Members voluntarily establish this Consortium to participate in the process of bidding for _____ [*insert name of procurement*].

2. Official name of the Consortium used in every transaction related to the procurement: _____ [*insert the agreed name of the Consortium*].

3. Every member is committed not to unilaterally participate or establish a Consortium with another member to participate in this procurement. If awarded the contract, no member is entitled to refuse to fulfill the duties and obligations prescribed in the contract. Any member of the Consortium that refuses to perform their duties as agreed must:

- Pay damages to other parties in the Consortium;
- Pay damages to the Purchaser as prescribed by the contract;
- Incur other disciplinary actions _____ [*specify the action*].

Article 2. Assignment of duties

All members unanimously to undertake joint and separate responsibility to execute _____ [*insert name of procurement*] as follows:

1. Head member of the Consortium:

All parties unanimously authorize _____ [*insert name of a party*] as the head member of the Consortium who represents the Consortium to perform the following tasks ⁽²⁾:

- [- Sign the Bid Submission Form;*
- Sign documents with the Purchaser during the short listing processing, including the request for Clarification of Bidding Documents and Bids; sign requests for bid withdrawal, modification or substitutions;*
- Provide Bid Security for the Consortium;*
- Participate in contract negotiation and conclusion;*
- Sign complaint letter (if any);*
- Perform other tasks except for contract conclusion: _____ [*specify other tasks (if any)*].*

2. Tasks of Consortium members are specified in the table below⁽³⁾:

No.	Name	Tasks	Proportion of total bid
1	Name of head member	- ____	- ____%



		- ____	- ____%
2	Name of second member	- ____ - ____	- ____% - ____%
....
Total		All tasks of the procurement	100%

(1) Only divided according to the main work of the bid package specified in Chapter 5 – Scope of Supply Requirements

Article 3. Effect of Consortium agreement

1. The Consortium agreement takes effect from the day on which it is signed.

2. The Consortium agreement expires in the following cases:

- All parties have fulfilled their duties and finalize the contract;
- The agreement is unanimously terminated by all parties;
- The Consortium is not awarded the contract;
- The bidding for _____ [insert name of the procurement] of _____ [insert name of the project] is cancelled as notified by the Purchaser.

The Consortium agreement is made into _____ copies with equal legal value, each party keeps _____ copies.

LEGAL REPRESENTATIVE OF HEAD MEMBER

[Full name, position, signature and seal]

LEGAL REPRESENTATIVE OF CONSORTIUM MEMBER

[Full name, position, signature and seal of each member]

Notes:

(1) According to the scope and nature of the procurement, this Consortium agreement may be amended. If the procurement is divided into independent lots, the Consortium agreement shall specify names and numbers of lots in which the Consortium participates, and clarify common and private responsibilities of every Consortium member.

(2) Area of authorization includes one or multiple tasks above.

(3) The Bidder shall specify detailed tasks and estimate equivalent value of tasks performed by every Consortium member, common and private responsibilities of



member, including the head member.

Mẫu số 04 (a)

BID SECURITY ⁽¹⁾

(applicable to independent bidder)

Beneficiary: ___ *[insert name and address of the Purchaser]*

Date of issue: _____ *[insert date of issue]*

BID GUARANTEE No. ___ *[insert number of the Bid Guarantee]*

Guarantor: ___ *[insert name and address of issuing bank, if it is not written in the title]*

We have been informed that _____ [name of the Bidder] (hereinafter called "the Bidder") has submitted to participate in the bid for the execution of _____ [name of procurement] under Invitation to Bid No. [number of the Invitation to Bid].

We hereby act as a guarantee for the Bidder to participate in the bid for this procurement with an amount of _____ *[amount in figures, in words and currency]*.

This Guarantee takes effect within _____ ⁽²⁾ days, from _____ [date]₍₃₎.

At the request of the Bidder, we, as the Guarantor, hereby undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures] (_____) [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s), because the Bidder:

1) The Bidder withdraws the Bid or issues a written refusal to perform one or more of the works proposed in the Bid as required by the Bidding Documents after the bid closing date and during the validity period of the Bid;

2) The Bidder violates the PR leading to contract cancellation as prescribed in ITB Section 33;

3) The successful Bidder fails to provide the performance security as required in ITB Section 38;

4) The Bidder does not proceed or refuses to proceed with contract finalization within 20 days from the date of receiving the invitation notice to finalize the contract from the Purchaser, or having finalized the contract but refuses to sign the contract finalization minutes, except in cases of force majeure;

5) The Bidder fails to sign the contract within the timeframe specified in the Purchaser's Notice of Award from the date of contract finalization completion, except in cases of force majeure.

If the Bidder has option: this Guarantee shall expire when the Bidder conclude



the contract and furnish the Performance Security to the beneficiary as agreed.

If the Bidder has no option: this Guarantee shall expire upon our receipt of a photocopy of notification of bidder selection result sent by the beneficiary; within 30 days after the expiration of the Bidder's Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

Legal representative of Bank

[Full name, position, signature and seal]

Notes:

- (1) Applicable to Bid Security in the form of Bid Guarantee issued by a credit institution or a branch of foreign bank established under Vietnamese law.
- (2) Insert as prescribed in Section 18.2 of the BDS.
- (3) Insert the deadline date as prescribed in Section 21.1 of the BDS.



BID SECURITY ⁽¹⁾

(applicable to Consortium)

Beneficiary: ___[insert name and address of the Purchaser]

Date of issue: _____[insert date of issue]

BID GUARANTEE No. ___[insert number of the Bid Guarantee]

Guarantor: ___[insert name and address of issuing bank, if it is not written in the title]

We have been informed that _____ [name of the Bidder]⁽²⁾ (hereinafter called "the Bidder") has submitted to participate in the bid for the execution of _____ [name of procurement] under Invitation to Bid [number of the Invitation to Bid].

We hereby act as a guarantee for the Bidder to participate in the bid for this procurement with an amount of _____ [amount in figures, in words and currency].

This Guarantee takes effect within _____⁽³⁾ days, from _____ [date]⁽⁴⁾.

At the request of the Bidder, we, as the Guarantor, hereby undertake to pay you any sum or sums not exceeding in total an amount of _____ [amount in figures] (_____) [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s), because the Bidder:

1) The Bidder withdraws the Bid or issues a written refusal to perform one or more of the works proposed in the Bid as required by the Bidding Documents after the bid closing date and during the validity period of the Bid;

2) The Bidder violates the PR leading to contract cancellation as prescribed in ITB Section 33;

3) The successful Bidder fails to provide the performance security as required in ITB Section 38;

4) The Bidder does not proceed or refuses to proceed with contract finalization within 20 days from the date of receiving the invitation notice to finalize the contract from the Purchaser, or having finalized the contract but refuses to sign the contract finalization minutes, except in cases of force majeure;

5) The Bidder fails to sign the contract within the timeframe specified in the Purchaser's Notice of Award from the date of contract finalization completion, except in cases of force majeure.

If any member in the _____ [insert complete name of the Consortium] violates regulations of law leading ineligible for Bid Security return as prescribed in Section 19.5 –Instructions to Bidder, the Bid Security of all Consortium members shall not be returned.

If the Bidder has option: this Guarantee shall expire when the Bidder conclude the contract and furnish the Performance Security to the beneficiary as agreed.



If the Bidder has no option: this Guarantee shall expire when the Bidder receives the photocopy of notification of bidder selection result sent by the beneficiary; within 30 days after the expiration date of the Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

Legal representative of Bank
[Full name, position, signature and seal]

Notes:

(1) Applicable to Bid Security in the form of Bid Guarantee issued by a credit institution or a branch of foreign bank established under Vietnamese law.

(2) The Bidder may have one of the following names:

- Name of the Consortium, for example A bidder and B bidder enter into a Consortium to make a bid, their name shall be “Nhà thầu liên danh A + B” (“A + B Consortium”);

- Name of the member in charge of the Bid Security for the Consortium or for other members of the Consortium. For example, A + B Consortium makes a bid, if their Consortium agreement assign A bidder to furnish Bid Security for the Consortium, the Consortium’s name shall be stated as: ...[insert name of member A] (on behalf of Consortium A + B);

- Name of every Consortium member separately furnishing the Bid Security.

(3) Insert as prescribed in Section 18.2 of the BDS.

(4) Insert the deadline date as prescribed in Section 21.1 of the BDS.



TABLE OF BID PRICE

No.	Content	Bid Price
1	Goods	(M)
2	Related Services	(I)
	Total bid price <i>(Transfer to Bid Submission Form)</i>	(M) + (I)

Legal representative of Bidder
(Independent Contractor/Representative of the Consortium under the Consortium Agreement)
[full name, position, signature and seal]



TABLE OF BID PRICE
(FOR LOCALLY MANUFACTURED OR FABRICATED GOODS)

1	2	3	4	5	6	7
No.	List of Goods	Physical unit	Quantity	Origin, symbol, label	Unit Price	Total price (Col. 4x6)
<i>1</i>	<i>First Good</i>					<i>M1</i>
<i>2</i>	<i>Second Good</i>					<i>M2</i>
					
<i>n</i>	<i>Nth Good</i>					<i>Mn</i>
Total bid price of Goods including taxes, fees and charges (if any) <i>(Transfer to Table of bid price - Form No. 05)</i>						M=M1+M2+... +Mn

Legal representative of Bidder

(Independent Contractor/Representative of the Consortium under the Consortium Agreement)
[full name, position, signature and seal]

Notes:

Columns (1), (2), (3) and (4): the Purchaser insert information in accordance with the provisions of Part 2 – Supply requirements; columns (5), (6), and (7): the Bidder insert information.

The Unit Price in the column (6) includes essential costs for provision of Goods at the request of the Purchaser, including taxes, fees and charges (if any). When participating in a bid, the Bidder is responsible for learning, calculating and quoting adequate taxes, fees and charges (if any) with rates thereof at 28 days prior the bid closing time as prescribed. If the Bidder declares that the Bid Price does not include taxes, fees and charges, its Bid shall be rejected.



For contracts with adjustable unit prices, the total value of taxes, fees, and charges (if any) shall not be considered during the evaluation process for comparison and ranking of bidders. The successful Bid Price, the awarded contract price, and the Contract Price shall include taxes, fees and charges (if any).



TABLE OF BID PRICE
(FOR OVERSEAS-PRODUCED GOODS)

1	2	3	4	5	6	7	8
No.	List of Goods	Physical unit	Quantity	Origin, symbol, label	Unit Price	Total price (Col. 4x6)	Taxes, fees and charges (if any)
1	First Good					A1	T1
2	Second Good					A2	T2
						
n	N th Good					An	Tn
Total bid price of Goods excluding taxes, fees and charges (if any)						A=A1+A2+...+An	
Total value of taxes, charges, and fees (if any)							T=T1+T2+...+Tn
Total bid price of Goods including taxes, fees and charges (if any) <i>(Transfer to Table of bid price - Form No. 05)</i>						M₁=A+T	

Legal representative of Bidder

(Independent Contractor/Representative of the Consortium under the Consortium Agreement)
[full name, position, signature and seal]

Notes:

Columns (1), (2), (3), and (4): the Purchaser shall insert information in accordance with the provisions of Part 2 – Supply requirements .

Columns (5), (6), (7) and (8): the Bidder insert information. The Unit Price in the column (6) prescribed in Section 13.2 of the BDS includes essential costs for provision of Goods at the request of the Purchaser, excluding taxes, fees and charges (if any) in the Column (8) and excluding costs of Related Services prescribed in Form No. 5(d).

Column (8) includes all taxes, fees and charges (if any). When participating in a bid,



the Bidder is responsible for learning, calculating and quoting adequate taxes, fees and charges (if any) with rates thereof at 28 days prior the bid closing time as prescribed. If the Bidder declares that the Bid Price does not include taxes, fees and charges, its Bid shall be rejected.

For contracts with adjustable unit prices, the total value of taxes, fees, and charges (if any) shall not be considered during the evaluation process for comparison and ranking of bidders. The successful Bid Price, the awarded contract price, and the Contract Price shall include taxes, fees and charges (if any).

Form No. 05(c)

**TABLE OF BID PRICE OF DOMESTICALLY-PRODUCED GOODS OR
OVERSEAS-PRODUCED GOODS WHICH ARE IMPORTED AND SOLD IN
VIETNAM**

1	2	3	4	5	6	7	8
No.	List of Goods	Physical unit	Quantity	Origin, symbol, label	Unit Price	Total price (Col. 4x6)	Taxes, fees and charges (if any)
<i>1</i>	<i>First Good</i>					<i>A1</i>	<i>T1</i>
<i>2</i>	<i>Second Good</i>					<i>A2</i>	<i>T2</i>
						
<i>n</i>	<i>Nth Good</i>					<i>A_n</i>	<i>T_n</i>
Total bid price of Goods excluding taxes, fees and charges (if any)						A=A₁+A₂+...+A_n	
Total value of taxes, fees and charges (if any)							T=T₁+T₂+...+T_n
Total bid price of Goods including taxes, fees and charges (if any) <i>(Transfer to Table of bid price - Form No. 05)</i>						M₂=A+T	

Legal representative of Bidder
(Independent Contractor/Representative of the Consortium under the Consortium Agreement)
[full name, position, signature and seal]



Notes:

Columns (1), (2), (3), and (4): the Purchaser shall insert information in accordance with the provisions of Part 2 - Supply requirements. Columns (5), (6), (7) and (8): the Bidder insert information. The Unit Price in the column (6) includes essential costs for provision of Goods at the request of the Purchaser.

Column (8) includes all taxes, fees and charges (if any). When participating in a bid, the Bidder is responsible for learning, calculating and quoting adequate taxes, fees and charges (if any) with rates thereof at 28 days prior the bid closing time as prescribed. If the Bidder declares that the Bid Price does not include taxes, fees and charges, its Bid shall be rejected.

For contracts with adjustable unit prices, the total value of taxes, fees, and charges (if any) shall not be considered during the evaluation process for comparison and ranking of bidders. The successful Bid Price, the awarded contract price, and the Contract Price shall include taxes, fees and charges (if any).

Form No. 05 (d)

TABLE OF BID PRICE FOR RELATED SERVICES

(if any)

1	2	3	4	5	6	7	8
No.	Description	Quantity	Physical unit	Place where Services are performed	Finish date	Unit Price	Total price (Col. 3x7)
Total bid price of Related Services including taxes, fees and charges (if any) <i>(Transfer to Table of bid price - Form No. 05)</i>							(I)

Legal representative of Bidder

(Independent Contractor/Representative of the Consortium under the Consortium Agreement)
[full name, position, signature and seal]



Notes:

Columns (1), (2), (3), (4), (5) and (6): the Purchaser insert information in conformity with the List of Related Services (if any) prescribed in Part 2 - Supply requirements.

Columns (7) and (8): the Bidder insert information.



BIDDER INFORMATION FORM

Date: _____

Number and name of procurement: _____

Bidder's name: ___ [insert Bidder's name (<i>the independent contractor or the Consortium</i>)]
<i>In case of Consortium, name of each party: ___</i>
Place of business registration and operation: ___ [<i>insert province/city where the Bidder registers and operate business. For Consortiums, indicate the lead member</i>]
Year of establishment: ___ [<i>insert year of establishment. For Consortiums, indicate the lead member</i>].
Bidder's legal address: ___ [<i>insert the registered address</i>] [<i>For Consortiums, indicate the lead member</i>]
<p>Bidder's legal representative information. For Consortiums, indicate the lead member.</p> <p>Name: _____</p> <p>Address: _____</p> <p>Telephone/Fax: _____</p> <p>Email Address: _____</p>
<p>Notes:</p> <p>1. Attached are copies of original documents of: Certificate of Enterprise registration, Establishment Decision or equivalent documents issued by competent agencies in the country where the Bidder operates.</p> <p>2. Diagram of organizational structure of the Bidder [<i>For Consortiums, indicate the lead member</i>].</p>

CONSORTIUM PARTNER INFORMATION FORM

Date: _____

Number and name of procurement: _____

Bidder's name:
Consortium's Party name:
Consortium's Party Country of Registration:
Consortium's Party Year of Establishment:
Consortium's Party Legal Address in Country of Registration:
Consortium's legal representative information Name: _____ Address: _____ Telephone/Fax: _____ Email Address: _____
Notes: 1. Attached are copies of original documents of: Certificate of Enterprise registration, Establishment Decision or equivalent documents issued by competent agencies in the country where the Bidder operates. 2. Diagram of organizational structure.



SIMILAR CONTRACTS PERFORMED BY BIDDER⁽¹⁾

[Location and date] _____

Bidder's name: _____ [insert name of the Bidder]

Required information of each contract: :

Name and number *[complete name and number of the contract]*Date of signing *[insert date]*Finish date *[insert date]*

Contract Price	<i>[insert total Contract price in contractual amount and currency]</i>		Equivalent _____ VND
Regarding Consortium member, insert value of contract in charge	<i>[insert rate of contract price in the total contract price]</i>	<i>[insert contractual amount and currency]</i>	Equivalent _____ VND

Investor's name (Purchaser): *[complete name of the Investor (Purchaser)]*Address: *[complete address of the Investor (Purchaser)]*Phone number/Fax: *[insert phone number, fax including, zip code, email address]*

Email:

Description of similar characteristics prescribed in Section 2.1 of Chapter III - Evaluation and Qualification Criteria⁽²⁾.1. Type of Good *[suitable information]*2. Value *[amount in VND]*

3. The value of the completed contract (3)	<i>[actual value of works performed, based on acceptance and contract liquidation]</i>
--	--

4. Scope *[scope of contract]*5. Other characteristics *[insert other characteristics if necessary]*

The Bidder shall enclose photocopies of related literature and documents on those contracts (certified that those contracts are completed in conformity with the above requirements by the Investor/Purchaser; acceptance minutes, contract liquidation documents, invoices in accordance with legal regulations, etc.).

Notes:

- (1) A similar contract shall mean a contract that has been completed and accepted.
In the case of a Consortium, each member shall fill out this form separately.
- (2) The bidder shall only declare the components that are similar to the requirements of the bidding package.
- (3) In cases where the contract value is not denominated in Vietnamese Dong (VND), it shall be converted into VND based on the exchange rate specified in Section 2.1, Chapter III for evaluation purposes.

Form No. 08

TABLE OF PROPOSED KEY EMPLOYEES

The Bidder shall declare key employees having qualifications satisfying requirements prescribed in Section 2.2 of Chapter III - Evaluation and Qualification Criteria and be ready to perform the procurement; The bidder shall ensure that, upon contract signing (if awarded), the proposed employees are not in charge of another procurement with the same working time is declared in this Table.

1	Position: <i>[detailed position in the procurement in charge]</i>
	Name: <i>[insert name of key employee]</i>
2	Position: <i>[detailed position in the procurement in charge]</i>
	Name: <i>[insert name of key employee]</i>
3	Position
	Name
4	Position
	Name
5	Position
	Name



....	Position
	Name

Form No. 09

CURRICULUM VITAE OF KEY EMPLOYEES

The Bidder shall provide adequate information required below and enclose certified true photocopies of relevant qualifications.

Position		
Information of employee	Name	Date of birth:
	Qualifications	
Present position	Name of employer	
	Address of employer	
	Phone number:	Contact person (Chief/officer in charge of personnel)
	Fax	E-mail
	Position	Years of experience working for present employer



WORK EXPERIENCE OF KEY EMPLOYEES

Detailed working experience in management of specific procurements. Summary of work experience in sequence from the current time backwards.

From	To	Company/Project/Position/Relevant work and management experience

FINANCIAL SITUATION OF BIDDER ⁽¹⁾

Bidder's name [*Independent bidder or Consortium*]:

Date: _____

Name of Consortium member (if any): _____

Financial figures in the last 3 years ⁽²⁾ [VND]		
First year:	Second year:	Third year:



Information about the Balance sheet

Total assets			
Liabilities			
Net asset value			
Short-term assets			
Short-term liabilities			
Working capital			

Information about income statement

Total revenues			
Annual average revenue from business⁽³⁾			
Pre-tax profits			
Post-tax profits			

Enclose photocopies of financial statements (the Balance sheets including relevant description, income statements) in the last 3 years ⁽⁴⁾, which satisfy the following conditions:

1. The financial statement only includes financial situation of the Bidder or Consortium members (regarding Consortium) but not of an associate entity such as parent company or subsidiary companies or associate companies and the Bidder or Consortium members.
2. Financial statements must be complete and adequate as prescribed.
3. Financial statements must be complete corresponding to the accounting periods. Attached are certified true photocopies of one of the following documents:
 - Inspection record of tax declaration;
 - Tax self-declaration (VAT and enterprise income tax) whose time of submitting certified by tax authority;
 - Documentary evidence on electronic tax declaration by the Bidder;



- Certification of tax liability issued by the tax authority (certifying amount paid in the whole year);
- Audited financial report;
- Other documents;

Notes:

(1) Regarding Consortium, each Consortium member shall declare information using this Form.

(2), (4) The period of time above is the same of the period of time prescribed in Section 2.1 of Chapter III - Evaluation and Qualification Criteria.

(3) Annual average revenues from business shall be determined by dividing total revenue from the mentioned years by the number of years.

Form No. 12

SCOPE OF TASKS PERFORMED BY SUBCONTRACTOR⁽¹⁾

No.	Name of subcontractor⁽²⁾	Scope of tasks⁽³⁾	Quantity of tasks⁽⁴⁾	Estimated rate (%)⁽⁵⁾	Contract or agreement concluded with subcontractor⁽⁶⁾
1					
2					
3					
4					
...					

Notes:

(1) This Form is used in case of employment of subcontractors.

(2) The Bidder specifies names of subcontractors. In case names of subcontractors are not determined, this column may be leaved blank and only the column “Scope of tasks”, “Quantity of tasks”, “Estimated rate” is filled. Any subcontractor who is selected to perform the tasks shall be approved by the Investor.

(3) The Bidder specifies names of work items performed by subcontractors.

(4) The Bidder specifies quantities of work items performed by subcontractors.



(5) The Bidder specifies ratio of tasks performed by the subcontractor to the bid price.

(6) The Bidder specifies number of contracts or agreements, enclose with original copies or certified true photocopies of those documents.

Form No. 13

LIST OF SPECIAL SUBCONTRACTORS⁽¹⁾

No.	Names of special subcontractors (2)	Scope of tasks⁽³⁾	Quantity of tasks⁽⁴⁾	Estimated rate (%)⁽⁵⁾	Contract or agreement concluded with subcontractor⁽⁶⁾
1					
2					
3					
4					
...					

Note:

To be used only if the Bidding Documents permit the engagement of a specialized Subcontractor prescribed in Chapter 5 – Scope of Supply. In case the Contractor engages a specialized Subcontractor, this Form shall be completed.

The specialized Subcontractor shall be subject to evaluation by the Purchaser regarding its qualifications and experience, as specified in Chapter III – Evaluation and Qualification Criteria.



Part 2. SCHEDULE OF REQUIREMENTS

Chapter V. SCOPE OF SUPPLY

This Chapter constitute the foundation for the preparation of the Bid and the completion of the forms stipulated in Chapter IV – Bidding Forms.

Section 1. Scope of supply of Goods Description of the requirements of the bidding package regarding the scope of supply, related services, and technical specifications.

I. I030846: Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC’s overhead system Supply Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC’s overhead system as per SR 308/1100003765/ĐH-CNTT

1. Scope of Work

1.1 Status at BSR:

a. Technological conditions

- Impurities in crude oil such as OCl (below 0.15 ppm), sulfur (below 0.14% wt), MMA (below 0.25 mg/L), and TAN (below 0.3 mg KOH/g) are being monitored in accordance with the technical specification QDKT-01 and the IOW – SOL for the overhead system at the CDU.
 - The predicted results for pH at the dew point, the formation points of amine and ammonium salts, and the dew point temperature are being provided daily by the chemical company after BSR supplies the experimental data. Additionally, product flow rates are being simulated using software to support the control of flow and quality of product streams.
 - Daily monitoring is conducted through operational parameters and laboratory analysis results, focusing on priority indicators. Additionally, when processing crude oil with abnormally high impurity levels, the frequency of analysis is increased to ensure enhanced monitoring.
 - Petro-SIM software is currently being implemented at BSR with the aim of simulating and evaluating the operating conditions of processing units when handling various types of crude oil. Its use allows for the optimization of operations while also supporting the identification of technological bottlenecks to propose appropriate solutions.
 - Additionally, Petro-SIM is used to assess the feasibility of potential crude oils that could be processed, contributing to the expansion of the refinery's crude oil feedstock portfolio.
 - With the current license, Petro-SIM enables the simulation of the composition of process streams and the determination of dew point parameters (for hydrocarbons and water) to support operational adjustments aimed at minimizing or preventing corrosion. However, the software currently does not support calculating pH dew point values (this task is being carried out by a chemical company) for predicting the risk of corrosion caused by acid condensation.
- ###### b. Monitoring process variable and corrosion inspection, including the following main activities:
- Damage mechanism identified and published in RBI system.
 - Controlling the containments in mixed crude oil through blending progress.
 - Daily monitor process variable and operation condition.



- Daily monitor corrosion by UT online.
 - Periodically corrosion inspection using manual methods (UTG, IRIS,...).
 - Corrosion rate calculation, remaining life evaluation, inspection interval and inspection plan automatically generated in RBI system.
- c. Existing IT systems.
- SAP HANA System: Manufacturer: SAP; is a corporate management system, currently BSR has the following modules: Finance and Accounting, Budget Management, Warehouse Management (Non-Hydrocarbon; Hydrocarbons), Purchasing/ Sales, Management Accounting; Integration: eOffice system, Maximo.
 - eOffice system: Manufacturer: Btech (Vietnam Local); It is a digital office system that includes the following modules: digital signing, internal document management, partner signing, environmental health and safety management; Integration with SAP, Maximo.
 - DCS System: Manufacturer: Honeywell; serving the work of supervising and controlling the production process, protecting and preventing incidents. Integrated with AVEVA PI system.
 - Maximo Systems: Manufacturer: IBM; Serving maintenance and repair (PM/CM, WO, WR, MR, PSSA, ePTW). Integrated with: Aveva PI, SAP, eOffice, eString, AVPS, RBI.
 - AVEVA PI SYSTEMS (PDA, PIVISION, PI AF): Manufacturer: Aveva; Serving the work of tracking, analyzing, displaying, alerting and managing Hierarchy Asset assets. Integrated with systems: DCS, LIMS, OSS, APA, Maximo.
 - RBI System: Manufacturer: Velosi; Serving the inspection of equipment, planning to test static equipment/machete pipes on the level of risk, analyzing corrosion mechanisms, and rating risks. Integrated with the system: Maximo (IBM).
 - LIMS System: Manufacturer: Abbott; Laboratory information management system, storage, and display of the factory's analysis results. Integrated with: Aveva PI, Data Warehouse.
 - Petro-SIM system: Manufacturer: KBC; Serving the work of running factory simulations/workshops to serve the operation and optimization of the factory. Integrated with: Aveva PI.
 - LP Systems: Manufacturer: Priceps; Optimize production planning, blend crude oil, analyze scenarios, and support short- and long-term planning.
 - OSS System: Manufacturer: Priceps; Serving the work of scheduling, optimizing operations and supporting operational decision-making and comparing plans - reality - simulations. Integrated with Aveva PI, LIMS systems.
 - APA Systems: Manufacturer Aveva; Volume balancing system, plant-wide loss control. Integrated with: Aveva PI, Data Warehouse.
 - AVPS Systems: Aveva Manufacturer: BSR Document Management Systems. Integrated with Maximo system.
 - EMS Systems: Yokogawa Manufacturer; Plant energy management (currently BSR has just implemented energy management for the Utility area). There is integration with the Aveva PI system.
 - Microsoft Azure system: is a centralized storage system for BSR's data on the Cloud to serve analysis, administrative reporting, management and administration. Integration with BSR's existing IT systems such as Maximo, PI, SAP, eOffice.

1.2 Scope of Work Requirements:

1.2.1 Purpose:

Survey, design, installation, commissioning and handover of a tool/system for forecasting, simulation, calculation,



and corrosion assessment for the CDU overhead and RFCC overhead systems.

1.2.2 Applied and reference standard:

- API RP 571 Damage Mechanisms Affecting Fixed Equipment in the Refining Industry.
- API RP 580 Risk-Based Inspection.
- API RP 581 Risk-Based Inspection Technology.
- API 510 Pressure Vessel Inspection Code: In-Service Inspection, Rating, Repair, and Alteration. - API 572 Inspection of Pressure Vessels.
- API 570 Piping Inspection Code: In-Service Inspection, Rating, Repair, and Alteration of Piping Systems.
- API 574 Inspection Practices for Piping System Components.
- API 579 Fitness-For-Service (FFS) Assessment.
- API RP 584 Integrity Operating Windows (IOW).
- NACE SP0775 Preparation, Installation, Analysis, and Interpretation of Corrosion Coupons in Oilfield Operations.
- NACE MR0175/ ISO 15156 Materials for Use in H₂S-Containing Environments in Oil and Gas Production.
- NACE TR34109 CDU – Distillation tower overhead system corrosion.
- IEC 62443 – Cybersecurity for OT systems.
- ISA/IEC 61511 – Functional Safety (if applicable).

1.2.3 Scope:

Scope of work shall including but not limited as following:

- Provide survey, assessment of BSR's current situation totally in order to define BSR have enough conditions to rollout the solution effectively, not limited by: Existing source systems, quality of source data, frequency of data input, data sufficiency and consistency...If have any gap, need the appropriate solutions to solve the gaps in order to implement the system successfully.
- Provide the tool/system/solution for forecasting, simulation, calculation, and corrosion assessment as detail in part 2 shall including but not limited as below:
 - + Real-time and continuous data acquisition.
 - + Real-time and continuous updating, forecasting, and simulation.
 - + Configurable display and integration to support monitoring and management needs.
 - + Configurable alert thresholds and multi-level alerts (warning, danger, emergency).
 - + Threshold exceedance reports, trend reports, and periodic reports.
 - + Supply Services of installation, configuration of simulation software/system, assessment of corrosion conditions.
- Cybersecurity Requirements:
 - + IEC 62443/ Compliance with ISA/IEC 62443 zone & conduit architecture.
 - + Separate the system from the office network.
 - + Allow only access between network zones with a controlled firewall.
 - + Ensure sensor data, hunting history data, AI models are not leaked.



- + Role-based user authentication and access control.
 - + Encrypted communication (TLS/SSL).
 - + Patch management and antivirus updates per refinery policy.
 - Operating system, database software, and server hardware configuration requirements:
 - + Requires a server operating system with the latest version at the time of contract deployment.
 - + Database Software.
 - + Recommend hardware configuration to meet the system's requirements and BSR IT's overall architecture.
 - Design overall integration architecture of the system. Detail specifications of installation, connection and integration for the system with other existing systems. The system architecture shall be designed in compliance with security standards of BSR's policy as well as practices worldwide.
 - The system will be designed with infrastructure architecture following BSR's standards including Ntier (Front-end Tier/Application Tier/ Database Tier) and Test/Production environments.
 - Number of users accessing the system: At least 05 users.
 - Support to debug, fix any software errors during the time of software using compliance with Supplier's policy.
 - Update and upgrade the new version according to the Supplier's policy.
 - Training, guiding the use of software.
 - Supply software manual (pdf file format).
 - Provide system design specifications documents following BSR procedures (Procedure BSR-MNT-PRO-029).
 - Hand over, technical support for the system 01 year after handing over to BSR for using (Go-live).
2. Requirements on technical standards, method and management procedure:
- Survey and collect the available data of BSR as define above to build up the predicting model as per requirements.
 - Requirements for CDU overhead system:
 - + Predicting for process variables like dewpoint temperature, pH dewpoint, salt point, free water, pH of Sour water, TAN, Sulfur and Chloride distribution in fractions.
 - + Simulate the rate of corrosion caused by damaged mechanisms including but not limited to: Hydrochloric Acid Corrosion, Ammonium Chloride salt Corrosion, Amine Hydrochloride salt Corrosion, Ammonium Bisulfide Corrosion, aqueous organic acid corrosion, Oxygenerated water corrosion, Wet H2S damage which considering to include the effect from presently injected of neutralizer and corrosion inhibitor chemical.
 - + Collect the data, callculation and automatically control the chemical injection system.
 - Requirements for RFCC overhead system and Gas recovery system:
 - + Predicting for process variable dewpoint, pH dewpoint, salt point, free water, pH of Sour water ...
 - + Simulate the rate of corrosion caused by damaged mechanisms including to: Ammonium Chloride Corrosion, Ammonium Bisulfide Corrosion, CO2 Corrosion, Erosion/Erosion corrosion, Wet H2S Damage, Carbonate Stress Corrosion Cracking which considering to include the effect from presently injected of corrosion inhibitor chemical.
 - + Collect the data, callculation and automatically control the chemical injection system.
 - + For RFCC Heavy naphtha system:



- + Predicting for process variable dewpoint, pH dewpoint, salt point, free water, pH of Sour water ...
- + Can predict, simulate the rate of corrosion caused by damaged mechanisms including to: Ammonium Chloride Corrosion, Ammonium Bisulfide Corrosion, Wet H₂S Damage, Sour Water Corrosion.
- Ability to build the trend of the corrosion rate over time.
- Develop a chart to determine the relationship of impurities in processed crude oil (such as TAN, OCL, salt, etc.) with the pH value of acidic water.
- Ability to predict the remaining life of the equipment and piping to be simulated.
- The measured and calculated results of the parameters must fall within the permissible margin of error according to the corresponding international standards. These results are compared with analyses from BSR's laboratory or from a laboratory accredited according to the standards.
- Performance KPIs" :
- + Prediction accuracy: deviation < ±10% vs. manual inspection data
- + Alarm response time: < 60 seconds
- + Coverage rate: 100% of identified critical corrosion-risk points
- + System availability: ≥ 99%
- + MTBF: ≥ 8000 hours
- + False alarm rate: < 5%
- Rollout period shall be not longer than 03 months to achieve the committed accuracy of all predicted data.

3. License Requirements

- All software licenses related to the Real-time Corrosion Simulation System for corrosion assessment, prediction and corrosion control solution of units CDU, RFCC's overhead system shall be activated only from the official Go Live date of the system.
- The Contractor/Bidder shall ensure that the license validity period (Subscription/Term License) is counted from the Go Live date, not from the contract signing date, equipment delivery date, or any testing/commissioning period.
- During implementation, UAT, and Pre-Go Live phases, the Contractor/Bidder shall provide full Development/UAT/Staging (non-production) licenses required for installation, configuration, integration, and testing at no additional cost, and without consuming/triggering any Production license term or cost.
- License Price Fixing Commitment (5 Years):
The Contractor/Bidder shall commit that the subscription license fee(s) for the Production environment (including renewals/extensions, if applicable) shall be fixed and unchanged for five (5) consecutive years from the system Go Live date. The license fee(s) shall not be subject to any escalation, adjustment, indexation, or any form of price increase for any reason, including but not limited to inflation, foreign exchange fluctuations, labor cost changes, or changes in the Contractor's internal pricing policies.
- Version Upgrade Included (No Additional License Cost):

During the above five (5) year period, the Client shall be entitled to upgrade to newer versions/releases (major/minor updates, patches, hotfixes, security updates, and general releases) of the system/solution without any additional license fee. Any proposal to charge extra license fees or increase license subscription fees due to upgrading to a newer version shall be deemed invalid and shall not impose any financial obligation on the Client

4. Pricing Requirements for Annual Technical Support Fee (AMS)

- The Contractor/Bidder shall provide annual technical support services (Annual Maintenance & Support – AMS) at a fixed price for a period of five (5) consecutive years from the system Go Live date.
- The annual technical support fee shall remain unchanged for the entire 5-year period and shall not be subject to any escalation, adjustment, indexation, or any form of price increase for any reason, including but not limited to



inflation, foreign exchange fluctuations, labor cost changes, or changes in the Contractor's internal pricing policies.
- Any proposal to revise or increase the annual technical support fee during this 5-year period shall be considered invalid and shall not impose any financial obligation on the Client.

5. Safety requirements:

- Not request.

6. Material, spare parts requirement, software/ solution:

- Provide evidence that the software/solution has been applied in any refinery with the same corrosion mechanisms mentioned in section 2.

7. Tool and equipment requirement:

- Tools for work completion remotely or at BSR site.

8. Competency requirement: As above.

9. Implementing and working time:

- Execution time is 06 months from contract signing.

- Working time: Not application.

10. Training for BSR personnel:

- The contractor is responsible for training and guiding BSR's personnel to be able to take over, administrate, exploit and use proficiently after installation and handover.

11. Request for handover to BSR:

- The system is fully installed, configured, integrated and operated with correct functions, processed all prediction, supervision mechanisms mentioned in section 2.

- Dossiers and training documents for BSR personnel.

- Documents and manual of software.

- Software manual.

- Functional Design Specification.

- Integration Design Specification.

- Certificate of software License.

- SAT certificate.

- Service completion report.

12. Warranty:

- 01-year system warranty from Acceptance & Handover Date.

- The contractor is responsible for the warranty as detailed in the terms of the contract



II. (I030847): Implement a Digital Twin solution for Profit Optimization of the RFCC Unit as per SR 327/1100003814/DH-CNTT (I030847)

1. Scope of Work

1.1 Status at BSR

a. Current state of technology

- A RFCC Twin (physical-based) model for the RFCC unit has been developed by KBC and initially used at BSR by R&D to assess operational performance and support process optimization RFCC unit under varying process conditions and crude feed changes.

- However, in practice, the frequent changes in crude oil (almost on a daily basis) require the model to be regularly calibrated and fine-tuned to maintain accuracy.

- Additionally, tasks such as model calibration, tracking discrepancies between simulation and actual data, and integrating data from various systems (PI, LIMS, DCS...) are still performed manually or semiautomatically, which limits real-time responsiveness and the capability for holistic optimization.

- This highlights the need to implement a Digital Twin (digital-based) system with automated calibration, machine learning capabilities, and deep integration with operational data systems to enhance accuracy, prediction capability, and decision-making in a continuously changing operational environment.

b. Existing IT systems

- SAP HANA System: Manufacturer: SAP; is a corporate management system, currently BSR has the following modules: Finance and Accounting, Budget Management, Warehouse Management (Nonhydrocarbon; Hydrocarbons), Purchasing/Sales, Management Accounting; Integration: eOffice system, Maximo.

- eOffice system: Manufacturer: Btech (Vietnam Local); It is a digital office system that includes the following modules: digital signing, internal document management, partner signing, environmental health and safety management; Integration with SAP, Maximo.

- DCS System: Manufacturer: Honeywell; serving the work of supervising and controlling the production process, protecting and preventing incidents. Integrated with AVEVA PI system.

- Maximo Systems: Manufacturer: IBM; Serving maintenance and repair (PM/CM, WO, WR, MR, PSSA, ePTW). Integrated with: Aveva PI, SAP, eOffice, eString, AVPS, RBI.

- AVEVA PI SYSTEMS (PDA, PIVISION, PI AF): Manufacturer: Aveva; Serving the work of tracking, analyzing, displaying, alerting and managing Hierarchy Asset assets. Integrated with systems: DCS, LIMS, OSS, APA, Maximo.

- RBI System: Manufacturer: Velosi; Serving the inspection of equipment, planning to test static equipment/machete pipes on the level of risk, analyzing corrosion mechanisms, and rating risks. Integrated with the system: Maximo (IBM).

- LIMS System: Manufacturer: Abbott; Laboratory information management system, storage, and display of the factory's analysis result. Integrated with: Aveva PI, Data Warehouse.

- Petro-SIM system: Manufacturer: KBC; Serving the work of running factory simulations/workshops to serve the operation and optimization of the factory. Integrated with: Aveva PI.

- LP Systems: Manufacturer: Princeps; Optimize production planning, analyze scenarios, and support short- and long-term planning.

- OSS System: Manufacturer: Princeps; Serving the work of crude oil off-loading and blending schedules, optimizing operations and support for feasibility operation plan. Integrated with Aveva PI, LIMS systems.

- APA Systems: Manufacturer Aveva; Volume balancing system, plant-wide loss control. Integrated with: Aveva PI, Data Warehouse.

- AVPS Systems: Aveva Manufacturer: BSR Document Management Systems. Integrated with Maximo system.

- EMS Systems: Yokogawa Manufacturer; Plant energy management (currently BSR has just implemented energy management for the Utility area). There is integration with the Aveva PI system.

- Microsoft Azure system: is a centralized storage system for BSR's data on the Cloud to serve analysis, administrative reporting, management and administration. Integration with BSR's existing IT systems such as Maximo, PI, SAP, eOffice.

1.2 Scope of work

a. Objective

The selected contractor will be totally responsible for the design, development, integration, and completing the Digital Twin for Profit Optimization of RFCC Unit in accordance with the current situation and meets the requirements that are included but not limited as below:

- Assessment: Collect operational, planning, economic, and model data. Evaluate the existing physical based twin (Petro-SIM).

- Model Development: Integrate first-principles simulation (Petro-SIM) with AI/ML layers. Calibrate against historical data for high-fidelity predictions.

- Real-Time Integration: Connect to DCS/APC systems and historian databases for live process data and setpoint suggestions.

- Optimization Module:

 - + First- principles RTO (Real-Time Optimization): Maximize profit under constraints.

 - + Self-learning AI control to optimize in real-time with high frequency.

- Simulation & Testing: Validate prediction accuracy and optimize under different scenarios (what-if analysis).

- UI & Dashboards:

 - + Engineers: Full control and tuning of digital twin, forecasts, what-if simulations.

 - + Managers: High-level dashboards with key financial and technical KPIs.

- Integration with Control Systems:

 - + Open loop: Operator receives suggestions.

 - + Closed loop: System writes setpoints to APC/DCS under safety governance.

- Maximize product value and minimize operating costs, ultimately increasing overall profitability. The system will support:

 - + Planning and operations engineers with real-time optimization tools.

 - + Management with dashboards and KPIs.

 - + Open-loop or closed-loop integration with APC/DCS.

b. Standards IEC 62443, NIST CSF, ISO 27001

- CAPE-OPEN:

 - ISO 15926.

 - MTP (Module Type Package).

 - ISA-95.

 - ISA-88.

 - OPC UA/DA

 - MQTT hoặc REST API

- MLOps Best Practices:

- Model Explainability & Validation Standards.

c. Technical Requirements

- Simulation Accuracy (Overall Accuracy Index – OAI): The solution shall achieve $OAI \leq \pm 5.0\%$ (maximum) and target $OAI \leq \pm 2.0\%$ for key RFCC KPIs. The accuracy definition and evaluation method shall follow Chapter III

- Technical Evaluation Criteria (Section 5, item B-5.2).

- Hybrid AI Integration: Combine physics-based and ML models for robust prediction and adaptive control.

- Physical-based twin self-adjustment: The solution shall support self-adjustment/auto-calibration of the physical-based twin (Petro-SIM model in Option 1, or Bidder’s process simulation model in Option 2) driven by the digital-based twin and plant data, with configurable automation level, approval workflow, audit trail and rollback.

- Optimization Performance: NLP solvers or trained ML models for rapid solutions (5 minutes or faster).

- IT/OT Integration: OPC UA/DA, historian access, APC interface, firewall-protected cloud connections.

- Deployment Infrastructure: On-premises compute for execution, optional cloud compute for optimization.

- User Interface: Secure web dashboards for management and technical tools for engineers.

d. Implementation Options

BSR accepts two (02) implementation options for delivering the RFCC Digital Twin solution. The Bidder shall propose ONE (01) option only (Option 1 or Option 2) and clearly state the selected option in the Technical Proposal. The selected option will be evaluated on a PASS/FAIL basis (mandatory)

Option 1: Complete the existing Petro-SIM RFCC physical-based twin and couple with a digital-based twin

- The Bidder shall further develop, calibrate and complete the existing Petro-SIM based RFCC physical-based twin (provided by BSR) to achieve the required model accuracy and stability for production use.

- The Bidder shall implement a digital-based twin (data-driven/AI/ML) and economic optimization layer that is coupled with the Petro-SIM physical-based twin to perform near real-time profit optimization and operational advisory with high accuracy.
- Integration with the existing Petro-SIM RFCC physical-based twin is mandatory in Option 1, including: data exchange, model execution orchestration, parameter update/calibration, scenario and optimization runs.
- Deliverables shall include (at minimum): updated Petro-SIM model files and cases, calibration & validation procedures, automated interfaces to PI/LIMS/DCS/APC, coupling APIs/workflows between physical-based and digital-based twins, and full documentation/knowledge transfer enabling BSR to maintain the Petro-SIM model after handover.

Option 2: Turn-key delivery of RFCC physical-based twin + digital-based twin on the Bidder's platform

- The Bidder shall deploy and deliver an end-to-end RFCC physical-based twin and digital-based twin on the Bidder's own platform/solution stack to perform near real-time profit optimization and operational advisory with high accuracy.
- Integration with the existing Petro-SIM RFCC physical-based twin is NOT required in Option 2.
- The Bidder may propose additional software licenses (e.g., Scheduling/Planning/Process Simulation) if required to complete the physical-based twin and optimization scope. Any proposed licenses shall be clearly listed (OEM, product/module name, license type, quantities, term, maintenance/support) and included in the Bid Price.

Key KPIs

No.	KPI Category	KPI Description	Quantitative Requirement	Notes
1	High-Value Product Yields (e.g. HGO, RON)	Increase within equipment limits	Maximize HGO yield, Contractor proposes and commit the KPI.	Maximize HGO yield based on the color (A STM D1500)
2	Optimization Responsiveness		< 30 minutes for economic events,	
3	LP Model Accuracy	Ensure the RFCC submodel reflects actual operations in both quantity and timeliness	Refer Attachment 1	Automatically send an email or message to LP specialist to review and update RFCC submodel into entire LP model if required
4	What-if	Predictive capability under changes in technological conditions, such as variations in input materials or operating modes	Deviation max: - Product yield: ±1wt% -RON: ±0.2 - Gasoline olefins: ±1vol%	
5	System Integration & Data Infra	Integrate with PI, LIMS, DCS	Full automatic sync and update	
6	Automation & Usability	Enable auto-run, LP update, in-app tuning.	Tools available and tested	

1.3 Server hardware and software requirements:

- All servers, operating systems and SQL databases will be provided by BSR based on the Software Manufacturer's proposal.
- The Manufacturer's software must be compatible with the VMware virtualization platform and run on the operating system with the latest version at the time of project implementation.

1.4 Cybersecurity Requirements:

- Compliance with ISA/IEC 62443 zone & conduit architecture



- Separate the system from the office network.
- Allow only access between network zones with a controlled firewall.
- Ensure sensor data, historical data, AI models are not leaked.
- Role-based user authentication and access control.
- Encrypted communication (TLS/SSL).
- Patch management and antivirus updates per refinery policy.

1.5 System integration requirements:

- To meet the goals, requirements, functions and system architecture. The contractor is responsible for surveying, analyzing, consulting and providing solutions to integrate the Digital Twin system with BSR's existing systems.
- The Digital Twin System must be fully and automatically integrated with PI, LIMS, Flowers... systems.
- Integration with the existing Petro-SIM RFCC physical-based twin is required only when the Bidder selects Option 1 (Section 1.2). For Option 2, such integration is not required and should not be proposed as a mandatory dependency.
- Planning Interface: Sync with planning LP tools and production scheduling.
- APC/DCS interface: for open and/or closed loop control.
- The integration must ensure compliance with existing world standards and use the latest integration technology.

1.6 Training, Sustainability and Knowledge Transfer:

- The system must be designed to allow internal engineers and operators to maintain, modify, and expand the Digital Twin after handover.
- The contractor shall provide comprehensive training and documentation.
- Internal personnel must pass a qualification exam (designed and administered by the winning contractor) before participating in the project to ensure readiness and capability.
- Training for BSR staff according to project progress throughout the implementation process, including training content on system architecture, how to build, set up, configure, calibrate models, integrate, and administer the system, ensuring that BSR staff can self-implement the implementation for the remaining units in the future.
- Training on using the Digital Twin system for BSR functional staff before the UAT phase.
- Training and transferring the system to BSR users before go-live.

1.7 Testing and Deliverables

- The contractor is responsible for testing (UAT) the system with BSR's users (End User, Power User, Administrator) and signing confirmation that all BSR requirements are met before putting the system into official operation.
- Fully functional Digital Twin system for RFCC unit.
- Automated calibration, RFCC submodel updating, and abnormality detection modules.
- User interfaces and dashboards.
- Training programs and qualification exams for internal staff.
- Technical documentation and support plan.
- The document of this project will cover:
 - + The modelling scope and run frequency of the Digital Twin.
 - + Key assumptions.
 - + Input parameters.
 - + An agreed list of DQPs, KPIs and MPIS.
 - + Technical Design Specification (TDS).
 - + User Acceptance Test (UAT).
 - + User Manual/Maintenance Guide.
 - + Administration/Integration Guide.

1.8 License Requirements

- 01 Online Optimization subscription license.
- 01 Offline Optimization subscription license.
- All software licenses related to the Digital Twin Profit Optimization solution for the RFCC Unit shall be activated only from the official Go Live date of the system.
- The Contractor/Bidder shall ensure that the license validity period (Subscription/Term License) is counted from the Go Live date, not from the contract signing date, equipment delivery date, or any testing/commissioning period.
- During implementation, UAT, and Pre-Go Live phases, the Contractor/Bidder shall provide full



Development/UAT/Staging (non-production) licenses required for installation, configuration, integration, and testing at no additional cost, and without consuming/triggering any Production license term or cost.

- License Price Fixing Commitment (5 Years):

The Contractor/Bidder shall commit that the subscription license fee(s) for the Production environment (including renewals/extensions, if applicable) shall be fixed and unchanged for five (5) consecutive years from the system Go Live date. The license fee(s) shall not be subject to any escalation, adjustment, indexation, or any form of price increase for any reason, including but not limited to inflation, foreign exchange fluctuations, labor cost changes, or changes in the Contractor's internal pricing policies.

- Version Upgrade Included (No Additional License Cost):

During the above five (5) year period, the Client shall be entitled to upgrade to newer versions/releases (major/minor updates, patches, hotfixes, security updates, and general releases) of the system/solution without any additional license fee. Any proposal to charge extra license fees or increase license subscription fees due to upgrading to a newer version shall be deemed invalid and shall not impose any financial obligation on the Client.

1.9 Pricing Requirements for Annual Technical Support Fee (AMS)

- The Contractor/Bidder shall provide annual technical support services (Annual Maintenance & Support – AMS) at a fixed price for a period of five (5) consecutive years from the system Go Live date.

- The annual technical support fee shall remain unchanged for the entire 5-year period and shall not be subject to any escalation, adjustment, indexation, or any form of price increase for any reason, including but not limited to inflation, foreign exchange fluctuations, labor cost changes, or changes in the Contractor's internal pricing policies.

- Any proposal to revise or increase the annual technical support fee during this 5-year period shall be considered invalid and shall not impose any financial obligation on the Client.

2. Quality management.

3. General/specialized labor protection: N/A

4. Construction tools and equipment: N/A

5. Materials and human resources/ Vật tư và nhân lực: The contractor shall prepare sufficient resources to carry out the work as required.

6. Volume of work performed: In accordance with the approved scope of work.

7. Implementation progress: 09 months from contract signing.

8. Warranty/Bảo hành: The contractor is responsible for warranty and support for 01 year from the date the system is officially put into use (Go-live).

9. Technical standards and procedures need to be applied.

a) Security, safety, health, environment:

- Safety regulations for contractors providing goods/services BSR-HSE-GR-001.

- Standard working hours: According to the implementation progress specified in the Contract.

- Safety protective equipment (PPE): The contractor shall provide his own personnel to carry out work at the site.

b) Project management: Contractor management process for performing contracts for the provision of goods and services BSR-MNT-PRO-029.

c) Technical standards of equipment/system: In accordance with the approved scope of work and detailed in the Contract.

10. Contractor's professional capacity

a) Contractor:

- Business Registration Certificate: Valid and business line suitable for the requested service.

- Experience: The Contractor has completed at least 01 contract related to Digital Twin system implementation.

b) Key technical personnel:

- Health: Good, qualified to work according to the law.

- Experience: Have participated in implementing at least 01 contract related to Digital Twin implementation.

Part 3. CONTRACT AND CONTRACT FORMS

Chapter VI. CONTRACT

CONTRACT AGREEMENT

Quang Ngai,.....,....., 2026

Contract Agreement No.-2026/HĐ/BSR-....

Procurement:

- Pursuant to Civil Law No. 91/2015/QH13 of The socialist republic of Viet Nam ratified by The Vietnam National Assembly on November, 24th 2015;
- Pursuant to Commercial Law No. 36/2005/QH11 of The socialist republic of Viet Nam ratified by The Vietnam National Assembly on June, 14th 2005;
- Due to demand and capability of both Parties;

Today, (Day) (Month) 2026, at Petrovietnam Refining and Petrochemical Corporation (BSR), 208 Hung Vuong, Nghia Lo Award, Quang Ngai Province, two Parties include:

OWNER (A party)

OWNER's name: **PETROVIETNAM REFINING AND PETROCHEMICAL CORPORATION**

Address: 208 Hung Vuong Street, Nghia Lo Award, Quang Ngai Province, Vietnam;

Phone number: +84 (255) 3825825;

Fax: +84 (255) 3825826;

Account Number: 0271.00.777777.9 at Joint Stock Commercial Bank for Foreign Trade of Vietnam – Quang Ngai Branch;

Tax Number: 4300378569

Representative: **Mr. Nguyen Viet Thang**

Position: **President & CEO**

CONTRACTOR (B PARTY)

CONTRACTOR's name:

Address:

Phone number: +...

Fax: +....

Email: ...

Account number:

Tax Number:

Representative:

Position: ...

Both parties agree to conclude a Service supply contract with the following contents:



Article 1. Subjects of contract

Subjects of this Contract are the Services enumerated in the Appendix referred to.

Article 2. Contract documents

Contract documents and order of precedence:

1. The written Contract and Appendices
 - Appendix 01: Scope of Works
 - Appendix 02: Contract price
2. Special Conditions of Contract (SCC);
3. General Conditions of contract (GCC);
4. Contract Negotiation Minutes;
5. Decision on approval for Bidder selection result;
6. Notification of Contract Award;
7. Other enclosed documents (if any).

Article 3. Contract Price and Method of payment

1. Contract Price:

2. Method of Payment: 100% bank transfer to the Party B's Bank account.

Article 4. Type of contract: ...

Article 5. Contract duration:

Article 6. Responsibilities of the A party

Pay the B party according to the Contract Price prescribed in Article 5 of this Contract with the method of payment specified in the SCC; fulfill all duties and obligations mentioned in the GCC and SCC.

Article 7. Responsibilities of the B party

Provide the A party with all Services prescribed in Article 1 of this Contract, and fulfill all duties and obligations mentioned in the GCC and SCC.

Article 8. Effective Dates of Contract

1. This Contract comes into force from the date of signing
2. The contract expires when both parties completely fulfill their duties and obligations, or earlier termination in the Terms and Conditions The contract expires when both parties completely fulfill their duties and obligations.
3. This Contract is made into 04 (four) sets with equal value. The Owner shall keep 02 (two) sets and the Contractor shall keep 02 (two) sets

**LEGAL REPRESENTATIVE OF
OWNER**

**LEGAL REPRESENTATIVE OF
CONTRACTOR**



APPENDIX 01: SCOPE OF WORKS

(Attached to the Contract No. _____-2026/HĐ/BSR-.....dated _____2026)



APPENDIX 02: CONTRACT PRICE

(Attached to the Contract No. _____-2026/HĐ/BSR-.....dated _____ 2026)



GENERAL CONDITIONS OF CONTRACT

(Attached to the Contract No. _____-2026/PO-BSR-... dated _____ 2026)

1. General Provisions

- 1.1 Definitions Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:
- The Adjudicator is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Sub-Clause 8.2 hereunder.
- “Activity Schedule” is the priced and completed list of items of Services to be performed by the Service Provider forming part of his Bid;
- (c) “Completion Date” means the date of completion of the Services by the Service Provider as certified by the Employer
- (d) “Contract” means the Contract signed by the Parties, to which these General Conditions of Contract (GCC) are attached, together with all the documents listed in Clause 1 of such signed Contract;
- (e) “Contract Price” means the price to be paid for the performance of the Services, in accordance with Clause 6;
- (f) “Dayworks” means varied work inputs subject to payment on a time basis for the Service Provider’s employees and equipment, in addition to payments for associated materials and administration.
- (g) “Employer” means the party who employs the Service Provider
- (h) “Foreign Currency” means any currency other than the currency of the country of the Employer;
- (i) “GCC” means these General Conditions of Contract;
- (j) “Government” means the Government of the Employer’s country;
- (k) “Local Currency” means the currency of the country of the Employer;
- (l) “Member,” in case the Service Provider consist of a consortium of more than one entity, means any of these entities; “Members” means all these entities, and “Member in Charge” means the entity specified in the SC to act on their behalf in exercising all the Service Provider’ rights and obligations towards the Employer under this Contract;
- (m) “Party” means the Employer or the Service Provider, as the case may be, and “Parties” means both of them;
- (n) “Personnel” means persons hired by the Service Provider or by any Subcontractor as employees and assigned to the performance of the Services or any part thereof;
- (o) “Service Provider” is a person or corporate body whose Bid to provide the Services has been accepted by the Employer;



- (p) “Service Provider’s Bid” means the completed bidding document submitted by the Service Provider to the Employer
- (q) “SCC” means the Special Conditions of Contract by which the GCC may be amended or supplemented;
- (r) “Specifications” means the specifications of the service included in the bidding document submitted by the Service Provider to the Employer
- (s) “Goods” means the material to be provided by the Provider pursuant to this Contract, as described in Chapter V. Scope of Supply.
- (t) “Subcontractor” means any entity to which the Service Provider subcontracts any part of the Services in accordance with the provisions of Sub-Clauses 3.5 and 4.
- 1.2 Applicable Law The Contract shall be interpreted in accordance with the laws of the Employer’s country, unless otherwise specified in the Special Conditions of Contract (SCC).
- 1.3 Language This Contract has been executed in the language specified in the SCC, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.
- 1.4 Notices Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram, or facsimile to such Party at the address specified in the SCC.
- 1.6 Authorized Representatives Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Employer or the Service Provider may be taken or executed by the officials specified in the SCC.
- 1.7 Taxes and Duties The Service Provider, Subcontractors, and their Personnel shall pay such taxes, duties, fees, and other impositions as may be levied under the Applicable Law, the amount of which is deemed to have been included in the Contract Price.

2. Commencement, Completion, Modification, and Termination of Contract

- 2.1 Effectiveness of Contract This Contract shall come into effect on the date the Contract is signed by both parties or such other later date as may be stated in the SCC.
- 2.2 Commencement of Services
- 2.2.1 Program Before commencement of the Services, the Service Provider shall submit to the Employer for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated.
- 2.2.2 Starting Date The Service Provider shall start carrying out the Services thirty (30) days after the date the Contract becomes effective, or at such other



- date as may be specified in the SCC.
- 2.3 Intended Completion Date Unless terminated earlier pursuant to Sub-Clause 2.6, the Service Provider shall complete the activities by the Intended Completion Date, as is specified in the SCC. If the Service Provider does not complete the activities by the Intended Completion Date, it shall be liable to pay liquidated damage as per Sub-Clause 3.8. In this case, the Completion Date will be the date of completion of all activities.
- 2.4 Modification Modification of the terms and conditions of this Contract, including any modification of the scope of the Services or of the Contract Price, may only be made by written agreement between the Parties.
- 2.5 Force Majeure
- 2.5.1 Definition For the purposes of this Contract, “Force Majeure” means an event which is beyond the reasonable control of a Party and which makes a Party’s performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.
- 2.5.2 No Breach of Contract The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.
- 2.5.3 Extension of Time Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.
- 2.5.4 Payments During the period of their inability to perform the Services as a result of an event of Force Majeure, the Service Provider shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.
- 2.6 Termination
- 2.6.1 By the Employer The Employer may terminate this Contract, by not less than thirty (30) days’ written notice of termination to the Service Provider, to be given after the occurrence of any of the events specified in paragraphs (a) through (d) of this Sub-Clause 2.6.1:
- (a) if the Service Provider does not remedy a failure in the performance of its obligations under the Contract, within thirty (30) days after being notified or within any further period as the Employer may have subsequently approved in writing;
 - (b) if the Service Provider become insolvent or bankrupt;
 - (c) if, as the result of Force Majeure, the Service Provider is unable to perform a material portion of the Services for a period of not less than sixty (60) days; or



(d) if the Service Provider, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purposes of this Sub-Clause:

(i) “corrupt practice”¹ is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “fraudulent practice”² is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “collusive practice”³ is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “coercive practice”⁴ is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “obstructive practice” is

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

2.6.2 By the Service Provider The Service Provider may terminate this Contract, by not less than thirty (30) days’ written notice to the Employer, such notice to be given after the occurrence of any of the events specified in paragraphs (a) and (b) of this Sub-Clause 2.6.2:

(a) if the Employer fails to pay any monies due to the Service Provider pursuant to this Contract and not subject to dispute pursuant to Clause 7 within forty-five (45) days after receiving written notice from the Service Provider that such payment is overdue; or

(b) if, as the result of Force Majeure, the Service Provider is unable to perform a material portion of the Services for a period of

1 For the purpose of this Contract, “another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

2 For the purpose of this Contract, “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

3 For the purpose of this Contract, “parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

4 For the purpose of this Contract, “party” refers to a participant in the procurement process or contract execution.



not less than sixty (60) days.

2.6.3 Payment upon Termination

Upon termination of this Contract pursuant to Sub-Clauses 2.6.1 or 2.6.2, the Employer shall make the following payments to the Service Provider:

- (a) remuneration pursuant to Clause 6 for Services satisfactorily performed prior to the effective date of termination;
- (b) except in the case of termination pursuant to paragraphs (a), (b), (d) of Sub-Clause 2.6.1, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract, including the cost of the return travel of the Personnel.

3. Obligations of the Service Provider

3.1 General

The Service Provider shall perform the Services in accordance with the Specifications and the Scope of Work, and carry out its obligations with all due diligence, efficiency, and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe methods. The Service Provider shall always act, in respect of any matter relating to this Contract or to the Services, as faithful adviser to the Employer, and shall at all times support and safeguard the Employer's legitimate interests in any dealings with Subcontractors or third parties.

3.2 Conflict of Interests

3.2.1 Service Provider Not to Benefit from Commissions and Discounts.

The remuneration of the Service Provider pursuant to Clause 6 shall constitute the Service Provider's sole remuneration in connection with this Contract or the Services, and the Service Provider shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Service Provider shall use their best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration.

3.2.2 Service Provider and Affiliates Not to be Otherwise Interested in Project

The Service Provider agree that, during the term of this Contract and after its termination, the Service Provider and its affiliates, as well as any Subcontractor and any of its affiliates, shall be disqualified from providing goods, works, or Services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

3.2.3 Prohibition of Conflicting Activities

Neither the Service Provider nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

- (a) during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract;
- (b) during the term of this Contract, neither the Service



Provider nor their Subcontractors shall hire public employees in active duty or on any type of leave, to perform any activity under this Contract;

3.3

Confidentiality

3.4 Insurance to be Taken Out by the Service Provider The Service Provider (a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Employer and in compliance with applicable law, insurance against the risks, and for the coverage, as shall be specified in the SCC; and (b) at the Employer's request, shall provide evidence within 7 (seven) working days after Effective Date to the Employer showing that such insurance has been taken out and maintained and that the current premiums have been paid.

3.5 Service

Provider's Actions Requiring Employer's Prior Approval

The Service Provider shall obtain the Employer's prior approval in writing before taking any of the following actions:
(a) entering into a subcontract for the performance of any part of the Services,
(b) (c) changing the Program of activities; and
(d) any other action that may be specified in the SCC.

3.7 Documents

Prepared by the Service Provider to Be the Property of the Employer

All plans, drawings, specifications, designs, reports, and other documents and software submitted by the Service Provider in accordance with Sub-Clause 3.6 shall become and remain the property of the Employer, and the Service Provider shall, not later than upon termination or expiration of this Contract, deliver all such documents and software to the Employer, together with a detailed inventory thereof. The Service Provider may retain a copy of such documents and software. Restrictions about the future use of these documents, if any, shall be specified in the SCC.

3.8 Liquidated Damages

3.8.1 Payments of Liquidated Damages

The Service Provider shall pay liquidated damages to the Employer at the rate per day stated in the SCC for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the SCC. The Employer may deduct liquidated damages from payments due to the Service Provider. Payment of liquidated damages shall not affect the Service Provider's liabilities.

3.8.2 Correction for Over-payment

If the Intended Completion Date is extended after liquidated damages have been paid, the Employer shall correct any overpayment of liquidated damages by the Service Provider by adjusting the next payment certificate. The Service Provider shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in Sub-Clause 6.5.

3.9 Performance

The Service Provider shall provide the Performance Security to the



- Security Employer no later than the date specified in the Letter of acceptance. The Performance Security shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The performance Security shall be valid until a date 28 days from the Completion Date of the Contract in case of a bank guarantee, and until one year from the Completion Date of the Contract in the case of a Performance Bond.
4. Service Provider's Personnel
- 4.1 Description of Personnel The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Service Provider's Key Personnel are described in Appendix 01. The Key Personnel and Subcontractors listed by title as well as by name in Appendix 01 are hereby approved by the Employer.
- 4.2 Removal and/or Replacement of Personnel
- (a) Except as the Employer may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Service Provider, it becomes necessary to replace any of the Key Personnel, the Service Provider shall provide as a replacement a person of equivalent or better qualifications.
- (b) If the Employer finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Service Provider shall, at the Employer's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Employer.
- (c) The Service Provider shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.
5. Obligations of the Employer
- 5.1 Assistance and Exemptions The Employer shall use its best efforts to ensure that the Government shall provide the Service Provider such assistance and exemptions as specified in the SCC.
- 5.2 Change in the Applicable Law If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost of the Services rendered by the Service Provider, then the remuneration and reimbursable expenses otherwise payable to the Service Provider under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred to in Sub-Clauses 6.2 (a) or (b), as the case may be.
6. Payments to the Service Provider
- 6.1 Lump-Sum Remuneration The Service Provider's remuneration shall include:
+ not exceed the Contract Price and shall be a lump-sum including all Subcontractors' costs, and all other costs incurred by the Service Provider in carrying out the Services described in Appendix 01 above. Except as provided in Sub-Clause 5.2, the Contract Price may only be increased above the amounts stated in Sub-Clause 6.2 if the Parties have agreed to additional payments in accordance with Sub-Clauses

- 2.4 and 6.3.
- 6.2 Contract Price (a) The price payable in local currency is set forth in the SCC.
(b) The price payable in foreign currency is set forth in the SCC.
- 6.3 Payment for Additional Services, and Performance Incentive Compensation For the purpose of determining the remuneration due for additional Services as may be agreed under Sub-Clause 2.4, a breakdown of the lump-sum price is provided in Appendices 02 above.
If the SCC so specify, the service provider shall be paid performance incentive compensation as set out in the Performance Incentive Compensation appendix.
- 6.4 Terms and Conditions of Payment Payments will be made to the Service Provider according to the payment schedule stated in the SCC. Unless otherwise stated in the SCC, the advance payment (Advance for Mobilization, Materials and Supplies) shall be made against the provision by the Service Provider of a bank guarantee for the same amount, and shall be valid for the period stated in the SCC. Any other payment shall be made after the conditions listed in the SCC for such payment have been met, and the Service Provider have submitted an invoice to the Employer specifying the amount due.
- 6.5 Interest on Delayed Payments If the Employer has delayed payments beyond fifteen (15) days after the due date stated in the SCC, interest shall be paid to the Service Provider for each day of delay at the rate stated in the SCC.
- 6.7 Dayworks
6.7.1 If applicable, the Daywork rates in the Service Provider's Bid shall be used for small additional amounts of Services only when the Employer has given written instructions in advance for additional services to be paid in that way.
6.7.2 All work to be paid for as Dayworks shall be recorded by the Service Provider on forms approved by the Employer. Each completed form shall be verified and signed by the Employer representative as indicated in Sub-Clause 1.6 within two days of the Services being performed.
6.7.3 The Service Provider shall be paid for Dayworks subject to obtaining signed Dayworks forms as indicated in Sub-Clause 6.7.2
7. Quality Control
7.1 Identifying Defects The principle and modalities of Inspection of the Services by the Employer shall be as indicated in the SCC. The Employer shall check the Service Provider's performance and notify him of any Defects that are found. Such checking shall not affect the Service Provider's responsibilities. The Employer may instruct the Service Provider to search for a Defect and to uncover and test any service that the Employer considers may have a Defect. Defect Liability Period is as defined in the SCC.
- 7.2 Correction of Defects, and Lack of Performance Penalty (a) The Employer shall give notice to the Service Provider of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.
(b) Every time notice a Defect is given, the Service Provider shall correct the notified Defect within the length of time specified by the Employer's notice.
(c) If the Service Provider has not corrected a Defect within the

time specified in the Employer's notice, the Employer will assess the cost of having the Defect corrected, the Service Provider will pay this amount, and a Penalty for Lack of Performance calculated as described in Sub-Clause 3.8.

8. Settlement of Disputes

8.1 Amicable Settlement The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation.

8.2 Dispute Settlement 8.2.1 If any dispute arises between the Employer and the Service Provider in connection with, or arising out of, the Contract or the provision of the Services, whether during carrying out the Services or after their completion, the matter shall be referred to the Adjudicator within 14 days of the notification of disagreement of one party to the other.

8.2.2 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

8.2.3 The Adjudicator shall be paid by the hour at the rate specified in the BDS and SCC, together with reimbursable expenses of the types specified in the SCC, and the cost shall be divided equally between the Employer and the Service Provider, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

8.2.4 The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place shown in the SCC.

8.2.5 Should the Adjudicator resign or die, or should the Employer and the Service Provider agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator will be jointly appointed by the Employer and the Service Provider. In case of disagreement between the Employer and the Service Provider, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the SCC at the request of either party, within 14 days of receipt of such request.



CHAPTER VI.1 SPECIAL CONDITIONS OF CONTRACT

Unless provided otherwise, all special conditions of contract shall be completed before issuing the Invitation for Bid.

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1	The words “in the Government’s country” are amended to read “in [name of country].”
1.1(a)	The Adjudicator is Vietnam International Arbitration Centre at the Vietnam Chamber of Commerce and Industry (VIAC).
1.1(e)	The contract name is _____.
1.1(h)	The Employer is _____
1.1(m)	The Member in Charge is _____
1.1(p)	The Service Provider is _____
1.2	The Applicable Law is: Vietnam
1.3	The language is English
1.4	<p>The addresses are:</p> <p>Employer: Petrovietnam Refining and Petrochemical Corporation. Attention: Mr – President & CEO Telex: (84-55) 3616666 Facsimile: (84-55) 3616555</p> <p>Goods Provider: Attention: Telex: Facsimile:</p>
1.6	<p>The Authorized Representatives are:</p> <p>For the Employer: Mr – President & CEO For the Goods Provider:</p>
2.1	The date on which this Contract shall come into effect is _____.
2.2.2	The Starting Date for the commencement of Services is _____.



Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
2.3	The Intended Completion Date is _____.
3.2.3	Activities prohibited after termination of this Contract are: _____ _____
3.4	The risks and coverage by insurance shall be: In accordance with Vietnamese applicable Law, it is required to obtain and maintain the following insurance: (i) Third Party motor vehicle (ii) Third Party liability (iii) Employer's liability and workers' compensation with a limit to comply with all applicable laws (iv) Professional liability (v) Loss or damage to equipment and property mobilized by Service Provider
3.5(d)	The other actions are .
3.7	Restrictions on the use of documents prepared by the Service Provider are: _____
3.8.1	The liquidated damages rate is 0.5% (zero point five percent) of the Contract Price per day each week of any delay. The maximum amount of liquidated damages for delay for the whole contract is 8% (eight percent) of the Contract Price. Liquidated damages are only payable by the CONTRACTOR where a delay is directly attributable to the CONTRACTOR. Any delays caused by the OWNER'S failure to provide information, materials, site access or anything else which affects the CONTRACTOR'S ability to perform the Services will not result in the CONTRACTOR being liable for liquidated damages. Payment of any liquidated damages is subject to the CONTRACTOR'S limitation of liability.
3.8.3	The percentage _____ to be used for the calculation of Lack of performance Penalty(ies) is _____.
3.9	a) Performance Security covering 05% (five percent) of the CONTRACT PRICE in the form of a Bank Guarantee issued by a bank or a credit institution lawfully operating in Vietnam. Performance Security shall be valid until full completion of the service plus 30 days. If the contract duration needs extending, the validity of the Bank guarantee for



Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
	<p>Performance Security must also be extended accordingly.</p> <p>b) If CONTRACTOR commits any material breach of any of its obligations under the CONTRACT, OWNER may, by a 7-day notice to CONTRACTOR, with a copy thereof to the issuing Bank, make demand under the Bond. CONTRACTOR shall not prevent the Bank paying OWNER's demand under the Bond</p>
5.1	<p>The assistance and exemptions provided to the Service Provider are:</p> <p>Import/export tax exemption for temporary equipment which is used for the performance of the services.</p>
6.2(a)	The amount in local currency is Vietnam Dong.
6.2(b)	The amount in foreign currency or currencies is United State Dollar.
6.3.2	The performance incentive paid to the Service Provider shall be: not applied
6.4	<p>Payments shall be made according to the following schedule:</p> <ul style="list-style-type: none"> – Advance payment: Advance payment for thirty percent (30%) of the Contract Price, payable within thirty (30) days after the OWNER receives the full original set of payment documents, comprised of: <ul style="list-style-type: none"> + Payment request signed by each Consortium member's authorized representative (if any); + Advance payment guarantee covering the Advance payment amount. Advance payment guarantee shall be issued by a commercial bank lawfully operating in Vietnam. The bank guarantee for the Advance payment shall be valid until full completion of the services plus 30 days; + Performance Security covering five percent (05%) of the Contract Price in the form of a Bank Guarantee issued by a bank lawfully operating in Vietnam. Performance Security shall be valid until full completion of the service plus 30 days; – Final payment: Payment for seventy percent (70%) of the Contract Price within thirty (30) days after the OWNER receives the full original set of payment documents, comprised of: <ul style="list-style-type: none"> + Payment request signed by each Consortium member's authorized representative (if any); + Commercial Invoice; + Completion Acceptance Protocol;
6.5	Payment shall be made within 30 days of receipt of the invoice and the relevant documents specified in Sub-Clause 6.4, and within



Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
	<p>_____ days in the case of the final payment.</p> <p>The interest rate is _____.</p>
7.1	<p>The principle and modalities of inspection of the Services by the Employer are as follows: _____</p> <p>The Defects Liability Period is _____.</p>
8.2.3	<p>The Adjudicator is _____. Who will be paid a rate of _____ per hour of work. The following reimbursable expenses are recognized: _____</p>
8.2.4	<p>The arbitration procedures of Vietnam International Arbitration Centre at the Vietnam Chamber of Commerce and Industry (VIAC) will be used. The arbitration shall take place in Viet Nam</p>
8.2.5	<p>The designated Appointing Authority for a new Adjudicator is _____</p>



Chapter VII. CONTRACT FORMS

This Chapter includes the forms that are integral parts of the Contract upon completion:

Form No. 14: Notification of Award Form No. 15. Performance Security

Form No. 16. Bank guarantee for Advance payment



NOTIFICATION OF AWARD

_____, day ____ month ____ year ____

To: *[Insert name and address of the successful Bidder]*

Subject: Notification of Award

Pursuant to Decision No. ____ dated ____ month ____ year ____ of the Purchaser *[insert name of the Purchaser, hereinafter referred to as the "Purchaser"]* approving the bid award results for the package: ____ *[insert name and code of the package]*, the Purchaser *[insert name of the Purchaser]* hereby notifies that the Bidder *[insert name of the Bidder]* has been awarded the contract to execute the package *[insert name and code of the package. In case the package is divided into multiple parts, specify the name and code of the part awarded to the Bidder]* with the awarded bid price of: ____ *[insert the awarded bid price as per the bid award approval decision]* and the contract implementation period of: ____ *[insert the actual contract duration as per the bid award approval decision]*.

The legal representative of the Bidder is requested to proceed with contract finalization and signing with the Purchaser according to the following schedule:

- Contract finalization deadline: ____ *[insert contract finalization deadline]*, at the location *[insert location of contract finalization]*;
- Contract signing date: ____ *[insert contract signing date]*; at the location *[insert contract signing location]*. The draft contract documents are enclosed.

The Bidder is requested to provide the performance security according to Form No. 15 in Chapter VII and submit the original copy to Purchaser within 03 days from the date of issuance of the performance guarantee. Contract Forms of the Bidding Documents with the amount of ____ and validity period of ____ *[insert the corresponding amount and validity period as required by the Bidding Documents]*.

This document is an integral part of the Contract Documents. Upon receipt of this notification, the Bidder must send a written acceptance and proceed to finalize and sign the contract and provide the performance security as required above. At the same time, the Bidder must confirm that its current capacity remains unchanged. The Purchaser reserves the right to refuse contract finalization and signing if it discovers that the Bidder's current capacity no longer meets the contract requirements.

If by ____ day ____ month ____ year ____ (1), the Bidder does not finalize and sign the contract or refuses to do so, or does not provide the performance security as required above, the Bidder will be disqualified and its bid security will not be refunded.

Legal Representative of the Procuring Entity

[Insert name, title, signature, and seal]

Attachments: Draft contract documents including Contract and Contract Appendices.

Note:

(1) Insert the deadline consistent with the validity period of the Bidder's bid bond.



PERFORMANCE SECURITY

[Location]_____,[Date]_____

To: _____ *[insert the Purchaser's name]*
 (hereinafter referred to as the Purchaser)

At the request of the Supplier *[insert name of Supplier]* (hereinafter referred to as Supplier) has been the successful Bidder of the procurement _____ [the procurement's name] and commit to enter into contract of good supply for the aforesaid procurement (hereinafter referred to as contract);⁽²⁾

According to the Invitation for Bid (or contract), the Bidder must give a Performance Guarantee issued by a bank with a given amount to ensure the their duties and obligations in the performance of the contract;

We, _____ [insert name of the bank], locates in _____ [insert name of country or territory], have registered headquarters at _____ [the bank's address⁽³⁾] (hereinafter referred to as "Bank"), to undertake to guarantee the performance of the contract by the Supplier with an amount of _____ [insert equivalent value in figures and words and currency as specified in the Invitation for Bid]. We hereby unconditionally and irrevocably under take to pay you any sum(s) not exceeding _____ [insert amount(s) in figures and words] upon receipt by us of your first demand in writing declaring the Supplier to be in default within the effective period of the performance security.

This guarantee comes into effect from the issue date until _____ [date]⁽⁴⁾.

Legal representative of the Bank

[Full name, position, signature and seal]

Notes:

(1) Applies only in cases where the performance security is in the form of a bank guarantee or financial institution guarantee.

(2) If the guaranteeing bank requires a signed contract before issuing the guarantee letter, the Bidder shall report to the Purchaser for consideration and decision. In this case, the above paragraph may be amended as follows:

“Upon the request of _____ [insert Bidder's name] (hereinafter referred to as the Bidder), the successful Bidder of the package _____ [insert package name] has signed Contract No. ___ [insert contract number] dated ___ day ___ month ___ year ___ (hereinafter referred to as the Contract).”

(3) Bank address: clearly specify the address, telephone number, fax number, and e-mail for contact.

(4) Specify the duration in accordance with the requirements stipulated in the draft contract.



BANK GUARANTEE FOR ADVANCE PAYMENT⁽¹⁾

[Location]_____,[Date]_____

To: _____ [insert the Purchaser's name]
(hereinafter referred to as the Purchaser)*[The name and number of the Contract Agreement]*

According to conditions of SCC in the Contract, _____ *[insert name and address of the Supplier]* (hereinafter referred to as the Supplier) is required a Bank Guarantee for advance payment to ensure the proper use of an advance of _____ *[insert amount(s) in figures and numbers and currency]* by the Supplier;

We, _____ *[insert name of the bank]*, locates in _____ *[insert name of country or territory]*, have registered headquarters at _____ *[the bank's address⁽²⁾]* (hereinafter referred to as "Bank"), at the request of the Purchaser, hereby unconditionally and irrevocably to pay you any sum or sums not exceeding in total an amount of _____ *[insert amount(s) in figures and words as specified in SCC Section 15.1 of the Invitation for Bid]*.

In addition, we hereby agree that any change, supplement or adjustment to the conditions of the Contract or any relevant document entered into between the Supplier and the Purchaser shall not change any our duty or obligation under this guarantee.

The value of this guarantee shall gradually decrease in proportion to the advance that the Purchaser recovers through payment periods prescribed in the provisions of Contract together with the certification of advance recovery issued by the Purchaser.

This Guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until _____ *[insert date]* ⁽³⁾ or upon the full recovery of the advance, whichever is sooner.

Legal representative of the Bank*[Full name, position, signature and seal]*

Notes:

(1) Based on the specific conditions of the contract package, stipulate requirements in accordance with the provisions of the Contract.

(2) Bank address: clearly specify the address, telephone number, fax number, and e-mail for contact.

(3) Enter the expiration date of the Advance Payment Guarantee in accordance with Article 8 – Terms and Conditions of the Contract.

In case the Bidder does not use the Advance Payment Guarantee template provided by the Purchaser, the Bidder may use the template of the Bank designated to receive payment/advance payment under the contract; however, the content of the Guarantee must still meet the requirements as set forth in Appendix 03 of the Contract.

In case an extension of the contract implementation period is necessary, the Purchaser may require the Bidder to extend the validity period of the advance payment guarantee accordingly.



Part IV. Evaluation Criteria and Instruction for Online Submission
Chapter VIII. Validity Checking and Evaluation Criteria for Adjusted Bids
Submitted via E-Procurement System

No.	Contents according to Bidding Documents for direct submission	Contents according to Bidding Documents for Online submission
1	Check for consistency between original and scanned copies	Not applicable for bids submitted for Online submission.
2	Must have original bid documents	Must have original bid documents or scanned copies successfully uploaded to BSR's electronic bid submission/receipt system before the bid closing time. Detailed guidance is in Chapter IX of the Bidding Documents.
3	Bid submission letter signed and sealed by the authorized representative of the Bidder as required. For Consortiums, each member's authorized representative must sign and seal the letter, or the lead member signs on behalf of the JV per the JV agreement	Same as direct submission. For electronic bids, the bid submission letter must be a scanned color copy, signed (electronic signature is allowed if the Bidder uses it), sealed as required. Bidder must provide email and phone number of the legal representative for the evaluation team to confirm authenticity.
4	Valid bid security with original copy	Valid bid security with original letter, bank transfer to BSR's account, or electronic bank guarantee sent to a bank notified by the Procuring Entity. In all cases, BSR must receive the bid security before the bid closing time. Other evaluation criteria for bid validity remain unchanged compared to direct submission.

The remaining contents regarding the evaluation of the validity of the Bidding Documents (BDS) shall be maintained as in the direct submission method.



CHAPTER IX: INSTRUCTIONS FOR BID SUBMISSION THROUGH BSR SYSTEM

I. INSTRUCTIONS ON HOW TO SUBMIT BIDS VIA BSR SYSTEM

BSR's invitation for bids is posted at: <https://bsr.com.vn/vi/moi-thau>

Bidders complete purchase of Bidding Documents and contact BSR's bid document sales personnel to receive the documents via email.

If the Bidder cannot submit the Bid directly or by mail by the deadline, the Bidder may submit bids electronically via BSR's system at: <https://dauthau.bsr.com.vn>

Requirements for preparing and submitting electronic bids:

a. Preparation Steps for Electronic Bid Submission

Prepare bid documents according to the rules and adjustments in Appendix 02: Criteria for Validity Evaluation of Electronic Bids;

Convert all bid contents into *pdf format*, set security to read-only or apply electronic signature;

Separate bid proposal documents into individual *.pdf files*, numbered and named as follows:

- ✓ Bid submission letter and price schedule (*);
- ✓ Discount letter (if any) (**);
- ✓ Bid security;
- ✓ Documents proving eligibility;
- ✓ Experience and capability documents;
- ✓ Technical proposal;
- ✓ Other related documents.

Note:

- For single-stage two-envelope bids, (*) and (**) are financial proposal files, compressed and password-protected separately, password only provided to the evaluation team at the financial proposal opening stage.
- Compress the files into a *.rar* or *.zip* archive, password protect the archive; password is given to the evaluation team only at bid opening. Strong password recommended (at least 8 characters including uppercase, lowercase, numbers, special characters).

Important:



- Bidder is responsible for safeguarding the password and only discloses it at bid opening; failure to provide password at bid opening leads to bid being considered late.
- File name format: BidderName-Bid-BSROrderNumber-ProcurementDeptCode (e.g., “ABCCompany-Bid-DH270-21-1980-TMDV”).

b. Steps to Submit Bid via System

Notify BSR’s bid document sales personnel at least 48 working hours before bid closing about intent to submit electronically;

Sales personnel will create bidder account credentials (username, password) for submission at <https://dauthau.bsr.com.vn>;

Bidder logs in via provided link, uploads files, and after successful submission, the system automatically sends a confirmation email;

Notes:

- Bidder is responsible for the confidentiality of login credentials and may change the password;
- Bidder must safeguard the archive password and disclose it only at bid opening; failure to provide password means bid is late.

II. INSTRUCTIONS REGARDING BID SECURITY

Bidders may choose one of three forms of bid security when submitting electronically:

1. Electronic bank guarantee;
2. Bank transfer to BSR’s account;
3. Bank guarantee issued by a bank;

Content, value, and validity period of the bid security must comply with the Bidding Documents.

For electronic bank guarantee, before issuing the official guarantee, bidders should request the bank to send a draft for BSR to review the guarantee’s conditions ensuring smooth claim procedures.

Electronic bank guarantees must be sent to one of the designated banks listed below:

No.	Bank	SWIFT Code
1	Vietcombank – Quang Ngai Branch	BFTVVNVX027
2	Vietinbank – Quang Ngai Branch	ICBVVNVX520



3	BIDV – Quang Ngai Branch	BIDVVNVX
4	PVcomBank – Quang Ngai Branch	WBVNVNVX
5	Techcombank - Quang Ngai Branch	VTCB VNVX
6	Ngân hàng Liên Việt - Quang Ngai Branch	LVBKVNVX

- **Beneficiary Name:** Petrovietnam Refining and Petrochemical Corporation
- **Address:** 208 Hung Vuong Boulevard, Nghia Lo Ward, Quang Ngai City.
- **Bidders should instruct their bank to include the following information for easy tracking:** "[Bidder's Name] + bid security for package + [order number] + BSR + purchasing department code."
- **Example:** "ABC Company - bid security for package - ĐH270-21-1980-BSR-TMDV.

Note: To avoid delays in notifying BSR, bidders are encouraged to print the bank's guarantee notification and attach it to their bid documents (if possible).

- For bid security by bank transfer, attach the transfer receipt/payment order to the bid documents and ensure funds are credited to BSR's account before bid closing. The transfer description must follow the same format as the electronic guarantee.
- For bid security by bank guarantee, attach a copy to the bid documents and send the original to the bid submission address as specified in the Bidding Documents, ensuring BSR receives the original before bid closing.

