



Announcement of PTT Public Company Limited

Registration Number 0107544000108

PR No. 1120018719

Subject: Bid for Hiring to design and implement Virtual Dynamic Plant Predictor (V-sense) for PTT Rayong Gas Separation Plant

As PTT Public Company Limited intends to invite written Bid for **Hiring to design and implement Virtual Dynamic Plant Predictor (V-sense) for PTT Rayong Gas Separation Plant**

Place of delivery at The contractor shall deliver the job at the PTT Rayong Gas Separation Plant, 555 Sukhumvit Road, Mab Ta Phut, Muang, Rayong 21150.

Within 350 days (counting continuous everyday), Starting from the date after the contractor has acknowledged a Letter of Intent from PTT. Deliver the job to PTT 5 times

according to the conditions/detail/drawing and the documentation attached to the announcement, which shall be considered as part of this Instruction to Bid, as follows:

- |  |        |
|--|--------|
| - Terms of Reference                       | 1 Set  |
| - Form of Power of Attorney                | 1 Page |
| - Form of Bank Guarantee                   | 1 Page |
| - PTT Supplier Sustainable Code of Conduct | 1 Set  |

Pre-Bid Conference for clarification shall be held at VDO Conference Microsoft Team on 25 May 2023 Registration for the Conference shall be during 14:00 to 14:15 and conference shall commence at 14:15 hours. (Speaker MR. KAMOLNUT HANGPAI Employee ID No. 600053 Tel. 038676233)

The bidder who does not attend the pre-bid conference shall be ineligible to tender.

Submission of Bid Price, evidence and technical documents shall be on 07 June 2023 at 09:00 - 15:00 hour, as follows:

- Procurement section , GSP Procurement & Inventory Management, Division. Gas Separation Plant Rayong, 555 Sukhumvit Road, Mabtapud, Muang, Rayong 21150

Person who is interested may purchase Bid Documents at the price of Baht - per set (Vat included) from 18 May 2023 to 24 May 2023 during 09:00 - 16:00 hours ( NOTE : ( To reduce the spread of COVID-19, The vendor who interested this bid, please provide the "Memorandum of Association" and "Email who intend the bid clarification" via Email : prangchanok.p@pttplc.com, kunsiwimol\_b@pttplc.com and specific "1120018719" on Email subject within date & time as above ) ) as follows:



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- Procurement section , GSP Procurement & Inventory Management, Division. Gas Separation Plant Rayong, 555 Sukhumvit Road, Mabtapud, Muang, Rayong 21150  
( MISS PRANGCHANOK PALAKAWONG Tel. 038-676178 )

Announced on 18 May 2023

( MR. KRITSARA KHONGNUAL )

Procurement Section Head

Procurement section



Subject : Hiring to design and implement Virtual Dynamic Plant Predictor (V-sense) for PTT Rayong Gas Separation Plant					
By : MR. KAMOLNUT HANGPAI		Create date : 15 May 2023 Rev.2 SAP PR No.1120018719		Division/Department : Process Engineering and Optimization Division	
Related standard systems					
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Quality	Safety	Health	Environment	Lab	Energy

### Terms Of Reference

PTT Public Company Limited (hereinafter called “PTT”) would be interested to hire to design and implement Virtual Dynamic Plant Predictor (V-SENSE) for PTT Rayong Gas Separation Plant as following

#### 1. Objective

The Gas Separation Plant of PTT Public Company Limited (hereinafter called “PTTGSP”) wishes to design and implement Virtual Dynamic Plant Predictor (V-sense). This system presents Inbound and Outbound Dynamic Digital Twin Simulation & Management for More effective value chain Production Planning & Scheduling.

#### 2. Bidder Qualifications

2.1 Bidder shall carry out the business involving the products to be offered.

2.2 Bidder must not have the following characteristics as prohibited by the Blacklist:

2.2.1 Being a person or juristic person who has been convicted by the National Anti-Corruption Commission of Thailand (NACC), such a person shall no longer be considered to possess the prohibited characteristics described in this clause if they receive a final verdict of not guilty; or

2.2.2 Being a person or juristic person who is a party in any dispute or lawsuit against PTT that resulted in criminal penalties, excluding petty offenses.

The person or juristic person in the first paragraph shall be released from the prohibited characteristics (Blacklist) in the following cases:

2.2.2.1 A case where PTT is a defendant and a final judgment has been reached;

2.2.2.2 A case where PTT is the injured party and a final judgment has been reached indicating that the person did not commit the offense as charged;

2.2.2.3 A case where PTT is the injured party and a final judgment has been reached indicating that the person did commit the offense as charged, but the person has already served their punishment, completed their parole period, or has been awaiting sentence for at least three years; and

2.2.2.4 A criminal case that has been resolved through the withdrawal of the complaint or lawsuit, or has been disposed from the directory.



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In accordance with Clauses 2.2.2.1 to 2.2.2.4, if the counterparty is a juristic person, the directors of the limited company, partners with unlimited liability, or authorized directors of the public company limited, shall be subject to and exempt from the prohibited criteria (Blacklist) in the same manner as the juristic person.

In the case that Clause 2.2.2.3 applies and a final judgment is reached determining that the juristic person has committed an offense as charged, but it appears that the directors of the limited company, partners with unlimited liability, or authorized directors of the public company limited did not participate in the commission of the offense, and such directors or partners have resigned from the juristic person, then such directors or partners shall be released from the prohibited characteristics (Blacklist).

In the event that a final judgment imposes different period of punishment or parole on the juristic person, the directors of the limited company, partners with unlimited liability, or the authorized directors of the public company, the longest period of punishment or parole will be used to determine release from the prohibited characteristics.

2.2.3 Being a person or juristic person whose contract has been terminated by PTT due to committing the corrupted act against PTT;

2.2.4 Being a person or juristic person in the process of being ordered bankrupt by the court, or a person received a receivership order from the court in the context of a bankruptcy case, either temporarily or absolutely, and for which a final verdict has not been issued to resolve the case, cancel the bankruptcy, or discharge the bankruptcy, regardless of whether the court has approved a composition in bankruptcy for such person; and

2.2.5 Being a person or juristic person who has been in the Thailand designated list announced by the Anti-Money Laundering Office under the law of Counter-Terrorism and Proliferation of Weapon of Mass Destruction Financing Act. If the entity referred to in Clause 2.2 is a juristic person, the directors of the limited company, partners with unlimited liability, or the authorized directors of the public limited company, shall be included.

2.3 Bidder shall not be a person with a previous record of abandoning any work undertaken as declared by PTT and The Comptroller General's Department.

2.4 Bidder shall be the person or persons who purchased/received the Bid Documents and may not assign to other persons the right to submit the Bid.



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In the case of the Bidder being a partnership/ consortium/ joint venture, the mentioned Purchaser/ Receiver must be a party of the said partnership/ consortium/ joint venture. Hence, the Bidder in the form of partnership/ consortium/ joint venture shall be obligated as a joint debtor to PTT.

2.5 On the day of announcement/bid invitation, should not have any joint interest with other bidders or is not a person who will cause obstruction for a fair auction.

2.6 The Bidders shall have Registered capital not less than 10 Million Baht.

2.7 The Bidders, including the parent, the daughter and the branch company, shall have experienced in implementing as the main contributor for project and provide support services both international and local; and not through implementation partners.

2.8 The Bidders, including the parent, the daughter, the branch company, and authorized dealer shall have the experienced on design and implement the Inbound and Outbound Dynamic Digital Twin Simulation & Management system which related solution techniques, applied for oil and gas industries with the minimum project value 200,000 USD, at least 3 projects within the past five (5) years. The evidences, i.e. project value, project name and detailed, deliverables, outcome, purchase order and so on, shall be provided to PTT.

2.9 The Bidders, including the parent, the daughter, the branch company, and authorized dealer shall provide PROJECT execution team who have relevant knowledge and experience to the PROJECT. The list of all the PROJECT team including roles and responsibilities, resume (experience) and expertise must be submitted. The PROJECT team shall have at least experience as follows;

2.9.1 PROJECT manager who shall have the experienced relating to The PROJECT scope including digital transformation project management for at least 5 years.

2.9.2 PROJECT subject matter expert member(s) who shall have the experienced relating to The PROJECT scope implementation and commissioning for at least 5 years.

2.9.3 PROJECT IT & Software senior member(s) who shall have the experienced of install, integrate, troubleshooting etc. which relating to The PROJECT scope for at least 5 years.

2.9.4 PROJECT local member(s) who shall have the ability to speak natively of THAI language and able to reach to Customer



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site as requested. Note: PTT may request a change in the PROJECT manager and/or its members at any time and such request shall not be unreasonable withheld or rejected. Any proposed change in the PROJECT team by the successful Bidder requires prior written consent from PTT. Notify period between both parties shall be 15 days prior to the effective date.

2.10 The Bidders shall provide all software Licensing detailed including Licensing cost (If any) for 3 years. Note: After project completed

### 3. Bid Evidence

Bid shall be enclosed in sealed envelope consisting of separate envelopes as follows:

#### (3.1) Envelope of bid qualification

(3.1.1) In case of Bid by an individual business owner, there shall be enclosed a copy of a value added tax certificate and a copy of a commerce registration certificate, certified by the owner or manager and affixed with the official seal (if any).

(3.1.2) In case of Bid by a company or partnership registered in Thailand, there shall be enclosed a certificate of incorporation issued by the Ministry of Commerce which is not more than 6 (six) months recent as from the date after the day of issuance up to the date of submitting Bid document. Unless it is an original, such certificate shall be affixed with a signature of the authorized person and the official seal of the company or partnership in authentication thereof.

(3.1.3) In case of Bid by a company or partnership registered in a foreign country, Bidder shall enjoy no immunity or protection allowing non-submission to Thai court, unless such privileges and immunities have been waived by the instruction of Bidder's government..

(3.1.4) In the case where the authorized person of an individual business owner, company or partnership ("Entity") does not sign the bid documents by himself and appoints a person to sign such documents on behalf of the Entity, such entity shall have to enclose a valid power of attorney which clearly and correctly states such authorization. The bidder may also have another person submit the said bid documents to PTT. However, the bidder has to certify that he will be responsible to PTT for any acts of such person in relation to submitting of the bid documents as if it is done on the bidder's behalf.

(3.1.5) Certified copy of Thai ID./passport of the authorized signatory or copy of Thai ID./passport of grantee and grantor attached to a power of attorney.

(3.1.6) In the case where registration of value added tax has been effected, there shall be enclosed a copy of VAT



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Certificate (Form Bhor. Por. 20).

(3.1.7) In case of Bid by a company or partnership registered in a foreign country, there shall be enclosed

1) Certificate of Incorporation and/or Memorandum of Association and/or any other documents likewise issued by the competent agency/organization, which enables to identify the authorized person including Bidder's registered objectives that accord with the procurement work.

2) Articles of Associations (If any)

3) Power of Attorney) (If any)

4) Certificate of specimen signature or other documents that present signature.(If any)

(3.1.7.1) The list of documents in (3.1.7) 1) - 3) must be notarized by Notary Public and legalized by Thai Embassy or Thai consulate which has the jurisdiction, not more than 1 year recent as from the date after the day of notarization and legalization up to the date of submitting Bid document.

(3.2) Envelope of technical documents :

3.2.1 Pre-qualification documents.

3.2.1.1 Proof of Registered Capital.

3.2.1.2 Proof of experienced on design and implement Enterprise Performance Management.

3.2.1.3 CVs of the Project execution team members.

3.2.1.4 Proposed Licensing Details without Cost.

3.2.2 Full detailed Technical Proposal with The Table of Compliance and Guarantee Figures.

3.2.3 Project Scope and Scope of Supply as stated.

3.2.4 Total Manpower and Manpower allocation plan throughout the project.

3.2.5 System Design Architecture and all interfacing work.

3.2.6 Documentation Deliverables and Application Training.

3.2.7 Software and technology description, utilization, and training methodology.

3.2.8 Software Licensing Details.



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3.2.9 Project Schedule and Project Execution Strategy.

3.2.10 Project Team and Curriculum Vitae (CV).

3.2.11 After sales local support and services details.

3.2.12 Warranty and Guaranteed scope as stated.

(3.3) Envelope of proposal :

3.3.1 Quotation

3.3.2 Breakdown cost

3.3.2.1 Software license cost

3.3.2.2 Hardware cost

3.3.2.3 Engineering services cost

3.3.2.4 Training cost

3.3.2.5 Other expenses cost

#### 4. Bid Submission

- 4.1 Bidder shall fill the unit price or price of each item as well as the total price in the original Bid form issued by PTT or the quotation form of Bidder which shall have the contents in accordance with the Bid form issued by PTT, which shall include, but not be limited to, date of quotation, name of Bidder, subject of quotation, unit price or price of each item and the total price, and the wordings stating that Bidder shall comply with the terms and conditions of PTT. The Bidding Price shall exclude value added tax, be in THB , cover all expenditures incurred until delivery. The amount in number and word shall clearly be stated. Any deletion or correction shall be initialed by the authorized person and affixed with an official seal (If any). Where the unit price or price of each item is inconsistent with the total price, or there is discrepancy between the “number” and “word”, then, the provisions of the Civil and Commercial Code shall vern such inconsistency or discrepancy. Bid shall be valid for a period as determined by PTT. Unless otherwise determined by PTT, Bid shall be valid for a period of not less than 90 days as from date after the day of the Bid submission or according to conditions determined by PTT and upon the Bidder irrevocably submitting bid documents according to Clause 3 and may not be withdrawn.





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4.2 Upon the expiry of submitting the proposal and bidding, the submission of proposal and bidding to PTT is forbidden.

4.3 PTT procurement committee will check the qualifications of the bidder, (1) if the bidder has a joint benefit with other bidders. In the event, the bidders have a joint benefit with other bidders, they shall be disqualified from the procurement. (2) PTT shall verify bidder's qualification by using reliable sources in accordance with international standards based on transparency and fairness. In the event that the bidder fall into any prohibited characteristics (Blacklist) as per clause 2.2, the procurement committee reserves the right to reject the proposal from those bidders.

## 5. Bid Security

Bidder is not required to place Bid Security.

## 6. Bid Evaluation Criteria

6.1 For the consideration of this bidding submitting, PTT will consider by using the rules on price and performance

6.2 PTT will consider by giving points to each topic and the weight. The total weight shall be equivalent to the percentage as following;

(1) 1. Performance Evaluation 75 percent

(2) 2. Price Evaluation 25 percent

Topic of Consideration	Weight	Criteria for Consideration
1. 1. Performance Evaluation	75	The evaluation criteria detail is in attachment.
2. 2. Price Evaluation	25	The evaluation criteria detail is in attachment.

6.3 In the event the bidder does not qualify as per clause 2, the evidences submitted are incorrect or incomplete as per clause 3 or the price is incorrect as per clause 4, the PTT procurement committee shall not consider the



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bidder unless the bidder's specification or the purchased products 's price is incomplete or the details are different from the company's conditions which is not an essential matter and does not cause disadvantage to the other bidders or there is a slight error, the PTT procurement company shall consider to ease the disqualification of that bidder

6.4 PTT reserves the right to not to ease the consideration of the following bidders;

- (1) Does not have the name in the list of the people buying or receiving auction documents from PTT
- (2) Has proposed details that differ from the company's condition which are essential or are a disadvantage to other bidders.

6.5 In the event, the bidders have wrongfully proposed for the bidding such as submitting false documents or has appointed an ordinary person or legal entity in his behalf, the company shall revoke the auction and punish the bidder, no matter if the bidder is been chosen or not.

In the event, the bidder has proposed a low price, and it can be determined that the work cannot be operated as per the scope of work, PTT procurement committee will let the bidder submit the clarification together with the evidences to ensure that the work will be complete. If the clarification is unsound, PTT will reject the proposal or the price of the bidder. The bidder shall not claim for damages or expenses from PTT. PTT's discretion shall be final

6.6 Prior to affixing the signature in the agreement, PTT may revoke the auction if it appears the bidder who won the bidding or who is chosen has joint benefits, has advantage with other bidders, is an obstruction for the competition, mutually represent other bidder or bid officer or it appears that the bidder is wrongfully proposing the bid.

## 7. Contract and Performance Security

7.1 Successful Bidder chosen by PTT shall contact PTT

- (1) In case of the procurement which is not over 10,000,000 (Ten million) Baht or is not required to proceed under PTT conditions to be done in a form of a contract, the Successful Bidder which PTT agrees to perform Purchase shall contact PTT to sign a Purchase Order within the period specified by PTT



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(2) In case of the procurement which is above 10,000,000 (Ten million) Baht or is required to proceed under PTT conditions to be done in a form of a contract, successful bidder chosen by PTT shall contact PTT to sign a letter of intent and /or contract (as the case may be) within the period specified by PTT

In the event of non-compliance with the said clause 7.1 (1) or 7.1 (2), PTT shall confiscate the security (if any) If PTT needs to acquire substitution procurement from another person at a higher price, Bidder shall be responsible to pay PTT the difference within 30 days from the day after the date of notice thereof by PTT. PTT also reserve the right to claim any other damages arising therefore.

- 7.2 In execution of a Contract or Work Order, Successful Bidder is required to place the Contractual Guarantee. In the case where the Contractual Guarantee is required and unless otherwise stipulated in the details attached to Work Order, Successful Bidder chosen by PTT (hereinafter called "Contractor") shall submit to PTT, cash or Bank Guarantee or Thai government Bond or PTT Bond or PTT debenture 5percent of the price of the Contract or Work Order (the fraction remaining shall be round up) to ensure the performance of its obligations under Contract/ Work Order. The Contractual Guarantee shall be returned when Contractor has been discharged from all obligations under the Contract/ Work Order.
- 7.3 Contractor shall be responsible to pay revenue stamp required for the Contract or Work Order at the rate stipulated in the Thai Revenue Code.
- 7.4 In case where Successful Bidder fails to enter into the Contract within the period of time specified by PTT or the Contractor fails to comply with the terms or conditions under the contract without reasonable cause, such person, upon PTT's consideration, will be regarded as abandoner and his name will be removed from the Approved Vendor List of PTT.

## 8. Delivery

- 8.1 The contractor shall deliver the job to the PTT 5 times within 350 days (counting continuous everyday), Starting from the date after the contractor has acknowledged a Service Order or Letter of Intent from PTT.
- 8.2 The delivery term is DDP at the PTT Rayong Gas Separation Plant, 555 Sukhumvit Road, Mab Ta Phut, Muang, Rayong 21150 AS PER INCOTERMS 2010



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## 9. Place of delivery

The contractor shall deliver the job at the PTT Rayong Gas Separation Plant, 555 Sukhumvit Road, Mab Ta Phut, Muang, Rayong 21150. AS PER INCOTERMS 2010

## 10. Payment

### 10.1 PTT shall make the payment

5 times to the contractor on the thirtieth (30th) days after PTT's Acceptance Committee has accepted the service successfully

#### 1st Payment :

PTT shall pay 20% of the Contract price upon Completion of kick off meeting with PTT and Contactor's submission of System Design Architecture.

#### 2nd Payment :

PTT shall pay 20% of the Contract price upon Contactor's submission of Functional Design System (FDS) approval certification.

#### 3rd Payment :

PTT shall pay 20% of the Contract price upon Contactor's submission of Detailed design system (DDS)

#### 4th Payment :

PTT shall pay 30% of the Contract price upon Contactor's submission of Model Acceptance Test (MAT) and Site Acceptance Test (SAT) approval certification.

#### 5th Payment :

PTT shall pay 10% of the Contract price upon Contactor's submission of Performance Test Run (PTR) approval certification, Certification of training completion, and Certification of All final document submission.

### 10.2 The payment shall be made by bank transfer to the account as designated by contractor.

### 10.3 Payment shall be subject to deduction of penalty and/or amount disputed.

## 11. Penalty



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If contractor fails to deliver work within the time specified, contractor shall be liable to pay a penalty at the rate of 0.1% (zero point one percent) of undelivered work per day of delay from the due date for delivery up to the date PTT accepts such work, provided, however, that if the undelivered work has to be used in combination with or as an essential component for the work already accepted by PTT, the penalty shall be calculated in full on the cost of the combination. However, the maximum penalty shall not exceed 10% of the Contract price.

## 12. Liability

- Liability Notwithstanding the foregoing, CONTRACTOR's maximum liability to PTT (including without limitation liability resulting from breach of contract, tort, negligence, breach of statutory duty, misrepresentation or otherwise for any loss, damage, costs or expenses, or injury ("Damages") sustained by PTT and arising out of or in connection with this Contract) shall respond to all damages but not exceed the total contract value.

Nothing in this paragraph shall exclude or limit the Contractor's liability to PTT for fraud or fraudulent concealment, gross negligence or willful misconduct.

- Consequential Damages Notwithstanding any other provision in this Contract or elsewhere to the contrary, Contractor shall not be liable for any special, incidental, indirect or consequential loss or damage of any nature, arising at any time, from any cause whatsoever, including loss of revenue or profit.

## 13. Governing Law

The Contract shall be governed by and interpreted in accordance with the laws of the Kingdom of Thailand.

## 14. Warranty and Guarantee

14.1 The contractor shall warrant its work products for 12 months following the date the PTT's committee has accepted the service successfully in accordance with the conditions set by the PTT.

14.2 The contractor shall deliver the warranty certificate to the PTT with the supplies/ equipment. (if any)

## 15. Advance Payment

No Advance Payment



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#### 16. PTT Supplier Sustainable Code of Conduct) (When the contract having the value from 2 million Baht )

Successful Bidder who agrees to purchase/work/rent , shall accept and conform with the “PTT Supplier Sustainable Code of Conduct” PTT reserves the right to inspect if Bidder is in compliance. With the PTT Code of Conduct.

Vendors who have a plan to run business with PTT must act along PTT regulations and conditions, sustainable practice for PTT groups’ vendors, including:

16.1 Vendors must run firms strictly along involved rules which covered business ethics, social responsibility, security and environment, for example, labor protection law, safety law, and environmental law. Moreover, vendors must run business with transparency, honesty and must not violate the intellectual property rights.

16.2 Vendors must have qualifications related to ESG Interception Criteria including:

(1) Vendors must not be tolerating, permitting, or engaging in bribery, corruption, or unethical practices whether in dealings with public officials or individuals in the private sector.

(2) Vendors must have involved work permits along the defined laws.

(3) Vendors must not be judged to false in term of financial, environment, security and labor court. Furthermore, vendors must not be found in list of personality, juristic person and company that run business against Thai laws within 3 years before launching the auctions.

(4) Vendors must have firms’ policies to will not hire youth labor that age below 15 years old.

(5) Vendors must have enterprises’ policies to pay labor’s compensation at least the defined legal minimum wage. In addition, vendors must not force employees to work more than the legal defined hours.

(6) Vendors must have SSHE management system in working place along the defined law and concern about employee’s safety.

(7) Vendors must have management system of working area and also environmental liability, for instance, the leaking of dangerous substance in soil and underground water.

#### 17. Contractor’s performance evaluation

17.1 PTT shall evaluate vendors after the completion of the delivery of products/services in each delivery period, based on their work performance.



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- 17.2 PTT reserves the right to use the vendor evaluation's result in order to determine the bidder's qualification for the next PTT's bidding.
- 17.3 In the case of any vendors in the PTT Approved Vendor List( PTT AVL) is given graded "D" from the vendor evaluation under a specific type of work, PTT reserves the right to delist such vendors from type of work hereunder. The vendors shall not be permitted to register with PTT AVL under such type of work for at least 3 years from the delisted date.
- 17.4 If the vendor has any queries with regards to the vendor evaluation, the vendor shall submit the request in writing to the procurement unit of PTT for the explanation of such evaluation. The copy of the purchase order/contract and work result must be attached to the request. The vendor can access the system *pttvm.pttplc.com* for the results of vendor evaluation

## 18. Personal Data Protection

Both parties agree to comply with the Thai Personal Data Protection Act and all applicable personal data protection laws including any subsequent amendments, other relevant rules and regulations of the jurisdiction where such party is mandated, in respect of collection, use and/or disclosure of any personal information. In this regard, each party represents and warrants that it has right and authority to disclose any personal information of any third party to the other party and has obtained all necessary consents from the relevant third party to disclose such personal information. Any collection, use and disclosure of personal information hereunder shall be conducted to the extent it is necessarily required for and in compliance with such law(s).

In the event that any performance hereunder of either party is considered to be a data controller or a data processor under Thai Personal Data Protection Act including any amendments, the parties agree to enter into a Data Processing Agreement, Data Sharing Agreement or any other similar documentation to ensure adequate level of data protection as required by law and such document shall be incorporated hereinto.



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Privacy Notice

<https://pttpdpa.pttplc.com/Privacy/106107>

## 19. Scope of Work

### 19.1 Abstract

PTT is in the business of natural gas supply, wholesale, and retail distribution as well as distribution of Gas Separation Plant. GSP is a major operator of Thailand's Gas separation business designed to separate various hydrocarbon components of natural gas, to adding value to gas from the Gulf of Thailand GSP, the natural gas supply and wholesale businesses decide sales price structures for power-sector customers, while the administration of natural gas pipeline transmission derives given State-specified rates of return. As for the gas distribution business, aimed for industrial customers, its sales prices vary with the world fuel oil price to enable competition with alternative fuels., As for the products of GSPs, which are sold to petrochemical industry, is to be a function of petrochemical and petroleum product prices, which in turn vary with the world market.





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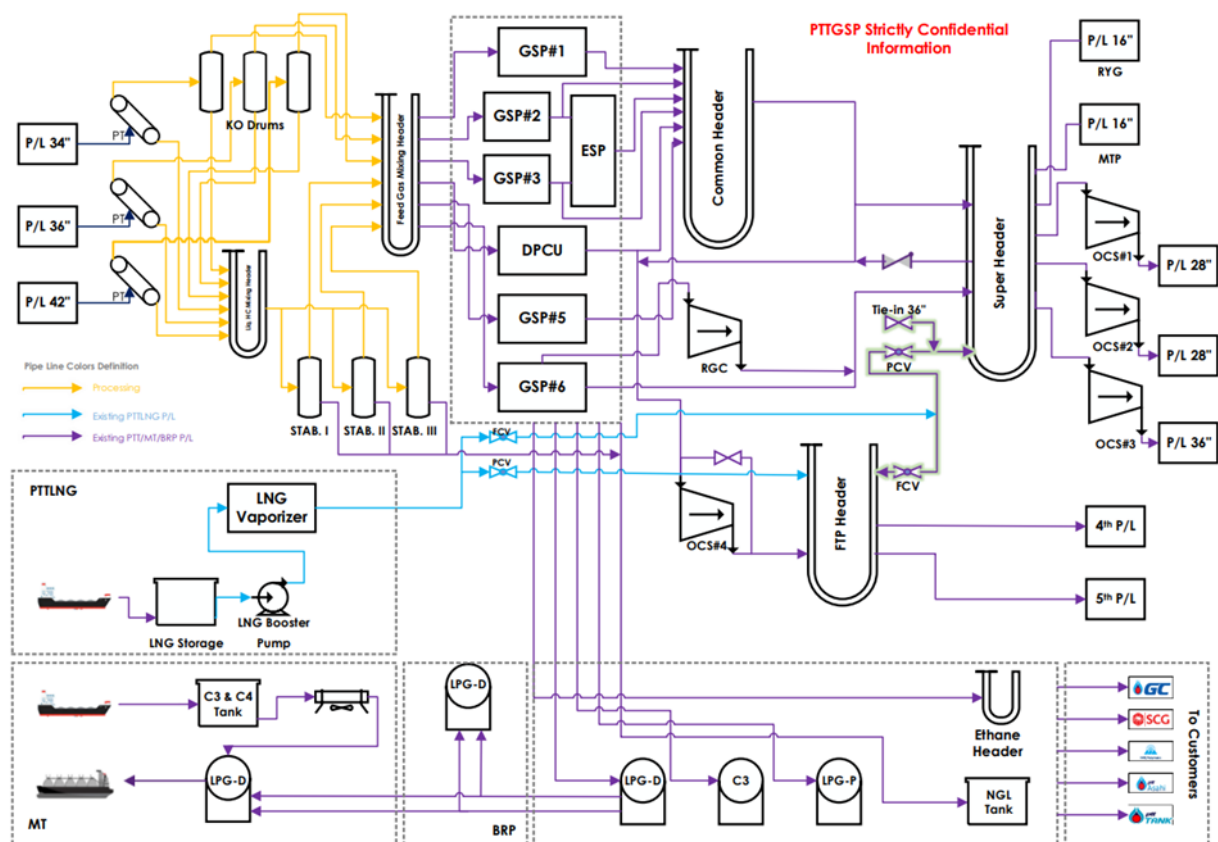
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Division

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## 19.2 OBJECTIVES

GSP desires to find Bidders to implement oil & gas movement tracking and it needs to have the capability to link with the existing production accounting system in order to achieve the following objectives.

- Accurate process unit yield and inventory accounting
- Optimal inventory level
- Effective material loss management



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- Optimal planning and scheduling

### 19.3 SCOPE OF WORK

The scope of work is to provide and implement oil & gas movement tracking and transfer the data to the production accounting system and comply with the GSP IT Infrastructure Transformation Project within the given timeline and deliverables. The scope of work is divided into three areas.

Site name	No of Tank	Categories
MT	15 tanks/spheres	Jetty import, jetty export, pipeline import, pipeline export
BRP	4 spheres	Pipeline receipt, truck loading, rail loading, tank to tank
GSP	14 tank/spheres	Pipeline receipt (many), Pipeline export (many), truck loading, tank to tank, jetty receipt, unit rundown
Total	33 tanks	

### 19.4 Functionality – Oil & Gas Movement Tracking

The oil & gas movement tracking manages all movement/transfer data and tank status information in order to:

- Manage movements (planned, approved, active, closed, rejected, validated)
- Analyze and display tank data movements in graphical models.



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- Automatically calculate tank quantity (tank level and storage)
- Check missing information and movement.

The proposed solution must be able to serve the following objectives:

- Reduce losses from tank spills and lost suction.
- Provide visibility to users about the upcoming events.
- Reduce stock levels by increasing inventory visibility across all the business entities.
- Eliminate data re-entry and errors by collecting data from various systems, displaying data in a common user interface and storing data as a common record for re-use.
- Manage all movement information by oil & gas movement tracking instead of using manually managed spreadsheets.

The proposed solution must include the following major capabilities and functionalities:

#### 19.4.1 Collecting the Input data

The proposed solution must include the capability to the following sources of input data:

- Cumulative flow meter (batch, daily), flow rate, temperature, and pressure data from the Yokogawa DCS or any PLC stored in a GSP historian database or (GSP data lake).
- User-defined sensors and level indicators accuracy and tolerance such as Tank Gauging System.
- Movement starts and end times are automatically captured by the proposed solution.



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- Manual data entry or any ad-hoc or non-electronically captured data via Excel.

#### 19.4.2 Tank Inventory System for Calculation and Modelling

- Tank Inventory System stores strapping tables, performs ASTM/API table volume and density corrections, estimates flow rate from level changes, continuously updates Time-to-Completion and Time-to-Limits, provides level and tank operational states and alarms, generates standard tank detail, pool, midnight inventory data.
- Tank Inventory System has an extensive human interface that provides information to the operator to safely operate the tank.
- Tank Inventory System collects all relevant tank information from the Automatic Tank Gauging system(s) for level and temperature and, where available, qualities from LIMS.
- The human interface is available as both on a local station and through a web browser.
- Tank Inventory System complies with the following standards:
  - ASTM D1250-80 and ASTM D1250-04
  - ASTM D4311-04 (Asphalts)
  - ASTM D1550-05 (Butadiene)
  - ASTM D1555-04 (Aromatic hydrocarbons)
  - ISO 11223 (hydrostatic tank gauging)
  - TP27 (LPG tables)
  - DIN51757
  - JIS K 2249-1995
  - JIS K 2240-2007 (LPG)



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#### 19.4.3 Movement management and inventory tracking

- Capture all the order movement management handles all standard receipt, transfer, rundown, and shipment orders (for any tank/ unit/transport sources and destinations), as well as line displacement and other operations.
- Capture all the order movement management lists all active and future orders and movements to the operations staff and display the next needed actions.
- Capture the order movement management monitors at all times the status of each movement and at the end of each movement data can be requested to provide accurate movement information to oil and gas accounting.
- Capture function to visualize the scheduler and the operator an overview of which movements are scheduled and where there are schedule conflicts. Both the conflicts of equipment sharing and equipment utilization (quantity exceeding tank capacity).
- Gather tank information, read current values from the real time database, perform the required calculations, and update the inventory database with the results.
- Have a search functionality that can search and filter movements for specified time period, movement type or specified source/ destination.
- Support movement end to end lifecycle operations from planning to actual to financial closure.
- Provide real time movement monitoring and quantity calculations.
- The order Movement Management will archive all relevant data for each single movement. This data contains as below:
  - Moved quantity (volume or mass)
  - Start-time / End-time
  - Source / Destination
  - Product
  - Etc.



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Division

Related standard systems



Quality



Safety



Health



Environment



Lab



Energy

#### 19.4.4 Reporting

The Bidders must provide the list of all standard reports and dashboards inbuilt and offered within the proposed solution.

#### 19.5 Integration Requirements

Require Bidders to site survey and support to design the system solution to meet GSP requirement.

Data shall connect with all areas (GSP, MT, BRP).

#### 19.6 Hardware and Software Requirements

Provide all software and hardware required for all systems. A PC-BASED system (Rack) shall be used in this project. The OS and hardware that The Bidders provide must be support and warranty at least 3 years. The minimum specification of PC shall be a top tier workstation type and the specification shall be declared in the technical solution proposed by The Bidders.

Bidders shall propose the minimum computer specification required (with the latest version) to run all related models.

Computer specification should be approved by PTTGSP.

Remark:

- CPU top tier new version or higher
- RAM 256 GB DDR4-bus 3200 or higher
- Disk space enough for future with SSD SATA Gen 4th or higher
- Warranty at least 3 years
- The hardware must be get approval from PTT before installation

#### 19.7 Provide after sale-service and quick response in case of the system failure or instability or any defect happening after



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acceptance test. The response time of the CONTRACTOR shall not exceed three (3) working days and any services that occurred are free-of-charge to PTTGSP during warranty period (Refer to Terms of warranty). The Bidders shall specify details of services and warranty in the proposal documents.

19.8 Provide technology transfer and training for PTTGSP staff to be capable of using, modifying and maintaining the system as a system administrator (Engineering work) and as an advance user. The Bidders shall also provide the additional types of optional training course in the proposal to ensure that PTTGSP personnel can handle and maintain the system.

19.9 Progression report shall be submitted to PTTGSP at least every 2 weeks during the project schedule.

19.10 Perform commissioning, testing and performance tuning including troubleshooting and necessary activity as PTTGSP requested of the total system at PTTGSP site.

## 20. Technical Correspondence

ATTENTION : Kamolnut Hangpai

TELEPHONE No. : 089-6047695

Email. : kamolnut.h@pttplc.com

## 21. Other Requirements

Responsibility, in any case, the contractor cannot claim they do not know the facts or information as mentioned above of their benefit.

1. Transport of the materials, chemicals, machinery, equipment and various substances, including the transport vehicles need to consider conservation of the environment without causing overflow, leak, littering along the way or releasing of a substance, emissions and toxic elements exceeding the standards established by the law.

2. The delivered products to be imported to use in the Rayong gas separation plant shall not have an element of asbestos or ozone –destroying substance of the atmosphere as refers to the notice of the EPA, the Clean Air Act, and Section 602.



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3. Collection, transport, recovery and disposal of waste from Rayong gas separation plant activities must be comply with procedure QSHEP-GSP-19-022 "Waste Control generated by processing, maintenance and office" through the ISO 14001 "Operational Control"

4. The delivered product for using in the Rayong gas separation plant that is involved with the significant use of energy, e.g. the compressors of the air conditioning or other equipment shall be certified as energy saving from the manufacturer. They shall have a certificate or a certification in accordance with the industrial standards or the equivalent. In the case there is no such the certification, the delivered product shall be assessed after the installation.

5. The deliverer/subcontractor shall promote environmental responsibility and collaborate with PTT on the Energy Saving

6. In hiring involved with the system of managing energy, it has to make a report summarizing the evaluation of the use of energy delivered simultaneously to complement the job inspection.

7. So as the procurement of the goods shall comply with the Thai Labor Standards (TLS) 8001, the PTT reserves the right to consider selecting the traders in the group certified by the TLS 8001 or the traders who can show the determination in the operation according to the TLS 8001 with the guidelines in showing the following determination.

7.1 The deliverer/subcontractor shall not support the use of forced labor in all forms.

7.2 The deliverer/subcontractor shall pay the working wages and compensation a minimum as stipulated by the law.

7.3 The deliverer/subcontractor shall not do or promote discrimination when there is hiring, paying the wages and fringe benefits due to the difference on ethnicity, gender, religion, pregnancy, marriage, union membership and no prejudice due to disability or HIV positivity.

7.4 The deliverer/subcontractor shall not do or promote physical or mental punishment or using force, threat, assault their employees, including there are measures to prevent from sexual molestation by showing in words, gesture, physical contact or any other methods, and no punishment of the employees by deducting a salary or reducing their wages.

7.5 The deliverer/subcontractor shall not allow their female employees to do the job that is hazardous to health and body as prescribed by the law.





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7.6 The deliverer/subcontractor shall have measures on occupational safety, health and environment so they can work safely and provide fringe benefits as prescribed by the labor law.

7.7 The PTT shall have no policy to promote using child labor at the age below 18 years old.

7.8 The deliverer/subcontractor shall comply with the Labor Protection Act 1998 and its amendment, including other laws involved and must be consistent with the requirement on Thai labor standards.

7.9 The deliverer/subcontractor shall notify the PTT gas separation plant for acknowledgement in the case the business relations with the other deliverers in the activity to be responsible with the PTT gas separation plant.

8. The Rayong gas separation plant has the system of managing to assess the traders after the delivery. In a situation that any trader is assessed with the result is less than established by the Rayong gas separation plant; it shall give a warning letter for acknowledgement, and shall collect as information in the annual evaluation of the traders. However, the traders who fail the annual evaluation shall be removed out of the Rayong gas separation plant Approve Vender List.

9. The contractor shall comply with the notification of the Department of Welfare and Labor Protection on training of safety by preparing the documentary evidence certifying the training course on occupational safety, health and environment totaling six hours. As for those to come to work in the Rayong gas separation plant, they shall submit such the certificate to the inspector or the coordinator to record in the access control system from 1 September 2013 onwards. If the contractor fails to comply with it, it is at the discretion of the PTT to consider allowing working in the Rayong gas separation plant or not.

## **22. General safety rules (with reference to the occupational safety, health and environmental protection (QSHEP-GSP-11-006))**

The practical requirement for the employees and the operators in the responsible area of Rayong gas separation plant or inside the PTT area or under the Operational Control of PTT

1. Working shall comply with the manual and standards by not doing anything that is risking a danger.
2. They shall inspect the safety condition in working area before starting to work each time.
3. Report to the superiors or the inspector promptly upon there is an accident, near- miss accident and upon seeing an action or situation that may cause an accident, damage to life, property and the environment.
4. The workplace shall not have an excess or unnecessary thing, and shall arrange them in order.



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5. The tools, machinery, equipment and vehicles shall be inspected in accordance with the schedule, and shall be used suitable with the job correctly. When there is defect/damage, it shall report to the superior or job inspector promptly.

6. Usage, adjustment, change or repair of any equipment shall be performed by the authorized person only.

7. In case of working in the plant area, They shall dress properly with long-sleeved shirts, long pants and wear the personal protection equipment (PPE), e.g. a helmet, safety shoes and including equipment personal protection in accordance with the work standardized by the law. When coming to working in Central Control Room (CCR), They shall wear long-sleeved shirts and long pants as well

8. It is prohibited from gambling, drinking alcohol or consuming intoxicated things and no teasing during working in the plant area.

9. It is prohibited from bringing in or consuming illegal narcotics of all types in all the area of the PTT.

10. No property of PTT Company may be taken without permission. The persons who are found to be guilty of theft shall be subject to legal actions.

11. Smoke and fire are strictly prohibited throughout the plant and all building areas.

12. Follow emergency plans, regulations, warning signs and instructions strictly.

13. Vehicles, engines, electrical tools, cameras, and other equipment that may sparks cause of fire into the plant area. Must be checked and issue a license permission by PTT.

14. Limit of speed is not exceeding 20 km/h for plant area and outside the plant area is not exceed 40 km/h.

15. New employee and contractor are required to attend safety training before working in the plant area and must be reviewed at least once a year or every 6 months.

# Bid Evaluation Criteria

## for Virtual Dynamic Plant Predictor (V-SENSE)

# Bid Evaluation Criteria

- For the consideration of this bidding submitting, PTT will consider by using the rules on performance and commercial.
- PTT will consider by giving percentage to each topic and the weight. The total weight shall be equivalent to the point as following;
- Performance in proposal paper and presentation shall be equivalent to 75 points
- Commercial evaluation shall be equivalent to 25 points

# The evaluation criteria detail is as following;

## (1) Performance Evaluation (75 points);

Performance in proposal paper and presentation shall be evaluated  
Proposed work execution plan by Bidders, including detailed  
description and activities required for the completion of the scope of  
work and deliver PTTGSP' needs as following topics

- i. Reference project (10 percent)
- ii Proposed Solution for Virtual Dynamic Plant Predictor (V-sense)  
concept (60 percent)
- iii. Proposed Solution for System Integrating and Ease of use (20  
percent)
- iv. Proposed Team Structure and CVs (10 percent)

- The Bidders who had the technical score of Reference project lower than 6 percent will not pass the technical evaluation, PTT reserve the right to not consider the commercial part of that Bidders.
- The Bidders who had the technical score of Proposed Solution for Virtual Dynamic Plant Predictor (V-sense) concept lower than 40 percent will not pass the technical evaluation, PTT reserve the right to not consider the commercial part of that Bidders.
- The Bidders who had the technical score of Proposed Solution for System Integrating and Ease of use lower than 10 percent will not pass the technical evaluation, PTT reserve the right to not consider the commercial part of that Bidders.
- The Bidders who had the technical score of Proposed Team Structure and CVs lower than 6 percent will not pass the technical evaluation, PTT reserve the right to not consider the commercial part of that Bidders.
- The Bidders who had the total technical score lower than 62 percent will not pass the technical evaluation, PTT reserve the right to not consider the commercial part of that Bidders.

Remarks: The proposal presentation date and venue will be based on the announcement sent via the invitation email. PTTGSP reserves the right to abstain the right of Bidders from bidding if the Bidder is not present on the proposal presentation date.

# The evaluation criteria detail is as following;

## (2) Price evaluation (25 points)

Bidders shall be commercially evaluated based on competitive scoring system as the following criteria;

### i. Scoring Score (Percentage) Lowest Quoted Price 100

Quoted Price (Not Lowest) will be scoring as a relative percentage to the Lowest Quoted Price as the formula below;

“Quoted Price (Not Lowest) Score =  $100 - ((\text{Quoted Price (Not Lowest)} - \text{Lowest Quoted Price}) / \text{Lowest Quoted Price}) * 100$ ”

Bidders are required to submit the commercial proposal that covers all the steps covered in TOR.

Remark: PTT reserves the right not to select the Bidder who proposes the lowest quoted price. Hence, the awarding shall be based on the Highest score, which is subjected to the scoring of performance and commercial evaluations.

# The criteria for scoring each topic is as following detailed below;

No.	Topic	Percent
1	Project Reference	10
	The Bidders shall have the experienced on design and implement the Inbound and Outbound Dynamic Digital Twin Simulation & Management system which related solution techniques, applied for oil and gas industries that fulfills (but not limited to) the Bidders qualification regarding "Article 2" to ensure the succeeding of the proposed solution. Project reference with the minimum project value 200,000 USD, at least 3 projects within the past five (5) years.	6
	The Bidders shall have the experienced on design and implement the Inbound and Outbound Dynamic Digital Twin Simulation & Management system which related solution techniques, applied for oil and gas industries that have minor additional benefits compared to the Bidders qualification regarding "Article 2" to ensure the succeeding of the proposed solution. Project reference with the minimum project value 200,000 USD, at least 5 projects within the past five (5) years.	8
	The Bidders shall have the experienced on design and implement the Inbound and Outbound Dynamic Digital Twin Simulation & Management system which related solution techniques, applied for oil and gas industries that have major additional benefits compared to the Bidders qualification regarding "Article 2" to ensure the succeeding of the proposed solution.	10



# The criteria for scoring each topic is as following detailed below;

No.	Topic	Percent
2	Virtual Dynamic Plant Predictor (V-sense) Concept Solution	60
	The proposed solution of The Bidders shall fulfill (but not limited to) PTTGSP objectives and technical requirements of the Virtual Dynamic Plant Predictor (V-sense) concept. The proposed solution shall include all necessary technical details included the proof of success projects reference to clarify and guarantee the outcome will be as The Bidders proposed.	40
	The proposed solution of The Bidders shall have minor additional benefits compared to PTTGSP objectives and technical requirements of the Virtual Dynamic Plant Predictor (V-sense) concept. The proposed solution shall include all necessary technical details included the proof of success projects reference to clarify and guarantee the outcome will be as The Bidder proposed.	50
	The proposed solution of The Bidders shall have major additional benefits compared to PTTGSP objectives and technical requirements of the Virtual Dynamic Plant Predictor (V-sense) concept. The proposed solution shall include all necessary technical details included the proof of success projects reference to clarify and guarantee the outcome will be as The Bidder proposed.	60

# The criteria for scoring each topic is as following detailed below;

No.	Topic	Percent
3	System Integrating and Ease of use	20
	The Bidders shall propose the solution and methodology for the Virtual Dynamic Plant Predictor (V-sense) concept with a guarantee for work perfectly fine and seamless integration between the Bidders proposed solution system and PTTGSP existing system that fulfills PTTGSP TOR (but not limit to). The proposed solution shall have a user-friendly Graphic User Interface (GUI), easy to use, maintain, modify, secure, and update.	10
	The Bidders shall propose the solution and methodology for the Virtual Dynamic Plant Predictor (V-sense) concept with a guarantee for work perfectly fine and seamless integration between the Bidders proposed solution system and PTTGSP existing system that have minor additional benefits compared to PTTGSP TOR. The proposed solution shall have a user-friendly Graphic User Interface (GUI), easy to use, maintain, modify, secure, and update.	15
	The Bidders shall propose the solution and methodology for the Virtual Dynamic Plant Predictor (V-sense) concept with a guarantee for work perfectly fine and seamless integration between the Bidders proposed solution system and PTTGSP existing system that have major additional benefits compared to PTTGSP TOR. The proposed solution shall have a user-friendly Graphic User Interface (GUI), easy to use, maintain, modify, secure, and update.	20

# The criteria for scoring each topic is as following detailed below;

No.	Topic	Percent
4	Team Structure and CVs	10
	The Bidders shall propose the team structure together with CVs that fulfills (but not limited to) the Bidders qualification regarding "Article 2" to ensure the succeeding of the proposed solution. All team member have the experienced relating to The PROJECT for at least 5 years.	6
	The Bidders shall propose the team structure together with CVs that have minor additional benefits compared to the Bidders qualification regarding "Article 2" to ensure the succeeding of the proposed solution. All team member have the experienced relating to The PROJECT for at least 8 years.	8
	The Bidders shall propose the team structure together with CVs that have major additional benefits compared to the Bidders qualification regarding "Article 2" to ensure the succeeding of the proposed solution. All team member have the experienced relating to The PROJECT for at least 10 years.	10

# The criteria for scoring each topic is as following detailed below;

<b>Total Technical Score (Percent)</b>	<b>100</b>
Weighted Total Technical Score = Total Technical Percent*75% (Point)	
Lowest Quoted Price (Percent)	100
Quoted Price (Not Lowest) Percent = $100 - ((\text{Quoted Price (Not Lowest)} - \text{Lowest Quoted Price}) / \text{Lowest Quoted Price}) * 100$	
Weighted Total Price Score = Quoted Price Percent*25% (Point)	
Total Score (Point) = Weighted Total Technical Score + Weighted Total Price Score	