ENQUIRY DOCUMENT

Design, Manufacture, Testing, Supply, Commissioning and Training

INDOOR (BUILDING-INSTALLED) PSA NITROGEN GENERATION SYSTEM

FOR

DIRECT REDUCTION PLANT

Document No.	
Revision	**REV.03**
Date	June 2026

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1. INTRODUCTION

The Employer intends to procure three (3) independent, full-capacity PSA Nitrogen Generation Packages, each rated at 170 Nm³/hr, configured as one (2) Duty unit and one (1) Standby unit. The packages shall be installed inside a dedicated building (indoor installation), with all package equipment housed within the building.

The objective of this project is to provide a reliable and continuous source of nitrogen gas for industrial use in the Direct Reduction Plant.

The Vendor shall be responsible for complete engineering, design, manufacturing, assembly, testing, transportation, commissioning, training and after-sales support.

2. SITE CONDITIONS

Vendor shall consider the following site conditions for equipment design:

2.1 Geographical Conditions

Project Location	25 kilometers from the city of Ardakan

2.2 Ambient Conditions

Maximum Ambient Temperature	+45°C
Minimum Ambient Temperature	-10°C
Relative Humidity	Up to 66%
Altitude Above Sea Level	1142 m

2.3 Seismic Requirements

Seismic zone factor	Z = 0.3
Soil classification type	Sc

3. SCOPE OF WORK

Vendor scope shall include but not be limited to:

3.1 Engineering and Design

The Vendor shall perform the following engineering and design activities:

- Process Design
- Mechanical Design
- Electrical Design
- Instrumentation Design
- PLC Programming
- HMI Development
- Indoor Layout Design
- Building Drawings, including: Architectural Drawings, Structural Drawings, Mechanical Services Drawings (HVAC, Ventilation and Drainage), Electrical Drawings (Lighting, Power Distribution, Earthing and Lightning Protection)

The following documents shall be included in the Bid submission:

- Process Flow Diagram (PFD)
- Piping & Instrumentation Diagram (P&ID)
- General Arrangement Drawings (GA)
- Equipment Datasheets
- Instrument List
- Cable List
- Electrical Load list
- Bill of Material (BOM)
- Foundation Load Data

3.2 Supply

The Vendor shall supply:

- Screw Air Compressor Package
- Refrigerated Dryer Package
- Air Receiver Tanks
- Air Filtration Package
- PSA Nitrogen Generator Package
- Nitrogen Buffer Tank
- Electrical Panels
- Control System
- Instrumentation
- Interconnecting Piping
- Internal Cabling
- Indoor Installation & Building Interface Works

4. PACKAGE CONFIGURATION

Number of Packages	3
Configuration	2 Duty + 1 Standby
Capacity per Package	170 Nm³/hr.
Total Installed Capacity	510 Nm³/hr. (340 Nm³/hr. effective)
Installation Type	Indoor — Inside Dedicated Building
Operation Mode	Each package capable of independent operation; automatic duty/standby changeover

Note: Unless otherwise specified, all gas flow rates expressed as Normal Cubic Meters per Hour (Nm³/h) in this Enquiry Document shall refer to the following reference conditions:

- Reference **Temperature: 0°C (273.15 K)**
- Reference **Pressure: 1.01325 bar(a) (1 atmosphere)**

5. NITROGEN PRODUCT SPECIFICATIONS

Nitrogen Capacity	170 Nm³/hr. per package (Duty unit)
Nitrogen Purity	Minimum 98%
Outlet Pressure	8 – 9 barg
Operation	Continuous Duty

6. COMPRESSED AIR SYSTEM REQUIREMENTS

Compressor Type	Oil Injected Rotary Screw
Airend Manufacturer	AERZEN
Electric Motor Manufacturer	SIEMENS
Motor Efficiency Class	IE3
Motor Protection	IP55
Motor Insulation Class	Class F

Automatic Zero-Loss Drains shall be installed on:

- Air Receiver
- Filters
- Moisture Separators

7. AIR TREATMENT SYSTEM REQUIREMENTS

Compressed air entering PSA shall comply with ISO 8573-1 Class 1.4.1.

Required Equipment:

- Pre Filter
- Coalescing Filter
- Oil Removal Filter
- Refrigerated Dryer

8. REFRIGERATED AIR DRYER REQUIREMENTS

Dryer Type	Refrigerated
Pressure Dew Point	+3°C Maximum

The Supplier shall submit the complete technical specifications and datasheet of the Refrigerated Air Dryer Package with the Technical Bid, including but not limited to the following:

- Manufacturer and Model
- Rated Capacity (Nm^3/hr)
- Design Inlet Pressure
- Design Inlet Air Temperature
- Pressure Dew Point
- Maximum Ambient Temperature
- Refrigerant Type
- Refrigeration Compressor Manufacturer and Model
- Refrigeration Compressor Power
- Air-to-Refrigerant Heat Exchanger Material
- Air Pressure Drop
- Electrical Power Consumption
- Power Supply
- Automatic Zero-Loss Condensate Drain Details
- Control System Description
- Overall Dimensions and Weight

9. PSA NITROGEN GENERATOR REQUIREMENTS

Technology	Pressure Swing Adsorption (PSA)
Adsorbent Material	Carbon Molecular Sieve (CMS)

The supplier shall submit the following CMS details with the Technical Bid:

- CMS Manufacturer
- CMS Grade / Model
- Country of Origin
- Bulk Density (kg/m^3)

- Particle Size Distribution (mm)
- Crushing Strength
- Technical Datasheet

The Supplier shall submit the following technical details of the PSA Nitrogen Generator with the Technical Bid:

- PSA Configuration (Twin Tower / Bank Type)
- Number of Adsorption Towers (Banks)
- Number of Towers (Banks) Operating Simultaneously
- Adsorber Vessel Dimensions
- Vessel Design Pressure
- Vessel Material
- CMS Filling Quantity per Tower (Banks) (kg)
- Total CMS Quantity (kg)
- Equalization Method
- Cycle Time
- Valve Type and Manufacturer
- Valve Actuation Type (Pneumatic/Solenoid)
- Nitrogen Recovery Rate (%)
- Nitrogen Purity Control Method
- PLC Control Philosophy
- Expected Service Life of CMS

Note: Use of recycled CMS is strictly prohibited.

10. NITROGEN BUFFER TANK REQUIREMENTS

One Nitrogen Buffer Tank shall be provided for each PSA Package.

Minimum Tank Volume	As per the Supplier's Design
Design Code	ASME Section VIII Division 1

The design calculations shall be submitted with the Technical Bid.

Required Accessories:

- Safety Valve
- Pressure Gauge
- Drain Valve
- Isolation Valves

Documents to be Submitted with the Technical Bid:

- Design Calculations

Documents to be Submitted by the Vendor at the Time of Delivery:

- Material Test Certificates (EN 10204 Type 3.1)
- Hydrostatic Pressure Test Certificate in accordance with ASME Section VIII Division 1, UG-99

- Pressure Vessel Nameplate Data
- Manufacturer's Data Report

11. PRESSURE VESSEL REQUIREMENTS

Requirements applicable to:

- Air Receiver Tanks
- PSA Towers

Design Code	ASME Section VIII Division 1

Documents to be Submitted with the Technical Bid:

- Design Calculations

Documents to be Submitted by the Vendor at the Time of Delivery:

- Material Test Certificates (EN 10204 Type 3.1)
- Hydrostatic Pressure Test Certificate in accordance with ASME Section VIII Division 1, UG-99
- Pressure Vessel Nameplate Data
- Manufacturer's Data Report

12. INSTRUMENTATION REQUIREMENTS

The Supplier shall submit the following Instrumentation details with the Technical Bid:

- Instrument Datasheets
- Instrument Manufacturer
- Instrument Model
- Measuring Range
- Accuracy
- Process Connection
- Output Signal
- IP Protection Rating
-

Note: Preferred instrument manufacturers include Endress+Hauser, Emerson, Wika, ABB, Festo, Siemens or Vega or other equivalent European brands subject to the Employer's approval.

12.1 Nitrogen Analyzer

Technology	Zirconia Type
Functions	Continuous Monitoring, PLC Communication, Alarm Functions

13. CONTROL SYSTEM REQUIREMENTS

PLC Manufacturer	SIEMENS
HMI Manufacturer	SIEMENS

The PSA Nitrogen Generation Package shall be supplied with a complete PLC-based control system and HMI for fully automatic, reliable and safe operation of the complete package.

13.1 General Control Functions

- Fully Automatic Operation
- Manual / Automatic Operation Modes
- PSA Sequence Control
- Automatic Start-up and Shutdown
- Automatic Pressure Control
- Automatic Nitrogen Purity Control
- Compressor Monitoring and Control
- Refrigerated Air Dryer Monitoring
- Emergency Shutdown (ESD)

13.2 Duty / Standby Operation

- Automatic Duty/Standby Changeover
- Automatic Package Alternation based on Operating Hours
- Manual Duty/Standby Selection by Operator
- Automatic Restart Sequence following power recovery

The Supplier shall provide a detailed description of the Duty/Standby operating philosophy, including automatic changeover logic, operating hour balancing, manual override and restart sequence.

13.3 Alarm & Event Management

- Alarm Management
- Alarm Acknowledgement
- Alarm History
- Event Logger
- Historical Trending

The Supplier shall submit the Alarm Philosophy, including alarm priority classification (Critical, High, Medium and Low).

13.4 Communication

- The control system shall communicate with the Plant DCS through Profi Bus. If another communication protocol is proposed, full technical details shall be submitted with the Technical Bid.

The Supplier shall submit:

- Communication Protocol Details
- Network Architecture
- Communication Register List (Memory Mapping)

13.5 PLC Hardware

The Supplier shall clearly state:

- PLC Architecture
- CPU Type
- I/O Modules
- Remote I/O (if applicable)
- PLC Power Supply Arrangement
- PLC and Power Supply Redundancy (where applicable)

The PLC shall have a minimum of:

- 20% Spare Digital Inputs (DI)
- 20% Spare Digital Outputs (DO)
- 20% Spare Analog Inputs (AI)
- 20% Spare Analog Outputs (AO)

13.6 Interlocks & Protection

The Supplier shall submit:

- Complete Interlock List
- Fail-Safe Philosophy

The Fail-Safe Philosophy shall describe system behavior in case of:

- Power Failure
- Instrument Failure
- Communication Failure
- PLC Failure
- Analyzer Failure

13.7 Remote Monitoring

The control system shall provide remote monitoring and diagnostic capability.

If remote access is provided, the Supplier shall describe the access method and all cybersecurity measures.

13.8 Technical Documents to be Submitted with Technical Bid

The Supplier shall submit the following documents:

- PLC Datasheet
- HMI Datasheet
- PLC System Architecture
- Network Architecture
- Control Philosophy
- Sequence of Operation (SOO)
- I/O List
- Instrument List
- Communication Protocol Details
- Preliminary Control Panel General Arrangement Drawing

13.11 Documents to be Submitted at Delivery

The Supplier shall provide:

- PLC Program Backup
- PLC Source Program
- HMI Application Backup
- HMI Source Files
- Software Licenses
- Final I/O List
- Logic Digram
- Final Control Philosophy
- As-Built PLC Architecture
- Control Panel Wiring Diagrams
- Terminal Block Drawings
- Instrument Loop Diagrams

14. ELECTRICAL REQUIREMENTS

The Vendor shall provide a complete electrical system for each PSA Nitrogen Generation Package, including all electrical equipment, power distribution, motor control, protection systems, lighting, grounding, internal wiring and accessories required for safe, reliable and continuous operation.

14.1 Power Supply and Distribution

The Supplier shall clearly specify the following:

- Rated Supply Voltage
- Frequency
- Number of Phases
- Permissible Voltage Variation
- Permissible Frequency Variation
- Point of Power Supply (Battery Limit) indicating the Employer's and Supplier's scope of responsibility.
- Electrical Load
- Maximum Demand Load (kW)
- Diversity Factor used for Electrical Load Calculation

The Supplier shall submit a complete Electrical Load List with the Technical Bid.

The Employer's electrical distribution system does not provide a Neutral (N) conductor. The Supplier shall consider this requirement in the design and selection of all electrical equipment, protection devices, power supplies and control systems.

14.2 Electrical Panels

The electrical system shall include, as a minimum:

- Main Distribution Panel
- PLC Control Panel
- Local Control Box
- Junction Boxes
- Electrical panels shall comply with IEC 61439-1 and IEC 61439-2.

The Supplier shall specify:

- Panel IP Rating
- Short Circuit Withstand Rating
- Panel Cooling / Ventilation Method
- Space Heaters (where required)
- Internal Panel Illumination (if applicable)

The Supplier shall perform and submit a Protection Coordination (Selectivity/Discrimination) Study to demonstrate the proper coordination of all protective devices within the package electrical system.

14.3 Motor Control

The Supplier shall clearly specify the starting method for each motor, including:

- Direct-On-Line (DOL)
- Star-Delta Starter
- Soft Starter
- Variable Frequency Drive (VFD)

The selected starting method shall be suitable for the equipment application and motor characteristics.

- Protection Degree: IP55
- Insulation Class: Class F
- Efficiency Class: IE3 or higher

The Supplier shall specify the protection class and insulation class for all motors supplied within the package.

14.4 Cabling

The Supplier shall provide all internal package cabling.

The Supplier shall specify:

- Power Cable Type
- Control Cable Type
- Instrument Cable Type
- Cable Installation Method (Cable Tray, Conduit or equivalent)
- Cable Sizing Criteria
- Applicable Cable Standards
- Fire Resistant / Flame Retardant Cable Requirements (where applicable)

Cable sizing shall be performed in accordance with IEC 60364

14.5 Earthing and Lightning Protection

The Supplier shall design and provide a complete grounding and bonding system for the package.

The Supplier shall specify:

- Earthing Design Standard
- Earthing System Type (TN-S)
- Grounding Arrangement
- Target Earth Resistance
- Lightning Protection System (LPS)

14.6 Hazardous Area Requirements

The Supplier shall review the installation location and clearly identify whether the package is intended for installation in a classified hazardous area.

Where applicable, the Supplier shall provide equipment suitable for the specified hazardous area classification in accordance with IECEx, ATEX or equivalent standards.

The Supplier shall clearly state all hazardous area assumptions in the Technical Bid.

14.7 Lighting System

The Supplier shall provide complete internal lighting for the package/building.

Lighting system shall include:

- LED Lighting Fixtures
- Emergency Lighting
- Maintenance Lighting

The Supplier shall specify:

- Lighting Design Standard
- Required Illuminance (Lux)
- Luminaire IP Rating

14.8 Electrical Safety

The electrical system shall include:

- Emergency Stop Stations
- Maintenance Power Socket Outlets
- Protective Earthing
- Lockable Main Isolator
- Electrical Safety Labels and Nameplates

14.9 Documents to be Submitted with the Technical Bid

The Supplier shall submit:

- Single Line Diagram (SLD)
- Electrical Load List
- Motor List
- Panel Datasheets
- Panel General Arrangement Drawings
- Electrical Protection Philosophy
- Cable Schedule
- Cable Routing
- Voltage Drop Calculation

14.10 Documents to be Submitted at the Time of Delivery

The Supplier shall provide:

- As-Built Single Line Diagram
- As-Built Electrical Drawings
- Panel Wiring Diagrams
- Terminal Block Drawings
- Cable Schedule
- Cable Interconnection Drawings
- Motor Test Certificates
- Panel Factory Acceptance Test (FAT) Report
- Electrical Test Reports

- Insulation Resistance Test Reports
- Earth Continuity Test Reports
- Grounding System Test Report

15. PAINTING AND CORROSION PROTECTION

Standard	ISO 12944
Surface Preparation	Sa 2½
Minimum DFT	250 Microns

Coating System:

- Zinc Rich Epoxy Primer
- High Build Epoxy
- Polyurethane Finish Coat

16. INSPECTION, TESTING, FAT and SAT

The Supplier shall perform all inspections, examinations and Factory Acceptance Tests (FAT) necessary to demonstrate that the PSA Nitrogen Generation Package fully complies with this specification.

All inspections and tests shall be carried out in accordance with the latest editions of the applicable international standards.

16.1 General Requirements

- The Employer reserves the right to witness all inspections and Factory Acceptance Tests.
- The Supplier shall notify the Employer at least two (2) weeks prior to the scheduled FAT date.
- No equipment shall be shipped prior to successful completion of the FAT and approval by the Employer.

16.2 Mechanical Inspection

Mechanical inspection shall include, but not be limited to:

- Dimensional Inspection
- Visual Inspection
- Verification of Material Identification
- Verification of Nameplates
- Verification of Painting System
- Verification of Assembly Quality

16.3 Pressure Vessel Inspection

Pressure vessels shall be inspected and tested in accordance with:

- ASME Section VIII Division 1
- ASME Section V (NDE)

The following shall be verified:

- Material Certificates

- Welding Documentation
- Hydrostatic Pressure Test
- Non-Destructive Examination (NDE)
- Radiographic Testing (RT), where required by the applicable design code or project specification

16.4 Pressure Testing

Hydrostatic pressure tests shall be performed in accordance with ASME Section VIII Division 1 (UG-99).

Test certificates shall be submitted.

16.5 Leak Testing

- Leak Test shall be performed using the Pneumatic Pressure Decay Method
- The test pressure shall be equal to the package design pressure unless otherwise approved by the Employer
- Following pressurization, the system shall be allowed to stabilize prior to commencement of the test
- The test duration shall be not less than two (2) hours for the complete package
- The maximum allowable pressure loss shall not exceed 1% of the test pressure per hour, after correction for ambient temperature variations
- Ambient temperature and test pressure shall be continuously recorded throughout the test
- The leak test shall be performed after completion of all mechanical assembly, piping, tubing and instrumentation installation.

The Supplier shall submit the detailed Leak Test Procedure and Acceptance Criteria for the Employer's approval prior to testing.

16.6 Electrical Inspection

The following electrical inspections shall be performed:

- Verification of Electrical Wiring
- Insulation Resistance Test (IEC 60204-1)
- Earth Continuity Test (IEC 60204-1)
- Verification of Protective Devices
- Verification of Panel Identification

16.7 Instrumentation Inspection

The following shall be verified:

- Instrument Installation
- Instrument Calibration
- Signal Verification
- Loop Check (where applicable)

Calibration certificates shall be provided for all measuring instruments.

16.8 PLC / HMI Functional Test

The complete control system shall be tested, including:

- Automatic Sequence Control
- Manual Operation
- Alarm Functions
- Interlocks

- Emergency Shutdown (ESD)
- Communication with HMI
- Communication with DCS (simulation where applicable)
- Duty / Standby Changeover Logic

16.9 Site Performance Test (SAT)

The performance test of the complete PSA Nitrogen Generation Package shall be carried out at the Employer's site after installation, commissioning and successful start-up of the complete system.

The Supplier shall demonstrate that the package complies with all guaranteed performance specified in this Enquiry Document under actual operating conditions.

The Site Performance Test shall include, as a minimum, verification of the following:

- Nitrogen Production Capacity (Nm^3/h)
- Nitrogen Purity (%)
- Outlet Pressure
- Compressed Air Pressure Dew Point
- Specific Energy Consumption (kWh/Nm^3)
- Nitrogen Recovery Rate (%)
- Stable Continuous Operation
- Automatic Duty/Standby Changeover
- PLC/HMI Functional Performance
- Alarm and Interlock Functions

The Supplier shall submit the Site Performance Test Procedure for the Employer's approval prior to testing.

A Site Performance Test Report shall be submitted upon successful completion of the test.

16.9.1 Compressed Air Quality Guarantee

The Supplier shall provide a complete compressed air treatment system, including all necessary pre-filters, refrigerated air dryer, after-filters and accessories, to ensure that the compressed air supplied to the PSA Nitrogen Generator complies with **ISO 8573-1, Class 1.4.1** at the inlet of the PSA package.

The Supplier shall guarantee the compressed air quality at the PSA inlet under all specified operating conditions.

The Supplier shall submit the compressed air quality verification procedure and certified test reports demonstrating compliance with ISO 8573-1, Class 1.4.1 during the Site Performance Test.

Failure to achieve the specified compressed air quality shall be considered as non-compliance with the performance guarantee.

16.10 Documentation

The Supplier shall submit the following documents upon successful completion of the Factory Acceptance Test (FAT):

- Factory Acceptance Test (FAT) Report
- Mechanical Inspection Reports
- Hydrostatic Pressure Test Certificates
- Leak Test Report
- Non-Destructive Examination (NDE) Reports
- Instrument Calibration Certificates
- Electrical Test Reports
- PLC/HMI Functional Test Report

- Punch List (if applicable)

Following successful completion of the Site Acceptance Test (SAT), the Supplier shall submit:

- Site Acceptance Test (SAT) Report
- Performance Test Report
- Nitrogen Production Capacity Test Report
- Nitrogen Purity Test Report
- Specific Energy Consumption Test Report
- Nitrogen Recovery Test Report
- Compressed Air Quality Verification Report in accordance with ISO 8573-1:2010, Class 1.4.1
- Automatic Duty/Standby Changeover Verification Report
- Alarm and Interlock Functional Test Report
- Final Acceptance Certificate (upon successful completion of all contractual performance requirements)

17. SITE SERVICES, COMMISSIONING AND FINAL ACCEPTANCE

The Supplier shall provide qualified personnel to supervise installation, perform commissioning, support start-up activities and demonstrate the proper operation of the complete PSA Nitrogen Generation System at the Employer's site.

17.1 Transportation and Delivery to Site

The Supplier shall be fully responsible for the packing, preservation, transportation and safe delivery of all equipment, materials and accessories included in the scope of supply from the Supplier's works to the Employer's designated warehouse at the project site.

The Supplier's scope shall include, but not be limited to:

- Export packing and preservation suitable for the selected mode of transportation.
- Loading at the Supplier's works.
- Inland transportation.
- Delivery to the Employer's designated warehouse at site.
- Unloading of all supplied equipment at the designated warehouse.
- Protection of all equipment against mechanical damage, corrosion, moisture and environmental conditions during transportation.

Upon acceptance of the delivered equipment at the Employer's designated warehouse, responsibility for storage, preservation and protection of the equipment shall be transferred to the Employer.

Prior to commencement of installation, the Employer shall hand over the stored equipment to the Supplier. From the time of such handover until Final Acceptance, the Supplier shall be responsible for handling, installation, commissioning and protection of the equipment.

17.2 Installation

The Supplier shall be fully responsible for the complete installation of the PSA Nitrogen Generation Package at the Employer's site.

The Supplier's scope of work shall include, but not be limited to:

- Mechanical Installation of all supplied equipment
- Installation of interconnecting piping and tubing within the package scope
- Installation of all supplied valves and instruments
- Installation of electrical equipment, control panels and junction boxes
- Power, control and instrumentation cabling within the package scope

- Cable termination and gland installation
- Earthing and bonding of all supplied equipment
- Alignment of rotating equipment
- Installation of supports and accessories
- Verification of installation quality prior to commissioning
- All installation work shall be carried out in accordance with the approved drawings, applicable international standards and the manufacturer's recommendations.

17.3 Commissioning

The Supplier shall carry out complete commissioning of the supplied equipment, including adjustment, calibration and configuration of all systems.

Commissioning activities shall include, as a minimum:

- Mechanical completion verification
- Electrical energization
- Instrument calibration verification
- PLC/HMI configuration and parameter setting
- Communication configuration with the Plant DCS/SCADA
- Functional verification of all package equipment
- Initial start-up of the complete system

17.4 Performance Guarantee Demonstration

Following successful commissioning, the Supplier shall perform the Site Acceptance Test (SAT) at the Employer's site in accordance with the approved SAT Procedure. The SAT shall verify that the complete PSA Nitrogen Generation Package complies with all guaranteed performance requirements specified in this Enquiry Document under actual operating conditions.

17.5 Reliability Run

- Following successful completion of the Site Performance Demonstration, the complete PSA Nitrogen Generation System shall operate continuously for a minimum of seventy-two (72) consecutive hours without any equipment failure, unplanned shutdown or degradation of guaranteed performance.
- If any failure attributable to the supplied equipment occurs during this period, the Reliability Run shall be repeated after corrective actions have been completed.

17.6 Training

The Supplier shall provide on-site training for the Employer's operating and maintenance personnel.

Training shall include:

- System Operation
- Normal Start-up and Shutdown
- Emergency Operation
- Routine Maintenance
- Instrumentation
- PLC/HMI Operation
- Troubleshooting
- Safety Precautions

17.7 Spare Parts and Special Tools

The Supplier shall provide all recommended commissioning spare parts, special tools and consumables required for successful commissioning and initial operation.

17.8 Warranty Support

- The Supplier shall provide technical support throughout the commissioning period and during the warranty period.
- Any defects identified during commissioning or the warranty period that are attributable to the supplied equipment shall be corrected by the Supplier at no additional cost to the Employer.

17.9 Final Acceptance

Final Acceptance of the PSA Nitrogen Generation Package shall be granted only after:

- Successful completion of commissioning;
- Successful completion of the Site Acceptance Test (SAT);
- Successful completion of the Reliability Run;
- Submission of all contractual documentation;
- Demonstration of compliance with all guaranteed performance specified in this Enquiry Document.
- The Supplier shall submit the Final Commissioning Report and Final Acceptance Documentation for the Employer's approval.

18. DOCUMENTATION AND DELIVERABLES

Documents to be Submitted by the Vendor at the Time of Delivery:

- Process Flow Diagram (PFD)
- As-Built P&ID
- General Arrangement (GA) Drawings
- Equipment Datasheets
- Instrument Datasheets
- Electrical Drawings
- Cable Schedule
- Operation & Maintenance (O&M) Manual
- Spare Parts List
- Final FAT Report
- Commissioning Report
- PLC Logic Description
- As-Built Drawings
- SAT Report
- Performance Test Report
- Reliability Run Report
- As-Built SLD
- PLC Source Code
- HMI Source Files
- Software Licenses
- Calibration Certificates
- Pressure Vessel MDR
- Hydrotest Certificates

- NDE Reports
- Spare Parts Catalogue

19. WARRANTY AND AFTER-SALES SERVICE

Warranty Period	24 months from SAT acceptance
After-Sales Service	Minimum 10 Years

After-sales service shall include:

- Spare Parts Supply
- Technical Support
- Site Service Support

20. DELIVERY SCHEDULE

Maximum Delivery Time	4 Calendar Months from Purchase Order Date

21. VENDOR PROPOSAL REQUIREMENTS

Vendor shall submit a complete technical proposal including, but not limited to:

- Technical Proposal
- Compliance Matrix
- Deviation List
- Equipment Datasheets
- Layout Drawings
- Utility Consumption
- Energy Consumption per 1 Nm^3 of Nitrogen Produced (kWh/Nm^3)
- Nitrogen Recovery Rate
- Project Execution Schedule
- Inspection & Test Plan (ITP)
- Quality Plan
- Foundation Loads
- Maintenance Schedule

APPENDIX A
COMMERCIAL PRICE SCHEDULE

The Bidder shall complete the following Price Schedule. All prices shall include engineering, design, manufacturing, inspection, testing, packing, transportation to the Employer's designated warehouse, installation, commissioning, Site Acceptance Test (SAT), Performance Guarantee Demonstration, Reliability Run, training, documentation, warranty obligations and all other requirements specified in this Enquiry Document, unless otherwise stated.

Item No.	Description	Qty	Unit	Unit Price	Total Price
1	Engineering, Design and Project Management	1	Lot		
2	PSA Nitrogen Generation Package (Complete)	3	Set		
3	Oil Injected Screw Air Compressor Package	3	Set		
4	Refrigerated Air Dryer Package	3	Set		
5	Compressed Air Filtration Package (all filters required to achieve the compressed air cleanliness class specified in this Enquiry Document)	3	Set		
6	Air Receiver (As required by Supplier's design)	3	Lot		
7	Nitrogen Receiver	3	Set		
8	Carbon Molecular Sieve (CMS)	3	Lot		
9	Complete PSA Process Equipment (Valves, Piping, Tubing, Fittings, Instruments and Accessories)	3	Lot		
10	PLC, HMI and Control System	1	Lot		
11	Electrical Panels and Power Distribution System	1	Lot		
12	Power, Control and Instrumentation Cabling	1	Lot		
13	Earthing and Lightning Protection System	1	Lot		
14	Complete Installation at Site	1	Lot		