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Tender Returnable Technical Schedule for Renewable Hydrogen Facility

This document describes the list of documents and information that each tenderer needs to submit as part of the technical returnable. The technical information submitted will be evaluated to determine the level of compliance achieved by each tenderer, to the evaluation criteria provided under Mandatory Technical Evaluation Criteria and Qualitative Technical Evaluation Criteria.

The tenderer is advised to pay careful attention to the submission requirements stated here, as well as how the submission will be evaluated described in Mandatory Technical Evaluation Criteria and Qualitative Technical Evaluation Criteria (included in the tender pack). The tenderer is required to complete all tables provided in this document and submit the supporting evidence with the tender submission. If information is not provided on an evaluation criteria, or cannot be verified in the supporting documents, a score of zero will be awarded.

The Tenderer is advised to use the numbering convention within this document in the file name or title of the document submitted. This numbering system is aligned with the numbers used in the Mandatory Technical Evaluation Criteria and Qualitative Technical Evaluation Criteria. Where documentation is provided as evidence against a particular evaluation criterion, the tender should make this clear by grouping all evidence in a single document and providing a title or file name that is clear.


SECTION 1: Returnable For Mandatory Evaluation

Mandatory criteria (gatekeepers) are a 'must meet' criteria. These criteria are not weighted or point scored, but is assessed on a Yes / No basis as to whether or not the criteria are met. An assessment of 'No' against any criterion shall technically disqualify the tenderer and shall not be further evaluated against Qualitative Criteria.

M1) The Tenderer is required to provide details of the existing relationship between the tenderer and the Original Equipment Manufacturer (OEM) of the electrolyser. Proof of a contractual agreement is required. A declaration from both parties that an agreement is in place or the signature page of the agreement will be accepted. In both cases the details of what is covered in the agreement must be provided. The requirement is that the electrolyser, including auxiliary equipment and plant, must be supplied by the OEM or official local South African value adding reseller (VAR) or agents. Therefore, the contractual agreement between the Tenderer and OEM must be provided. This could involve an agreement through a third party such as a local South African based value adding reseller (VAR) or agent. The contractual agreement between tenderer and OEM, must provide details showing:

- Which party is responsible for: supply, test, install, commission, maintain, modify, and conduct operating and maintenance training to the end user of the equipment.
- Should this responsibility lie with the tenderer or local agent, proof from the OEM must be submitted showing that they have the necessary authorization and accreditation to perform

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these activities. (The names of the accredited people (of the local agent), their designation and their level of accreditation shall be listed in this letter and their CVs shall be submitted with the tender documentation.)

- The terms and duration of the agreements must be provided to show that at a minimum it matches the contract duration of the RHF plant.
- NOTE: The letter of intent between the tenderer and the OEM shall not be accepted, as this is not a binding contractual agreement.

M2) The contractor is required to submit a Deviation Schedule, (this is in addition to the 240-RT&D-782 Technical Schedule for Renewable Hydrogen Facility as required by 2.1 of the Qualitative Technical Evaluation Criteria). The Deviation Schedule must highlight deviation from all documents including NEC, VDSS, and any of the Eskom Standards as provided with the tender. This document will become a contractual document, should the tenderer be successful.

Table 1: Mandatory Returnables Check List


Criteria Number	Short Description	Submitted Y/N	Supplier's Comment / File Name / Reference / Details
M1	Proof of contractual agreement between the Tenderer and OEM.		
	The following details are included: <ul style="list-style-type: none"> • Detail of who is responsible for supply, test, install, commission, maintain, modify, and training 		
	<ul style="list-style-type: none"> • Proof of authorisation / accreditation of local agent / personal where they are responsible for activities in the point above. 		
	<ul style="list-style-type: none"> • Duration of the agreement 		
M2	Deviation Schedule		

SECTION 2: Returnable For Qualitative Evaluation

The qualitative criteria will be scored on a variable scale based on the level of compliance. The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 80%. In addition, Criteria 2.1 and 2.2 have a criteria threshold of 80%. I.e. A score of 80% for Evaluation Criteria 2.1 and 2.2 must be achieved as well as an overall weighted score of 80% in order to pass the technical evaluation. (If the final weighted score is above 80% but the tenderer scores below 80% on Evaluation criteria 2.1 or 2.2, the tenderer will fail)

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1. General – Company Profile and Experience

1.1. Contractor Details

- 1.1.1. Each Tenderer is to provide a company profile detailing core business expertise, list of recent projects (brief list of all projects completed not necessarily related to hydrogen generation).
- 1.1.2. Submissions must also include Reference Letter, Testimonials or Completion Certificates for completed hydrogen generation projects consisting of the following information:
 - Name of company where project was executed
 - Project Description
 - Contract value
 - Construction period
 - Confirmation of operations performance of the plant (how long has the plant been in operation, have there been any major failures)
- 1.1.3. Contactable reference for a person still active on the project including a telephone number and email address.
 - Providing references that are confidential, will be evaluated as zero.


NOTE: Where the EPC Contractor will use a sub-contractor, the scope of the subcontractor must be clearly defined during the tendering phase. The full company profile and work experience of the sub-contractor must be provided as per the requirements in the paragraph above.

- 1.2. Each Tenderer is to provide a project level organogram for the design and execution of this project. The tenderer is to submit the CV's of all lead discipline engineers and key personnel responsible for execution phase as provided on the organogram. The following CV's must be provided giving clear details of related experience, qualification and professional registration status. Certified copies of certificates must be included.
 - 1.2.1. Engineering Work Design Lead (who has designed a hydrogen plant or has experience on hazardous works installation)
 - 1.2.2. Expert on Hydrogen plant and BoP design, installation, commissioning and integration.
 - 1.2.3. Mechanical Engineer
 - 1.2.4. Electrical Engineer
 - 1.2.5. C&I engineer
 - 1.2.6. Civil Engineer
 - 1.2.7. Person responsible for issuing the CoC for H2 installations.
 - 1.2.8. Master Installation Electrician

1.3. Project Execution Plan

- 1.3.1. The tenderer is required to submit a Project Execution Plan and Project Program/schedule. These documents must demonstrate how the tenderer intends on executing the project by specified target dates by providing the following information for evaluation purposes:

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- Provide typical project methodology detailing how the tenderer proposes to execute the Works, including transport, design, manufacture, delivery, erection, commissioning and handover. The tenderer shall indicate how it plans to perform the various functions including design, procurement, programming, inspection, testing, training and commissioning and the locations where the various portions of the work shall be implemented.
 - Provide an organogram of the main contractor indicating the key roles and personnel in each role. Organogram should include Management team, Project Manager, design engineers; professional engineers approving designs, site personnel for construction monitoring, Project Planner, Configuration and Document Management and SHEQ team. The Tenderer shall also demonstrate how Sub-Contractors and suppliers shall interface with the project management team.
- 1.3.2. High level program / schedule with key milestones and expected timelines (design, construction, commissioning and testing).


Table 2: Check list for Qualitative Criteria Returnables for Company Profile and Experience (1)

Criteria Number	Short Description	Submitted Y/N	Supplier's Comment / File Name / Reference / Details
1.1.1	Main EPC Company Profile		
1.1.2	Details of completed hydrogen generation projects (References, testimonials, completion certificates)		
1.1.3	Contactable references with contact details		
1.2.1	CV for Engineering Work Design Lead (who has designed a hydrogen plant or has experience on hazardous works installation)		
1.2.2	CV for Expert on Hydrogen plant and BoP design, installation, commissioning and integration.		
1.2.3	CV for Mechanical Engineer		
1.2.4	CV for Electrical Engineer		
1.2.5	CV for C&I engineer		
1.2.6	CV for Civil Engineer		
1.2.7	CV for Person responsible for issuing the CoC for H ₂ installations.		
1.2.8	CV for Master Installation Electrician		
1.3.1	Project Execution Plan		
1.3.2	Project Program / Schedule		

2. Functional and operational Specification of major plant and equipment.

- 2.1. The contractor must be fully compliant with the 240-RT&D-151 Specification for Renewable Hydrogen Facility and 240-56227413 Eskom Hydrogen Systems Standard. Compliance is required to be illustrated by completion of the Compliance Schedule (240-RT&D-782 Technical

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Schedule for Renewable Hydrogen Facility) and submission of design information (including but not limited to data sheet, drawings, P&IDs, control philosophy and maintenance manuals)

2.2. The tenderer is required to provide all technical data sheet, drawings, P&IDs, control philosophy and detailed maintenance manuals from the OEM for the electrolyser that will be supplied during this contract.

- The Technical Data Sheet, drawing, etc must show the following, if this information is not presented on the datasheet, it must be provided in a letter from the OEM:
 - electrolyser model with details on the type, size, product purity, pressure, capacity and turndown ratio of the electrolyser.
 - life expectancy and meantime between failures on the cell stack
 - Warranty period of the cell stack and balance of plant.

2.3. The tenderer must submit operational experience of the plant to be supplied. This information must include:

- OEM company experience and track record with this model (local and international).
- Details of the plant: application (lab vs industrial), production volumes, pressure, etc
- Total operational hours since commissioning
- A contactable reference still employed where this plant is in operation including information on plant location, date of construction and commissioning, etc.

2.4. The tenderer is required to provide details of the local South African value adding resellers or agents (this information is required even if the tenderer deals directly with the OEM and is not working with the local agent) Documents submitted must include:

- Confirmation that the local agent or VAR has personnel in South Africa that are trained and able to offer technical support, fault finding, routine maintenance and supply spares.
- Response time to rectify plant failure located in South Africa.
- Indicate if direct communication channel between the end-user and OEM for technical support are possible.
- Letter stating the frequency of visits by the OEM's to South Africa to audit end-user satisfaction with Local Agent.

2.5. The tenderer is required to provide all technical data sheets, specification, OEM design package, data and drawing for other key component on the installation (balance of plant), including:

- H₂ Electrolyser balance of plant (heaters, dryers, etc)
- Demineralising water treatment plant.
- H₂ storage tanks
- H₂ end use station

2.6. The tenderer must provide a letter or a certificate confirming that the company is certified to work on Hazardous Locations with Ex. Rated equipment as well as a letter or certificate confirming that the company is certified to work on a H₂ plant.

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Table 3: Check list for Qualitative Criteria Returnables for Functional and operational Specification (2)

Criteria Number	Short Description	Submitted Y/N	Supplier's Comment / File Name / Reference / Details
2.1	Completed 240-RT&D-782 Technical Schedule for Renewable Hydrogen Facility		
2.2	Supporting document including all technical data sheet, drawings, P&IDs, control philosophy and detailed maintenance manuals		
2.3	Operational experience of the electrolyser plant tendered on		
2.4	South African Local agent details		
2.5	Data sheets, specification, OEM data, designs and drawing for other auxiliary components		
2.6	Confirmation of certification to work on Hazardous Locations/installations.		

3. Mechanical Specifications

- 3.1. The tenderer is required to provide a method statement detailing how they intend to comply with the mechanical sections of 240-RT&D-151 Specification for Renewable Hydrogen Facility. This method statement must consider design methodology with reference to the scope, relevant standards and code. All technical data sheets and drawings for all proposed equipment, plant & instrumentation (valves, piping, pressure gauge, storage tanks dryers and monitoring station) must be provided. 240-RT&D-782 Technical Schedule for Renewable Hydrogen Facility (Schedule D & Mechanical Section of Schedule A) must be completed and returned.
- 3.2. The CV of the Lead Discipline Engineer or Technologist (or other CVs of key personnel within the Mechanical Engineering field who are involved during the design, construction or commissioning phase of the project) must be submitted. The CV must provide details of experience, projects completed, responsibilities and professional registrations with the respective Governing bodies (such as ECSA or Equivalent).
- 3.3. The tenderer is to provide a maintenance strategy with required spares list for all plant components. This must include:
- Maintenance cost for similar design
 - Availability of local agent
 - List of spares holding locally
 - Lead time for spares needed from OEM
 - Warranty details all plant and equipment
 - Note: Can be demonstrated with previous work hand over documents.

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4. Control and Instrumentation

- 4.1. The tenderer is required to submit high level C&I architecture drawing, clearly showing all interfaces and the different Ex zones. In particular (but not limited to) the interface of the new H₂ controller (PLC) with existing infrastructure at ERIC, Rosherville (Interface with electrical systems, Interface with the existing PV plant, Interface with the existing fire detection system (FDS), third party interface through the Eskom IT network). Technical data sheets for all field instruments and different components of the SCADA system and the Ex zone they are classified for. Plant references for the SCADA solution being offered and number of years in service in green hydrogen production applications.
- 4.2. The Tenderer must provide a minimum of three contactable reference plants where the proposed SCADA solution has been implemented. This can be presented in a table indicating plant name, commissioning date and SCADA used. The plants should be contactable and SCADA availability figures must be provided. The SCADA software and support (in terms of updates) must also be included.
- 4.3. The tenderer must provide data sheets for all equipment that forms part of the C&I works. This includes but is not limited to field equipment, SCADA (All components forming the SCADA system), and HMI (All Components forming the human machine interface)


5. Electrical

- 5.1. The tenderer is required to provide a method statement detailing how they intend to comply with the electrical sections of 240-RT&D-151 Specification for Renewable Hydrogen Facility. This method statement must consider design methodology, equipment requirements, relevant standards and code. 240-RT&D-782 Technical Schedule for Renewable Hydrogen Facility (Schedule F) must be completed and returned.

6. Civil

- 6.1. The tenderer is required to provide a method statement detailing how they intend to comply with the civil sections of 240-RT&D-151 Specification for Renewable Hydrogen Facility and 240-56227413 Eskom Hydrogen Systems Standard. This method statement must consider design methodology, equipment requirements, relevant standards and code. 240-RT&D-782 Technical Schedule for Renewable Hydrogen Facility (Schedule G & Civil Section of Schedule A) must be completed and returned.
- 6.2. The CV of the Lead Discipline Engineer or Technologist (or other CV's of key personnel within the Civil Engineering field who are involved during the design, construction or commissioning phase of the project) must be submitted. The CV must provide details of experience, projects completed,

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responsibilities and professional registrations with the respective Governing bodies (such as ECSA or Equivalent).

7. Fire Protection

7.1. The tenderer is required to provide a method statement detailing how they intend to comply with the fire protection sections of 240-RT&D-151 Specification for Renewable Hydrogen Facility. This method statement must include the fire protection high level design base, technical data sheets for proposed equipment, plant & instrumentation. Proof of the offered system compliance with the latest version of SANS 10139.

7.2. The tenderer is required to provide a method statement detailing how they intend to comply with the fire protection sections of 240-RT&D-151 Specification for Renewable Hydrogen Facility. This method statement must include the fire detection high level design base, technical data sheets for proposed equipment, plant & instrumentation. Proof of the offered system compliance with the latest version of SANS 10139.


7.3. The tenderer must provide the following certificate in support of the Fire Detection System:

- Fire Detection System: Proof of certification with FDIA (Fire Detection Installers Association) or FSIB (Fire Support Interoperability Board).
- The Contractor or the nominated sub-contractor provides proof of paid-up valid registration with the SAQCC-fire. The proof is submitted as the following documents: Person's SAQCC registration card, with visible registration number and category registered for;
- Signed commitment of undertaking between the Contractor and the nominated sub-contractor if the registered person is associated with a sub-contractor. *Where the Contractor provides certificate(s) of the registered person(s), it is accompanied by the person(s) C.V.

Table 4: Qualitative Criteria Returnables Check List for Engineering Requirements (3 - 7)

Criteria Number	Short Description	Submitted Y/N	Supplier's Comment / File Name / Reference / Details
3.1	Method Statement for mechanical installation & technical data sheets, drawings, etc		
3.2	CV of the Lead Discipline Engineer or Technologist for Mechanical Design		
3.3	Maintenance strategy and spares		
4.1	High level C&I architecture drawing		
4.2	Details of three contactable reference plants		
4.3	All datasheets for the equipment that forms part of the C&I works		
5.1	Method Statement for Electrical Installation & 240-RT&D-782 Technical Schedule for Renewable		

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	Hydrogen Facility (Schedule F & Electrical Section of Schedule A)		
6.1	Method Statement for Civil Installation		
6.2	CV of the Lead Discipline Engineer or Technologist for Civil Design		
7.1	Method Statement for Fire protection system,		
7.2	Method Statement for Fire detection system		
7.3	<ul style="list-style-type: none"> Proof of certification with FDIA or FSIB 		
	<ul style="list-style-type: none"> Person's SAQCC registration card 		
	<ul style="list-style-type: none"> Signed commitment of undertaking between the Contractor and the nominated sub-contractor if the registered person is associated with a sub-contractor. 		

8. Quality Assurance

- 8.1. The tenderer is required to submit a quality control package which must include installation and commissioning procedures (Hazloc, Elec. Installation & Motors Testing), with indicated compliance to SANS 10142 (Elec. Installations) and SANS 10108 (Hazloc),
- 8.2. The tenderer is required to provide a quality control plan. This quality control plan must be specific to the scope of work for the Eskom plant.
- 8.3. The tenderer is required to provide typical check sheets. This can be check sheets designed for the Eskom project or reference check sheet used for previous hydrogen generation installations that the contractor has completed.

Table 3: Qualitative Criteria Returnables Check List for Quality Requirements (8)

Criteria Number	Short Description	Submitted Y/N	Supplier's Comment / File Name / Reference / Details
8.1	Procedures for installation and commissioning		
8.2	Quality Control Plan		
8.3	Reference Check Sheets		

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