**Terms of Reference**

**Review of South African Bureau of Standards (SABS) National Standard for Fixed Electric Water Heaters (SANS 151)**

**Type of Contract:** Individual Contract (IC) or RLA

**Languages:** English

**Duration:** 4 months

**Location:**  Home Based

**Application close:** 1 November 2019

**Starting date:** 10 November 2019

1. **Background**
	1. **Introduction:** The South African government through the Department of Energy in collaboration with

the Department of Trade and Industry (the dti), is implementing the appliance energy efficiency Standards and Labelling (S&L) Project, which is aimed at removing inefficient household appliances and encouraging the penetration of new energy efficient appliances in the South African market. The project will contribute towards the reduction of electricity demand in South Africa, especially within the residential sector, and will introduce continuous energy efficiency improvements in the appliances and equipment industry.

The project objectives will be achieved through the introduction of mandatory Minimum Energy Performance Standards (MEPS) and a product labelling system. The MEPS will set the minimum energy classes and prohibit the penetration of appliances that have energy performance below the minimum performance level.

The SABS is an implementing partner and as a government institution has a vested interest in supporting the project and plays two roles. The first, is the provision of test laboratories, an important component of any successful S&L programme, as they provide the local industry with a cost-effective means to certify their products. Similarly, test laboratories are needed by the regulator in the performance of their duties. SABS has built the following test laboratories, which are operational, to support the programme:

* Refrigerator, Fridge / Freezer and Freezer
* Oven
* Laundry (washing machine and dryer)
* Dishwashing
* **Electric Hot Water**

Secondly, a core function of SABS is to provide standards that enhance the competitiveness of South Africa, and which are the basis for consumer protection, health, safety and environmental issues. the national standards body[[1]](#footnote-1),

The National Regulator for Compulsory Specifications (NRCS) is responsible for the administration and maintenance of compulsory specifications and the implementation of regulatory and compliance systems for compulsory specifications (Department: Trade and Industry, 2018).The NRCS, an entity of the Department of Trade and Industry, and has been mandated to regulate the S&L Programme. The VC9006 is a product of the NRCS and is published by the dti. The VC9006 was published on 20 May 2014. An amendment to the VC9006 was published on 12 August 2016 and the energy efficiency requirements came into effect on 12 August 2017 (Department of Trade and Industry, 2016) calling for a class B for energy efficiency for electric water heaters. The amended VC9006 refers to SANS 151 for definitions, calculation of class B energy efficiency requirements and general compliance for the design of a hot water system. VC9006 is also relevant to all hot water storage units and explicitly includes units intended for use in SWH and HP applications. SANS 151 is therefore an essential standard for VC9006, since it is completely reliant on it.

* 1. **Scope of Work – Motivation for the Study:** SANS 151 is a South African national standard for fixed

electric storage water heaters. The standard covers general aspects, construction requirements, performance requirements, inspection, testing methods, markings and instructions, and provides information in its annexes for materials for construction, test procedures, energy labelling and calculations, quality verification and notes to the purchaser. In essence, it covers most of the aspects to consider for hot water storage units and references various other standards for the aspects not covered, such as mechanical testing. (SABS, 2017).

Since coming into effect, the water heating industry has consistently raised concerns about the structure of the VC and national standard itself. A research on the VC9006 “*A study on the impact of VC9006 and the lack of compliance*” was undertaken and completed in 2019. Its objective was to gain a more detailed understanding and indeed the validity of concerns raised by industry and the lack of compliance that was being experienced. The report[[2]](#footnote-2), was well received by industry and government and has led to a review of the VC which is proposing certain amendments – these are going through a consultation process and will be published in due course. However, the report raised and noted concerns with the SANS151 which were not addressed as it was not part of the scope of the study. This assignment aims to close the circle by undertaking a detailed review of the SANS151 to ascertain its appropriateness, benchmark it against international practice, and investigate the validity of concerns raised by industry.

* 1. **Objectives of the assignment**

it is required that the study addresses the following items which were raised by the above-mentioned VC9006 study, namely

* SANS standards are not in line with international standards;
* The standards exclude various technologies (incl. hydroboil units) and does not allow for innovation
* Testing methods are unclear and considered unsuitable for certain technology
* Regulations contradict each other in terms of energy efficiency requirements
* There is confusion on the applicability of the regulation on SWHs and HP
* Recommendations as to where the next set of efficiency improvements can be gained, understanding that the current MEPS (Energy class B) are nearing the technical limits.

The findings of the above are expected to feed into the SABS standards division, one of the stakeholders and a member of the Project Steering Committee, expected outputs:

* Research current national and international standards with a view to adopt the most appropriate methodology that would suit South African requirements;
* Provide recommendations on the adoption of International standards (with local requirements) that would suit this methodology.
* Research currently available testing facilities to ensure testing to the methodology is possible.
1. **Description of Responsibilities**

Given the nature of the assignment it is deemed appropriate and necessary for the work to be completed by an international and a local water heating technical experts. The former to provide a view on international trends and perspective on a national standard which has been place for many decades and has been revised on numerous occasions compromising clarity. Additionally, it may be, but this is not certain, that new technologies and innovation are not adequately considered by the SANS151 to the disadvantage of new entrants. It is expected that the international consultant will provide an objective assessment and new perspectives to the standard. The local consultant’s role will be to provide context and serve as a contact point to assist with the study. It is expected that this role is undertaken by a suitably qualified individual who is familiar with the standards, the water heating industry and its stakeholders and has worked regularly with national standards. It is not an administrative role.

The work will entail the following three areas:

1. Familiarity with SANS151, VC9006 and report on VC9006 to produce a critical assessment of the status quo. It is encouraged that the views formed are augmented with discussions / interviews with SABS, NRCS and the industry. Here, the study must identify new technologies which are potentially being stifled by the SANS151 but which meet health and safety requirements. An overview of international standards for water heaters will be undertaken. The VC9006 has looked at this to some extent and only new insights or corrections are expected;
2. Identify modifications to current practices or alternate approaches to meet the intention of national policy which is being enacted by the VC9006
3. After receiving feedback from the project stakeholders prepare a final report which provides detailed recommendations

**Deliverable 1: Inception Report**

The consultant will write an Inception Report detailing targets and milestones relating to timeframes; key stakeholders to be engaged; and data sources. Case study ideas will also be presented for selection.

**Deliverable 2: Draft Report**

The draft report will address all the items listed above with the research findings. It is expected that the report will provide sufficient detail to explain the status quo and why the recommendations are appropriate. The water heating industry is almost exclusively serviced by local manufacturers and while it is important to encourage innovation and market entry it cannot unnecessarily place established businesses at risk by supporting products which may be inferior or compromise health and safety. The draft report will be presented to the technical reference group in a workshop format in order to validate the content.

**Deliverable 3: Final Report**

This report will be presented to the project steering committee.

1. **Reporting**

The UNDP South Africa Country Office is responsible for contract administration; payment will be rendered after written approval from the assigned technical focal point in UNDP.UNDP will convene a technical reference group meeting(s), and will oversee the technical content, quality assurance and approval of the deliverables.

1. **Duration**

The duration of the consultancy is for the period of 4 months (16 weeks).

1. **Duty Station**

The local consultant be based in Gauteng, South Africa, and be able to attend the necessary meetings as required. The international consultant will be required to undertake one trip to Gauteng.

1. **Deliverables**

The specific deliverables and payment schedule are provided in the table below (elaborated in Section 2).

**Table 1.** Work flow

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| --- | --- | --- | --- |
| **Deliverable** | **Product** | **Description** | **Payment Schedule** |
| Deliverable 1 | Inception Report | Method, approach and workplan | 20% (3 weeks after signing) |
| Deliverable 2 | Draft Report | Draft Report will include the above mentioned reviews and will address any items raised by the project steering committee. The draft version of the report will be presented to the technical reference group in a workshop format in order to validate the content. The recommendations should be presented for discussion. | 50% (10 weeks after Inception Report is approved) |
| Deliverable 3 | Final Report & Presentation | The final version will include priorities and recommendations.  | 30% (3 weeks after inputs to Draft are received) |

1. **Competencies**

**International Consultant**

* At least twenty years work experience in the water heating industry;
* Demonstrated knowledge of the South African water heating industry;
* Advanced analytical and research capability in standards and energy efficiency;
* Capacity to prepare reports; and
* Capacity to summarise complexity in innovative tables/diagrams

**Local Consultant**

* More than five years work experience
* Demonstrated knowledge of the South African water heating industry
* Ideally has attended SABS Technical Committee meetings and has a working knowledge of SANS 151 in particular, and other standards in general
1. **Academic Qualifications/Education**

Have at least a Masters Degree or academic equivalent thereof in Engineering, ideally related to water heating.

1. **Language skills**

Excellent writing, editing, and oral communication skills in English.

**Evaluation of Applicants**

Applications will be evaluated based on a lowest priced technically qualified scoring methodology.Those candidates who obtained at least 70% of points in each of the steps of the process will be considered for financial proposal evaluation.

Technical Criteria - 70% of total evaluation – max. 70 points:

**Criterion A** – Have the requested experience in the aspects pertaining to the objectives of this assignment (10 each)

**Criterion B** – Demonstrated knowledge of the International / South African water heating sector (15 each)

**Criterion C** – Have advanced and proven analytical and research capacity (10 each)

**Criterion D** – Have a publication record and the capacity to prepare well-written reports in English, and ability to present complexity in tables/diagrams (5 each)

**Criterion E** – Previous work experience with government departments and/or other related organizations, and familiarity with their websites and knowledge management requirements (10 each)

1. **Application procedures**

To facilitate the analysis of responses, all interested parties are required to prepare their response in accordance with the instructions outlined in this section. All proposals should be electronically generated. The consultancy will be hired on a UNDP contract.

Applicants are required to submit the following:

* A Technical Proposal: Letter of Interest, stating why you consider your service suitable for the assignment and a methodology on the approach and implementation of the assignment;
* Evidence and examples of similar projects that have been successfully completed;
* Personal CVs highlighting qualifications and experience in similar projects;
* Minimum of three references - contact details (e-mail addresses) of referees (organisation for whom you’ve produced similar or related assignments);
* All-inclusive financial proposal indicating consultancy fee and a breakdown of expenses (unit price together with any other expenses) related to the assignment.

Applicants are required to submit the following documents to **bid.pretoria@undp.org** on or before the **08 October** with the subject line: **Job Code, Title and Reference Number.**

1. <https://www.sabs.co.za/standardss/> [↑](#footnote-ref-1)
2. <https://www.savingenergy.org.za/wp-content/uploads/2019/06/CRSES2018_06_Summary-report-for-public-viewing_Final.pdf> [↑](#footnote-ref-2)