



water & sanitation

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA



## TERMS OF REFERENCE FOR A SOLICITED PROJECT

<b>THEME</b>	<b>Water Use</b>
<b>TITLE</b>	<b>Supporting the implementation of non-consumptive water use charges in the Pricing Strategy for Raw Water Use Charges</b>
<b>ToR NUMBER</b>	<b>1009977</b>

### **Objectives:**

#### **General:**

Support the further development and implementation of the non-consumptive water use charges introduced in the 2024 Pricing Strategy for Raw Water Use Charges, with particular focus on energy generation, recreation and aquaculture.

#### **Specific:**

1. To the extent necessary to inform implementation of non-consumptive water use charges for energy generation, recreation and aquaculture, revisit and further develop the rationale for the introduction of these charges into the Pricing Strategy for Raw Water Use Charges.
2. Develop and test detailed methodologies for:
  - a. identifying and classifying those energy generation, recreation and aquaculture activities that should be considered non-consumptive water uses; and
  - b. calculating the non-consumptive water use charges for these activities within the framework of the Pricing Strategy for Raw Water Use Charges.
3. Work closely with the Department of Water and Sanitation (DWS) and stakeholders involved in the above water uses in developing and testing the calculation methodologies.
4. Apply these methodologies to existing water use data to develop estimates of potential revenue that could be derived from these charges per Water Management Area<sup>1</sup>, as well as predicting future trends.
5. Develop text for the section on non-consumptive use charges in the pricing strategy implementation guide being developed by DWS.
6. Develop guidance on the administration of non-consumptive use charges and integration with other charges administered under the Pricing Strategy for Raw Water Use Charges.

---

<sup>1</sup> Refer to revised delineation of Water Management Areas in chapter 3 (page 14) of the 3<sup>rd</sup> edition of the [National Water Resources Strategy](#)

**Rationale:**

Sections 56-60 of the National Water Act (NWA) make provision for the Minister to develop a pricing strategy for the use of water resources and discharge of water into a water resource or onto land. The latest update of the [Pricing Strategy for Raw Water Use Charges](#) was recently approved by the Ministers of Water and Sanitation and Finance and will come into effect in April 2026.

The revised strategy introduces a new water user category of Non-Consumptive Use to allow for the water resource management costs associated with non-consumptive uses of water resources to be recovered. The strategy does not go into any detail on how these charges will be calculated for the various activities that involve non-consumptive use of water. The strategy defers these details to an implementation guide that will be issued by DWS at a later stage.

The assignment outlined in these terms of reference will contribute towards developing the approaches required to operationalise the non-consumptive use charges and documenting these approaches in the implementation guide. This includes consolidating the rationale for and approach to non-consumptive use charges for specific activities, as well as developing consistent, transparent, defensible methods for calculating and updating the quantum of the charges. Proposed methodologies must reflect the need for close, ongoing engagement with DWS, and National Treasury where applicable, throughout the lifespan of the project.

The strategy makes provision for non-consumptive use charges to contribute to water resource management costs as well as the operation and maintenance costs of water resource infrastructure used in the course of non-consumptive activities. The functions of water resource management and infrastructure management are however undertaken by different entities. Guidance is needed on how the new non-consumptive charges should be administered and integrated with the administration of other charges under the Pricing Strategy. This requires consideration to be given to aspects including, but not limited to, roles and responsibilities for billing the non-consumptive charges, the flow and potential division of revenue between the institutions responsible for the various functions (e.g. Catchment Management Agencies vs. National Water Resources Infrastructure Agency), and the application of the Water Research Levy.

As immediate priorities, DWS has identified renewable energy generation, recreation and aquaculture as the non-consumptive uses for which calculation methods should be developed. The following sections provide more detail on these three activities as understood in the context of this ToR. Part of the role of the appointed team will be to ascertain the extent to which these activities align to the NWA, link to non-consumptive use of water, and how relevant they are to future trends in water use, which in turn will inform the approach to calculating non-consumptive use charges.

## **1. Renewable energy**

In recent years the country has faced numerous challenges with regard to the constant and reliable supply of energy, which then prompted the government to consider other sources of renewable energy to augment the existing grid. In February 2023, DWS released a [Policy for the Utilisation of DWS Infrastructure and Water Resources for Renewable Energy Generation](#). The document solidifies the department's position on the establishment and development of renewable energy projects using DWS-owned infrastructure, as well as projects making use of watercourses and water resources but not DWS infrastructure.

Considering this growing need to diversify the power generation mix, DWS published a [Request for Water Use Licence Applications for Hydropower Generation](#) in April 2023. Interested parties were invited to apply for water use licences and access to use government water infrastructure and water resources for the purpose of energy generation using two sources of renewable energy, namely 1) hydropower; and 2) floating solar and wind.

### **1.1 Hydropower**

Hydropower is a renewable source of energy that generates power by using a dam or diversion structure to alter the natural flow of a river or other body of water. Hydropower utilises turbines and generators to convert that kinetic energy into electricity, which is then fed into the electrical grid to power homes, businesses, and industries.

The following types of hydropower facilities are covered:

- i) Impoundment – These facilities use a dam to store water in a reservoir then, depending on the electricity demand, water is released from the reservoir and flows through turbines to generate electricity.
- ii) Diversion – A diversion facility channels part of a river through a canal or penstock, using the river's natural decline to generate energy. A penstock is a closed conduit directing water to turbines, with flow regulated by gates and valves.
- iii) Pumped storage - These hydropower facilities store energy by pumping water from a lower to a higher reservoir when electricity demand is low. During high demand, the water is released back to the lower reservoir, turning a turbine to generate electricity.
- iv) Floating/kinetic/free-flow turbines – These turbines generate electricity from the kinetic energy in flowing water, which enables run-of-river applications or installation in existing conduits. Diversion infrastructure is not required.

### **1.2 Floating solar photovoltaic and wind turbines**

This type of renewable energy source is used to convert sunlight directly into electricity and consists of solar panels mounted on floating structures that keep panels above the water surface. The water body helps cool the panels. There are currently 93 such users registered with DWS with a total volume of 3 433 762 cubic metres per annum. This number is likely to increase as the department receives and approves more applications.

Similarly, floating wind turbines are mounted on floating structures that enable them to be located in areas of deep water. However, these are more commonly found in marine settings, which are beyond the jurisdiction of the NWA. Wind turbines in the sea are therefore not considered further in this scope of work. Focus should instead be placed on where such installations are or may in future be located in water resources that fall under the jurisdiction of the NWA.

The previous 2007 version of the Pricing Strategy was not applicable to renewable energy generation that involved the non-consumptive use of water. The revised 2024 Pricing Strategy includes renewable energy within the Non-Consumptive Use water user category, but does not provide a methodology to determine or implement water use charge for hydropower and floating solar and wind methods of renewable energy generation. The determination of such charges will be included in the implementation guide under non-consumptive use.

The draft revised [Pricing Strategy](#) published for comment in 2022 did however include an indicative method for hydropower charge determination. Although this method was removed from the final version of the strategy approved in 2024, it can be used as a starting point for the work to be done through this project. Considering that the various types of hydropower and solar PV differ in modality and extent, this project should make provision for differential pricing methodology with linkage to the types of water uses outlined in section 21 of the NWA.

Renewable energy generation installations in or on the sea, which do not use freshwater resources, are excluded from this research project. These installations are beyond the jurisdiction of the NWA and are therefore not subject to the Pricing Strategy. They would typically be governed by the Integrated Coastal Management Act which is the mandate of the Department of Forestry, Fisheries and the Environment.

## **2. Aquaculture Activity**

The 2013 National Aquaculture Policy Framework for South Africa defines aquaculture as “the farming of aquatic (marine or freshwater) organisms including fish, molluscs, crustaceans and plants in controlled or selected aquatic environments, with some form of intervention in the rearing process to enhance production”. This definition includes ranching and stock enhancement as aquaculture activities. Aquaculture has three primary types (or branches); marine aquaculture (saltwater/coastal); freshwater aquaculture (fresh water / inland) and brackish water aquaculture (coastal). The nature and classification of the water use for aquaculture varies, whether there is a closed system with little or no water replaced, a small scale semi-closed system where water is added or replaced from time to time or an open system where water is constantly being replaced.

The draft Aquaculture Development Bill designates the Minister of Forestry, Fisheries and the Environment as the licensing authority in respect of aquaculture permits. Aquaculture activities may also be required to apply for a water use licence under the NWA if they are undertaking any of the water uses listed in section 21 of the NWA. Use of water resources falling under the

jurisdiction of the NWA for aquaculture must be limited to the quantities allowed by DWS. Most aquaculture farmers are dependent on boreholes and rivers as the source of water for their production. Previously aquaculture farmers fell under Existing Lawful Use (sections 32-35 of the NWA), but a number of licenses have been issued and are expected to increase.

Where aquaculture activities have been authorised under the NWA to use water resources, the Pricing Strategy is applicable. It is possible that not all types of aquaculture regulated under the NWA can be classified as non-consumptive. Approaches are needed, through the scope of work of this assignment, for separating consumptive from non-consumptive water uses for aquaculture. For aquaculture uses classified as non-consumptive, methodologies need to be developed for calculating the non-consumptive use charges.

### **3. Recreational Use**

Section 21 of the NWA includes the use of water for recreational purposes in the list of water uses regulated under the Act. Access and use of government waterworks for recreational purposes is currently governed by [regulations](#) under the 1956 Water Act. Updated regulations were published for public comment in 2023 but have not yet been finalised. The draft 2023 [Regulations relating to the access and use of government waterworks and surrounding state-owned land for recreational purposes](#) define recreational water use as:

- “the use of government waterworks for recreational purposes and includes all activities that require the use of water, including the surface of water for-
- a. events, including, but not limited to, sport, tourism, leisure;
  - b. personal use, including, but not limited to, subsistence fishing, religious and cultural practices;
  - c. activities which contribute to the general health, well-being and skills development of individuals and society;
  - d. the purposes of research and education; and
  - e. commercial activities including, but not limited to, bioprospecting, aquaculture, inland fisheries, film production, photography and advertising.”

Since the promulgation of the 2007 Pricing Strategy, using water for recreational purposes has been exempted from raw water use charges. The revised 2024 Pricing Strategy has made amendments to this provision, in that recreational use is categorized as non-consumptive use and is subject to a charge. To enable this, the development of methods for calculation of charges applicable to recreational water use is required. This task will also require the examination of the legislative treatment of recreational water use across the NWA and relevant current and proposed regulations, to determine the correct application of water use charges. For example, a distinction will need to be made between recreational use that falls under Schedule 1 of the NWA (and is exempt from water use charges) and other forms of recreational use that are liable for payment of non-consumptive use charges.

#### **Deliverables:**

The following deliverables are indicative and may be tailored to suit the proposed research approach:

1. Inception report
2. Draft rationale, legal/technical analysis and classification of the aspects of energy generation, recreation and aquaculture that should be liable for non-consumptive charges.
3. Proposed methodology for calculating non-consumptive charges for renewable energy generation, aquaculture and recreational water use
4. Calculation tools for use by DWS, in a format agreed with DWS
5. Models of projected future revenue to be derived from non-consumptive use charges per Water Management Area
6. Draft section on non-consumptive use charges for the implementation guide of the revised Pricing Strategy
7. Guidance on the administration of non-consumptive use charges
8. At least three stakeholder workshops at appropriate stage/s of the research process
9. Final report, covering all aspects researched as per specific objectives.

### **Impact Area:**

1. Inform policy and decision-making
2. Sustainable development solutions

### **Notes:**

1. Addressing this scope of work requires a diverse range of skills and experience. Project team composition must reflect the necessary legal, technical and other expertise on renewable energy generation, aquaculture and recreational water use, as these activities pertain to raw water pricing. Proposals must include the details of all team members, their experience and expertise relevant to this assignment and their role in the project.
2. Further details on these ToR can be accessed [here](#).
3. Proposals must be submitted online via the WRC [Business Management System](#) (BMS). A user guide to BMS is available [here](#). For technical queries regarding BMS, contact [bms-support@wrc.org.za](mailto:bms-support@wrc.org.za).
4. Prior to capturing a proposal on BMS, proposers should familiarise themselves with the [guidelines for submission of research proposals](#). Particular attention should be given to the section in the guidelines on budgeting.
5. Closing date for submission of proposals on BMS is 16:00 on 17 February 2025

### **Time Frame:**

Planned project start date: 1 April 2025, duration 9 months

### **Total Funds Available:**

R1,800,000 including VAT