TERMS OF REFERENCE FOR A SOLICITED WRC PROJECT

KEY STRATEGIC AREA	Water Use, Wastewater Resources and Sanitation Futures
THRUST	**1. WATER SENSITIVE AND RESILIENT SETTLEMENTS**
PROGRAMME	***Programme 1: Smart water supply management***
TITLE	**Smart water metering, trends, opportunities, risks and policy.**

Objectives

General

The previous decade saw the introduction and growth of smart water advancements in the water metering industry. Growth in the space of platforms such as IoT and advanced communications systems, have allowed water utilities around the world to improve control of their water systems and better understand them. As the industry moves into a new space, the growth of these technologies is expected to not only increase but also help revolutionize water system management for decades to come.

WRC has been in the forefront of the subject matter and have lead some of the developments in smart metering in its early years. This pioneering work driven by water conservation saw the development of bi-directional communication meters as a future pathway. Unfortunately, our own industry leapfrogged the developments and the direction of the solutions moved into the space of meter control devices. Largely targeted at controlling water use of poor people as water management devices and free basic water.

The WRC has kept pace with developments and also produced a smart water meter guide. However, the signals nationally are becoming stronger that this is the future direction the sector needs to evolve towards as the IoT tools and platforms become more user-friendly and cost effective. As water distribution pipelines across the country continue to age well beyond their expected lifespan, reducing non-revenue water (NRW) to keep a lid on production costs should be a primary goal of every water utility. Although some NRW can occur through the inaccuracy of older meters along with other factors, leaks that go undiscovered encompass the most significant portion of the problem. Even with a robust replacement program, clearing up every

leak can take decades for municipalities to accomplish. Advanced devices are streamlining the effort to attack NRW. Meters that are equipped with pressure and temperature sensors are transforming meters into Industrial Internet of Things (IIoT) sensor solutions. The additional information from these devices throughout the system provides deeper insights that allow utilities to be more proactive. It is therefore imperative that a scan of developments and uptake of smart water metering be undertaken towards understanding the new opportunities this subject offers for future management of revenue, operations and water use. Further the issues of cyber security and other risks need to be established as we chart a future for smart water metering in South Africa.

Specific

The specific objectives are:

- Update and understanding of technology development and trends in smartwater metering
- Scan of uptake and application (readiness) of smart water metering, including strategies and demonstrations.
- Technology and market opportunities for smart metering
- Identifying O&M models and capacity needs for this technology.
- Developing a national strategy for the rollout of smart metering in industry – regulatory requirements, standards, quality control and consumer protection.

Expected outcomes and impacts:

- **Research report**
- **Strategy for smart meter rollout**
- **Position paper**

Lighthouse:

- Water-Energy-Food Nexus
- Climate Change

Impact Areas:

- Water and the Economy; Water and the Environment; Water and Society

Knowledge Tree

- Sustainable Development Solutions

Time Frame: 2 years
Total Funds Available: R450 000.00 inclusive of VAT. (2022 – 250k, 2023- 200k)