SOL PLAATJE LOCAL MUNICIPALITY

POLICY: INSTALLATION AND MANAGEMENT OF SMART METERING SOLUTIONS

APPROVED BY THE MUNICIPAL COUNCIL
IN TERMS OF COUNCIL RESOLUTION NO.:
C89/05/24

REVIEW COUNCIL RESOLUTION NO:
COUNCIL MEETING DATE:

Table of Contents

1) Legislative Context and Guidelines

1.1. The Constitution entitles everyone to administrative action, which is lawful, reasonable and procedurally fair and to be given reasons for any such action which affects them.

1.2. The Promotion of Administrative Justice Act 3 of 2000 is the legislation required by the Constitution to give effect to the right to just administrative action and in order to promote an efficient administration and good governance and to create a culture of accountability, openness and transparency in public administration or in the exercise of a public power or the performance of a public function.

1.3. This policy incorporates the above principles by providing parameters and procedures to guide the Municipality and its officers in implementing it and thereby exercising a public power through a series of administrative actions. In so doing, this policy seeks to provide certainty on the part of those affected by it with regard to how the Municipality will act in the circumstances covered by the policy and uniformity of action on the part of its officers.

1.4. The Municipal Finance Management Act No 56 of 2003 ("**MFMA**"), section 62 provides that the accounting officer of a municipality is responsible for the management of the revenue of the municipality and must for the purposes take all reasonable steps to ensure that the municipality has and maintains a management, accounting and information system which recognises revenue when it is earned.

1.5. The Municipal Systems Act No 32 of 2000 ("**MSA**"), section 75 provides that the municipal council must adopt and implement tariff policy on the levying of fees for municipal services provided by the municipality itself or by way of service delivery agreements, and which complies with the provisions of this Act and with any other applicable legislation, and also that tariff policy must reflect at least the principle that the amount individual users pay for services should generally be in proportion to their use of that service.

1.6. Section 95 of the MSA also provides for where the consumption of the municipal services has to be measured, take reasonable steps to ensure that the consumption of by individual users of services is measured through accurate and verifiable metering systems.

1.7. The Energy Regulations Act No. 4 of 2006 and Electricity Regulations for Compulsory Norms and Standards for Reticulations Services' notice no. 773 as per Government Gazette Notice 31250 of July 2008, provides that an end user or customer with a monthly consumption of 1000 kWh and above must have smart system and be on time of use tariffs.

1.8. The Policy Position number 58 of the Electricity Pricing Policy as per Government Gazette No. 31741 of 19 December 2008 ("**EPP**") stipulates that the sophisticated Time Of Use ("**TOU**") tariffs with dynamic emergency price signals, Demand Side Management ("**DSM**") and load management features with support of smart meters on an integrated basis must be planned for rapid implementation where economically viable and practical.

1.9. The National Regulator of South Africa (**'NERSA**")'s Net-Billing Rules are made in terms of Electricity Regulation Act No. 4 of 2006 on metering infrastructure requirement that distributors shall install relevant meters for Prosumers which enable net billing, including to be bi-directional – capable of measuring forward and reverse electricity flow in separate registers, be able to measure and record peak supply, be capable of two-way communication, and be able to provide time-of-use metering.

1.10. The technical standards number NRS 049 defines for Advanced Metering Infrastructure ("**AMI**") focusing on interoperability, remote monitoring, and tamper-proof design for smart meter installations. It covers the entire system from the meter to the utility's data centre, supporting time-of-use tariffs, automatic billing, and remote disconnection for enhanced revenue protection. Also, the NRS 057 which defined the Code of practice for electricity metering specifying the minimum requirements that metering installations and metering service providers shall comply with in South Africa,

1.11. The Municipal Electricity Service and Water Service By-Laws define roles of customers, readings accuracy, access to properties and municipal infrastructure, metering installations and maintenance of metering instruments.

1.12. Electrical Safety Standards: Smart meters must comply with electrical safety standards to ensure they pose no risk to consumers or the energy grid. This involves adhering to standards for installation, maintenance, and operation.

1.13. Telecommunications Regulations: Since smart meters use wireless communication to transmit data, compliance with telecommunications regulations, overseen by the Independent Communications Authority of South Africa ("**ICASA**"), is required. This includes ensuring that the frequency bands used for communication do not interfere with other services and are in line with national spectrum allocation policies.

1.14. Other Local Bylaws and Ordinances: The Municipality must ensure that the installation and operation of smart meters are in compliance with local bylaws and ordinances, including those related to building and zoning regulations.

2) Objectives of the Policy

2.1 To improve billing accuracy and efficiency by implementing smart metering technologies in water and electricity (utility) services.

2.2 To ensure that the municipality complies with the Advance Metering Infrastructure requirements as outlined in the legislative frameworks, national guidelines, norms and standards and national targets for installation of smart meters.

2.3 To ensure access to water and electricity metering instruments as outlined in municipality by-laws, policies and other municipal approved plans and initiatives by municipal officials for installation, replacement and/or maintenance of such metering instruments.

2.4 To reduce unauthorized connections, electricity and water losses, damage to metering instruments, leakages, and non-billing.

2.5 To create consumer awareness and stakeholder engagement, to enhance broader participation and consumer cooperation.

2.6 To implement compulsory installation requirement of smart meters for end users with monthly consumption of more than 1000 kWh which should be able to read in Time Of Use ("**TOU'**)

2.7 To implement compulsory installation requirement of smart meters for end users participating in a Small Scale Embedded Generations ("SSEG"), Embedded Generators, and other instances where there is substantial changes to load profiles.

3) Introduction and Background

3.1 Brief History and Current Energy and Metering Scenario:

Sol Plaatje Municipality ("**Municipality**"), named after the renowned South African intellectual and political leader Solomon Tshekisho Plaatje, has a rich historical background. This Municipality, encompassing the city of Kimberley and surrounding areas, has been a centre of significant economic and social developments. Historically known for its diamond mining, the area has evolved into a hub with diverse economic activities.

In recent years, the energy scenario in the Municipality has been characterised by a mix of traditional and modern sources. The Municipality relies, predominantly on the national grid for electricity, supplemented by a growing interest in renewable energy sources. However, challenges such as energy supply instability and increasing demand have highlighted the need for innovative solutions to ensure sustainable energy management.

The Municipality has shown a commitment to sustainable development and innovation, recognizing the importance of transitioning to more efficient and environmentally friendly energy systems. This commitment is in line with South Africa's national strategies for sustainable development, which emphasize on reducing carbon emissions and enhancing energy efficiency.

3.2 Overview of Current Metering Systems

3.2.1 **Limitations of Existing Metering Systems:** The current metering systems in the Municipality primarily consist of traditional electromechanical meters for electricity and mechanical meters for water.

3.2.2 Inaccuracies: Traditional meters often suffer from accuracy issues due to aging, wear and tear, and environmental factors which lead to incorrect billing and disputes between the Municipality and consumers**.**

3.2.3 Manual Reading Processes: The meters require manual reading, which is labour-intensive, time-consuming, and prone to human error. This process also limits the frequency of readings, often leading to estimated bills rather than actual usage billing.

3.2.4 Maintenance Issues: The older metering infrastructure is more prone to breakdowns and requires regular maintenance. This not only increases operational costs but also leads to service interruptions and customer dissatisfaction.

3.2.5 **Limited Data for Analysis:** Traditional meters provide limited data, offering little beyond basic consumption totals. This lack of detailed data hampers effective energy management and planning.

4) Need for Smart Metering Technology

Addressing Current Challenges and Contributing to a Sustainable Energy Ecosystem

4.1 Improved Efficiency and Accuracy: Smart meters provide real-time, accurate readings of electricity and water consumption. This precision eliminates the inaccuracies associated with manual readings and aging infrastructure, leading to fair and transparent billing.

4.2 Remote Monitoring and Control: With smart meters, the Municipality can remotely monitor and manage the energy and water distribution network. This capability enhances service delivery, allows for quicker response to issues, and reduces the need for physical meter readings.

4.3 Enhanced Consumer Engagement: Smart meters empower consumers with detailed information about their consumption patterns. This access to data can drive more conscious usage, promote energy-saving behaviours, and lead to cost savings.

4.4 Facilitating Renewable Energy Integration: Smart meters are integral in managing distributed energy resources, such as solar panels. This will help balance the grid by monitoring and managing energy flows, essential for a Municipality investing in renewable sources.

4.5 Data-Driven Decision Making: The rich data provided by smart meters enables the Municipality to make informed decisions about energy and water management, infrastructure investment, and demand-side management programs.

5) Scope and Applicability

Geographical Areas Covered
The scope of the smart meter installation policy encompasses the entirety of the Municipality, a region that includes both urban and rural areas.

5.1 The policy applies to all sectors within the Municipality's boundaries, covering the city of Kimberley and its surrounding areas.
5.2 The implementation will be strategically phased, with initial focus areas likely to be those with higher population densities and more significant infrastructure challenges.
5.3 This approach ensures that the benefits of smart metering are first realized in areas where they can make the most impact.
5.4 Additionally, special consideration will be given to areas experiencing frequent billing disputes or resource management challenges, as smart meters can provide immediate solutions in these contexts.
5.5 The policy's geographical inclusivity ensures that all parts of the Municipality, irrespective of their urban or rural status, will eventually benefit from the advanced metering infrastructure.

Consumer Types
The smart meter installation policy is inclusive of all consumer types within the Municipality. This includes:
5.6 Residential customers, who form the majority of the consumer base
5.7 Commercial and industrial customers.
5.8 Schools, Non-Profit and Public Benefit Organisations and government departments.
5.9 Large Power Users and water consumption categories.

Implementation Timeframe
The rollout of the smart meter installation policy is planned as a multi-phase project over several years as outlined in provision number (7) of this policy.

6) Technology Specifications

Whereas, the municipality relies on norms and standards to be set and be guided by NERSA and other norms and standards documents like SANS, NRS 049, NRS 057, NRS 058, NERSA Net Billing Rules for Licenced Distributors, etc. The municipality endeavour to achieve at least the following minimum standards on technologies.

6.1 The minimum meter capabilities: The SMART meters installed by the municipality should at least be able to assist the municipality to achieve Time Of Use reading and billing.

6.2 Meters installed for SSEG/ EG customers should be:

6.2.1 be bi-directional – capable of measuring forward and reverse electricity flow in separate registers;
6.2.2 comply with any prescribed requirements of the Distributor;
6.2.3 comply with the relevant metering code/standard/specification;
6.2.4 be able to measure and record peak supply;
6.2.5 be capable of two-way communication; and
6.2.6 provide time-of-use metering.

6.3 Smart Meter Technology: Smart meters represent a significant technological advancement over traditional utility meters. These modern devices use digital technology to measure electricity and water usage which will include the following key features:

6.3.1 Remote Reading and Control: Smart meters transmit usage data wirelessly to the utility provider, eliminating the need for manual meter readings. This capability enables remote monitoring and control of utility supply, allowing for efficient management of resources and quick response to issues.

6.3.2 Real-Time Data Transmission: A most critical aspects of smart meters is to provide real-time, or near real-time, data on utility consumption. This continuous data stream offers an up-to-date picture of usage patterns, enabling more accurate billing and informed resource management.

6.3.3 Advanced Data Analytics Capabilities: Smart meters are to be equipped with capabilities to analyse and report data. This feature is crucial for identifying trends, predicting future usage, and managing peak load times more effectively**.**

6.3.4 Consumer Interaction: These meters should use interfaces that allow consumers to view their consumption data directly as feature can be a significant driver for behavioural change in energy and water use**.**

6.3.5 Automatic Outage Detection: Smart meters can immediately report outages**,** significantly improving the speed and efficiency of response to such incidents.

6.4 Standards and Specifications

To ensure the effectiveness and reliability of the smart metering system, the meters must adhere to certain technical standards and specifications, including:

6.4.1 Accuracy: They must meet stringent accuracy requirements to ensure fair billing and consumer trust.

6.4.2 Durability and Reliability: The meters should be robust, able to withstand local environmental conditions, and have a long operational life with minimal maintenance needs.

6.4.3 Interoperability: It is crucial that the smart meters are compatible with different types of home and building management systems, as well as with other smart meters. This interoperability is essential for a cohesive smart grid system.

6.4.4 Security Standards: Given the sensitive nature of usage data, the meters must comply with high standards of data security to protect against unauthorized access and ensure consumer privacy**.**

6.4.5 Compliance with Regulatory Standards: The meters should comply with all relevant local and international standards for utility metering and wireless communication.

6.5 Integration with Existing Infrastructure

Integrating smart meters with the existing electrical and water supply systems of the Municipality involves several considerations:

6.5.1 Compatibility with Current Systems: The smart meters must be compatible with the existing distribution infrastructure. This compatibility is crucial for a seamless transition from old to new systems.

6.5.2 Upgrading Supporting Infrastructure: In some cases, parts of the existing infrastructure may need upgrades to support the advanced functionalities and wireless connectivity capabilities of smart meters. This might include enhancing communication networks and data management systems.

6.5.3 Transition Management: A clear plan is necessary to manage the transition from traditional to smart meters, ensuring minimal disruption to consumers.

6.5.4 Training and Capacity Building: Adequate training must be provided to municipal staff and service providers for the installation, operation, and maintenance of the new system.

6.5.5 Consumer Interface Systems: Integration also involves setting up interfaces and platforms for consumers to access their consumption data, which is a key feature of smart meter technology.

7) Installation Process

7.1 Installation Phases

The installation of smart meters in the Municipality is planned to be carried out in distinct phases, allowing for a systematic and efficient rollout:

7.1.1 **Pilot Phase**: The initial phase involves a pilot project in select areas. This phase is crucial for testing the technology, refining installation processes, and training personnel. Feedback from this phase will inform adjustments and improvements for subsequent phases.

7.1.2 **Phase One** - High Priority Areas: Based on the success of the pilot, the first major phase targets areas with high population density and critical infrastructure needs. This includes urban centres and commercial districts where the impact of smart meters can be most immediately felt in terms of energy management and billing accuracy.

7.1.3 **Phase Two** - Expansion to Residential and Industrial Areas: Following successful implementation in high-priority areas, the next phase expands to broader residential areas and industrial zones. This phase will cover a larger portion of the Municipality, aiming to include diverse consumer types.

7.1.4 **Final Phase** - Comprehensive Coverage: The final phase targets remaining areas, including remote and rural locations. Special attention will be given to ensuring that these areas, which might face unique challenges such as accessibility or infrastructure limitations, are adequately covered.

7.2 Criteria for Prioritizing Areas

The criteria for prioritizing areas for smart meter installation include:

7.2.1 **Population Density**: Areas with higher population densities are prioritized to maximize the impact on billing accuracy and resource management for a larger number of consumers, infrastructure readiness and as per regions where the existing infrastructure can easily accommodate smart meters without a need for significant upgrades will be prioritized to expedite the rollout process.

7.2.2 **Historical Data Accuracy**: Areas with issues such as a history of billing disputes or meter reading inaccuracies are given priority to quickly rectify these longstanding issues.

7.2.3 **Demand Management Needs**: Areas with high energy demand or water usage are prioritized to better manage peak load times and overall resource allocation.

7.2.4 **Strategic Importance**: Commercial and industrial areas, being high energy and water users, are also prioritized for their strategic importance in the local economy.

7.3 Procedures for Different Premises

The installation process varies slightly depending on the type of premises:

7.3.1 **Residential Premises**: For domestic customers, the process involves scheduling installation at a convenient time, ensuring minimal disruption to the household. The municipality or its representatives as installers may need to educate homeowners about the functionality and benefits of the smart meters.

7.3.2 **Commercial Premises**: In commercial settings, considerations include minimal disruption to business operations. Installations may be scheduled during off-peak hours or closed days.

7.3.3 **Industrial Premises**: Industrial installations require careful planning due to the complexity and scale of the operations. Coordination with facility managers is crucial to avoid interference with production processes.

7.3.4 **Special Considerations**: For premises in remote or difficult-to-access areas, special logistical arrangements are necessary. Similarly, older buildings may require additional preparation work to accommodate the new technology.

7.3.5 **Communication and Support**: Throughout the installation process, clear communication and support are key. Consumers will be informed in advance about the installation schedule, the process involved, and any necessary preparations on their part. Post-installation, consumer education on how to access and interpret the data from their new smart meters will be treated as essential for maximizing the benefits of the technology.

8) Financial consideration

8.1 Budget and Funding

The financial planning for the smart meter project in the Municipality involves a detailed budget that encompasses all aspects of the installation, including the purchase of meters, infrastructure upgrades, labour costs, training, and consumer education programs. The budget needs to be meticulously planned, to cover all phases of the project, from the initial pilot phase to the full-scale rollout.

However, in instances where a customer is obliged to pay for the meters to be installed in line with the municipal by law, customer care, credit control and debt collection policy and other approved policies of the municipality; such approved policies and legislative provision will take precedence.

8.2 Funding for this project can be sourced from a combination of channels:

8.2.1 **Government Grants and Subsidies**: As part of national and provincial initiatives to improve energy efficiency and resource management, the Municipality could access grants and subsidies designated for such projects.

8.2.2 **Municipal Budget**: A portion of the Municipality's budget can be allocated for this project, recognizing the long-term benefits of smart metering in terms of efficiency and cost savings.

8.2.3 **Loans and Financing**: Loans from financial institutions or development banks could be sought, especially for parts of the project that promise a direct return on investment, such as reducing non-revenue water or enhancing energy efficiency.

8.2.4 **Public-Private Partnerships (PPPs):** Collaboration with private sector companies specializing in smart metering technology can be a viable option. These partnerships might involve shared financing models where the private entity contributes to the initial investment in return for a share of the efficiency savings or other benefits.

8.3 Cost-Benefit Analysis

A cost-benefit analysis of the smart meter installation project should consider both the immediate and long-term financial impacts:

8.3.1 **Immediate Costs**: These include the purchase of smart meters, installation costs, infrastructure upgrades, and initial consumer education campaigns.

8.3.2 **Long-Term Savings**: Over time, the Municipality can expect significant savings from reduced labour costs for meter readings, decreased billing inaccuracies, and improved resource management leading to cost savings.

8.3.3 **Creditors management**: Improved creditors management and ensure timeous payment of outstanding bulk creditors, avoid the accumulation of debt and incurring interest on overdue accounts resulting in the elimination of Fruitless and Wasteful expenditures.

8.3.4 **Non-Financial Benefits**: These include enhanced customer satisfaction due to accurate billing, improved resource conservation, and the potential for better load management on the energy grid.

8.3.5 **Return on Investment (ROI):** The ROI should be calculated considering the initial outlay versus the cumulative savings and efficiencies gained over a defined period.

8.3.6 **Consumer Billing**: Post-installation of smart meters, the billing process for consumers in the Municipality will undergo significant changes:

8.3.7 **Accurate and Timely Billing**: Consumers will be billed based on real-time usage data, ensuring accuracy and transparency in billing.

8.3.8 **Potential for Dynamic Tariff Structures**: With the detailed consumption data available from smart meters, the Municipality will introduce dynamic tariff structures. For example, time-of-use tariffs, where consumers are charged different rates depending on the time of day, encouraging off-peak usage.

8.3.9 **Consumer Access to Usage Data**: Consumers will have access to their usage data, potentially through written request to the Municipality or online portals and/or mobile apps, allowing them to monitor and manage their consumption more effectively.

8.3.10 **Billing Adjustments and Notifications**: Smart metering systems enable more sophisticated billing adjustments and notifications, helping consumers to stay informed about their consumption and any changes in tariff structures.

9) Requests for Replacement of Smart Meters

9.1 No person other than the account holder and/or tenant as an account holder with a written permission of a property owner or proof of as signed contract shall request the replacement of faulty smart meters.

9.2 The municipality reserve a right to replace or inspect meters as provided in the by-laws and/or approved customer care, credit control and debt collection policies.

10) Data Privacy and Security

Protecting consumer data and ensuring privacy are critical aspects of the smart meter program. Measures include:

10.1 Data Encryption and Security Protocols: Implement robust encryption and security protocols to protect data transmission and storage. This is essential to prevent unauthorized access and data breaches.

10.2 Compliance with Data Protection Laws: Adherence to South Africa's Protection of Personal Information Act ("**POPIA**") is crucial. This involves ensuring that consumer data is used and stored in a manner that respects privacy and is in line with legal requirements for personal data protection.

10.3 Data Access and Use Policies: As per this policy, the registered owner of the property or a tenant with the written permission of the landlord, can obtain access to metering data that allows the consumer to identify areas where they can reduce consumption, potentially leading to cost savings and environmental benefits.

10.4 Regular Security Audits and Updates: Conduct regular audits of the smart metering system to identify and rectify potential security vulnerabilities. Keeping the system updated with the latest security patches is also crucial.

11) Consumer Rights and Obligations

The policy delineates the rights and obligations of consumers in relation to smart meters:

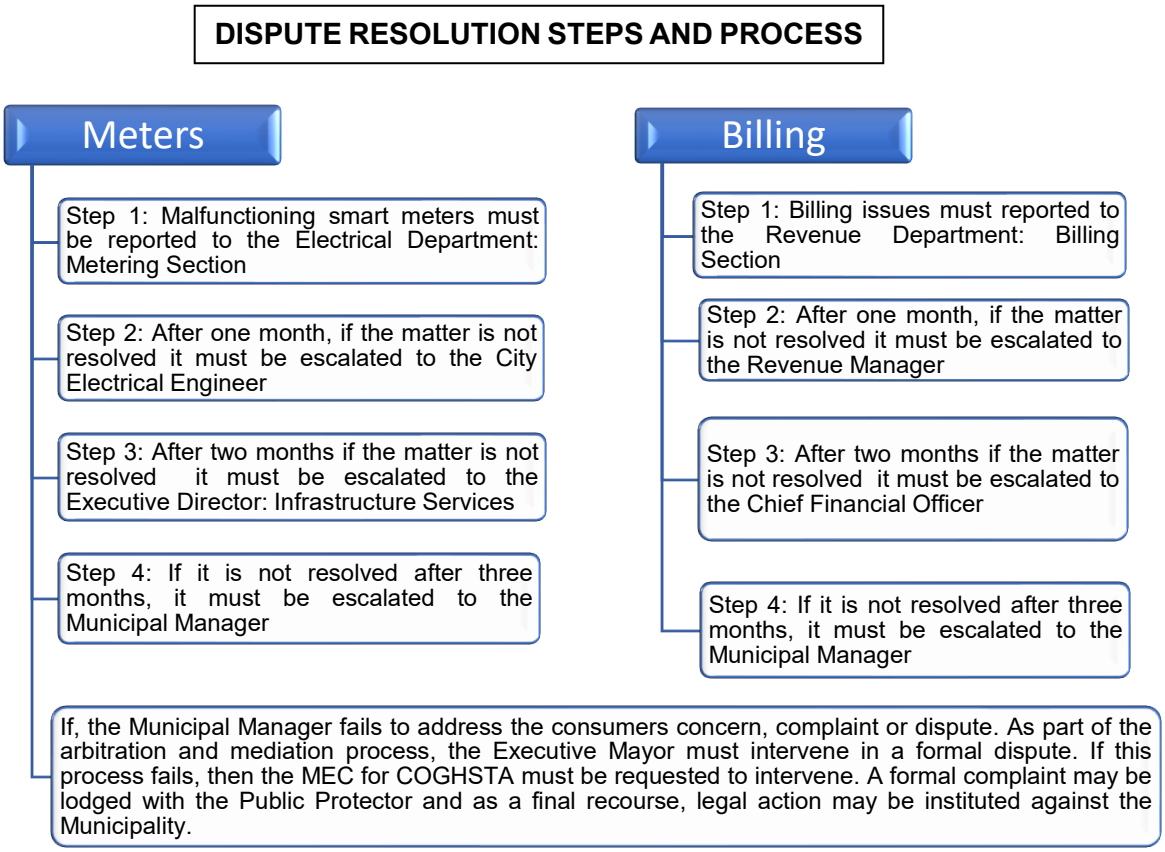
10.5 Right to Data Access: Consumers have the right to access their consumption data and to this end, the registered owner of the property or a tenant with the written permission of the landlord may obtain metering data.

10.6 Right to Privacy: Consumers have the right to privacy concerning their usage data. Consumer data will be protected by implementing robust encryption and security protocols to protect data transmission and storage. This is essential to prevent unauthorized access and data breaches. Data sharing with third parties shall require the implicit written permission of the registered owner and the use of the data shall solely be for the intended purposes like billing, consumption patterns and resource management.

10.7 Obligations in Meter Maintenance: While the primary responsibility for maintaining the meters lies with the Municipality or service provider, consumers have certain obligations, such as ensuring safe access to meters for meter readings or maintenance checks, proper functioning of the equipment and refraining from tampering with the equipment to gain free access or manipulate consumption data. Any such tampering will be dealt with as provided for in the Customer Care, Credit Control and Debt Collection Policy.

10.8 Dispute Resolution Mechanisms: Concerns, complaints or disputes related to smart meter readings or billing can arise from various factors, including meter malfunctions, inaccuracies, or billing errors will be resolved is provided for in the Customer Care, Credit Control and Debt Collection Policy. Figure 1 below shows the process to be followed during dispute resolution.

Figure 1. Dispute resolution process:



12) Stakeholder engagement and Communication Strategy

12.1 Key Stakeholders

Successful implementation of the smart meter project in the Municipality hinges on the active involvement and support of various stakeholders, each playing distinct roles:

12.1.1 Government Bodies: National and local government entities, including energy and utility regulators, are key stakeholders. They are responsible for setting policy frameworks, ensuring regulatory compliance, and possibly providing funding or subsidies. Their role also includes overseeing the project to ensure it aligns with broader energy and environmental goals.

12.1.2 Utility Companies: These are the entities directly responsible for the installation, operation, and maintenance of the smart meters. They play a crucial role in the technical aspects of the project, data management, and customer billing. Utility companies will also be key in addressing operational challenges and ensuring service continuity.

12.1.3 Consumers: This group includes residential, commercial, and industrial users of electricity and water. As the end-users of the smart meters, their cooperation is essential. Consumers are also the primary beneficiaries of the improved efficiency and

accuracy the smart meters promise, and their feedback is crucial for refining the system.

12.1.4 Community Leaders and Organizations: Local community leaders and organizations can act as intermediaries, facilitating communication between the project implementers and the community. They can help in sensitizing the community about the benefits of smart meters and in gathering grassroots feedback.

12.1.5 Technology Providers: Companies providing the smart meter technology and related systems are key in ensuring the technical viability of the project. Their role involves not just the supply of technology but also providing technical support and expertise.

12.2 Communication Plan

Effective communication is vital for the success of the smart meter initiative. The communication plan should encompass:

12.2.1 Initial Awareness Campaign: Before the rollout, conduct an awareness campaign to introduce the concept of smart meters to the community. This can involve informational brochures, local media advertisements, and digital media campaigns.

12.2.2 Public Meetings and Workshops: Organize meetings and workshops in different areas of the Municipality to explain the benefits of smart meters, the installation process, and how to use and interpret the data provided by the meters.

12.2.3 Social Media and Online Platforms: Utilize social media and the Municipality's official website to post regular updates about the project's progress, answer FAQs, and provide a platform for feedback.

12.2.4 Regular Updates: Throughout the installation process, keep stakeholders informed about progress, any changes in the schedule, and results from the early phases of the project.

12.2.5 Targeted Communication for Different Stakeholder Groups: Tailor the communication approach for different groups - for example, more technical details for businesses and simpler, more practical information for residential consumers.

12.3 Engagement Methods

Engaging with stakeholders and gathering their feedback is an ongoing process, the following engagement methods can be utilized:

12.3.1 Feedback Channels: Establish channels like hotlines, email addresses, and social media platforms specifically for stakeholders to ask questions and express concerns.

12.3.2 Surveys and Questionnaires: Conduct regular surveys and questionnaires to gather feedback from consumers on their experience with the smart meters.

12.3.3 Stakeholder Meetings: Hold periodic meetings with key stakeholders such as community leaders, business associations, and consumer groups to discuss challenges, gather suggestions, and update them on progress.

12.3.4 Engagement Through Local Events: Participate in local events and forums to maintain visibility and engagement with the community.

12.3.5 Monitoring social media: Actively monitor social media channels for public sentiment and concerns, responding appropriately where needed.

13) Monitoring and evaluation

13.1 Performance Indicators

For the smart meter installation project in the Municipality, clearly defined Key Performance Indicators (KPIs) are crucial to objectively measure the project's success and guide decision-making. These KPIs include:

13.1.1 **Installation Rate:** Measures the number of smart meters installed against the planned number within a specific timeframe. This KPI helps in tracking the progress of the physical installation process.

13.1.2 **Operational Efficiency:** Assessed by the reduction in time and costs associated with meter reading and billing processes post-installation. This KPI reflects the operational benefits of smart meters.

13.1.3 **Data Accuracy:** Monitors the precision of the data captured by smart meters. This can be measured by the decrease in billing disputes and corrections.

13.1.4 **Consumer Satisfaction:** Gauged through surveys and feedback mechanisms. High satisfaction levels indicate successful adoption and perceived benefits among consumers.

13.1.5 **System Reliability:** Measured by the frequency and duration of outages or system failures. Reliable performance is crucial for the credibility of the new system.

13.1.6 **Energy and Water Conservation:** Tracks any reductions in overall consumption or improvements in efficiency, indicating the effectiveness of smart meters in promoting conservation.

13.2 Review and Reporting

Regular review and reporting are vital components of the project's monitoring and evaluation framework:

13.2.1 **Regular Progress Reviews:** Scheduled reviews, possibly on a quarterly basis, to assess progress against the KPIs. These reviews should involve all key stakeholders, including installation teams, utility companies, and municipal officials.

13.2.2 **Reporting Mechanism:** Establish a clear reporting mechanism for all parties involved in the project. This could include monthly or quarterly reports detailing the installation progress, operational issues, consumer feedback, and any deviations from the planned schedule or budget.

13.2.3 **Public Reporting:** Periodic public reporting on the project's progress and performance against KPIs. This maintains transparency and keeps the community informed and engaged.

13.2.4 **Data-Driven Adjustments:** Utilize the data collected through monitoring to make informed decisions and adjustments to the project plan as necessary.

13.3 Feedback and Improvement

The collection and utilization of feedback are essential for the continuous improvement of the policy and its implementation:

13.3.1 **Consumer Feedback Channels:** Establish and maintain various channels for consumers to provide feedback, such as online portals, customer service hotlines, and email.

13.3.2 **Stakeholder Meetings:** Regular meetings with key stakeholders, including community groups and business associations, to discuss experiences, concerns, and suggestions for improvement.

13.3.3 **Surveys and Questionnaires:** Conduct periodic surveys and questionnaires among consumers and other stakeholders to collect structured feedback on various aspects of the smart meter system. Information Technology (IT) Section to assist with electronic surveys, as and when required.

13.3.4 **Feedback Integration:** Actively integrate the feedback into the ongoing project management process. This involves analysing the feedback, identifying areas for improvement, and implementing changes where necessary.

13.3.5 **Continuous Learning and Adaptation:** Encourage a culture of continuous learning and adaptation within the project team and among stakeholders. Share lessons learned and best practices both internally and with other municipalities or organizations undertaking similar projects.

14) Risk Management and Contingency Planning

14.1 Potential Risks

Effective risk management is crucial for the smart meter installation project in the Municipality. Key potential risks include the following:

14.1.1 **Technological Failures:** This includes hardware malfunctions, software glitches, or issues with data transmission. Such failures can disrupt the metering system, leading to inaccurate billing or data loss.

14.1.2 **Resistance from Consumers:** Consumer resistance can arise due to concerns over privacy, data security, or changes in billing. Misunderstandings or misinformation about smart meters can exacerbate this issue.

14.1.3 **Funding Shortfalls:** Insufficient funding can delay or halt the project. This risk is particularly pertinent if the project depends heavily on external funding sources like government grants or loans.

14.1.4 **Regulatory Changes:** Sudden changes in national or local regulations regarding utility metering or data privacy can impact the project's viability.

14.1.5 **External Security Threats:** Risks such as cyber-attacks or physical tampering with the meters, which can compromise data integrity and system functionality.

14.2 Mitigation Strategies

To mitigate these risks, the following strategies should be employed:

14.2.1 **Robust Testing and Quality Assurance:** Implement thorough testing of the smart meters and supporting infrastructure before and during deployment to minimize the risk of technological failures.

14.2.2 **Consumer Education and Engagement:** Develop a comprehensive communication strategy to educate consumers about the benefits of smart meters, how they work, and the measures taken to protect their privacy and data.

14.2.3 **Diversified Funding Strategy:** Secure funding from multiple sources to reduce dependency on a single stream and create a financial buffer. This includes exploring options like public-private partnerships and phased implementation to manage costs.

14.2.4 **Regular Compliance Reviews:** Stay abreast of regulatory changes and ensure ongoing compliance. This includes maintaining flexibility in the project plan to accommodate potential regulatory shifts.

14.2.5 **Enhanced Security Measures:** Implement robust cybersecurity measures for the metering system and conduct regular security audits. Physical security features for the meters should also be considered.

14.3 Crisis Management

In case of unexpected challenges or emergencies, a well-defined contingency plan is necessary, which includes the following:

14.3.1 **Rapid Response Team:** Establish a dedicated team to respond quickly to crises, be they technological failures, security breaches, or other emergencies.

14.3.2 **Emergency Communication Protocols:** Develop clear protocols for internal and external communication during a crisis. This includes timely and transparent communication with consumers and stakeholders.

14.3.3 **Backup Systems:** Ensure backup systems are in place, particularly for data storage and recovery, to minimize disruptions in case of system failures.

14.3.4 **Crisis Simulation Exercises:** Regularly conduct crisis simulation exercises to test the effectiveness of response plans and refine them based on learnings.

14.3.5 **Stakeholder Collaboration:** Collaborate with stakeholders, including technology providers, emergency services, and local authorities, to ensure a coordinated response to emergencies.

15) Review of the Policy

This policy may be reviewed annually in conjunction with the Municipality's budget process.

16) Date of implementation

The proposed amendments to this policy will be effective from 01 July 2026.