[12] **UTILITY MODEL REGISTRATION** [11] **Registration No.: 2/2025/050731**

[45] **Issue date: 8 August 2025**
(08.08.2025)

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[54]	Title:	CLOUD-BASED HEAD-END SYSTEM FOR AUTOMATED METERING INFRASTRUCTURE (AMI)
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[22]	Filing Date:	23 June 2025 (23.06.2025)
[43]	Publication date:	30 June 2025 (30.06.2025)
[21]	Application No.:	2/2025/050731
[30]	Foreign Application Priority Data:	NONE
[51]	International Class:	G01R22/00 (2006.01); H04L67/00 (2006.01)

[57] **ABSTRACT**

The present disclosure relates to a cloud-based head-end system for Automated Metering Infrastructure (AMI) designed to support the real-time acquisition, processing, storage, and analysis of data from a plurality of smart electricity meters. The system comprises a data acquisition module operatively interfaced with smart meters using one or more communication protocols selected from Radio Frequency (RF), Programmable Logic Controller (PLC), Cellular, and Low-Power Wide Area Networks (LoRaWAN), and is configured to normalize incoming metering data. A cloud processing engine is provided and configured to perform realtime data validation, anomaly detection, and integration with utility billing systems. A storage and data management system is further included, comprising a distributed cloud-based storage architecture capable of scalable, redundant, and compliant archiving of metering data. The system also includes an AMI network communication module for enabling secure, bidirectional data transmission and remote meter control, employing encryption protocols such as Transport Layer Security (TLS) or Advanced Encryption Standard (AES). A security and access control module ensures role-based user access and compliance with Philippine data privacy regulations. Additionally, a monitoring and analytics module is provided to deliver realtime insights, operational dashboards, performance reports, and consumption analytics. The disclosed system improves operational efficiency, enhances data security, and provides a reliable platform for energy consumption analysis and utility management.

Description, Claims, Abstract: 8 page(s). Drawings: 3 sheet(s)

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