

Method and Strategy for AMI Development Based on AMR System Infrastructure to Support Electricity System Digitalization

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Keywords: *Advance metering infrastructure, automated meter reading, measurement system, prepaid system, communication media, real-time measurement, and customer participation.*

Abstract

The electric power measurement system with AMI technology is an automatic electrical measurement system that uses two-way communication that can provide real-time measurement of electrical energy and allows customers to know their electricity usage so that they can better manage their usage. PLN, as one of the biggest electricity utilities with customers, is currently preparing to develop a smart meter system with AMI technology, and one of the valuable experiences is the centralized AMR system that has been well operated. The method developed is a special method which is built from the centralized AMR technology and integrated with the prepaid system. This AMI system development method will give a real-time measurement system and provide information to customers, and allow customers to choose the mechanism for flexible postpaid and prepaid options.

This paper discusses the methods and strategies for electricity utility companies in designing and developing an electric power measurement system with AMI technology, which starts from an existing electric power measurement system that formed as centralized AMR system, with the main purposes of providing a real-time, accurate, and reliable measurement system, and allows customers to participate actively to control the use of electrical energy. The steps taken are choosing the smart meter type, selecting the appropriate communication media, which is able to provide communication and transporting measurement data simultaneously with a large number of meters, AMI system architecture, and designing master measurement systems that are capable of receiving meter readings data from massive number of meters. For system security and protection, a security system is also developed that can maintain the security and confidentiality of electricity measurement and transaction data. The method development has been started with the selection of meter types and communication media. For the master measurement system, some changes have been implemented from the basis of a centralized AMR system, taking into account the size of the data, and the number of meters that can be processed simultaneously. For the development of prepaid system features, application development is carried out on the meter data management system. This method is uniquely the first method developed by electricity utilities, given that this method was developed from the basis of the use of prepaid meters which are massively only implemented in Indonesia. Several new things and innovations have

been made in building this AMI system that has a distinctive Indonesian characteristic, which provides flexible choices for customers with postpaid and prepaid system.

note: This document will be opened to the participants on IERE website before the Workshop and opened to the public afterward.