Strategi implementasi penerapan smart meter reading menggunakan teknologi LPWANl (Studi kasus: Pilot project PLN Bali) = Implementation strategy of smart meter reading application using LPWAN technology (Case study: Pilot project PLN Bali)

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Abstrak

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Untuk mewujudkan bali eco smart grid, PLN Bali mengimplementasikan Advance metering infrastructure (AMI) melalui penggelaran pilot project 1.000 smart meter 2 arah berkonsep LPWAN di daerah Kuta, Bali. Pemilihan LPWAN LoRa sebagai akses smart meter dikarenakan perhitungan biaya, kemudahan implementasi dan kesiapan teknologinya. Pada tesis ini akan dibahas aspek teknologi dan aspek ekonomi implementasi smart meter reading 2 arah. Meliputi kebutuhan perangkat smart meter berbasis LoRa, biaya operasional (OPEX) dan biaya investasi (CAPEX). Guna mendukung suksesnya penggelaran Bali eco smart grid, maka disusun strategi implementasi menggunakan analisis SWOT. Melalui kajian tekno-ekonomi dan survey yang dilakukan langsung terhadap pelanggan PLN di wilayah Bali, dirumuskan faktor-faktor eksternal maupun faktor-faktor internal utama sehingga menghasilkan beberapa alternatif strategi implementasi penerapan smart meter reading menggunakan teknologi LPWAN, antara lain dengan melakukan ujicoba penerapan AMI, Peningkatan kualitas SDM melalui seminar maupun studi literatur, melakukan outsourcing ke pihak ketiga, pendekatan terhadap regulator terkait ketersediaan alokasi frekuensi dan juga penyuluhan tentang fitur-fitur yang terdapat pada smart meter AMI.
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ABSTRACT
To realize Bali eco smart grid, PLN Bali is implementing Advance Metering Infrastructure (AMI) through the deployment of 1,000 smart meter 2-way pilot project with LPWAN concept in Kuta area, Bali. The selection of LPWAN LoRa as smart meter access due to cost calculation, ease of implementation and technological readiness. In this thesis will be discussed aspects of technology and economic implementation of smart meter reading 2 way. Includes the needs of smart meter devices based on LoRa, operational cost (OPEX) and investment cost (CAPEX). In order to support the successful deployment of Bali eco smart grid, an implementation strategy is developed using SWOT analysis. Through techno-economic and surveys conducted directly to PLN customers in Bali area, formulated external factors as well as the main internal factors so as to generate some alternative implementation strategy of smart meters reading application using LPWAN technology, among others by conducting pilot project of AMI, Increasing the quality of human resources through seminars and literature studies, outsourcing to third parties, approaches to regulators related to the availability of frequency allocation and also extension about the features contained in the AMI smart meter.