

## Abstrak

Dalam operasi sistem kelistrikan 20 Kv Kalimantan Barat, PT PLN Unit Pelaksana Pengatur Distribusi (UP2D) Kalimantan Barat memiliki kewenangan dalam proses pengaturan operasi sistem. Fasilitas Operasi ( FASOP ) bagian yang bertanggung jawab untuk menyediakan sistem SCADA (Supervisory Control and Data Acquisition) baik di Gardu Induk (GI), Gardu Hubung (GH) dan Keypoint sisi 20kV. Keberhasilan telecontrol di Keypoint sangat perlu diperhatikan karena di keypoint tidak terdapat petugas. Gagal telecontrol bisa terjadi ketika RTU (*remote terminal unit*) dan peripheral bermasalah akibat hilangnya supply tegangan Direct Current (DC) karena *battery* sudah drop dan tidak ada tegangan Alternating Current (AC) karena padam jaringan atau bahkan keduanya pada keypoint. Akibat dari rusaknya peralatan tersebut dapat menyebabkan *downtime* peralatan yang menghambat dispatcher melakukan manuver ketika terjadi gangguan jaringan. Sistem pemeliharaan yang digunakan saat ini pada Keypoint di PT. PLN UP2D masih bersifat *corrective maintenance* dimana perbaikan dilakukan ketika terjadi kerusakan sehingga menimbulkan *downtime* yang tinggi dan membuat kinerja keypoint tidak maksimal. Salah satu alternatif untuk menyelesaikan persoalan ini maka dibuat sebuah sistem pendukung keputusan dalam penentuan *predictive maintenance* keypoint menggunakan metode *reliability centered maintenance* (RCM) berbasis web. Metode yang digunakan pada penelitian ini yaitu *reliability centered maintenance* (RCM) dengan menggunakan sistem tersebut dimana akan diperoleh tindakan perbaikan dengan *downtime* minimum. Hasil dari pengujian RCM diperoleh rekomendasi perawatan berupa *condition directed* (CD) pada komponen *switchgear, voltage transformer, rtu, modem gsm; finding failure* (FF) pada komponen *kabel control, antenna modem* dan *time directed* (TD) pada komponen *battrai*, dengan penggantian komponen setiap 325 hari untuk *battrai*.

**Kata Kunci** : Sistem Pendukung Keputusan, Keypoint, Reliability Centered Maintenance

## **Abstract**

In the operation of the 20 Kv electricity system in West Kalimantan, PT PLN Distribution Management Unit (UP2D) West Kalimantan has the authority in the process of regulating system operation. Operations Facility (FASOP) which is responsible for providing SCADA (Supervisory Control and Data Acquisition) systems both at the Substation (GI), Substation Hub (GH) and Keypoint side 20kV. The success of telecontrol at Keypoint is very important because there are no officers at the Keypoint. Telecontrol failure can occur when the RTU (remote terminal unit) and peripherals have problems due to the loss of the Direct Current (DC) voltage supply because the battery has dropped and there is no Alternating Current (AC) voltage due to network outages or even both at the keypoint. As a result of such equipment failure can cause downtime which prevents dispatchers from maneuvering when network disturbances occur. The maintenance system currently used at Keypoint at PT. PLN UP2D is still corrective maintenance where repairs are carried out when damage occurs, causing downtime and making keypoint performance not optimal. One alternative to solve this problem is to make a decision support system in determining predictive maintenance keypoint using a reliability centered maintenance (RCM) method. The method used in this research is reliability centered maintenance (RCM) by using the application where corrective action will be obtained with downtime minimum. The results of the RCM test obtained maintenance recommendations in the form of condition directed (CD) on switchgear components, voltage transformers, RTU, GSM modems; finding failure (FF) on the control cable component, modem antenna and time directed (TD) on the battery component , with component changes every 325 days for the battery.

**Keywords : Decision Support System, Keypoint, Reliability Centered Maintenance**