ABSTRACT

PT XYZ *is a company that engaged in business of electricity generation on Java and Bali island. Currently,* PT XYZ *is operating* 8 Unit Bisnis Pembangkit (UBP) *that distributed on strategic locations on Java and Bali island.* UBP ABC *is one of* UBP *that operating gas power plant. Spare part is very important in maintenance activity on power plant unit because, spare part is used for maintenance activity power plant unit, either preventive maintenance or corrective maintenance. Using spare part management, company can manage the spare part on machine more effective and efficient.*

Based on Key Kinerjance Indicator (KPI) UBP ABC *spare part management divison,* UBP ABC *was not able to reach the* KPI *index target that had been set.* KPI *data includes service level, inventory turn over, and procurement plan*. *Therefore, optimum spare part management method is needed in order for* KPI *index* UBP ABC *to reach the target that had been set.*

This research used Reliability Centered Spares (RCS) *method that aims to determine inventory level for all type of spare part on gas power plant unit and inventory probabilistic model to determine the policy and total cost for all type of spare part. From the analysis result using* RCS, *acquired* 20 *types of components that is included in critical component on gas power plant unit and total needs for each critical component to reach the* KPI *target. On an inventory policy and total cost, obtained lot size, reorder point, and safety stock for each critical component and total cost that* UBP ABC *must be spent is* Rp 1.322.025.209,58.

Keywords*: *Spare part management, Reliability Centered Spares* (RCS), *Inventory