Abstract

P.T PJB II as one of the Indonesian electric company which cover Java – Bali area should be able to overcome electricity demand in those area on the other hand the demand is increasing every periods of time. It makes P.T PJB have to enhance their capabilities by producing more energy so they can meet the community needs. Producing more energy means they have to be more efficient using their resources. Efficient means they have to arrange the combination of input and output so they can optimize their production by using minimal resources. Productivity analysis can give the direction to improve these efficiency. The direction is methods into a better productivity. It consists by several ways to arrange combinations of input – output so that the enhancement of efficiency can be reach.

Productivity analysis divided into two primary step. The first step is measuring technical efficiency each units which apply several boundaries variables. These variables consists of seven inputs and two outputs. The inputs are installed capacity, planned maintenance, corrective maintenance, distracted periods, internal distracted, external distracted, capacity factor, Equivalent Availability Factor, Forced Outage Rate, Schedule Outage Factor and the outputs are production/year and production loss. Those variables has been validated by bartlett and KMO test. Measurement of technical efficiency index using Data Envelopment Analysis (DEA) which considered into two phase, the first is measuring pure technical efficiency by using constan return to scale assumption and the second is measure the scale of technical efficiency by using variable return to scale. The inefficient units will be improved by collecting their peer group using cluster analysis, on the other hand the efficient units will be ranked based on DEA – AHP method.

The DEA – AHP method shows that UP Brantas has the higher technical efficiency by 0.2168 which is followed by UP Gresik by 0.215

Keywords : technical efficiency, scale efficiency, Data Envelopment Analysis, peer group, DMU ranked