DESIGNING DECISION MODEL FOR CONTRACTOR SELECTION USING ANALYTIC NETWORK PROCESS (CASE STUDY OF PT. PERUSAHAAN GAS NEGARA (PERSERO), TBK)

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ABSTRACT

Contractor selection process in the construction project is one of the crucial processes because in this process the project owners hope to reduce the risks of project failure that existed since the early to get the right contractor to complete the project. Selection of the contractor is the decision-making process involving multiple criteria and performed by some of the decision makers. The criteria describe the requirement and expectations of the project owner to the selected contractor. In addition, this process also uses data and information to the characteristics of incomplete and unclear, thus it involves the subjective judgement of the decision maker when assessing contractor.

PT. Perusahaan Gas Negara (Persero), Tbk is a company engaged in the distribution of natural gas through pipelines where pipeline construction project is an important activity for the company. However, in the contractor selection process, decision-making method used has some weakness, such as the long processing time and inclination bias in the decision obtained. This research design a decision making model for contractor selection using Analytic Network Process in order to reduce the weakness of existing systems and accommodate the characteristics of the contractor selection process. In this research, a focus group discussion is used to identify decision criteria and their relationship in the decision model and questionnaire is used to determine the weights of criteria and assess the contractor bid. Respondents used in this research are employees at middle management level of the relevant departments.

Contractor selection model obtained from this research involves five decision criteria, namely technical capability, organizational capability, occupational safety and health, internal capabilities and bid price. Then based on the sensitivity analysis of the case study object, the results show that organizational capability and occupational health and safety has more sensitive influence to changes in the outcome than other criteria in the decision model.

Keyword: construction project, contractor selection, decision making, analytic network process