ABSTRACT

The current phenomenon of increasing electricity consumption in Indonesia and changes in client demand that are disruptive means that companies must survive and compete with each other, especially in the renewable energy industry. By applying project management knowledge in carrying out company business activities, it is necessary to know the main factors that cause delays in projects that often arise in developing countries. The following is the frequency of occurrence of factors causing project delays, including financial issues with a frequency of 17,1%, contract management and skills with a frequency of 13,6%, project planning issues with a frequency of 10,7%, and site management with a frequency of 10,7%, external influence with a frequency of 10,7%, equipment & material issues with a frequency of 9.3%, design issues with a frequency of 7,1%, project characteristics with a frequency of 5.0%, and workforce/labor issues with a frequency of occurrence 5%. In the company actual project work it was found that delays in project work were caused by several factors, including lack of handling record of transfer on carry over projects, material delays, rework on project deliverables, incompetent vendor workforce, and a large gaps found between baseline plans and actual project work. Based on the causes of delays in the EPC project, this can happens because the company's vendor selection process has not considered the criteria comprehensively in terms of project management.

With the aim of overcoming the problems found at PT XYZ, the proposed solution is to design a Key Performance Indicator (KPI) using the Analytic Hierarchy Process (AHP) method. KPI is an instrument for measuring organizational performance to achieve goals that can help measure financial and non-financial aspects. Meanwhile, the use of the AHP method aims to outline the criteria that will be used in the form of a hierarchy to support the decision to select vendors who are included in the list of selected partners of vendor evaluation process.

The design produces KPIs with 6 main criteria and 11 sub-criteria or decision indicators, these criteria include management capability with three sub-criteria, administrative requirements, vendor capability, and past job performance. The next main criteria is financial capability with two sub-criteria, payment system policy and price of services offered. The main criteria quality with one sub-criteria for the

results of the services provided, The main criteria delivery time with one sub-criteria of speed & accuracy of delivery time. The main criteria customer services with two sub-criteria are responsiveness in coordination of complaints and frequency of complaints. As well as the main criteria safety with two sub-criteria for the application of occupational safety and health and safety performance. Based on the results of weighting using the Analytic Hierarchy Process (AHP) method, the sub-criteria with the highest global weight are speed & accuracy of delivery time with a weight of 23,90%, the next ranking is the results of services performed with a global weight of 21,75%, the sub-criteria for implementing occupational safety and health is in third place with a weight of 14,22%, and the bottom three are occupied by the sub-criteria of past job performance with a weight of 2,13%, administrative requirements with a weight of 2,02%, and the frequency of complaints was 0,92%. Based on the proposed vendor evaluation KPI, there is a list of selected partners eligibility category that can be said to be eligible if it has a minimum total score of 59,67%.

The results of the vendor KPI design can be used as a reference in the decision-making process for selecting construction vendors at PT XYZ in the EPC industry, also can add insight regarding existing conditions that occur within the scope of vendor selection with the theory from the literature review used.

Keyword – ***Analytic Hierarcy Process (AHP) , Key Performance Indicator (KPI), Procurement Management, Project Management, Vendor***