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**PT PLN (Persero) Satisfaction Analysis towards Performance of  
The Contractor**

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**Abstract**

In order to improve the quality of contractor's performance in the construction industry, it is necessary to evaluate performance based on the established standards. The purpose of this research was to identify the indicators of PT Perusahaan Listrik Negara's (PLN) satisfaction with the contractor's performance and analyze the PLN satisfaction index on the contractor's performance in terms of managerial capability, technical capability, accuracy of work completion, and administration & finance. The sampling technique of respondents used was Purposive Sampling (Non Probability Sampling). The number of representative PLN respondents in South Sumatera working area was 5 respondents and in North Sumatera work area was 5 respondents. The contractors were chosen based on work experience or currently working on a construction of 150 kV and 275 kV transmissions in the same 2 work areas. Data collection method used was questionnaires (in a form of a checklist) as an instrument to answer a set of written statements to respondents. The analytical method used was the Customer Satisfaction Index (CSI). Overall, PLN as a user was satisfied with the performance of the contractor. It was evidenced by the acquisition of CSI values for 8 companies that were all in the range of  $60\% < \text{CSI} \leq 80\%$  with an average CSI value of 70.68%.

**Keywords:** contractor performance, customer satisfaction index

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## INTRODUCTION

As the only government-owned corporation that supplies electricity in all regions of Indonesia, PLN's investment needs in the development of the electricity supply infrastructure from year to year are showing an increasing trend in line with the electricity consumption growth. To actualize the program, PLN cooperates with the contractor in investing heavily in the development of infrastructure. The role of the contractor is important in the success of the entire set/stages of construction, which includes aspects of compliance with schedule, quality, cost, and cooperation (Adriuli, 2017). With the number of projects and targets of operation (*energize*) that must be achieved in accordance with the Key Performance Indicator (KPI), PLN and the contractor are required to work optimally to achieve the completion targets of the work. In order to improve the quality of contractor's performance in the construction industry, it is necessary to evaluate performance based on established standards. According to Mattias and Kollberg (2009), performance measurement is a fundamental prerequisite for follow-up, coordination and the improvement of the organization and performance measures are considered important in decision making. Performance measurement is a tool to assess the success of an organization (Mahmudi, 2010).

The importance of measuring the performance of the contractor based on existing indicators is as an evaluation of the work process starting from the initial stage to the completion or when the system operates fully. The assessment indicators will later produce a value/weight as a satisfaction index which is one of the approval prerequisites of contractor to be listed on the List of Selected Providers. The purpose of drafting the List of Selected Providers is to accelerate the process of selecting the qualified providers in accordance with the needs and flexibility without losing business momentum by controlling the possibility of risks that occur as well as following the best practices in the process of goods/services procurement and ensuring the more optimal achievement of corporate's targets or goals. The index shows the level of PLN satisfaction rate as a user in evaluating contractor's performance.

The purpose of this research was to identify the indicators of PLN satisfaction towards contractor's performance and analyze the PLN satisfaction index towards contractor's performance.

### Definition of Performance

Performance is a picture of the achievement level of the implementation of a work program or policies in realizing the targets, objectives, vision and mission of the organization as outlined through the strategic planning of an organization (Moeheriono, 2012).

### **Performance assessment**

According to Gomes (2003), there are more or less 2 main requirements that are needed to conduct an effective performance assessment, namely: the performance criteria that can be measured objectively and the objectivity in the evaluation process.

### **Performance Indicator**

Performance indicator is quantitative or qualitative measures that describe the achievement rate of the determined targets or objectives (Abdullah, 2014). In another view, the performance indicator is as follows:

- a. Performance indicator is a certain value or characteristic that is used to measure the outputs or results of an activity.
- b. Performance indicator is a measurement tool that is used to determine the level of success of an organization in achieving its aim (Moehariono, 2012).

### **Satisfaction Index**

As stated by Neely et al., (2002), performance satisfaction measurement is defined as a process of qualifying the efficiency and effectiveness of activities that had been running before and performance as a parameter used to qualify the efficiency and effectiveness of activities that had ran previously. The satisfaction index is one of the barometers for companies in seeing the performance of contractors. The benefit of measuring the PLN satisfaction index for contractors is that the measurement results are used as a guide for performance enhancement and improvement in order to achieve more optimal targets/aims. The benefits of measuring the satisfaction index for PLN are the process of measuring satisfaction in a continuous manner and the need to benchmark the level of satisfaction of one company with another company. The satisfaction index is built by a structured model that assumes owner satisfaction as a result of several factors such as perceived quality, perceived value, or by the company's image (Irawan, 2003).

## **METHODOLOGY**

### **Population**

The population in this research were all contractors who have worked and were currently doing the construction work of 150 kV & 275 kV transmission in the working areas of PLN South Sumatera and PLN North Sumatera.

### **Sample**

### **Respondents**

The sampling technique of respondents in this research used Purposive Sampling (Non Probability Sampling). Sampling is not based on random, regional or stratum, but based on the considerations that focus on a particular purpose, are carried out deliberately and in accordance with all the sample requirements that will be needed.

The number of representative PLN respondents in South Sumatera working areas was 5 respondents and in North Sumatera working areas was 5 respondents, therefore there were a total of 10 respondents.

### Contractor

The contractors were chosen based on work experience or currently working on the construction of 150 kV and 275 kV transmission in the same 2 working areas, namely PLN South Sumatera and PLN North Sumatera, the consist of:

Table 1.1. List of Contractors (Research Subject)

Source: PLN Contract Book

No.	Contractors	Classification	Amount (Rp)
1.	PT. HP	Large	68.600.000.869,-
2.	PT. BT	Large	64.380.800.550,-
3.	PT. FH	Large	42.060.881.758,-
4.	PT. BP	Large	108.515.715.001,-
5.	PT. BB	Large	63.277.027.537,-
6.	PT. MS	Large	84.518.127.800,-
7.	PT. DP	Large	73.391.891.293,-
8.	PT. PP	Large	31.642.680.617,-

### Data source

The data in this research were sourced from Primary Data. Primary data obtained directly based on questionnaire instruments that had been distributed.

### Method of collecting data

Data collection method used was questionnaire as an instrument to answer a set of written statements to respondents. The instrument used was a questionnaire in the form of a checklist. All statements compiled were placed on the questionnaire instrument sheet. This research questionnaire referred to the decree of PT PLN (Persero)'s director No. 271.K/DIR/2013 dated March 27, 2013 concerning Guidelines for Performance Assessment of Goods/Services Providers in PLN Environment. This questionnaire was used as a research instrument because it has become the standard for evaluating the performance of goods/services providers within PLN environment to obtain quality assurance of material/qualified work product in accordance with applicable standards and also as a reference material in the procurement process/subsequent work.

Table 1.2.Example of Questionnaire Sheets Format

Source: The Decree of PT PLN (Persero)'s Director No. 271.K/DIR/2013 dated March 27, 2013 Concerning Guidelines for Performance Assessment of Goods/Services Providers in PLN Environment

**QUESTIONNAIRE SHEET  
CONTRACTOR: PT. HP**

NO.	ASSESSMENT CRITERIA	SATISFACTION					ITEM SCORE	IMPORTANCE					ITEM SCORE
		SCORES						SCORE					
		1	2	3	4	5		1	2	3	4	5	
<b>A.</b>	<b><i>CURRENT AUDIT</i></b>												
A.1	<b>ASSESSMENT INDICATORS (MANAGERIAL CAPABILITIES)</b>												
A.1.1	Obedience to Government and PLN Regulations		√				2			√		3	
A.1.2	Project Manager Capability and Activeness in Solving Problems of The Project		√				2			√		3	
A.1.3	Project Organizations and Supporting Personnel Fits Their Competencies			√			3			√		4	
A.1.4	Capability in Solving Social Problems		√				2			√		3	
A.1.5	Overall Schedule Project and S-curve which are Approved by The Job Directors		√				2			√		4	
A.1.6	Capability in Coordinating with The Job Directors Team		√				2			√		4	
A.1.7	Cooperate with Local Unit		√				2			√		4	
A.1.8	Internal Work Relations (Joint Venture)			√			3			√		3	

<b>A.2 ASSESSMENT INDICATORS (TECHNICAL ABILITY)</b>					
<b>A.2.1 ENGINEERING CAPABILITIES</b>					
A.2.1.1	Complete Environmental Documents (UKL, UPL, RKL, RPL, AMDAL, LARAP) and Problem Solving in The Field	√	2	√	3
A.2.1.2	Approval Drawing/Design Completion	√	2	√	4
A.2.1.3	Complete Work Methods (IK, SOP) for the Work Implementation at The Corporation	√	2	√	3
A.2.1.4	Final As Build Drawing Completion	√	2	√	3
A.2.1.5	Engineering Document Submission (including: design calculation, basic design, etc.)	√	3	√	3
<b>A.2.2 CONSTRUCTION CAPABILITIES</b>					
A.2.2.1	The Availability of Equipment That Suitable With The Field of Work	√	3	√	3
A.2.2.2	Human Resource's Capabilities to Inform the Job's Potential Risks	√	2	√	3
A.2.2.3	Has a Competent Implementation Team	√	2	√	3
A.2.2.4	Has a Competent Testing and Comissioning Team	√	3	√	3
<b>A.2.3 THE QUALITY OF GOODS AND WORK</b>					
A.2.3.1	<i>Factory Acceptance Test</i> (FAT) Results	√	2	√	4
A.2.3.2	<i>Site Acceptance Test</i> (SAT) Results	√	2	√	4
A.2.3.3	Has a product type test certificate from a national / international independent laboratory	√	3	√	4

A.2.3.4	The quality of goods sent is in accordance with the technical specifications in the contract	√	4	√	3
A.2.3.5	Refer to national / international standards according to the contract	√	4	√	3
A.2.3.6	Compliance with the applicable construction standards according to the contract	√	4	√	3
A.2.3.7	<i>Site Test</i> & commissioning test results that are integrated with the system	√	3	√	3
A.2.3.8	Civil/electromechanical/steel structure work	√	3	√	4
A.2.3.9	Workplace safety and cleanliness	√	4	√	2
A.2.3.10	Complete Equipment and Occupational Health and Safety Team (K3 team)	√	2	√	2
<b>A.3</b>	<b>ASSESSMENT INDICATORS (ACCURACY OF WORK COMPLETION &amp; SUPPORT)</b>				
A.3.1	Capability to bring/mobilize goods to the site on time	√	3	√	2
A.3.2	Capability to Finish The Job on Time	√	2	√	2
A.3.3	Pending matters settlement services	√	3	√	2
A.3.4	<i>Sustainable Product &amp; Supporting Sparepart</i>	√	2	√	4
<b>A.4</b>	<b>ASSESSMENT INDICATORS (ADM &amp; FINANCE)</b>				
A.4.1	Administration (COO, COM, supporting documents, progress reporting system, correspondence, and monitoring the estimated value of progress realization)	√	3	√	3

A.4.2	Meet the administrative requirements of shipping goods (including travel documents, warranty certificates, shipping insurance)	√	2	√	2	
A.4.3	Complete brochure, manual book, supporting software	√	2	√	2	
A.4.4	Neat packing, mobilization and demobilization of materials	√	3	√	2	
A.4.5	The Submission of labor insurance policies	√	3	√	2	
A.4.6	The Accuracy of disburse (progress vs payment)	√	3	√	2	
A.4.7	Financial Capability in project financing	√	3	√	4	
A.4.8	Number of contract claims caused by goods / services Provider errors	√	2	√	3	
<b>B.</b>	<b>POST AUDIT</b>					
B.1	Performance of The equipment / goods after commissioning / operating and during the warranty period		√	5	√	2
<b>TOTAL SCORE</b>				<b>106</b>		<b>120</b>



**Data Quality Test****Instruments Validity Test**

Questionnaire validity test conducted with the aim to determine the validity of the questionnaire and measure the validity of the questionnaire. The questionnaires that produced irrelevant data to the purpose of holding the measurement was submitted as the questionnaires that had low validity.

The testing technique that is often used by researchers to do validity test is to use Bivariate Pearson correlation. The basics of the decision to test the validity of the questionnaire items in this research were:

- a. If  $r$  arithmetic, positive and  $r$  arithmetic  $>$   $r$  table, then the question was declared valid.
- b. If  $r$  arithmetic was not positive and  $r$  arithmetic  $<$   $r$  table, then the question was declared invalid (Ghozali, 2011).

**Instrument Reliability Test**

Reliability test is a test that shows the extent to which the measurement can provide results that are relatively not different if repeated on the same subject. This test can only be done on valid questions.

Reliability test was carried out using the Cronbach's Alpha method for internal consistency testing because the research instrument was in the form of a questionnaire and multilevel scale. The coefficient ranged from 0 to 1 with the following criteria:

- a. If  $\alpha > 0.90$  then reliability was perfect.
- b. If  $\alpha$  was between 0.70 - 0.90 then reliability was high.
- c. If  $\alpha$  was 0.50 - 0.70, the reliability was moderate.
- d. If  $\alpha < 0.50$  then reliability was low.
- e. If  $\alpha$  was low, chances were one or more items were not reliable.

**Data Processing Techniques**

PLN satisfaction is the main goal for every service (contractor). The level of PLN satisfaction can be measured by using a method named the Customer Satisfaction Index (CSI). CSI is an index to determine the overall level of PLN satisfaction using an approach that considers the importance of the product attributes towards the measured service. Compared to using the Importance Performance Analysis (IPA) method, the Analytical Hierarchy Process (AHP) method, and the Factor Analysis method, the CSI method provides clear data on level of customer/ PLN satisfaction so that at a certain time unit, periodic evaluations to correct deficiencies and improve performance can be done. It is a plus value for the customer. In addition, the CSI method

has the following advantages: efficient, easy to use, simple and using a scale that has an enough high sensitivity and reliability. CSI scores in this research were divided into 5 criteria:

- a.  $0\% < \text{CSI} \leq 20\%$  = Very dissatisfied
- b.  $20\% < \text{CSI} \leq 40\%$  = Dissatisfied
- c.  $40\% < \text{CSI} \leq 60\%$  = Quite satisfied
- d.  $60\% < \text{CSI} \leq 80\%$  = Satisfied
- e.  $80\% < \text{CSI} \leq 100\%$  = Very satisfied

There are 5 steps in CSI calculation, namely:

- a. Determine Mean Importance Score (MIS) and Mean Satisfaction Score (MSS). This value is derived from the average level of importance and performance of each respondent. MIS is the average score of an attribute's importance derived from the average expectations of each respondent. While MSS is the average reality of an attribute derived from the average company performance felt by consumers.

$$MIS = \frac{(\sum_{i=0}^n Yi)}{n} \quad MSS = \frac{(\sum_{i=0}^n Xi)}{n}$$

Information :

Yi = Weight value of expectations

Xi = Weight value of performance

n = Number of respondents

- b. Create a Weight Factor (WF) or Weighted Factor by converting the importance value into percent, so that Important Weight Factor is obtained with a total of 100%.

$$WF = \frac{MIS}{TotalMIS} \times 100\%$$

- c. Create a Weighting Score (WS) or weighted score.

$$WS = WF \times MSS$$

- d. Calculate Weighted Average Total (WAT) by summing up the Weight Score (WS) of all variables.

$$WAT = WS_1 + WS_2 + \dots + WS_n$$

- e. Determine the Customer Satisfaction Index (CSI) where Weighted Average Total (WAT) divided by High Scale (HS) or expressed as a percent. Accordingly in this research the maximum scale used is five.

$$CSI = \frac{WAT}{HS} \times 100\%$$

**RESULTS**

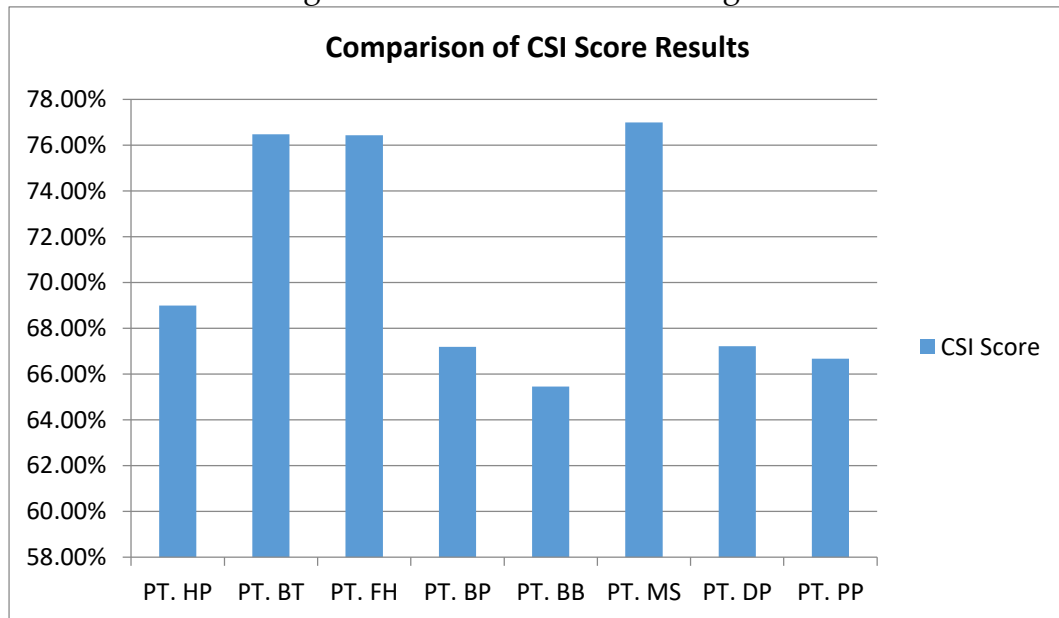
Below is a recapitulation results of the PLN's level satisfaction's calculation with 8 contractors using the Customer Satisfaction Index method:

Table 1.3. Recapitulation Results of the PLN's Level of Satisfaction's Calculation

Source: Data Processed by SPSS Software

No.	Contractors	Classification	CSI Scores	Criteria
1.	PT. HP	Large	69.00%	Satisfied
2.	PT. BT	Large	76.48%	Satisfied
3.	PT. FH	Large	76.44%	Satisfied
4.	PT. BP	Large	67.19%	Satisfied
5.	PT. BB	Large	65.45%	Satisfied
6.	PT. MS	Large	77.00%	Satisfied
7.	PT. DP	Large	67.22%	Satisfied
8.	PT. PP	Large	66.67%	Satisfied
<b>Average</b>			<b>70.68%</b>	<b>Satisfied</b>

Figure 1.1. CSI Score Result Diagram



**CONCLUSION**

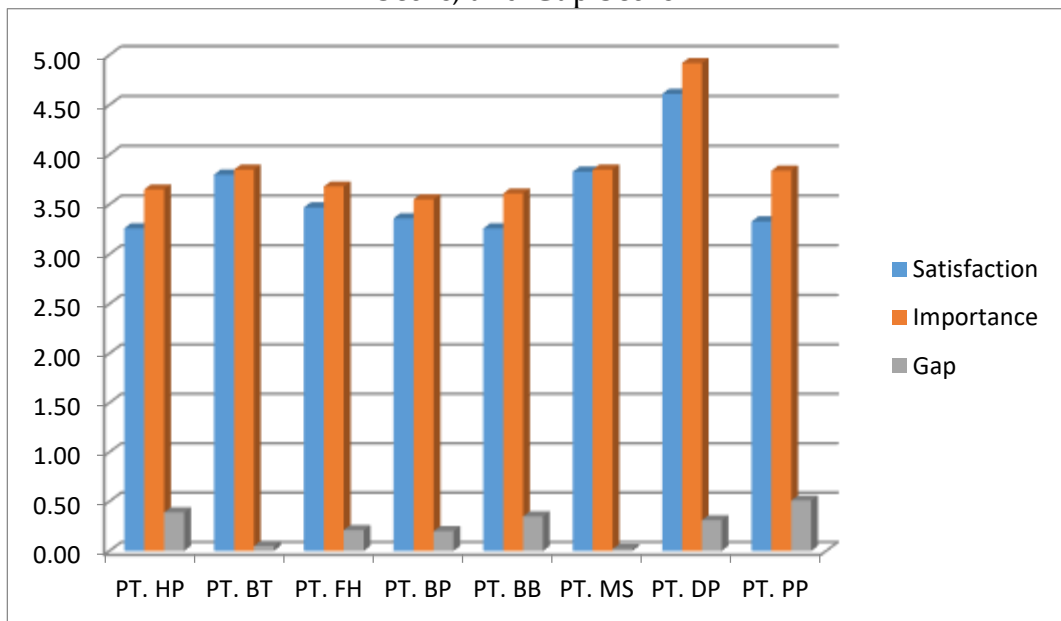
- a. Overall, PLN as a user was satisfied with the performance of the contractors in terms of managerial ability, technical ability, accuracy of work completion, administration and finance. It was evidenced by the acquisition of CSI values for 8 companies that were all in the range of  $60\% < \text{CSI} \leq 80\%$  with an average CSI value of 70.68%.

- b. Recapitulation of gap calculation between the satisfaction level score assessment and the importance level score assessment of all the contractor performance evaluation indicators as follows:

Table 1.4. Recapitulation of Gap Calculation

No.	Contractors	Mean Score			Criteria
		Satisfaction	Importance	Gap	
1.	PT. HP	3.26	3.65	0.39	Quite Satisfied
2.	PT. BT	3.80	3.85	0.05	Satisfied
3.	PT. FH	3.47	3.68	0.21	Satisfied
4.	PT. BP	3.36	3.55	0.20	Satisfied
5.	PT. BB	3.26	3.61	0.35	Quite Satisfied
6.	PT. MS	3.83	3.85	0.02	Very Satisfied
7.	PT. DP	4.61	4.92	0.31	Quite Satisfied
8.	PT. PP	3.33	3.84	0.51	Dissatisfied

Figure 1.2. Comparison Diagram between Satisfaction Score, Importance Score, and Gap Score



- c. It is identified that the smallest gap value is found at PT. MS of 0.02. This shows that the indicators on the implementation of work by PT. MS has met the standard indicators/level of PLN interest. However, in order to maximize the achievement of the satisfaction score, the contractor must evaluate or improve the indicators that are currently unsatisfactory.

- d. Meanwhile, the largest gap value is found at PT. PP of 0.51. This shows that the indicators on the implementation of work by PT. PP has not met the standard indicator/level of PLN interest. Thus, in order to maximize the achievement of a satisfaction score, the contractor must evaluate or further improve the indicators that are currently unsatisfactory.

## RECOMMENDATIONS

- a. For further studies, the research can be developed on discussing the level of PLN satisfaction with the contractor's performance of 150 kV and 275 kV substation construction.
- b. In addition to CSI, the research can also be continued with calculations using the Importance Performance Analysis (IPA) method, to provide results in the form of interpretations of the classification of indicators into 4 quadrant Cartesians.

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