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FORMULATING COMPETITIVE STRATEGIES FOR GOVERNMENT POWER PLANTS IN JAKARTA

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ABSTRACT: *In the context of accelerating electrification ratios, the power plant construction program with a total capacity of 35,000 MW is proclaimed by the Government of Indonesia. The portion of the program is shared to PT PLN, the state owned enterprises, and IPP as a private power plant, with the largest portion being given to the IPP. Amidst the declining market share conditions and the obligation of PT XYZ as a subsidiary of PT PLN to participate in the success of this program, the right competitive strategy formulation is needed to remain competitive. Data collection through questionnaires and in-depth interviews with experts was then carried out. Based on the strategic analysis tools used (PEST, external internal matrix, SWOT matrix, and QSPM), it was obtained that the current position of PT XYZ is grow and build. The priority strategy selected was to increase reliability in the plant operation. Ten main work programs were then developed to support the strategy implementation.*

KEYWORDS: Electricity, Government, Power Plant, QSPM, Strategic Analysis

INTRODUCTION

The Government of Indonesia has proclaimed power plant construction program with the total capacity of 35,000 Mega Watt (MW). This program is an effort to accelerate electrification ratio increase so that electricity can reach remote area and light up the whole country. Commitment to this program is stated in the Decree of Ministry of Energy and Mineral Resources (ESDM) and stated in detail in the Electricity Supply Business Plan (RUPTL) of PT PLN, state-owned electricity enterprise in Indonesia, during 2017-2026. In RUPTL, there are 109 power plant programs with the allocation of 10,000 MW are the responsibility of PT PLN, while the rest are entrusted to the private power plant, which is better known as Independent Power Producer (IPP).

PT XYZ as the subsidiary of PT PLN takes part in succeeding the 35,000 MW program through the construction of 500 MW peaker plant project. The condition occurring since 2005 until now is that the projection and market trend especially in Java-Bali electricity system show a decreasing market share of PT XYZ annually until 2020 as can be viewed in Chart 1. The decline is caused by a stagnant growth of energy market and IPP growth which increasingly dominates electricity energy market. The 35,000 MW construction project and the increasing projection of IPP's market share certainly affects PT XYZ's business directly. Given those conditions, PT XYZ is required to harmonize and formulate good and effective competitive strategy as a response to the occurring condition by considering the condition of

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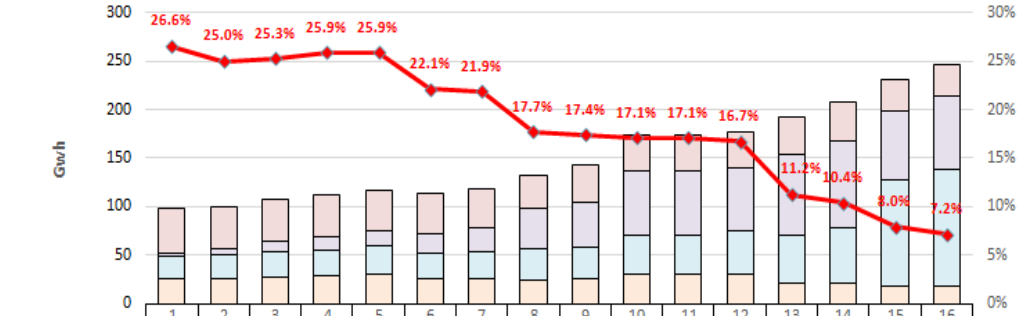
financial, financing, business portfolio, location distribution, and organizational and human resource capability.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IP	46.53	44.25	43.08	42.34	40.81	41.70	41.01	34.12	39.13	37.25	37.25	37.25	38.52	39.74	31.00	31.71
PLN	2.052	6.139	10.73	14.13	16.43	20.91	23.88	41.59	45.77	65.64	65.64	65.64	83.21	89.29	71.95	75.83
IPP	23.44	24.69	26.54	26.44	29.11	26.04	27.84	33.03	33.75	40.77	40.77	44.91	49.40	56.87	108.9	120.7
XYZ	26.03	25.02	27.16	28.97	30.13	25.12	25.98	23.40	24.95	29.66	29.66	29.66	21.61	21.65	18.31	17.65
Market Share	26.6%	25.0%	25.3%	25.9%	25.9%	22.1%	21.9%	17.7%	17.4%	17.1%	17.1%	16.7%	11.2%	10.4%	8.0%	7.2%

Source: RJP PT XYZ 2013-2018

Chart 1. Projection of Java-Bali System's energy market

Formulating strategies is selected as it is a way largely used and implemented by organization by utilizing all resources to develop and achieve the predetermined programs (Pearce and Robinson, 2008). In formulating strategies, the clarity of vision and mission becomes highly essential because both are the primary elements in strategic planning (Bart *et al.*, 2001; Akdon, 2006; David, 2013).

Strategy formulation is a holistic part of strategic management in order to achieve short-term, medium-term, and long-term goals of a company (Luis *et al.*, 2011; Wheelen and Hunger, 2012). In the process, there are at least three work stages, namely input stage, matching stage, and decision stage (David, 2013). In each stage, there are several strategic analyses that can be employed.

Researches concerning strategy formulation for energy-sector companies have been conducted a lot. Internal and external analysis approach is very commonly used as in Irawan (2011), Elsahati *et al.* (2017), and Kwon and Kim (2017). Strength, Weakness Opportunity, Threat (SWOT) analysis and Quantitative Strategic Planning Matrix (QSPM) are also widely employed in strategy formulation researches as in Karakosta *et al.* (2016). Strategic-planning-based analytical tool is considered more effective to describe the current and future condition comprehensively (Kurttila *et al.*, 2000; Lozano and Valles, 2007; Helms and Nixon, 2010; Doukas *et al.*, 2012).

There were two objectives of this research. First, identifying internal and external environment factors of PT XYZ to optimize the opportunities in 35,000 MW program. Second, formulating strategies for PT XYZ so that it can compete in the electricity industry in Indonesia. This research was limited only to analyze environmental factors affecting business strategy development by referring to the vision and mission of PT XYZ. This research was

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conducted at business level located in North Jakarta. The arrangement of strategy implementation was only focused on the selected priority strategy.

RESEARCH METHODS

In order to achieve the objectives, a research using descriptive and quantitative approach was conducted by making use of primary and secondary data. Primary data were obtained from interview results and collection of questionnaire for research respondents. The respondents of this research consisted of six people who can be categorized as experts because they are parts of PT XYZ's management, namely a General Manager at top level and five managers. Secondary data were acquired from the business plan of PT PLN and PT XYZ.

The acquired data and information were started off from the harmony with vision, mission, and corporate business. In brief, Figure 1 explains the stages and process of data processing and the technique used in each stage.

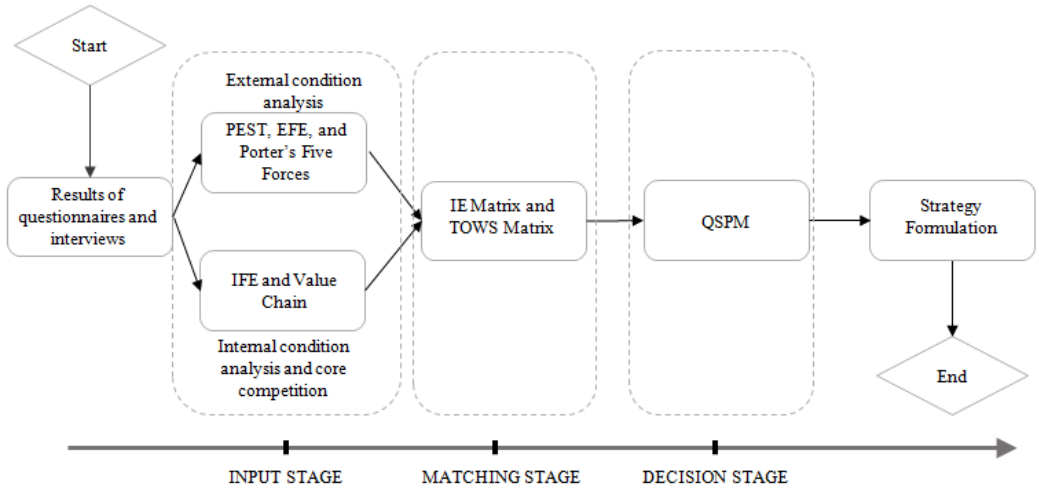

Figure 1. Stages of data analysis process

PEST and Porter's Five Forces were used in the interview with internal experts of PT XYZ to determine the factors that became opportunities and threats in the making of external analysis. PEST scans the environmental conditions from the political, economic, social, and technological aspect. Porter's Five Forces was used to measure the level of influence and intensity of competition in industrial environment currently faced by an organization (Porter, 1994).

Porter's value chain analysis was applied to analyze internal factors based on primary and secondary activities. IFE and EFE analysis was utilized to evaluate the main external and internal factors that had an impact on PT XYZ. The weighting in this analysis was done based on pairwise comparison questionnaires of the six expert respondents. Mode values were taken from the six experts.

The IFE total weighted score of less than 2.5 shows that the company is internally weak, while the score of over 2.5 shows that the company is internally strong. The EFE total weighted score of less than 2.5 indicates that the company is unable to harness the available

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opportunities or unable to avoid the occurring external threats. The total weighted score of more than 2.5 indicates that the company is in the right strategy to harness opportunities and avoid threats existing in its environment.

In order to know more about the strategy that will be implemented, Internal External (IE) Matrix was then arranged based on two dimensions, namely IFE Matrix total weighted score on x-axis (horizontal) and EFE Matrix total weighted score on y-axis (vertical). If on x-axis, the total weighted score of between 1.0 and 1.99 indicates that the company is weak in internal position; between 2.0 and 2.99, the company is in the average position; between 3.0 and 4.0, the company is strong in internal position. Similarly, on y-axis, if the total weighted score of between 1.0 and 1.99 shows that the company is low in external position; between 2.0 and 2.99, the company is in the mid position; between 3.0 and 4.0, the company is high in external position.

After finding out the factors influencing the company's position, SWOT Matrix was made to arrange strategies based on strengths, weaknesses, opportunities, and threats. The formulation of alternative strategy that might be generated were as follows:

a) S-O strategy: optimizing strengths to harness the available opportunities.

b) W-O strategy: minimizing weaknesses to gain opportunities.

c) S-T strategy: optimizing strengths to minimize the occurring threats.

d) W-T strategy: minimizing weaknesses to avoid the occurring threats.

QSPM analysis was then used to evaluate the strategy formulations objectively based on the internal and external factors that had been identified before through IFE, EFE, IE, and SWOT Matrix. The components contained in QSPM are strategy formulation, internal and external factors, weight, Attractiveness Scores (AS), Total Attractiveness Scores (TAS), and sum of TAS. The result of QSPM analysis will be made as the main strategy to be implemented by PT XYZ.

RESULTS

Input Stage

External factor identification process was carried out using PEST and Porter's Five Forces method. The complete results were in the form of factors influencing PT XYZ as presented in Table 1.

Among those factors, ten factors that were considered as having the most influence, were selected based on the discussion with the experts. The ten factors were then categorized in opportunities and threats, five factors respectively. The ones included in opportunities factor were PEST (1), PEST (2), PEST (5), Porter (5), and Porter (8). Meanwhile, the ones included in threat factors were PEST (3), PEST (4), Porter (2), Porter (3), and Porter (9).

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Table 1. External factor identification based on Porter's Five Forces and PEST

Porter's Five Forces	PEST
(1) Buyers' bargaining power	(1) Government policies supporting state-owned power plant
(2) Difficulty in obtaining gas fuel in large volume	(2) People's purchasing power is high
(3) Low number of quality gas fuel suppliers	(3) Fluctuating oil fuel price
(4) Suppliers' bargaining power	(4) Rising inflation
(5) The capital required to construct new power plant is high	(5) Rapid power plant technology advancement
(6) Threat of substitution products	
(7) Competitors in the industry	
(8) Power plant becomes an important customer for fuel suppliers	
(9) Difficulty to change gas fuel supplier	

The ten factors considered as having the most impact were then arranged into EFE Matrix as shown in Table 2. The major opportunity for PT XYZ was the rapid power plant technology advancement with the score of 0.49, while the major threat for PT XYZ was the difficulty to change fuel supplier with the score of 0.19

Table 2. External factor evaluation

Variables	Value	Weight	Score
Opportunities Factor			
Government policies supporting state-owned power plant	3.00	0.14	0.42
People's purchasing power is high	3.00	0.10	0.30
Rapid power plant technology advancement	4.00	0.12	0.49
The capital required to construct new power plant is high	4.00	0.11	0.44
Power plant becomes an important customer for fuel suppliers	4.00	0.05	0.20
Threats Factor			
Rising inflation	2.00	0.09	0.18
Oil fuel price fluctuation	1.00	0.12	0.12
Difficulty in obtaining gas fuel in large volume	2.00	0.08	0.17
Low number of quality gas fuel suppliers	2.00	0.09	0.18
Difficulty to change gas fuel supplier	2.00	0.09	0.19
Total		1.00	2.68

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Internal factor identification process was performed by using Porter's value chain method which generated seven internal factors. From primary activities, there obtained three internal factors influencing the company, namely (1) high cost of goods sold, (2) good company reputation, and (3) sophisticated power plant technology. From secondary activities, there obtained four internal factors affecting the company, namely (4) the old age of the power plant, (5) the large unit capacity of the power plant, (6) expert and experienced employees, and (7) the ability to produce quality electricity. Factor (1) and (4) were identified as weaknesses, while the rest were the company's strengths factor. Starting off from the list of seven factors considered as the most influential, Table 3 shows the processing of IFE Matrix. The results of IFE analysis revealed that the ability to produce quality electricity had the highest score of 0.71, while the main weakness was high cost of goods sold with the score of 0.19. This weakness becomes a matter commonly suffered by a company producing electricity energy that is highly sensitive to fuel price and the lacking functioning of market-oriented price (Fan *et al*., 2013; Khan, 2014; Kim *et al*., 2016)

Table 3. Internal factor evaluation

Variables	Value	Weight	Score
Strengths Factor			
Large unit capacity of the power plant	4.00	0.15	0.62
Expert and experienced employees	4.00	0.15	0.62
Sophisticated power plant technology	3.00	0.18	0.54
The ability to produce quality electricity	4.00	0.18	0.71
Good company reputation	3.00	0.17	0.50
Weaknesses Factor			
The age of the power plant	1.00	0.07	0.07
High cost of goods sold	2.00	0.10	0.19
Total		1.00	3.25

Matching Stage

To strengthen the acquired results, IE Matrix analysis was used to find out the current position of PT XYZ and determine the right strategy. IE Matrix consists of two axes, namely horizontal axis which is the total weighted score of internal evaluation (amounted to 3.25) and vertical axis which is the total weighted score of external evaluation (amounted to 2.68). From this matrix, there obtained the position of PT XYZ which was in quadrant IV which showed that the most appropriate strategy at such position was grow and build. It also indicated that PT XYZ needed a strategy to grow better and develop the company better. The complete result of this matrix is portrayed in Figure 2.

In order to see the suitability of the strategies generated by IE Matrix that are obtained quantitatively, there needs to be a qualitative analysis in the form of SWOT Matrix analysis. From the four generated strategies, namely Strengths-Opportunities (S-O), Weaknesses-Opportunities (W-O), Strengths-Threats (S-T), and Weaknesses-Threats (W-T), the expert respondents determined six alternative strategies as revealed in Table 4.

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Table 4. Alternative strategies based on SWOT analysis

No	Strategies
1	Improving human resource (HR) competence (S-O)
2	Improving customer services (S-O)
3	Improving reliability in power plant operation (S-O)
4	Optimizing a more efficient power plant operation pattern (S-T)
5	Power plant technology modification and upgrade (W-O)
6	Optimizing the use of primary energy (W-T)

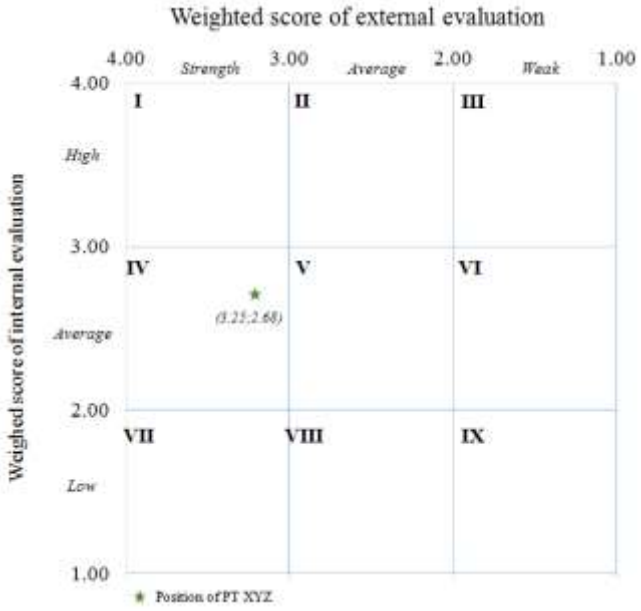

Figure 2. Position of PT XYZ in IE Matrix

Decision Stage

This stage was used by QSPM to select one strategy among the alternative strategies obtained from IFE and EFE Matrix and SWOT Matrix. Among the six strategy options, QSPM analysis showed that from S-O strategy, the one which had the highest TAS was the strategy of "improving reliability in power plant operation" with the TAS of 5.89. The detail of QSPM can be seen in Table 6.

DISCUSSION

Improving reliability in power plant operation is a strategy option which utilizes strengths to optimize the available opportunities. By finding out the available strengths and opportunities, PT XYZ will be able to arrange its future work programs so that the company can survive and take an important part in 35,000 MW construction program. Table 5 conveys the ten work program recommendations that can be implemented by PT XYZ to support the selected strategy.

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Table 5. PT XYZ's program recommendations

No	Program	Implementation plan	Division in charge
1	Annual overhaul	8,000 hours operations	Maintenance
2	Predictive maintenance	Min. 1 time/week	Engineering
3	Fuel start up test and changeover test of gas fuel to oil fuel	Min. 1 time/month	Operation
4	Performance test unit	1 time/month	Operation
5	Power plant's Black Start test	Min. 2 times/year	Operation
6	Power plant's Hose Load test	Min. 2 times/year	Operation
7	Operator competence training	Min. 4 times/year	Operation
8	Review of SOP/work instructions	Min. 2 times/year	Operation
9	Performance achievement evaluation	Min. 1 time/month	Operation
10	Coordination meeting with external	Min. 2 times/month	Operation

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Table 6. QSPM

Factors	Weight	Alternative strategies											
		Improving HR competence		Improving customer services		Improving power plant operation		Optimizing power plant's operation pattern		Advancing power plant technology		Optimizing the use of primary energy	
		AS	TAS	AS	TAS	AS	TAS	AS	TAS	AS	TAS	AS	TAS
Opportunities Factor													
Government policies supporting state-owned power plant	0.14	1	0.14	1	0.14	3	0.42	3	0.42	2	0.28	2	0.28
People's high purchasing power	0.10	1	0.10	3	0.30	3	0.30	3	0.30	2	0.20	2	0.20
Rapid power plant technology advancement	0.12	3	0.37	3	0.37	3	0.37	3	0.37	3	0.37	3	0.37
The capital required to construct new power plant is high	0.11	2	0.22	3	0.33	3	0.33	3	0.33	2	0.22		0.33
Power plant becomes an important customer for fuel suppliers	0.05	2	0.10	3	0.15	3	0.15	3	0.15	2	0.10	4	0.20
Threats Factor													
Rising inflation	0.09	1	0.09	3	0.27	1	0.09	1	0.09	1	0.09	1	0.09
Oil fuel price fluctuation	0.12	1	0.12	3	0.37	3	0.37	3	0.37	1	0.12	4	0.49
Difficulty in obtaining gas fuel in large volume	0.08	1	0.08	1	0.08	3	0.25	3	0.25	1	0.08	4	0.33
Low number of quality gas fuel suppliers	0.09	1	0.09	3	0.27	3	0.27	3	0.27	1	0.09	4	0.36
Difficulty to change gas fuel supplier	0.09	1	0.09	3	0.28	3	0.28	3	0.28	1	0.09	4	0.38
Strengths Factor													
Large unit capacity of the power	0.15	2	0.31	1	0.15	4	0.62	4	0.62	3	0.46	3	0.46

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plant												
Expert and experienced employees	0.15	4	0.62	4	0.62	4	0.62	2	0.31	2	0.31	2	0.31
Sophisticated power plant technology	0.18	3	0.54	4	0.71	3	0.54	3	0.54	4	0.71	3	0.54
Ability to produce quality electricity	0.18	1	0.18	4	0.71	3	0.54	3	0.54	2	0.36	2	0.36
Good company reputation	0.17	1	0.17	4	0.67	1	0.17	2	0.33	1	0.17	2	0.33
Weaknesses Factor													
The age of the power plant	0.07	2	0.14	2	0.14	3	0.21	3	0.21	4	0.29	3	0.21
High cost of goods sold	0.10	3	0.29	2	0.19	4	0.38	3	0.29	3	0.29	4	0.38
Total	1.00		3.64		5.76		5.89		5.66		4.23		5.62

Those program recommendations can work well if each division can cooperate by not only prioritizing operation excellence, but also business excellence. Commitment from the management to evaluate strategy periodically by paying attention to the internal and external aspect also has an equal importance. The reliability of power plant operation is a crucial matter as it has an impact on maintenance efficiency, optimum use of fuel, and eventually the relatively lower costs (Saleem, 2007; Chan *et al.*, 2014; Nkambule and Blignaut, 2017).

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CONCLUSION

In order to support the 35,000 MW central government program and based on the declining market share condition of PT XYZ, competitive strategy formulation is deemed necessary. In an attempt to achieve that, a series of strategy analyses were conducted by involving the experts who are also parts of the management which generated the result that the current position of PT XYZ was grow and build. The internal factors of ability to produce quality electricity and high cost of goods sold were identified as factors with the greatest impact. Meanwhile, rapid power plant technology advancement and difficulty to change fuel supplier were identified as factors with the largest impact viewed form external viewpoint.

The strategy of improving reliability in power plant operation was chosen as the priority that can be implemented by PT XYZ. Ten main work programs were arranged, based on that strategy, which are technical, concrete, and measurable in nature to support the achievement of the strategy. Moreover, commitment from the management to evaluate the strategy periodically by paying attention to the internal and external environment aspect is also deemed necessary so that PT XYZ can compete in the electricity industry in Indonesia.

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