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Original Article

The Role of Coal Fired Power Plant (CFPP) Operations Strategy as a Business Unit in Supporting the Company's Competitive Advantage

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Abstract: *Coal-Fired Power Plants are one of the strategic business units in the electricity industry that play a crucial role in maintaining the reliability of the national energy supply. Amidst pressures for cost efficiency, demands for operational reliability, and increasingly stringent environmental regulations, CFPP operational strategies are a determining factor in creating a company's competitive advantage. This study aims to analyze the role of CFPP operational strategies as a business unit in supporting a company's competitive advantage. The research method is a descriptive qualitative approach, with a case study of CFPP operations. The analysis results show that operational strategies that focus on cost efficiency, system reliability, process quality, and operational risk control can improve unit performance and support the company's sustainable competitiveness.*

Keywords: *Operational strategy, Coal Fired Power Plant, Business Unit Strategy, Competitive Advantage.*

I. INTRODUCTION

The electricity industry plays a strategic role in supporting economic growth, industrial activity, and public welfare. The availability of reliable, sustainable, and affordable electricity is a key indicator of the success of national development. In Indonesia, Coal-Fired Power Plant's (CFPPs) still play a dominant role in the national electricity system due to their ability to generate large amounts of power and operate continuously as base load.

However, coal-fired power plants face increasingly complex strategic challenges. These challenges include rising fuel costs, fluctuating coal quality, demands for operational efficiency, increased system reliability, and pressure from increasingly stringent environmental regulations. Furthermore, the development of new and renewable energy sources is encouraging coal-fired power plants to operate more efficiently and adaptively to remain relevant in the national energy portfolio.

From a strategic management perspective, a Coal-Fired Power Plant (CFPPs) is no longer viewed merely as a technical asset or production facility, but rather as a Strategic Business Unit (SBU) that directly contributes to the company's performance. The operational performance of a Coal-Fired Power Plant directly impacts the company's cost structure, the reliability of its electricity supply, and its reputation among stakeholders. Therefore, operational strategy is a key element bridging business strategy and implementation in practice.

The operational strategy of a coal-fired power plant encompasses various long-term decisions related to resource management, technology, processes, and human resources. These decisions are aimed at achieving cost efficiency, improving unit reliability, maintaining service quality, and ensuring compliance with safety and environmental regulations. With the right operational strategy, a Coal-Fired Power Plant can create added value and support a company's sustainable competitive advantage.

II. LITERATURE REVIEW

A) Strategic Management and Business Unit Strategy

Strategic management is a process involving the formulation, implementation, and evaluation of strategic decisions that enable an organization to achieve its long-term goals (David & David, 2017). In practice, strategic management helps companies respond to internal and external environmental dynamics systematically and targeted.

In large companies, strategy is generally divided into three levels: corporate strategy, business unit strategy and functional strategy. Business unit strategy focuses on how a business unit competes in a particular industry by leveraging its resources and capabilities. In the context of a Coal Fired Power Plant (CFPPs), the power plant operating unit can be viewed as a business unit directly responsible for value creation through operational performance.

B) Operations Strategy

An operations strategy is a long-term decision-making process related to the design and management of operating systems to support a company's business strategy. Slack et al. (2018) state that operations strategy aims to align operational capabilities with market needs and the company's strategic direction.

The main dimensions of operations strategy include cost, quantity, delivery reliability, flexibility, and process reliability. In the context of a Coal-Fired Power Plant (CFPPs), the cost dimension is reflected in fuel efficiency and maintenance cost control. The quality and reliability dimensions relate to the stability of electricity production, the level of unit availability, and the minimum operational disruptions.

C) Competitive Advantage

Competitive advantage is attained when a company is able to generate more value than its competitors with strategies that are not replicable. According to Porter (1985), competitive advantage is the result of three possible strategies: leadership in costs, market segmentation or focus.

In the electricity sub-sector, especially at the CFPPs level, competitiveness is essentially achieved in respect of efficient generation costs, reliable supply and environmental regulations and norms. It is an efficient operations strategy that will make the creation and retention of competitive advantage possible.

III. RESEARCH METHOD

This research uses a qualitative approach with a case study method. The research object is the operational strategy of a Coal-Fired Power Plant (CFPPs) as a business unit. Data were obtained through operational observations, documentation studies, and analysis of practical experience in managing Coal-Fired Power Plant operations. This approach was used to gain an in-depth understanding of the implementation of operational strategy and its impact on the company's competitive advantage.

IV. RESULTS AND DISCUSSION

The Coal-Fired Power Plant's operational strategy plays a strategic role in supporting the company's competitive advantage through various integrated operational aspects. Implementing an appropriate operational strategy enables the Coal-Fired Power Plant to operate efficiently, reliably, and sustainably amidst the challenges of the electricity industry.

A) Operational Cost Efficiency Strategy

The operation of the Coal-Fired Power Plant. The cost-effectiveness is important for the CFP plant. Fuel consumption is managed by heat rate optimization, coal quality regime and better combustion efficiency. Furthermore, the implementation of preventive and predictive maintenance can reduce the frequency of unplanned outages that could potentially increase repair costs.

Through this strategy, the Coal-Fired Power Plant can reduce electricity production costs per kWh, which supports the achievement of the company's cost leadership strategy. Sustainable cost efficiency also provides the company with room to remain competitive amid pricing and regulatory pressures.

B) Unit Reliability and Availability Strategy

Operational reliability is a critical factor in the electricity industry. A loss of a generating unit can have direct effects on the electricity system and diminish stakeholder confidence. Thus, the operation strategy of the CFPPs was developed to minimize outages and improve availability and reliability by focusing on scheduled maintenance, equipment health analysis, and human work skills. Achieving success in this way enhances the stability of the electricity supply and adds to the status of "a plant which excels in both reliability and strategic importance" for the CFPP.

C) Compliance and Sustainability Strategy

Besides economical and reliable considerations, the operational strategy of a Coal-Fired Power Plant must also satisfy safety and environmental legislation. Abatement programs, waste control and installation of health/safety systems are important components of this method of operation. This adherence is essential to reducing legal and operational exposure and raising the company's profile. With sustainability components being embedded into operational strategy, a Coal-Fired Power Plant can provide the company with a long-term competitive advantage.

In general, the findings indicate that the CFPP operations strategy is "not only a business plan", but it implies a technical process as well as being part of the business unit strategy, ultimately advancing the company's competitive advantage. Implementation of performance monitoring, condition-based maintenance and development of operational HR (human resource) capabilities enable an increase in unit availability and reliability as well.

Third, the operations strategy also supports compliance with environmental regulations through emission control, waste management, and the implementation of occupational safety standards. This compliance not only reduces legal risk but also enhances the company's image among stakeholders.

Therefore, Coal Fired Power Plant (CFPPs) operations strategy serves not only as a technical activity but also as an integral part of the business unit strategy, directly supporting the company's competitive advantage.

V. CONCLUSION

The Operational strategy of a Coal-Fired Power Plant (CFPPs) plays a strategic role as a business unit in supporting the company's competitive advantage. By focusing on cost-efficient, operational reliability, process quality and regulatory compliance, CFPPs are able to sustainably improve unit performance and company competitiveness. Therefore, integrating operational strategy with business and corporate strategies is key to a company's success in the electricity industry.

VI. REFERENCES

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