



SOLUTIONS ENHANCING THE EFFECTIVENESS AND EFFICIENCY OF BUSINESS OPERATIONS OF NHON TRACH PV POWER PLANT

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ABSTRACT

The SWOT Matrix is an important matching tool that helps managers develop four types of strategies: SO (strengths-opportunities) Strategies, WO (weaknesses-opportunities) Strategies, ST (strengths-threats) Strategies, and WT (weaknesses-threats) Strategies.

The research results showed that there were 170 staffs of Nhon Trach PV Power Plant interviewed and answered about 22 questions but 150 staffs of Nhon Trach PV Power Plant processed. This paper conducted during the period from 6/2013 to 7/2015.

The method of KMO (the exploratory factor analysis) result showed that there were four factors, which included of factors following External factors: Opportunities, threats and internal factors: Weaknesses, Strengths that are components of the SWOT matrix with significance level 5 %. The results was also a scientific evidence and important for researchers, and policy makers who apply them for the developing of Nhon Trach PV Power Plant in the future. After analyzing the data, the researcher had obtained the main objectives of this study were to:

1. The first objective, the researcher had to analyze and test External - Internal factors to affect the effectiveness and efficiency of business operations of the Nhon Trach PV Power Plant.

2. The second objective, the researcher had to to recommend some effective solutions for improving the effectiveness and efficiency of business operations of the Nhon Trach PV Power Plant.

Keywords: SWOT, internal and external factors, Power Plant and enterprises.

Introduction

Viet Nam is a developing country and benefiting from lower oil prices and the economic recovery of developed countries, according to the East Asia Pacific Economic Update released Monday by the World Bank (WB). The report said Vietnam's economy has

prospered because the economic growth at the end of 2014 was above expectations despite earlier difficulties. Viet Nam has improved on macroeconomics indicators and reformed the business environment. The poverty rate has also decreased.

Bert Hofman, Chief Economist of the WB's East Asia and Pacific Region, said that over the longer term, Viet Nam is to keep growth high, developing East Asia should redouble efforts to pursue structural reforms to increase their underlying growth potential and enhance market confidence.

According to the report, the regional countries could also benefit from structural reforms, such as facilitating international trade and promoting foreign direct investment, especially in the services sector. In this context, the establishment of the ASEAN Economic Community in 2015 could boost intra-regional investment and exports and provide an important source of growth.

Besides, the electricity production task, the operation and maintenance of power plants, one of the key tasks of PetroVietnam Power, has been paid attention since its establishment. Until now, the services have thrived with high economic efficiency. The average rate of revenue increase is over 9% per year, particularly contributing to the safe and stable operation of power plants. The question is how to help the Nhon Trach PV Power Plant to improve its competitive position to resist threats from major competitors and the instability of the economy, and to ensure that the Nhon Trach PV Power Plant has sustainable development. The above issue is closely related to the topic "*SOLUTIONS ENHANCING THE EFFECTIVENESS AND EFFICIENCY OF BUSINESS OPERATIONS OF NHON TRACH PV POWER PLANT*" as a paper applying in business administration.

Literature review

Effectiveness: It is the level of results from the actions of employees and managers. Employees and managers who demonstrate effectiveness in the workplace help produce high-quality results. Take, for instance, an employee who works the sales floor. If he's effective, he'll make sales consistently. If he's ineffective, he'll struggle to persuade customers to make a purchase. Companies measure effectiveness often by conducting performance reviews. The effectiveness of a workforce has an enormous impact on the quality of a company's product or service, which often dictates a company's reputation and customer satisfaction.

Efficiency: Efficiency in the workplace is the time it takes to do something. Efficient employees and managers complete tasks in the least amount of time possible with the least amount of resources possible by utilizing certain time-saving strategies. Inefficient employees and managers take the long road. For example, suppose a manager is attempting to communicate more efficiently. He can accomplish his goal by using email rather than

sending letters to each employee. Efficiency and effectiveness are mutually exclusive. A manager or employee who's efficient isn't always effective and vice versa. Efficiency increases productivity and saves both time and money.

What is the Difference between Efficiency and Effectiveness in Business?

Companies often talk about employee effectiveness and efficiency when brainstorming ways to improve business. While they sound similar, effectiveness means something entirely different than efficiency. An effective employee produces at a high level, while an efficient employee produces quickly and intelligently. By combining effectiveness and efficiency, a company produces better products faster and with fewer

Improving Effectiveness:

To improve effectiveness, companies must take the initiative to provide thorough performance reviews, detailing an employee's weakness through constructive criticism. Managers must make it a point to address effectiveness and explain how an employee's performance affects the company as a whole. To avoid a workplace full of ineffective employees, companies must hire high-performing employees by weeding out candidates at the recruiting level. Employees are often ineffective because they don't care about their work or because they don't possess the skills to contribute. By interviewing candidates, calling references and conducting tests, companies can bring on employees with skills better suited for performing at a high level.

Improving Efficiency:

Employees and managers are often inefficient because they either don't know how to be efficient or do not have the necessary tools to perform tasks efficiently. Ways to improve efficiency include meeting with managers and employees to outline ways to implement efficiency in the workplace and asking for opinions on what the workplace is missing. For example, a small business that lacks an employee email system prevents managers from communicating with employees efficiently.

Efficiency and Effectiveness of Business Operations:

Various analyses and definitions of operations' efficiency and effectiveness are known within the organization and management sciences. They are defined by different authors as follows:

- In general, efficiency may be defined as the quantity of resources used per result unit; effectiveness presents the level at which the organization achieves its goals.
- Efficiency presents the level of different goals achievement within the limited available resources; effectiveness presents the level of the organization's ability to attain future goals it thus includes efficiency and capability of adjustment to future circumstances.
- Efficiency is used to define (and measure) investments (or invested efforts) for the achievement of organization's aims and goals; effectiveness is used to evaluate consequences

caused by the system in the environment (i.e. evaluation of social aims and goals of the organization). For the needs of our contribution, various perceptions and analyses may be divided into two basic groups.

The first group includes approaches and understandings which consistently separate efficiency from effectiveness. Their division is based on different criteria, such as investigation approach (e.g. narrow, broad), study aspect (e.g. individual, interdisciplinary), the study scope (e.g. entity, parts of the entity), etc.

Within this framework, efficiency is understood mainly as the concept of partial (or narrow) investigation of the organization focusing on the internal work of the organization.

Methods of research

First, the preliminary research conducted through qualitative methods in-depth interviews with 30 PV managers independently to test the content and meaning of the words and terms used in this scale is appropriate and easy to understand. The preliminary results of the research helped to remove restrictions and unnecessary errors, and thus draw official questionnaires are used in formal quantitative research. The staffs and managers were in-depth interviews about the meaning and content of the questionnaires. The result is that all enterprises understand the content and meaning of every sentence of the scale.

Second, this scale is used in formal research. A nonprobability sampling method was used in this study, and a convenient sample of 170 staffs of the Nhon Trach PV Power Plant (NTP) who was obtained.

Finally, the data were collected and analyzed using the statistical indicators with data processing software SPSS 20.0.

Research results

Descriptive Statistics for the internal – external factors of Nhon Trach PV Power Plant

Table 1: Descriptive Statistics for the internal – external factors of Nhon Trach PV Power Plant

Questions	N	Mean	Std. error
O1: Electricity is a special good that has no substitution	150	3.23	.076
O2: Viet Nam politics are rated as one of the most stable in the world	150	3.22	.076
O3 Viet Nam has young population that provides a large labor force to the economy	150	3.40	.079

O4: The government has issued many preferential policies to develop electrical sources	150	3.42	.076
O5: Market potential – demand for electricity in Viet Nam continues to rise	150	3.43	.076
O6: Equipment manufacturers have developed the advanced technology in power generation	150	3.41	.076
S1: Nhon Trach PV Power has good infrastructure	150	3.87	.076
S2: Nhon Trach power plant was built with modern technology	150	3.86	.077
S3: High quality human resources with high loyalty to the Company	150	3.37	.092
S4: Good production management	150	3.59	.106
S5: Having high support from parent company – PVN	150	3.31	.112
T1: The policy improvement is for competitive electricity market management in Viet Nam	150	2.93	.086
T2: EVN is the single customer in the power generation market	150	3.01	.081
T3: The power transmission network has limited capacity	150	3.01	.085
T4: Competition from other power companies in the competitive market	150	2.98	.084
W1: Nhon Trach Managers of PV Power have little experience in power industry	150	3.02	.075
W2: High variable expenses due to high input fuel gas price	150	2.93	.128
W3: High power capacity expenses due to large loan interest and depreciation	150	2.84	.123
W4: Bidding price in competitive electricity market is a new activity	150	2.85	.121
EO1: You agree the internal factors affecting on the effectiveness of the Nhon Trach PV Power Plant	150	3.33	.055
EO2: You agree the external factors affecting on the effectiveness of the Nhon Trach PV Power Plant	150	2.37	.051
EO3: You agree the environment affecting on the effectiveness of the Nhon Trach PV Power Plant	150	4.05	.091

(Source: The researcher's collecting data and SPSS)

Table 1 showed that there were 170 staffs interviewed but 150 staffs processed. Besides, Mean value is around 3.

Exploratory Factor Analysis

Test KMO and Bartlett shows two tests that indicate the suitability of your data for structure detection. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in your variables that might be caused by underlying factors. Bartlett's test of Sphericity tests the hypothesis that your correlation matrix is an identity matrix, which would indicate that your variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with your data.

The results of KMO showed that Kaiser-Meyer-Olkin Measure of Sampling Adequacy was statistically significant and high data reliability (KMO = 0.755 > 0.6). This result is very good for data analysis. Table 10 showed that Cumulative % was statistically significant and high data reliability is 76.895 % (> 60 %).

The results showed that the structure matrix for the Nhon Trach PV Power Plant had 4 Components. Component 1 is Opportunities, Component 2 is Strengths, Component 3 is Weaknesses and Component 4 is Threats.

Table 2: Regression analysis about the effectiveness of the Nhon Trach PV Power Plant Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.658 ^a	.433	.417	.7633656	1.362

a. Predictors: (Constant), T, O, S, W

Table 2: continued ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.505	4	16.126	27.674	.000 ^b
	Residual	84.495	145	.583		
	Total	149.000	149			

a. Dependent Variable: EO

b. Predictors: (Constant), T, O, S, W

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-2.991E-016	.062		.000	1.000		
O	.479	.064	.479	7.464	.000	.951	1.052
S	.292	.065	.292	4.522	.000	.939	1.065
W	.332	.065	.332	5.129	.000	.934	1.071
T	.224	.063	.224	3.556	.001	.984	1.016

a. Dependent Variable: EO: the effectiveness of the Nhon Trach PV Power Plant

(Source: The researcher's collecting data and SPSS)

O: Opportunity factors; S: Strength factors; W: Weakness factors; T: Threat factors.

The results of table 2 showed that Adjusted R Square was statistically significant and high data reliability. In addition, R Square reached 41.7 %. The results showed that all t value > 2 was statistically significant and high data reliability. Besides, the regression coefficients were positive. This means that the effects of independent variables in the same direction with the effectiveness of the Nhon Trach PV Power Plant.

Conclusions and recommendations

Conclusions

Nhon Trach PV Power Plant plays a special role in stimulating the growth of countries' economy. This research provides a comprehensive insight into the relationship between the external and internal factors. The empirical and theoretical studies included in the research describe the positive impact of Nhon Trach PV Power Plant following:

First, there is a relationship between opportunity factors and the effectiveness of the Nhon Trach PV Power Plant with significance level of 5 %.

Secondly, there is a relationship between Treat factors and the effectiveness of the Nhon Trach PV Power Plant with significance level of 5 %.

Thirdly, there is a relationship between Strength factors and the effectiveness of the Nhon Trach PV Power Plant with significance level of 5 %.

Finally, there is a relationship between Weakness factors and the effectiveness of the Nhon Trach PV Power Plant with significance level of 5 %.

Recommendations

Recommendation 1: Applying modern technology

The Nhon Trach PV Power Plant should continue applying modern technology in power generation – the power augmentation technology to increase the capacity of 03 existing generating units of Nhon Trach power plant with the augmented capacity from 15 MW to 18 MW per unit (total augmented capacity of 45 to 54 MW). And, in the period of 2015-2020, Nhon Trach PV Power Plant is to meet the electricity demand of southern electricity network, especially in the high peak period; PV Power NT will implement the project of upgrading capacity. The Nhon Trach PV Power Plant should continue regularly monitoring and learning from experiences, step-by-step to master the technology and techniques, encouraging technical solutions and innovations during operation, maintenance work.

Recommendation 2: The production quality management

The Nhon Trach PV Power Plant should continue improving the production quality management following: NTP should continue applying the ISO 9001:2008 in production management system, the ISO 14001 in environmental management system and the OHSAS 18001 in occupational health and safety management system. Besides, NTP should continue installing and operating equipment to reduce dust, exhausted emissions and the amount of CO₂, NO_x, SO_x; as well as applying appropriate technologies to ensure environmental standards. And, NTP should continue renewing and reinforcing perception of management excellence in accordance with company's goals and missions. Finally, NTP should continue observing market fluctuations, controlling operating costs in order to prevent waste usage of resources, implementing zero waste policies.

Recommendation 3: The improvement of human resource quality

The Nhon Trach PV Power Plant should continue the improvement of human resource development following: NTP should continue training, re-training and recruiting excellent graduates, qualified, professional, competent specialists, engineers and workers coming from other power plants. Besides, NTP should continue creating a safe, friendly, modern working environment to encourage employees and create favorable advantages for workers to enhance specializing working level, to improve professional qualifications, professional practices and professionalism in each specific job. Finally, NTP should continue improving salary and wages policy and other employee policies in order to raise the attractiveness and competitiveness for attracting and securing highly skilled human resource.

Recommendation 4: The improvement of the investment

The Nhon Trach PV Power Plant should continue the improvement of the investment of new project following: NTP should continue studying the application of the mechanism of preferential policies for the State's investment in the electricity sector. Proposing additional mechanism of preferential policies for PV Power NT to ensure feasibility of the project. Besides, NTP should continue setting up feasibility study of upgrading capacity and constructing new generators projects and focusing all resources for implementation of these

investment projects. Finally, NTP should continue arranging capital for investment projects by proposing PVN to allow using retain earnings of current production activities, approaching preferential loans of government, calling for foreign investment, etc.

Recommendation 5: The improvement of risk management

The Nhon Trach PV Power Plant should continue the improvement of risk management following: NTP should continue establishing professional fire force, standing continuous availability, rapid response to fire risk occurs. Besides, NTP should continue implementing preventive maintenance program to reduce the risk of equipment and machines collapsing. Finally, NTP should continue coordinate with PV Gas to share information, trouble shooting, abnormal issues on fuel gas providing system, checking periodically to ensure an availability of fuel oil system and change over availability of the units when the gas fuels supply interruptions. And Maintain fire insurance, damage insurance for the entire collapse of the plant equipment to ensure the ability to maintain operations in case of equipment damage risk.

Recommendation 6: Financial capacity improvement

The Nhon Trach PV Power Plant should continue gradually to operate under the market rules. Besides, they have the right to legitimately maximize their profits. Also, the rights of having business autonomy and self-responsibility in issues related to finance and risks are being more clearly institutionalized, and effectively implemented. Finally, NTP should continue being proactive to coordinate with other divisions of PVN in commercial contract negotiation, carefully executing input resource contracts, power trading contracts and maintenance contracts.

Recommendation 7: The improvement of management capacity

Management capacity refers to the skills that enable decision-makers to plan and manage a business system effectively. It implies managing the range of resources – human, financial, physical, and technical – that make up the system. Besides, these skills of oversight and decision-making to manage such resources need to be in place at The Nhon Trach PV Power Plant and managers continues to train staffs in order to improve the quality of human resource for job. Finally, NTP should continue encouraging the application of IT solutions in management systems and outstanding business process management and investing in technology that increases power plant's productivity and other production services.

Recommendation 8: Policies to attract talent and use

The Nhon Trach PV Power Plant should have policies to attract talent and use human resources following: NTP should continue acquiring real objects and in-depth knowledge in the areas of demand, Besides, NTP should continue the implementation of methods to attract job titles, positions or contract specific tasks at the same time, the changes of "existing structures" from the audience waiting to local method to proactively reach out

and invite audience. Finally, the researcher has remuneration both physically and mentally commensurate with the contribution of intellectuals out there, this job would be a "mirror" to invite some talented people from other places.

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