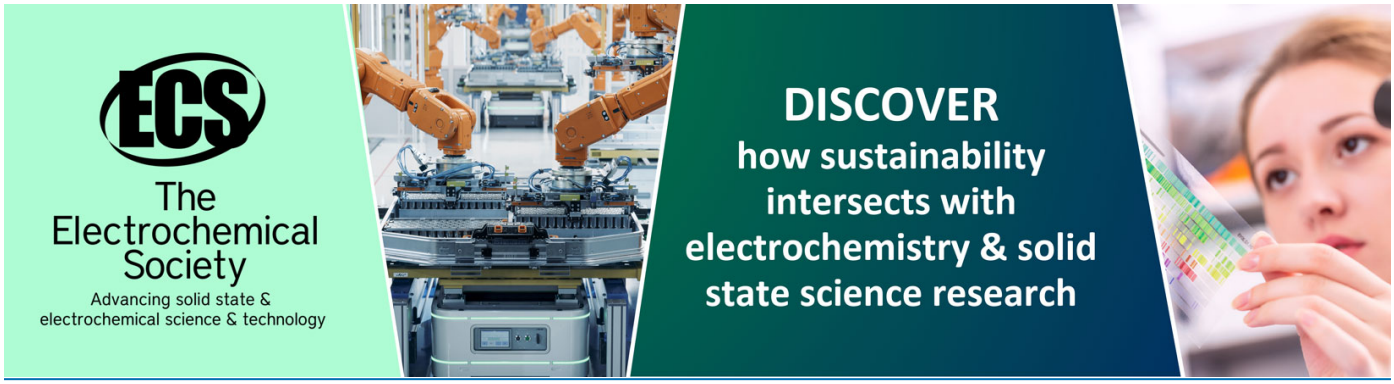
Research on Economic Activity Analysis System of Power Grid Enterprises Based on DuPont Model



Research on Economic Activity Analysis System of Power Grid Enterprises Based on DuPont Model

Jinglong Zhou[1], Changzhan Han[1], Yongli Wang[2], Fuli Zhang[2]*, Xiangming Wu[1], Zhaoxu Zhang[1], Guozhen Ma[3]

[1]State Grid Hebei Electric Power Co., Ltd.Hebei, Shijiazhuang 050000, China

[2]Departments of Economics and Management, North China Electric Power University, Beijing 102200, China [3]State Grid Hebei Economic Research Institute, Shijiazhuang 050000, China

Email of all the authors:zhoujl@he.sgcc.com.cn; hancz@he.sgcc.com.cn; wyl_2001_ren@163.com; welfare_z@163.com; wuxm@he.sgcc.com.cn; zhangzx@he.sgcc.com.cn; jyy_magz@he.sgcc.com.cn

* Corresponding Author: Fuli Zhang; email: welfare_z@163.com; phone: 13001951002

Abstract: Economic activity analysis is an important means for enterprises to strengthen management and improve operational efficiency. In this paper, the DuPont model is applied to strengthen the analysis depth by analyzing the main factors of existing indicators and adding new indicators, and constructing an economic activity analysis index system for power grid enterprises. The system focuses on profit, electricity, and electricity price analysis, including the target layer, factor layer, business layer, and driver layer. It provides tools for enterprises to evaluate operational benefits and has high practical value. Applying the economic activity analysis index system can improve enterprise management and efficiency, tap the potential of the enterprise, and effectively promote the effective transformation of the enterprise's economic development mode.

1. Introduction

Economic activity analysis is an important means for enterprises to strengthen economic management and improve economic efficiency. It is also a working method for enterprises to study the operation effect comprehensively and systematically[1-2]. Its basic idea is to objectively evaluate the completion of the enterprise plan, reveal the economic development trend of the enterprise, tap the internal potential of the enterprise and summarize experience and lessons[3-4]. Therefore, it is of great significance to strengthen the analysis of business activities for the sustainable development of enterprises[5]. Power grid enterprises need an effective economic activity analysis system, which can reflect the profitability, operating ability, solvency and growth ability of the system[6]. The construction principles of enterprise economic activity analysis system include systematic principle, typical principle, and scientific principle[7-8]. The economic activity analysis indicators mainly include profit, main business cost, main business income, asset-liability ratio, etc.[9]. With the further advancement of electric power system reform, the conventional analysis of the original indicators can not meet the needs of the current situation[10].

Under this background, this paper applies DuPont model to strengthen the depth of analysis by increasing the main factors, adding new main indicators and innovative analysis indicators, and constructs an index system for economic activity analysis of power grid enterprises, with profit, electricity quantity and electricity price analysis as the main objectives, including target level, factor level, business level and motivation level. The system is guided by the enterprise's operating efficiency and capability. It can fully reflect the changes of operating efficiency and capability, clearly locate the factors affecting operating efficiency to specific indicators, and help to find the management problems behind the changes of indicators.

2. An overview of economic activities of power grid enterprises

2.1. Significance of economic activity analysis of power grid enterprises

In order to achieve the anticipated economic benefits and the established economic goals, power grid enterprises must make quantitative analysis of economic indicators and recognize them from a theoretical level in order to really explain the problems and point out the direction for improving management.

The significance of economic activity analysis lies in:

(1) Economic activity analysis can make power grid enterprises focus on improving economic efficiency and fully tap the internal potential of enterprises;

(2) The analysis of economic activities can expose the contradictions that hinder the development of enterprises, thus promoting the optimization and reform of the economic system of enterprises.

(3) The analysis of economic activities can promote enterprises to make more use of modern management methods and continuously improve the management level of enterprises.

(4) The analysis of economic activities can promote enterprises to improve their working methods and improve their working level.

(5) The analysis of economic activities can evaluate the production economic situation of enterprises, predict the development prospects of companies, and provide support for business decision-making.

2.2. Current situation of economic activity analysis of power grid enterprisess

From the point of view of the national reform dynamics, the new round of power system reform is based on the basic policy of Article 9. Its supporting documents, as relatively detailed implementation opinions, have been issued after the release of Article 9. The main contents of the article 9 and its related policies affecting the company's economic activities are summarized in the following.

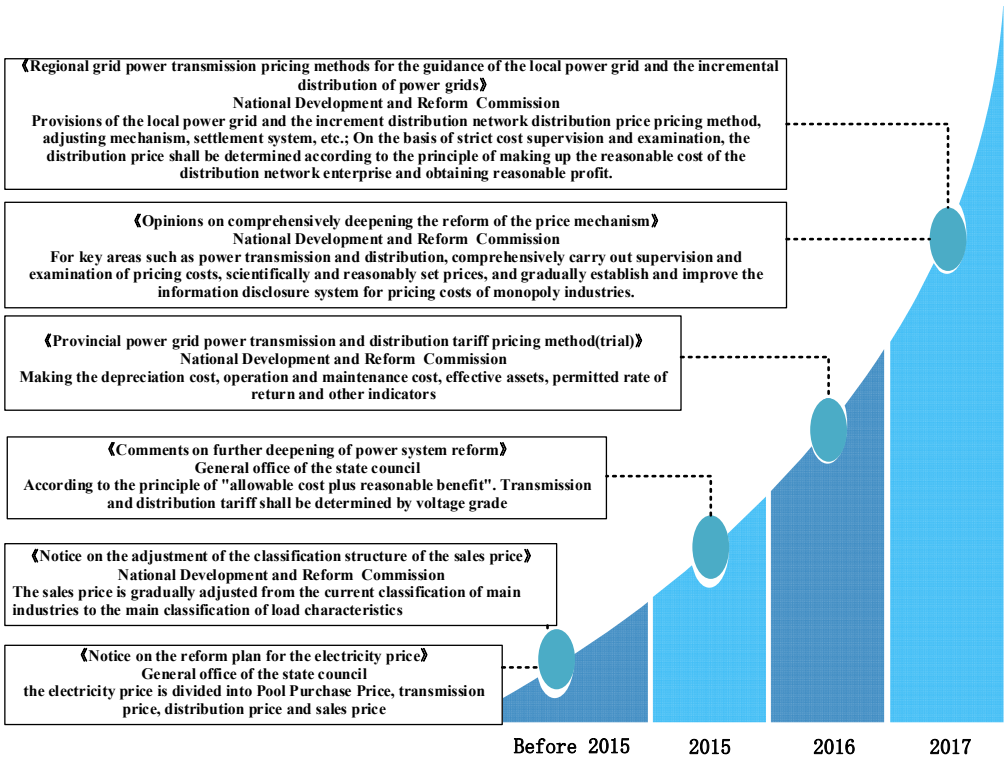


Figure 1. Policy content of electricity reform.

With the continuous advancement of electric power system reform, the company's economic activity analysis is facing new requirements.

(1) To adapt to the new electricity reform and truly reflect the company's operating conditions

The analysis of economic activities should comprehensively analyze the production, operation and development of power grid enterprises after electricity reform, reflect the actual operation situation, put forward management problems and solutions, so as to improve the operation level of enterprises.

(2) To cope with the change of electricity price and reduce the pressure of enterprises'operation

After the electricity reform, the narrowing of the purchase price gap has led to the decline of the profitability of power grid enterprises and the increasing pressure of operation. It is necessary for economic activities to analyze a series of problems caused by the price changes, and to formulate targeted management measures, so as to reduce the pressure of the company's operation.

Faced with a series of requirements under the new situation, how to adapt to the new policy environment, accurately locate the key issues and deep-seated reasons in the company's management, and strengthen the implementation of closed-loop management, has become an important issue in the current analysis of the company's economic activities. At present, the analysis of economic activities of power grid enterprises is facing the following two major problems.

(1) The adaptability of electric power reform is not enough.

With the deepening of the reform of the electric power system and the formation of the direct electricity trading market, the company's operating mode has changed greatly. The profit model has changed from a single purchase-sale price difference mode to a coexistence mode of purchase-sale price difference and transmission and distribution price. The original method of economic activity analysis can no longer directly reflect the profitability of the company.

(2) Insufficient depth of analysis

In the past, the analysis of economic activities mainly started with the analysis of professional indicators, such as company development, finance, dispatch, marketing and operation inspection, to study and judge the results and development trend of the indicators. With the continuous leaning of

professional management, the original depth of analysis has been unable to meet the needs of corporate management.

3. Material and Methods

3.1. DuPont model

DuPont analysis uses the relationship between several major financial ratios to analyze the financial situation of enterprises comprehensively. Specifically, it combines several ratios used to evaluate the efficiency and financial status of enterprises, forms a complete index system, and finally reflects them comprehensively through the return on equity, and then makes a thorough analysis and comparison of the business performance of enterprises.

On the basis of DuPont model, the index system of economic activity analysis of power grid enterprises is established to make the internal relations among the indicators clear at a glance. Starting from the comprehensive indicators, the model is decomposed layer by layer and deepened step by step, so as to reveal the intrinsic factors and their interrelationship of the income, and to reflect the operation status comprehensively, systematically and intuitively, and to support their business decisions.

Therefore, this paper draws lessons from DuPont model, establishes the index system of economic activity analysis of power grid enterprises under the situation of power reform, closely links the key factors of income and expenditure that affect the company's operating efficiency, and locates the reasons for fluctuation of the company's operating efficiency.

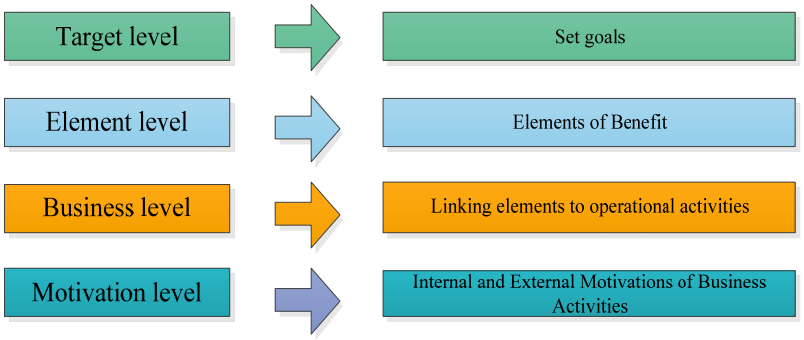


Figure 2. application of DuPont model.

3.2. Index system for economic activity analysis of power grid enterprises based on DuPont model

With the further reform of the electric power system, some indicators of economic activity analysis of power grid enterprises have changed. Conventional analysis of the original indicators can not meet the needs of the current situation. In order to accurately predict the trend and identify the existing problems, we must strengthen the analysis depth by adding major factors analysis, new main indicators analysis and innovative indicators analysis. In this paper, DuPont model is applied to construct an index system for economic activity analysis of power grid enterprises, with profit, electricity consumption and electricity price as the main objectives. The target level is the starting point of constructing the analysis model, including the profitability of the main business, the overall operating ability, the solvency, the growth ability. Element level is the main factor that constitutes target level, including income, expenditure and so on. Business layer associates elements with the business sector of the company, and further decomposes revenue and expenditure from the core business of the company, such as volume, price, fee and loss. Motivation layer can clearly locate the factors affecting the operational efficiency to specific indicators, which is helpful to find the management problems behind the change of indicators.

The index system of company economic activity analysis based on DuPont model is shown in the Figure 3.

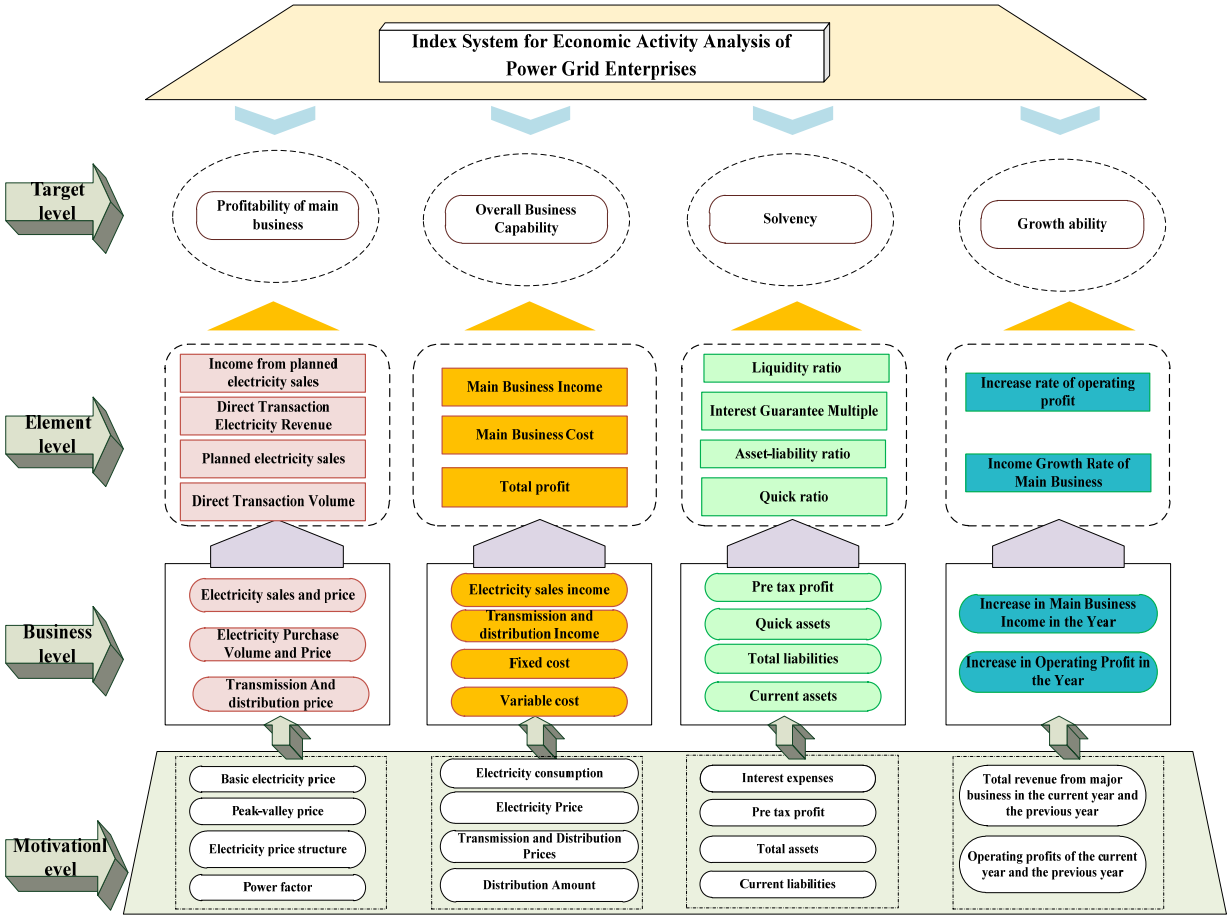


Figure 3. Index system for economic activity analysis of power grid enterprises.

4. Conclusion Application of index system for economic activity analysis of power grid enterprises

Through the analysis, summary and induction of the main economic indicators, the system of economic activity analysis indicators is formed. The application of the system is as follows.

(1) Analysis of profitability of main business. The profitability index of main business of power grid enterprises is the marginal profit index of electricity sales. Element level includes sales revenue, sales volume and direct trading volume. Business level includes sales volume, sales price, transmission and distribution price, purchase volume and purchase price. The main influencing factors of electricity sales, electricity price, transmission and distribution price are analyzed, including the situation of expanding and reimbursing customers, reducing capacity sellers, basic electricity cost, peak and valley electricity price, power factor and so on.

(2) Analysis of the overall operating capacity of enterprises. Indicators include the income, profit and cost of the main business of an enterprise, and mainly analyze the income, expenditure, profit and related factors in the business of an enterprise.

(3) Analysis of the solvency of enterprises. Through the analysis of current ratio, quick ratio, asset-liability ratio and so on, the solvency of enterprises is analyzed.

(4) Analysis of enterprise growth ability. Through the growth rate of main business income and operating profit, the development status of enterprises is analyzed.

(5) Summary of the achievement of management objectives and major achievements. On the basis of reflecting the overall situation of the enterprise, this system explains the achievements and reasons in operation and management.

5. Conclusion

The analysis and research of economic activities of power grid enterprises will help to adapt to the new power reform, truly reflect the company's operating conditions, accurately grasp the company's operating priorities, and reduce the company's operating pressure. The DuPont model can comprehensively evaluate the profitability, operational capability, solvency, profitability and mutual relationship of the main business of the grid enterprises. According to the DuPont model, the economic activity analysis index system of grid enterprises is constructed and divided into the target layer, the element layer, the business layer and the motivation layer. The aim is to promote the impact degree on the target layer by layer, so as to more intuitively analyze the economic indicators of the grid enterprises.

Acknowledgements

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