Energy-based Enterprises Based on Synergy Method

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Abstract: Facing severe challenges and fierce competition, energy-based enterprises must innovate and upgrade if they want to survive. In order to promote the growth of energy-based enterprises, it is of great practical significance for the standardized growth of energy-based enterprises to analyze energy-based enterprises with a synergistic method. The purpose of this study is to analyze energy-based enterprises based on a synergistic approach. In the experiment, the synergy method is used to analyze the status quo of the income distribution of energy-based state-owned enterprises, and to study the problem of income distribution of energy-based state-owned enterprises. The results show that it goes against the original intention of the establishment of state-owned enterprises and is not conducive to social justice. Internal funds of state-owned enterprises come in, resulting in low investment efficiency.

1. Introduction

In order to deal with global energy and environmental problems, it is of great significance to fully utilize the advantages of synergistic optimization and multi-energy complementarity among heterogeneous energy sources, to upgrade the energy industry structure, improve energy production and utilization methods, promote renewable energy consumption, and improve energy utilization rates. The traditional single-type energy system operates independently, so that the multi-energy complementary characteristics between energy sources and the cooperative operation characteristics between multiple systems have not been exploited and utilized to the maximum extent [1].

Our country is entering the "new normal" of the economy. Facing the new trend of energy improvement, a revolution in energy production and consumption is taking place quietly. According to IU's Rakhmonov, the task of determining unit energy use is complicated by the large number of factors that must be taken into account, which influence the energy indicators that determine the

levels of these indicators. At the same time, the types and technical conditions of the main and auxiliary process equipment, mineral names, components consumed by the process and the volume of secondary energy (compressed air, nitrogen, oxygen) in the drying process , and many more. Auxiliary power supply, etc. are all considered inside. Errors in taking these factors into account can lead to deviations in the expected energy consumption and the actual value of the energy index. The energy consumption and energy consumption level of the product also depends on the variation of the energy consumption system, which depends on the demand for process components such as compressed air, oxygen, nitrogen, etc. Metallurgical work, especially electro-metallurgical workshops, by type of product produced. The results show that swarm activity is determined by determining the dependence of the canonical energy characteristics on the size of the final product, and creating a final decomposition tree - a functional tree designed to solve energy problems, including mainly the amount of energy removed [2]. Bustamante-Baina Accidental combustion of P coal seam in open pit coal mines is a common problem in coal mines in the world. The improved theory explains several factors that make coal self-heating and favorable for combustion. The synergistic effect of these factors helps to increase the temperature of the oxidation reaction and increase the activation energy of the system to a higher value, so that fire occurs and the reaction is spontaneous. Currently, the phenomenon of sensitivity of each variable to coal combustion is unknown, so in this work, a method has been improved to identify the statistical variables that contribute the most to this phenomenon [3].How energy-based companies use energy in colleges and universities is also critical.

This paper studies the concepts and characteristics of energy and energy-based enterprises, analyzes the driving force for the growth of energy-based enterprises, and explores collaborative methods and designs. In the experiment, we mainly study the income distribution of energy-based state-owned enterprises by analyzing the status quo of the income distribution of energy-based state-owned enterprises. The experimental results show that the return of state-owned capital income to state-owned enterprises will bring the following problems: it goes against the original intention of the establishment of state-owned enterprises and is not conducive to social justice. Internal funds of state-owned enterprises come in, resulting in low investment efficiency.

2. Research on Energy-based Enterprise Analysis Based on Collaborative Method

2.1. Energy and Energy-Based Enterprises

(1) The concept of energy

Concept and classification of energy Energy is called energy resource or energy resource. Energy includes all fuels, sunlight, water, wind, etc., which people can convert into energy [4]. The classification of energy is shown in Table 1:

Table 1. Energy classification table

Classification basis	Class
According to the generation classification	Primary energy, secondary energy
Categorized by the type of use	Traditional energy sources and new energy sources
According to whether environmental pollution is caused after energy consumption	Pollution energy, clean energy

(2) Concept of energy-based enterprise

Energy-based enterprises have always been the focus of domestic and foreign enterprises. Energy-based enterprises refer to energy, capital and technology-intensive enterprises. Through the possession, improvement and utilization of traditional energy and new energy, their main business projects consume traditional and new energy. Based on this, and realize the growth of enterprises [5].

(3) Characteristics of energy-based enterprises

To study energy-based enterprises, we must recognize the uniqueness of energy-based enterprises in the Internet age. Only by recognizing the difference from the traditional environment can we have a deeper understanding of the growth of energy-based enterprises.

Energy complementarity. Traditional energy and new energy are the basis for the survival and improvement of energy-based enterprises. The complementary advantages and disadvantages of traditional energy and new energy jointly promote the growth of energy-based enterprises [6].

Integrate various energy sources. The automation level of energy-based enterprises is increasing day by day, the era of cheap labor in our country is gradually leaving us, there is a shortage of high-tech personnel in energy-based enterprises, environmental pollution is becoming more and more serious, the penetration rate of environmental protection recycling technology in my country is low, and energy-based enterprises are growing face huge challenges [7].

Integration of production and sales. Enterprises can carry out targeted production and sales, so as to solve the problem that the production of existing energy-based enterprises lags behind the market and the mismatch between supply and demand, and alleviate or even solve the current situation of overcapacity of energy-based enterprises [8-9].

Improve operating efficiency. According to the demand of different time and different regions, the characteristics of different energy sources and the failure of the unit, the optimal power generation strategy is formulated to improve the operating efficiency of the generator set [10].

2.2. Analysis of the Driving Force for the Growth of Energy-Based Enterprises

The growth of external power and energy-based enterprises is inseparable from the support of the environment. External driving forces include industrial driving force and market driving force. The specific characteristics of the industrial power industry are determined by the industrial structure, and the structural characteristics of the industry are formed by the interaction of five kinds of competitiveness. Energy-based enterprises need to invest a lot of production costs in the early stage. Because they are mostly located in areas far away from people's lives, the cost of auxiliary facilities has also increased, and finally the entry barriers of energy-based enterprises have been raised; the market power market adjusts energy-based enterprises through supply and demand. The types and quantities of products produced [11]. At present, the biggest obstacle to the growth of energy-based companies is the dislocation of supply and demand. There is a serious oversupply of traditional low-end products and a coexistence of insufficient supply of high-quality products.

The growth of internal power and energy-based enterprises depends to a large extent on the internal factors of the enterprise. These factors can be controlled by the enterprise, and through innovation, the restrictive factors of enterprise growth can be reduced, and the promoting factors of enterprise growth can be increased. The internal driving force of the enterprise includes management driving force, cultural driving force, etc. [12]. Management power management is for the healthy growth of energy-based enterprises, and it is necessary to formulate future goals and

strategies to adapt to the growth of enterprises. Cultural power The culture of energy-based enterprises not only affects the employees within the enterprise, but also plays a greater role in vertical upstream and downstream enterprises and horizontal competitive enterprises [13].

2.3. Collaborative Design

Collaborative design is called participatory design, also known as collaborative design, and its predecessors include action research and socio-technical design. In the beginning, it was to promote the democracy of the workshop, but this purpose gradually weakened and the importance of the collaborative creation of multidisciplinary working groups gradually became more prominent. The project at the time improved an action research approach that emphasized active collaboration between researchers and staff to help and improve staff performance, an approach built on the experience of staff, with researchers providing them with resources to allow They are able to act according to the situation [14]. At the same time, the participatory design movement started elsewhere, with the Research Association holding a conference called Design Participation. In the preface to the conference, it was written: "Designers in all fields have failed to take responsibility for predicting the adverse effects of projects that can no longer be tolerated and ignored if we are to survive in the future, and if the artificial world is to be stopped The problem of escalation requires new design methods, and people's participation in decision-making may provide the necessary role, so the theme of this conference is 'User Participation in Design' [15].

2.4. Research on Collaborative Methods

The descriptions of terminology used for co-design applications are numerous and inconsistent [16]. A six-step framework for collaborative design activities. The six-step framework includes resource allocation, planning, recruitment, sensitization, facilitation, and evaluation. This approach outlines how to apply a collaborative design approach to involve designers, users and stakeholders.

(1) Resource allocation

In the general user engagement design process, this step is "outsourced" to the user by providing the appropriate innovation tools, and it focuses on empowering the user to take over the innovation activities traditionally carried out by in-house experts or designers of. Therefore, the researcher or designer plays a key role in this stage, and the resource allocation stage improves the specific tools used in the collaborative design process in order to better solve the potential problems of the participants.

(2) Planning

The planning phase can plan ahead for the recruitment, advocacy, promotion, and evaluation phases that follow. Different from the regular user participation design process, collaborative design with vulnerable users often involves close cooperation and communication with tripartite institutions such as government agencies, non-profit social organizations, and community service stations, rather than with consumers [17].

(3) Recruitment

Unlike "leader users" who are highly motivated and creative, disadvantaged users are less proactive in the process of collaborative design, especially when it comes to some special sensitive topics. Therefore, when identifying and recruiting a sufficient number of suitable users to participate in collaborative design activities, it is necessary to establish long-term relationships with neighborhood committees, communities, and governments, and maintain close cooperation. Ask for help in recruiting participants to help promote and recruit in the community.

(4) Sensitization

This stage requires participants to be familiar with and understand the content of the activities they participate in, such as choosing a relaxed environment that they are familiar with, such as a community activity room. Before the design starts, the host should clearly explain the theme, tasks, goals, etc. of the event. At the same time, it may be necessary to design some opening ice-breaking games in advance, or a topic-related question gradually brings participants into it, or ask some common thinking questions to encourage participants to think positively. The sensitization phase is crucial to the effectiveness of collaborative design for vulnerable user groups, as it allows users to experience and test the designed activities and become familiar with the respective research contexts, and the sensitization phase also promotes user engagement and identification with the project [18]

(5) To promote

As mentioned in the sensitization stage, the collaborative design process can start with an "ice-breaker" to familiarize the participants with the content and goals of the collaborative design activity, and then the focus gradually shifts to individual activities or group discussions, and then divergent ideas. At this stage, all co-design tools are used.

(6) Evaluation

User-generated ideas or innovations are often evaluated against the design structure, including originality, feasibility, and user value. When it comes to co-design with users, it's worth noting that they don't feel uncomfortable, it's important to respect their ideas as part of co-design to create design value, and to acknowledge the encouragement that participants contributed about their experiences, Don't arbitrarily dismiss their ideas and results during the evaluation phase.

3. Investigation and Research on Energy-based Enterprise Analysis Based on Synergy Method

3.1. Data Sources

The data on the income distribution of energy-based enterprises are all from the official website of the Ministry of Finance. Mainly by analyzing the status quo of income distribution of energy-based state-owned enterprises, this paper studies the problem of income distribution of energy-based state-owned enterprises.

3.2. Data Collection Method

(1) Growth rate of sales revenue

The growth rate of sales revenue is one of the important indicators to evaluate the growth and improvement capabilities of energy-based enterprises. The higher the growth rate of sales revenue, the stronger the growth and improvement ability of energy-based enterprises. Among them, q is the sales revenue growth rate from time t to time t+1; Q_t is the total sales revenue of time t year; Q_{t+1} is the total sales revenue of time t+1 year. The specific formula is:

$$q = \frac{Q_{t+1} - Q_t}{Q_t} \times 100\%$$

(1)

(2) Net profit growth rate

The growth rate of net profit is one of the important indicators to evaluate the growth ability and improvement ability of energy-based enterprises, and it measures the ability of energy-based enterprises to create profits. The higher the net profit growth rate, the stronger the profitability of energy-based companies. in, ω is the growth rate of net profit from year t to year t+1; W_t is the total net profit of year t; W_{t+1} is the total net profit of year t+1. The specific formula is:

$$\omega = \frac{W_{t+1} - W_t}{W_t} \times 100\% \qquad (2)$$

4. Analysis and Research on Energy-based Enterprises Based on Collaborative Methods

4.1. Status of Income Distribution of Energy-Based State-Owned Enterprises

Profits submitted by energy-based state-owned enterprises In recent years, the profits submitted by China's petroleum, petrochemical and coal enterprises have increased year by year, but the proportion is very small, less than 12%, and even less than 0.4% in the coal industry. As shown in Table 2 and Figure 1:

Table 2. Profit paid by petroleum, petrochemical and coal state-owned enterprises Unit: 100 million yuan

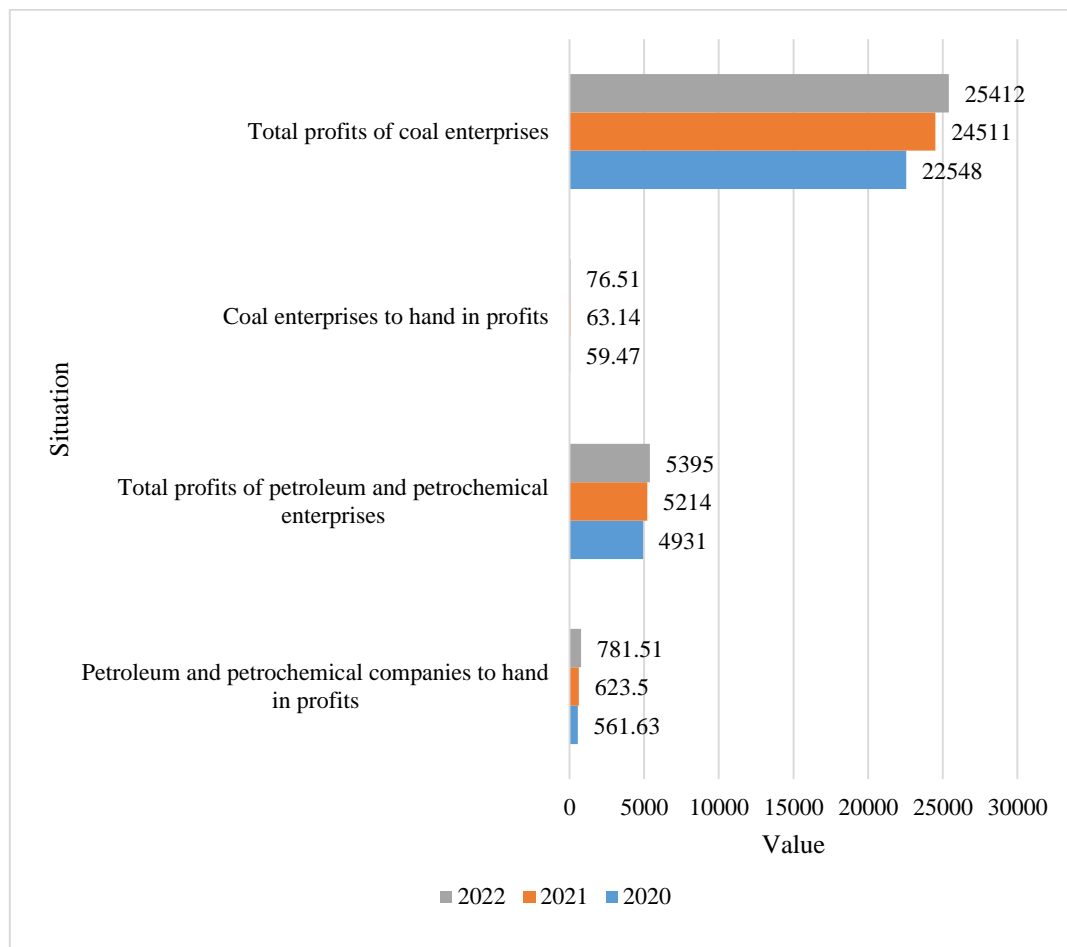| Content	2020	2021	2022
Petroleum and petrochemical companies to hand in profits	561.63	623.50	781.51
Total profits of petroleum and petrochemical enterprises	4931	5214	5395
Coal enterprises to hand in profits	59.47	63.14	76.51
Total profits of coal enterprises	22548	24511	25412

Figure 1. Profit map paid by energy-based state-owned enterprises

4.2. The Problem of Income Distribution of Energy-Based State-Owned Enterprises

State-owned enterprises have changed from eating state subsidies to repaying public finances and social security funds from state-owned capital gains. The role of state-owned enterprises in promoting social equity and increasing fiscal revenue has continued to increase. However, it should also be recognized that there are still major problems in the income distribution system of China's state-owned enterprises that need the government's attention and solutions. The state-owned capital operating expenditures from 2019 to 2021 are shown in Table 3 and Figure 2:

Table 3. Data sheet of state-owned capital operation expenditure

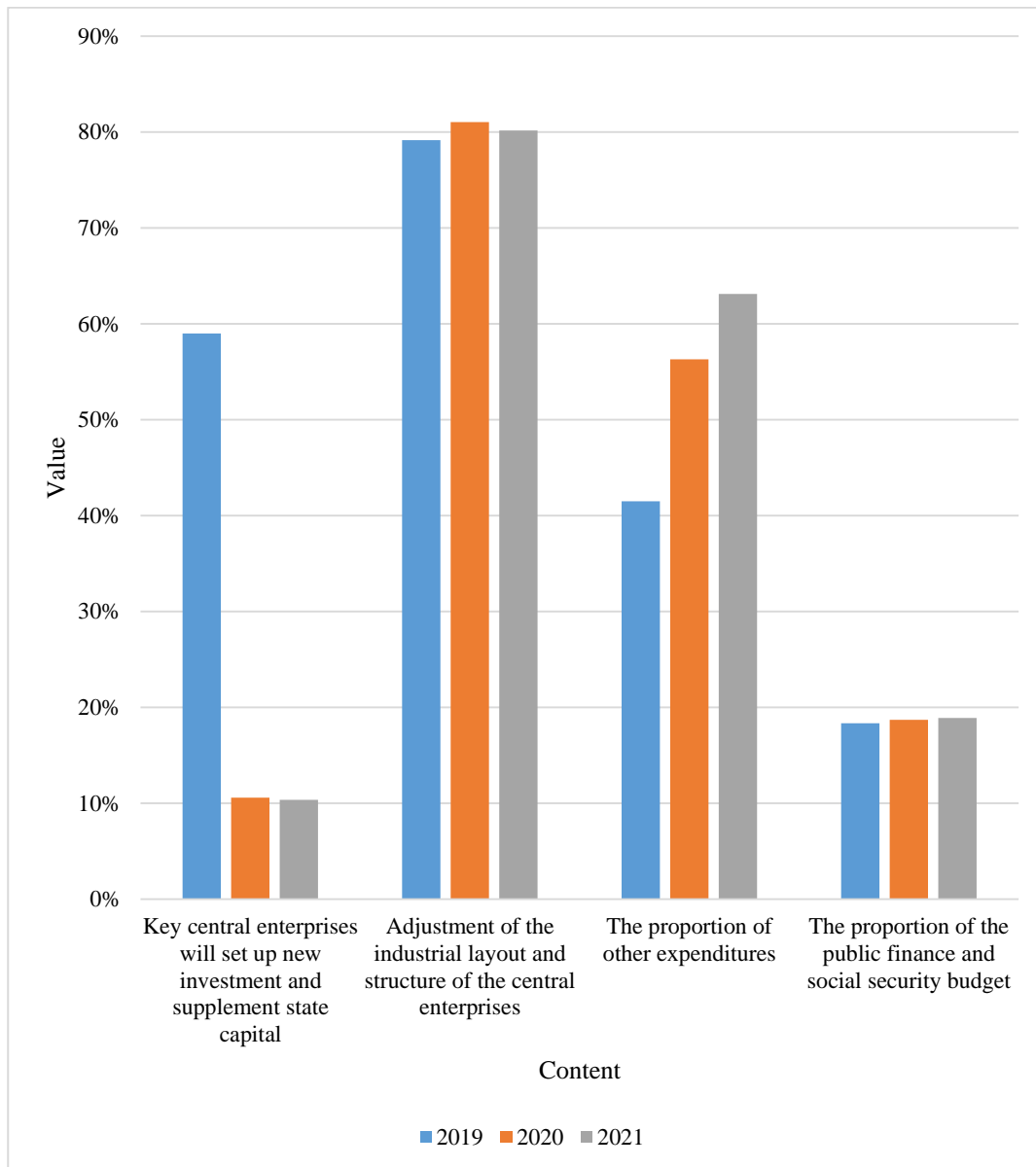| Content	2019	2020	2021
Key central enterprises will set up new investment and supplement state capital	59%	10.6%	10.36%
Adjustment of the industrial layout and structure of the central enterprises	79.14%	81.03%	80.14%
The proportion of other expenditures	41.5%	56.3%	63.1%
The proportion of the public finance and social security budget	18.34%	18.69%	18.91%

Figure 2. State capital operation expenditure table from 2019 to 2021 Unit: 100 million yuan

The results show that this ratio is still lower than 10% for a long time, which is equivalent to saying that only 2% of the annual profits of central enterprises is added to the public finances. The return of state-owned capital income to state-owned enterprises will bring the following problems: it goes against the original intention of the establishment of state-owned enterprises and is not conducive to social justice. Internal funds of state-owned enterprises come in, resulting in low investment efficiency.

5. Conclusion

It is an inevitable trend for the sustainable improvement of energy network in the future that energy-based enterprises integrate various advanced energy sources and information technologies

through computers, and has become a research hotspot and a key improvement direction in the current international energy industry. With the emergence of collaborative design and methods together, energy-based companies still play an important role in the improvement of energy.

Funding

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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