

A Study of Management System Based on Energy Crisis

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Abstract. Recently, our country is in the period of energy crisis, it is important to enhance the capacity of management system. To detect effective measures to manage energy crisis. This article will analyze the situation of energy security in our country and the concept to deal with the energy crisis, then to put forward the establishment of crisis management system to prevent and control energy crisis.

1. Introduction

Energy is the driving force for the operation of modern society. Whether energy can be safely and steadily supplied will have an impact on the overall situation of social stability, economic development as well as people's livelihood. Due to natural or man-made factors, the state of energy supply, market order are in difficulties, thus affecting the social normal production and living conditions (energy crisis). This paper will select the current situation of energy crisis, China's new energy security strategy as the title, starting from the analysis of global and domestic energy security situation, as well as China's new energy security concept background, then to put forward relevant management system for China's energy security strategy from the specific operational level. First of all, we analyze China's energy security situation and the challenges for China to face in the area of energy security. Secondly, we will discuss China's new energy security strategy based on relevant research at home and abroad. Finally, we will put forward suggestions on how to further improve the new strategy under the from the perspective of management system.

2. China 's Energy Security Situation under the Impact of Energy Crisis

2.1. Global Energy Security Situation

The basic trend of global energy security today mainly reflected from two aspects, including the pattern of the world's energy supply and the pattern of energy consumption. On the one hand, its main characteristic is the unbalanced distribution of energy resources from the perspective of energy supply. On the other hand, the major energy-producing areas and consumption areas are separated from each other from the perspective of energy consumption pattern. At the same time, energy consumption centers on the Asia-Pacific region, and developing countries are on the growing energy consumption.

2.2. The situation of energy security for China to face

From the perspective of energy use, self-produced energy can not meet the needs of the growing energy gap. At the same time, the energy consumption structure is irrational, which can be summarized as the following two aspects. On one hand, it is increasing domestic energy shortage, the rapid economic development and population increase have led to the rapid growth of energy consumption in our country



and the self-produced energy can not meet the needs, and the energy shortage is constantly increasing. On the other hand, it is irrational energy consumption structure, China's energy supply and demand gap gradually widened, the dependence on foreign is rapidly increasing, the reason lies in the prominent internal structural contradictions of energy.^[1]

2.3. External risks to China's energy security

At this stage, China's demand for clean energy such as oil and gas continues to grow, the structural conflict caused by the shortage of clean energy supply has become the most prominent contradiction in China's energy security.^[2] Specifically speaking, the external risks for China to face are mainly reflected in the following aspects. For one thing, the dependence on oil imports is on the rise, which will lead to potential high risks. For another thing, external oil supply is subject to political constraints and influence. Moreover, there are a number of security risks in the oil transportation corridors.

3. Energy security strategy based on the new concept of energy security

3.1. Idea innovation

China has put forward the concept of new energy security centered on "mutually beneficial cooperation, diversified development and coordinated security".^[3] We must break the existing international energy system in our philosophy. It is necessary to adopt an energy coordination mechanism that is adapted to the situation in the world today and should allow all countries to participate in the redistribution of energy. The concept of China's new energy security is different from the previous concept of energy security in the major powers and requires all countries in the world to abandon their hegemony and monopoly and achieve a win-win situation between energy-producing countries and consuming countries.

3.2. Mechanism innovation

We need to strengthen the mechanisms of inter-regional and international energy security cooperation. The new cooperation mechanism for energy requires that all regions and countries should cooperate with each other to strengthen communication, coordination and achieve effective energy production and deployment. If all energy consuming countries can equally participate in the development and distribution of oil, the panic of all countries on energy issues will decline, then changing from the traditional zero-sum game to a win-win situation.

3.3. Process innovation

The field of cooperation will cover the whole process from oil exploration, mining, processing to transport. The new concept of energy security should expand the fields and space for cooperation. Countries can use all kinds of energy development and research platform, integrating the advantages of various countries of technology and human resources to strengthen the coordination of energy exploration, mining and processing. We can even enhance coordination on how to improve energy efficiency and reduce environmental pollution, so as to maximize energy use and reduce costs.

3.4. Target innovation

We will achieve win-win in the field of energy among all countries and regions on the target. Energy policy involves the strategic significance of national economic and military security, and all countries have always been in a game. The new energy security concept calls for setting up a public consultative forum and establishing a long-term consultative mechanism to coordinate the actions of various countries in energy extraction and transportation to solve existing problems, ease conflicts and achieve reciprocity and mutual benefit.

4. Measures on energy crisis management system

The most effective system for public crisis needs to be integrated into all subsystems.^[4] The energy crisis

management system is a complex system with multiple levels. The various factors show a certain level of hierarchy and form a more complicated system chain. In order to put forward scientific and reasonable policy suggestions, this paper constructs a structural model according to the influencing factors, system structure and internal mechanism of system theory. The salient feature of the structural model is that it clearly expresses the hierarchical relationship of the energy crisis management system from the perspective of system engineering. The inner influence factors form a four-level hierarchical and directed system, including the basic layer, the transitional layer, the direct layer and the target layer. The following three aspects are mainly analyzed systematically (As shown in Figure A).

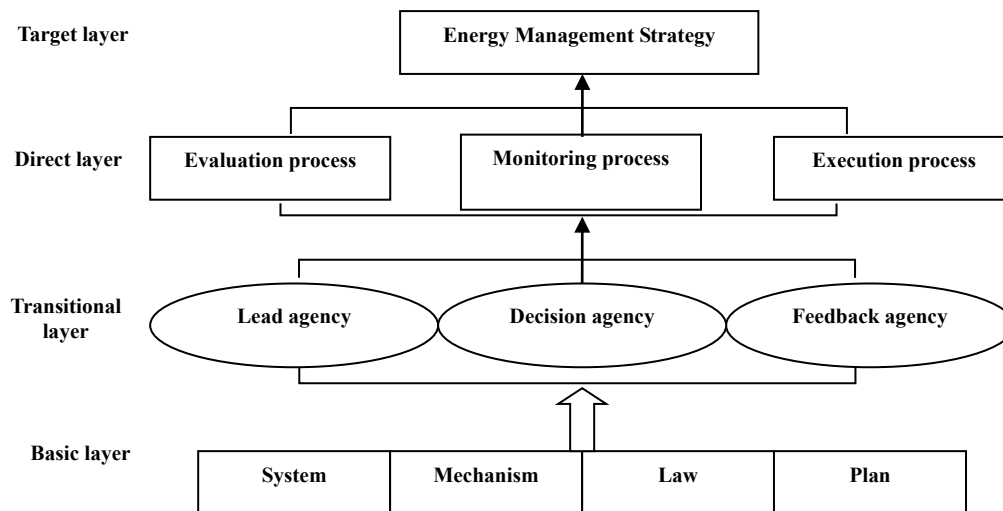


Figure A. The structure model of crisis early warning system

4.1. Basic layer

Firstly, we need to build an efficient emergency system. On the one hand, to establish the authority of the decision-making command system to achieve unified command and organic unity in the vertical emergency management system. On the other hand, in the horizontal emergency management system, the emergency management activities should be promoted seamlessly through the communication and coordination of functional departments. Secondly, we should build a scientific and coordinated emergency mechanism. For one thing, through the unified planning of monitoring and early warning platform, we gradually realize the interconnection of monitoring and early warning. For another thing, through the establishment of inter-regional communication and consultation mechanisms, we can simplify emergency response procedures and reduce the process of emergency management barriers. Thirdly, we may establish a sound emergency legal system. We should step up legislation and establish a basis for emergency management through the joint formulation of local laws and regulations. In the meantime, by clarifying the rights, obligations and responsibilities of the emergency department, we have really implemented the relevant provisions. Finally, we ought to build a sound emergency plan. On the one hand, improving emergency plan formulation process, information communication will be included in the plan to ensure the consistency and compatibility of the plan content. On the other hand, standardizing the process of revising the contingency plan, incorporating regular consultation sessions into the process of revising plans to ensure the normative and synchronized readjustment.

4.2. Transitional layer

First of all, lead agency. We should rely on the emergency office, the responsible persons in charge of energy management take turns to be the commanding officers. They are in charge of emergency preparedness, communication, coordination, decision-making and disposal. They supervise the implementation of energy policies and ensure the efficient linkage of energy management. Secondly, decision agency. It mainly provides decision-making leaders with information on sources of energy,

supply, use status, development trends, energy warning information, social affordability and the extent of crisis impact so that leaders can make judgments on the situation. Thirdly, feedback agency. According to the principle of management, feedback evaluation should include performance evaluation, organization evaluation, action evaluation, project evaluation and so on. In view of the objectivity of the feedback assessment requirements, it is suggested that the feedback assessment should be separately classified as one department, which lies in the decision-making agency and the executive agency.

4.3. Direct layer

4.3.1 Evaluation process

The evaluation process can analyze the data of the crisis information to estimate the future crisis types, which is the basis of the crisis warning. We can depend on evaluating the operation process, it can identify the risk sources of the crisis, and we are able to find the micro trend of public crisis. Simultaneously, we ought to detect the weak tie of crisis management and relevant uncertain factors from external environment to ensure the weak links in the organization will not bring about crisis.

4.3.2 Monitoring process

Monitoring process involves the process of collecting and filtering the crisis information, which is a outpost to ensure the normal operation of the early warning system, this process need to depend on index management system. Monitoring process should include the following principles: Firstly, the timeliness of information collection, it can ensure the speed of information processing; On the other hand, we should ensure that the source of the original information and diversification, original can reduce the asymmetry of information in order to avoid the emergence of false judgments, diversification can ensure the adequacy of information .

4.3.3 Execution process

Execution process should rely on the implementation of the decision-making plan. At the same time, execution process is the basis of the crisis early warning. In the course, we should timely feedback the crisis information and the implementation of the situation, as well as the corresponding measures to adapt to the environment, then we can correct the deviation to achieve the desired effect.^[3]

5. Conclusion

Energy security issues play an extremely important role in today's international politics and economy. In order to properly solve the issue of energy security, we need innovative ideas, innovative methods and innovative mechanisms. We must establish a long-term, stable and reliable mechanism for consultation and resolution. We need a new energy security concept which is adaptable to today's energy security situation. Not only has important theoretical significance, but also has realistic practical value to enhance the ability of energy crisis management.

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