Institutional Aspects of Development of Power Industry

Burganov Rais Abrarovich*

Kazan State Power Engineering University Russian, Kazan, Bolchya 4, 47 Zip code 420030

*Corresponding author: burganov-r@mail.ru

Received June 29, 2014; Revised July 05, 2014; Accepted July 14, 2014

Abstract This work is devoted to the problems of institutional changes in the electricity sector. Development of theoretical and methodological basis for the study of institutional relations of economy and energy will significantly influence the creation of the original effective energy strategy. The subject concerns millions of households. It is known that the problematic aspects of the institutional environment - keeping costs and externalities in pricing policies, the formation of the institutional environment saving, determination of the behavior of economic agents and the electricity market, etc. require permits. In general, scientific and practical significance of the study is large.

Keywords: *theory of institutional change, institutions, energy economics, electricity institutes, energy strategy*

Cite This Article: Burganov Rais Abrarovich, "Institutional Aspects of Development of Power Industry." *American Journal of Educational Research*, vol. 2, no. 7 (2014): 552-554. doi: 10.12691/education-2-7-19.

1. Introduction

In recent years, economics and politics paid much attention to the analysis of formation and development of the institutional environment of the national economy. In the theory and methodology of institutionalism is a holistic approach of encompassing the consideration of socio-economic system in its holistic development.

However, in the development of the institutional environment of the national economy should be recognized the manifestations of institutions across industries. If at the level of the national economy is a number of basic research, so at the level of industries and sectors of the economy is an acute shortage of deep research. Methods and models of institutionalism, teaching institutional features of the key industries and sectors of the economy require deep analysis.

Development of the institutional environment is not supported by the electricity theoretical basis. But deep and ambiguous institutional reforms in the power industry in recent years have caused some tension in society. Optimization study of the institutional framework in the field of energy demands time. In particular, according to statistics of the Supreme Arbitration Court of Russia (FAS), the number of court cases on the conclusion and execution of contracts with electricity each year tends to increase.

Thus, the relevance of the study is associated with the need to consider the characteristics and methods of institutionalizing the electricity sector. Creating the institutional conditions of functioning of the energy services would help to focus the scope of the existing potential for strategic missions. The developed institutional base of national economy can become a major factor in energy saving.

Purpose of the work - to identify the status and prospects of development of theoretical and

methodological basis for the study of institutional change in the electricity industry of the national economy.

Part of the problem of the topic was announced in various conferences and symposia [1,2,3].

2. Theoretical Base

Institutionalization – process of order, formalization and standardization of institutes. Theoretical and methodological problems of the research of institutional changes have been considered in many scientific researches. Fundamental researches have been presented in the works of the representatives of traditional institutionalism and neo-institutionalism. A system of institutes has been analyzed and created, based on formal-normative and non formative relationships

Renowned economist D. North noted that the institutions are "Structural forms of human interaction." He believes that the institution is "man-made constraints that structure political, economic and social interaction," or as "rules, mechanisms to ensure their implementation, and norms of behavior that structure repeated human interaction" [4].

In modern foreign studies on the topic of scientific activity can be noted Polanyi K., O'Sullivan A., Sheffrin SM, Eggertsson T., Rodrik D. etc. In particular, in the writings of Eggertsson T. focus on institutional constraints hindering reforms [5], in the writings of Rodrik D. consider constructing a sequence of intermediate institutions [6].

3. Methodology

Manifestation of institutionalism in the field of electricity can be considered from different methodological positions. Among which are the institutionalization relations of "producer-consumer"

energy services, agency theory, energy service contractual relationship, the plurality of interests. The institutionalization as the process of development of certain relationships allows you to organize the participants of the energy relationship based on respect for the formal and informal rules of behavior.

In 2012, lecturers at the faculty of Harvard Business School Alvin Roth and Lloyd Shapley of the University of California for the decision of "A central problem for the economy: how best to bring together the various (economic) agents" received the Nobel Prize. Efficient and effective mixing of various economic agents in different services is not only purely economic value, but also social and political significance.

Moral-ethical and psychological institutions are difficult to any regulation. They do not change for a long period of time and can not ignore such.

Institutes of price regulation are obsolete. For example, the Russian federal authorities several times changed the calculation scheme for housing and communal services (HCS) and payments for electricity through double-switch counters, raised tariffs, eliminated cross-subsidies in the energy sector. In general, citizens-consumers were completely confused who totally couldn't understand the system of charging for HCS. There are some problems in providing institutional development of the power. The government was forced to revise the legal framework of providing energy services. In a short time, the institutional rules of the game changed dramatically.

Each type of energy service is produced in the institutional environment, and thus has its own institutional structure. In the current model of the electricity market are a lot of contradictions, the model is influenced by the state. As a result - no market mechanisms, no control knob of the state sector.

Activities carried out on the experience of developed countries, can not be fully applied to the modern Russian conditions related to underdevelopment of the institutional power.

4. Practical Contribution of Research

Increased activity of the state in terms of energy savings required the establishment of the institutional framework changes. In recent years, legislative support for institutional change in the electricity sector was an irreversible process. Established principles and mechanisms of state policy have set at the heart of energy policy the problem of increasing the efficiency of fuel and energy resources.

Approved in 2009, "Energy Strategy of Russia for the period up to 2030" is a "Paper document" [7]. It sets the main priorities and guidelines that are already many documents must be consistent. In particular, the Energy Strategy expects reduction by 2030 (compared with 2005 levels) specific energy consumption of the gross domestic product - more than 2 times; specific electric gross domestic product - not less than 1.6 times. A federal legislation on energy efficiency set by budgetary institutions reduces energy consumption by 3% annually.

However, the question arises: "How to ensure the implementation of the basic provisions of the energy strategy?" Definitely, if the economy will focus

only on the use of technical and economic potential of the sector, the planned strategic objectives will not be achieved. Looking for new aspects of strategic planning. In particular, it relates to disclosure and use of the institutional capacity of the electric power industry. The problems of institutionalization of energy services include the following:

1. Institutional framework for addressing the provision of energy services is created only at the federal level. Provision of energy services involves a huge number of technical, economic and organizational measures linked to specific conditions and interconnected with each other. Their practical implementation is possible only at the mega - and microeconomics.

2. The majority of institutional and legal acts aren't acts of direct action, which calls for the creation of numerous subordinate legislation in the form of manuals, regulations, rules, procedures, etc. "Implementation" of the current Federal Law "On Energy Saving" requires, some experts believe, the adoption of more than one hundred bylaws.

3. There exist problems in the provision of institutional measures of budget, tax and tariff incentives, energy conservation and energy efficiency. Laws mainly provide administrative interventions, ie seek to encourage energy savings by the whip, and not stick.

For the methodological solutions, institutionalization of power industry is recommended to be used as an the principal-agent model.

Data on the actual processes of mutual influence of economy and energy allow to analyze the motives of agents.

Agency approach has been widely used in many fields of human activity. Agent-based modeling and simulation (ABMS - agent-based modeling and simulation) - is in the simulation of complex systems consisting of autonomous and independent agents. As the seller of electricity act supplier firms, such as JSC "Tatenergosbyt". And consumers are legal persons, households, individuals, individual entrepreneurs.

Agents pursue their own goals. The effectiveness of the agents' behavior affects the level of awareness about the strategic behavior of agents. Agents can handle the information flow in their economic interests. Access to any economic agent to electricity provided its payment at close to socially optimal is the purpose of society.

The main direction of ABMS - is the modeling of social and organizational behavior, as well as their decision-making. Accordingly, there is a need in the representation of social interaction, collaboration, group behavior, complex social structure. Consumers of electricity as an agent has an activity and autonomy to make decisions in accordance with a certain set of rules, interact with the environment and other agents, as well as change (evolve, adapt).

State and behavior of agents change over time. Agents have dynamic linkages with other agents, particularly other households.

Environment in which electricity consumers are agents, not some set of exogenous parameters that do not change over time. In contrast, the agents themselves their collective behavior can shape it.

For example, the formation of social norms in electricity prices can occur under the influence of agents to demand them. Currently, in some regions of Russia was

conducted an experiment to introduce regulatory scope of use of electricity. But agents appear objectively institutional motives:

1. How to apply numerable consumption to consumers' equivalent to pay for electricity for the population (religious organizations, garages and outbuildings citizens, etc.)?
2. How to ensure social justice in cases of forced growth of power of citizens (for example, electric heating with substandard heating and hot water)?
3. What is the economic and social impact of the planned events?
4. It remains unclear whether the introduction of mass social norms irritation with vanishingly small effect?

Investigating the behavior of agents can be a variety of methods. Necessary theoretical basis to determine their behavior. This can be a standard model in which agents seek to optimize anything. You can also rely on the existing knowledge about the behavior of agents in the field. To investigate the behavioral aspects of social behavior of agents in the electricity sector and their impact on decision-making by households should be conducted broad interdisciplinary experimental observations.

5. Theoretical Model

Agency relationship "producer-consumer" energy services involves consideration of its development process with three positions

1. Create different organizational and managerial structures of electric power industry. In particular, the Energy Strategy of Russia until 2030 tasked "To form new territorial-industrial clusters based on the development of energy supplying and processing industry." The essence of the cluster reveals many concepts important to them is that cluster formation - an association of interrelated and mutually supportive organizations in terms of functional dependencies in the production and sale of goods (Services). Clustering Energy Economics is defined as the creation of an industrial complex, formulated on the basis of concentration of economic power and interest's generation, distribution and energy services companies, organizations, credit and financial sphere, state and public structures.

2. Formation of the system of values and norms that govern the behavior of economic agents and power sectors. According to the census in Russia in 2010, were recorded 54.6 million private households. The behavior of each economy as agent predetermined economic interest. Energy-saving consumer behavior is predictable. But it has certain limits. Regulatory and legal institutions do not meet the requirements of the development of an energy market.

3. Accounting for ethical and psychological aspects of institutional relations in the energy sphere. Institutional energy services field service consists of a huge number of technical, economic, organizational, ethical structures

linked to specific conditions and coordinated with each other.

6. Conclusion

The need to move from the interests of producers of energy services to the client-oriented approach should contribute to the formation of a new institutional structure of the economy.

Energy services market is at the junction of the public and private sectors of the national economy and it can determine the effectiveness and contradictory decisions and recommendations in the field of institutional energy policy.

In the strategy of transforming the institutional environment must be taken into account the so-called new energy civilization, which is characterized by the presence of intelligent energy systems, innovative energy infrastructure and renewable energy.

Institutional environment energy sphere is an integrated system of institutional support activities, development of human and social capital, industrial and economic growth. Reliability, quality, convenience, efficiency and availability of energy products and services, fast and cheap connection to power grids, the establishment of the institutional framework for consumers should be an important priority in the country's economic policy.

To the existing model of the electricity market and power accumulated many claims - models move further away from the market and more and more exposed to regulatory intervention. Given the institutional changes necessary to correct the scientific concept of socio-economic programs and the country's energy strategy.

(Note: The study was performed under the project 14-02-00041 Russian Foundation for Humanities).

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