

Economic Theoretical and Legal Issues of Antimonopoly Regulation in the Russian Electric Power Industry

Mikhail Vasilyev^{1,2,*}

¹Melentiev Energy Systems Institute of SB RAS, 664033, Lermontov st. 130, Irkutsk, Russia

²The All-Russian State University of Justice, Irkutsk Law Institute, 664011, Nekrasov st. 4, Irkutsk, Russia (Master's Degree Student)

Abstract. The paper discusses the antimonopoly regulation of the Russian wholesale electricity and capacity market as an interconnection of economic theory and legal science. Research of results and by-effects of different regulation mechanisms and understanding the public danger of abusing monopoly power are problems of the economic theory and there are serious contradictions in these spheres nowadays. The legal science reflects these contradictions and transfers them into legal acts. The three legal acts that regulate pricing and bidding in the wholesale electricity and capacity market in Russia are analyzed. Findings show that the concepts of price manipulation and monopolistically high and low pricing are not clearly defined and allow violent interpretation.

1 Introduction

The electric power industry is one of the economic sectors, whose efficient or inefficient functioning influences the whole national economy and people's welfare. Legal regulations are applied to control the functioning and development of the industry. Law principles set requirements to the industry structure, behavior of the objects of regulation, powers, and authority of public agencies. The regulation purposes include the limitation of market power and maintenance of competition. From the legal perspective, antimonopoly regulation is based on Article 34 of the Constitution of the Russian Federation [1], which prohibits economical actions aimed at monopolization and unfair competition.

Interdisciplinary connection of economics, law, and technical sciences is important for research of regulation in electric power systems. Economics deals with people's behavior under different conditions, industrial organization, regulation mechanisms, their results, and by-effects. The principles of regulation are implemented in the legal framework. Rules, captured in legislation, determine the behavior of market participants and authorities.

Under these conditions, interdisciplinary coordination is important, i.e. the actual legal arrangements should comply with the purposes and

objectives of regulation from the viewpoint of economics. Law principles should also comply with each other to prevent different behavior signals to market participants and investors.

Researchers have already been mentioned repeatedly the lack of such coordination, which leads to negative by-effects. DiLorenzo [2] noted that certain companies (including those in the electric power industry) received monopoly privileges without understanding and proving these privileges by economists. As a result, the regulation caused price growth. The theory of economic regulation describes how monopoly rights are set and prices are regulated depending on the political process and regardless of economic advancements [3]. In this case, the price growth is also a result of the regulation applied. Authors in [4] note that the antimonopoly regulation applied in Russia is the reason for higher market concentration i.e. in fact the regulation provided results contrary to those expected. Incoherence between economic theoretical approaches to regulation and its manifestation in law leads up to unreasonable regulation and its unpredictable results, higher risks for market participants, and investors.

There can be different reasons for such incoherence. One of them is political, where the lawmaker consciously writes a law that does not correspond to what the economic theory suggests. This reason is not subject to

* mikhail-vasilyev@yandex.ru

economic research. Another reason is the lack of economic knowledge in the specific field. In particular, there are two main concepts in the antimonopoly regulation: "perfect competition market" and "marginal costs". However, there has been no sufficient research on how to calculate the marginal costs of electricity market participants. Moreover, different researchers understand marginal costs differently [5].

In addition to this interdisciplinary incoherence, there is incoherence between different legal acts, i.e., the law principles set by different legal acts in the same legal relations sphere are not compatible with each other. For example, the study [6] shows that the capacity market participants in Russia, which control more than one generating unit, can never be sure that their bids comply with all legal requirements.

2 The public danger of market power and price manipulation

Addressing the abuse of monopoly position and price manipulation as a manifestation of such abuse, one needs to build on the concept of public danger [7]. No public danger means no need to prevent it through statutory regulation. Description and proof of the public danger of monopolistic behavior is a task of economic theory and, particularly, industrial organization. The essence of public danger is normally reduced to a smaller social welfare in comparison to a certain perfect condition.

The development of economic thought in this field can be tracked from publications of Joan Robinson. Early researchers believed that perfect competition is an ideal pattern of markets and all the deviations should be corrected by government intervention. Any firm under perfect competition has the volume of production at which the marginal costs are equal to the average costs and the price [8]. If competition is not perfect due to a monopoly position, the volume of production is lower, and the economic efficiency of a certain market declines.

The industrial organization theory has been developing since the 1950s. According to Joe Bain and Edward Mason, the structure of the industry (competitive or concentrated) is determined by the fundamental conditions (technology, production volume, product differentiation, etc.). The structure of the industry determines the degree of market power, which manifests itself in the ability of sellers to set prices above marginal costs of production. There is a widespread idea that the profit of the industry is proportional to the market concentration of producers, which can be measured by the Herfindahl-Hirschman index.

Later [9], the focus of research on market power shifts. "New empirical industrial organization" sets the following basic principles:

- The marginal costs of a firm cannot be observed directly; they are derived from the firm's behavior or estimated without knowing costs.

- The conditions of a certain industry determine firms' behavior as well as the data for analysis.

Comparative analysis can hardly be applied except that for closely related industries.

- Actions of firms and industry conditions are unknown parameters that should be estimated.

- An alternative to the concept of market power is the hypothesis of perfect competition.

At the same time, the theory of contestable markets was developed [10]. Its main idea is that the one and only commodity producer cannot exercise market power if the industry entrance barriers are zero. This is due to potential competition with new entrants. Nevertheless, if such barriers exist, certain behavior of large producers can create obstacles and risks for new market participants. The concept of "predatory pricing" [11] implies setting low prices to drive competitors out from the market with the following period of high prices to get an excess profit.

The work [12], which is up-to-date in the field of the electric power industry, gives two definitions of market power: as (1) an ability of market participants to get additional profit from moving prices from the competitive level and as (2) an ability of a seller to get additional profit from keeping the prices above the competitive level during a long time. Both definitions are based on a "competitive price level" corresponding to the marginal costs, as clarified in Chapter 4-1.

Thus, the concept of perfect competition (the ideally efficient market structure) has been permeating the theoretical basis of antimonopoly and antitrust regulation during the last century. The two main problems are formulated:

- Prices above the marginal costs of production are a result of the market power and, thus, reveal the market inefficiency, which can/should be corrected by regulation.

- Prices below the marginal costs are an attribute of predatory pricing, which should be limited for competition protection.

An alternative understanding of market power is based on a dynamic approach to competition. In the process of competition, higher prices at this moment are an incentive for potential competitors to enter the market to make prices lower. It is shown that these dynamic effects manifest themselves also in naturally monopolistic industries [13-15].

In sum, the modern economic theory is controversial when discussing the public danger of market power abuse. The researcher identifying the danger considers it as a decrease in social welfare compared to a certain perfect competition condition.

3 Mechanisms of statutory regulation

Different regulatory mechanisms are developed to prevent the monopolistic behavior of market participants. These mechanisms slightly differ in different countries. Preventing predatory pricing is the aim of the Areeda-Turner rule. According to the rule, the price, which is lower than the marginal costs, is aimed at squeezing

competitors. This kind of pricing is forbidden in some countries. Since marginal costs are not easy to calculate, some researchers suggested using average variable costs instead of marginal costs. Although the Areeda-Turner rule was widely applied in antitrust cases in the USA, some courts applied full costs as a criterion of fair competition [11]. In Russia, the mechanism is applied in the form of full costs and it is stated by the Federal law "On competition" in the term "monopolistically low price".

To prevent high prices due to market power there are mechanisms of direct price regulation and control of mergers and acquisitions. The Russian law includes concepts of dominant and unique position, monopolistically high price, etc. There is no widespread concept of marginal costs in Russian regulation.

Additionally to the criteria of fair competition and permissible market behavior, antimonopoly incentives are embedded into mathematical models and market organization [12] and also into the regulation of the capacity market [16].

Important regulatory element is the status of natural monopoly and other ways to grant and protect monopoly privileges for certain firms. The essence of this kind of regulation is that it is forbidden to produce some goods or to provide some services to all the companies but the privileged one. In the Russian electric power industry, this is applied in transmission networks and nuclear generation.

4 The disparity of economic approaches to regulation and statutory provisions

As shown above, there is no harmony in understanding the public danger of monopolistic behavior in the economic theory. Nevertheless, the dominant theory assumes perfect competition as an abstract ideal market condition and insists on legal regulation as a tool to draw the market participants to behave "perfectly". The regulation faces the following problems:

- The concepts of "perfect competition" and "marginal costs" are not well defined. Studies in this field are conducted in an abstract style. The problem of calculation of the marginal costs is not solved and is not a research priority. Statements like "in a competitive market the price is equal to the marginal costs" are often met, but it is unclear how to calculate the marginal costs in most real situations. Moreover, upon a closer view, different researchers understand marginal costs differently [5].

Consequently, in real cases of abusing a monopoly position, it is impossible to apply the concepts of the perfect competition and marginal costs to establish a fact of illegal behavior and punish the monopolist. Therefore, another approach based on full costs is applied. Compared with the marginal costs, the full costs are easy to document and control their changes with time.

However, the full costs are not a perfect solution since:

- For a multiproduct firm that takes advantage of the economy of scale, it is not easy to determine the part of full costs to be assigned to a certain product. The applied methods of cost estimations are inevitably of voluntarist nature.

- The full costs have nothing to do with the theoretical understanding of the perfect competition. Therefore, the full cost regulation will hardly result in an efficient market.

The economic theory developed a concept of natural monopoly, but it stays away from discussing if compulsory monopolization can be rational or not. In the practice of legal regulation, the mechanism is widely applied.

Thus, the interdisciplinary disparity between the economic theory and the practice of regulation is usually based on shortcomings and controversies of the economic theory.

5 The disparity of statutory provisions in the regulation of the Russian electric power industry

Regulation of the Russian electric power industry differs from regulation in other countries [for example, 17]. Three legislative acts regulate the behavior of the market participants in the electric power industry in Russia: the Federal Law «On the electric power industry», the Federal Law «On the competition protection» and the Decree of the Federal Antimonopoly Service No. 378 [18-20]. Some requirements are set by the Agreement on connection to the trading system of the wholesale market, which is signed by every market participant.

Article 3 of the Federal Law "On the electric power industry" defines the concept of "price manipulation":

"Price manipulation in the wholesale electricity (capacity) market is the commission of economically or technologically unjustified actions, including using the dominant position in the wholesale market that leads to a significant change in prices (price) of electric energy and (or) capacity in the wholesale market by:

- submission of unreasonably high or low price bids for the purchase or sale of electricity and (or) capacity. A price bid can be estimated as unreasonably high or low if it exceeds the price formed at a comparable commodity market or the price formed at this commodity market previously (for similar hours of the previous day, for similar hours of the day of the previous week, for similar hours of the day of the previous month, previous quarter);

- submission of a price bid for the sale of electricity with an indication of the volume that does not correspond to the volume of electric energy generated using the maximum generating capacity of the equipment of the market

participant. The maximum generating capacity of the equipment is determined by the System operator according to the Wholesale market code established by the Government of the Russian Federation;

- submission of a price bid that does not correspond to the economic criteria established by the authorized federal government agency;"

From the definition, we can understand that price manipulation (as an act injurious to the public) is the behavior of a market participant that simultaneously meets the following criteria:

- it is economically or technologically unjustified;
- results in a significant change in electricity and capacity prices;
- the price bid includes either the price or the volume that does not fit the criteria established in the definition.

A dominant position of the market participant has no essential meaning since smaller participants can also be identified as price manipulating. A unique position does not mean anything either since it is not mentioned in the definition at all.

It is worth mentioning that the criteria of technological and economical behavior justification are independent, i.e., an act can be either economically or technologically unjustified to be identified as price manipulation. The exact meaning of a technologically unjustified act is not provided in the law.

The behavior of a market participant complies with the law and is not manipulating if it fits the following criteria simultaneously:

- The participant bids the maximum volume of capacity and electricity production. A smaller volume should be set only according to regulatory requirements or repair/maintenance schedule.

- It is not clear what market can be considered to be comparable to the wholesale electricity and capacity market. An analogy can be drawn between the same market at different times. The law mentions similar hours of the previous day, similar hours of the day of the previous week, month, and quarter as the price benchmarks. Therefore, all of these benchmarks should be taken into account simultaneously, and the bid should be not higher than any of the prices that were yesterday, a week ago, a month ago, and a quarter ago.

- Any bid is technologically justified.

- There should be no causal relation between the change in a bid of a certain market participant and the change in the overall market price. It is important to understand that the mechanism of the wholesale electricity market does not allow individual market participants to estimate the market price while bidding. Therefore, no bidder can know the consequences of his actions while acting. The contribution of a certain market participant to the overall price change can be determined only through market modeling that assumes different bids of the participant given the bids of the other participants.

The same process of bidding is regulated by the Federal Law "On the competition protection", which defines the concepts of "monopolistically low price" and "monopolistically high price".

"A monopolistically high price of a product is a price set by the dominant economic entity if the price exceeds the number of costs and profits necessary for the production and sale of such a product, and the price that has formed under the condition of competition in the product market comparable with respect to the number of buyers or sellers, conditions of commodity circulation, conditions of market entry, public regulation including taxation and customs tariff regulation (hereinafter, comparable product market in the presence of such a market on the territory of the Russian Federation or abroad. The price is set:

1) by increasing the earlier set price if the following conditions are met simultaneously:

a) the costs necessary for the product production and sale remained unchanged, or their change does not correspond to the change in the product price;

b) the number of product buyers and sellers remained unchanged, or the change is insignificant;

c) the conditions for the product circulation including those determined by the public regulation measures and in particular by taxation and customs tariff regulation remained unchanged, or the change does not correspond to a change in the price;

2) by maintaining the earlier set price of the product if the following conditions are met simultaneously:

a) the costs necessary for the production and sale of the product decreased significantly;

b) the number of buyers and sellers of the product determines the possibility of reducing the product price;

c) the product circulation conditions, including those determined by the public regulation measures and in particular by taxation and customs tariff regulation determine a possibility to decrease the price of the product.

From the analysis of the definitions, we can see that the socially dangerous acts, i.e., abuse of monopoly power that manifests itself in setting monopolistically high prices, are the acts that meet the following criteria simultaneously:

- The price is set by the dominant economic entity. If the price is set by an economic entity without a dominant position it cannot be identified as a monopolistically high price.

- The price exceeds the costs necessary for the production and sale of the product and also exceeds the price at a comparable product market. If the price exceeds the necessary costs, but it is not higher than a

comparable market price, it cannot be identified as monopolistically high.

The regulatory scope of the two federal acts intersects partially. For example, a bid submitted by a large power plant in the capacity market will be subject to both regulations. It can be considered as price manipulation, as monopolistically high/low pricing, or as both illegal acts simultaneously. A bid of a smaller seller is never monopolistically high/low, but if it results in a changing price, it can be identified as price manipulation.

Thus, there is no clear distinction between the concepts – the same act can be determined as one illegal act or the other depending on circumstances.

The procedure of determining the facts of price manipulation is provided by the Decree of the FAS No. 378:

"11. The cases of price manipulation are detected in the course of antimonopoly violation proceedings, by comparing the prices in the price bids with the actual costs of the wholesale market participants for the electricity production in the corresponding hour, by comparing the volume in the bids with the possible volume of electricity production in the corresponding hour, given the technical characteristics of the generating units, limitations determined by heat consumption, fuel availability, and also considering the maximum economically justified costs for the electricity production (regardless of capacity) differentiated by the power plant type, and approved by the federal tariff regulating authority."

The following problems should be recognized in the phrase above:

- "...by comparing the prices..." means that comparing the prices is not the only method to detect price manipulation. What are the other methods then? They are not defined in the act, which leaves the possibility of abusing power.

- comparison is performed with the production costs in the corresponding hour. However, the full costs can not be calculated correctly over such a short time range. Probably the expression takes into account fuel costs? But it should be stated clearly to prevent wrong interpretation. On the other hand, a bid, that is set according to the fuel costs only, does not include other costs and can be identified as a monopolistically low price.

Thus, the three legislative acts regulating the pricing of electricity and electric capacity at the Russian wholesale market and monopoly power can be characterized as follows:

- there is no accurate definition of the concepts of price manipulation and monopolistically high/low price;

- the criteria of legal and illegal acts of electricity suppliers, the procedure for calculating costs, detecting illegal acts, and proving the fault of the supplier are not determined accurately either.

6 Conclusions

1. There is an interdisciplinary connection between the economic theory and the legal studies in the sphere of antimonopoly policy. The economic theory defines the forms and methods of antimonopoly regulation and researches their results and by-effects.

2. Understanding of public danger of monopoly abuse is a problem of economic theory and there are serious contradictions in this scientific subdiscipline.

3. Three legal acts regulate pricing and bidding at the wholesale electricity and capacity market in Russia. The concepts of price manipulation and monopolistically high/low prices are not clearly defined and allow violent interpretation.

7 References

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