

Antitrust Policy and Regulatory Interventions In The US Electricity Industry

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Abstract

Electricity has become one of the most vital commodity for the daily life of humankind. Accordingly, it is used in a diverse range of areas today. Given that widespread use and significance for the daily life, policy interventions in electricity industry are essential. Within this context, how antitrust policy and regulatory interventions have affected market structure, company conduct, and social performance in electricity industry will be mainly assessed in this paper. In doing so, the focus will be narrowed to economically meaningful markets, which are generation and transmission segments of the U.S. electricity industry, and to those interventions that have had the greatest impact on social performance of the industry during the past decade or so. Finally it is also evaluated that how antitrust and other regulatory policies should be used to improve social performance in electricity industry at the present time by considering practical workability as well as theoretical desirability of these interventions.

Keywords: *Electricity, Antitrust, Regulation, Structure-Conduct-Performance, Policy.*

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Öz

İnsanoğlunun günlük yaşamındaki en önemli mallardan birisi haline gelen elektrik, günümüzde çok çeşitli alanlarda kullanılır olmuştur. Kullanım alanının yaygınlığı ve günlük yaşamdaki önemi göz önüne alındığında, elektrik sektöründeki kamu müdahalelerinin önemi daha da artmaktadır. Bu bağlamda, rekabet hukuku müdahaleleri ile düzenleyici müdahalelerin, elektrik sektörünün yapısını, sektördeki teşebbüslerin davranışlarını ve en nihayetinde de tüm endüstrinin performansını ne yönde etkilediği, bu çalışmanın temel konusunu teşkil etmektedir. Çalışmada söz konusu değerlendirmeler yapılırken, temel olarak elektrik üretimi ve iletimi pazarları özelinde, son yıllarda elektrik endüstrisinin performansına en çok etki eden müdahalelere odaklanılacaktır. Son olarak, endüstrinin performansını daha da artırabilmek adına, rekabet hukuku müdahaleleri ile düzenleyici müdahalelerinin ne şekilde kullanılması gerektiği hususu, söz konusu müdahalelerin teorik açıdan doğruluğunun yanında pratik açıdan uygulanabilirliği dikkate alınarak değerlendirilecektir.

Anahtar Kelimeler: Elektrik, Rekabet, Regülasyon, Yapı-Davranış-Performans, Politika.

INTRODUCTION

The government has two types of control mechanisms at its disposal in preventing deviations from perfectly competitive model. These are direct and indirect control mechanisms over the relevant sector of the economy. Antitrust policy and regulatory interventions are regarded to be the foremost direct control mechanisms. These two types of interventions are aimed to “affect the structure and conduct of an industry to improve its economic performance”¹. Thus economic efficiency losses to society² can be prevented.

Being regarded as one of these control mechanisms in preventing deviations from the perfectly competitive model, antitrust interventions, on the one hand, are generally focuses on the structure and the conduct of an industry. Economic regulation, on the other hand, is a government intervention that aims to maintain efficiency and increase performance of the market by focusing almost exclusively on behavior of firms³.

It should also be taken into account that according to the *Structure-Conduct-Performance Paradigm*, structure of an industry determines the conduct of it and consequently the performance, meaning there is a “causal relationship” between these three. It is generally accepted, however, that “this causality runs in many directions and conduct can sometimes ‘feedback’ to change structure”⁴. Within this context, these types of interventions can affect both structure and/or conduct.

In the following parts, we will first go through the effects of antitrust policy and regulatory interventions on the structure, conduct and performance of the electricity markets respectively. In doing so, we will narrow our focus into the generation and transmission segments of electricity markets in order to assess thoroughly the interventions that

¹ VISCUSI, W.K., J.E. HARRINGTON and J.M. VERNON (2005), *Economics of Regulation and Antitrust*, Cambridge, MA, MIT Press, p.3 and 68.

² Id. p.5.

³ Id. p.3, p.5 and 68; FISHER, R. (2011), “The Regulation of Business”, http://fisher.jsc.vsc.edu/microecon/cl18_regulation.html, (Accessed: 09/07/2015)

⁴ Viscusi, Harrington and Vernon 2005, p.62; HUGHES, W.R. and G.R. HALL (1990), “Substituting Competition for Regulation”, *Energy Law Journal*, Vol. 11, No 2, p.243-267, p.250-251.

have had the greatest impact on social performance during the past decade or so.

Before delving into the most important antitrust interventions in this industry and their effects on the market structure, conduct, and performance, we first need to give a concise history of the electricity industry and unique attributes of electricity that affect the way in which the market functions. Thus, the effects of these interventions can be better understood.

1. HISTORY OF THE ELECTRICITY INDUSTRY IN THE U.S.

Once regarded as luxury, there is probably no commodity other than electricity that has become a necessity of our daily lives⁵. As a result of this development, it is almost impossible to think of any aspect of life in which electricity is not used⁶. Given the widespread use of electricity in today's world, policy interventions, either in the form of antitrust or regulation, in this industry becomes vital.

The electricity industry mainly consists of three stages: generation of electricity, transmission of it through high voltage cables to local areas, and its distribution to residential consumers⁷. In addition to these stages, retailing function is performed alongside the distribution function and regarded as an “integral component” of it⁸.

Dominant perception about the electricity industry was that it showed the characteristics of a natural monopoly and that a single vertically integrated firm had to perform all of these tasks⁹. Therefore exclusive

⁵ SCHRIBER, A.R. and J.W. BROCK, (2009), “The Electricity Industry”, James Brock (ed.), in *The Structure of American Industry*, 12. ed., p.58-98, Long Grove, IL, Waveland Press Inc., p.58-59.

⁶ JOSKOW, P.L. (1997), “Restructuring, Competition and Regulatory Reform in the U.S. Electricity Sector”, *Journal of Economic Perspectives*. Vol. 11, No 3, Summer 1997, p.119-138, p.119.

⁷ Schriber and Brock 2009, p.59.

⁸ Joskow 1997, p.121; Viscusi, Harrington and Vernon 2005, p.453.

⁹ MELAMED, A.D. (1997), “Legislative and Oversight Hearing on Antitrust Aspects of Electricity Deregulation”, Statement before the Committee on the Judiciary, United States House of Representatives, <http://www.justice.gov/atr/public/testimony/1130.pdf> (Accessed: 09/07/2015), p.5.

rights were given within the service areas of these *investor-owned* or *publicly owned* utilities to provide electricity¹⁰. Consequently the industry was subjected to numerous regulations, both at the state and federal level, in order to benefit from economic efficiencies while avoiding negative impacts of the monopoly¹¹. The rates of these firms were regulated on the basis of the traditional rate-of-return regulation and they were required to serve at those rates to all customers (public service obligation)¹².

The industry experienced a consolidation era in which an unprecedented level of mergers created giant companies¹³. In order to dismantle these giants, regulatory bodies were equipped with extensive powers¹⁴. Technological enhancements¹⁵, the emergence of nuclear power plants, and environmental movements are other important developments that have shaped the industry¹⁶.

By far the most important development for the electricity industry in recent decades around the world is the *restructuring* of the industry. No sooner had the perception that the electricity industry had the characteristics of a natural monopoly called into question than the efforts started to bring competition into the industry¹⁷. The common element of this reform process is vertical unbundling¹⁸ of competitive stages (generation and retail business) from the natural monopolistic stages (transmission and distribution) and *re-regulation* of the latter.

Finally, the energy crisis in California, one of the first states to begin restructuring the industry, has led to harsh debates as to whether the restructuring plans are beneficial or detrimental to the industry¹⁹.

¹⁰ Joskow 1997, p.120; Viscusi, Harrington and Vernon 2005, p.454.

¹¹ Schriber and Brock 2009, p.59.

¹² Viscusi, Harrington and Vernon 2005, p.454.

¹³ Schriber and Brock 2009, p.60.

¹⁴ Id. p.60.

¹⁵ Melamed 1997, p.6.

¹⁶ Schriber and Brock 2009, p.61.

¹⁷ Id. p.61. Melamed 1997, p.6.

¹⁸ Viscusi, Harrington and Vernon 2005, p.455.

¹⁹ Schriber and Brock 2009, p.62.

2. FUNDAMENTAL CHARACTERISTICS OF THE ELECTRICITY

The first and foremost characteristic of the electricity is that it cannot be stored in an economically viable way. In addition to that electricity demand varies significantly during the day, month, and year. Accordingly the load on the *grid* must be simultaneously balanced to ensure that electricity can be provided in a reliable way²⁰. Capacity constraints are important factors as they limit the scope of geographic market and constitute one of the sources of the market power in the generation market²¹. Given the widespread use of electricity and the prominence of it for other industries, this issue is also vital for the functioning of the industry²².

Types of generating plants are also important for the industry. A certain level of supply (base load) must be provided constantly by the plants (such as coal-fired or nuclear) which have appropriate cost structures²³. In recent decades, regulations to prevent environmental pollution have also become an important factor in choosing the most efficient type of plant²⁴.

3. ANTITRUST POLICY INTERVENTIONS IN THE GENERATION AND TRANSMISSION OF ELECTRICITY MARKETS

As mentioned above, being regarded as one of the control mechanisms in preventing deviations from the perfectly competitive model, antitrust law interventions are aimed to “affect the structure and conduct of an industry to improve its economic performance”²⁵. Thus economic efficiency losses to society²⁶ can be prevented. Within this context, antitrust law focuses on three practices: collusion, monopolization or attempts to monopolization and anti-competitive mergers.

²⁰ Melamed 1997, p.6-7.

²¹ Id. p.11.

²² Schriber and Brock 2009, p.63.

²³ Id. p.68.

²⁴ Id. p. 94. In this regard, for instance, coal-fired and nuclear plants are disadvantageous in comparison to natural gas.

²⁵ Viscusi, Harrington and Vernon 2005, p.3 and 68.

²⁶ Id. p.5

Interventions under these forms are generally accepted to affect conduct of an industry. According to the *Structure-Conduct-Performance Paradigm*, structure of an industry determines the conduct of it and consequently the performance, meaning there is a “causal relationship” between these three. It is generally accepted, however, that “this causality runs in many directions and conduct can sometimes ‘feedback’ to change structure”²⁷. Within this context, antitrust remedies can affect both structure and/or conduct: a divestiture of assets clearly affects structure, while an injunction prohibits some behavior or requires to take some specified course of conduct²⁸.

Before looking into antitrust interventions, we need to touch upon the issue of the markets we will narrow our focus on. We will focus on two markets: generation and transmission. The reason behind this selection is that generation of electricity “shares the basic features of any other competitive market”²⁹. In a competitive generation market, “antitrust enforcement will play an even larger role”³⁰. Therefore it is an ideal field to examine antitrust interventions. As to the transmission of electricity, it is still regarded as a natural monopoly and thus it is subjected to numerous regulations. Therefore the transmission activity constitutes a rich area to study regulatory interventions. Furthermore, there are complementarities between these two activities³¹. Finally, as pointed out by Melamed³², the fact that owners of electric power transmission facilities in the U.S. commonly also own generation facilities gives them the ability and the incentive to favor their own generation facilities, which thwart competition in generation by means of restricting the access to transmission facilities by the generation facilities of competitors.

²⁷ Id. p.62.

²⁸ Id. p.73.

²⁹ PIERCE, R.J. (1996), “Antitrust Policy in the New Electricity Industry”, *Energy Law Journal*, Vol. 17, No 1. p.29-57, p.41.

³⁰ Melamed 1997, p.4. As stated by Melamed (1997, p.7) elsewhere, “Although the much of discussion is centered around introducing retail competition. Indeed, an essential first step toward achieving competitive retail prices for electricity will be to ensure that we have a well-functioning wholesale market”.

³¹ Joskow 1997, p.121.

³² Melamed 1997, p.6.

As for antitrust interventions, the first example³³ was a case brought under Section 2 of the Sherman Act concerning access to transmission lines. In this case³⁴, Otter Tail Power's refusal of municipalities to access its electricity transmission lines was evaluated. The courts ruled that Otter Tail Power had violated Section 2 of the Sherman Act and required it to transmit electricity over its lines to municipalities. It can be said that this decision paved the way for the adoption of Orders 888 and 889 by the Federal Energy Regulatory Commission (the FERC) in 1996, which are designed to prevent such discriminatory practices³⁵.

Although the municipalities were active at the distribution level, we can say, by analogy, that the case also shows that a generator of electricity has to access transmission network to compete with its rivals. The order of the courts in this case obviously affected the conduct in the transmission market by requiring Otter Tail Power to provide open and nondiscriminatory access to its transmission network. However, it has further affected the market structure by removing an absolute barrier to entry which is an element of market structure³⁶. If entry barriers become lower, it is more difficult to exert market power and increase the price without attracting

³³ Indeed there was a previous case about the possible foreclosure of rivals concerning an exclusive dealing arrangement between Tampa Electric Company and Nashville Coal Company (*Tampa Electric Company v. Nashville Coal Company*, 365 U.S. 320 (1961)). However the Supreme Court rejected the case on the grounds that "the arrangement involved only about 0.77 percent of total coal production and this was insufficient to qualify as a substantial lessening of competition in the relevant market". See Viscusi, Harrington and Vernon 2005, p.264.

³⁴ *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973).

³⁵ This is explained by Melamed (1997, p.8-9) as follows: "Vertical integration in the same utility of generation and regulated monopoly transmission, however, creates an incentive and ability to impede open access. Because competing generators of electricity will need to use the local utility's transmission facilities in order to supply customers in that utility's service area, the vertically-integrated utility has the ability and incentive to impede competition by favoring its own generators and otherwise restricting competitors' access. The FERC issued Orders 888 and 889, designed to prevent such discriminatory practices. The FERC ordered utilities to separate their generation and transmission businesses functionally, and to abide by a Code of Conduct". However the FERC still gets a lot of complaints about discrimination by incumbents of networks. "Turning over operation and control of transmission facilities to Independent Systems Operators is potentially a more promising solution for preventing anticompetitive, discriminatory behavior by the owners of transmission facilities."

³⁶ Viscusi, Harrington and Vernon 2005, p.63

new entry. Therefore, we can predict that the concentration rates³⁷ would decrease by the entry of new rivals, which would alter conduct and ultimately performance of the industry. Furthermore, the intervention in this case removes a market failure, namely discrimination, which leads to a loss in the efficiency and social surplus. Thus the performance of the industry can be presumed to improve.

An antitrust intervention under Section 1 of the Sherman Act³⁸ involved a non-compete agreement³⁹. When the University of Rochester “decided to build a new power plant and selling the plant’s excess electricity to other users in competition with Rochester Gas and Electric (RG&E) in the sale of electricity to consumers”, RG&E entered into a non-compete agreement with the University in exchange for electricity supply at discounted rates⁴⁰. The case resulted in a prohibition of such agreements signed by RG&E⁴¹.

³⁷ It should be noted that determining concentration ratios in electricity industry is a daunting task due to the difficulty in defining geographic market. Furthermore, congestion in the networks also impacts the boundaries of geographic market. Having noted that, the transmission market is highly concentrated. The concentration of the generation market at the state level is also high, while it lowers within the broader geographic market. See. Schriber and Brock 2009, p.75-77.

³⁸ At this point, an important question arises as to California energy crisis: why the antitrust authorities could not bring an action under Section 1 of the Sherman Act? The answer to this question is as follows: “Wealth transfers in California appear to have occurred without coordinated actions among market participants that violated US antitrust law. Despite extensive multi-year investigations by almost every state-level antitrust and regulatory commission in the western US, the US Department of Justice Antitrust Division, the Federal Energy Regulatory Commission, and numerous Congressional committees, no significant evidence of coordinated actions to raise wholesale electricity prices in the Western Electricity Coordinating Council (WECC) during the period June 2000 to June 2001 has been uncovered. This outcome occurred because US antitrust law does not prohibit firms from fully exploiting their unilateral market power”. See. WOLAK, F. (2007), “Regulating Competition in Wholesale Electricity Supply”, Discussion Paper published by Stanford University, Department of Economics, http://iis-db.stanford.edu/pubs/22875/Regulating_Competition_in_Wholesale_Electricity_Supply_Wolak.pdf (accessed: 09/07/2015), p.65.

³⁹ United States v. Rochester Gas & Elec. Corp., 4 F. Supp. 2d 172

⁴⁰ STALLINGS, W.H. (2013), “Colloquium on Antitrust and Regulation: The Continuing Role For Antitrust Enforcement In the Electricity Sector”, Competition Policy International, p.16.

⁴¹ Id, p.16.

This kind of agreements clearly forecloses the market by preventing the entry of potential competitors, in this case University of Rochester, to the market. Upon the signature of such an agreement, as stated by the Court, “RG&E became free, by in effect “paying” the University not to build the new plant, to demand higher prices from the customers, the University’s plant otherwise could have served. The elimination of the prohibited agreement has had an immediate procompetitive effect: The University has issued a request for proposals to build a plant”⁴². This development obviously shows that an intervention which causes a change in the conduct, building a new plant, led to a change in the structure of the market in turn. Although it is expected to enhance competition and to improve the overall performance, it cannot be directly measured. These assumptions, however, were confirmed in a study conducted by Pozzi⁴³.

Another recent antitrust investigation under Section 2 of the Sherman Act involves Entergy Corporation which was active in all of the three segments of electricity market in its area. According to the statement made by Antitrust Division, it had been evaluating whether Entergy engaged in exclusionary conduct by effectively foreclosing *more efficient* power plants from obtaining long-term firm transmission service, a necessary input for selling long-term power products to wholesale customers in the area⁴⁴. The investigation closed as Entergy lost its ability to exclude rivals by promising “to join an independent regional transmission organization and to divest its transmission assets”⁴⁵.

As pointed out by Melamed⁴⁶, “competition can be most effective to the extent that low-cost generators are able to compete for sales to all potential customers that they can economically serve. When electric power is supplied by the least costly generators running to full efficient

⁴² See “Competitive Impact Statement”, United States District Court, Western District of New York. <http://www.justice.gov/atr/cases/fl600/1614.htm> (accessed: 08/02/2014)

⁴³ POZZI, C. (2004), “Causes and Effects of Antitrust Enforcement in US Energy Industries”, The Centre of Geopolitics of Energy and Raw Materials, Working Paper, University Paris-Dauphine [http://www.wec-france.org/DocumentsPDF/RÉCHERCHE/33_Rapportfinal\(inenglish\).pdf](http://www.wec-france.org/DocumentsPDF/RÉCHERCHE/33_Rapportfinal(inenglish).pdf) (Accessed: 09/07/2015), p.25.

⁴⁴ http://www.justice.gov/atr/public/press_releases/2012/288781.pdf

⁴⁵ Stallings 2013, p.21. Stallings also argued that this investigation also “demonstrates that the Antitrust Division does not view regulation as foreclosing antitrust actions”

⁴⁶ Melamed 1997, p.8.

capacity, the overall cost of generating the power is minimized, and prices can be lowered.” Therefore it can be presumed that the intervention in this case would bring such competition by more efficient generators. In addition to that, this intervention can also “eliminates profit incentive”⁴⁷. It means that market power, one of the sources of market failure, would be diminished and then performance would improve. Finally, divestiture of assets alters structure by decreasing concentration, which in turn affects conduct and hence performance.

“In addition to conduct cases under Sections 1⁴⁸ and 2 of the Sherman Act, mergers in the electric power industry have been the subject of antitrust interventions”⁴⁹. One of these instances was the challenge of the merger between a natural gas utility, Pacific Enterprises, and an electric utility, Enova Corporation⁵⁰. The merged entity “would have the incentive and ability to use its natural gas transportation monopoly to withhold gas or gas transportation from competing gas-fired electric plants. By restricting the access to natural gas of certain competing gas-fired plants, it would be able to raise their costs and thereby to increase electricity prices⁵¹”.

As mentioned above, conducts of firms can sometimes affect structure of the industry. One of the examples of this situation is a merger⁵². By altering the structure of the market, mergers can also facilitate collusion, meaning that conduct will be affected. As to the impacts of this merger, we can predict that monopolistic rents stemming from increased power costs would be transferred to post-merger entity⁵³. Hence, it would lead to a decrease in the efficiency and social surplus.

In this paper, likely impacts of antitrust interventions on structure, conduct, and performance of the electricity industry have been evaluated

⁴⁷ Pozzi 2004, p.39

⁴⁸ Another important cases under Section 1 are “New York Capacity Cases”. For further information about these cases see. Stallings 2013, p.17.

⁴⁹ Stallings 2013, p.16.

⁵⁰ MELAMED, A.D. (1999), “Electricity Restructuring”, Statement before the Committee on the Judiciary, United States House of Representatives, <http://www.justice.gov/atr/public/testimony/2591.pdf> (Accessed: 09/07/2015), p.5.

⁵¹ Id. p.5.

⁵² Viscusi, Harrington and Vernon 2005, p.62.

⁵³ Pozzi 2004, p.39.

and some predictions have been made. There is also a quantitative analysis of Pozzi that attempts to measure these effects. According to Pozzi⁵⁴, “there is some evidence of causality between antitrust enforcement and overall firm performance (the redistribution effect of antitrust enforcement) in electricity”, since the antitrust enforcement in this industry has some impact⁵⁵ on firm profit, performance, and consequently on the reallocation of surplus, although it is difficult to show a direct causal relationship between antitrust enforcement and reducing the exercise of market power⁵⁶.

4. REGULATORY INTERVENTIONS IN THE GENERATION AND TRANSMISSION OF ELECTRICITY MARKETS

As mentioned above, the government has two types of direct control mechanisms at its disposal in preventing deviations from the perfectly competitive model⁵⁷. Being regarded as one of them, *economic regulation* is a government intervention that aims to maintain efficiency and increase performance of the market by focusing almost exclusively on behavior of firms, i.e. price, quantity, number of firms, advertising, or R&D⁵⁸.

The main impetus for the emergence of economic regulation is the conflict of interests between society and a monopoly: what is good for a monopoly is not necessarily good for society⁵⁹. Therefore a balance must be struck between protecting the interests of consumers while at the same time providing sufficient incentives and a reasonable rate of return for firms⁶⁰. In addition to economic regulation, the newest form of regulation,

⁵⁴ Id. p.25.

⁵⁵ We should also mention about the impact of “filed-rate doctrine” which gives immunity to utilities from antitrust enforcement. It is argued that this doctrine diminishes the effects of antitrust interventions and it should be abandoned. See. PETTY, R.W. (2010), “A Light in the Darkness: The Case for Judicial Antitrust Enforcement in the Electric Wholesale Industry”, Tex. J. Oil Gas & Energy L., Vol.5. No 1, p.55-77.

⁵⁶ Pozzi 2004, p.25.

⁵⁷ Viscusi, Harrington and Vernon 2005, p.3.

⁵⁸ <http://www.ecusd7.org/ehs/ehsstaff/akoester/Documents/Micro/Chapter%2012.pdf> (Accessed: 09/07/2015)

⁵⁹ Viscusi, Harrington and Vernon 2005, p.5-6.

⁶⁰ Id, p.6-7.

which is generally referred as *social regulation*, also emerged in 1970s, which is concerned with regulating health, safety, and environmental quality⁶¹.

As a result of these developments, it is almost impossible today to think of any aspect of life in which economic and social regulations do not play a prominent role⁶². Within this framework, we will go through the effects of these types of regulations on the structure, conduct, and performance of the electricity generation and transmission markets in this part.

It was accepted that the electricity industry showed the characteristics of a natural monopoly and that a single vertically integrated firm had to perform all of the generation, transmission, and distribution of electricity⁶³. When this perception was called into question, a reform process began: *unbundling*⁶⁴ of competitive stages (generation and retail business) from the natural monopolistic stages (transmission and distribution) and re-regulation of the latter. “This reflects that transmission and distribution continue to have strong economies of scale, while there have not been substantive scale economies in generation for some time⁶⁵”.

For many years, the generation of electricity market was considered to be a natural monopoly due to the economies of scale that could be obtained by using large power plants and the losses that occurred with long-distance transmission. However, not only changes in generation technologies which reduced the optimal plant size dramatically but also the improvements in information technologies with respect to transmission operation and the decrease in the losses that occurred during transmission have removed the natural monopoly character of the generation market⁶⁶.

⁶¹ Id, p.8.

⁶² Id, p.1-2.

⁶³ Melamed 1997, p.5.

⁶⁴ Viscusi, Harrington and Vernon 2005, p.455.

⁶⁵ Id, p.455.

⁶⁶ BOISSELEAU, F. (2004), “The Role of Power Exchanges for the Creation of a Single European Electricity Market: Market Design and Market Regulation”, DUP Science, Delft University Press. http://www.masterefc.dauphine.fr/fileadmin/mediatheque/centres/cgemp/Theses_soutenues/theseboisseleau.zip (Accessed: 09/07/2015); BORENSTEIN, S. and J. BUSHNELL (2000), “Electricity Restructuring: Deregulation or Reregulation”, Regulation, Vol. 23, No. 2, p.47.

Although the generation stage of the industry is not considered as a natural monopoly anymore, there are factors that prevent free market conditions to prevail and the need of government intervention arises: **market failures**. If the free market fails to allocate resources in an optimum and efficient manner, market failures can occur. Main sources of market failures are imperfect competition (as opposed to perfect competition), externalities, public goods, and information asymmetries. “When a market failure occurs, there is a potential rationale for government intervention and regulation, in theory, may be able to raise social welfare⁶⁷”.

As one of the reasons of market failures, imperfect competition occurs where there are firms that have ability to control the price. Ability to control the price generally refers to the **market power**, which prevents the maximization of social welfare since the Pareto optimality cannot be achieved.

In this context, electricity generation market is more susceptible to exercise of market power, which played a very significant role in California debacle⁶⁸, in comparison to other markets due to some characteristics of the industry⁶⁹. Firstly, capacity withholding can have huge impact on price due to very inelastic demand of electricity⁷⁰. Secondly, congestion in transmission network can temporarily divide geographic markets and give local generators significant market power⁷¹. Thirdly, the facts that electricity cannot be stored, and that supply and demand have to be balanced simultaneously imply that inter-temporal supply substitutability cannot constrain attempts to exercise market power⁷². “For industries

⁶⁷ Viscusi, Harrington and Vernon 2005, p. 377.

⁶⁸ BORENSTEIN, S., J. BUSHNELL and F. WOLAK (2002), “Measuring Market Inefficiencies in California’s Restructured Wholesale Electricity Market”, *The American Economic Review*, Vol. 92, No. 5, p. 1376-1405, p. 1377.

⁶⁹ OECD (2002), “Competition Policy in the Electricity Industry”, Policy Roundtable, p.7 <http://www.oecd.org/daf/competition/sectors/6095721.pdf> (Accessed: 09/07/2015); GARCIA, J.A. (2007), “International Perspectives on Electricity Market Monitoring and Market Power Mitigation”, *Review of Network Economics*, Vol.6, Issue 3, p.400-401.

⁷⁰ OECD 2002, p. 7; Garcia 2007, p.400-401.

⁷¹ OECD 2002, p.7; Garcia 2007, p.400-401.

⁷² Garcia 2007, p.401.

in which the good is storable, inventories greatly reduce inter-temporal supply variation, and possibly, demand variation⁷³”.

As a result, electricity generators can have substantial market power and exercise it by withholding capacity, either in the form of physical or economic withholding, or artificially boosting prices. Thus market price rise above the competitive level and a wealth transfer occurs from consumers to producers. In addition, the price that is over marginal costs creates loss in social welfare and gives rise to *allocative inefficiency*. Moreover, exercise of market power can lead to *productive inefficiency* by inducing substitution of higher-cost for lower-cost generating units in the short-run, or entry of inefficient generation units in the medium and long-run⁷⁴. “Market power distorts short-term production and consumption decisions and, in the longer term induces inefficient investment decisions and hence leads to *dynamic inefficiency*⁷⁵”. In sum, exercise of market power reduces performance of the market significantly.

This vulnerability of electricity markets to market power forms the basis of government intervention in the form of regulation. In the U.S., the Federal Energy Regulatory Commission (FERC) has legislative authority to establish rates for wholesale electricity sales that are “just and reasonable”⁷⁶. In this regard, if a generating firm proves that it lacks market power and has not erected entry barriers, it obtains “market-based rate authority” and hence will not be subjected to traditional cost-of service regulation⁷⁷.

⁷³ Borenstein, Bushnell and Wolak. 2002, p.1377.

⁷⁴ BIGGAR, D. (2005), “Background Note: Competition Issues in the Electricity Sector”, *Journal of Competition Law and Policy*, Vol. 6, No 4, p.126-127. s. 81-181, p.127

⁷⁵ OECD 2002, p.7

⁷⁶ OECD 2002, p.407

⁷⁷ Schriber, Alan R. and James W., Brock. 2009. The Electricity Industry. In *The Structure of American Industry*, 12. ed. ed. James Brock, 58-98. Long Grove, IL: Waveland Press Inc. p.81. Other instruments of mitigating market power by regulation are capacity divestiture, promoting interconnection, and the capacity to regulate competition in generation. See NEWBERY, D. (2002), “Mitigating Market Power in Electricity Networks”, Department of Applied Economics, University of Cambridge, p.18, http://www.hks.harvard.edu/hepg/Papers/Newbery_mitigating.market.power_5-02.pdf (Accessed: 09/07/2015), p.18. It is also argued that “optimally-sized Regional System Operators (“RSOs”) can also help to mitigate market power since they can eliminate transmission rate pancaking and thereby enlarge geographic markets”. See Melamed 1997, p.5

“It should be noted that there is also a role for regulation in responding to other types of market failures like *externalities*⁷⁸.” “An externality occurs when a consumer or firm is affected by the consumption or activity of other agents in the economy”⁷⁹, i.e. pollution, which constitutes a basis for a government intervention. “When an externality is present, perfect competition does not result in an optimal allocation of resources⁸⁰”. Since power plants are a major source of pollution, regulations to prevent environmental pollution have also become important factor in electricity generation⁸¹.

Therefore “cap and trade” policy, the objective of which is to create economic incentive for firms to choose the most efficient and least costly method in reducing their pollution while stimulating innovation to develop less polluting plants, is introduced⁸². As a result of this policy, it is expected that the activity generating a negative externality can result in a socially preferred allocation of resources⁸³ and hence increase the overall performance of the market.

As to the transmission of electricity market, it is generally considered to be a *natural monopoly* since the productive efficiency is achieved only when a single firm produces⁸⁴. However, the objective of a single firm is to maximize its profit and it sets the price above its cost which leads to allocative inefficiency. If many firms are allowed to compete to lower the price and to achieve allocative efficiency, then productive inefficiency will emerge since there are too many firms producing. Thus the basis for government intervention emerges for natural monopolies⁸⁵.

Accordingly, “price and entry regulation may allow both allocative and productive efficiency in the case of a natural monopoly. Entry regulation permits only one firm to produce (as required for productive efficiency),

⁷⁸ Viscusi, Harrington and Vernon 2005, p.455.

⁷⁹ STEINER, F. (2001), Regulation, Industry Structure and Performance in the Electricity Supply Industry, OECD Economic Studies, No. 32, 2001/1, p.146.

⁸⁰ Viscusi, Harrington and Vernon 2005, p.376.

⁸¹ Schriber and Brock 2009, p.94.

⁸² Schriber and Brock 2009, p.95.

⁸³ Viscusi, Harrington and Vernon 2005, p.377.

⁸⁴ Boisselau 2004, p.4; Viscusi, Harrington and Vernon 2005, p.376.

⁸⁵ Viscusi, Harrington and Vernon 2005, p.376.

whereas price regulation restricts the firm to set the socially optimal price (as required for allocative efficiency)⁸⁶. In this regard, the FERC has legislative authority to regulate the pricing of wholesale transmission transactions to ensure that they are “just and reasonable”⁸⁷. This price regulation of transmission takes several forms⁸⁸ and in case of congestion “mitigation” procedure can be invoked in order to cap the maximum price⁸⁹.

One of the key decision of the FERC to guide transmission regulation⁹⁰ is Order 888, which requires owners of transmission networks to provide open and nondiscriminatory access to its transmission network⁹¹. This order affects not only the conduct in the market but also the market structure by removing an absolute barrier to entry which is an element of market structure⁹². If entry barriers become lower, it is more difficult to exert market power and increase the price without attracting new entry. Therefore we can predict that the concentration rates would decrease by the entry of new rivals, which would alter conduct and ultimately performance of the industry. Furthermore, it also removes a market failure, namely discrimination, which leads to a loss in the efficiency/social surplus⁹³. Thus the performance of the industry can be presumed to improve⁹⁴.

⁸⁶ Viscusi, Harrington and Vernon 2005, p.377.

⁸⁷ OECD 2002, p.407.

⁸⁸ RAP 2011, p.67.

⁸⁹ Schriber and Brock 2009, p.83-84.

⁹⁰ THE REGULATORY ASSISTANCE PROJECT (RAP) (2011), “Electricity Regulation in the US: A Guide”, p.67-68. http://www.raponline.org/docs/RAP_Lazar_ElectricityRegulationInTheUS_Guide_2011_03.pdf (Accessed: 09/07/2015)

⁹¹ This order also gives details on how transmission owners may charge for use of their lines, and the terms under which they must give others access to them. The order also required utilities to separate their transmission and generation businesses to file open access transmission rates through which they provide non-discriminatory transmission service. See RAP 2011, p.68.

⁹² Viscusi, Harrington and Vernon 2005, p.63.

⁹³ See. ECON 432 Discussion Course Packs, p.12.

⁹⁴ For other key decisions of the FERC which guide current transmission regulation see RAP 2011, p.66-67.

The reliability of the transmission grid and congestion may suffer from being *public goods*, one of the reasons for market failure⁹⁵. Since “free-riders” benefit from reliability irrespective of paying for it or not, a market failure can arise. This problem is compounded by the fact that vertically integrated transmission firms may perceive no incentive to invest in transmission lines to protect reliability for adjacent areas and to enable their rivals to better compete with themselves⁹⁶. Another factor that can aggravate the problem is that unwillingness of other states to promote reliability since doing so raises prices in one state while benefiting consumers in another state⁹⁷.

As a result, “owners of networks will invest in transmission based solely on the needs of its own service territory⁹⁸” and only if it can obtain satisfactory contracts to cover the cost of the new investment⁹⁹. Therefore the regulatory agency is likely to intervene and require an increase in capacity in order to improve service reliability¹⁰⁰. In order to address these problems associated with reliability and congestion, the FERC issued Order 679, which encourages transmission infrastructure investment while maintaining just and reasonable rates¹⁰¹.

Consequently, regulatory interventions are generally accepted to affect the conduct of an industry. It is generally accepted, however, that the causal relationship between the *Structure-Conduct-Performance* of an industry runs in many directions and conduct can sometimes ‘feedback’ to change structure¹⁰². Within this context, regulatory interventions can also affect both structure and/or conduct: i.e. entry of a new firm to the generation market affects the structure. When measuring the performance of the market, on the other hand, it should also be kept in mind that the regulatory interventions have not only benefits, i.e. reducing dead weight

⁹⁵ Schriber and Brock 2009, p.89.

⁹⁶ RAP 2011, p.66; Schriber and Brock 2009, p.89; OECD 2002, p.422.

⁹⁷ Schriber and Brock 2009, p.90.

⁹⁸ RAP 2011, p.66.

⁹⁹ Biggar 2005, p.96.

¹⁰⁰ Viscusi, Harrington and Vernon 2005, p.360.

¹⁰¹ <http://www.ferc.gov/whats-new/comm-meet/2012/111512/E-3.pdf>

¹⁰² Id. p.62.

loss (DWL) in efficiency, but also costs, i.e. both direct costs of regulatory agencies and unintended side effects of regulation¹⁰³.

5. POLICY CONSIDERATIONS: LOOKING FORWARD

Having examined antitrust policy and regulatory interventions in the generation and transmission markets of electricity, it can be asserted that these interventions have not solved every problem in these markets. Therefore, some proposals can be made to correct possible shortcomings in order to improve social performance of electricity generation and transmission markets. In this regard, we will make an effort to propose both theoretically desirable and practically workable suggestions. The suggestions in relation to antitrust policies will be presented first and the ones as to regulatory policies will follow.

Antitrust policies have a long history in electricity industry and complement regulatory structures to protect against anticompetitive conduct¹⁰⁴. Especially when deregulation has been completed, the antitrust laws should be applied fully to deter anticompetitive conduct¹⁰⁵. However, there are some impediments to antitrust policies to be effective: “*State action immunity*” and “*filed-rate doctrines*”. Although they do not exempt all conduct in the electricity industry, they provide immunity in some contexts¹⁰⁶. In order for antitrust rules to be effective, enforcement of antitrust laws should not be blocked by these doctrines, since the FERC may not check all anticompetitive conducts that may arise in these markets¹⁰⁷.

According to the state action immunity doctrine, if an anticompetitive behavior takes place pursuant to a state regulatory program, it will prevent application of the antitrust laws¹⁰⁸. Although there is a strict test for this

¹⁰³ Viscusi, Harrington and Vernon 2005, p.429.

¹⁰⁴ Stallings 2013, p.12; ANTITRUST MODERNIZATION COMMISSION (AMC) (2007), Report and Recommendations, http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf (Accessed:09/07/2015), p. IX.

¹⁰⁵ AMC 2007, p.358.

¹⁰⁶ Petty, Rachel Warnick. 2010. A Light In The Darkness: The Case For Judicial Antitrust Enforcement In The Electric Wholesale Industry, 5 *Tex. J. Oil Gas & Energy L.* 55, p.59.

¹⁰⁷ Petty 2010, p.56-57.

¹⁰⁸ Stallings 2013, p.14

immunity, the role of the antitrust laws in regulated industries may still be diminished¹⁰⁹. Furthermore, these state regulations can impose spillover costs to consumers in neighboring states¹¹⁰. Therefore, as stated by the Antitrust Modernization Committee¹¹¹, the doctrine should not be applied where the effects of conduct are not predominantly intrastate, since overly broad interpretation of the doctrine can lead to consumer harm in other states¹¹².

According to filed-rate doctrine, on the other hand, firms submit rates to the FERC and once they are approved, they are treated as a firm-specific regulation, meaning that nobody can change them except the notifying party or the FERC. If the notifying firm follows these rates, it is exempt from antitrust liability and treble damages¹¹³. Although there are some exceptions to the filed-rate doctrine, i.e. enforcement by federal government¹¹⁴, it prevents the antitrust laws to be fully applicable to the electricity industry.

Reasonableness of these filed rates, however, is rarely reviewed by the FERC since these rates are mostly market-based. Furthermore, courts continue to apply the filed-rate doctrine regardless of whether the agency has actually reviewed and approved the rate¹¹⁵. Although the Supreme Court criticized the doctrine, it gave the determination to the Congress.

Today, it is asserted that “it is time for Congress to reevaluate the filed-rate doctrine and consider overruling it where the regulator no longer specifically reviews and approves proposed rates”¹¹⁶. The underlying reasons for this view are that the electricity industry is no more firmly regulated, the rates are no longer individually filed with and approved by the FERC, remedial powers of the FERC are impotent against anticompetitive conduct, and judicial enforcement is necessary. Therefore,

¹⁰⁹ Id. p.14

¹¹⁰ AMC 2007, p.346. There are also other concerns with this doctrine in relation to political participation rights.

¹¹¹ Id. p. IX

¹¹² Id. p.333.

¹¹³ Petty 2010, p.59.

¹¹⁴ Id. p.60.

¹¹⁵ AMC 2007, p.362.

¹¹⁶ Id. p. IX-X

an absolute immunity of the filed-rate doctrine no longer makes sense in this new context¹¹⁷.

Another suggestion can be made in relation to *review of mergers* and acquisitions in the electricity industry. Although the antitrust agencies examine mergers and acquisitions, there are regulated industries including electricity in which the regulatory body (i.e. the FERC) has competence to review mergers under a “public interest standard”¹¹⁸. The fact that merger reviews conducted by two different government agencies can lead to duplicative costs and conflicts of decisions. Therefore, it should be considered to give the DOJ or the FTC full antitrust merger enforcement authority¹¹⁹, given the fact that they have considerable amount of expertise in this field. In this way, the relevant antitrust agency should perform the competition analysis and duplication of analysis by the regulatory authority will be prevented¹²⁰.

Within the antitrust law context, there is another difficulty with respect to electricity markets that the Section 1 of Sherman Act can sometimes be inadequate to remedy collusion: Mere parallel behavior of firms *-tacit collusion-* cannot be deemed illegal without any explicit agreement or direct communication between firms¹²¹. As a matter of fact, California debacle confirmed this evaluation since no significant evidence of coordinated actions to raise wholesale electricity prices was found despite extensive multi-year investigations by almost every state-level antitrust and regulatory commissions¹²².

On the other side of the coin, there are other issues that make this problem even worse. The first one is the hourly auctions structure that creates ample opportunity for tacit collusion as generators often interact with each other and through these repeated interactions they learn strategies of

¹¹⁷ Petty 2010, p.77.

¹¹⁸ AMC 2007, p.363.

¹¹⁹ Id. p. X

¹²⁰ Id. p.364.

¹²¹ VAHEESAN, S. (2013), “Market Power in Power Markets: The Filed-Rate Doctrine and Competition in Electricity”, *University of Michigan Journal of Law Reform*, Vol. 46, Issue 3, p.958

¹²² Wolak 2013, p.62.

other bidders¹²³. The second one is the pivotal supplier problem: a supplier that has enough capacity to dictate price by withholding its capacity. This problem can take two different forms and suppliers can either collude implicitly or one of them exercises that pivotal power unilaterally¹²⁴. As to the tacit collusion part of this problem, it is recognized as one of the most intractable problems in antitrust laws around the world. One of the solutions to this problem may be the lowering of burden of proof on the part of antitrust authority by setting some conditions¹²⁵, upon fulfillment of which the burden of proof will be shifted to the firms and then they have to prove that they were not colluding.

As to the other form of pivotal supplier problem, exercise of *market power* is under the scrutiny of antitrust enforcement in most cases. Within the antitrust context, there are two means to deal with market power: monopolization or attempts to monopolization, which is an ex-post evaluation, and merger control, which is an ex-ante evaluation. In both of these analysis, market definition is a crucial first step. Market share and concentration indexes, however, can be insufficient in measuring market power due to the unique features of electricity markets. Therefore, alternative indexes “Pivotal supplier index” and “residual supplier index” are developed.

These indexes, however, cannot be regarded as well-suited to address wielding of market power in the electricity industry¹²⁶, since they are aimed to identify market power. In the meantime, the mere possession of monopoly power is not outlawed and the exercise of market power can be addressed only if an entity attempts to monopolize in antitrust

¹²³ BLUMSACK, S.A., J. APT, and L.B. LAVE (2006), “Lessons from the Failure of U.S. Electricity Restructuring”, *The Electricity Journal*, Vol. 19, Issue 2, p.18

¹²⁴ Id 18-19

¹²⁵ In Turkish antitrust law, actually, there is a presumption of concerted practice and the relevant provision is as follows: “In cases where the existence of an agreement cannot be proved, if the price changes or the balance of supply and demand or the areas of activity in the markets of the enterprises concerned are similar to those of the markets where competition is prevented, distorted or restricted, this constitutes a presumption that the enterprises concerned are engaged in a concerted practice. Each such party thereto may avoid liability if the contrary is proven on economic and rational grounds.”

¹²⁶ Melamed 1999, p.6

law context¹²⁷. Combined with the fact that wielding of market power by electricity generators is an endemic problem in the industry, special tools to remedy market power problems should be developed.

One of the tools, in this regard, should be local market power mitigation mechanism that limits the bids of a supplier in case of inadequate competition. Another one can be the ability to suspend market operations when the market outcome is too harmful¹²⁸. For instance, the operators of the PJM pool are given “wide-ranging powers to reset the bids of generators that have been deemed to be exercising local market power”¹²⁹. In the struggle with market power issues, promoting investment in transmission is also crucial since these investments can take away pivotal status of a supplier¹³⁰.

As we proceed with the importance of the *transmission network*, it is accepted that the performance of the electricity industry depends crucially on how the transmission network operates: “whether there is adequate investment in transmission capacity and how it is priced”¹³¹. As mentioned just above, insufficient transmission capacity will give certain generators “locational market power, and will degrade reliability regardless of market structure or conduct”¹³². As to the determination of transmission prices, these prices should not be too high to deter competitive decisions for purchasing power from the most efficient suppliers, and they should not be too low to discourage investment in transmission networks¹³³.

In this context, one of the performance indicators of the transmission network is the transmission loading relief (TLR) actions. These actions imply that there is a significant threat to the functioning of the grid since TLRs are resorted in order to stabilize the flow of power¹³⁴. When we look

¹²⁷ Melamed 1997, p.12

¹²⁸ Wolak 2013, p.66.

¹²⁹ Borenstein 2000, p.51.

¹³⁰ Blumsack, Apt and Lave. 2006. p.19

¹³¹ Viscusi, Harrington and Vernon 2005. p.461

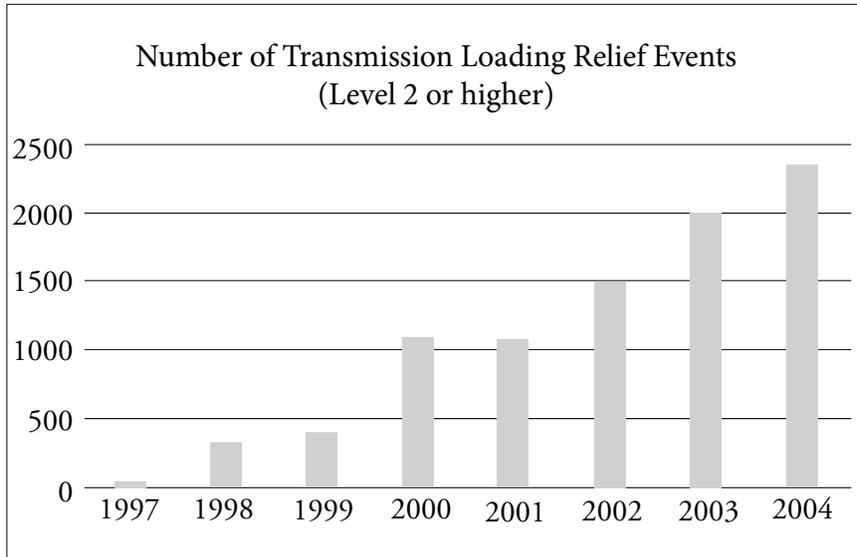
¹³² Blumsack, Apt and Lave. 2006. p.26

¹³³ Melamed 1997, p.10

¹³⁴ Schriber and Brock 2009, p.88

at the Figure-1 below about the TLR actions over time, we can see that the number of TLRs is increasing over recent years substantially¹³⁵.

Figure-1: Transmission Loading Relief Actions, 1997-2004



Source: Blumsack, Apt and Lave. 2006. p. 26

One solution to create a well-functioning transmission investment framework can be “a two-part tariff where congestion charges remain and discourage congestion while the bulk of payments would be through an energy charge that would provide incentives for new construction and efficient operation¹³⁶”.

As mentioned above, many states promote *renewable energy* technologies by adopting “*renewable portfolio standards*” in addition to offering incentives (grant programs) in order to ensure energy independence and security¹³⁷. Supporters of these programs claim that competition among different energy sources will keep the electricity prices low. Opponents, however, criticize such policies and contend that they will increase price for electricity since producers are forced to

¹³⁵ Blumsack, Apt and Lave. 2006. p.26. Schriber and Brock 2009, p.88-89

¹³⁶ Blumsack, Apt and Lave. 2006. p. 27.

¹³⁷ GREER, M. (2012), *Electricity Marginal Cost Pricing*, Elsevier, p.89.

use more expensive sources¹³⁸. Furthermore, these policies should also take into account regional differences with respect to the availability of renewable sources and possibility of diverting investments to building new transmission lines¹³⁹.

When we look at the history of the industry, by far the most important policy of the past is the “*regulatory reform*”. Main component of this restructuring process is the ***unbundling*** of competitive stages from natural monopolistic stages. There are many models with respect to unbundling: accounting separation at one extreme and ownership separation at the other. Given the difficulty in ensuring that the transmission owner will not operate its transmission assets in a manner that favors its own generation¹⁴⁰, choosing the right model of separation by considering their benefits and costs becomes crucial for a successful regulatory reform.

In the U.S., functional separation is incentivized though not required by the FERC to form independent system operators. However, this approach could not prevent discrimination in generation and transmission. As a result, the FERC encouraged Regional Transmission Organizations but not required ownership separation by the Order of 2000¹⁴¹. As pointed out by Stern¹⁴², “whereas ownership separation of networks from upstream and downstream production and sales works well, functional separation achieves little”. Therefore, full ownership separation, which is also advised in the EU, can be applied in the U.S. as well.

¹³⁸ Schriber and Brock 2009, p.97.

¹³⁹ Schriber and Brock 2009, p. 97.

¹⁴⁰ Melamed 1999. p.7.

¹⁴¹ STERN, J. (2011), “System Operators: Lessons from US and EU Energy Industry Experience and Implications for the England and Wales Water Industry”, Centre for Competition and Regulatory Policy (CCRP), Working Paper No 18, p.11

¹⁴² Stern 2011, p.1

BIBLIOGRAPHY

- ANTITRUST MODERNIZATION COMMISSION (AMC) (2007), Report and Recommendations. http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf (Accessed: 09/07/2015)
- BIGGAR, D. (2005), “Background Note: Competition Issues in the Electricity Sector”, *Journal of Competition Law and Policy*, Vol. 6, No 4.
- BLUMSACK, S.A., J. APT, and L.B. LAVE (2006), “Lessons from the Failure of U.S. Electricity Restructuring”, *The Electricity Journal*, Vol. 19, Issue 2.
- BOISSELEAU, F. (2004), “The Role of Power Exchanges for the Creation of a Single European Electricity Market: Market Design and Market Regulation”, DUP Science, Delft University Press. http://www.masterrefc.dauphine.fr/fileadmin/mediatheque/centres/cgemp/Theses_soutenues/theseboisseleau.zip (Accessed: 09/07/2015)
- BORENSTEIN, S. and J. BUSHNELL (2000), “Electricity Restructuring: Deregulation or Reregulation”, *Regulation*, Vol. 23, No. 2, p.47.
- BORENSTEIN, S., J. BUSHNELL and F. WOLAK (2002), “Measuring Market Inefficiencies in California’s Restructured Wholesale Electricity Market”, *The American Economic Review*, Vol. 92, No. 5, p. 1376-1405.
- FISHER, R. (2011), “The Regulation of Business”, http://fisher.jsc.vsc.edu/microecon/cl18_regulation.html, (Accessed: 09/07/2015)
- GARCIA, J.A. (2007), “International Perspectives on Electricity Market Monitoring and Market Power Mitigation”, *Review of Network Economics*, Vol.6, Issue 3.
- GREER, M. (2012), *Electricity Marginal Cost Pricing*, Elsevier.
- HUGHES, W.R. and G.R. HALL (1990), “Substituting Competition for Regulation”, *Energy Law Journal*, Vol. 11, No 2, p.243-267.
- JOSKOW, P.L. (1997), “Restructuring, Competition and Regulatory Reform in the U.S. Electricity Sector”, *Journal of Economic Perspectives*. Vol. 11, No 3, Summer 1997, p.119-138
- MELAMED, A.D. (1997), “Legislative and Oversight Hearing on Antitrust Aspects of Electricity Deregulation”, Statement before the Committee on the Judiciary, United States House of Representatives, <http://www.justice.gov/atr/public/testimony/1130.pdf> (Accessed: 09/07/2015)

- MELAMED, A.D. (1999), “Electricity Restructuring”, Statement before the Committee on the Judiciary, United States House of Representatives, <http://www.justice.gov/atr/public/testimony/2591.pdf> (Accessed: 09/07/2015)
- NEWBERY, D. (2002), “Mitigating Market Power in Electricity Networks”, Department of Applied Economics, University of Cambridge, p.18. http://www.hks.harvard.edu/hepg/Papers/Newbery_mitigating.market.power_5-02.pdf (Accessed: 09/07/2015)
- OECD (2002), “Competition Policy in the Electricity Industry”, Policy Roundtable, p.7 <http://www.oecd.org/daf/competition/sectors/6095721.pdf> (Accessed: 09/07/2015).
- PETTY, R.W. (2010), “A Light in the Darkness: The Case for Judicial Antitrust Enforcement in the Electric Wholesale Industry”, *Tex. J. Oil Gas & Energy L.*, Vol.5. No 1, p.55-77.
- PIERCE, R.J. (1996), “Antitrust Policy in the New Electricity Industry”, *Energy Law Journal*, Vol. 17, No 1. p.29-57.
- POZZI, C. (2004), “Causes and Effects of Antitrust Enforcement in US Energy Industries”, The Centre of Geopolitics of Energy and Raw Materials, Working Paper, University Paris-Dauphine [http://www.wec-france.org/DocumentsPDF/RECHERCHE/33_Rapportfinal\(inenglish\).pdf](http://www.wec-france.org/DocumentsPDF/RECHERCHE/33_Rapportfinal(inenglish).pdf) (Accessed: 09/07/2015).
- SCHRIBER, A.R. and J.W. BROCK, (2009), “The Electricity Industry”, James Brock (ed.), in *The Structure of American Industry*, 12. ed., p.58-98. Long Grove, IL, Waveland Press Inc.
- STALLINGS, W.H. (2013), “Colloquium on Antitrust and Regulation: The Continuing Role For Antitrust Enforcement In the Electricity Sector”, *Competition Policy International*.
- STEINER, F. (2001), *Regulation, Industry Structure and Performance in the Electricity Supply Industry*, OECD Economic Studies, No. 32, 2001/I.
- STERN, J. (2011), “System Operators: Lessons from US and EU Energy Industry Experience and Implications for the England and Wales Water Industry”, Centre for Competition and Regulatory Policy (CCRP), Working Paper No 18.
- THE REGULATORY ASSISTANCE PROJECT (RAP) (2011), “Electricity Regulation in the US: A Guide”, http://www.raponline.org/docs/RAP_Lazar_ElectricityRegulationInTheUS_Guide_2011_03.pdf (Accessed: 09/07/2015)

- VAHEESAN, S. (2013), “Market Power in Power Markets: The Filed-Rate Doctrine and Competition in Electricity”, *University of Michigan Journal of Law Reform*, Vol. 46, Issue 3.
- VISCUSI, W.K., J.E. HARRINGTON and J.M. VERNON (2005), *Economics of Regulation and Antitrust*, Cambridge, MA, MIT Press.
- WOLAK, F. (2007), “Regulating Competition in Wholesale Electricity Supply”, Discussion Paper published by Stanford University, Department of Economics, http://iis-db.stanford.edu/pubs/22875/Regulating_Competition_in_Wholesale_Electricity_Supply_Wolak.pdf (accessed: 09/07/2015)

YAYIN İLKELERİ VE MAKALE YAZIM KURALLARI

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2. Rekabet Dergisi'nde yayımlanmak üzere *rekabetdergisi@rekabet.gov.tr* adresine gönderilen yazılar daha önce başka bir yerde yayımlanmamış veya yayımlanmak üzere gönderilmemiş olmalıdır. Yazarlar, yazılarıyla birlikte, iletişim adresi, telefon ve elektronik posta bilgilerini sunmalıdır. Gönderilen yazılar, Editörler tarafından, içerik ve “Makale Yazım Kuralları” başlığı altında belirtilen kurallara uygunluk bakımından değerlendirilir. Ardından, yazarın ismi gizlenerek, konu hakkında uzman iki hakeme gönderilir. Hakemlerden gelecek raporlar doğrultusunda yazının basılmasına, reddedilmesine veya yazardan düzeltme istenmesine karar verilecek ve bu durum yazara en kısa sürede bildirilecektir. Gerekli durumlarda üçüncü bir hakemin görüşüne başvurulabilir.

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b) Yazarın adı ve çalıştığı kuruluş (Yazı başlığının hemen altında, sayfanın sağına yanaştırılmış olarak yazar adı belirtilmeli ve soyadın