Utilities Policy 55 (2018) 90–98

Contents lists available at ScienceDirect

Utilities Policy

journal homepage: www.elsevier.com/locate/jup

# Regulatory and market disharmony in the Turkish electricity industry☆

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ARTICLE INFO

*Keywords:*
Competition in retail electricity supply
Regulated tariffs
Renewable energy support mechanism*JEL classification:*
L43
L52
L94

ABSTRACT

We examine the regulatory and market disharmony in the Turkish electricity industry revealed in the course of introducing competition in retail supply. We specifically show that the design of the support mechanism for renewable energy resources and the level of regulated retail tariffs have left little room for the viability of retail competition in the electricity sector. While the cost of the support mechanism has increased the cost for retail suppliers, the regulated tariffs prevent them from reflecting this cost increase in their prices and from providing commercial offers. This induces customers to switch back to their default regulated tariffs.

## 1. Introduction

Since the early 2000s, the electricity industry in Turkey has been on the way of liberalization through privatization of distribution units, stimulating investments in generation and deregulation in the retail electricity market. Significant improvements have been achieved in the generation and wholesale markets. However, introducing competition in retail electricity supply has lagged behind expectations (Camadan and Kölmek, 2013; World Bank, 2015; Sirin and Gonul, 2016).

A variety of factors may explain this apparently unsatisfactory performance. In this study, we examine the regulatory and market disharmony as an explanation. Specifically, we show that cost allocation of the support mechanism for renewable energy resources and suboptimal regulated retail tariffs have distorted economic incentives and undermined competition in the retail market for electricity.

Regulations to encourage growth in the development of renewable energy resources for electricity (RES-E) have been used since the 1990s in most jurisdictions worldwide (Couture and Gagnon, 2010; Jenner et al., 2013). Incentives for RES-E based on specific support schemes, such as feed-in-tariff (FIT), have gained popularity by achieving high levels of renewable installed capacity during the last decades (Ciarreta et al., 2017). However, those support schemes are imperfect and may lead to market distortions due to insulating RES-E from market signals (Huntington et al., 2017). To allocate the cost of RES-E subsidies, the difference between the tariff price and the market price is re-distributed among final customers or compensated from state budgets (Batlle, 2011; Jenner et al., 2013; Verde and Pazienza, 2016).

Turkey has implemented a RES-E mechanism since 2005. A generous FIT mechanism, structured as a fixed-price tariff, has been applied since 2010 and guarantees that generators can sell their electricity to the grid at supported prices. The cost gap is covered by retail suppliers through charges to final customers. However, this cost allocation scheme has an increasingly adverse effect on retail competition in the electricity sector. The increasing installed capacity in RES-E combined with the depreciation in TRL against USD (in which the FIT is given) has increased the pass-through cost to the retail suppliers and hence their price offers to customers.

The increase in final customer electricity prices caused by RES-E support schemes has been examined in the literature (Sáenz de Miera et al., 2008; Batlle, 2011; Moreno et al., 2012; Farrell and Lyons, 2015). What makes the Turkish case interesting is the regulated retail tariffs, which prevent the increase in final electricity prices by creating a ceiling for the retailers' commercial offers. Market distortions associated with regulated prices in electricity markets have been examined (see UK Competition and Markets Authority, 2016; Brown et al., 2017; Brown and Eckert, 2018). This analysis shows how the regulated retail tariffs accompanied by the RES-E support mechanism affect retail competition. We show, through the Turkish case, how competition and regulation are two sides of the same coin in a network industry.

The paper is organized as follows. The next section briefly summarizes the market conditions in the retail market. It also elaborates on how alternative suppliers can get subscribers in the retail market. The second section puts the fundamental cost components for a typical retail supplier and the evolution of these costs. The third section focuses

☆ We are very grateful to two anonymous reviewers and the editor, whose comments on the manuscript greatly helped to improve the quality of the paper.
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https://doi.org/10.1016/j.jup.2018.10.001
Received 25 June 2018; Received in revised form 2 October 2018; Accepted 3 October 2018

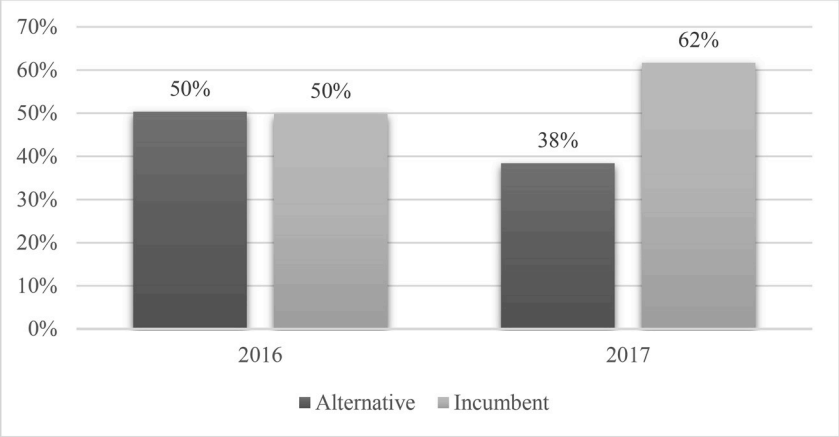


**Fig. 1.** Distribution of eligible customers in unregulated tariffs.
Source: EPDK, 2017, 2018a.

on the regulated retail tariffs and their effects on the suppliers. The final section concludes with some remarks.

## 2. Retail market conditions and feasibility of competition

Following the economic crisis in 2001, comprehensive market-based reforms were launched by the Turkish government in several sectors, including the electricity industry. The design of the country's reforms was inspired by the European Union's (EU) 1996 (96/92/EC) electricity directives. These reforms provided for sectoral restructuring, the establishment of electricity markets, market opening, electricity trading, bilateral contracting, open access to networks and the establishment of the Energy Market Regulatory Authority (further EPDK) (World Bank, 2015).

In order to deregulate the retail electricity market and allow alternative retail suppliers to operate, the EPDK has gradually decreased the limit for eligible customers since 2003. The EPDK also defined the rules for separating the incumbent distribution and retail companies, which aim to create a competitive environment and facilitate the entrance of alternative suppliers. Currently, incumbent retail companies sell electricity both at regulated tariffs as a supplier of last resort and at unregulated prices to eligible customers. By the end of 2017, the theoretical market openness in the retail market had reached almost 90 percent. However, only 10.7 percent of the total customers had switched to unregulated tariffs of incumbent or alternative suppliers (EPDK, 2018a). According to the EPDK database, there are more than 200 licensed suppliers in the Turkish market (EPDK, 2018b). Fig. 1 shows the distribution of the customers between the incumbent and alternative suppliers.

As in most jurisdictions, the EPDK has gradually decreased the consumption limit for eligible customers with an ultimate aim of setting it to zero. The expected outcome of this process is to stimulate the eligible customers to switch from regulated tariffs to unregulated tariffs of incumbent or alternative suppliers. This is generally considered as the first step in introducing consumer participation at the retail level (Hunt, 2002). However, little progress has been seen.

First, consumers make calculations considering their perceived risk of switching to other tariffs and expected benefit (Juliusson et al., 2007; Gamble et al., 2009). Search cost may be a barrier for customers to change from default tariffs (Giulietti et al., 2014; Hortaçsu et al., 2015; Shin and Managi, 2017). Therefore, informing the customers via designing tariff comparison websites (Wilson and Price, 2010) or low-cost information interventions (Hortaçsu et al., 2015) may help mobilize them to choose among alternatives.

Second, the existence and nature of default regulated tariffs play a significant role in customers' switching behavior (UK Competition and Markets Authority, 2016). Market-based reforms aiming to transition to a competitive retail market often include the use of temporary regulated default tariffs (Blumsack and Perekhodtsev, 2009). In some jurisdictions, after the initial phases of retail competition, default prices are set at high levels to allow competition among the unregulated suppliers. In others, a model of wholesale price pass-through is adopted to set the default rates (Blumsack and Perekhodtsev, 2009; Brown and Eckert, 2018). In both models, the ultimate aim is to induce unregulated suppliers to compete for customers.

Until 2001, electricity tariffs in Turkey had been administered by the government. With the launch of the market-based reforms, the price regulation was transferred to the EPDK. However, in practice, the government influence still continues despite a cost-based pricing mechanism that was designed in 2008 to remove government control (World Bank, 2015). Political influence, motivated by the potential effects of electricity prices on inflation and the competitiveness of Turkish industries, has loosened the cost-based nature of the retail tariffs. Recently, these tariffs[1] have created a binding ceiling for retail suppliers' commercial offers to attract the eligible customers, as we discuss below.

Considering switching or search costs, a portion of the retail market may be considered stagnant due to strong consumer inertia. However, another portion of the retail market can be considered dynamic because customers are able to respond to competitive price signals on an ongoing basis (Defeuilley, 2009). The primary factor that can mobilize these responsive customers seems to be attractive prices, which may significantly increase their perceived benefits (see Fig. 2). Since regulated tariffs impose a price ceiling on the retail suppliers, switching customers to non-regulated tariffs depends on the ability of the suppliers to design and offer favorable tariffs.

Accordingly, the retail suppliers should design aggressive tariffs to attract eligible customers from the default regulated tariffs and compete effectively with other suppliers. How well they can do so depends on the cost structure of those suppliers, which is examined in the next section.

## 3. Costs of retail electricity supply

In Turkey, the tariff structure for end-users consists of an active energy charge, transmission and distribution charges, taxes and levies. For the regulated retail tariffs, the EPDK regulates the active energy charge as well as the distribution and transmission charges. However,

[1] The regulated retail tariffs are announced by the EPDK quarterly; and there is no regulatory commitment when these tariffs ultimately expire.