



# Competitive retail electricity market under continuous price regulation

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## ABSTRACT

The introduction of retail competition in various states in United States was expected to lower electricity bills, expand the choice set of consumers, and encourage horizontal differentiation by providing value-added services. However, to date, most regulators in states with retail choice often maintain their interventions on retail electricity rates, particularly for residential consumers. In this paper, we use data from the State of Connecticut as a case study to describe a competitive retail electricity market under continuous price regulation, and discuss policy implications.

## 1. Introduction

During the wave of electricity market restructuring in the late 1990s, more than a dozen states in the U.S. gradually replaced part of their traditional electric utilities' retail business by allowing competitive energy providers or suppliers to enter retail electricity markets and to obtain multiple, geographically dispersed consumers. With retail choice, consumers can choose their competitive electricity supplier that “fits their needs”, while the physical delivery of electricity is still handled by incumbent utilities that own and operate distribution wires. The primary reason for allowing customers to choose their electricity supplier, as enacted in many states' electricity restructuring bills, was the expectation that increased competition would help to drive down high retail rates in the relevant states.<sup>1</sup> Legislators believed that “competitive market forces are more effective than economic regulation in controlling the cost of generating electricity”.<sup>2</sup> It was also expected that retail competition would create an environment in which competitive suppliers can offer innovative services, e.g. “green energy” or alternative pricing schedules (Joskow, 2000; Borenstein and Bushnell, 2015).

Nonetheless, 14 out of 15 jurisdictions that have opened retail electricity market for competition to date have kept a Standard Service for residential retail consumers who do not choose a competitive supplier.<sup>3</sup> The main purpose of keeping a Standard Service in place is to protect consumer from service disruption and price hike, with its tariffs regulated by state public utilities commission (PUC).<sup>4</sup> In the early years following the opening of retail competition, many states often set the rates for Standard Service at a discount below then-existing rates and capped the price for multiple years. After such transitional periods expired, most states then utilized competitive auction for procuring electricity from wholesalers for Standard Service customers. A competitive retail supplier ends up with competing with not only the other competitive suppliers but also the Standard Service. By end of 2015, residential retail consumers in relevant states on average purchased nearly 80% of their electricity from the Standard Service.<sup>5</sup> In other words, most retail choice states are still having a retail electricity market comprised by a larger portion of regulated Standard Service and a smaller portion of unregulated supplier service.

In this paper, we utilize a public data set in Connecticut as a case

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<sup>1</sup> See, e.g., Connecticut An Act Concerning Electric Restructuring (Public Act No. 98-98); Illinois The Electric Service Customer Choice and Rate Relief Law of 1997 (Public Act 90-0561); New Jersey Electric Discount and Energy Competition Act of 1999; and Pennsylvania Electricity Generation Customer Choice and Competition Act of 1996.

<sup>2</sup> *Id.*

<sup>3</sup> We use a generalized term “Standard Service” while relevant states often use different names, such as Standard Offer Service, Standard Generation Service, Basic Generation Service, or Basic Utility Supply Service.

<sup>4</sup> Texas is the only exception. In each area of Texas open to retail competition, all retail consumers purchase electricity from a competitive Retail Electricity Provider (REP). The PUC of Texas has designated Providers of Last Resort (POLR) as a back-up electric service provider, which is relatively high-priced and is intended to be temporary and used only under rare circumstances.

<sup>5</sup> We include CT, DC, DE, IL, ME, MD, MA, NH, NJ, NY, OH, PA and RI. We calculate the megawatt hours (MWhs) of electricity purchased from energy-only retail suppliers and divided by total electricity sales to residential customers in relevant states (see Appendix B for annual percentage from 2006 to 2015, by state). Data is from U.S. EIA Form 861. Accessed June 8, 2017 at <https://www.eia.gov/electricity/data/eia861/>.

study to describe how a competitive retail market might work while ongoing price regulation on Standard Service remains in place. We found that between January 2015 and December 2016, as the rates for Standard Service decreased, residential consumers were responding and returning to Standard Service. However for customers who continued acquiring electricity from competitive suppliers, many of them were able to find plans with prices lower than the rates of Standard Service. Furthermore, we found that competitive suppliers on average were aligning their rates with the changes in regulated Standard Service rates rather than the movement of wholesale electricity prices.

The contribution of our paper could be twofold. First, extant studies have investigated how an unrestricted retail market may perform (Kang and Zarnikau, 2009; Zarnikau and Rai, 2016; Hartley et al., 2017), but there is much less information about how a market might work with the co-existence of regulated Standard Service and opening a retail market to competition. Our research sheds new light on that situation, which could be a valuable reference for policy and market design in different jurisdictions around world. For instance, many European Union (EU) Member States have continued to regulate energy prices to “protect customers against ‘excessive’ energy prices” despite the EU Internal Energy Market (IEM) was due to be fully liberalized in 2014 (Fischerauer and Johnston, 2016). Second, our study also points out that when attempting to empirically identify the effect of retail competition on retail electricity rates, it requires further deliberation on the role of the Standard Service. For instance, advocates of retail competition have also noted that in competitive states “default service supply is customarily procured through forward purchases made in a competitive market” and these default service programs “were functioning well, providing competitively priced supply” (O’Connor, 2017; O’Connor et al., 2015).

The remainder of the paper is organized as follows. In Section 2, we provide background on competitive retail electricity markets in the U.S. and discuss how relevant states maintain and regulate their Standard Service. In Section 3, we use the Connecticut data set to illustrate how a retail choice market may work under ongoing price regulation on Standard Service, and discuss policy implications. We conclude the paper in Section 4.

## 2. Background of retail choice and standard service in relevant U.S. states

### 2.1. Retail competition in the U.S. electricity market

Prior to 1990, electricity service in the U.S. was provided mainly by vertically integrated electric utilities (investor-owned, municipal, or cooperative), which owned and operated generation resources, managed the transmission and distribution system, and sold and delivered electricity to retail customers under an exclusive franchise regulated under state laws. During the 1990s, many states began to restructure their electricity industry, first by separating the generation portion of the business from transmission and distribution to allow non-utility generators to compete in wholesale electricity markets. State regulators remained the exclusive jurisdiction to oversee retail sales and rates of electricity, i.e., the final sales of power from an electricity provider to an end-use consumer.<sup>6</sup> Some states further allowed competitive retail energy providers or suppliers (hereinafter referred to as “supplier(s)”) to buy electricity wholesale and sell it to end-use consumers, which replaced some of the incumbent utilities’ retail functions. State legislatures expected that introducing competition in the retail electricity

<sup>6</sup> Nonetheless, the evolution of distributed energy resources and recent U.S. Supreme Court orders have increasingly muddled the jurisdictional boundaries between state public utility commissions and the Federal Energy Regulatory Commission over electric power rates and markets. See *Federal Energy Regulatory Commission v. Electric Power Supply Assn.*, No. 14-840; and *Hughes v. Talen Energy Marketing, LLC*, No. 14-614, consolidated with *CPV Maryland, LLC v. Talen Energy Marketing, LLC*, No. 14-623.

market would deliver several benefits, including an increase in consumer choices and a reduction in the entry barrier, thereby encouraging innovative services and decreasing a consumer’s bill (Defeuilley, 2009). By December 2016, residential consumers in 14 states and the District of Columbia could choose their suppliers, while commercial and industrial customers could do so in 19 states (see Appendix A).<sup>7</sup>

In those states where the retail electricity market is open for competition, the then bundled electricity tariff in general is split into two line items on a monthly bill: delivery charge and energy charge. The delivery charge is for the physical delivery of electricity by distribution utilities. Retail consumers, regardless switching to a competitive supplier, are paying the same delivery charges or rates regulated by state PUC. Energy charge refers to the electricity itself, and its pricing terms vary with consumer choice of competitive supplier. Most states require incumbent utilities to offer Standard Service as a backstop if retail consumers do not choose a supplier, or the chosen supplier goes out of business.<sup>8</sup> All retail consumers are eligible for Standard Service at any time and stay with Standard Service indefinitely. In the early years following the opening of retail competition, many states often set the price for Standard Service at a discount below then-existing rates and capped the price for multi-year transitional periods, impeding entry by suppliers to serve retail customers (U.S. DOE, 2007). As a result, in many jurisdictions the competitive retail markets grew slowly, and only a limited number of suppliers provided services to residential customers until the price cap was lifted.<sup>9</sup> When the expiration of transition period was approaching in relevant states around mid-2000s, there were contentious discussions on how to establish new terms and conditions of Standard Service, as well as the selection of the supplier for Standard Service after the transition period.<sup>10</sup> It was reasonable to assume that various states would learn from each other on their retail market and Standard Service design. Moreover, many retail choice states also began to see a significant run-up in wholesale energy prices because of a sharp increase in natural gas price between 2007 and 2008.<sup>11</sup> Most states eventually adopted a “wholesale model” for procuring their Standard Service, aiming to “produce just, reasonable, and reasonably stable retail rates while reflecting the underlying wholesale market price over time”.<sup>12</sup> We discuss this wholesale model in more detail in the following section.

### 2.2. The wholesale model for Standard Service

The wholesale model is an auction adopted by most states, which allows the Standard Service provider in each electric utilities’ distribution service territory to obtain electricity supply from wholesales through a competitive bidding process.<sup>13</sup> There are some common features of the wholesale model across various states, including:

- The auction plan or procedure is stipulated by the state’s PUC, with continuous improvement or modification in auction rules.
- The Standard Service provider, which in most cases remain incumbent utilities, often relies on an independent procurement manager for executing the auction.

<sup>7</sup> By the definition of whether a state allows competitive retail energy suppliers to enter retail markets and obtain multiple, geographically dispersed consumers.

<sup>8</sup> For the rest of paper, we refer Standard Service to the energy charge portion of the electricity service.

<sup>9</sup> For instance, in Illinois, residential consumers were allowed to choose a competitive supplier in 2002, but no supplier offered residential service until 2009 (Distributed Energy Financial Group, 2015).

<sup>10</sup> There was a batch of states with transition period ending between 2005 and 2008, e.g. Connecticut, Delaware, Illinois, Maryland, Massachusetts and Ohio.

<sup>11</sup> U.S. natural gas price for electric power generation can be found at U.S. EIA <https://www.eia.gov/dnav/ng/hist/n3045us3M.htm>.

<sup>12</sup> See Connecticut General Statutes Title 16. Public Service Companies §16-244c.

<sup>13</sup> A descending clock auction is the most commonly used format across different jurisdictions.

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