A Comparison of Bilateral Trading and the Uniform Clearing Price Reverse Auction: Lessons from Illinois' Electricity Procurement Processes

An examination of measures of market power, wholesale rates, and retail prices provides evidence that one procurement method is not necessarily more competitive than the other. The design of the procurement process, economic conditions, and other electricity policies such as rate caps, retail switching and financial swaps can contribute to the competitiveness in the wholesale market as well as retail prices.

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I. Introduction

Unlike any other state in the US, Illinois utilities have experienced two methods of competitive electricity procurement for residential customers. In September 2006, as a part of initial restructuring, the Illinois Commerce Commission (ICC) approved a procurement process similar to the uniform clearing price reverse auction that was used in New Jersey. The affected utilities, now Ameren-Illinois and Commonwealth Edison, began procuring electricity through this auction.[1] In early 2007, rates for residential customers began to increase, which created a substantial public outcry and prompted the

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passage of the Illinois Power Agency Act (IPAA).[2] In late 2007, the ICC modified procurement plans such that the Illinois Power Authority (IPA) would procure electricity for Ameren-Illinois and ComEd residential customers through bilateral contracts. Starting in June 2008, the IPA began procuring electricity through this pay-as-bid system.[3]

This article provides a comparison between the two mechanisms for electricity procurement: the uniform clearing price reverse auction and the bilateral contract procurement method. Each method creates different incentives for alternative retail electricity suppliers (ARES), ComEd, Ameren-Illinois, regulators, and customers, as well as impacting market power, wholesale prices, and electricity rates. Analyzing the differences between the two structures provide a better understanding of the respective costs and benefits associated with each method. The following provides policymakers with a theoretical understanding of the tradeoffs between the two methods.

The need for procurement stems from the restructuring of electricity markets. The purpose of restructuring, at least from the social-welfare maximizing point of view, is to increase competition in the generation sector, lower wholesale electricity prices, and lower prices for consumers, thereby increasing welfare. Thus, lawmakers, regulators, and policymakers who determine the electricity procurement method also influence the market power among generators, wholesale electricity prices, and retail rates. While much work has been done to understand Illinois' uniform-price reverse auction and the bilateral contract method, a comprehensive analysis of both procurement methods has been limited.[4] We analyze both methods and compare wholesale prices and retail rates in Illinois under both methods.

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Our analysis proceeds as follows: Section II provides a general overview of the economic theory behind the uniform-price reverse auction and pay-as-bid bilateral contracts. Section III describes how these two procurement methods were applied to Illinois' electricity market. Section IV examines the impact on one measure of market power, wholesale electricity prices, and retail rates. Section V discusses the overall findings and provides policy considerations.

II. Theoretical Considerations

Prior to restructuring, electricity was generated and supplied by regional monopolies that owned both the generation plants and the transmission lines for the distribution of power. A state's utility commission regulated the utility's activities by typically setting the rate of return for profit based on cost-of-service or other cost-based mechanisms, planned for future power needs, and ensured that rate increases were fair and reasonable. While a regulated natural monopoly can provide reliable and affordable service, the electricity generation sector was often perceived as a competitive market rather than a natural monopoly.[5]

By the mid-1990s, restructuring became increasingly popular in several states where legislatures began enacting laws to start reorganizing electricity markets, substituting market based prices for government regulation, and allowing consumers direct access to generation suppliers.[6] Under the market-based system, prices are set through the interactions between buyers and sellers. Consumers determine their own value for the electricity products, and competing firms offer prices based on differing production costs. If supply satisfies demand, the final price reflects market value under competition.

In theory, competitive markets for wholesale electricity should be designed to achieve efficiency. Market efficiency means that

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