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Innovation in Retail Electricity Markets: The Overlooked Benefit



Executive Summary

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INNOVATION IN RETAIL ELECTRIC MARKETS: THE OVERLOOKED BENEFIT – EXECUTIVE SUMMARY

The United States retail electric market is at a critical stage in its evolution. Retail markets are providing benefits to consumers in the form of new products and services and innovative methods of providing service. Despite this evidence some analysts and regulators have expressed a desire to return to a more regulated, less open market place in which government bodies dictate investment decisions and customers are not provided the opportunity to take control of their own consumption decisions.¹ Much of the concern with retail electric markets apparently stems from naïve comparisons of price without any real attempt to understand and evaluate other factors influencing customers’ demand for and choices of services. Few consumers make consumption decisions based solely on price without taking into account quality, convenience, or novelty. Yet much of the debate over electricity restructuring *assumes* customers care nothing about the characteristics of the products and services they buy or the characteristics of the providers of these services.² Without evaluating these other aspects of the marketplace, we are left with an incomplete and distorted picture of the true nature of restructured markets. Customer choice is more than just price, it is just as important for customers that products provide convenience, quality, environmental attributes and control over their usage. To ignore this and turn away from customer choice would reduce the incentive for suppliers to provide innovative services leaving customers with fewer choices and, in turn, lowering overall customer benefits.

While dueling experts can provide different views on whether competitive forces have produced “lower” rates, what is lost in this politically charged debate is a significant benefit of restructured markets that often goes without discussion—innovation. The purpose of this paper is to explore the nature of innovations that customers have demanded and competitive suppliers are providing. The evidence from the more advanced retail electric markets, shows that customers do not necessarily want the “plain vanilla” electric service that has been provided by the traditional regulatory process—a process in which the desires of customers can often get lost. Alternatively, markets focus on satisfying the varying characteristics of the needs and desires of customers. Customers are not uniform in nature; they have varying degrees of risk tolerance, interest in convenience, flexibility in use and desire different levels and types of service. As originally conceived, competitive retail electric markets were implemented with the customer in mind. It was thought that the rivalry between different firms competing for customers would ultimately benefit the consumer through:

¹ This white paper was prepared primarily by Dr. Karl A. McDermott, a Vice President at NERA and Dr. Carl R. Peterson, a Senior Consultant at NERA. We thank those that commissioned this paper for providing data to support this work. We also thank the many reviewers that provided comments on the initial draft of this paper. However, the opinions expressed herein are solely attributable to the authors as are any errors or oversights.

² In this report we will use the terms *restructured* or *restructuring* to refer to wholesale and retail electric markets where government-imposed entry restrictions have been removed or lessened. This may also allow for customers to obtain non-discriminatory access to different suppliers of electricity and energy-related products and services. Where we discuss *perfectly competitive* markets we are referring to a specific economic theory. Perfectly competitive markets are characterized by free entry, constant technology across firms, a homogenous product, price taking behavior on the part of firms and prices set at marginal cost in the long-run.

- § Increased and varied number and types of products;
- § Increased use of innovative technologies;
- § Diffusion of technologies, products, services and management techniques from other industries.

This report finds that this is indeed the case. In examining the services offered in restructured retail electric markets we find that the products offered do go beyond simple price comparisons. It is no understatement to suggest that the modern capitalist economy thrives largely due to the changes in technological opportunities over time. However, innovation itself is often perceived as solely the purview of the engineer or scientist, but in an economic and practical sense it has a much broader definition. Innovation certainly includes the creation and commercialization of new products, gadgets or technologies, however innovation also embraces management and marketing novelties that provide enhancements and diversity in delivery and packaging of services to customers. In an age dominated by commoditization, customers seek the ability to obtain customized products that fit specific needs that the “plain vanilla” service cannot fill. Additional product diversity is being created through pricing, billing, metering, and service innovations. It also includes the diffusion of innovation services, management techniques and services from one market to another.

Retail markets appear to be delivering on the promise of new, varied and innovative products and services. The products and services that fall into four broad categories:

- § **New Pricing Options:** Many of the innovative financial arrangements are based on the diffusion of innovations from wholesale electric markets and other financial markets. Providing customers access to forward markets, spot markets and other financial arrangements represents an innovation in retailing that was brought about because of the restructuring of markets.
- § **Clean Energy Products:** It is apparent from our research that one of the key aspects of innovation in the retail market is related to clean energy products that go beyond the simple selling of electricity produced by environmentally benign sources. Retailers are providing customers with services that allow them to brand their own products, integrate a new ethic into production processes, and take advantage of environmentally beneficial cost saving opportunities such as demand response and energy efficiency options.
- § **Innovative Technological Solutions:** These solutions include the use of internet/software solutions for energy management as well as more traditional technology solutions such as HVAC and local control technologies.
- § **Customization:** These products and services are those that resemble traditional services, but are provided in new ways. This may include re-bundling, partial bundling or variations of energy-only products.

Specific examples of the products and services include:

- § **Clean energy services:** These products include variations on green power offerings, carbon offsets and renewable energy credits, demand response products and services, energy efficiency and facilities management, as well as advisory services for obtaining grants and other related offers and general eco-branding services.
- § **Advisory and consulting services:** These services include total energy management products and services, innovative technologies and use of innovative technologies such as web-based software and analytics, energy management and controls and information and data products and services predicated on the use of Advanced Metering Infrastructure
- § **Electricity and fuel price hedging products and services:** A variety of pricing options is being provided along a continuum from totally fixed price to real-time pricing and nearly everywhere in between. In addition, fuel based pricing and other hedging products and services are being provided such as indexing and collars.

Table ES- 1 presents a summary of the results of this research. This table maps a set of expected benefits from retail competition (i.e., “Value Category”) with customer type and illustrates the services that retail markets are currently providing. Some of these products and services represent new approaches to providing existing services while others are entirely new products and services. In addition, this report finds that the variation within these categories of services is generally large, which suggests that retailers are exploring customers’ needs and providing services that are tailored to meet those needs. While many of these products and services are provided to large volume customers, we have found evidence that mass market customers are also benefiting from innovative product and service offerings in some jurisdictions in the United States, notably in Texas and New York. We have also found evidence from competitive retail electric markets in other countries suggesting that mass markets can indeed be served in innovative and effective ways by retail competition.

Regulation of the United States electric markets is at a crossroads. There are some who advocate a return to regulation or a version of regulation to “fix” perceived problems. This report has identified where markets are successful in meeting customers’ needs by providing a variety of innovative products and services. This has occurred despite the fact that competitive markets have not fully evolved at this time. In addition, political and market design issues faced by regulators are complex and will require some time to work through. The continued erosion of regulatory barriers and the support of market institutions toward the goal of fully functional markets should be the objective of regulatory changes, not the retreat from market institutions. While the promise of the competitive market is still to be fully realized, from this review of the market the road ahead seems clear: those jurisdictions that continue to support and promote competitive retail electric markets will benefit from the innovation and ingenuity of different suppliers as they compete to provide customers with the products and services that are best suited to those customers.

Table ES- 1: Retail Product Offerings

Value Category	Customer Type⁽¹⁾	Products Currently Offered by Retail Electric Suppliers⁽²⁾
Reducing the Cost of Retailing Electricity	Price/Value/Bottom Line	Internet gateways/software enabling use of retail products
Superior Wholesale Procurement	Price/Value/Bottom Line	Discounted to price to beat/standard offer
Installation of Metering Equipment	Value/Bottom-Line/Price/Convenience	Smart grid technology use
Price Hedging for Customers	Value/Bottom-Line/Price/Convenience	Fixed Price Partial fixed/bandwidths Day Ahead
Other Hedging Services	Value/Principled/Security	Budget Control Products Power Portfolio Planning
Behind the Meter Applications	Security/Value/Bottom Line	Facilities control/demand control Distributed generation
Green Power	Principled/Value/Security	Renewable energy <ul style="list-style-type: none"> - Commodity - RECs/Green Tags⁽³⁾ - Green Brand Demand response <ul style="list-style-type: none"> - Control technologies - Software - Services Energy Efficiency <ul style="list-style-type: none"> - Performance Contracting - HVAC (all sectors) - Green buildings - Facilities management - Home Automation Carbon Footprint <ul style="list-style-type: none"> - Audits and Analysis - Carbon Calculators - Offsets
Total Energy Management Services	Principled/Value/Security Buyers	Portfolio services
Promote More Efficient Wholesale Markets	Value/Principled	Real Time/Indexing/Demand Response ⁽⁴⁾

(1) Institutional buyers may fall in any category.

(2) Data collected by authors' for this report. Data is publically available on retail suppliers' web sites and promotional brochures.

(3) REC = Renewable Energy Credits

(4) Many of the other products will also promote wholesale market efficiency.

About the Authors

Dr. Karl A. McDermott is a Vice-President in NERA's Chicago office where he specializes in public utility regulation. Dr. McDermott has advised many different clients in both the public and private sectors on issues regarding electric restructuring, market performance and performance-based regulation. He has also assisted the country of Poland with efforts to privatize and restructure the electric supply industry. Prior to joining NERA, he served as Commissioner on the Illinois Commerce Commission during the negotiation of the Illinois restructuring law. Dr. McDermott initiated the Commission's investigation into the alternative restructuring options and has lectured on numerous occasions on restructuring and utility pricing issues in the United States. Dr. McDermott is currently on the faculty of the Institute for Public Utilities at Michigan State University where he lectures at the Institute's Annual and Advanced Regulatory Studies programs. Dr. McDermott has also lectured extensively in Eastern Europe and South America on regulatory reform and restructuring and has published articles in *The Electricity Journal*, *Natural Gas and Electricity*, and has contributed to numerous book chapters and authored or co-authored reports for the Illinois Commerce Commission, the Edison Electric Institute, the US Department of Energy, the National Regulatory Research Institute as well as the governments of several eastern European countries. Dr. McDermott earned his Ph.D. in economics from the University of Illinois at Urbana-Champaign, a M.S. in public utility economics from the University of Wyoming and a B.A. in economics from Indiana University of Pennsylvania.

Dr. Carl R. Peterson is a Senior Consultant in NERA's Chicago office where he specializes in energy and public utility regulation. Dr. Peterson's work involves both public policy and analytical issues in the electric and natural gas industries. In particular, his work has focused on performance-based regulation for gas and electric utilities, rate design, and electric restructuring both in the US and internationally. Recently, Dr. Peterson has been advising electric utility clients on issues related to post-restructuring power procurement and the design of unbundled rate structures. Prior to joining NERA, Dr. Peterson held senior positions with the Illinois Commerce Commission, where he advised the Commission on energy issues, including electric restructuring and performance-based regulation. Dr. Peterson has also served as a staff economist at the Center for Regulatory Studies housed at Illinois State University where he was the author or co-author of several reports pertaining to electric least-cost planning, electric restructuring and the price elasticity of electricity demand. Dr. Peterson is currently on the faculty of the Institute for Public Utilities at Michigan State University where he lectures at the Institute's Annual and Advanced Regulatory Studies programs. Dr. Peterson has written on energy pricing, performance-based regulation, access pricing, and electric restructuring and has published in *The Electricity Journal*, *Natural Gas and Electricity*, as well as contributing chapters to several edited volumes and has been an author or co-author of reports for the Illinois Department of Energy and Natural Resources, the Illinois Commerce Commission, the United States Agency for International Development, governments of several eastern European countries and numerous other clients. Dr. Peterson holds a Ph.D. in economics from the University of Illinois at Chicago, and M.S. and B.S. degrees in economics from Illinois State University.

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