BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE

In the Matter of the Adoption of Rules and Regulations To Implement the Provisions Of 26 *DEL*. C. CH. 10 Relating to the Creation of a Competitive Market for Electric Supply Service	)))))	PSC Regulation Docket No. 49

COMMENT OF THE STAFF OF THE FEDERAL TRADE COMMISSION[1]

November 13, 2013

I. Introduction

The staff of the Federal Trade Commission (FTC) welcomes this opportunity to comment on the proposal by the Public Service Commission of the State of Delaware (PSC) to revise its Rules for Certification and Regulation of Electric Suppliers (Supplier Rules).[2] Several significant technical developments – including advanced-technology meters (often called "smart meters") – have made it timely to consider how retail electric competition can contribute to the achievement of substantial power system efficiencies while facilitating customized electric services that benefit consumers.

Like other states that have adopted retail electricity competition, Delaware has established a system for mandatory certification of electricity marketers and has developed a set of disclosure requirements applicable to electricity sales contracts between retail electricity customers and certified electricity marketers. Delaware's rules for certified electricity retailers include restrictions on electricity marketers' use of unfair marketing practices. The contract disclosures that the PSC requires include the prices to be charged, the length of the contract, and

[1] This comment expresses the views of the FTC's Office of the General Counsel, Office of Policy Planning, and Bureau of Economics. The comment does not necessarily represent the views of the FTC or of any individual Commissioner. The Commission, however, has voted to authorize the filing of this comment.

[2] Order No. 8424, In the Matter of the Adoption of Rules and Regulations To Implement the Provisions of 25 *DEL*. C. CH. 10 Relating to the Creation of a Competitive Market for Retail Electric Supply Service (July 30, 2013), *available at* http://depsc.delaware.gov/orders/8424.pdf.

a list and explanation of any additional charges. The mandatory disclosure of charges includes any charges that are associated with early termination of a contract. From time to time, states with retail competition (including Delaware) have revised the certification and operating rules for electricity marketers to address new conditions or practices that are of particular concern to customers. For example, Delaware and other states with electricity competition have received some customer complaints about unanticipated increases in the prices charged by incumbent retail electricity marketers.

The current set of proposed revisions to Delaware's Supplier Rules includes amendments to Section 2.1.1.9.1.2. These revisions would require any supplier of variable-priced residential electric service[3] to "provide a toll-free number or link on the [supplier's] website where customers may obtain the Price per kWh at least 5 calendar days prior to the Price effective date." Although providing customers with notice of prices is critical to the efficient functioning of markets, the five-day notice requirement would preclude some of the most beneficial variable price offers, from the perspectives of both retail customers and the power system. With respect to variable price offers, therefore, we encourage the PSC not to adopt Section 2.1.1.9.1.2 as currently proposed. One alternative would be to include an exemption to give customers the option to use a device or service that displays the price on an ongoing basis, or issues alerts when the price is outside a range designated by the customer. Another alternative would be simply to replace the five-calendar-day advance notice with a requirement of one day's notice, which would be a significant improvement over five days' notice by allowing variable retail pricing based on the PJM Interconnection's day-ahead market prices. If the PSC chooses to implement either of these alternatives to the five-day notice, it could also require special prominence for disclosures pertaining to price variability and early termination charges in residential retail electricity sales contracts involving variable rates.

Section II of this comment describes the interest and experience of the FTC in the electricity sector. Section III explains how innovations have contributed to the practicality and importance of variable (dynamic) prices in electricity markets. Section IV focuses on how variable pricing has contributed to lower system costs, savings on customers' electricity bills, and enhanced system reliability. Section V describes how the proposed requirement for a five-calendar-day notice of changes in variable prices for residential customers would eliminate some of the most beneficial forms of variable retail prices. Section VI briefly describes an exemption to the five-day notice that would restore the most beneficial forms of variable price offers while still ensuring that customers are informed about variable prices.

[3] We use the word "residential" as shorthand to refer to both residential and small commercial and industrial (C&I) service.

II. Interest and Experience of the FTC

The FTC is an independent agency of the United States Government responsible for maintaining competition and safeguarding the interests of consumers. The FTC does so through law enforcement, policy research, and advocacy. For example, in the field of consumer protection, the FTC enforces Section 5 of the Federal Trade Commission Act, which prohibits unfair or deceptive acts or practices. In its competition mission, the FTC enforces antitrust laws regarding mergers and unfair methods of competition that harm consumers. In addition, the FTC often analyzes regulatory or legislative proposals that may affect competition, allocative efficiency, or consumer protection. It also engages in considerable consumer education through its Division of Consumer and Business Education.[4] In the course of all of this work, the FTC applies established legal and economic principles as well as recent, innovative developments in economic theory and empirical analysis.

The energy sector, including electric power, has been an important focus of the FTC's merger review and other antitrust enforcement, competition advocacy, and consumer protection efforts.[5] The FTC and its staff have filed numerous comments advocating competition and consumer protection principles with state utility commissions, state legislatures, and the Federal Energy Regulatory Commission.[6] In particular, we have filed a number of advocacy comments concerning retail competition.[7] In our comments directed to state policymakers, one of our

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[4] For an overview of the FTC's education efforts, *see* the FTC staff's comment to the Consumer Financial Protection Bureau concerning "Request for Information on Effective Financial Education," Docket No. CFPB-2012-0030 (Nov. 2, 2012), *available at* http://www.ftc.gov/os/2012/11/1211cfpb.pdf.

[5] *See, e.g.*, Opening Remarks of the FTC Chairman at the FTC Conference on *Energy Markets in the 21st Century: Competition Policy in Perspective* (Apr. 10, 2007), *available at* http://www.ftc.gov/speeches/majoras/070410energyconferenceremarks.pdf. FTC merger cases involving electric power markets have included *DTE Energy/MCN Energy* (2001) (consent order), *available at* http://wwwftc.gov/os/2001/05/dtemcndo.pdf; and *PacifiCorp/Peabody Holding* (1998) (consent agreement), *available at* http://www.ftc.gov/os/1998/02/9710091.agr.htm.

[6] A listing, in reverse chronological order, of FTC and FTC staff competition advocacy comments to federal and state electricity regulatory agencies is available at http://www.ftc.gov/opp/advocacy_subject.shtm#uttg.

[7] For example, the FTC staff discussed electricity competition issues in its Comment Before the New York State Public Service Commission in the Proceeding To Assess Certain Aspects of the

principal efforts has been to advocate for policies that allow or nurture competition and thus benefit consumers.[8] The FTC's competition advocacy program also has produced two staff reports on electric power industry restructuring issues at the wholesale and retail levels.[9] In addition, the FTC staff contributed to the work of the Electric Energy Market Competition Task Force, which issued a *Report to Congress* in the spring of 2007.[10]

Residential and Small Non-residential Retail Energy Markets in New York State, Cases 12-M-0476, 98-M-1343, and 06-M-0647 (Jan. 24, 2013), *available at* http://www.ftc.gov/os/2013/01/130125nypsccomment.pdf; and Comment Before the Public Utility Commission of Texas in the Rulemaking Regarding Demand Response in the Electric Reliability Council of Texas (ERCOT) Market, Project No. 41061 (Mar. 11, 2013), *available at* http://www.ftc.gov/os/2013/03/1303texaspuccomment.pdf; and Comment Before the Arizona Corporation Commission (ACC) in the ACC's Inquiry into Retail Electric Competition, Generic Docket No. E-00000W-13-0135 (July 11, 2013), *available at* http://www.ftc.gov/os/2013/07/130716arizonacorpcomment.pdf. *See also* Comment of the Federal Trade Commission in the ACC's Workshop on Retail Electric Competition, Docket No. E-00000A-02-0051 (Jan. 26, 2009), *available at* http://www.ftc.gov/os/2009/01/V090001electricityadvocacy.pdf.

[8] *See*, *e.g.*, FTC Staff Letter to Hon. Stephen LaRoque, North Carolina House of Representatives, Concerning North Carolina House Bill 698 and the Regulation of Dental Service Organizations and the Business Organization of Dental Practices in North Carolina (May 25, 2012), *available at* http://www.ftc.gov/os/2012/05/1205ncdental.pdf; FTC Staff Comment to Hon. Patricia Todd, Alabama House of Representatives, Concerning Alabama House Bill 156 (Allowing Veterinarians to Work as Employees of 501(c)(3) Nonprofit Spay and Neuter Clinics) (Apr. 26, 2012), *available at* http://www.ftc.gov/os/2012/04/120426alabamaletter.pdf.

[9] FTC Staff Report, *Competition and Consumer Protection Perspectives on Electric Power Regulatory Reform: Focus on Retail Competition* (Sept. 2001), *available at* http://www.ftc.gov/reports/elec/electricityreport.pdf; FTC Staff Report, *Competition and Consumer Protection Perspective on Electric Power Regulatory Reform* (July 2000), *available at* http://www.ftc.gov/be/v000009.htm (edited compendium of excerpts from previous comments that the FTC and its staff provided to various state and federal agencies).

[10] That report is available at http://www.ferc.gov/legal/fed-sta/ene-pol-act/epact-final-rpt.pdf.

III. Electricity Industry Innovations Warrant Consideration of Competitive Retail Dynamic Pricing To Benefit Customers through Lower Costs, Increased Innovation, and Expanded Variety of Services

Competition has been an effective organizing principle for the United States economy since the founding of the Republic. For more than a century, the promotion of competition has underpinned the federal and state statutes that apply to most sectors of the economy.

Over time, industries subject to economic regulation have represented a major exception to the general rule of open competition. Nonetheless, technological and organizational innovations in certain industries can undercut the rationale for economic regulation. Innovations of this type present an opportunity to introduce or reintroduce competition in regulated industries. The competitive process creates strong incentives for firms to minimize the costs associated with existing production techniques, to innovate, to erode incumbent firms' market power, and to provide the variety of products that customers are interested in buying.

Five of the most significant technical developments in the electricity industry over the past 25 years are:

(1) a trend toward smaller, highly efficient generation units;
(2) the use of wind, solar, biofuel, and geothermal renewable energy sources for generation;
(3) automated dispatch of generators and of transmission and distribution operations;
(4) wide deployment of smart meters that measure and report power use in small time intervals and that can also communicate price and power system status information to customers; and
(5) energy storage technology advances.

The federal government, the states, and many foreign governments have worked over the past 20 years to advance competition in the electric power industry. Like Delaware, several other states have adopted retail electric competition as part of this effort, and they continue to seek improvements in their retail competition regulations and programs to further benefit consumers.[11]

[11] States that have adopted broadly available retail customer choice for electricity services in the service territories of investor-owned utilities include Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and most of Texas. The District of Columbia has also adopted electricity customer choice. Some customers have some degree of electricity retail choice in California, Michigan, Montana, and Oregon. Recently, Illinois, Ohio, and Pennsylvania have undertaken substantial

Retail choice often leads to a market in which suppliers offer a variety of services that can present many benefits to power customers, including enabling them to better match their preferences for bill savings, increased reliability, renewable power, and energy management services. For example, customers can choose to lower their electricity bills by shifting power use away from periods when the power system depends on more costly generation resources or faces challenges to its reliability, and they can choose how much power to consume from renewable generation sources.

Some third parties have evaluated the effectiveness of efforts by some states (and Canadian provinces) to foster retail competition.[12] These evaluations list the factors that appear to be important to the people who are preparing the evaluation and explain the reasons for including – and the weight given to – each factor.[13]

The evaluations reveal that when effective retail competition is combined with technical developments (such as those noted above), customers are in a position to help address the challenges of balancing supply and demand in the power industry, either locally or on a wider geographic scale. When customers are compensated for providing this help, the response is often substantial.[14] Customer responses to retail price signals that accurately reflect wholesale market

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revisions of their retail choice rules to support increased competition. Expansions of retail customer choice (to include customers that currently do not have this choice) are under consideration in California and Michigan.

[12] *See* DEFG, LLC, "2012 Annual Baseline Assessment of Choices in Canada and the United States: Electricity Restructuring Scorecard," *accessible at* http://defgllc.com/publications/consumer-choice/. In 2012, the states with the top five scores for C&I customers (in descending order) were Texas, Illinois, New York, Pennsylvania, and Maryland. For residential customers, the states with the top five scores (in descending order) were Texas, Pennsylvania, New York, Connecticut, and Maryland.

[13] DEFG groups the elements used in scoring retail choice in various states under four topic areas: status of retail choice; wholesale competition; default service; and facilitating customers' identification of, and switching to, an alternative retailer. Details on weights and the specific elements included in each topic area are contained in an appendix to DEFG's annual retail choice scorecard publication (*e.g.*, Appendix H to DEFG's 2012 Annual Baseline Assessment, *supra* note 12).

[14] For a bibliography of papers on the process known as "demand response" (or "DR") prepared by Brattle Group, *see* Toni Enright and Ahmad Faruqui, "A Bibliography on Dynamic Pricing and Time-of-Use Rates, Version 2.0" (Jan. 1, 2013), *accessible at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2178674. Dr. Faruqui (along with colleagues Sanem Sergici and Eric Shultz) summarized several reviews of DR projects in "Consistency of Results in Dynamic Pricing Experiments – Toward a Meta Analysis" (Jan. 29,

conditions reduce system costs, support reliability, and provide environmental benefits.[15] Customer responses to higher power prices can be automated through equipment that cuts back or delays power use at pre-set price points. Alternatively, customers can manually adjust their air conditioners or other heavy power users when meters or other communications alert them to higher prices. Reducing power use during periods of high wholesale prices can reduce overall system costs by utilizing lower-cost generation units and reducing the need for high-cost peaking generators to meet demand spikes. It can support reliability by cutting power consumption when the system is at greatest risk of blackouts or is in the midst of recovering from a service interruption. It can provide environmental benefits by facilitating integration of renewable energy sources and avoiding the use of older, higher-cost generators with higher pollutant emissions during peak demand periods. This DR process is a critical justification for grid modernization. Collectively, the term "smart grid" encompasses systems that support DR and the sophisticated monitoring of conditions on many components of the power grid.

IV. Dynamic Pricing under Retail Competition Can Help the Power System Avoid Increasing Costs and Threats to Reliability for All Electricity Consumers

Some recent developments appear to underscore the importance of gaining customer assistance in balancing the power system. Electric vehicles (EVs) illustrate this point well.[16] When EVs are recharged off peak (overnight), they help flatten load profiles (reduce peaks and fill troughs in consumption) so that generation and distribution assets will be more fully utilized and their fixed costs will be spread over more power volume, at a lower per-kilowatt unit rate. Conversely, if EVs are recharged during peak demand periods, they could cause significant demand increases during the most costly time of day for power generation and could stress the grid, to the detriment of reliability. Consequently, all consumers benefit if EV owners have incentives to recharge their EVs overnight, even if that is not always the most convenient time for EV owners. Pricing electricity more cheaply overnight than during daytime hours provides EV owners with a powerful incentive to recharge overnight. Both EV owners and electricity

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2013), *available at* http://www.brattle.com/system/publications/pdfs/000/004/400/original/Consistency_of_Results_in_Dynamic_Pricing_Experiments_Faruqui_et_al_DistribuTECH_012913.pdf?1378772104.

[15] *See, e.g.*, Charles J. Black, "Dynamic Pricing Evaluation for Washington" (Jan. 2011), *available at* http://www.naruc.org/Publications/SERCAT_Washington_2010.pdf; Ahmad Faruqui, "The Case for Dynamic Pricing" (Aug. 23, 2010), *available at* http://www.brattle.com/system/publications/pdfs/000/004/517/original/The_Case_for_Dynamic_Pricing_Faruqui_SG_Latin_America_Aug_23_2010.pdf?1378772111.

[16] *See also, e.g.*, Ahmad Faruqui, Ryan Hledik, Armando Levy, and Alan Madian, Brattle Group Discussion Paper, "Will Smart Prices Induce Smart Charging of Electric Vehicles?" (July 2011), *accessible at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1915658.

customers in general can obtain even lower bills if EV owners schedule their vehicle charging to coincide with the abundant supply and uncongested transmission that real-time pricing facilitates. For example, an EV owner could set the charging equipment to draw power only (or primarily) when the price is below a specified level.

There is wide recognition that it is inefficient and wasteful to apply flat electricity rates for recharging EVs. Nonetheless, we urge the PSC – and state regulators in general – not to jump from this recognition to a determination to limit dynamic pricing *only* to EV recharging (through a requirement to meter separately the electricity used to recharge EVs). Although such a limited approach can result in EV recharging prices that more closely follow system marginal cost,[17] such an approach would be unjustified because EV recharging is just an example of a larger economic point: dynamic pricing for *any* end use is more efficient and pro-consumer than uniform flat-rate pricing, and regulators should take the steps needed to ensure that dynamic pricing prevails in electricity markets. As discussed below, the promotion of retail competition is one promising route to that outcome.

Flat-rate electricity pricing at the retail level – in the face of volatile generation and transmission prices at the wholesale level – results in large subsidies for customers consuming power in peak demand periods and large penalties for customers consuming power in demand troughs. Faced with such distorted price signals, retail electric power customers frequently make distorted consumption decisions, and the resulting inefficiencies in the power system work to the detriment of all electricity consumers.

Further, flat rates – which cause all customers to face higher average system costs and lower system reliability – distort incentives to invest in methods to improve energy efficiency or in devices to shift consumption to off-peak periods (when system costs and wholesale electricity prices are lower). As with any market, pricing electricity closer to marginal cost improves the overall efficiency of the consumption of the good and reduces deadweight losses.[18] When a

[17] System marginal cost is the price bid by the most expensive generation or DR source that the system operator dispatches in a specific period to balance demand and supply. Because of large and rapid variations in electricity consumption over the course of a day and between seasons – coupled with a lack of low-cost methods of storing electricity – system marginal costs vary greatly over time. This results in a wide variety of economically viable generation resources with differing marginal costs. The electric power industry has developed various methods of dealing with the wide differences among the characteristics of generation sources and the lack of practical large-scale electricity storage technology. (Of course, we recognize that high fixed costs may make it difficult or impossible for any firm to remain in business and accept prices close to its short-run marginal cost for an extended time.)

[18] For further discussion of opportunities to improve the performance of the electricity sector, *see* Executive Office of the President, National Science and Technology Council, *A Policy*

customer with distributed generation (DG) facilities (*e.g.*, solar panels on the roof) faces flat rates, the rates discourage investment in energy storage devices that could help balance supply and demand, especially when the power system is under stress and close to being overwhelmed.[19]

Retail competition can help in a voluntary transition away from flat-rate pricing, particularly for residential customers.[20] Suppliers will compete by offering customers choices, such as dynamic pricing. Several pilot programs have shown that residential customers typically have lower power bills under dynamic pricing and generally prefer dynamic pricing after experiencing it in a pilot program.[21] Ideally, under retail competition, some retail electricity marketers will publicize these findings and use them to grow consumer interest in retail electric service offers featuring dynamic pricing. Electric bills can be reduced by compensating the customer for his or her role in balancing power system demand and supply (once smart meters are in place, as they mostly are in several states).[22] Gulf Power in Florida and OG&E in

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Framework for the 21st Century Grid: Enabling Our Secure Energy Future, esp. § 4.2 (Demand Management) (June 13, 2011), *available at* http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/nstc-smart-grid-june2011.pdf. (In "Key Action 5," this report (at 31) states: "Federal, state, and local officials should strive to reduce the generation costs associated with providing power to consumers or wholesale providers during periods of peak demand and encourage participation in demand management programs. Innovative rate designs will be more feasible as smart grid technologies become more widely available.") *See also* Paul L. Joskow and Catherine D. Wolfram, "Dynamic Pricing of Electricity" (Jan. 2012), *available at* http://faculty.haas.berkeley.edu/wolfram/Papers/AEA%20DYNAMIC%20PRICING.pdf.

[19] For example, wind DG units generally produce the most abundant power during windier, off-peak hours. If retail prices are flat, there is less incentive for a wind DG owner to store power produced in the off-peak hours (in order to sell it during peak hours) than there would be if peak-hour prices considerably exceeded, and prices in off-peak hours were less than, flat-rate prices.

[20] Dynamic pricing is not inherently inconsistent with the existence of an electric power monopoly. Nevertheless, under the cost-based regulation that has been traditional in the electric power industry, it appears administratively difficult to customize dynamic prices to match widely varying customer circumstances and risk preferences.

[21] Ahmad Faruqui & Jennifer Palmer, "Dynamic Pricing and Its Discontents," *Regulation* 16 (Fall 2011), *available at* http://www.cato.org/sites/cato.org/files/serials/files/regulation/2011/9/regv34n3-5.pdf.

[22] In the aggregate, only about one percent of low-volume retail electricity customers are on dynamic pricing so far. Ahmad Faruqui, "Dynamic Pricing for Residential and Small C&I Customers" at 16 (independent presentation to a technical conference of the Ohio Public Utilities Commission) (Mar. 28, 2012), *available at*

Oklahoma – vertically integrated utilities – also have well-established dynamic pricing options for customers.[23] Under retail competition, marketers also will seek new customers by offering added services, such as energy management, mixes of various types of renewable energy, and assistance in recognizing and implementing opportunities for energy efficiency, onsite power generation, and onsite energy storage. Some of these enhance a customer's ability to respond to changes in electricity prices.

If the innovations associated with retail competition are effective in reducing reliance on flat-rate pricing, then such competition is likely to enhance reliability by enrolling customers to help balance supply and demand on the power system. By trimming demand peaks and filling in demand troughs, DR eases the challenges that grid operators face. Further, retail competition allows marketers to offer improved reliability as a specific service. For example, marketers could offer installation and maintenance of energy storage devices or onsite generators that allow customers to have electric power when the grid is experiencing a blackout or local distribution lines are down.

V. Requiring a Five-Day Notice of Prices (1) Restricts Dynamic Price Offers that Can Benefit Consumers and (2) Is Likely to Harm Consumers through Higher Average System Costs, Higher Power Prices, and Reduced Reliability

For markets to achieve cost-reducing efficiencies and enjoy pricing and reliability benefits, buyers and sellers must act on accurate price signals that reflect marginal costs in competitive markets. If Delaware's retail supplier rules preclude retail prices that closely follow changes in wholesale prices, the state's customers will forfeit potential opportunities to assist in balancing supply and demand on the system and to lower their electric bills. The proposed five-day notice requirement is likely to have these negative effects if applied to variable price offers from electricity marketers.

In addition, a delay of five days before price changes can be implemented means that customers will receive less accurate price signals to invest in equipment or appliances that could enhance their ability to respond to electricity price changes. Moreover, customers' responses to

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http://www.brattle.com/system/publications/pdfs/000/004/451/original/Dynamic_Pricing_for_Residential_and_Small_C_I_Customers_Faruqui_Mar_28_2012.pdf?1378772106.

[23] Ahmad Faruqui, "Implementation of Dynamic Pricing: Trends and Debates," 5th Latin-American Smart Grid Forum (Nov. 28, 2012), *available at* http://www.brattle.com/system/publications/pdfs/000/004/456/original/Implementation_of_Dynamic_Pricing_-_Trends_and_Debates_Faruqui_Latin_American_Smart_Grid_Forum_Nov_28_2012.pdf?1378772107.

price fluctuations are expected to become more important for balancing the electrical system in the PJM area as a whole (including where Delaware residential electricity customers live) and more locally. A requirement of five days' notice would dull customers' incentives to invest in responding to this increased need.

The electric power system in PJM is designed so that changes in wholesale power prices reflect changes in marginal costs at each node of the transmission network. Wholesale electricity prices change all the time at nodes in Delaware and throughout PJM.[24] Dulling the accuracy of customers' responses in Delaware will increasingly threaten to undermine not only customers' efforts to save money on their power bills but also system reliability at state and local levels.

Economists who study differences in retail electricity pricing regimes rank the accuracy of price signals and the impact of dynamic prices on customers' consumption patterns and on their incentives to invest in devices that will allow them to respond more effectively to changes in power prices. In these rankings, real-time prices and various other forms of dynamic pricing offer greater benefits to customers if they are willing to experience greater potential fluctuations in short-term prices.

The Brattle Group discussed tradeoffs associated with several variable rate design alternatives in its independent presentation to a technical conference of the Ohio Public Utilities Commission.[25] Brattle's study examined these tradeoffs by graphing them in terms of risk on one axis (measured as volatility of prices) and rewards on the other axis (measured as expected bill savings). Brattle studied nine rate designs.[26]

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[24] PJM offers an explanation (including color mapping of price changes) for the continuous shift in wholesale prices in Delaware and the other states it serves. *See* http://www.youtube.com/watch?v=h1KPB042RcI. Average wholesale power prices in PJM are displayed at http://www.powerisknowledge.com.

[25] Faruqui, "Dynamic Pricing for Residential and Small C&I Customers," *supra* note 22, at 9 and 10.

[26] The nine rate designs in Brattle's presentation to the Ohio PUC were:

Time-of-Use (TOU): Charges a higher price during all weekday peak hours and a discounted price during off-peak and weekend hours.
Super Peak TOU: Similar to TOU, except that the peak window is shorter in duration (often four hours), leading to a stronger price signal.
Inclining Block Rate (IBR): Customer usage is divided into tiers, and usage is charged at higher rates in the higher tiers. IBR is meant to encourage conservation.
Critical Peak Pricing (CPP): Customers are charged a higher price during a few hours and a discounted price during the remaining hours.
Variable Peak Pricing: CPP with added rate variability.

Of the nine designs that Brattle studied, only TOU rates, Super Peak TOU rates, and IBRs – dynamic prices that are commonly set well in advance of knowing actual wholesale prices – appear to be permissible under the PSC's proposed five-day notice provision. By contrast, the PSC's proposal for five days' notice prohibits the other six rate designs (the fourth through ninth designs listed in note 26, *supra*) because it is not possible to determine one or more elements used in setting those forms of dynamic prices five days before electricity is supplied. Yet relative to flat prices, these excluded alternatives can all improve the efficient use of electric power and potentially lower consumers' bills. Moreover, because some of the excluded designs include the most accurate and timely price information stemming from the demand and supply conditions facing the electric system at the time the electricity is generated and consumed, those designs can achieve these goals better than the few forms of dynamic prices that the proposed five-day notice would permit.[27]

VI. The PSC May Wish to Consider an Exemption that Would Allow More Beneficial Forms of Variable Price Offers While Keeping Customers Informed about Prices

Several technological developments can keep customers informed about the prices that they are paying for power. Two common examples are in-home displays and web portals that show prices.[28] Either of these provides information that customers can use to adjust their power consumption to gain savings on their power bills. Where there is dynamic pricing, research indicates that a more effective means to obtain savings consistently is to automate responses to power price changes. Important options include smart thermostats and home area networks that control the operations of home appliances.[29] For owners of electric vehicles, smart charging

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CPP-TOU Combination: A TOU rate in which a moderate peak price applies during most peak hours of the year, but a higher peak price applies on limited event days.
Peak Time Rebate: Customers can earn a discount by reducing usage during critical hours.
Real Time Pricing (RTP): A rate with hourly variation that follows locational marginal prices (LMPs), but with capacity costs allocated equally across all hours of the year.
Critical Peak RTP: A rate with hourly variation based on LMPs and with a capacity cost adder focused only during event hours.

[27] *See* the appendix to this comment for a copy of the graph from the Brattle study.

[28] Faruqui, "Dynamic Pricing for Residential and Small C&I Customers," *supra* note 22, at 14.

[29] *Id*. Arrangements to pay for the equipment have ranged from outright purchase by the customer to financing by third parties. The recoupment of the investment depends on several factors, including how strongly the customer responds to price signals and the per-unit savings available at the customer's location.

stations can be an effective means to reduce charging costs. Automated response technologies have the advantage of operating even when the customer is not home and do not require customers to take any actions at inconvenient times. We encourage the PSC to consider adding an exemption from the five-day notice provision if the customer certifies that he or she would be satisfied with access to ongoing price information or automated price response equipment in lieu of a five-day notification of price changes. This allows customers to make informed decisions about responding to changing electricity prices that may allow them to cut their power bills and help balance system demand and supply more than would be possible under the proposed five-day notice language in Section 2.1.1.9.1.2. The PSC also may wish to require that disclosures of contract termination charges be particularly prominent for customers who have entered into variable price contracts with electricity marketers.

In the alternative, if the PSC concluded for some reason that real-time prices do not provide sufficient information for residential customers, the PSC could reduce the harm (to customers and to electric system reliability) of a prior-notice requirement by shifting from a five-day notice to a one-day notice. This would be an improvement, since it would allow most of the rate designs that, as we discuss above, would be disallowed under a five-day notice (including offers that provide greater savings than those allowed under the proposed five-day notification rule). On the other hand, the disadvantage of a one-day notice – relative to the exemption we have recommended – is that the resulting dynamic prices would need to be based on day-ahead prices, which can diverge from prices that would clear the market at the time when the power is actually delivered to customers.

VII. Conclusion

The FTC staff appreciates the opportunity to submit this comment. If you have any questions or comments, please feel free to contact John H. Seesel, Office of the General Counsel, at (202) 326-2702.

Dynamic pricing facilitates customer choice